

**EPA Superfund  
Record of Decision:**

**KAUFFMAN & MINTEER, INC.  
EPA ID: NJD002493054  
OU 01  
SPRINGFIELD TWP(JOBSTOWN), NJ  
09/27/1996**

<IMG SRC 0296278>

RECORD OF DECISION

Kauffman & Minter Superfund Site  
Jobstown, Burlington County, New Jersey

United States Environmental Protection Agency  
Region II  
New York, New York

September, 1996

DECLARATION FOR THE RECORD OF DECISION

SITE NAME AND LOCATION

Kauffman & Minter

Jobstown, Burlington County, New Jersey

STATEMENT OF BASIS AND PURPOSE

This decision document presents the selected remedial action for the Kauffman & Minter Site, which was chosen in accordance with the requirements of 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 document explains the factual and legal basis for selecting the remedy.

The New Jersey Department of Environmental Protection (NJDEP) concurs with the selected remedy. This decision document is based on the administrative record file for this Site.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from the Kauffman & Minter Site, if not addressed by implementing the response Action selected in this Record of Decision, may present an imminent and substantial threat to public health, welfare, or the environment.

DESCRIPTION OF THE SELECTED REMEDY

The selected remedy represents the first and only planned operable unit for the Kauffman & Minter Site. It addresses contaminated lagoon sediments at the Site and the shallow groundwater. The major components of the selected remedy include the following:

- ! Excavation, off-site treatment as necessary, and off-site disposal of approximately 1000 cubic yards of sediments;
- ! Long-term monitoring of the contaminated shallow ground-water underlying the Site. It is anticipated that the groundwater monitoring will be conducted annually for at least five years. The frequency and need to continue monitoring will be reevaluated after this five year period; and
- ! Institutional controls to limit groundwater use in the Navesink Formation. (NJDEP will establish a Classification Exception Area which will restrict the use of the Navesink groundwater in the vicinity of the Site.)

DECLARATION OF STATUTORY DETERMINATIONS

The selected remedy is protective of human health and the environment, complies with Federal and State requirements that are legally applicable or relevant and appropriate to the remedial action, and is cost-effective. The remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. However, treatment of the principal threats at the Site was not found to be practicable, since the small volume of sediments could not be treated in a cost-effective manner. Therefore, this remedy does not satisfy the statutory preference for remedies that employ treatment as their principal element.

Because this remedy will result in hazardous substances remaining on the Site above health-based levels, a review will be conducted within five years after commencement of the remedial action to ensure that it continues to provide adequate protection of human health and the environment.

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RECORD OF DECISION  
DECISION SUMMARY

Kauffman & Minter Site

Jobstown, Burlington County, New Jersey

United States Environmental Protection Agency  
Region II  
New York, New York

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## SITE NAME, LOCATION, AND DESCRIPTION

The Kauffman & Minter (K&M) Site is located on the eastern corner of the intersection of Monmouth Road (Route 537) and Jobstown-Juliustown Road in Jobstown, Springfield Township, Burlington County, New Jersey. Geographically, the Site is located at latitude 40° 02' 10.811" N and longitude 74° 41' 37.5" W (USGS, 1957). Figure 1 shows the general location of the Site.

The K&M property occupies approximately 5.5 acres in a sparsely populated, predominantly rural area that primarily supports agriculture, horse farming, and related businesses. The K&M property is bordered on the north by residences and Route 537, on the northeast and east by a marsh area, on the south by an overgrown and wooded area traversed by Barker's Brook, and on the west by Jobstown-Juliustown Road. Boundaries of the K&M property and adjoining properties are shown on Figure 2.

A small marsh immediately adjacent to the eastern property boundary gives rise to an intermittent stream. This stream flows south-southeast into a branch of Barker's Brook which is located approximately 575 feet south of the K&M property.

Features of concern on the K&M property include a small (approximately 0.7 acre), irregularly shaped, unlined lagoon. The lagoon is approximately three to 10 feet deep and is surrounded by a low earthen berm. The lagoon, which formerly received wash water from the tank truck interiors, has been drained by the Environmental Protection Agency (EPA) and is currently inactive. Since being drained in the summer of 1991, the lagoon has been partially refilled due to precipitation. Also on the Site are ten under-ground storage tanks and a wash water collection pit that was filled by the site owner.

The Site area is not served by either sanitary or storm sewer systems. The K&M facility, like the surrounding residences and businesses, has a septic system to handle sanitary wastes. Storm water runoff in the Site area flows to Barker's Brook via drainage ditches and overland flow. A drainage ditch along the southwestern boundary of the K&M property, adjacent to Jobstown-Juliustown Road, carries runoff from the facility operations lot and parking areas to Barker's Brook.

In the area around the Site, individual domestic wells are the primary source of drinking water. Within three miles of the Site, primarily in the Juliustown area, approximately 560 people use water from private wells that tap the Wenonah-Mt. Laurel Aquifer. The nearest well drawing water from this aquifer is located upgradient of the Site on the north side of the intersection of Routes 670 and 537, approximately 500 feet from the K&M lagoon.

## SITE HISTORY AND ENFORCEMENT ACTIVITIES

Kauffman & Minter, Inc. operated an industrial transportation facility. The company provided transport services in company-owned tankers, carrying bulk liquids consisting primarily of organic substances including plasticizers, resins, vegetable oils, soaps, petroleum oils, and alcohols. From 1960 through at least 1981, wastewater generated from the washing of tanker interiors was discharged to the on-site lagoon.

The lagoon had no overflow diversion structure to protect the system from overflow during rainfall events. A spray aeration system, consisting of seven sprinklers located along the western side of the lagoon, was formerly used to evaporate wastewater by spraying it over the lagoon. Spray from this system was observed to be carried by the wind onto surrounding properties.

On June 2, 1978, an Administrative Order was issued to K&M by the New Jersey Department of Environmental Protection (NJDEP). The order required all existing lagoon water and process waters to be transported to an acceptable waste processing center, or alternatively, the waters were to be treated and discharged on site pursuant to the state treatment works approval requirements. In the spring of 1981, K&M reported that the discharge of wastewater to the lagoon had stopped and that wastewater was being stored on the facility property in tank trailers.

K&M was issued a National Pollution Discharge Elimination System (NPDES) Discharge Permit (No. NJ0032310) effective October 31, 1980 to October 31, 1985 by NJDEP to discharge surface runoff from the K&M facility to

Barker's Brook in accordance with effluent limitations. The permit conditions required K&M to submit a discharge monitoring report every twelve months.

On April 13, 1981, NJDEP preformed an inspection of the K&M facility and noted that the unlined, unpermitted lagoon surface was contaminated with oil, and the general area contained rusted drums and debris. The lagoon earthen berm was discolored by lagoon leachate. At the tank trailer wash-out area, potentially contaminated process water was being discharged into an unlined collection pit. Near the western boundary of the facility, a drainage ditch contained a straw filter berm that was used to remove oil and grease from parking lot runoff. Also, drums at the rear of the Site were leaking onto unprotected soils.

In April 1982, K&M began shipping wastewater off site to the DuPont Deepwater facility for disposal. The K&M wastewater shipments were manifested as waste water, nonhazardous, Department of Transportation (DOT) hazard class NA9189, EPA waste type X724. Water samples collected from the lagoon by the NJDEP Bureau of Waste Management showed concentrations of lead and cadmium above New Jersey hazardous waste criteria, qualifying the lagoon as a hazardous, waste facility. After the samples from the lagoon were identified as hazardous, the K&M NPDES permit was voided and all lagoon surface water was ordered to be removed and disposed in accordance with the waste regulations of NJDEP.

On April 21, a joint inspection of the Site was conducted by NJDEP Division of Water Resources and the Burlington County Health Department. During the inspection, Mr. Kauffman, the president of K&M Inc., indicated that the unlined collection pit next to the garage held tank trailer wash water until the wash water was transferred to a storage tank trailer for highway transport. In addition, Mr. Kauffman explained the use of two 1,000-gallon underground storage tanks; one was used to store waste crankcase oil and oil skimmed from the surface of the wash water collection pit, and the other was used to collect heels of shipments of a Monsanto plasticizer. The collected plasticizers were then shipped back to Monsanto for processing. Beginning in 1983, K&M wastewater was loaded into tank trailers and transported for treatment/disposal at the Mt. Holly Sewer Authority. The wash water collection pit was filled by Mr. Kauffman sometime between June 1989 and April 1990.

On June 1, 1984, the berm surrounding the lagoon broke and a portion of the lagoon contents was released to the adjacent marsh and downstream areas. The level of the lagoon dropped 18 inches before the berm could be repaired. In 1985, EPA conducted a Site investigation, which was used to evaluate the Site's eligibility for the Superfund National Priorities List (NPL). The Site was subsequently placed on the NPL on March 30, 1989.

In June 1989, EPA conducted an inspection at the Site and noted conditions similar to previous inspections, including stained soils adjacent to the lagoon, in the parking area, and in the drainage ditch area.

In April 1991, EPA performed a site inspection and noted that the Site was still active and tanker trailers continued to be washed down at the facility. Wastewater from the tanker washing operations was being collected in an unlined sump and continued to be transferred to tankers for transport to the Mt. Holly Sewer Authority for treatment and disposal.

A removal action was conducted by EPA from the summer through the fall of 1991. This action included the disposal of the liquid in the lagoon and the installation of a fence around the lagoon. Since that time, the lagoon has refilled due to precipitation. K&M ceased operations at the facility in 1992.

In the summer of 1995, a release of liquid contaminated with plasticizers from an on-site tank trailer prompted a second removal action. This subsequent removal action consisted of the collection and disposal of the contaminated material found in four on-site tank trailers and deteriorating drums that were left on the Site as a result of K&M's closure. The empty tank trailers were then demolished and disposed of. Shortly before EPA initiated this removal action, an assessment of the contents of ten underground storage tanks (USTs) by NJDEP resulted in the identification of two USTs containing hazardous substances, including phthalates. The other USTs were found to contain fuel oils only. Consequently, EPA removed the contents of these 2 USTs as part of the removal action.

Since the other 8 USTs contained fuel oil products only, EPA was precluded from taking action under Section 101 of CERCLA. However NJDEP plans to investigate these tanks to determine if any further remedial measures

are warranted.

#### HIGHLIGHTS OF COMMUNITY PARTICIPATION

The Remedial Investigation report, Feasibility Study report, and the Proposed Plan for the Site were released to the public for comment on July 9, 1996. These documents were made available to the public in the administrative record file at the EPA Docket Room in Region II, 290 Broadway, New York, New York, and the information repository at the Springfield Township Municipal Hall, Jacksonville-Jobstown Road, Jobstown, New Jersey. The notice of availability for the above-referenced documents was published in the Burlington Times on July 9, 1996. The public comment period on these documents was held from July 9, 1996 to August 7, 1996.

On July 23, 1996, EPA conducted a public meeting at the Springfield Township Municipal Hall to inform local officials and interested citizens about the Superfund process, to discuss the findings of the RI, FS, and proposed remedial activities at the Site, and to respond to any questions from area residents and other attendees.

Responses to the comments received at the public meeting, and in writing during the public comment period, are included in the Responsiveness Summary section of this Record of Decision.

#### SCOPE AND ROLE OF RESPONSE ACTION

EPA will address all remaining risks at the Site in one response action or operable unit. This Record of Decision (ROD) addresses contaminated lagoon sediments and shallow groundwater at the Site. In addition, NJDEP plans to take further action to address the 8 USTs containing fuel oil products.

The primary goal of this remedial action is to reduce the risks to human health and the environment caused by the potential exposure to contaminated lagoon sediments. In addition, an area stained black from the overflow of the lagoon requires restoration because of the contaminant-stressed vegetation. Finally, this remedy includes actions to prevent exposure to contaminated groundwater at the Site.

#### SUMMARY OF SITE CHARACTERISTICS

A Remedial Investigation (RI) was performed from 1991 to 1992 to determine the type and concentrations of contaminants in various media at and around the Site. The study was conducted for EPA by TAMs Consultants, Inc. The RI included sampling of site soils, sediment, surface water and ground water to delineate the nature and extent of contamination as a result of K&M activities at the Site. The results of the RI are summarized below:

##### Site Hydrology and Geology

The land surface in the general area of the Site slopes gently toward the west from more elevated areas northeast, east, and southeast of the Site. Barker's Brook, a major stream in Springfield Township, originates in the elevated areas east of the Site and flows west through much of Springfield Township. Topography in the immediate vicinity of the Site slopes generally south toward Barker's Brook and the drainage ditch that runs along Jobstown-Juliustown Road.

Two wetland areas were identified and mapped as part of the ecological investigation. One wetland (marsh area) is located northeast of the K&M property and extends from the lagoon northeast toward Saylor's Pond Road. The width of this wetland (northwest-southeast direction) ranges from about 250 to 300 feet, which is approximately the same as the length of the lagoon. This wetland occupies approximately 2.3 acres and is at a lower elevation than the surrounding topography. Drainage from the marsh area wetland is via an intermittent stream that flows southeast towards Barker's Brook. The channel of this intermittent stream fans out near its junction with Barker's Brook. A second wetland, approximately 2.5 acres in size, is located southeast of the K&M property and adjacent to Barker's Brook. It is connected to the marsh area wetland via the intermittent stream and extends from the drainage ditch along Jobstown-Juliustown Road in the southwest to the intermittent stream in the northeast.

There are four aquifers in the vicinity of the K&M Site. In order of decreasing depth, the aquifers are the Raritan-Magothy, the Englishtown, the Wenonah-Mt. Laurel, and the Navesink Marl Formation. These aquifers dip to the southeast and strike northeast-southwest. The Site rests on the Navesink Formation, a glauconitic, sandy clay layer, approximately 10 to 25 feet thick in the Site vicinity. The Navesink is the uppermost water-bearing unit found at the Site. However, due to its low and inconsistent yields to wells and poor water quality, it is normally not used for domestic well development. Below the Site and directly below the Navesink Formation is the Wenonah-Mt. Laurel Aquifer, which is approximately 60 feet thick. This aquifer is used for drinking water in the vicinity of the Site.

#### Nature and Extent of Contamination

Volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were the primary contaminants detected at the Site. The RI identified contaminants primarily in the lagoon sediments and in the shallow groundwater; the lagoon sediments being the source of contamination in the shallow aquifer.

Sediment samples were collected from six locations on the surface of the dewatered lagoon bed, including one boring through the lagoon bed for collection of subsurface samples, as shown in Figure 3. The predominant sediment contaminants and maximum concentrations detected, in parts per million (ppm), are: tetrachloroethylene (230), trichloroethylene (3,100), 1,1,1 trichloroethane (1,600), 1,2-dichloroethylene (1,100), 1,1-butylbenzylphthalate (31,000), di-n-octylphthalate (4,400). Based on the subsurface sampling, similar contaminants were detected but concentrations generally decreased with depth. Butylbenzylphthalate and di-n-octylphthalate were detected in the marsh soils adjacent to the lagoon, although at lower concentrations (maximum of 430 ppm and 480 ppm, respectively). Tables 1 and 2 contain a summary of the chemical data for the lagoon sediment and adjacent marsh soil.

As part of the RI, nine groundwater monitoring wells were installed at the Site, including six shallow monitoring wells and three deep wells. These wells augmented three existing monitoring wells (installed by NJDEP in 1981) at the Site. All twelve monitoring wells are shown in Figure 4. The predominant Navesink Formation (shallow) groundwater contaminants and the maximum concentrations detected, as compared to their respective Federal Safe Drinking Water Act Maximum Contaminant Levels (MCLs) denoted in parentheses, or as not available (NA), in parts per billion (ppb), are: VOCs - tetrachloroethylene: 4/(5), trichloroethylene: 16/(5), 1,2-dichloroethylene: 94 / (10), 1,1-dichloroethane: 4/(NA), benzene: 1/(5), isophorone: 570/(NA), and vinyl chloride: 17/(2); Inorganics -- beryllium 3/(4), chromium: 22.7/(100), and vanadium: 56.1/(NA). The only potential contaminant of concern found in the Wenonah-Mt. Laurel (middle) Aquifer was chromium at a maximum concentration of 20.4 ppb (MCL is 100 ppb). Table 3 contains a summary of the groundwater data. Those compounds in the groundwater that exceed Federal and/or State drinking water standards are contained within the property boundaries. The estimated dimensions of the contaminated groundwater plume are: 200 feet wide by 200 feet long by 10 feet deep. Based on the available data, the plume is limited to the Site.

Sampling of residential drinking water wells was also conducted by EPA in 1990 and 1993. (NJDEP also sampled residential wells in the vicinity of the Site in 1988). There were no exceedances of any primary Federal or State drinking water standards during any of the sampling events.

Based on the on-site monitoring well data, which indicated that no contaminants found in the shallow aquifer were found in the underlying Wenonah-Mt. Laurel aquifer, coupled with the residential well sampling, it appears unlikely that the Wenonah Mt. Laurel is, or will be, impacted by contamination in the Navesink unless new wells are installed at or near the Site.

A total of thirty surface soil samples and seventeen subsurface soil samples were collected at locations throughout the Site, including the underground storage tank areas, the former washwater collection pit area and other unpaved soils. Soil sampling locations are shown on Figures 3 and 5. Tables 4, 5, 6, and 7 summarize the surface and subsurface soil sample results. Contaminants detected in site soils include butylbenzylphthalate and di-n-octylphthalate at maximum concentrations of 38 ppm and 65 ppm, respectively. The maximum concentrations were found in the soil in the area of the former wash water collection pit; lower levels were found in the other unpaved areas of the Site. No significant contamination was found in the soils around the underground storage tanks.



Seven surface water samples were collected from the sampling locations identified in Figure 4. Three samples were collected in the drainage ditch along the western site boundary, one sample was collected from the intermittent stream that runs from the marsh to Barker's brook, and three samples were collected from Barker's Brook. Table 8 summarizes the surface water sample results. No significant contamination was detected. Contaminants detected include butylbenzylphthalate at a maximum concentration of 2 ppb and di-n-octylphthalate at a maximum concentration of 140 ppb which did not exceed Federal or State surface water quality criteria.

Sediment samples were also collected from the drainage ditch and Barkers Brook, as shown on Figure 4. Results are summarized in Table 9. In general, no significant sediment contamination was detected in Barkers Brook. Contaminants detected include phthalates ranging from 63 to 960 ppb, including diethylphthalate, di-n-butylphthalate and di-n-octylphthalate. In the drainage ditch, butylbenzylphthalate and di-n-octylphthalate were detected at maximum concentrations of 2,300 and 1,900 ppm, respectively.

#### SUMMARY OF SITE RISKS

EPA conducted a baseline risk assessment to evaluate the potential risks to human health and the environment associated with the K&M Site in its current state. The following summarizes the results of the Risk Assessment.

The Risk Assessment focused on contaminants in the sediment, ground-water, surface water, and soils which are likely to pose significant risks to human health and the environment. The summary of the contaminants of concern (COC) in sampled media is listed in Tables 10 through 16. Tables 17 through 23 provide a statistical summary of the data for all media, including the frequency of detection, mean concentration, and the 95 percent Upper Confidence Limit (UCL).

#### Human Health Risk Assessment

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

The data collected during the RI were grouped by media corresponding to respective exposure pathways evaluated. The key media are: surface soils (0-2 feet), subsurface soils (greater than 2 feet), lagoon sediments, drainage ditch and intermittent stream sediments, drainage ditch and intermittent stream surface waters, marsh sediments, Barkers Brook sediments, Barkers Brook surface water, Navesink Marl groundwater (shallow groundwater wells), and Wenonah-Mt. Laurel groundwater (deep groundwater wells).

EPA's baseline risk assessment identified several potential exposure pathways by which the public may be exposed to contaminants at the Site under current and future land-use conditions. Under present use conditions, trespassers and site workers were evaluated for exposure to site soils and lagoon sediments. Specifically, trespassers were evaluated for an ingestion pathway, and workers were evaluated for both inhalation and ingestion routes. In addition, trespassers were evaluated for ingestion of sediments in the marsh, drainage ditch and intermittent stream.

Exposure to groundwater under the present use scenario were evaluated for nearby residents, trespassers, and site workers (under a combined current/future use scenario). Trespassers and residents were evaluated for inhalation of the Navesink groundwater, and all three groups were evaluated for ingestion of the Navesink and the Wenonah-Mt. Laurel groundwater.

Residential properties surround the Site, as the zoning in the immediate area of the Site is "Neighborhood

Commercial." K&M is a non-conforming business, in that it was established prior to the zoning restrictions. Now that facility operations have been discontinued, any future activities on the premises must conform to the zoning code. Due to the present zoning restrictions, there is a distinct likelihood that the Site would be used in the future for residential development. Therefore, the future use risk scenario assumes residents would be living on the Site and construction workers would be present on the Site as a result. Residents were evaluated for exposure to groundwater via ingestion and inhalation of the Navesink groundwater, and via ingestion of the Wenonah-Mt. Laurel drinking water aquifer. Construction workers were evaluated for ingestion of both the Navesink and the Wenonah-Mt. Laurel groundwater. Similarly, both groups were evaluated under the future use scenario for ingestion and inhalation of lagoon sediments and site soils.

In taking the most conservative approach, exposure via ingestion of water from the shallow groundwater (Navesink) was evaluated; however, a well search performed by EPA within a five mile radius of the Site revealed that no drinking water wells were installed in the Navesink. Unlike the Wenonah-Mt. Laurel (middle aquifer), the relatively low permeability, and naturally occurring high levels of iron and manganese, significantly limit the use of the Navesink Marl Formation as a drinking water source. Additionally, sampling of nearby residential wells did not detect any contaminants above health-based levels. Although the Navesink Formation could be a potential source of public water supply for household purposes, there are no wells registered with the NJDEP that draw from the Navesink Formation. The higher transmissivity, greater hydraulic conductivity, and better water quality of the Wenonah-Mt. Laurel Aquifer make drilling to a greater depth cost effective. A site inspection did reveal two shallow residential wells, one upgradient and one sidegradient to the Site; however, the wells are not used for drinking or bathing purposes.

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

Noncarcinogenic risks were assessed using a hazard index (HI) approach, based on a comparison of expected contaminant intakes and safe levels of intake (Reference Doses). Reference doses (RfDs) have been developed by EPA for indicating the potential for adverse health effects. RfDs, which are expressed in units of milligrams per kilogram per day (mg/kg-day), are estimates of daily exposure levels for humans which are thought to be safe over a lifetime (including sensitive individuals). Estimated intakes of chemicals from environmental media (e.g., the amount of a chemical ingested from contaminated drinking water) are compared to the RfD to derive the hazard quotient for the contaminant in the particular medium. The HI is obtained by adding the hazard quotients for all compounds within a particular medium that impact a particular receptor population.

An HI greater than 1.0 indicates that the potential exists for noncarcinogenic health effects to occur as a result of site-related exposures. The HI provides a useful reference point for gauging the potential significance of multiple contaminant exposures within a single medium or across media. The toxicity values, including reference doses, for the compounds of concern at the Site are presented in Tables 24 and 25. A summary of the noncarcinogenic risks associated with these chemicals for each exposure pathway is contained in Tables 26 through 29.

As can be seen from Tables 26 through 29, in the future use scenario, ingestion of lagoon sediments by a child results in an estimated HI of 7.0, and inhalation of lagoon sediments results in HIs of 2.0 for an adult resident and 9.4 for a child. The present and future scenario of inhalation of lagoon sediments by a site worker resulted in an HI of 1.3. The remaining exposure pathways showed non-carcinogenic risks of less than 1.0. The noncarcinogenic risk was attributable to butylbenzylphthalate and di-n-octylphthalate.

Potential carcinogenic risks were evaluated using the cancer slope factors developed by EPA for the contaminants of concern. Cancer slope factors (SFs) have been developed by EPA's Carcinogenic Risk Assessment Verification endeavor for estimating excess lifetime cancer risks associated with exposure to potentially carcinogenic chemicals. SFs, which are expressed in units of (mg/kg-day)<sup>-1</sup>, are multiplied by the estimated intake of a potential carcinogen, in mg/kg-day, to generate an upper-bound estimate of the excess lifetime cancer risk associated with exposure to the compound at that intake level. The term "upper

bound" reflects the conservative estimate of the risks calculated from the SF. Use of this approach makes the underestimation of the risk highly unlikely. The SFs for the compounds of concern are presented in Table 25. A summary of the carcinogenic risks associated with these chemicals for each exposure pathway is contained in Tables 26 through 29.

For known or suspected carcinogens, EPA considers excess upper-bound individual lifetime cancer risks of between  $10^{-4}$  to  $10^{-6}$  to be acceptable. This level indicates that an individual has not greater than approximately a one in ten thousand to one in a million chance of developing cancer as a result of site-related exposure to a carcinogen over a 70-year period under specific exposure conditions at a Site.

As can be seen from Table 26 through 29, in the current use scenario, residents are estimated to have an excess cancer risk of  $3.2 \times 10^{-4}$ , and site workers a risk of  $1.9 \times 10^{-4}$  from ingestion of the shallow groundwater, due primarily to vinyl chloride. These risk numbers can be interpreted to mean that 3.2 out of 10,000 people, or 1.9 out of 10,000 for site workers, would be at an excess risk of developing cancers due to regular exposure to shallow groundwater during their lifetime. These risks are near the upper bounds of EPA's acceptable risk range. However, as stated above, the baseline risk assessment conservatively analyzed exposure to shallow groundwater, although the Navesink Marl Formation is not used as a drinking water source. All other pathways are within the guidelines for acceptable exposure to carcinogens.

Subsequent to the completion of the RI, it was found that provisional slope factors and Reference Doses for trichloroethylene and tetrachloroethylene were not considered in the analysis. The RI states that these chemicals could not be evaluated quantitatively because of the absence of slope factor. However, provisional slope factors are now available. Consequently, calculations of the risks from these chemicals have been developed. Based on these calculations, the calculated carcinogenic risks for exposure to groundwater for the current residents increased slightly from  $3.2 \times 10^{-4}$  to  $3.3 \times 10^{-4}$  and the risks for site workers increased from  $1.9 \times 10^{-4}$  to  $1.93 \times 10^{-4}$ . For the future risks, the non carcinogenic risks to resident adults from lagoon sediment ingestion increased from 0.75 to 1.45 and the risks to children increased from 7.0 to 13.6. Calculations were developed for high end and central tendency inhalation exposures from lagoon sediment volatiles and the risks were  $5.5 \times 10^{-3}$  and  $1.1 \times 10^{-3}$ , respectively.

In summary, the scenarios which exceeded guidelines for acceptable human exposure were a future use scenario of adult residents and their children living on the Site, ingesting or inhaling noncarcinogenic and carcinogenic contaminants in the lagoon sediments. In addition, the scenario of residents and site workers currently drinking the Navesink groundwater had associated carcinogenic risks at the upper bounds of EPA's acceptable risk range, although no exposure is occurring, or likely to occur, under this scenario.

While there is currently not a complete pathway for ingestion of the lagoon sediment, this situation will likely change in the future. As mentioned above, the Site is zoned Neighborhood Commercial, which would allow the property to be used for residences or light commerce. Whether the Site is used for residential or light commerce, it is likely that the lagoon would be disturbed which could result in the sediments being raised to the surface. With the sediments being raised to the surface, there will be a complete pathway for ingestion which would then pose an unacceptable risk. In addition to the sediment posing a potential unacceptable ingestion risk, it also acts as a continuous source of contamination to the upper aquifer.

#### Ecological Risk Assessment

An environmental assessment was performed to identify and estimate the actual and/or potential adverse ecological impacts of contaminants released by the K&M Site. A four-step process, very similar to that used in human health assessment, was utilized. It consists of: Problem Formulation - a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. Exposure Assessment - a quantitative evaluation of contaminant release, migration and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. Ecological Effects Assessment - literature reviews, field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. Risk Characterization - measurement or estimation of both current and future adverse effects. Unlike the Human Health Risk Assessment, the science of Environmental Assessment has not evolved to the point where standard risk calculations can be made. Risk Characterization

is primarily the process of comparing the results of the Exposure Assessment with the results of the Known Ecological Effects assessment.

Potential risks to the environmental receptors associated with the K&M Site were identified in the ecological risk assessment. Based upon: 1) the baseline information gathered during the field investigation, 2) review of available data and literature, and 3) a comparison of the levels of site contamination to available toxicity data, there appear to be no contaminant-related impacts on the immediate aquatic and terrestrial ecosystems.

The study area of the K&M Site has four primary ecological features or community types: open field, riparian woodlands, marsh, and stream. Appropriate media for each were analyzed - i.e., respectively, surficial soils (0-2 feet), and composite soil samples from depths greater than 2 feet, surface water and sediment from Barker's Brook, and sediment and soil from the adjacent marsh along the eastern portion of the Site. The ecological risk assessment evaluated the contaminants of concern associated with each medium/community type, and with the biota (plants and animals) of each. For the open field habitats, the soil-borne contaminants list was comprised of phthalate, and di-n-octylphthalate) and lead. The contaminants in the marsh sediments were phthalates, chromium, and lead. The Barker's Brook sediments revealed contaminants of concern - phthalates and chromium; the surface water of the brook was eliminated as a medium of environmental exposure on the basis that no contamination was detected above New Jersey Surface Water Quality Criteria (NJSWQC).

The only contaminant-related ecological impact observed was to some flora in the lagoon-fed marsh. This stressed area was an isolated section adjacent to the lagoon. Obvious signs of phytotoxicity and adverse impacts were yellow, withered vegetation, and vegetation stained black from the overflow of lagoon contents. Recent site inspections indicate that the majority of the marsh area vegetation has recovered; only the black-stained area immediately adjacent to the lagoon still exhibits contaminant-related stress to the flora ecosystem. The flora in the remainder of the study area appeared healthy and exhibited a species composition indicative of similar habitats elsewhere. There were no obvious physical abnormalities observed in the fauna of the study area either, including numerous frogs found in the stressed area of the marsh. The study area contained birds, mammals and herpetofauna species that were representative of each habitat type. Additionally, the assemblage of organisms in Barker's Brook adjacent to, upstream, and down-stream of the K&M facility were typical for the habitat type. The potential impacts of contaminant exposure on local biota were assessed based upon a review of available criteria and the relevant literature. The primary sources for this information were: EPA Water Quality Criteria and literature compiled by the National Oceanographic and Atmospheric Administration (NOAA). Detailed information on the potential ecological effects of the COCs is contained in Section 7 of the RI. Detailed information on the ecological assessment is contained in Appendix G of the RI.

With the exception of stressed flora immediately adjacent to the lagoon, there appear to be no adverse ecological impacts related to the Site. As discussed below, a remedial action for the lagoon sediments would include restoration of the adjacent area of stressed vegetation.

Consequently, actual or threatened releases of hazardous substances from the K&M Site, if not addressed by implementing the response action selected in this Record of Decision, may present a current or potential to public health, welfare or the environment.

#### Uncertainties

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

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

Uncertainty in environmental sampling arises in part from the potentially uneven distribution of chemicals in

the media sampled. Consequently, there is significant uncertainty as to the actual levels present. Environmental chemistry-analysis error can stem from several sources, including the errors inherent in the analytical methods and characteristics of the matrix being sampled.

Uncertainties in the exposure assessment are related to estimates of how often an individual would actually come in contact with the chemicals of concern, the period of time over which such exposure would occur, and in the models used to estimate the concentrations of the chemicals of concern at the point of exposure.

Uncertainties in toxicological data occur in extrapolating both from animals to humans and from high to low doses of exposure, as well as from the difficulties in assessing the toxicity of a mixture of chemicals. Unidentified contaminants and tentatively identified compounds (TICs) detected at the Site serve as additional sources of uncertainty. These uncertainties are addressed by making conservative assumptions concerning risk and exposure parameters throughout the assessment. As a result, the Risk Assessment provides upper-bound estimates of the risks to populations near the Site, and is highly unlikely to underestimate actual risks related to the Site.

More specific information concerning public health and environmental risks, including a quantitative evaluation of the degree of risk associated with various exposure pathways, is presented in Sections 6 and 7 of the RI Report.

#### 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 risk assessment.

Based upon the results of the Risk Assessment, the estimated carcinogenic risks are within EPA guidelines (10<sup>-4</sup> to 10<sup>-6</sup>) for all pathways except for ingestion of Navesink groundwater and inhalation of lagoon sediments. Exposure to noncarcinogens exceeds the guideline for acceptable exposure, (HI≤1.0), due to ingestion and inhalation of lagoon sediments. Therefore, evaluation of remedial alternatives for the Navesink groundwater and lagoon sediments is warranted.

Additionally, an area stained black from the overflow of the lagoon requires restoration because of the contaminant-stressed vegetation. In light of the fact that this area is immediately adjacent to the lagoon, remedial alternatives for this area will be evaluated along with the lagoon sediments.

There were also sediments in the drainage ditch with elevated levels of site-related contaminants. Therefore, if additional sampling shows sediments exceeding EPA's cleanup criteria for the contaminants of concern, these sediments will be excavated and backfilled with compatible soils.

Soil exposure pathways are all within EPA guidelines for acceptable exposure to carcinogens and noncarcinogens. Remedial alternatives for the site soils will therefore not be addressed.

In summary, the following remedial action objectives were established:

- ! Prevent exposure through ingestion and inhalation of contaminated lagoon and drainage ditch sediments;
- ! Restore an area of contaminant-stressed vegetation immediately adjacent to the lagoon;
- ! Prevent further degradation of the groundwater by removing the sediments, which pose a continuing source of contamination; and
- ! Prevent exposure through ingestion of on-site contaminated groundwater.

EPA has developed site-specific, risk-based remediation goals for the K&M Site for the following chemicals based on the protection of human health:

1,2-Dichloroethene(total)	700 ppm
Butylbenzylphthalate	16,000 ppm
Di-N-octylphthalate	1,600 ppm
Trichloroethene	5 ppm
Tetrachloroethene	11 ppm
Toluene	650 ppm

The remediation goals were based on the assumption that future land use will be residential. The goals for 1,2-Dichloroethene(total), Butylbenzylphthalate, and Di-N-octylphthalate were based on potential ingestion of sediments by future residents, and would decrease potential noncarcinogenic risks to a Hazard Quotient of 1 for each chemical. These goals would be applied to both surface and subsurface sediments based on the possibility that subsurface sediments may be brought to the surface during redevelopment of the Site.

The goals for Trichloroethene, Tetrachloroethene and Toluene were based on recommendations in EPA's soil screening level guidance issued in July 1996. The levels were based on potential inhalation of volatiles from the lagoon sediments. For Trichloroethene and Tetrachloroethene these goals would reduce carcinogenic risk to the 10<sup>-6</sup> level, and for Toluene, reduces the noncarcinogenic risk to a Hazard Quotient of 1. These inhalation goals would be applied to surface sediments only.

NJDEP has developed soil cleanup guidelines designed to protect groundwater resources and has requested that the lagoon sediments be remediated consistent with its Proposed Cleanup Standards for Contaminated Sites (February 1992). It is likely that excavation of the lagoon sediments will include removal of some underlying soils, and based on the lagoon characterization in the RI, it is likely that residual contamination will not exceed NJDEP guidelines. EPA will ensure that any residual soil contamination does not impair the designated uses of the groundwater, which may include developing alternate soil cleanup goals.

In order to develop cost estimates for the remedial alternatives, it was estimated that the volume of sediments requiring remediation, including those adjacent to the lagoon and in the drainage ditch, is approximately 1000 cubic yards. This approach is believed to be conservative; actual sediment volume is likely to be lower.

#### DESCRIPTION OF REMEDIAL ALTERNATIVES

The Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), requires that each selected site remedy be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize permanent solutions, alternative treatment technologies, and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

The FS report evaluated, in detail, four remedial alternatives to address the contamination associated with the lagoon sediments, and three remedial alternatives to address the contamination associated with on-site groundwater.

The estimated construction time reflects only the time required to implement the remedy and does not include the time required to design the remedy or procure contracts for design and construction.

These alternatives are:

#### LAGOON SEDIMENT ALTERNATIVES

Alternative LS-1: No Action

Estimated Capital Cost:	\$0
Estimated Annual O&M Cost:	\$0
Estimated 5 Year Review Cost:	\$36,500
Estimated Present Worth:	\$102,000

Estimated Construction Time: None

The Superfund program requires the evaluation of a No Action alternative to serve as a baseline for comparison with other remedial action alternatives. The No Action alternative for the lagoon sediments would allow the Site to remain in its present condition. Because this alternative would result in contaminants remaining on Site, CERCLA requires that the Site be reviewed at least every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes. No other action is proposed under this alternative.

Alternative LS-2: Cap/Cover

Estimated Capital Cost: \$760,000  
Estimated Annual O&M: \$1,000  
Estimated 5 Year Review Cost: \$7,200  
Estimated Present Worth: \$796,000  
Estimated Construction Time: three months

This alternative would require the dewatering of the lagoon, filling and regrading to meet the surrounding topography, and the installation of a cap or cover. Approximately 31,000 square feet of contaminated lagoon sediment area would be capped. This alternative would require some form of deed restrictions to ensure the integrity of the capped area. The three options considered for this alternative are:

Option 2a: Vegetative Cover  
Option 2b: Asphalt/Concrete Cap  
Option 2c: RCRA Cap

An asphalt cap on the lagoon has been used for costing purposes; however, any of the capping alternatives would be similar in cost because of the small surface area involved. A complete breakdown of costs for each option can be found in Appendix B of the FS. A vegetative cover would be used on the area of contaminant-stressed vegetation immediately adjacent to the lagoon. Because this alternative would result in contaminants remaining on Site above health-based levels, CERCLA requires that the Site be 'reviewed every five years.

Alternative LS-3: Excavation/Off-Site Treatment of Hot Spots/Off-Site Disposal

Estimated Capital Cost: \$1,294,000  
Estimated Annual O&M: \$0  
Estimated S Year Review Cost: \$0  
Estimated Present Worth: \$1,294,000  
Estimated Construction Time: four months

As with Alternative LS-2, this alternative would require dewatering of the lagoon. The lagoon sediments and berm soils, contaminated with COCs (approximately 1000 cubic yards) would be then excavated and disposed off site. Sampling during the RI indicates the likelihood that hot spots of contamination, defined as areas exceeding Resource Conservation and Recovery Act (RCRA) limits for characteristic hazardous waste, exist within the lagoon sediments. RCRA hazardous wastes would require disposal at a RCRA Subtitle C landfill. As a conservative costing measure, it was assumed that any lagoon sediments found to contain RCRA hazardous wastes would be incinerated, with the remaining ash being disposed of in a RCRA Subtitle C landfill, and those sediments found to be non-hazardous would be disposed off site in a RCRA Subtitle D landfill. For cost purposes it was assumed that 85 percent of the sediment volume would be non-hazardous. All excavated areas would be backfilled with suitable fill, regraded and reseeded. The area of contaminant-stressed vegetation immediately adjacent to the lagoon would be excavated, backfilled with compatible soils and at a grade that will preserve a wetland hydrogeology and support wetland vegetation, and reseeded. In addition, any sediments found in the drainage ditch that exceed the cleanup criteria for the contaminants of concern would be excavated and disposed of, and the area backfilled with compatible soils.

Alternative LS-4: Excavation/Off-Site Incineration/ Off-Site Disposal

Estimated Capital Cost: \$2,454,000  
Estimated Annual O&M: \$0  
Estimated 5 Year Review Cost: \$0  
Estimated Present Worth: \$2,454,000  
Estimated Construction Time: three months

As with Alternative LS-2 and LS-3, a total of approximately 1000 cubic yards of organic contaminated lagoon sediments would be excavated, packed in drums, and transported to a RCRA permitted incineration and disposal facility. The lagoon sediments would be incinerated and appropriately disposed of off site. Incineration is a thermal process that destroys all forms of combustible waste materials. All excavated areas would be filled with clean soil and graded. As with the other alternatives, the area of contaminant-stressed vegetation immediately adjacent to the lagoon would be excavated and backfilled with compatible soils and at a grade that will preserve a wetland hydrogeology and support wetland vegetation. Any sediments found in the drainage ditch that exceed the cleanup criteria for the contaminants of concern will be excavated and disposed of, and the area backfilled with compatible soils.

#### SHALLOW GROUNDWATER ALTERNATIVES

##### Alternative GW-1: No Action

Estimated Capital Cost: \$0  
Estimated Annual O&M: \$0  
Estimated 5 Year Review Cost: \$36,500  
Estimated Present Worth: \$102,000  
Estimated Construction Time: None

The Superfund Program requires the evaluation of a No Action alternative to serve as a baseline for comparison with other remedial action alternatives. The No Action alternative for the shallow groundwater would allow the Site to remain in its present condition. Because this alternative would result in contaminants remaining on site above health-based levels, CERCLA requires that the Site be reviewed at least every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes. No other action is proposed under this alternative.

##### Alternative GW-2: Limited Action

Estimated Capital Cost: \$27,300  
Estimated Annual O&M: \$29,000  
Estimated 5 Year Review Cost: \$7,200  
Estimated Present Worth: \$499,000  
Estimated Construction Time: one month

The limited action alternative for the contaminated shallow groundwater underlying the Site would include a long-term monitoring program, and an institutional control program. The monitoring program would include the installation of an additional well, and the sampling of all existing and new wells on a periodic basis. For conservative cost purposes, groundwater monitoring over a thirty-year period was evaluated. However, the need for continued groundwater monitoring would be reevaluated after five years. If, in the future, the monitoring program detects an exposure to contamination from the Site in excess of drinking water standards, additional remedial action would be considered. The institutional control program would consist of NJDEP placing well restrictions on the use of shallow wells in the immediate vicinity of the Site.

##### Alternative GW-3: Collection and Treatment

Estimated Capital Cost: \$2,804,000  
Estimated Annual O&M: \$370,000  
Estimated 5 Year Review Cost: \$36,500  
Estimated Present Worth: \$8,415,000  
Estimated Construction Time: two years



This alternative would provide for on-site collection and treatment of contaminated groundwater. Collection of groundwater would be accomplished through the installation of trenches along the downgradient portion of the property. Three cleanup processes would be necessary to treat the Navesink Formation groundwater: pretreatment to reduce scaling or fouling, organic compound removal, and inorganics removal. The treatment system required for these procedures would consist of: 1) Chemical Precipitation and Settling, 2) UV Oxidation, and 3) Ion Exchange. Groundwater would need to be treated to meet both New Jersey Surface Water Quality Criteria and Federal and State drinking water standards (MCLs) prior to surface water discharge.

#### SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative was assessed utilizing nine evaluation criteria as set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01. These criteria were developed to address the requirements of Section 121 of CERCLA to ensure all important considerations are factored into remedy selection decisions.

The following "threshold" criteria are the most important, and must be satisfied by any alternative in order to be eligible for selection:

##### Threshold Criteria

1. Overall Protection of Human Health and the Environment addresses whether or not an alternative provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
2. Compliance with Applicable and Relevant and Appropriate Requirements (ARARs) addresses whether or not an alternative will meet all of the ARARs of the Federal and State environmental statutes or provide a basis for invoking a waiver.

The following "primary balancing" criteria are used to make comparisons and to identify the major trade-offs between alternatives:

##### Primary Balancing Criteria

3. Long-term Effectiveness and Permanence refers to the magnitude of residual risk and the ability of an alternative to maintain reliable protection of human health and the environment over time once remedial objectives have been met.
4. Reduction of Toxicity, Mobility, or Volume addresses the statutory preference for selecting remedial actions that employ treatment technologies that permanently and significantly reduce toxicity, mobility, or volume of the hazardous substances as a principal element.
5. Short-term Effectiveness refers to the period of time that is needed to achieve protection, as well as the alternative's potential to create adverse impacts on human health and the environment that may result during the construction and implementation period.
6. Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular alternative.
7. Cost includes estimated capital and operation and maintenance costs, and the present worth costs.

The following "modifying" criteria are considered fully after the formal public comment period on the Proposed Plan is complete:

##### Modifying Criteria

8. State acceptance indicates whether, based on its review of the RI and FS reports and the Proposed Plan,

the State supports, opposes, and/or has identified any reservations with the preferred alternative.

9. Community acceptance refers to the public's general response to the alternatives described in the Proposed Plan and the RI and FS reports - Responses to public comments are addressed in the Responsiveness Summary of this Record of Decision.

A comparative analysis of these alternatives, based upon the evaluation criteria noted above, is presented below.

#### ! Overall Protection of Human Health and the Environment

##### Sediment Alternatives

The No Action Alternative (LS-1) would not limit or prevent exposure to the contaminated lagoon sediments. In addition, there would still be the potential for continued degradation of the underlying groundwater. Therefore, this alternative would not provide adequate overall protection of human health and the environment. Alternative LS-2 would prevent exposure to the lagoon sediments through the use of a cap or cover. While capping would offer adequate protection of human health, future threats to the environment would remain since the contaminants would remain beneath the cap. Alternative LS-2 would offer better overall protection of human health and the environment than LS-1. The excavation and off-site treatment, alternatives, LS-3 and LS-4, would totally eliminate any potential future exposure by removal of the contaminants. Alternatives LS-2, LS-3 and LS-4 would achieve protectiveness at the completion of construction.

##### Groundwater Alternatives

Although no current exposure to contaminated groundwater is occurring, future exposure is possible. Alternative GW-1 does not incorporate any remedial action. A five-year review would involve sampling and analysis of existing groundwater monitoring wells. Therefore, Alternative GW-1 would provide some limited protection of human health. Alternative GW-2 involves a groundwater monitoring program and incorporates well restrictions. If, during the groundwater monitoring, contaminated groundwater is found to be migrating to a drinking water source, or towards a surface water body, the need for remedial action would be reconsidered. Alternative GW-2, in comparison to GW-1, would more effectively ensure the overall protection of human health, because it includes regular groundwater monitoring. Alternative GW-3, through pumping and treating contaminated groundwater, would offer an increased level of overall protection of human health and the environment compared to GW-1 and GW-2, because it would involve active remedial measures to restore the groundwater to federal and state standards.

#### ! Compliance with ARARs

##### Sediment Alternatives

There are no contaminant-specific ARARs for the lagoon sediments. However, EPA did develop site-specific cleanup goals. Alternative LS-1 would not achieve the health-based cleanup goals for the lagoon sediments. The cap in Alternative LS-2 would prevent exposure to lagoon sediments, and therefore would satisfy the remedial action objective. The cap in Alternative LS-2(c) would meet the requirements for a RCRA hazardous waste cap. Alternatives LS-3 and LS-4 would achieve the remedial action objectives by removal of the sediments to meet the cleanup goals. Excavation activities conducted under Alternative LS-3 and LS-4 would be conducted in accordance with OSHA requirements and federal and state air emission regulations. These alternatives would also comply with RCRA requirements appropriate for off-site treatment and disposal of the sediments, as well as New Jersey hazardous waste regulations. For Alternatives LS-2, LS-3 and LS-4 the restoration of stressed vegetation adjacent to the lagoon would comply with applicable wetlands regulations, including Executive Order 11990 of the Clean Water Act and New Jersey Freshwater Wetlands Protection regulations.

A Stage IA Cultural Resource Survey was conducted during the RI to determine the need for compliance with the National Historic Preservation Act. Although the survey concluded that there is a potential for the presence

of historical resources, in the vicinity of the Site, the lagoon area subject to remediation has already been heavily disturbed. Therefore a stage IB cultural resources survey would not be necessary component of any of the sediment alternatives.

#### Groundwater Alternatives

Although Alternative GW-1 would not accomplish the remedial action objective for the groundwater, there is no current exposure to contaminated groundwater, as the shallow aquifer is not used for potable water. Therefore, contaminant-specific ARARs (MCLs) are not applicable but could be considered relevant and appropriate. It is anticipated that after remediation of the lagoon sediments, groundwater quality standards will eventually be achieved through natural attenuation of contaminants, although the time frame is difficult to predict. Alternative GW-2 would effectively ensure the prevention of exposure to contaminated groundwater through a more comprehensive groundwater monitoring program consistent with Federal and State groundwater monitoring requirements and well restrictions. However, as with Alternative GW-1, it is difficult to predict when groundwater quality standards will be achieved in the shallow aquifer. Alternative GW-3 would treat the groundwater until federal and state groundwater standards are attained within the aquifer; ARARs for extraction and treatment prior to discharge would also be met.

#### ! Long-term Effectiveness

#### Sediment Alternatives

Alternative LS-1 would not maintain reliable protection of human health and the environment over time, as contaminated sediments would remain in the lagoon. Alternative LS-2 would provide acceptable reduction in risk, however, hazardous substances would remain on Site, relying on long-term maintenance of the cap to preserve its protectiveness. With this alternative, deed restrictions would be required to ensure the integrity of the cap.

Alternatives LS-3 and LS-4 would involve the removal and off-site disposal of the contaminated lagoon sediments, and therefore, would provide the best long-term effectiveness. Removal of contaminated sediments would eliminate the lagoon as a source of future contamination. These two alternatives would be considered permanent solutions. Since public health and environmental risks associated with contaminated sediments would be eliminated, unrestricted future site use would be allowed.

#### Groundwater Alternatives

Although contaminant levels in the shallow groundwater are above MCLs, they are expected to gradually reduce, through natural attenuation, to health-based levels. Therefore, Alternatives GW-1 and GW-2 would eventually provide adequate long-term protectiveness. Alternative GW-2 incorporates a more comprehensive monitoring program, and therefore, would more reliably ensure protectiveness of human health, over the long term, than Alternative GW-1. Alternative GW-3 would be consistent with the long-term effectiveness goals for the Site by treating the groundwater until MCLs are achieved, or it becomes technically infeasible to attain remediation goals.

#### ! Reduction in Toxicity, Mobility, or Volume

#### Sediment Alternatives

Alternative LS-1 would not achieve any reduction in toxicity, mobility or volume of the lagoon sediments. Alternative LS-2 would result in a reduction in mobility of the COCs in the lagoon sediments, but would not reduce toxicity or volume. Capping would significantly reduce infiltration of runoff through the lagoon sediments, transport of lagoon sediments via surface runoff, and volatilization of COCs in the lagoon sediments. Alternatives LS-3 and LS-4 would completely reduce the toxicity, mobility and volume of the COCs in the lagoon sediments, by removal, treatment, as necessary, and off-site disposal.

#### Groundwater Alternatives

Alternatives GW-1 and GW-2 would, over time, achieve reductions in toxicity and volume of the low levels of COCs in the groundwater through natural attenuation. Alternative GW-3 would reduce the toxicity, mobility and volume of the COCs in the groundwater through active treatment in a shorter period of time.

#### ! Short-term Effectiveness

##### Sediment Alternatives

Alternative LS-1 would not have any adverse short-term impacts, since it involves no active remedial measures. Alternatives LS-2, LS-3 and LS-4 would involve disturbing the lagoon sediments to varying degrees, which would generate dust and volatile emissions. Alternative LS-2 would create the least disturbance of the sediments and fewest short-term impacts during construction of the cap. The excavation activities in Alternatives LS-3 and LS-4 would have the most short-term adverse effects. These alternatives may require air monitoring and engineering controls to reduce airborne dust and emissions. All of the lagoon sediment alternatives would require implementation of a health and safety plan to minimize any risks to on-site workers and nearby residents.

In terms of time to achieve protectiveness, Alternative LS-1 is the fastest to implement, as it involves no active remedial measures. Alternatives LS-2, LS-3, and LS-4 could all be implemented relatively quickly; construction times range from 3 to 4 months.

##### Groundwater Alternatives

Alternative GW-1 would not have any adverse short-term impacts. Alternative GW-2 would have minimal short-term impacts associated with the installation and sampling of a monitoring well. Alternative GW-3 would have the greatest short-term impacts, namely hazards associated with the extraction, treatment, and disposal of contaminated groundwater. Alternatives GW-2 and GW-3 would require the implementation of a health and safety plan to minimize the associated short-term risks.

In terms of time to achieve protectiveness for the groundwater component, Alternatives GW-1 and GW-2 could both be implemented almost immediately. Conversely, Alternative GW-3 involves construction of a groundwater extraction and treatment system, estimated to take at least 2 years to implement.

#### ! Implementability

##### Sediment Alternatives

The technical and administrative feasibility of implementing Alternative LS-1 is minimal. The only activity conducted under Alternative LS-1 would be the required five-year review. Cap or cover construction, in Alternative LS-2, can be easily implemented using readily available technology and is not expected to involve any technical difficulties. Similarly, Alternatives LS-3 and LS-4 also incorporate easily implementable technologies. Alternative LS-4 may experience more administrative difficulty than LS-3 due to the potentially limited availability for off-site hazardous waste incineration capacity.

##### Groundwater Alternatives

The technical and administrative feasibility of implementing Alternative GW-1 is minimal. The only activity conducted under Alternative GW-1 would be the required five year reviews. Administratively, Alternative GW-2 would require NJDEP to implement well restrictions for the shallow aquifer in the vicinity of the Site. Alternative GW-3 would be more complex in its technical and administrative implementation than GW-1 and GW-2. On a technical level, it may be difficult to extract shallow groundwater for treatment, due to the low hydraulic conductivity in the Navesink Formation. In addition, administratively, Alternative GW-3 is more difficult to implement than the other two Alternatives; it would have to be conducted in accordance with substantive requirements of various state permits for extraction and treatment of contaminated groundwater.

#### ! Cost

## Sediment Alternatives

The estimated present worth costs for the lagoon sediment alternatives are as follows: \$112,600 for Alternative LS-1, \$796,000 for LS-2, \$1.29 million for LS-3, and \$2.45 million for LS-4. In evaluating cost effectiveness, Alternative LS-3 satisfies the Remedial Action Objectives to the greatest extent at the least cost.

## Groundwater Alternatives

The estimated present worth costs for the groundwater alternatives include \$112,600 for Alternative GW-1, \$499,000 for GW-2, and \$8.41 million for Alternative GW-3. Of the alternatives that accomplish the Remedial Action Objectives for the groundwater and provide for the protection of human health, Alternative GW-2 is the most cost effective.

### ! State Acceptance

The State of New Jersey concurs with the selected remedy presented in this Record of Decision.

### ! Community Acceptance

In general, both officials and community residents expressed support for the preferred remedy. A more detailed discussion of community concerns is presented in the Responsiveness Summary.

## SELECTED REMEDY

Based upon consideration of the requirements of CERCLA, the detailed analysis of the various alternatives, and public comments, both EPA and NJDEP have determined that Alternative LS-3 and Alternative GW-2 comprise the most appropriate remedy for the K&M Site.

The major components of the Selected Remedy are:

- ! Excavation, and off-site treatment as necessary, and off-site disposal, of approximately 1000 cubic yards of lagoon sediments; and
- ! Long-term monitoring of the contaminated shallow ground-water underlying the Site. It is anticipated that the groundwater monitoring will be conducted annually for at least five years. The frequency and need to continue monitoring will be reevaluated after this five year period.
- ! Institutional controls to limit groundwater use in the Navesink Formation. (NJDEP will establish a Classification Exception Area which will restrict the use of the Navesink groundwater in the vicinity of the Site.)

The selection of this remedy is based upon the comparative analysis of the alternatives discussed above and provides the best balance of tradeoffs with respect to the nine evaluation criteria.

## STATUTORY DETERMINATIONS

Under its legal authorities, EPA's primary responsibility at Superfund Sites is to undertake remedial actions that are protective of human health and the environment. In addition, Section 121 of CERCLA establishes several other statutory requirements and preferences. These specify that when complete, the selected remedial action for the Kauffman & Minter Site must comply with applicable, or relevant and appropriate environmental standards established under federal and state environmental laws unless a statutory waiver is justified. The selected remedy also must be cost effective and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. Finally, the statute includes a preference for remedies that employ treatment that permanently and significantly reduce the volume, toxicity, or mobility of hazardous wastes. The following sections discuss how the selected remedy meets these statutory requirements.

## Protection of Human Health and the Environment

The selected alternative addresses the human health-based remedial action objectives associated with contaminated lagoon sediments and is, therefore, considered to be effective in achieving protection of human health in both the short and long term. Threats to human health and the environment would be eliminated as there would be no possibility of direct ingestion of lagoon sediments or inhalation of organic compounds which volatilize from the lagoon sediment. In addition, the contaminated sediments will no longer be a source of groundwater contamination.

For groundwater, the remedy does not entail removal or, natural attenuation and treatment of the contaminated shallow groundwater, but relies on monitoring to be protective. Although there is no current exposure to contaminated groundwater, future exposure is possible. In order to protect against the potential future exposure, the remedy will include institutional controls, which will consist of NJDEP establishing a Classification Exception Area (CEA) to restrict use of the contaminated portion of the Navesink groundwater. The CEA will include the development of a well restriction area in the vicinity of the Site. These restrictions will ensure that any pumping well installed in the vicinity (e.g. within 500 feet of the Site) does not exert any significant hydraulic influence on the area of contaminated groundwater. The monitoring program will assist in ensuring that contaminated groundwater does not migrate to areas not protected by the well restrictions. The remedy will include the installation of an additional monitoring well, and periodic sampling and analysis. It is anticipated that the groundwater monitoring will be conducted annually for at least five years. The frequency and need to continue monitoring will be reevaluated after this five year period. Implementation of the remedy will effectively prevent current and future exposure to contaminated groundwater, and therefore provide adequate overall protection of human health and the environment.

## Compliance with Applicable or Relevant and Appropriate Requirements

The remedy will comply with all ARARs. Contaminated sediments exceeding remediation goals will be removed and disposed of in accordance with applicable law. Table 30 provides for a listing of associated ARARs. Action-specific ARARs will be achieved by conducting all sediment removal activities in accordance with OSHA, RCRA, and New Jersey hazardous waste regulations. Excavated material will be appropriately packed and shipped off-site to a permitted RCRA Subtitle C disposal facility if hazardous, or a permitted RCRA Subtitle D landfill if non-hazardous. Location specific ARARs include Executive Order 11990 for restoration of the soils adjacent to the lagoon.

Currently, no exposure to contaminated groundwater is occurring. Therefore, contaminant-specific ARARs (MCLs) are not applicable, but will be considered in evaluating the results of the long-term monitoring. If future exposure to contaminated groundwater occurs, Federal and State MCLs would be applicable contaminant-specific ARARs.

## Cost-Effectiveness

The cost effectiveness of a remedy is determined by weighing the cost against the alternative's ability to achieve ARARs and remedial action objectives. The selected remedy is cost effective as it has been determined to provide the greatest overall long-term and short-term effectiveness in proportion to its present worth cost, \$1,800,000. Although Alternatives LS-1 is less costly, it does not provide for protection of human health and the environment. Similarly, Alternative LS-2, while less costly than the selected remedy, is not effective over the long term, and does not completely eliminate the potential for exposure to contaminated sediments. The ground water monitoring program will be effective in achieving the remedial action objectives at significantly less cost than active remediation of the shallow aquifer.

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

The selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a cost-effective manner at the Site. It further provides the best balance of trade-offs with respect to the nine evaluation criteria. Of the three action alternatives for sediment, the selected remedy is the most cost effective permanent remedy; the contaminated sediments will be removed and disposed of off site. The complete removal of the contaminated sediments will provide a greater degree of flexibility for

future development of the Site. In addition, the selected remedy, unlike Alternative LS-2, does not rely upon long-term maintenance to be protective of human health and the environment.

#### Preference for Treatment as a Principal Element

Although the remedy may include some off-site treatment of those contaminated sediments found to be RCRA-hazardous, the selected remedy does not rely on the use of treatment technologies as a principal component. Therefore, the statutory preference for remedies that employ treatment as a principal element is not satisfied.

#### DOCUMENTATION OF SIGNIFICANT CHANGES

There are no significant changes from the preferred alternative presented in the Proposed Plan.

#### APPENDIX I

<IMG SRC 0296278B>

<IMG SRC 0296278C>

<IMG SRC 0296278D>

<IMG SRC 0296278E>

<IMG SRC 0296278F>

#### APPENDIX II





Phthalates											
DI-N-BUTYLPHthalate	1,900	120,000 J	1,800 J	290,00 UJ	14000 U	4,600 J	7,400 UJ			210 J	
150 J											
BUTYLBENZYLPHthalate	540,000 J	31,000,000 J	500,000 B	690,000 J	250,000 B	270,000 J	9,300 UJ		12,000		1,500
BIS(2-ETHYLHEXYL)PHthalate	14000 UJ	74000 UJ	13000 U	290,000 UJ	14000 U	58,000 J	7,000 J		2,100 U		390 U
DI-N-OCTYLPHthalate	82,000 J	4,400,000 J	85,000	120,000 J	35,000	500,000 J	67,000 J			5,300	
250 J											
TOTAL NUMBER OF TICS		17	20	20		5	19		20	20	
19	15										
TOTAL TIC CONCENTRATION	690,000	13,170,000	616,000	13,170,000	365,900	3,361,000	888,000		80,600		5,268
PETROLEUM HYDROCARBONS (mg/kg)	1,215	249,000	5,270	5,630 J	5,200	42,600	2,880 J			272	
48											
TOTAL ORGANIC CARBON (mg/kg)	24,500 J	103,000 J	15,900 J	32,300 J	3,080 J	36,124 J	23,676 J			3,320	831
TOT. ORGANIC CARBON (MG/KG)	24,500 J	103,000 J	15,900 J	32,300 J	3,080 J	41,300 J	29,300 J			3,320	831
TOT ORGANICS (VOC+SVOC+TPHC)mg/kg	2,537	311,482	6,484	19,960	5,872	46,794	3,842			377	
56											

Notes:

U = Not detected. J = Estimated Value. B = compound also detected in associated method blank  
TCL and TAL analytes not listed were not detected  
Shading indicates exceedance of applicable criterion.

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
LAGOON SOILS AND SEDIMENT SAMPLE DATA SUMMARY

Table 1

PAGE 2 OF 3

SAMPLE ID DATE SAMPLED SAMPLE TYPE	SURFACE SEDIMENT/SOIL SAMPLES								SUBSURFACE SOIL SAMPLES					
	SD14 03/12/92 Lagoon Sed	SD14 03/12/92 Lagoon Sed	SD15 03/12/92 Lagoon Sed	SD15 03/12/92 Lagoon Sed	SD16 01/13/12 Lagoon Sed	SD16 03/13/92 Lagoon Sed	SD17 10/10/91 Berm Soil	SD17 10/18/91 Berm Soil	SD18 11/06/91 2-4 FT	SD18 11/06/91 10-12 FT	SS12 11/06/91 2-4 FT	SS13 11/06/91 10-12 FT	SB02 BACKGROUND SOIL CRITERIA(3)	SB02A BACKGROUND SOIL CRITERIA(3)
Inorganics (mg/Kg)														
ANTIMONY	0.04	2.1 UJ	2.4 UJ	2.2 UJ	2.3 UJ	2.2 UJ	8.2 UJ	0.99 UJ	3.3 J	31 UJ				
ARSENIC	34	57 J	4.8 J	3.6 J	4.1 J	3.9 J	0.9 UJ	1.0 UJ	7.1	2.1				
BARIUM	1500(4)	32.1	168.0 J	24.5	27.7	18.0	12.3	8.5	16.4	15.8				
BERYLLIUM	2.14	0.85	0.09	0.89	0.93	0.88	0.47 U	0.54	1.70	1.50				
CADMIUM	0.26	0.26 U	3.10	0.27 U	0.28 U	0.27 U	0.93 U	0.99 U	0.49 U	0.52 U				
CHROMIUM	41.1	28.3	39.3	35.6	56.6	50.9	26.4 J	44.1 J	101.0 J	69.4				
COBALT	2.2	1.5	4.6	1.2	1.6	1.1	2.1 U	2.2 U	2.0					
COPPER	11.1	12.6	85.8	7.3	7.6 J	0.8 UJ	1.9 U	2.0 U	2.0	2.0				
LEAD	3.3	10.4	217.0	16.7	26.1	8.5	9.9 J	3.7 J	3.5					
MANGANESE	208.0	62.4	136.0	23.7	13.8	11.0	19.9	4.1	12.0	13.4				
MERCURY	0.34	0.13 U	0.13	0.13 U	0.14 U	0.14 U	0.12 U	0.12 U	0.09 U	0.12 U				
NICKEL	5.2	2.7	10.4	2.3	2.9	2.1	5.1 U	5.5 U	6.3					
SELENIUM	0.22	R	R	R	R	R	0.93 UJ	0.99 UJ	0.25	0.26 U				
VANADIUM	47.2	18.2	13.3	19.9	28.2	22.6	12.7	21.4	52.8	43.7				
ZINC	70.2	21.9 J	345.0 J	27.2 J	42.3 J	20.7 J	14.1	27.8	R	R				

Notes:  
 Shading indicates exceedance of applicable criterion.  
 (1) - Crustal abundant metal (Aluminum, Calcium, Iron, Magnesium, Potassium, and Sodium) not Listed.  
 (2) - TCL and TAL analytes not listed were not detected.  
 (3) - Inorganics soil background data from NJDEPE, 1993. Values are 2x local maximum.  
 (4) - Shacklette, H.T and Boerngen, J.G., 1984. Maximum background level in eastern U.S soils.  
 (5) - Tedrow, J.C.F , 1996, 2 x maximum background in New Jersey Sassafras Soils.

SUBSURFACE		SURFACE SEDIMENT/SOIL SAMPLES					SOIL SAMPLES
SAMPLE ID	TCLP REGULATORY	SD15	SD18	SS13	SB02S		
DATE SAMPLED	LIMIT	03/12/92	03/13/92	03/13/92	10/18/92	3/12/91	
SAMPLE TYPE	(40 CFR 261)	Lagoon Sed	Lagoon Sed	Lagoon Sed	Berm Soil	0-0.5 ft	
TCLP Volatile Organics ( ug/L)							
1,1- DICHLOROETHENE	700	188 J	5 UJ	5 U	5 U	5 U	
1,2- DICHLOROETHANE	500	27 J	5 UJ	5 U	5 U	5 U	
CARBON TETRACHLORIDE	500	5 UJ	5 U	5 U	1 J	5 U	
TRICHLOROETHENE	500	4260 J	5 UJ	5 U	5 U	6	
BENZENE	500		11 J	5 UJ	5 U	5 U	
5 U TETRACHLOETHENE	700	84 J	5 UJ	5 U	5 U	7	
TCLP Semivolatile Organics (ug/L)							
1,4-DICHLOROBENZENE	7500	11 J	20 U	10 U	11 U	R	
3,4 METHYLPHENOL (M&P-CRESOL)	200,000	93	20 U	8 J	2 J	25 J	
TCLP Pesticides/Herbicides ( ug/L) No TCLP Pesticides or herbicides were detected							
TCLP Metals (ug/L)							
6.1 J ARSENIC	5,000		4.4 J	4.6 J	3.6 U	3.6 U	
219 U BARIUM	100,000		768	187	263	180	
CHROMIUM		5.5 U		5.5 U	5.5 U	6.3 J	
31.5 J LEAD	5,000		85.3 J	22.8 J	8.8 J	5.7 J	
6.7 J SILVER	5,000		5 UJ	5 UJ	5 UJ	5 UJ	

Notes:  
 U = NOT DETECTED, J =- ESTIMATED VALUE, R = REJECTED VALUE  
 All data and regulatory limits in ug/l in TCLP extract  
 Reported results are corrected for matrix spike recoveries as required by 40 CFR Part 268 Method 1311.  
 Shading indicates exceedance of applicable criterion.  
 TCLP analytes not listed were not detected in the TCLP extract of any sample.



	CHROMIUM			131.0		68.5		52.1		70.6		47.5	
	73.1		37.3 J										
1.9	COBALT				2.4		1.8		1.3		2.6		
		1.8											
	COPPER				16.4		7.4		4.7		8.1		
7.3		11.3											
	LEAD				28.7		61.4		20.6		91.9	42.0	
		68.6		R									
	MANGANESE				21.6		23.4		24.1		22.6	25.4	
	21.3		20.5										
5.8	NICKEL				9.1		5.8		3.4		5.3		
		6.5											
	SELENIUM				1.4		0.5		0.6		0.7	0.9	
		1.3		1.3 UJ									
	VANADIUM				63.9		35.1		27.1		38.2	28.8	
	39.4		16.3										
J	ZINC				44.2 J		79.6 J		41.8 J		51.4 J	70.1	
		34.8 J		35.8									
	CYANIDE				2.4 J		1.5 U		1.8 U		2.0 U	1.7 U	
		1.8 U		0.79 U									
	Total Organic Carbon (mg/kg)				112000		64800		104000		74000	68300	126000
	42800 J												

Notes:

U = NOT DETECTED. J = ESTIMATED VALUE. R = REJECTED BY VALIDATION. D =VALUE FROM SECONDARY DILUTION. X = ISOMERS NOT DIFFERENTIATED.  
Q = QUANTITATION SUSPECT (concentration in diluted analysis was below reliable quantitation limit).  
Shading indicates exceedance of applicable criterion.  
(1) -Contaminants listed are those detected in soil samples

Table 2  
 KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
 MARSH AREA SOIL SAMPLE DATA SUMMARY  
 Pogo 2 of 2

SAMPLE ID	SB16	SS15	SS16	SS17	SS18
SS19					
SAMPLE LOCATION					
MW104S					
Volatile Organics (ug/kg)(1)					
METHYLENE CHLORIDE		36 UJ	130 UJ	150 UJ	160 UJ
13 U					270 UJ
ACETONE		23 UJ	19 J	16 U	14 UJ
16 U	13 U				
CARBON DISULFIDE	13 U	14 UJ	19 U	16 U	14 UJ
TOLUENE		14 UJ	19 U	16 UJ	14 UJ
16 UJ	13 U				
XYLENES (TOTAL)	13 U	14 UJ	19 U	16 UJ	14 UJ
TOTAL NUMBER OF VOC TICS	0	0	2	1	3
1					
TOTAL VOC TIC CONCENTRATION	0	0	121	20	75
0					30
Semivolatile Organics (ug/kg)(1)					
PHENOL		480 U	1100 U	990 U	900 U
920 U	430 U				
Polynuclear Aromatic Hydrocarbons					
BENZO(B)FLUORANTHENE		100 JX	1100 U	990 UJ	900 UJ
430 U					920 U
BENZO(K)FLUORANTHENE		100 JX	1100 U	990 UJ	900 UJ
430 U					920 U
CHRYSENE		56 J	1100 U	990 UJ	900 U
920 UJ	430 U				
FLUORANTHENE	430 U	69 J	1100 U	990 U	900 U
920 U					
PYRENE		88 J	1100 U	990 UJ	900 U
920 UJ	430 U				
TOTAL PAHS	0	413 J	0	0	0
Phthalates					
BIS(2-ETHYLHEXYL)PHTHALATE		480 U	1100 U	990 UJ	900 U
430 U					920 UJ
BUTYLBENZYLPHthalATE		480 U	1100 U	990 UJ	900 U
430 U					920 UJ
DIETHYLPHthalATE	44 J	480 U	1100 U	990 U	900 U
DI-N-BUTYLPHthalATE	310 J	480 U	3000 U	5100 U	1100 U
DI-N-OCTYLPHthalATE	430 U	470 J	110 U	990 UJ	900 UJ
TOTAL NUMBER OF SV TICS	9	18	8	7	8
8					
TOTAL SV TIC CONCENTRATION	26,170	33,600	74,100	27,900	42,400
2390					
TOT. PET. HYDROCARBON (TPHC) (mg/kg)	85 J	218 J	168 J	217 J	93 J
60 J					
TOT. ORGANIC (VOC +SV+TPHC) (mg/kg)	112	252	242	245	135
63					
Inorganics (mg/kg)(1)					
ARSENIC	5.1	R	3.9 J	5.5	4.4
BARIUM	81.6	45.4	38.5 J	81.4	63.4
BERYLLIUM	1.6	0.8	0.6 J	1.1	1.1
1.7					

CADMIUM			1.2 U		2.0 UJ		1.6 U		1.5 U
1.7 U	0.5 U								
CHROMIUM			42.0 J		28.2 J		53.1		49.8
64.3	99.2								
COBALT			2.6 U		2.0 UJ		1.6 U		1.5 U
1.7 U	1.9								
COPPER			10.2		7.3 J		31.5		12.6
21.6	8.6								
LEAD			59.6 J		R		211.0 J		R
	R								
MANGANESE			20.9		16.9 J		61.2		41.1
26.7	16.0								
NICKEL			6.4 U		3.3 UJ		6.7		3.1
6.3	5.2								
SELENIUM			1.2 UJ		1.2 UJ		1.0 U		0.9 UJ
1.0 U	1.0								
VANADIUM			18.7		16.5 J		23.6		19.4
30.7	54.7								
ZINC			37.5		47.0		119.0 J		66.2 J
81.0 J	R								
CYANIDE			0.72 U		1.1 J		1.2		1.3
2.2	1.7 U								
Total Organic Carbon (mg/kg)			72500 J		67400 J		61500 J		57000 J
	R								85000 J

Notes:  
 U= NOT DETECTED. J = ESTIMATED VALUE. T = REJECTED BY VALIDATION. D = VALUE FROM SECONDARY DILUTION. X = ISOMERS NOT DIFFERENTIATED  
 Q = QUANTITATION SUSPECT (concentration in diluted analysis was below reliable quantitation limit).  
 Shading indicates exceedance of applicable criterion.  
 (1) Contaminants listed are those detected in soil samples

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
GROUNDWATER SAMPLE DATA SUMMARY

Table 3

Page 1 of 3

LOCATION SAMPLE ID DATE SAMPLED	MW- 1 GW09	MW-2 GW08	MW-3 GW07	MW101S GW05	SHALLOW GROUNDWATER WELLS						DEEP GROUNDWATER WELLS				CRITERION NJ MCLs(2)		
					MW102S GW01	MW103S GW12	MW104S GW10	MW105S GW10	MW106S GW03	MW101D GW11	MW102D GW06	MW1030 GW02	GROUNDWATER				
					12/17/91	12/19/92	12/19/91	12/17/91	12/17/91	12/19/91	12/17/91	12/17/92	NJ GWQC(1)				
US(3) MCLs)																	
VOLATILE ORGANICS (ug/l)(4) Chlorinated VOCs																	
VINYL CHLORIDE																	
Chlorinated VOCs																	
VINYL CHLORIDE																	
5	2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	17	10 U	10 U	10 U	100 U	10 U		
METHYLENE CHLORIDE	2	20 U	16 U	10 U	11 U	25 U	23 U	18 U	79 B	10 UJ	10 U	1,000 B	12 U		2		
1,1-DICHLOROETHENE	5	10 U	10 U	10 U	10 U		2 J	10 U	10 U	10 U	10 U	10 U	100 U	10 U		2	
1,1-DICHLOROETHANE	7	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4 J	10 U	10 U	10 U	100 U	10 U		70	
1,2-DICHLOROETHENE (TOTAL)	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U		94	10 U	10 U	100 U	10 U		10(5)	
10	10(5)	10 U	10 U	10 U	10 U	15 U	10 U	10 U	10 U	10 U	10 U	10 U	100 U	10 U		30	
1,1,1-TRICHLOROETHANE	26	10 U	10 U	10 U	10 U	10 U	10 U	10 U	16	10 U	10 U	10 U	100 U	10 U			
TRICHLOROETHENE	1	10 U	10 U	10 U	10 U	10 U	10 U	16	10 U	10 U	10 U	10 U	100 U	10 U		1	
TETRACHLOROETHENE	5	10 U	10 U	10 U	10 U	4 J	10 U	10 U	10 U	10 U	10 U	10 U	100 U	10 U		1	
BTEX Compounds	1																
BENZENE	1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1 U	10 U	10 U	100 U	100 U	10 U	
XYLENES (TOTAL)	44	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	8 J	10 U	10 U	100 U	10 U			
40	10,000																
TOTAL NUMBER OF TICS	--	0	0	0	0	0	0	0	0	0	0	0	0	0		0	
TOTAL TIC CONCENTRATION	--	0	0	0	0	0	0	0	0	0	0	0	0	0		0	
SEMIVOLATILE ORGANICS (ug/L)(4)																	
ISOPHORONE	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	570	10 U	10 U	10 UJ	10 UJ			
NAPHTHALENE	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1 J	10 U	10 U	10 UJ	10 UJ			
BUTYLBENZYLPHthalate	--	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	1 J	10 UJ	10 UJ	10 UJ	10 UJ		100	
BIS(2-ETHYLHEXYL)PHthalate	--	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	1 J	10 UJ	2 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ		30	
DI-N-OCTYLPHthalate	--	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	1 J	10 UJ	10 UJ	10 UJ	10 UJ		100	
TOTAL NUMBER OF TICS	--	3	2	1	0	2	2	6	19	9	0	0	0		8		
TOTAL TIC CONCENTRATION	--	35	17	3	0	29	18	34	374	71	0	43	35				
WET CHEMISTRY ANALYTES (mg/l)																	
Total Suspended Solids	--	106.6	30.3	71.2	440.2	85.8	78.1	260	202.7	384.5	50.7	39.1	23.9				
Total Dissolved Solids	--	230 J	270	310	220	40	360 J	470 J	180 J	210	660 J	40	100 J				
500,000	--	500,000															
Chloride	--	500	17.4	5.1 U	14.0	112.5	10.85	7.0 U	13.5	73.0	12	94.0	8.7	10.8			
250,000	--	250,000															
MBAS (Surfactants)	10	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	4.2	0.25 U	0.25 U	0.25 U	0.25 U	500(7)			
Nitrate (NO3 as N)	--	0.10 U	0.19	2.3	0.95	0.10 U	2.1	14.0	8.9	0.42	0.1 U	1.5	0.10 U				
10,000	--	10,000															
Chemical Oxygen Demand	--	4.44	26.0	47.4	41.2	24.2	10.1 U	33.6 U	51.0 J	25.0	13 U	20.6	8.6 U				



2.8 U	0.6 U	0.3 U	0.9 U	4.3	1.0 U	4.4 U	3.9 J	0.2 U	5.9 U	1.2 U	3.3 U	
0.3 U	0.6 U	0.3 U	0.3 U	0.7 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	0.3 U	(8)

Notes:

- U = NOT DETECTED, J = ESTIMATED VALUE, R = REJECTED (UNUSABLE) DATUM, B = DETECTED IN METHOD BLANK, NC = NO CRITERION.
- Shading indicates exceedance of applicable criterion.
- (1) - NJGWQ criteria based on values in NJAC 7-9-6 for class 11-A waters.
- (2) - NJ primary drinking water MCLs (NJAC 7:10-16.7(a)).
- (3) - Federal MCLS (40CFR 141.61).
- (4) - Contaminants listed are those detected in groundwater samples.
- (5) - Value shown is cis 1,2-dichloroethene; standard for trans isomer is 100 ug/l).
- (6) - Exceedance presumed based on literature data indicating total 1,2- DCE comprised of 60% cis isomer, probable cis isomer concentration of 56 ug/l exceeds the 10 ug/l criterion
- (7) - Foaming Agents (ABS/LAS)
- (8) - None noticeable (O&G+TPHC)

Table 3

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
GROUNDWATER SAMPLE DATA SUMMARY

Page 2 of 3

LOCATION SAMPLE 10 DATE SAMPLED 12/19/91 SAMPLE TYPE INORGANICS (mg/L) (1,2)	SHALLOW GROUNDWATER WELLS																														
	MW-1 GWO9		MW-1 GW09A		MW-2 GW08A		MW-2 GW08		MW-3 GW07A		MW-3 GW07		MW101S GW05A		MW101S GW05		MW102S GW01		MW-102S GW01A		MW103S GW12		MW103S GW12A		MW104S GW10		MW104S GW10A				
	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED			
ARSENIC 2.0 U	2.3	7.6	2.0 U	2.0 U	3.0 J	2.0 U	9.1	2.0 U	19.4	2.0 U	2.0 UJ	2.0 UJ	7.1																		
BARIUM 9.8	50.5	26.5	39.5	7.5	17.0	12.8	23.9	3.0 U	61.7	39.2	53.4	35.9 J	54.9																		
BERYLLIUM 1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2	1.0 U	3.0	1.2	1.0 U	1.0 UJ	2.0																		
CHROMIUM (total) 6.0 U	34.1 J	6.0 U	6.0 U	6.0 U	6.0 U	102.0	7.1	151.0	6.0 U	6.0 U	6.0 UJ	80.4 J																			
COBALT 4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	13.4	4.0 U	8.1	4.0 UJ	4.0 U																		
COPPER 21.5	5.9	3.5	4.4	4.9	3.5	6.7	6.1	63.7	10.9	2.0 U	19.3 J																				
LEAD 1.0 UJ	6.2	6.0 J	1.0 UJ	1.4	1.0 UJ	4.4	1.0 UJ	24.5	2.9 J	4.2 J	1.0 UJ	16.0																			
MANGANESE 52.5	43.3	40.4	52.2	59.5 J	82.0 J	65.7	5.2	113.0	44.8	139.0	120.0 J	133.0																			
NICKEL 14.0 U	14.0 U	14.0 U	14.0 U	14.0 U	14.0 U	14.0 U	14.0 U	14.0 U	65.5	14.0 U	15.9	14.0 UJ	28.1																		
SELENIUM 1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.8	1.0 U	1.0	1.0 UJ	1.1 J																			
THALLIUM 1.6 J	1.6	1.4 J	1.5 J	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.1	1.6	1.0 UJ	1.0 U																			
VANADIUM 3.0 U	9.9	3.0 U	7.6	3.0 U	47.6	3.0 U	56.1	3.0 U	3.0 U	3.0 UJ	31.8																				
ZINC 41.3	6.8	19.5	4.6	9.1	6.2	38.4	4.5	92.6	29.8	R	R																				
CYANIDE NR	6.9 J	3.0 U	NR	3.0 U	NR	3.0 U	NR	3.0 U	NR	3.0 UJ	NR	3.0 UJ	NR																		

## Notes:

- U = NOT DETECTED. J = ESTIMATED VALUE. NR = ANALYSIS NOT REQUIRED  
 Shading indicates exceedance of applicable criterion.  
 (1) - Contaminants listed are those detected in groundwater samples.  
 (2) - TAL crustal abundant metals (aluminum, calcium, iron, magnesium, potassium, and sodium) not tabulated.

Table 3  
 KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
 GROUNDWATER SAMPLE DATA SUMMARY  
 Page 3 of 3

LOCATION SAMPLE ID DATE SAMPLED SAMPLE TYPE	SHALLOW GROUNDWATER WELLS								DEEP GROUNDWATER WELLS				GROUNDWATER QUALITY			CRITERION
	MW105S GW03	MW105S GW03A	MW106S GW11	MW106S GW11A	MW101D GWO6	MW101D 12/19/91	MW102D GWO6A	MW102D 12/19/91	MW102D GW02	MW103D GW02A	MW103D GW13	MW103D GW13A	12/19/91 NJ MCLs(2)	U.S. MCLs(3)		
	12/17/91 TOTAL	12/17/91 FILTERED	12/18/91 TOTAL	12/18/91 FILTERED	TOTAL	TOTAL	TOTAL	TOTAL	12/17/91 FILTERED	TOTAL	12/17/91 FILTERED	12/19/91 NJGWQC(1)				
INORGANICS (mg/L)(4,5)																
ARSENIC 8	(6) 7.0 J	50(7)	2.0 UJ	4.6	R			4.7	3.3			2.8 J	2.0 UJ	2.0 U	2.0 U	
2000 BARIUM	(6) 131.0 J	2000	30.4	131.0	64.8	88.8		85.7		42.8		41.0 J		30.3	27.4	
20 BERYLLIUM	(6) 1.6 J	4	1.0 U	1.0 U	1.0 U	1.0 U		1.0 U		1.0 U		1.0 UJ	1.0 U	1.0 U	1.0 U	
20 CHROMIUM (total)	(6) 57.8 J	100	6.0 U	62.3	6.0 U	136.0 J		6.0 U		6.0 U		6.0 U	6.0 UJ	6.0 U	100	
NC COBALT	(6) 23.7 J	NC	4.0 U	9.4	4.0 U	4.0 U		4.0 U		4.0 U		4.0 UJ	4.0 U	4.0 U	4.0 U	
1000 COPPER	(6) 8.2 J	1300	4.3	23.0	5.4			5.8	2.0 U			2.0 U	2.8 U	11.9	2.0 U	
10 LEAD	(6) 6.9 J	15	1.0 U	19.9	1.0 UJ			1.0 UJ	1.0 UJ	1.0 U		1.0 UJ	17.4	1.0 UJ		
MANGANESE	(6) 231.0	--	90.8 J	172.0	157.0	155.0		128.0		132.0		135.0 J	80.2	77.4	50	
100(6) NICKEL	(6) 95.9 J	100	14.0 UJ	139.0	142.0	71.5		14.0 U		18.3		20.1 J	14.0 U	14.0 U		
50 SELENIUM	(6) 1.0 UJ	50	1.0 U	1.0 U	1.0 U	1.0 U		1.0 U		1.0 U		1.0 UJ	1.0 U	1.0 U		
10 THALLIUM	(6) 1.4 J	2	1.5	1.0 U	1.0 U	1.0 U		1.8 J		1.0 U		1.0 UJ	1.0 U	1.0 UJ		
NC VANADIUM	(6) 19.4 J	NC	3.0 U	18.3	3.0 U	3.0 U		3.0 U		3.0 U		3.0 UJ	3.0 U	3.0 U		
5000 ZINC	(6) 172.0 J	--	18.3 J	37.9	16.9			6.8	3.0 U			6.8	7.6 J	3.1	4.1	
200 CYANIDE	(6) 3.0 UJ	200	NR	3.0 U	NR	3.0 U		NR		5.0		NR	3.0 U	NR		

Notes:  
 U = NOT DETECTED, J = ESTIMATED VALUE, NR = ANALYSIS NOT REQUIRED, NC = NO CRITERION.  
 Shading indicates exceedance of applicable criterion.  
 (1) - NJGWQ criteria based on values in NJAC 7:9.6 for class II-A waters.  
 (2) - NJ primary drinking water MCLs (NJAC 7:10-16.7(a)).  
 (3) - Federal MCLs (40 CFR 141.61).  
 (4) - Contaminants listed are those detected in groundwater samples  
 (5) - TAL crustal abundant metals (aluminum, calcium, iron, magnesium, potassium, and sodium) not tabulated.  
 (6) - NJ Adopts federal standards for inorganics (per NJAC 7:10 5.1)  
 (7) - Old MCL from 40 CFR 141.11.

Table 4  
 KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
 UNDERGROUND STORAGE TANK AREAS SOIL SAMPLE DATA SUMMARY

SOIL	SAMPLE ID SAMPLE LOCATION	UST 1-6	SB01	UST #7/8	SB03	UST #9	SBO6	UST#9	SB07	SBO8	SBO9	BACKGROUND	
		10/21/91	8 - 10	10/16/91	4 - 6	10/18/91	6 - 8	10/18/91	10/18/91	10/16/91	6 - 8		
		CONCENTRATION(3)											
VOLATILE ORGANICS (ug/kg) (1)		NO TARGET VOLATILE ORGANICS DETECTED IN ANY SAMPLE											
TOTAL NUMBER OF TICS		11	1	0	0	0	0	0	0	0	0	0	
TOTAL TIC CONCENTRATION													
SEMIVOLATILE ORGANICS (ug/kg)		NO TARGET SEMIVOLATILE ORGANICS DETECTED IN ANY SAMPLE											
TOTAL NUMBER OF TICS			6		3		1		0		3		
TOTAL TIC CONCENTRATION		23.350		807		150		0		464		480	
Total Petroleum Hydrocarbons (mg/kg)		33.1 J		25 J		25 J		25 J		25 J		25 J	
Total Organic Carbon (mg/kg)			639 J		903 J		777 J		608 J		816 J	663 J	
METALS (mg/kg) (1,2)													
ARSENIC			34.2		22.6		9.4 J		16.4 J		10.5 J	6.7 J	4.6 J
BARIUM			1500 (4)		12.4		11.5		7.5		10.2	19.1	10.5
BERYLLIUM			2.1		0.8		0.5 U		0.5 U		1.8	0.5 U	0.5 U
CHROMIUM			41.4		48.6		48.5 J		36.3 J		97.8 J	39.9 J	31.1 J
COBALT					1.7		2.2		2.2 U		5.1	2.1 U	2.2
LEAD			10.6 (5)		3.4		2.3 J		3.7 J		2.1 J	3.2 J	
MANGANESE		2.4 J	400 (6)		29.2		10.3		5.3		3.9	3.1	21.0
NICKEL			208		2.1 U		5.1 U		5.5 U		5.4 U	5.1 U	5.3 U
VANADIUM			15.2		19.9		23.9		18.4		51.3	28.1	20.3
ZINC			47.2		24.4		18.0		16.9		38.1	21.2	27.1
			70.2										

Notes:

- U = NOT DETECTED, J = ESTIMATED VALUE, R = REJECTED BY VALIDATION
- Shading indicates exceedance of applicable criterion.
- (1) - Contaminants listed are those detected in soil samples.
- (2) - TAL crustal abundant metals (aluminum, calcium, iron, magnesium, potassium, and sodium) not tabulated.
- (3) - Inorganics soil background data from NJDEPE, 1993 except where noted. Values are 2x local maximum.
- (4) - Shacklette, H.T. and Boerngen. J.G. 1984. Maximum background level in eastern U.S. soils.
- (5) - Tedrow. J.C.F.. 1986. Maximum background/2 x maximum background in New Jersey Sassafras Soils
- (6) - EPA lead screening criterion (OSWER Directive 9355.4-12. 1994)

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
FORMER WASHWATER COLLECTION PIT SOIL SAMPLE DATA SUMMARY

Table 5

SAMPLE ID SOIL BACKGROUND SAMPLE LOCATION CONCENTRATION DATE SAMPLED	SS03		SS04		SURFACE SOIL SAMPLES SS05		SB18
	PIT		PIT		PIT		MW106S
	10/17/91		10/17/91		10/17/91		10/31/91
VOLATILE ORGANICS (ug/kg)(1)							
METHYLENE CHLORIDE		30 UJ		31 UJ		28 UJ	6 J
ACETONE			33 UJ		29 UJ		25 UJ
2-BUTANONE			11 U		11 U		11 U
TOLUENE			11 U		11 U		11 U
XYLENES (TOTAL)			11 U		11 U		11 U
TOTAL NUMBER OF VOC TICS		0		0		0	0
TOTAL VOC TIC CONCENTRATION							
SEMIVOLATILE ORGANICS (ug/kg)							
2-METHYLNAPHTHALENE		360 U		710 U		9,300 U	3,300 J
4,000-13,000(2,3)							
BUTYLBENZYLPHthalATE		360 UJ		200 J		9,300 U	38,000 J
BIS(2-ETHYLHEXYL)PHthalATE		360 U		4,600 B		9,300 U	12,000 UJ
DI-N-OCTYLPHthalATE		360 U		1,100		56,000	65,000 J
TOTAL NUMBER OF SV TICS		6		21		20	23
TOTAL SV TIC CONCENTRATION		3,430		36,710		556,900	834,000
TOTAL PETROLEUM HYDROCARBONS (TPHC) mg/k	35 J		2,130 J		1,160		
TOTAL ORGANICS (VOC + SVOC + TPHC) (mg/kg)	38		2,168		1,773		940
TOTAL ORGANIC CARBON (TOC) mg/kg	2,290 J		4,330 J		9,560 J		11,000 J
INORGANICS (mg/kg)(1,4,5)							
ARSENIC				0.9 UJ		3.8 J	3.4 J
BARIUM	34.2			12.3		22.8	57.3
BERYLLIUM	1,500(6)			0.4 U		0.5	0.9
CHROMIUM	2.14			12.8 J		40.1 J	21.3 J
COBALT	41.4			2.0 U		2.7	2.1 U
COPPER	10.6(7)			2.5		2.7	11.1
LEAD	11.1			3.8 J		30.3 J	61.3 J
MANGANESE	400(8)			22.0		34.6	146.0
NICKEL	208			4.9 U		4.8 U	5.0 U
VANADIUM	15.2			13.9		33.4	16.7
ZINC	47.2			10.1		36.5	61.2
	70.2						49.0
TCL DATA		TCLP REGULATORY					
		LIMIT(8)					
TCLP VOLATILE ORGANICS				NO TCLP VOLATILES DETECTED		N/A	N/A
TCLP SEMIVOLATILE ORGANICS				NO TCL P SEMIVOLATILE S DETECTED		N/A	
TCLP PESTICIDES/HERBICIDES				NO TCLP PESTICIDE S/HERBICIDES DETECTED		N/A	

TCLP METALS (ug/l)

BARIUM		209	436	388	N/A
CADMIUM	100,000	2.5 U	4.0 J	3.0 J	N/A
LEAD	1,000	2.1 UJ	12.7 J	22.3 J	N/A
	5,000				

Notes:

U = NOT DETECTED, J = ESTIMATED VALUE, NC = NO CRITERION, N/A = NOT ANALYZED, R = REJECTED BY VALIDATION.

Shading indicates exceedance of applicable criterion.

(1) = Contaminants listed are those detected in soil samples.

(2) = ATSDR. Toxicological Profile for Benzo(a)anthracene, 1990

(3) = Total Polynuclear Aromatics

(4) = TAL crustal abundant metals (aluminum, calcium, iron, magnesium, potassium, and sodium) not tabulated.

(5) = Inorganics soil background data from NJDEPE 1993 except where noted. Values are 2x local maximum.

(6) = Shacklette. H.T. and Boerngen, J.G., 1984 Maximum background level in eastern US soils.

(7) = Tedrow. J.C.F., 1986 Maximum background/2x maximum background in New Jersey Sassafras Soils

(8) = EPA lead screening criterion (OSWER Directive 9355.4-12. 1994)

Table 6

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
UNPAVED OPERATIONS LOT SOIL SAMPLE DATA SUMMARY  
Page 1 of 2

SAMPLE ID SAMPLE LOCATION DATE SAMPLED	SURFACE SOIL				
	SS06	SS07	SS08	SS09	
	SS01 10/17/91	COMPOSITE 10/22/91	COMPOSITE 10/22/91	COMPOSITE 10/22/91	MW102S 10/16/91
VOLATILE ORGANICS (ug/kg)1					
METHYLENE CHLORIDE	28 UJ	67 UJ	110 UJ	140 UJ	55 UJ
1,2-DICHLOROETHENE (TOTAL)	13 U	11 UJ	11 U	3 J	11 U
2-BUTANONE	13 U	99 J	13 U	52 UJ	11 UJ
ACETONE	28 UJ	11 UJ	11 U	220 J	24 UJ
TOLUENE	13 U	65 J	11 U	12 UJ	11 U
XYLENES (TOTAL)	13 U	1600 D	11 U	11 UJ	11 U
VINYL CHLORIDE	13 UJ	11 UJ	11 U	11 U	11 U
TOTAL NUMBER OF VOC TICS	0	11	8	9	0
TOTAL VOC TIC CONCENTRATION	0	389	441	469	0
SEMIVOLATILE ORGANICS (ug/kg)					
CARBAZOLE	83 J	NR	NR	NR	370 U
Phthalates					
BIS(2-ETHYLHEXYL) PHTHALATE	430 U	690 U	37,000 J	9000	390 U
BUTYLBENZYL PHTHALATE	330 J	690 U	930	17,000 J	120 J
DI-N-BUTYL PHTHALATE	430 U	2100 U	3100 U	2700 U	370 U
DI-N-OCTYL PHTHALATE	220 J	690 U	690 U	720 U	190 J
TOTAL PHTHALATES	550	0	37,930	26,000	310
Polynuclear Aromatic Hydrocarbons (PAHs)					
2-METHYLNAPHTHALENE	87 J	690 U	690 U	720 U	180 J
ACENAPHTHAYLENE	64 J	690 U	690 U	720 U	370 U
ANTHRACENE	110 J	690 U	690 U	720 U	370 U
BENZO(A) ANTHRACENE	440	690 U	690 U	720 U	170 J
BENZO(A) PYRENE	370 J	690 U	690 U	720 U	160 J
BENZO(B) FLUORANTHENE	820 X	690 U	690 U	720 U	350 JX
BENZO(K) FLUORANTHENE	820 X	690 U	690 U	720 U	350 JX
BENZO(G,H,I) PERYLENE	350 J	690 U	690 U	720 U	180 J
CHRYSENE	420 J	690 U	690 U	720 U	390
DIBENZO(A) ANTHRACENE	140 J	690 U	690 U	720 U	370 U
FLUORANTHENE	670	690 U	450 J	720 U	310 J
INDENO(1,2,3-CD) PYRENE	280 J	690 U	690 U	720 U	110 J
NAPHTHALATE	68 J	690 U	690 U	720 U	130 J
PHENANTHRENE	300 J	690 U	720	720 U	260 J
PYRENE	530	690 U	500 J	720 U	240 U

TOTAL PAHs	4,649	0	1,220	0	2,480
TOTAL NUMBER OF SV TICS	19	5	10	9	20
TOTAL SV TIC CONCENTRATION	6,260	9,300	57,800	60,800	15,600
TOT. PET. HYDROCARBON (TPHC) (mg/kg)	1,510 J	11,600 J	56 J	21,000 J	1,100 J
TOT. ORGANICS (VOC+SVOC+TPHC) (mg/kg)	1,522	11,611	154	21,088	1,118
TOT ORGANIC CARBON (mg/kg)	251,000 J	90,505	8,980 J	93,705	63,500 J
METALS (mg/kg)					
Arsenic	7.6 J	5.2	4.2	5.6	5.7 J
Barium	93.4	32.0	27.4	35.0	59.2
Berllium	0.6	0.5	0.6	0.9	0.5
Cadmium	1.0 U	1.1 U	1.1 U	1.1 U	0.9
Chromium	24.5 J	18.2	23.1	35.8	25.0 J
Cobalt	10.3	1.7	1.7	1.2	3.4
Copper	116.0	8.3	13.1	5.7	26.2
Lead	340.0 J	35.4	41.7	32.6	R
Manganese	287.0	78.7	158.0	89.7	104.0
Nickel	12.9	2.3	3.5	3.3	4.8 U
Vanadium	40.2	12.0	19.8	21.5	21.5
Zinc	201.0	39.5 J	36.7 J	46.1 J	94.1
Cyanide	1.0	0.5 U	0.5 U	0.6 U	0.5 U
TCLP RESULTS (ug/L)					
TCLP VOLATILE ORGANICS					
TRICHLOROETHENE	5 UJ	N/A	5 UJ	N/A	26 J
TCLP SEMIVOLATILE ORGANICS	NONE DETECTED	N/A	NONE DETECTED	N/A	NONE DETECTED
TCLP PESTICIDES/HERBICIDES	NONE DETECTED	N/A	NONE DETECTED	N/A	NONE DETECTED
TCLP METALS					
Barium	558	N/A	332	N/A	336
Cadmium	4.0 J	N/A	3.0 J	N/A	6.0 J
Lead	30.0 J	N/A	5.9 J	N/A	29.2 J

Notes:

U = NOT DETECTED.

J = ESTIMATED VALUE.

R = REJECTED (UNUSABLE DATUM).

NR = NOT REPORTED.

NA = NOT ANALYZED.

X = ANALYTES COELUTE AS INDISTINGUISHABLE ISOMERS. VALUE REPRESENTS COMBINED CONCENTRATION.

Shading indicates exceedances of applicable criterion.

(1) = Contaminants listed are those detected in soil samples.



Table 6

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
 UNPAVED OPERATIONS LOT SOIL SAMPLE DATA SUMMARY  
 Page 2 of 2

SAMPLE ID	SUBSURFACE SOIL	
	SB05	SB17
SAMPLE LOCATION	OPERATIONS LOT	MW105S
DATE SAMPLED	10/30/91	10/23/91
VOLATILE ORGANICS(ug/kg)		
METHYLENE CHLORIDE	7 J	95 UJ
1,2-DICHLOROETHENE	6 J	12 U
2-BUTANONE	12 U	37
ACETONE	89 J	13 U
TOLUENE	3 J	12 U
XYLENES (TOTAL)	12 U	12 U
VINYL CHLORIDE	11 J	12 U
TOTAL NUMBER OF VOC TICS	1	2
TOTAL VOC TIC CONCENTRATION	40	30
SEMIVOLATILE ORGANICS(ug/kg)		
CARBAZOLE	400 U	NR
Phthalates		
BIS(2-ETHYLHEXYL) PHTHALATE	400 U	740 U
BUTYLBENZLPHTHALATE	400 U	740 U
DI-N-BUTYLPHTHALATE	400 U	12,000 J
DI-N-OCTYLPHTHALATE	400 U	740 U
TOTAL PHTHALATES	0	12,000
Polynuclear Aromatic Hydrocarbons (PAHs)		
2-METHYLNAPHTHALATE	400 U	740 U
ACENAPHTHYLENE	400 U	740 U
ANTHRACENE	400 U	740 U
BENZO(A)ANTHRACENE	400 U	740 U
BENZO(A)PYRENE	400 U	740 U
BENZO(B)FLUORANTHENE	400 U	740 U
BENZO(K)FLUORANTHENE	400 U	740 U
BENZO(G,H,I)PERYLENE	400 U	740 U
CHRYSENE	400 U	740 U
DIBENZO(A,H)ANTHRACENE	400 U	740 U
FLUORANTHENE	400 U	740 U
INDENO(1,2,3-CD)PYRENE	400 U	740 U
NAPHTHALENE	400 U	740 U
PHENANTHRENE	400 U	740 U
PYRENE	400 U	740 U

TOTAL PAHs	0	0
TOTAL NUMBER OF SV TICS	6	6
TOTAL SV TIC CONCENTRATION	907	7810
TOT. PET. HYDROCARBON (TPHC) (mg/kg)	357 J	47.1 J
TOT. ORGANICS (VOC+SVOC+TPHC) (mg/kg)	37	67
TOT. ORGANIC CARBON (mg/kg)	738	930 J
METALS (mg/kg)		
Arsenic	6.2	7.5
Barium	24.2	14.7
Beryllium	1.2	0.8
Cadmium	0.7 U	1.1 U
Chromium	101.0 J	57.5
Cobalt	2.0	1.6
Copper	9.0	1.3 U
Lead	5.5	2.6
Manganese	17.3	10.1
Nickel	5.1	2.5
Vanadium	32.5	24.5
Zinc	27.5	27.0 J
Cyanide	5.9 U	0.6 U
TCLP RESULTS (ug/L)		
TCLP VOLATILE ORGANICS	N/A	N/A
TRICHLOROETHENE	N/A	N/A
TCLP SEMIVOLATILE ORGANICS	N/A	N/A
TCLP PESTICIDES/HERBICIDES	N/A	N/A
TCLP METALS		
Barium	N/A	N/A
Cadmium	N/A	N/A
Lead	N/A	N/A

Notes

U = NOT DETECTED.

J = ESTIMATED VALUE.

R = REJECTED (UNABLE DATUM).

NR = NOT REPORTED.

NA = NOT ANALYZED.

X = ANALYTES COELUTE AS INDISTINGUISHABLE ISOMERS. VALUE REPRESENTS COMBINED CONCENTRATION.

Shading indicates exceedances of applicable criterion.

(1) - Contaminants listed are those detected in soil samples.

Table 7

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
VARIOUS FACILITY AREAS SOIL SAMPLE DATA SUMMARY

SURFACE SOIL SAMPLES	SUBSURFACE SOIL SAMPLES						
	SS02 SEPTIC 10/17/91	SS10 SPOILS 10/17/91	SS11 DRUMS 10/18/91	SB04 SEPTIC 10/18/91	SB10 MW101S 10/22/91	SB12 MW102S 10/22/91	SB15 MW103D 10/30/91
SAMPLE ID							
SAMPLE LOCATION							
DATE SAMPLED							
VOLATILE ORGANICS (ug/kg) (1)							
METHYLENE CHLORIDE	36 UJ	62 UJ	27 UJ	61 UJ	120 UJ	88 UJ	6 J
2-BUTANONE	11 U	13 U	13 U	12 UJ	13	12 U	12 U
TOTAL NUMBER OF VOC TICS	0	0	0	0	1	1	0
TOTAL VOC TIC CONCENTRATION	0	0	0	0	22	11	0
SEMIVOLATILE ORGANICS (ug/kg)(1)							
Polynuclear Aromatic Hydrocarbons							
NAPHTHALENE	50 J	430 U	420 U	390 U	720 U	740 U	380 U
PHENANTHRENE	63 J	430 U	420 U	390 U	720 U	740 U	380 U
FLUORANTHENE	60 J	430 U	420 U	390 U	720 U	740 U	380 U
PYRENE	64 J	430 U	420 U	390 U	720 U	740 U	380 U
TOTAL PAHS	237 J	0	0	0	0	0	0
Phthalates							
BUTYLBENZLPHTHALATE	60 J	430 U	110 J	390 U	720 U	740 U	380 U
DI-N-OCTYLPHTHALATE	320 J	66 J	820	390 U	720 U	740 U	380 U
TOTAL NUMBER OF SV TICS	20	7	20	1	4	3	2
TOTAL SV TIC CONCENTRATION	9280	1091	17700	400	4250	4900	217
TOT. PET. HYDRODCARBON (TPHC) (mg/kg)	191 JQ	320 JQ	72 J	200 J	47 J	34 J	25 UJ
TOT. ORGANICS (VOC+SVOC+TPHC)mg/kg	201	331	91	200	51	41	0.2
TOT. ORGANIC CARBON(mg/kg)	5,950 J	1,780 J	8,290 J	2,180 J	1,120 J	1,240 J	932 J
INORGANICS (mg/kg)							
ARSENIC	4.1 J	2.6 J	3.0 J	10.0 J	9.0	8.4	8.4
BARIUM	37.0	20.9	34.2	11.3	12.5	17.2	11.3
BERYLLIUM	0.6	0.5 U	0.6	0.5 U	0.6	0.4	0.4
CHROMIUM	24.6 J	11.9 J	28.1 J	41.6 J	44.4	34.0	50.6 J
COBALT	2.0 U	2.4	2.2 U	2.2 U	1.2 U	1.2 U	1.8 U
COPPER	5.4	14.6	1.9 U	1.9 U	1.4 U	1.7	15.3
LEAD	39.8 J	12.4 J	29.9 J	2.4 J	2.7	4.8 J	2.5
MANGANESE	122.0	92.1	112.0	8.8	20.1	51.4	9.8
NICKEL	4.9 U	5.8 U	5.3 U	5.3 U	2.8	2.6	2.1 U
VANADIUM	18.8	12.1	19.1	22.5	19.7	16.2	21.0
ZINC	40.8	24.6	42.6	17.1	15.8 J	13.2 J	10.9
CYANIDE	0.6 U	0.7	0.6 U	0.6 U	10	0.7	5.7 U

Notes:

U = NOT DETECTED.

J = ESTIMATED VALUE.

R = REJECTED BY VALIDATION.

NC = NO CRITERION.

Q = QUANTITATION SUSPECT(concentration in diluted analysis was below reliable quantitation limit).

Shading indicates exceedance of applicable criterion.

(1) - Contaminants listed are those detected in soil samples.

Table 8

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
 SURFACE WATER SAMPLE DATA SUMMARY  
 Page 1 of 2

AQUATIC ENVIRONMENT LOCATIONS				DISCHARGE LOCATIONS					
SAMPLE LOCATION				Intermittent		Barker's Brook Drainage			
Upstream		SURFACE WATER		Stream		Downstream		Midstream	
FRESHWATER CHRONIC		AQUATIC CRITERION		SW04		SW01 SW05		SW02 SW06	
DATE SAMPLED		DATE SAMPLED		DATE SAMPLED		DATE SAMPLED		DATE SAMPLED	
12/17/91		12/18/91		12/17/91		12/18/91		12/17/91	
GOLD BOOK		NJ SWQC		12/18/91		12/18/91		12/18/91	
VOLATILE ORGANICS (ug/l)(3)									
METHYLENE CHLORIDE									
		39 BJ	16 UJ	10 UJ	47	2.49	10 UJ	10 UJ	10 UJ
TOTAL NUMBER OF TICS									
		0	0	0	-	-	0	0	0
TOTAL TIC CONCENTRATION									
		0	0	0	-	-	0	0	0
SEMIVOLATILE ORGANICS (ug/l)(3)									
PHENOL									
		10 U	10 U	10 U	2560	20,900	10 U	1 J	1 J
BUTYLBENZYLPHTHALATE									
		10 U	10 U	10 U	3	239	10 UJ	10 UJ	2 J
BIS(2-ETHYLHEXYL)PHTHALATE									
		10 UJ	10 U	10 UJ	4	1.76	3 J	10 UJ	10 UJ
DI-N-OCTYLPHTHALATE									
		10 UJ	10 UJ	10 UJ	360(2)	-	6 J	10 UJ	140 JD
TOTAL NUMBER OF TICS									
		0	0	0	-	-	14	2	20
TOTAL TIC CONCENTRATION									
		0	0	0	-	-	90	10	1565
WET CHEMISTRY ANALYTES(mg/l)									
Total Suspended Solids									
		5.6	68	12.6	(7)	25	33.1	55.2	1027.8 J
Total Dissolved Solids									
		100	10 U	30	(7)	500	450	230	710
Chloride									
		17.0	15.7	16.3	230	250	114	62.5	250.0
MBAS(Surfactants)									
		0.25 U	0.25 U	0.25 U	-	10,000	1.6	0.25 U	0.25 U
Nitrate(NO3 as N)									
		1.2	1.2	1.3	10	-	0.98	0.55	1.6
Chemical Oxygen Demand									
		5.8	5.8	5.8	-	-	262	57.2	328
Biochemical Oxygen Demand									
		1.2 U	1.7 U	1.9 U	-	-	48	1.4 U	7.1 J
Total Petroleum Hydrocarbons									
		0.3 U	0.3 U	0.3 U	-	(7)	0.3 U	0.3 U	0.9 U
FIELD MEASUREMENTS									
Temperature(C)									
		2.0	2.0	3.0	(7)	±1.7	30	4.0	35
Dissolved Oxygen (mg/l)									
		12.4	12.6	10.2	(7)	5.0	4.2	5.0	6.1
pH(Standard Units)									
		5.30	6.18	6.50	6.5-9.0	6.5-8.5	6.51	4.76	7.37
Eh(mv)									
		83.1	78.9	80.0	-	-	134.2	95.0	71.6
Conductivity(umho/cm)									
		100	90	90	-	-	160	345	900

Notes:

U=NOT DETECTED.

J=ESTIMATED VALUE.

R=REJECTED BY VALIDATION.

D=VALUE FROM SECONDARY DILUTION.

(1)-Gold Book values from Quality Criteria for water-1992, USEPA.

(2)-New Jersey FW-2 Surface Water Quality Criteria from NJAC 7:9B - 1.14

(3)-Contaminants listed are those detected in soil samples.

(4)-Insufficient data; value is lowest observed effect level (LOEL) for phthalate esters.

(5)-Proposed criterion.

(6)-No criterion for protection of aquatic life; value shown is for protection of human health by consumption of water.

(7)-No general numerical criterion; narrative statement in document.

(8)-No published criterion; value shown is recalculated from IRIS, 9/90.

(9)-No change greater than 1.7°C (3°F).

(10)-24 hour average (minimum); 4.0 mg/l at any time. Criterion for non-trout waters.

Table 8  
 KAUFFMAN & MINTEER SITE REMEDIAL INVESTIGATION  
 SURFACE WATER SAMPLE DATA SUMMARY  
 Page 2 of 2

SAMPLE ID	AQUATIC ENVIRONMENT LOCATIONS							DISCHARGE LOCATIONS							
	SURFACE WATER				INTERMITTENT STREAM			BARKER'S BROOK							
	SAMPLE LOCATION		SW01		SW02		SW03		DITCH		SW03A		SW03A		
FRESH CHRONIC	SW04	SW04A	SW01	SW05	SW01A	SW02	SW02A	SW03	SW03	SW03A	SW03A	SW03A	SW03A	SW03A	SW03A
DATE SAMPLED	12/18/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91	12/17/91
AQUATIC CRITERIA	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91	12/18/91
SAMPLE TYPE	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL	FILTERED	TOTAL
INORGANICS(mg/L) (3)															
ARSENIC	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	2.0 UJ	190	0.017	3.5 J	2.0 J	2.0 J	2.3	8.1	2.8	
BARIUM	31.7 J	30.1	31.9	30.2	32.2	92.5 J	1000(5)	2000(5)	7.3	30 U	22.8	10.3	380.0	27.6	
BERYLLIUM	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	53(6)	-	1.0 U	1.0 U	1.0 U	1.0 U	4.3	1.0 U	
CADMIUM	3.0 UJ	3.0 U	3.0 U	3.0 U	3.0 U	3.0 UJ	1.1	10(5)	3.0 U	3.0 U	3.0 U	3.0 U	10.2	3.0 U	
CHROMIUM	6.0 UJ	6.0 U	6.0 U	6.0 U	6.0 U	6.0 UJ	210	160	12.3	6.0 U	6.0 U	6.0 U	130.0	6.0 U	
COBALT	4.0 UJ	4.0 U	4.0 U	4.0 U	4.0 U	210 J	-	-	4.0 U	4.0 U	4.0 U	4.0 U	10.6	4.0 U	
COPPER	2.0 UJ	7.7	2.0 U	9.1	2.0 U	50 J	12	-	13.6	6.1	12.2	5.2	148.0 J	6.9	
LEAD	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	3.2	5(5)	10.9	3.5 J	17.7	5.6 J	430.0	6.4	
MANGANESE	90.6 J	90.8	91.4	91.4	R	R	50	100	103.0	84.0	108.0	85.2	783.0	161.0	
MERCURY	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.012	0.144	0.1	0.2	0.1 UJ	0.1 UJ	0.3 J	0.1 UJ	
NICKEL	14.0 UJ	14.0 U	14.0 U	14.0 U	R	R	160	516	14.0 U	14.0 U	14.0 U	14.0 U	37.8	14.0 U	
SELENIUM	1.0 UJ	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	50	10(5)	1.1	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 U	
THALLIUM	1.2 J	1.0 U	1.2	1.0 U	1.0 U	1.1 U	40	1.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 UJ	1.0 UJ	
VANADIUM	3.1 J	3.0 U	3.0 U	3.0 U	3.0 U	3.0 UJ	-	-	11.2	5.2	5.6	3.0 U	96.7	3.0 U	
ZINC	17.5 J	21.0 J	18.7	19.1	R	R	110	-	94.2	26.0	61.3	41.6	852.0	51.3	

Notes:  
 U = NOT DETECTED,  
 J = ESTIMATED VALUE,  
 R = REJECTED BY VALIDATION,  
 D = VALUE FROM SECONDARY DILUTION.

- (1) - Gold Book values from Quality Criteria for water - 1992, USEPA.
- (2) - New Jersey FW-2 Surface Water Quality Criteria from NJAC 7:9B - 1.14.
- (3) - Contaminants listed are those detected in soil samples.

(4) - TAL crustal abundant metals (aluminum, calcium, iron, magnesium, potassium, and sodium) not tabulated.

(5) Criterion based on protection of human health as drinking water source.

(6) Insufficient data; value is Lowest Observed Effect Level (LOEL).

(7) Value is for irrvalent chromium



Table 9

KAUFFMAN AND MINTEER SITE REMEDIAL INVESTIGATION  
SURFACE WATER BODY SEDIMENT AND SOIL SAMPLE DATA SUMMARY

SAMPLE LOCATION	Barker's Brook Sediment			NOAA ER-L	NOAA ER-M	Intermittent Stream	Ditch Sediment	
	SD01	SD02	SD03	Guideline	Guideline	SD04	SD05	SD06
VOLATILE ORGANICS(ug/kg)								
CARBON DISULFIDE	3 J	15 U	15 U	NC	NC	2 J	15 UJ	8 J
Chlorinated Aliphatics								
VINYL CHLORIDE	17 U	15 U	15 U	NC	NC	14 UJ	15 UJ	830
METHYLENE CHLORIDE	17 U	2 J	9 J	NC	NC	19 J	15 UJ	14 J
1,1-DICHLOROETHENE	17 U	15 U	15 U	NC	NC	14 UJ	15 UJ	16 J
1,2-DICHLOROETHENE (TOTAL)	17 U	15 U	15 U	NC	NC	14 UJ	15 UJ	27,000
TRICHLOROETHENE	17 U	15 U	15 U	NC	NC	R	15 UJ	58 J
TETRACHLOROETHENE	17 U	15 U	15 U	NC	NC	14 UJ	R	19 J
BTEX Compounds								
BENZENE	17 U	15 U	15 U	NC	NC	R	15 UJ	18 J
TOLUENE	17 U	15 U	15 U	NC	NC	2 J	R	97,000
ETHYLBENZENE	17 U	15 U	15 U	NC	NC	14 UJ	R	35,000
XYLENES (TOTAL)	17 U	15 U	15 U	NC	NC	14 UJ	R	160,000
Ketones								
ACETONE	590 D	180 UJ	170 U	NC	NC	92 UJ	64 UJ	280 U
2-BUTANONE	220	47	34 U	NC	NC	17 UJ	15 UJ	120 U
TOTAL VOLATILE TICS	2	0	0	NC	NC	8	10	10
VOLATILE TIC CONCENTRATION	52	0	0	NC	NC	622	1201	5,920
SEMIVOLATILE ORGANICS (ug/kg)								
Polynuclear Aromatic Hydrocarbons (PAHs)								
ACENAPHTHENE	570 U	500 U	76 J	150	650	19,000 U	100,000 U	440,000 U
BENZO(A)ANTHRACENE	94 J	500 U	510 U	230	1,600	19,000 U	100,000 U	440,000 U
BENZO(A)PYRENE	72 J	500 U	510 U	400	2,500	19,000 U	100,000 U	440,000 U
BENZO(B)FLUORANTHENE	130 J	500 U	100 J	NC	NC	19,000 U	100,000 U	440,000 U
CHRYSENE	100 J	500 U	510 U	400	2,800	19,000 U	100,000 U	440,000 U
FLUORANTHENE	150 J	500 U	150 J	600	3,600	19,000 U	100,000 U	440,000 U
PHENANTHRENE	93 J	78 J	510 U	225	1,380	19,000 U	100,000 U	440,000 U
PYRENE	240 J	62 J	130 J	350	2,200	19,000 U	100,000 U	440,000 U
Total PAHs	879	140	456	4,000	35,000	0	0	0

Phthalates									
BUTYLBENZYLPHthalate	570 U	500 U	510 U	NC	NC	72,000	73,000 J	2,300,000	
DIETHYLPHthalate	63 J	500 U	510 U	NC	NC	19,000 U	100,000 U	440,000 U	
DI-N-BUTYLPHthalate	960	930	700	NC	NC	19,000 U	100,000 U	440,000 U	
DI-N-OCTYLPHthalate	540 J	140 J	510 U	NC	NC	91,000	350,000	1,900,000	
Total Phthalates	1,563	1,070	700	NC	NC	163,000	423,000	4,200,000	
TOTAL NUMBER OF SV TICS	18	18	18	NC	NC	20	20	20	
TOTAL SV TIC CONCENTRATION	37,590	12,750	14,390	NC	NC	1,115,000	2,558,000	22,580,000	
Tot.Petroleum Hydrocarbon (TPHC)(mg/kg)	5,360 J	131 J	83 J	NC	NC	21,000 J	57,200 J	85,400 J	
TOT.ORGANIC(VOC+SVOC+TPHC)(mg/kg)	5,401	145	98	NC	NC	22,279	60,482	112,185	
TOTAL ORGANIC CARBON (mg/kg)	26,300	7460	47,600	NC	NC	15,600	73,800	55,300	
INORGANICS (mg/kg)(1)(2)									
ANTIMONY	4.8 UJ	3.8 UJ	4.5 UJ	2	25	3.6 UJ	3.4 J	3.2 UJ	
ARSENIC	5.1 J	5.1	5.8	33	85	13.1	10.4	9.5	
BARIUM	101.0 J	64.0	117.0	NC	NC	13.9	168.0	86.3	
BERYLLIUM	2.4 J	2.2	2.5	NC	NC	1.2	1.9	1.6	
CADMIUM	0.8 UJ	0.6 U	0.8 U	5	9	0.6 U	2.8	1.8	
CHROMIUM	125.0 J	108.0	122.0	80	145	68.1	103.0	98.8	
COBALT	4.0 J	2.7	3.5	NC	NC	1.7	4.9	3.6	
COPPER	12.1 J	5.3	5.1	70	390	2.8	43.9	28.6	
LEAD	28.4 J	11.0	13.8	35	110	8.6	385.0	125.0	
MANGANESE	56.4 J	39.2	47.3	NC	NC	24.1	168.0	127.0	
MERCURY	0.2 UJ	0.1 U	0.2 U	0.15	1.3	0.1 U	0.2	0.1 U	
NICKEL	12.4 J	7.6	11.2	30	50	4.7	12.8	10.2	
SELENIUM	0.7 J	0.6	0.8	NC	NC	0.8	0.7	0.6	
VANADIUM	49.9 J	43.5	48.7	NC	NC	42.7	54.8	53.7	
ZINC	103.0 J	108.0 J	82.8 J	120	270	33.2 J	283.0 J	180.0 J	

Notes:

U = NOT DETECTED,  
 J = ESTIMATED VALUE,  
 R = REJECTED (UNUSABLE) DATUM,  
 NC = NO CRITERION.

Shading indicates exceedance of applicable criterion.

(1) - Contaminants listed are those detected in soil samples.

(2) - TAL crustal abundant metals (aluminum, calcium, iron, magnesium, potassium, and sodium) not tabulated.

Table 10

SUMMARY OF COMPOUNDS OF CONCERN IN SURFACE SOILS  
 BASED ON CONCENTRATION/TOXICITY SCREENING AND RISK BASED CONCENTRATIONS

Potential Compounds of Concern in Surface Soils(1)	Risk Based Concentrations Residential Soil Ingestion(2) (mg/kg)	Maximum Conc. (mg/kg)	Compound of Concern(3)	Risk Based Concentrations Ambient Air (ug/m3)	Maximum Air Conc. (ug/m3)	Compound of Concern
INORGANICS						
BERYLLIUM	0.015	1.70	Yes	7.50E-05	1.66E-04	Yes
CADMIUM	3.9	0.88		9.90E-05	8.58E-05	
CHROMIUM (Cr III @ 85%)		84.32		2.10E-04	8.22E-03	Yes
CHROMIUM (Cr VI @ 15%)	39	14.88		1.50E-05	1.45E-03	Yes
COPPER	290	116.00		1.40E+01	1.13E-02	
VANADIUM PENTOXIDE	70	54.70		3.30E+00	5.33E.03	
ZINC AND COMPOUNDS	2300	201.00		1.10E+02	1.96E.02	
SEMIVOLATILE ORGANICS						
BENZO(A)ANTHRACENE	0.088	0.44	Yes	1.00E-03	4.29E.05	
BENZO(A)PYRENE	0.0088	0.37	Yes	1.00E-04	3.61E-05	
BENZO(B)FLUORANTHENE	0.088	0.82	Yes	1.00E-03	8.00E-05	
BIS(2-ETHYLHEXYL)PHTHALATE	4.6	58.00	Yes	4.50E-02	5.66E-03	
BUTYLBENZYLPHATHALATE	1600	270.00		7.30E+01	2.63E-02	
DI-N-OCTYLPHTHALATE	160	500.00	Yes	7.30E+00	4.88E-02	
DIBENZO(A,H)ANTHRACENE	0.0088	0.14	Yes	1.00E-04	1.37E-05	
INDENO(1,2,3-CD)PYRENE	0.088	0.28	Yes	1.00E-03	2.73E-05	
TIC PHTHALATES	Not Available	2803.00	Yes	Not Available	2.73E-01	
TIC BENZENE DERIV.	Not Available	162.00	Yes	Not Available	1.58E-02	

## Notes:

(1) Based on concentration/toxicity screening.

(2) Based on a 0.1 hazard quotient or a 10' cancer risk. (USEPA Region III "Risk Based Concentration Table, January - June 1995" correspondence by Roy L. Smith, PH. D. dated March, 1995.)

(3) Indicates selected as a compound of concern, i.e. , the maximum concentration is greater than the risk based concentration.

Table 11

SUMMARY OF COMPOUNDS OF CONCERN IN SURFACE SOILS  
 BASED ON CONCENTRATION/TOXICITY SCREENING AND RISK BASED CONCENTRATIONS

Potential Compounds of Concern in Surface Soils (1)	Risk Based Concentrations Residential Soil Ingestion(2) (mg/kg)	Maximum Conc. (mg/kg)	Compound Of Concern(3) Ingestion	Risk Based Concentrations Ambient Air(2) (mg/m3)	Maximum Air Conc. (mg/m3)	Compound of Concern(3) Inhalation
INORGANICS						
ANTIMONY	3.1	3.3	Yes	1.50E-05	3.22E-04	
CHROMIUM (CrIII @ 85%)				2.10E-04	8.37E-03	Yes
CHROMIUM (Cr VI @ 15%)	39	15.2		1.50E-05	1.48E-03	Tes
COPPER	290	12.1		1.40E+01	1.17E-03	
SELENIUM AND COMPOUNDS	39	2.3		1.80E+00	2.24E-04	
VANADIUM PENTOXIDE	70	52.8		3.30E+00	5.15E-03	
VOLATILE ORGANICS						
TRICHLOROETHENE	5.8	0.0		1.00E-01	9.75E-08	
SEMIVOLATILE ORGANICS						
DI-N-OCTYLPHTHALATE	160	65.0		7.30E+00	6.34E-03	
ISOPHORONE	67	0.0		6.60E-01	4.00E-06	
TIC BENZENE DERIV	Not Available	46.0			4.49E-03	
TIC PHTHALATES	Not Available	773.0	Yes		7.54E-02	

## Notes:

(1) Based on concentration/ toxicity screening.

(2) Based on a 0.1 hazard quotient or a 10<sup>-7</sup> cancer risk. (USEPA Region III "Risk Based Concentration Table, January - June 1995" correspondence by Roy L. Smith, Ph. D. dated March 7, 1995.)

(3) Indicates selected as a compound of concern, i.e. , the maximum concentration is greater than the risk based concentration.

Table 12

SUMMARY OF COMPOUNDS OF CONCERN IN LAGOON SEDIMENT  
 BASED ON TOXICITY SCREENING AND RISK BASED CONCENTRATIONS

Potential Compounds at Concern in Lagoon "1" INGESTION	Risk Based Concentrations Residential Soil Ingestion(2) (mg/kg)	Maximum Conc. (mg/kg)	Compound of Concern(3)
VOLATILE ORGANICS			
1, 1, 1 -TRICHLOROETHANE	700	1600	Yes
1,2-CHLOROETHENE (TOTAL)	70	1100	Yes
ETHYLBENZENE	780	1300	Yes
TETRACHLOROETHENE	1.2	230	Yes
TOLUENE	1600	2200	Yes
TRICHLOROETHENE	5.8	3100	Yes
SEMIVOLATILE ORGANICS			
BUTYLBENZYLPHTHALATE	1600	31000	Yes
DI-N-OCTYLPHTHALATE	160	4400	Yes
TIC BENZENE DERIV.	Not Available	680	Yes
TIC PHTHALATES	Not Available	6660	Yes

Potential Compounds of Cancer in Lagoon(4) INHALATION	Risk Based Concentrations Ambient Air(2) (ug/m3)	Concern(3)	On -Site Receptor Maximum Conc.(5) (ug/m3)	On-Site Receptor Compound of Maximum Concern(2)	Off-Site Receptor Maximum Conc.(3)	Off-Site Receptor Compound of
VOLATILE ORGANICS						
1,1-DICHLOROETHANE	52	9.7E+01	Yes	2.2E+00		
1,2-DICHLOROETHENE (TOTAL)	3.7	4.7E+03	Yes	1.1E+02	Yes	
1,1,1 -TRICHLOROETHANE	100	4.9E+03	Yes	1.1E+02	Yes	
TRICHLOROETHENE	0.1	5.4E+03	Yes	1.2E+02	Yes	
TETRACHLOROETHENE	0.31	1.4E+02	Yes	3.3E+00	Yes	
TOLUENE	42	7.0E+02	Yes	1.6E+01		
ETHYLBENZENE	100	1.5E+02	Yes	3.5E+00		
XYLENES (Total)	730(8)	5.2E+02		1.2E+01		
SEMIVOLATILE ORGANICS						
PHENOL	220	4.1E-01		9.4E-03		
1,2-DICHLOROBENZENE	15	NQ(7)		NQ(7)		
NAPHTHALENE	15	NQ(7)		NQ(7)		
2-METHYLNAPHTHALENE	Not Available	NQ(7)		NQ(7)		
ANTHRACENE	110	NQ(7)		NQ(7)		
DI-N-BUTYLPHTHALATE	Not Available	NQ(7)		NQ(7)		
BUTYLBENZYLPHTHALATE	73	NQ(7)		NQ(7)		
DI-N-OCTYLPHTHALATE	7.3	NQ(7)		NQ(7)		

TIC BENZENE DERIV.	Not Available	NQ(7)	NQ(7)
TIC PHTHALATES	Not Available	NQ(7)	NQ(7)

Notes:

- (1) Based on concentration/toxicity screening
- (2) Based on a 0.1 hazard quotient or a  $10^{-7}$  cancer risk (USEPA Region III \*Risk Based Concentration Table, January-June 1995\* correspondence by Roy L. Smith, Ph. D. dated March 7, 1995.)
- (3) Indicates selected as a compound of concern, i.e., the maximum concentration is greater than the risk based concentration.
- (4) Only used volatile compounds which were detected in lagoon sediment at 10 ppm or greater.
- (5) Calculated using model discussed in text for on-site receptors (USEPA, Guidance Nov. 1992, A Workshop on Air Pathway Analysis at Superfund Sites).
- (6) Calculated using model discussed in text for off-site receptors (USEPA, Guidance Nov. 1992, A Workshop on Air Pathway Analysis at Superfund Sites).
- (7) NQ = Not Quantifiable
- (8) Risk-based concentration for mixed xylenes.

Table 13

SUMMARY OF COMPOUNDS OF CONCERN IN DITCH, MARSH AND INTERMITTENT STREAM SOILS  
BASED ON CONCENTRATION/TOXICITY SCREENING AND RISK BASED CONCENTRATIONS

Potential Compounds of Concern in Marsh(1)	Risk Based Concentrations Residential Soil Ingestion(2) (mg/kg)	Maximum Conc. (mg/kg)	Compound of Concern(3)
INORGANICS			
ANTIMONY	3.1	3.4	Yes
BERYLLIUM	0.015	2.3	Yes
CADMIUM	3.9	2.8	
CHROMIUM (Cr VI@ 15%)	39	19.65	
COPPER	290	43.9	
VANADIUM PENTOXIDE	70	63.9	
VOLATILE ORGANICS			
1,2-DICHLOROETHENE (TOTAL)	70	20	
VINYL CHLORIDE	0.034	0.83	Yes
SEMIVOLATLE ORGANICS			
BIS(2-ETHYLHEXY)PHTHALATE	4.6	8.6	Yes
BUTYLBENZYLPHthalATE	1600	1950	Yes
DI-N-OCTYLPHthalATE	160	1600	Yes
TIC BENZENE DERIV.	NA	41	Yes
TIC PHTHALATES	NA	9771	Yes

## Notes:

(1) Based on concentration/toxicity screening.

(2) Based on a 0.1 hazard quotient or a 10.7 cancer risk. (USEPA Region III "Risk Based Concentration Table. January - June 1995" correspondence by Roy L. Smith, Ph.D. dated March 7, 1995.)

(3) Indicates selected as a compound fo concern, i.e., the maximum concentration is greater than the risk based concentration.

Table 14

SUMMARY-OF-COMPOUNDS OF CONCERN IN NAVESINK MARL GROUNDWATER  
 BASED ON CONCENTRATION/TOXICITY SCREENING AND RISK BASED CONCENTRATIONS

Whole House Model					Shower Model						
Potential Compounds of Concern in Nacasink Mart(1)		Risk Based Concentrations Tap Water(2)			Maximum Conc.	Compound Risk Based of Concern(3)	Concentrations Ambrietrn Air(2)	Maximum Air Conc.	Compound of Concern(3)	Maximum Air Conc.	Compound of Concern(3)
Inhalation	(ug/m3)	Inhalation			(ug/1)	(ug/1)	Ingestion	(ug/m3)	(ug/m3)	(ug/m3)	(ug/m3)
INORGANICS											
BERYLLIUM	1.60E-03	300E+00	Yes	7.50E-05							
CHROMIUM (Cr VI@ 15%)	1.80E+01	227E+01	Yes	1.50E-05							
COPPER	1.40E+02	6.37E+01		1.40E+01							
SELENIUM AND COMPOUNDS	1.80E+01	1.80E+00		1.80E+00							
VANADIUM PENTOXIDE	3.30E+01	5.61E+01	Yes	3.30E+00							
ZINC AND COMPOUNDS	1.10E+03	1.72E+02		1.10E+02							
CYANIDE, FREE	7.30E+01	6.90E+00		7.30E+00							
VOLATILE ORGANICS											
1,1-DICHLOROETHANE	8.10E+01	4.00E+00		5.20E+01	9.8E+01	Yes	1.5E+00				
1,2-DICHLOROETHENE (TOTAL)	5.50E+00	9.70E+01	Yes	3.30E+00	2.1E+03	Yes	1.1E+01	Yes			
TETRACHLOROETHENE	1.10E-01	4.00E+00	Yes	3.10E-01	8.0E+01	Yes	1.3E+00	Yes			
TRICHLOROETHENE	1.60E-01	1.60E+01	Yes	1.00E-01	3.5E+02	Yes	2.9E+00	Yes			
VINYL CHLORIDE	1.90E-03	2.05E+01	Yes	2.10E-03	8.3E+02	Yes	6.3E+00	Yes			
BENZENE	3.60E-02	1.00E+00		2.20E-02	2.4E+01	Yes	3.7E-01	Yes			
SEMIVOLATILE ORGANICS											
ISOPHORONE	7.10E+00	6.70E+02	Yes	6.60E-01							

## Notes:

(1) Based on concentration/toxicity screening.

(2) Based on a 0.1 hazard quotient or a 10' cancer risk (USEPA Region III "Risk Based Concentration Table. January-June 1995" correspondence by Roy L. Smith, Ph.d. dated March 7, 1995.)

(3) Indicates selected as a compound of concern, i.e., the maximum concentration is greater than the risk based concentration.



Table 15  
SUMMARY OF COMPOUNDS OF CONCERN IN WENONAH-MT. LAUREL GROUNDWATER  
BASED ON TOXICITY SCREENING AND RISK BASED CONCENTRATIONS

Potential Compounds of Concern in Wenonah-Mt. Laurel Groundwater(1)	Risk Based Concentrations Tap Water(2) (ug/L)	Maximum Conc. (ug/L)	Compound of Concern(3)
INORGANICS			
CHROMIUM (CrIII @ 85%)	3700	115.6	
CHROMIUM (Cr VI @ 15%)	18	20.4	Yes
COPPER	140	11.9	
CYANIDE, FREE	73	5	

Notes:

(1) Based on concentration/toxicity, screening.

(2) Based on a 0.1 hazard quotient or a 10.7 cancer risk. (USEPA Region III "Risk Based Concentration Table, January-June 1995" correspondence by Roy L. Smith, Ph. D. dated March 7, 1995.)

(3) Indicates selected as a compound of concern. i.e., the maximum concentration is greater than the risk based concentration.

Table 16  
SUMMARY OF FINAL COMPOUNDS OF CONCERN

FOR ALL MEDIA

Compound	Matrix					Wenonah-Mt. Laurel
	Surface Soil	Subsurface Soil	Lagoon	Ditch, Marsh & Stream	Navesink Marl	
INORGANICS						
ANTIMONY		v		v		
BERYLLIUM	v			v	v	
CHROMIUM (Cr III @ 85%)	v	v				
CHROMIUM (Cr VI @ 15%)	v	v			v	v
VANADIUM PENTOXIDE					v	
VOLATILE ORGANICS						
1,1-DICHLOROETHANE			v		v	
1,2 DICHLOROETHENE (TOTAL)			v		v	
1,1,1-TRICHLOROETHANE			v			
TRICHLOROETHENE			v		v	
TETRACHLOROETHENE			v		v	
TOLUENE			v			
ETHYLBENZENE			v			
VINYL CHLORIDE				v	v	
BENZENE					v	
SEMIVOLATILE ORGANICS						
BENZO(A)ANTHRACENE	v					
BENZO(A)PYRENE	v					
BENZO(B)FLUORANTHENE	v					
DEBENZO(A,H)ANTHRACENE	v					
INDENO(1,2,3-CD)PYRENE	v					
ISOPHORONE				v		
BIS(2-ETHYLHEXYL)PHTHALATE	v			v		
BUTYLBENZYLPHTHALATE			v	v		
DI-N-OCTYLPHTHALATE	v		v	v		
TIC BENZENE DERIV.	v	v	v	v		
TIC PHTHALATES	v	v	v	v		

Notes:

v = Compound of Concern

Table 17  
KAUFFMAN & MINTEER SITE  
SUMMARY OF STATISTICS FOR COMPOUNDS OF CONCERN  
SURFACE SOILS

COMPOUND	FREQUENCY(1) OF OCCURRENCE	MAXIMUM DETECTED CONC.	GEOMETRIC MEAN(2)	ARITHMETIC MEAN(2)	95% UCL(2)	MEHTOD OF UCL CALC (3)	W TEST STATISTIC UN- TRANSFORMED	LOG TRANSFORMED	EXPOSURE POINT CONC.(4)
INORGANICS (mg/kg)									
BERYLLIUM	11/14	1.70E+00	5.29E-01	6.10E-01	8.49E-01	LN	7.85E-01	9.26E-01	8.49E-01
CHROMIUM(5)	14/14	9.92E+01	2.65E+01	3.07E+01	4.13E+01	LN	6.74E-01	9.18E-01	4.13E+01
CHROMIUM (Cr III @ 85%)					3.51E+00				
CHROMIUM (Cr VI @15 %)					6.19E+00				
SEMIVOLATILE ORGANICS (ug/kg)									
DI-N-OCYLPHTHALATE	9/14	5.00E+05	4.62E+05	4.47E+04	1.03E+08	LN	3.89E-01	8.42E-01	5.00E+05
BENZO(A)ANTHRACENE	2/14	4.40E+02	6.52E+01	1.48E+02	5.56E+02	LN	7.00E-01	7.79E-01	4.40E+02
BENZO(A)PYRENE	2/14	3.70E+02	6.42E+01	1.43E+02	5.13E+02	LN	7.03E-01	7.82E-01	3.70E+02
BENZO(B)FLUORANTHENE	2/14	8.20E+02	7.18E+01	1.88E+02	9.01E+02	LN	7.19E-01	7.82E-01	8.20E+02
BIS(2-ETHYLHEXYL)PHTHALATE	5/14	5.80E+04	2.75E+02	8.32E+03	3.44E+07	LN	5.59E-01	7.69E-01	5.80E+04
DIBENZO(A,H)ANTHRACENE	1/14	1.40E+02	5.13E+01	1.16E+02	3.32E+02	LN	6.39E-01	7.61E-01	1.40E+02
INDENO(1,2,3-CD)PYRENE	2/14	2.80E+02	6.12E+01	1.33E+02	4.31E+02	LN	7.05E-01	7.99E-01	2.80E+02
TIC BENZENE DERIV	5/14	1.62E+05		1.33E+04					1.62E+05
TIC PHTHALATES	6/14	2.80E+06		2.37E+05					2.80E+06

Notes:

(1) Frequency = Number of Detections/Total number of Samples Analyzed.

(2) Non-detects are incorporated into mean and 95% Upper Confidence Limit calculations as 50% of the Contract Required Detection Limits (CRDLs) except as noted in the text.

(3) Method selected based on visual data review (see text for discussion). LN = lognormal distribution.

(4) The actual high end risk exposure-point concentration used in subsequent calculations is the lesser of the UCL calculated and the maximum value detected.

(5) Chromium is assumed to occur as 15% chromium (VI) and 85% chromium (III).

Table 18  
 KAUFFMAN & MINTEER SITE  
 SUMMARY OF STATISTICS FOR COMPOUNDS OF CONCERN  
 SURFACE SOILS

COMPOUND	FREQUENCY(1) OF OCCURRENCE	MAXIMUM DETECTED CONC.	GEOMETRIC MEAN(2)	ARITHMETIC MEAN(2)	95% UCL(2)	MEHTOD OF UCL CALC (3)	W TEST STATISTIC UN- TRANSFORMED	LOG TRANSFORMED	EXPOSURE POINT CONC.(4)
INORGANIC ANALYTES(mmg/kg)									
ANTIMONY	1/15	3.30E+00	4.10E+00	4.25E+00	4.68E+00		8.25E-01	6.84E-01	3.30E+00
CHROMIUM(5)	15/15	1.01E+02	5.46E+01	5.92E+01	7.35E+01		8.49E+01	9.10E-01	7.35E+01
CHROMIUM (Cr III @ 85%)					6.25E+01				
CHROMIUM (Cr VI @ 15%)					1.10E+01				
SEMIVOLATILE ORGANICS(ug/kg)									
TIC BENZENE DERIV	5/15	4.60E+04	9.37E+03		4.60E+04				
TIC PHTHALATES	2/15	7.73E+05	3.87E+05		4.60E+04				

Notes:

- (1) Frequency = Number of Detections/toatal Number of Samples Analyzed.
- (2) Non-detects are incorporated into mean and 95% Upper cofidence Limit calculations as 50% of the Contract Required Detection Limits (CRDLs) except as noted in the text.
- (3) Method selected based on visual data review ( see text for discussion). LN = lognormal distribution.
- (4) The actual high end risk exposure-point concentration used in subsequent calculations is the lesser of the UCL calculated and the maximum value detected.
- (5) Chromium is assumed to occur as 15% chromium (VI) and 85% chromium (III).

Table 19  
 KAUFFMAN & MINTEER SITE  
 SUMMARY OF STATISTICS FOR COMPOUNDS OF CONCERN  
 SURFACE SOILS

COMPOUND	FREQUENCY(1) OF OCCURRENCE	MAXIMUM DETECTED CONC.	GEOMETRIC MEAN(2)	ARITHMETIC MEAN(2)	95% UCL(2)	METHOD OF UCL CALC (3)	W TEST STATISTIC UN- TRANSFORMED	LOG TRANSFORMED	EXPOSURE POINT CONC.(4)
VOLATILE ORGANICS (ug/kg)									
ETHYLBENZENE	5/5	1.30E+06	7.72E+03	2.62E+05	2.54E+14	LN	5.54E-01	7.39E-01	1.30E+06
TETRACHLOROETHENE	1/5	2.30E+05	4.85E+02	4.61E+04	2.30E+17	LN	5.52E-01	6.17E-01	2.30E+05
TOLUENE	5/5	2.20E+06	4.89E+03	4.41E+05	1.78E+18	LN	5.53E-01	6.74E-01	2.20E+06
1,2-DICHLOROETHENE (TOTAL)	2/5	1.10E+06	7.62E+02	2.20E+05	1.98E+23	LN	5.52E-01	6.26E-01	1.10E+06
1,1,1-TRICHLOROETHANE	1/5	1.60E+06	7.15E+02	3.20E+05	5.65E+25	LN	5.52E-01	6.04E-01	1.60E+06
TRICHLOROETHENE	1/5	3.10E+06	5.15E+02	6.20E+05	2.06E+33	LN	5.52E-01	7.56E-01	3.10E+06
1,1-DICHLOROETHANE	1/5	2.70E+04	3.16E+02	5.49E+03	1.70E+10	LN	5.55E-01	6.40E-01	2.70E+04
SEMIVOLATILE ORGANICS (ug/kg)									
BUTYBENZYLPHthalATE	5/5	3.10E+07	1.03E+06	6.59E+06	5.85E+10	LN	5.65E-01	7.65E-01	3.10E+07
DI-N-OCTYLPHthalATE	5/5	4.40E+06	1.58E+05	9.43E+05	7.31E+09	LN	5.68E-01	7.98E-01	4.40E+06
TIC BENZENE DERIVATIVES	4/5	6.80E+05	1.81E+05	6.80E+05					
TIC PHTHALATES	5/5	6.66E+06	1.66E+06	6.66E+06					

Notes:

- (1) Frequency = Number of Detections/Total Number of Samples Analyzed.
- (2) Non-detects are incorporated into mean and 95% Upper Confidence Limit calculations as 50% of the Contact Required Detection Limits (CRDLs) except as noted in the text.
- (3) Method selected based on visual data review ( see text for discussion). LN = lognormal distribution.
- (4) The actual high end risk exposure-point concentration used in subsequent calculations is the lesser of the UCL calculated and the maximum value detected.

Table 20

KAUFFMAN & MINTEER SITE  
SUMMARY OF STATISTICS FOR COMPOUNDS OF CONCERN  
DITCH & MARSH SOILS

COMPOUND	FREQUENCY OF OCCURRENCE	MAXIMUM DETECTED CONC.	GEOMETRIC MEAN <sup>2</sup>	ARITHMETIC MEAN <sup>2</sup>	95% UCL <sup>2</sup>	METHOD OF UCL CALC.	W TEST STATISTIC UN- TRANSFORMED	LOG TRANSFORMED	EXPOSURE POINT CONC.
INORGANICS (mg/kg)									
ANTIMONY	2/15	3.40E+00	3.10E+00	3.60E+00	5.04E+00	LN	8.38E-01	8.49E-01	3.40E+00
BERYLLIUM	15/15	2.30E+00	1.18E+00	1.26E+00	1.53E+00	LN	9.53E-01	9.79E-01	1.53E+00
VOLATILE ORGANICS (ug/kg)									
VINYL CHLORIDE	1/15	8.30E+02	1.37E+00	5.62E+01	5.51E+01	LN	2.86E-01	4.05E-01	5.51E+01
SEMIVOLATILE ORGANICS (ug/kg)									
BUTYLBENZYLPHthalATE	8/15	1.95E+06	1.28E+03	1.79E+05	7.94E+10	LN	4.13E-01	8.37E-01	1.95E+06
BIS(2-ETHYLHEXYL)PHthalATE	2/15	8.60E+03	2.73E+02	2.73E+03	1.41E+05	LN	5.40E-01	8.47E-01	8.60E+03
DI-N-OCTYLPHTHALATE	11/15	1.60E+06	5.15E+03	1.84E+05	3.40E+10	LN	5.11E-01	8.96E-01	1.60E+06
TIC BENZENE DERIV	7/15	4.10E+04		5.56E+03					4.10E+04
TIC PHTHALATES	9/15	9.77E+06		1.27E+06					9.77E+06

## Notes:

- (1) Frequency = Number of Detections/Total Number of Samples Analyzed.
- (2) Non-detects are incorporated into mean and 95% Upper Confidence Limit calculations as 50% of the Contract Required Detection Limits (CRDLs) except as noted in the text.
- (3) Method selected based on visual data review (see text for discussion). LN = lognormal distribution.
- (4) The actual high end risk exposure-point concentration used in subsequent calculations is the lesser of the UCL calculated and the maximum value detected.

Table 21  
KAUFFMAN & MINTEER SITE  
SUMMARY OF STATISTICS FOR COMPOUNDS OF CONCERN  
LAGOON SEDIMENTS & SURFACE SOILS

COMPOUND	FREQUENCY OF OCCURRENCE	MAXIMUM DETECTED CONC.	GEOMETRIC MEAN <sup>2</sup>	ARITHMETIC MEAN <sup>2</sup>	95% UCL <sup>2</sup>	METHOD OF UCL CALC.3	W TEST STATISTIC		EXPOSURE POINT CONC.
							UN- TRANSFORMED	LOG TRANSFORMED	
INORGANICS (mg/kg)									
BERYLLIUM	16/19	1.70E+00	6.06E-01	6.83E-01	8.91E-01	LN	8.87E-01	9.32E-01	8.91E-01
CHROMIUM(5)	19/19	9.92E+01	2.98E+01	3.39E+01	4.31E+01	LN	8.03E-01	9.70E-01	4.31E+01
CHROMIUM (Cr III @ 85%)									3.67E+01
CHROMIUM (Cr VI @ 15%)									6.47E+00
VOLATILE ORGANICS (ug/kg)									
ETHYLBENZENE	6/19	1.30E+06	3.83E+01	6.90E+04	7.77E+06	LN	2.46E-01	6.22E-01	1.30E+03
TETRACHLOROETHENE	2/19	2.30E+05	1.80E+01	1.21E+04	1.45E+04	LN	2.45E-01	5.67E-01	1.45E+04
TOLUENE	8/19	2.20E+06	3.84E+01	1.16E+05	4.25E+06	LN	2.45E-01	6.93E-01	2.20E+06
1,2-DICHLOROETHENE (TOTAL)	3/19	1.10E+06	2.04E+01	5.79E+04	1.02E+05	LN	2.44E-01	5.47E-01	1.02E+05
1,1,1-TRICHLOROETHANE	1/19	1.60E+06	2.07E+01	8.42E+04	1.28E+05	LN	2.44E-01	5.01E-01	1.28E+05
TRICHLOROETHENE	1/19	3.10E+06	1.90E+01	1.63E+05	2.47E+05	LN	2.44E-01	4.55E-01	2.47E+05
SEMIVOLATILE ORGANICS (ug/kg)									
DI-N-OCTYLPHthalATE	14/19	4.40E+06	2.15E+03	2.81E+05	9.58E+09	LN	3.05E-01	8.95E-01	4.40E+06
BENZO(A)ANTHRACENE	2/19	4.40E+02	1.55E+02	1.18E+03	8.12E+03	LN	3.78E-01	8.77E-01	4.40E+02
BENZO(A)PYRENE	2/19	3.70E+02	1.53E+02	1.17E+03	7.88E+03	LN	3.77E-01	8.78E-01	3.70E+02
BENZO(B)FLUORANTHENE	2/19	8.20E+02	1.67E+02	1.20E+03	9.83E+03	LN	3.85E-01	8.72E-01	8.20E+02
BIS(2-ETHYLHEXYL)PHTHALATE	5/19	5.80E+04	4.49E+02	7.19E+03	2.25E+06	LN	5.47E-01	8.60E-01	5.80E+04
BUTYLBENZYLPHthalATE	13/19	3.10E+07	2.36E+03	1.75E+06	6.98E+11	LN	2.64E-01	8.71E-01	3.10E+07
DIBENZO(A,H)ANTHRACENE	1/19	1.40E+02	1.30E+02	1.15E+03	7.93E+03	LN	3.76E-01	8.55E-01	1.40E+02
INDENO(1,2,3-CD)PYRENE	2/19	2.80E+02	1.48E+02	1.16E+03	7.48E+03	LN	3.77E-01	8.80E-01	2.80E+02
TIC BENZENE DERIV.	9/19	6.80E+05		1.01E+05					6.80E+05
TIC PHTHALATES	11/19	6.66E+06		1.06E+06					6.66E+06

Notes:

- (1) Frequency = Number of Detections/Total Number of Samples Analyzed.
- (2) Non-detects are incorporated into mean and 95% Upper Confidence Limit calculations as 50% of the Contract Required Detection Limits (CRDLs) except as noted in the text.
- (3) Method selected based on visual data review (see text for discussion). LN = lognormal distribution.
- (4) The actual high end risk exposure-point concentration used in subsequent calculations is the lesser of the UCL calculated and the maximum value detected.
- (5) Chromium is assumed to occur as 15% chromium (VI) and 85% chromium (III).

Table 22  
KAUFFMAN & MINTEER SITE  
SUMMARY OF STATISTICS FOR COMPOUNDS OF CONCERN  
NAVESINK MARL GROUNDWATER

COMPOUND	FREQUENCY OF OCCURRENCE	MAXIMUM DETECTED CONC.	GEOMETRIC MEAN <sup>2</sup>	ARITHMETIC MEAN <sup>2</sup>	95% UCL <sup>2</sup>	METHOD OF UCL CALC.	W TEST STATISTIC UN- TRANSFORMED	LOG TRANSFORMED	EXPOSURE POINT CONC.
INORGANICS (ug/kg)									
BERYLLIUM	4/9	3.00E+00	9.55E-01	1.26E+00	1.85E+00	NORMAL	7.87E-01	7.50E-01	1.85E+00
CHROMIUM	7/9	1.51E+02	3.20E+01	5.78E+01	8.79E+01	NORMAL	9.38E-01	8.37E-01	8.79E+01
CHROMIUM (Cr VI@15%)									1.32E+01
VANADIUM PENTOXIDE	8/9	5.61E+01	1.57E+01	2.33E+01	3.48E+01	NORMAL	9.17E-01	9.17E-01	3.48E+01
VOLATILE ORGANICS (ug/L)									
1,2-DICHLOROETHENE (TOTAL)	1/9	9.70E+01	6.95E+00	1.52E+01	3.42E+01	NORMAL	3.90E-01	3.90E-01	3.42E+01
TETRACHLOROETHENE	1/9	4.00E+00	4.88E+00	4.89E+00	5.10E+00	NORMAL	3.90E-01	3.90E-01	4.00E+00
TRICHLOROETHENE	1/9	1.60E+01	5.69E+00	6.22E+00	8.50E+00	NORMAL	3.90E-01	3.90E-01	8.50E+00
VINYL CHLORIDE	1/9	2.05E+01	5.85E+00	6.72E+00	9.93E+00	NORMAL	3.90E-01	3.90E-01	9.93E+00
BENZENE	1/9	1.00E+00	4.18E+00	4.56E+00	5.38E+00	NORMAL	3.90E-01	3.90E-01	1.00E+00
1,1-DICHLOROETHANE	1/9	4.00E+00	4.88E+00	4.89E+00	5.10E+00	NORMAL	3.90E-01	3.90E-01	4.00E+00
SEMIVOLATILE ORGANICS (ug/L)									
ISOPHORONE	1/9	6.70E+02	1.11E+00	7.49E+01	2.13E+02	NORMAL	3.90E-01	3.90E-01	2.13E+02

Notes:

- (1) Frequency = Number of Detections/Total Number of Samples Analyzed.
- (2) Non-detects are incorporated into mean and 95% Upper Confidence Limit calculations as 50% of the Contract Required Detection Limits (CRDLs) except as noted in the text.
- (3) Method selected based on visual data review (see text for discussion). LN = lognormal distribution.
- (4) The actual high end risk exposure-point concentration used in subsequent calculations is the lesser of the UCL calculated and the maximum value detected.
- (5) Chromium is assumed to occur as 15% chromium (VI) and 85% chromium (III).



Table 23  
 KAUFFMAN & MINTEER SITE  
 SUMMARY OF STATISTICS FOR COMPOUNDS OF CONCERN  
 WENONAH-MT. LAUREL GROUNDWATER

COMPOUND	FREQUENCY 1 OF OCCURRENCE	MAXIMUM DETECTED CONC.	GEOMETRIC MEAN <sup>2</sup>	ARITHMETIC MEAN <sup>2</sup>	95% UCL <sup>2</sup>	METHOD OF UCL CALC.	W TEST STATISTIC		EXPOSURE POINT CONC.
							UN- TRANSFORMED	LOG TRANSFORMED	
INORGANICS (ug/L)									
CHROMIUM 5	1/3	1.36E+02	1.07E+02	4.73E+01	1.77E+02	NORMAL	7.50E-01	7.50E-01	1.36E+02
CHROMIUM (Cr VI@ 15%)									2.04E+01

Notes:

- (1) Frequency = Number of Detections/Total Number of Samples Analyzed.
- (2) Non-detects are incorporated into mean and 95% Upper Confidence Limit calculations as 50% of the Contract Required DetectionLimits (CRDLs) except as noted in the text.
- (3) Method selected based on visual data review (see text for discussion). LN = lognormal distribution. N = Normal distribution.
- (4) The actual high end risk exposure-point concentration used in subsequent calculations is the lesser of the UCL calculated and the maximum value detected.
- (5) Chromium is assumed to occur as 15% chromium (VI) and 85% chromium (III).

Table 24  
 KAUFFMAN & MINTEER SITE RI/FS  
 TOXICITY VALUES FOR POTENTIAL NONCARCINOGENIC EFFECTS

Compound	Chronic RfD (mg/kg-day)	IRIS Confidence Level	Critical Effect	RfD Source	Uncertainty and Modifying Factors
ORAL ROUTE					
INORGANICS					
ANTIMONY	4.0E-4	Low	Blood Glucose and Cholesterol Levels; Myocardia; longevity; Reproductive System	IRIS	UF=1000;MF=1
BERYLLIUM	5.0E-3	Low	No Adverse Effect Observed	IRIS	UF=100; MF=1
CHROMIUM (Cr VI@15%)	5.0E-3	Low	No Reported Effects	IRIS	UF=500; MF=1
VANADIUM PENTOXIDE	9.0E-3	Low	Decreased Hair Cystine	IRIS	UF=100; MF=1
VOLATILE ORGANICS					
1,2-DICHLOROETHENE (TOTAL)	9.03E-3		Hematological Effects	HEAST	
1,1,1-TRICHLOROETHANE	Not Available		Hepatotoxicity; Gastrointestinal		
TRICHLOROETHENE	Not Available		Liver; Kidney; Hematological Effects		
TETRACHLOROETHENE	1.0E-2	Medium	Hepatotoxicity; Weight Gain	IRIS	UF=1000;MF=1
TOLUENE	2.0E-1	Medium	Liver and Kidney Weight Changes	IRIS	UF=1000;MF=1
ETHYLBENZENE	1.0E-1	Low	Liver and Kidney Toxicity	IRIS	UF=1000;MF=1
VINYL CHLORIDE	Not Available		Liver Damage		
SEMIVOLATILE ORGANICS					
BENZO(A)ANTHRACENE	Not Available				
BENZO(A)PYRENE	Not Available				
BENZO(B)FLUORANTHENE	Not Available				
DIBENZO(A,H)ANTHRACENE	Not Available				
INDENO(1,2,3-CD)PYRENE	Not Available				
ISOPHORONE	2.0E-1	Low	No Effect Observed	IRIS	UF=1000;MF=1
BIS(2-ETHYLHEXYL)PHTHALATE	2.0E-2	Medium	Liver Weight Increase	IRIS	UF=1000;MF=1
BUTYLBENZYLPHthalATE	2.0E-1	Low	Significantly Increased Liver-to-Body Weight and Liver-to-weight Brain Ratios	IRIS	UF=1000;MF=1
DI-N-OCTYLPHthalATE	2.0E-2		Liver and Kidney Weight Increase; Skin and Eye Irritations	HEAST	

INHALATION ROUTE

NORGANICS

CHROMIUM (Cr III @ 85%) Not Available  
 CHROMIUM (Cr VI @ 15%) Not Available

Possible Respiratory Effects

VOLATILE ORGANICS

1,1-DICHLOROETHANE 1.43E-1  
 1,2-DICHLOROETHENE (TOTAL) Not Available

Kidney Damage  
 Lung, Heart, Liver, Central Nervous System Effects  
 Central Nervous System Effects; Liver  
 Kidney and Liver Effects  
 Enlarged Liver, Central Nervous System Effects

Alternate Heast

1,1,1-TRICHLOROETHANE Not Available  
 TRICHLOROETHENE Not Available  
 TETRACHLOROETHENE Not Available

TOLUENE 1.14E-1  
 ETHYLBENZENE 2.86E-1  
 VINYL CHLORIDE

Medium  
 Low

Neurological Effects  
 Developmental Toxicity  
 Central Nervous System, Liver, Birth Defects  
 Hematological Effects

IRIS  
 IRIS

UF=300; MF=1  
 UF=300; MF=1

BENZENE Not Available

Table 25  
 KAUFFMAN & MINTEER SITE RI/FS  
 TOXICITY VALUES FOR POTENTIAL CARCINOGENIC EFFECTS

Compound	Slope Factor(SF) (mg/kg-day) <sup>-1</sup>	Weight-of-Evidence Classification	Type of Cancer	SF Source
ORAL ROUTE				
INORGANICS				
ANTIMONY	Not Available		D	
BERYLLIUM	4.3		B2	Lung Cancer
CHROMIUM (Cr VI @ 15%)	Not Available		A	Lung Cancer
VANADIUM PENTOXIDE	Not Available		D	
VOLATILE ORGANICS				
1,2-DICHLOROETHENE (TOTAL)	Not Available		D	
1,1,1-TRICHLOROETHANE	Not Available		D	
TRICHLOROETHENE	Not Available	Withdrawn/Under Review		Liver and Kidney Carcinoma; Leukemia
TETRAChLOROETHENE	Not Available		Under Review	
TOLUENE	Not Available		D	
ETHYL BENZENE	Not Available		D	
VINYL CHLORIDE	1.9		A	Liver Cancer
SEMIVOLATILE ORGANICS				
BENZO(A)ANTHRACENE	Not Available		B2	Heptatoma/Pulmonary Adenomas(1)
BENZO(A)PYRENE	7.3		B2	Lung Cancer: Site Tumors(1)
BENZO(B)FLUORANTHENE	Not Available		B2	Site Sarcomas(1)
DIBENZO(A,H)ANTHRACENE	Not Available		B2	Pulmonary Adenomas and Carcinomas; Mammary Carcinomas
INDENO[1,2,3-CD]PYRENE	Not Available		B2	Site Sarcomas(1)
ISOPHORONE	9.5 E-4		C	Preputial Gland Carcinomas
BIS(2-ETHYLHEXYL)PHTHALATE	1.4 E-2		B2	Hepatocellular and Adenoma; Liver Tumors
BUTYLBENZYLPHTHALATE	Not Available		C	Leukemia (in female rats)
DI-N-OCTYLPHTHALATE	Not Available		D	
INHALATION ROUTE				
INORGANICS				
CHROMIUM (Cr III @ 85%)	Not Available		Under Review	
CHROMIUM (Cr VI @ 15%)	4.2 E+1		A	Lung Cancer

VOLATILE ORGANICS

1,1-DICHLOROETHENE	Not Available	C	Mammary Gland Cancer; Liver Cancer(1)	
1,2-DICHLOROETHENE (TOTAL)	Not Available	D		
1,1,1-TRICHLOROETHANE	Not Available	D		
TRICHLOROETHENE	Not Available	Withdrawn/Under Review	Testicular, Lung, Liver Cancer	
TETRACHLOROETHENE	Not Available	Under Review		
TOLUENE	Not Available	D		
ETHYL BENZENE	Not Available	D		
VINYL CHLORIDE	3.0 E-1	A		
BENZENE	2.9 X 10-2	A	Leukemia	HEAST

Notes:

(1) Experimental animals were exposed by gavage, or intraperitoneal, subcutaneous, or intramuscular injection.

EPA Weight of Evidence Classification are as follows:

Group A - Human Carcinogen. Sufficient evidence from epidemiological studies exists to support a casual association between exposure and cancer.

Group B1 - Probable human carcinogen. Limited evidence of carcinogenicity from epidemiological studies.

Group B2 - Probable human carcinogen. Sufficient evidence from animal studies and inadequate evidence from epidemiological studies.

Group C - Possible human carcinogen. Limited evidence of carcinogenicity in animals in the absence of human data.

Group D - Not Classifiable as to human carcinogenicity. Inadequate human and animal evidence of carcinogenicity or for which no data are available.

Group E - Evidence of noncarcinogenicity for humans. No evidence for carcinogenicity in at least two adequate animal tests in different species or in both adequate epidemiological and animal studies.

Table 26  
 KAUFFMAN & MINTEER SITE  
 SUMMARY OF RISKS  
 RESIDENTIAL EXPOSURE

PRESENT USE: HIGH END RISK

Pathway	Carcinogenic	Noncarcinogenic	
	Adult	Adult	Child
Site Soils Fugitive Dust Inhalation	4.6E-07	NQ	NQ
Lagoon Sediment Volatiles Inhalation	IN	IN	IN
Navesink Marl Volatiles Inhalation			
Shower Inhalation	2.7E-06	6.3E-03	2.9E-02
Whole House Inhalation	1.3E-06	NQ	NQ
Navesink Marl Groundwater Ingestion	3.2E-04	3.3E-01	7.8E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	1.1E-01	2.7E-01
Total Risk*	3.2E-04	3.4E-01	8.1E-01

FUTURE USE: HIGH END RISK

Pathway	Carcinogen	Noncarcinogenic	
	Adult	Adult	Child
Soils Fugitive Dust Inhalation	4.6E-07	NQ	NQ
Site Soils Ingestion	4.2E-06	3.9E-02	3.6E-01
Lagoon Sediment Volatiles Inhalation	NQ	2.0E+00	9.4E+00
Lagoon Sediment Ingestion	NQ	7.5E-01	7.0E+00
Navesink Marl Volatiles Inhalation			
Shower Inhalation	2.7E-06	6.3E-03	2.9E-02
Whole House Inhalation	1.3E-06	NQ	NQ
Navesink Marl Groundwater Ingestion	3.2E-04	3.3E-04	7.8E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	1.1E-01	2.7E-01
Total Risk*	3.3E-04	3.1E-04	1.8E+01

PRESENT USE: CENTRAL TENDENCY RISK\*\*

Pathway	Carcinogenic	Noncarcinogenic	
	Adult	Adult	Child
Site Soils Fugitive Dust Inhalation	4.6E-07	NQ	NQ
Lagoon Sediment Volatiles Inhalation	IN	IN	IN
Navesink Marl Volatiles Inhalation			
Shower Inhalation	5.6E-07	6.3E-03	2.9E-02
Whole House Inhalation	3.8E-07	NQ	NQ
Navesink Marl Groundwater Ingestion	4.5E-05	3.3E-01	7.8E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	1.1E-01	2.7E-01
Total Risk*	4.6E-05	3.4E-01	8.1E-01

FUTURE USE: CENTRAL TENDENCY RISK\*\*

Pathway	Carcinogen	Noncarcinogenic	
	Adult	Adult	Child
Site Soils Fugitive Dust Inhalation	4.6E-07	NQ	NQ
Site Soils Ingestion	6.7E-07	3.9E-02	3.6E-01
Lagoon Sediment Volatiles Inhalation	NQ	NQ	NQ
Lagoon Sediment Ingestion	NQ	3.1E-01	1.5E+00
Navesink Marl Volatiles Inhalation			
Shower Inhalation	5.6E-07	6.3E-03	2.9E-02
Whole House Inhalation	3.8E-07	NQ	NQ
Navesink Marl Groundwater Ingestion	4.5E-05	3.3E-01	7.8E-01
Wenonah Mt. Laurel Groundwater Ingestion	NQ	1.1E-01	2.7E-01
Total Risk*	4.7E-05	6.9E-01	2.6E+00

Notes:

NQ = Not Quantifiable

IN = Inappropriate

\* Total Risk calculated assuming use of the Navesink Marl groundwater.

\*\* No central tendency risk calculated for exposures which do not show high end risk. High end risk for these exposures is included in the central tendency risk quantification.

Table 27  
 KAUFFMAN & MINTEER SITE  
 SUMMARY OF RISKS  
 TRESPASSER EXPOSURE

PRESENT USE: HIGH END RISK

Pathway	Carcinogenic	Noncarcinogenic
Site Soils and Lagoon Sediment Ingestion	1.5E-07	5.4E-02
Ditch, Marsh, and Intermittent Stream Sediment Ingestion	3.3E-07	1.3E-02
Site Soils Fugitive Dust Inhalation	4.6E-07	NQ
Lagoon Sediment Volatiles Inhalation	IN	IN
Navesink Marl Volatiles Inhalation		
Shower Inhalation	2.7E-06	6.3E-03
Whole House Inhalation	1.3E-06	NQ
Navesink Marl Groundwater Ingestion	3.2E-04	3.3E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	1.1E-01
Total Risk*	3.2E-04	4.1E-01

PRESENT USE: CENTRAL TENDENCY RISK\*\*

Pathway	Carcinogenic	Noncarcinogenic
Site Soils and Lagoon Sediment Ingestion	1.5E-07	5.4E-02
Ditch, Marsh, and Intermittent Stream Sediment Ingestion	3.3E-07	1.3E-02
Site Soils Fugitive Dust Inhalation	4.6E-07	NQ
Lagoon Sediment Volatiles Inhalation	IN	IN
Navesink Marl Volatiles Inhalation		
Shower Inhalation	5.6E-07	6.3E-03
Whole House Inhalation	3.8E-07	NQ
Navesink Marl Groundwater Ingestion	4.5E-05	3.3E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	1.1E-01
Total Risk*	4.7E-05	4.1E-01

Notes:

NQ = Not Quantifiable

IN = Inappropriate

\* Total Risk calculated assuming use of the Navesink Marl groundwater.

\*\* No central tendency risk calculated for exposures which do not show high end risk. High end risk for these exposures is included in the central tendency risk quantification.

Table 28  
 KAUFFMAN & MINTEER SITE  
 SUMMARY OF RISKS  
 SITE WORKER EXPOSURE

PRESENT AND FUTURE USE: HIGH END RISK

Pathway	Carcinogenic	Noncarcinogenic
Site Soils Fugitive Dust Inhalation	1.8E-06	NQ
Site Soils Ingestion	1.3E-06	1.4E-02
Lagoon Sediment Volatiles Inhalation	NQ	1.3E+00
Lagoon Sediment Ingestion	NQ	2.7E-01
Navesink Marl Groundwater Ingestion	1.9E-04	2.4E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	8.0E-02
Total Risk*	1.9E-04	1.8E+00

PRESENT AND FUTURE USE: CENTRAL TENDENCY RISK\*\*

Pathway	Carcinogenic	Noncarcinogenic
Site Soils Fugitive Dust Inhalation	4.5E-07	NQ
Site Soils Ingestion	2.6E-07	1.4E-02
Lagoon Sediment Volatiles Inhalation	NQ	NQ
Lagoon Sediment Ingestion	NQ	2.7E-01
Navesink Marl Groundwater Ingestion	3.6E-05	2.4E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	8.0E-02
Total Risk*	3.6E-05	5.2E-01

Notes:

NQ = Not Quantifiable

IN = Inappropriate

\* Total Risk calculated assuming use of the Navesink Marl groundwater.

\*\* No central tendency risk calculated for exposures which do not show high end risk. High end risk for these exposures is included in the central tendency risk quantification.



Table 29  
 KAUFFMAN & MINTEER SITE  
 SUMMARY OF RISKS  
 CONSTRUCTION WORKER EXPOSURE

FUTURE USE: HIGH END RISK

Pathway	Carcinogenic	Noncarcinogenic
Subsurface Site Soils Fugitive Dust Inhalation	9.5E-09	NQ
Subsurface Site Soils Ingestion	NQ	1.9E-02
Lagoon Sediment Volatiles Inhalation	NQ	6.5E-01
Lagoon Sediment Ingestion	NQ	1.3E-01
Navesink Marl Groundwater Ingestion	3.8E-06	1.2E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	4.0E-02
Total Risk*	3.8E-06	9.2E-01

FUTURE USE: CENTRAL TENDENCY RISK\*\*

Pathway	Carcinogenic	Noncarcinogenic
Subsurface Site Soils Fugitive Dust Inhalation	9.5E-09	NQ
Subsurface Site Soils Ingestion	NQ	1.9E-02
Lagoon Sediment Volatiles Inhalation	NQ	6.5E-01
Lagoon Sediment Ingestion	NQ	1.3E-01
Navesink Marl Groundwater Ingestion	1.8E-06	1.2E-01
Wenonah-Mt. Laurel Groundwater Ingestion	NQ	4.0E-02
Total Risk*	1.8E-06	9.2E-01

Notes:

NQ = Not Quantifiable

IN = Inappropriate

\* Total Risk calculated assuming use of the Navesink Marl groundwater.

\*\* No central tendency risk calculated for exposures which do not show high end risk. High end risk for these exposures is included in the central tendency risk quantification.

Table 30  
Lagoon Sediments

Contaminant-specific ARARs:

- RCRA Identification of Hazardous Waste (40 CFR 261). Provides regulations concerning identification and classification of RCRA Hazardous Waste.
- RCRA Land Disposal Restrictions (LDRs) (40 CFR 268). Limits land disposal options and provides treatment standards for contaminants prior to disposal.
- New Jersey Regulations for the Identification of Hazardous Waste (NJAC 7:26-8). Provides regulations concerning the identification and classification of Hazardous Waste

Location Specific ARARs:

- Clean Water Act (CWA section 404(b)(1), Executive Order 11990. Provides for protection of wetlands.
- New Jersey Wetlands Act (NJSA 13:9A). Provides for protection of wetlands.
- New Jersey Freshwater Wetlands Protection Regulations (NJAC 7:7A). Provides for protection of wetlands.

Action-specific ARARs:

- Clean Air Act (40 CFR 61). Provides emission standards for hazardous air pollutants.
- New Jersey Air Emission Standards for Volatile Organic Compounds (VOCs) (NJAC 7:27-16). Provides emission standards for VOC air pollutants.
- New Jersey Air Emission Standards for Toxic Organic Compounds (NJAC 7:27-17). Provides emission standards for hazardous air pollutants.
- RCRA (40 CFR 260-268). Provides provisions relating to the definition, treatment, storage, transportation and disposal of solid and hazardous wastes.
- DOT rules for Hazardous Materials Transport (49 CFR 171). Provides requirements for the transportation of hazardous waste.
- OSHA - General Industry Standards (29 CFR 1910). Provides standards to regulate exposure of workers at hazardous waste operations.
- OSHA - Safety and Health Standards (29 CFR 1926). Provides regulations regarding the type of safety equipment and procedures to be followed during site

remediation.

Shallow Groundwater

Contaminant-specific ARARs:

- Federal Safe Drinking Water Act (SDWA)(P.L. 93-523)
- New Jersey Safe Drinking Water Act.
- New Jersey Groundwater Quality Standards. Provides quality standards for groundwater based on aquifer characteristics and use.

Location-specific ARARs:

- No location-specific ARARs were identified for the shallow groundwater.

Action-Specific ARARs:

- RCRA Groundwater Monitoring Requirements (40 CFR 264 Subpart F). This regulation details requirements for groundwater monitoring programs.

APPENDIX III

KAUFFMAN & MINTEER SITE  
ADMINISTRATIVE RECORD FILE  
INDEX OF DOCUMENTS

3.0 REMEDIAL INVESTIGATION

3.4 Remedial Investigation Reports

- P. 300001- Report: Final Remedial Investigation Report for  
300196 Kauffman & Minter Site, Jobstown. New Jersey,  
Volume I. prepared for U.S. EPA, Region II,  
prepared by TAMS Consultants, Inc., July 1995.
- P. 300197- Report: Final Remedial Investigation Report for-  
300321 Kauffman & Minter Site, Jobstown, New Jersey,  
Volume II, prepared for U.S. EPA, Region II,  
prepared by TAMS Consultants, Inc., July 1995.
- P. 300322- Report: Final Remedial Investigation Report for  
300851 Kauffman & Minter Site, Jobstown. New Jersey,  
Volume III, prepared for U.S. EPA, Region II,  
prepared by TAMS Consultants, Inc., July 1995.

4.0 FEASIBILITY STUDY

4.3 Feasibility Study Reports

- P. 400001- Report: Feasibility Study for the Kauffman &  
400095 Minter Superfund Site, Jobstown. Burlington  
County, New Jersey, July 1996.

APPENDIX IV

<IMG SCR 0296278G>

SEP 27, 1996

Ms. Jeanne M. Fox  
Regional Administrator  
USEPA - Region II  
290 Broadway - Floor 19  
New York, NY 10007-1866

Subject: Kauffman & Minter Superfund Site  
Record of Decision (ROD)

Dear Ms. Fox:

The Department of Environmental Protection has evaluated and concurs with the following specific components of the selected remedy for the Kauffman & Minter Superfund site as stated below:

This is the first and only planned operable unit for the Kauffman & Minter Site. It addresses contaminated lagoon sediments at the Site and the shallow groundwater.

The major components of the selected remedy that NJDEP concurs with includes the following:

- ! Excavation, off-site treatment as necessary, and off-site disposal of approximately 1000 cubic yards of lagoon sediments:
- ! Long-term monitoring of the contaminated shallow groundwater underlying the Site. It is anticipated that the groundwater monitoring will be conducted annually for at least five years. The frequency and need to continue monitoring will be reevaluated after this five year period; and
- ! Institutional controls to limit groundwater use in the Navesink Formation. (NJDEP will establish a Classification Exception Area which will restrict the use of the Navesink groundwater in the vicinity of the Site).

The DEP is requiring that EPA recognize that NJDEP's Soil Clean-up criteria differs from EPA's Remedial Action Objectives included in the ROD. However, DEP feels that the selected remedy will still achieve NJDEP's soil clean-up guidelines.

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

<IMG SCR 0296278H>

APPENDIX V

FINAL RESPONSIVENESS SUMMARY  
KAUFFMAN & MINTEER SUPERFUND SITE  
BURLINGTON COUNTY, NJ

SEPTEMBER 1996

FINAL RESPONSIVENESS SUMMARY  
KAUFFMAN & MINTEER SUPERFUND SITE  
BURLINGTON COUNTY, NJ

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3. SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS, AND RESPONSES	3
3.1 Contamination/Potential Contamination of Area Wells and Property	3
3.2 Requests for Clarification	5
3.3 Remedial Activities/Implementation of the Remedy	6
3.4 Miscellaneous.	8

APPENDICES

APPENDIX A: Proposed Plan  
APPENDIX B: Public notices announcing the July 23, 1996 public meeting  
APPENDIX C: Public Meeting Agenda  
APPENDIX D: Public Meeting Sign-in Sheets

## 1. INTRODUCTION

On July 23, 1996, the US Environmental Protection Agency (EPA) held a public meeting at 7:00 PM at the Springfield Township Municipal Hall on Jacksonville-Jobstown Road in Jobstown, NJ, to describe the alternatives considered for cleanup of the Kauffman-Minteer Superfund Site (Site), and to discuss EPA's Proposed Plan (Appendix A) for remediation of the Site. The public meeting was announced in The Trentonian and in The Burlington County Times (Appendix B) and a stenographic record was made of the proceedings.

Representing EPA at the public meeting were Charles Tenerella, Section Chief, Paolo Pascetta, Remedial Project Manager; Janet Feldstein, Section Chief; Melissa Girard, Remedial Project Manager; and Ann Rychlenski, Community Relations Coordinator. Representing TAMS Consultants, Inc., contractor to EPA for the Kauffman & Minteer Superfund Site, were R. Bruce Fidler, Project Manager; Pamela Pierce, Project Engineer, and Karen Coghlan, Community Relations Specialist. Also present was Mary Lou Parra, a representative from the New Jersey Department of Environmental Protection (NJDEP).

A public comment period opened on July 9, 1996 and ended on August 7, 1996, during which time the public was invited to write to EPA with any comments not made at the public meeting. EPA received no additional written comments during the public comment period.

This Final Responsiveness Summary provides a summary of citizens' comments and concerns taken during the meeting on July 23, 1996, and EPA's responses to those comments and concerns. Section 3 contains a synopsis of those comments and responses.

The community generally supported EPA's preferred remedy, however, some meeting attendees had questions regarding the Site.

## 2. COMMUNITY INVOLVEMENT BACKGROUND

For over twenty years, concerns about odor, possible contamination of the local water supply, and potential contamination of the nearby environment have been centered on the Kauffman & Minteer Site. In 1991, according to the Burlington County Health Department's Pollution Coordinator, the county was receiving three to four calls per year about possible surface water contamination suspected to have originated at the Site.

EPA conducted two sets of community interviews, first in September 1989 and then again in February 1990. The major area of concern during the first set of interviews was the potential contamination of domestic wells in the area. Surface water contamination from the Site's wastewater lagoon was another concern. Most people interviewed indicated that sampling of their wells would be welcome. Several people expressed surprise that the Site had been deemed serious enough to be placed on the Superfund National Priorities List (NPL).

The second set of interviews resulted from a call placed to EPA indicating that others in the area desired to have input. Those interviews resulted in expression of concerns surrounding the severe chemical odor emanating from the Site; concern about direct exposure to lagoon waste; apparent impact on fish and wildlife; and alarm over observable physical anomalies such as the greenish, "soapy" cast of creek water at several areas near the Site.

EPA prepared a Community Relations Plan in May 1991 and established an information repository for the Administrative Record at the Springfield Township Municipal Hall. As part of the community relations activities specified in the plan, Ann Rychlenski, EPA Region 2 Public Affairs Specialist, was named Community Relations Coordinator for the Site. A mailing list of local, state, and federal officials and other interested parties, including the local media, was developed.

In June 1991, EPA held two public availability sessions in Jobstown to explain the Community Relations Plan and to present its plan to conduct a Remedial Investigation/Feasibility Study (RI/FS) at the Site. The RI/FS has been completed and EPA held the public meeting to explain its Proposed Plan for remediating the Site on July 23, 1996. The public comment period ended on August 7, 1996, with no comments received other than those taken at that meeting, summarized herein.

### 3. SUMMARY OF MAJOR QUESTIONS, COMMENTS, CONCERNS, AND RESPONSES

#### 3.1 Contamination/Potential Contamination of Area Wells and Property

Comment: A resident who lives adjacent to the Site, in the vicinity of two monitoring wells asked if one were shallow and one deep, and if any contaminants had been found in them.

EPA Response: EPA explained that the particular wells the resident referred to included a cluster of both a shallow and deep well. EPA stated that there was no significant contamination detected in these wells, meaning that there were no contaminants detected above risk-based concentrations.

Comment: An interested citizen referred to a reported presence of the contaminant trichlorethylene in the well water of a nearby resident, based on 1984 tests of the water, and suggested that the resident had not been informed of the test results.

EPA Response: EPA explained that the residential well sampling was conducted by the New Jersey Department of Environmental Protection (NJDEP) during the 1980s, and that EPA also conducted additional well sampling in 1990 and 1993. The typical procedure for any agency doing testing is to obtain permission from residents to test their water prior to doing any sampling, and to provide the resident with the sampling results as soon as they are available. EPA and NJDEP have been unable to locate a 1984 letter to the particular resident referred to, but notes that this resident's well was sampled by EPA in 1990, at which time the results were transmitted to the resident. No contaminants were detected in the well above drinking water standards.

Comment: The same speaker indicated that in 1988 the records showed phthalates in five residential wells. Although the records do not state whether or not the phthalates exceed MCLs, the speaker expressed concern. She also wanted to know if the residents had been notified.

EPA Response: EPA explained that it was the concern over potential for contamination in area wells in the which contributed to the Site being listed on the NPL, and the need for EPA to perform a Remedial Investigation. When EPA tested the five wells in question, among others, no evidence of phthalates was found, or any other contaminants, above drinking water standards. Regarding notification of residents, EPA reiterated that the normal protocol for EPA, NJDEP, and the New Jersey Department of Health (NJDOH) is to notify everyone whose wells are tested of the results.

Comment: A resident living adjacent to the Site asked if what was now running onto her property from the lagoon was rainwater.

EPA Response: EPA explained that, as part of Removal Actions EPA has performed at the Site, the Agency has tested the water which collects in the lagoon and sometimes overflows. Results indicated that it is not hazardous; it is rainwater.

Comment: Another resident adjacent to the Site asked if she could have her well water retested.

EPA Response: EPA agreed to arrange for testing of this resident's well. At the resident's request, EPA sampled the well on September 10, 1996. The results will be transmitted to the resident as soon as they are available.

Comment: A resident asked if the area around the underground storage tanks (USTs) on the property had been tested for contamination.

EPA Response: EPA confirmed that the soil around the tanks was checked for contamination, and that no significant contamination was detected.

Comment: A resident asked if the water in the school close to the K&M Site had been tested, and if not, whether it could be tested.

EPA Response: EPA stated that the school's water had been tested by EPA in the early 1990s, and that no



contamination was detected above drinking water standards.

Comment: A speaker asked how EPA could be sure the Navesink aquifer had not contaminated the underlying Wenonah aquifer. He also reiterated his concern, on behalf of an adjacent resident, that EPA should retest her well, to ensure that this resident was not unknowingly drinking contaminated water.

EPA Response: EPA explained that the Navesink aquifer has a very low transmissivity, and therefore that ground water moves very slowly through this hydraulic unit, and does not tend to migrate downward to underlying aquifers. Based on the results of the Remedial Investigation, contamination was limited to the shallow aquifer; no contamination was found in the underlying Wenonah-Mt. Laurel aquifer above drinking water standards. In addition, EPA has sampled residential wells in the vicinity of the Site, which draw from the Wenonah-Mt. Laurel aquifer, and no contamination was detected above drinking water standards. With respect to this particular resident, EPA noted that the groundwater flow direction is away from the resident's property, so contamination from the Site would be unlikely. EPA also pointed out that long term monitoring will be conducted as part of the remedy, to ensure that wells in the vicinity of the Site are not impacted. However, as stated above, EPA did agree to sample this resident's well again (it had been sampled in the early 1990s). This sampling was conducted on September 10, 1996.

Comment: A resident asked if the ground water would be tested every year.

EPA Response: EPA explained that the on-site groundwater monitoring wells will be tested periodically as part of the groundwater monitoring program at the Site. Initially, the testing will be annually. Over time, depending on the results, the frequency may be reduced. It is expected that, after removal of the lagoon sediments, which represent the source of groundwater contamination, contaminant levels will decrease.

Comment: A speaker requested that EPA provide a list of chemicals that would be of concern at the Site to the Township, for the convenience of people who wanted to have their wells tested.

EPA Response: EPA referred the speaker to Table 4-2 in the Remedial Investigation Report that provides the Federal Safe Drinking Water Act Maximum Contaminant Levels and NJ Class II-A Groundwater Standards (i.e., evaluation criteria) for the organic contaminants and trace metals detected in groundwater.

### 3.2 Requests for Clarification

Comment: An interested citizen requested several clarifications. She asked whether: 1) a Subtitle D Disposal Facility is a municipal landfill; 2) where off-site treatment of the sediment would occur; and 3) if the material being removed were a liquid, whether it would be treated at a local sewer plant.

EPA Response: EPA clarified that 1) a Subtitle D landfill, also known as a municipal landfill, is suitable for disposal of non-hazardous wastes; 2) off-site treatment of the lagoon sediment, if necessary prior to disposal, would occur at a Resource Conservation and Recovery (RCRA) Subtitle C facility for hazardous waste; and 3) if the liquid were nonhazardous under RCRA, treatment at a local sewer plant would be possible.

Comment: The same speaker inquired if EPA had investigated the number of wells in the Navesink aquifer. The speaker referred to older homes in the area which may have unregistered wells at depths of ten to 28 feet. Further, she referred to one of the project reports that stated some residents may have placed wells into the shallow Navesink.

EPA Response: EPA explained that a well survey went to all residents in the area, and a well search was conducted of permitted wells via NJDEP records. There are apparently two unregistered wells in the Navesink (shallow) aquifer, neither of which are used for drinking water. It is possible that some residents may have installed wells into the Navesink aquifer, but it is unlikely that anyone would drink the water due to the naturally-occurring high sediment levels, which would make the water objectionable for drinking water. When accessible drinking water is available in the Wenonah-Mt. Laurel Aquifer (beneath the Navesink), there would be no need for installation of a well in the shallow formation.

Comment: The same speaker suggested that monitoring wells are a "hit-and-miss" system of monitoring, because

of the number of variables in the movement of groundwater and contamination.

EPA Response: Consideration of such variables was an integral and time-consuming part of EPA's investigation of the Site. EPA explained that its monitoring program was initiated to ensure that the upper shallower aquifer was not contaminating the lower drinking water aquifer. Further, EPA explained that the science of hydrogeology, while not perfect, provides a rational means for assessing the potential for migration of contamination. Knowledge of site history, topography, regional hydrology, and local conditions is used to design a network of monitoring wells that can be used to determine the direction of groundwater flow, the potential for water movement between geologic formations, the distribution of contaminants, and to estimate the rate of groundwater flow. With these data, and knowledge of the characteristics of different types of contaminants, the likely movement and behavior of those contaminants in the groundwater system can be predicted. Furthermore, EPA's monitoring program will be used to ensure that contaminant levels in the Navesink decrease over time, and do not contaminate the lower aquifer.

### 3.4 Implementation of the Remedy

Comment: A resident adjacent to Site asked if, when the lagoon cleanup is implemented, EPA would just clean out what is in the bottom, and if so, what would be done with the hole.

EPA Response: EPA explained that it will remove contaminated sediments from the bottom of the lagoon, then backfill the hole and revegetate the area.

Comment: The same resident asked if EPA were finished with cleanup of the property behind the lagoon and, referring to recent digging in that area, asked if the dumpsters that had been behind the lagoon had been removed.

EPA Response: EPA stated that final cleanup of the area adjacent to the lagoon will be included along with the lagoon sediment remediation. EPA explained that the activity the resident referred to was part of the latest Removal Action to address material which had been left in tanker trucks at the Site. The contents had been placed into dumpsters prior to disposal. This action, which addressed all remaining stored wastes at the Site, was completed in the Summer of 1995.

Comment: A resident living adjacent to the lagoon inquired about a patch of her property on which nothing would grow, and stated that the area floods from the lagoon when it rains. She identified it on the site map and wanted to know if EPA was going to clean it up as part of the proposed action.

EPA Response: EPA confirmed that the property indicated is the stressed area of the marsh adjacent to the lagoon. EPA explained that this area is included as part of the lagoon sediment remediation.

Comment: Several residents wanted to know when the entire remediation would be completed. One resident referred to unsuccessful attempts by herself and others to sell their properties, and expressed concern about hearing references to additional five-year time frames.

EPA Response: EPA explained that within six months of initiating the remediation, the project could be complete. However, at this time, due to budget limitations, these remediation projects are being prioritized nationally for funding. At this time, prioritization is based on risk, and because the risks are not high at K&M, funding for this action may not be available immediately. EPA agreed to keep local officials informed as to the status of the planned remediation.

Regarding the question concerning the reference to "five years," EPA clarified that the five-year review mentioned earlier in the evening's discussion referred to EPA's conducting periodic evaluations to ensure that the remediated Site is stable. EPA pointed out that in addition to the review in five years, the agency is conducting a groundwater monitoring program for this Site.

Comment: A resident asked specifically whom she should write to if the Site was not remediated in the next year and one half.

EPA Response: EPA explained that residents are free to write to EPA or their elected representatives. The current EPA Project Manager for this Site is Paolo Pascetta, who can be reached at (212) 637-4383.

### 3.5 Miscellaneous

Comment: An interested citizen questioned EPA's determination that the "only subpopulation identified that may be at increased risk are the children living in the vicinity of the site."

EPA Response: EPA explained that, as part of the Baseline Risk Assessment, the Agency tries to determine if there is any particularly sensitive subpopulation which might be potentially at risk from the Site, in order to conservatively evaluate risks. In this case, EPA explained that children were the most sensitive receptors identified as being potentially at risk, and therefore, EPA evaluated the risks to children specifically. Based on the results of the risk assessment, under the hypothetical scenario of children ingesting or inhaling lagoon sediments, it was determined that an unacceptable risk would be present.

Comment: The Mayor stated for the record that he agreed with EPA's preferred remedy. He will recommend to the Town Council that it also approves the preferred remedy, and that the town indicate its support to the appropriate federal representatives.

EPA Response: EPA stated that it appreciated the comment.

Comment: A resident for information regarding underground storage tanks (USTs) on the Site, whether or not they would ever be removed, and about potential future liability of property owners for contamination from the USTs.

EPA Response: EPA explained that the contents of the tanks included petroleum products, such as fuel for the trucks, waste oil from the trucks, and plasticizer heels from the loads the trucks used to carry. During EPA's 1995 removal action, the Agency was able to address two of the USTs by removing the contents, which contained hazardous substances under Superfund. However, the other tanks contained pure petroleum products, which can not be addressed under the Superfund program. These tanks have been referred to NJDEP for further action under State law.

For petroleum products, a future owner would not be liable under Superfund because of the petroleum exclusion, but could potentially be liable under the State's underground storage tank program.

Comment: With regard to the discussion on the direction of groundwater flow in the Navesink Formation and Wenonah-Mt. Laurel Aquifer, an interested citizen asked if the flow of water can reverse itself under certain conditions.

EPA Response: EPA explained that if there is a very large local well drawing water, it can sometimes influence groundwater flow in the area of the well, which would draw water toward the well. EPA has not identified any such incidences in this case. Based on data collected during EPA's Remedial Investigation, groundwater flow at the Site is governed by regional hydrogeology.

Comment: A resident wanted to know who currently owns the property.

EPA Response. EPA explained that the Site is currently owned by the Kauffman family. The Mayor added that the Township currently has a lien on the property.

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### PURPOSE OF PROPOSED PLAN

This Proposed Plan describes the remedial alternatives considered for the Kauffman and Minter (K&M) Superfund site, and identifies the preferred remedial alternative with the rationale for this preference. The Proposed Plan was developed by the U.S. Environmental Protection Agency (EPA), as lead agency, with support from the New Jersey Department of Environmental Protection (NJDEP). The EPA is issuing the Proposed Plan as

part of its public participation responsibilities under Section 7(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, and Section 300.430(f) of the National Contingency Plan (NCP). The alternatives summarized here are described in the feasibility study (FS) report, which should be consulted for a more detailed description of all the alternatives.

This Proposed Plan is being provided as a supplement to the Remedial Investigation (RI) and FS reports, to inform the public of EPA's and NJDEP's preferred remedy, and to solicit public comments pertaining to all the remedial alternatives evaluated, as well as the preferred alternative.

The remedy described in this Proposed Plan is the preferred remedy for the site. Changes to the preferred remedy, or a change from the preferred remedy to another remedy, 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. We are soliciting public comment on all of the alternatives considered in the detailed analysis of the FS because EPA and NJDEP may select a remedy other than the preferred remedy described herein.

#### COMMUNITY ROLE IN SELECTION PROCESS

EPA and NJDEP rely on public input to ensure that the concerns of the community are considered in selecting an effective remedy for each Superfund site. To this end, the RI and FS reports, Proposed Plan, and supporting documentation have been made available to the public for a public comment period which begins on July 9, 1996, and concludes on August 7, 1996.

A public meeting will be held during the public comment period at the Springfield Township Municipal Hall on Jacksonville-Jobstown Road, Jobstown, NJ, on July 23 at 7:00 pm to present the conclusions of the RI and FS, to elaborate further on the reasons for recommending the preferred remedial alternative and to receive public comments.

Comments received at the public meeting, as well as written comments, will be documented in the Responsiveness Summary Section of the Record of Decision (ROD), the document which formalizes the selection of the remedy.

All written comments should be addressed to:

Ms. Melissa Girard, Remedial Project Manager  
U.S. Environmental Protection Agency  
New Jersey Superfund Branch I  
290 Broadway, 19th Floor  
New York, New York 10007-1866

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Copies of the RI and FS reports, Proposed Plan, and supporting documentation are available at the following repositories:

U.S. EPA  
290 Broadway  
Floor 19,  
New York, NY 10007-1866  
(212) 637-4369

Springfield Township  
Municipal Building  
Jacksonville-Jobstown Rd.

(609)723-2464

## SITE BACKGROUND

Kauffman & Minter, Inc. operated a bulk liquid transportation facility located on the eastern corner of the intersection of Monmouth Road (Route 537) and Jobstown-Juliustown Road in Jobstown, Springfield Township, Burlington County, New Jersey. Geographically, the site is located at latitude 40 02' 10.8" N and longitude 74 41' 37.5" W (USGS, 1957). Figure 1 shows the general layout and location of the site.

The K&M property occupies approximately 5.5 acres in sparsely populated, predominately rural area that primarily supports agriculture, horse farming, and related businesses. The K&M property is bordered on the north by residences and Route 537, on the northeast and east by a marsh area, on the south by an overgrown and wooded area traversed by Barker's Brook, and on the west by Jobstown-Juliustown Road.

A small marsh adjacent to the eastern property boundary gives rise to an intermittent stream. This stream flows south-southeast into a branch of Barker's Brook which is located approximately 575 feet south of the K&M property.

The site area is not served by either sanitary or storm sewer systems. The K&M facility, like surrounding residences and businesses, has a septic system to handle sanitary wastes. Stormwater runoff from the site area flows to Barker's Brook via drainage ditches and overland flow. Two discharge points along the southwestern boundary of the K&M property, adjacent to Jobstown-Juliustown Road, carry runoff from the facility operations lot and parking areas to Barker's Brook via a drainage ditch.

There are four aquifers beneath the K&M site. In order of increasing depth, the aquifers are the Navesink Marl Formation, the Wenonah-Mt. Laurel, the Englishtown, and the Raritan-Magothy. The direction of groundwater flow is south-southwest. The site rests on the Navesink Formation, a glauconitic, sandy clay layer, approximately 10 to 25 feet thick in the site vicinity. The Navesink Formation is the uppermost water bearing unit found at the site. However, due to its low and inconsistent yields to wells and poor water quality, it is normally not used as a source of water. Below the site and directly below the Navesink Formation is the Wenonah-Mt. Laurel Aquifer, which is approximately 60 feet thick in the site vicinity. In the area around the site, individual domestic wells are the primary source of drinking water. Within three miles of the site, but primarily in the Juliustown area (the principal use area of the Wenonah-Mt. Laurel Aquifer), approximately 560 people use water from private wells that tap the Wenonah-Mt. Laurel Aquifer. The nearest well drawing water from this aquifer is located upgradient, on the north side of the intersection of Routes 670 and 537, approximately 500 feet from the K&M site.

Kauffman & Minter, Inc. transported, in company owned tankers, bulk liquids consisting primarily of organic substances, including plasticizers, resins, vegetable oils, soaps, petroleum oils, and alcohols. From 1960 through at least 1981, wastewater generated from the washing of tanker interiors was discharged to an on-site, 0.7-acre, irregularly shaped lagoon, about three to ten feet deep. The lagoon is unlined and has inadequate runoff and runoff control structures. It has no overflow diversion structure to protect the system from overflow during rainfall events: there is only a low earthen berm to protect the adjacent marsh from overflow. An additional berm was installed in 1991 to divert parking area runoff away from the lagoon. A spray aeration system consisting of seven sprinklers located along the western side of the lagoon was formerly used to evaporate wastewater by spraying it over the lagoon. Spray from this system was sometimes carried by the wind onto surrounding properties. The spray aeration system was dismantled prior to construction of the diversion berm.

Sampling was conducted at the site on at least nine occasions by EPA and NJDEP between August 1981 and January 1988. Media sampled included waste sources, groundwater (on-site wells and residential wells), surface water, soils, and sediment. Three groundwater monitoring wells were installed immediately adjacent to the lagoon in 1981 by NJDEP to determine if contamination from the lagoon was migrating to the groundwater.

A site investigation was conducted in 1985, which determined that the site's eligibility for inclusion on the National Priorities List (NPL). The K&M facility was subsequently placed on the NPL on March 30, 1989.

A removal action was conducted by EPA from the summer through the fall of 1991 which included the collection

and disposal of the liquid within the lagoon and fencing around the lagoon. Since that time, the lagoon has refilled due to precipitation. In the summer of 1995, a release of liquid contaminated with plasticizers from an on-site tank trailer prompted a second removal action. This subsequent removal action consisted of the collection and disposal of the contaminated material found in four on-site tank trailers and deteriorating drums that were left on the site as a result of K&M's closure. The empty tank trailers were then demolished and disposed of. Shortly before EPA initiated this removal action, an assessment of the contents of ten underground storage tanks (UST) by NJDEP resulted in the identification of two USTs containing hazardous substances. Consequent to NJDEP's identification of these materials, the contents of the USTs were incorporated into the 1995 removal action. Although other additional underground storage tanks may contain minute amounts of fuel oil products and are therefore precluded from any CERCLA action, NJDEP further investigate these tanks to determine if any further remedial measures are warranted.

#### REMEDIAL INVESTIGATION SUMMARY

A remedial investigation of the K&M site was performed in 1991 by TAMS Consultants, Inc. (TAMS). The firm of Fanning, Phillips & Molnar (Ronkonkoma, New York) assisted TAMS as a subcontractor, providing boring and monitoring well inspection, hydrogeologic testing, and evaluation of geologic and hydrogeologic information. RI field work was initiated at the site in September 1991, during which time six monitoring wells, in addition to the three installed by NJDEP in 1981, were installed. Initially, the facility remained in business; however, the frequency of activity substantially decreased beginning in late 1991 and facility operations were discontinued soon afterward.

The purposes of the investigation were to determine the physical characteristics of the site and sources of contamination, to evaluate the nature and extent of contamination, and to characterize the potential health risk and environmental impact of the site.

The following activities were conducted during the RI: a land survey, cultural resources survey, geophysical survey, soil gas survey, population/land-use survey, lagoon sediment investigation, surface water and sediment investigations, a geologic investigation, surface and subsurface soil investigations, a groundwater investigation, and an ecological investigation. These surveys and investigations were used to delineate the nature and extent of contamination as a result of K&M's activities at the site.

Volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) were the primary contaminants detected at the site. The RI identified contaminants in the lagoon sediments and in the shallow groundwater; the lagoon sediments being the source of contamination in the shallow aquifer.

The predominant sediment contaminants and maximum concentrations detected, in parts per million (ppm), are: tetrachloroethylene (230), trichloroethylene (3,100), 1,1,1 trichloroethane (1,600), 1,2-dichloroethylene (1,100), 1,1-dichloroethane (27), ethylbenzene (1,300), toluene (2,200), butylbenzylphthalate (31,000), di-n-octylphthalate (4,400). The sediments that exceed health-based screening levels are within the area of the lagoon. The volume of sediments that exceed health-based levels is approximately 1000 cubic yards.

The predominant Navesink Formation (shallow) groundwater contaminants and the maximum concentrations detected, as compared to their respective Federal Maximum Contaminant Levels (MCLs) denoted in parentheses, or as not available (NA), in parts per billion (ppb), are: VOCs -- tetrachloroethylene: 4/(5), trichloroethylene: 16/(5), 1,2-dichloroethylene: 94/(10), 1,1-dichloroethane: 4/(NA), benzene: 1/(5), isophorone: 570/(NA), and vinyl chloride: 17/(2); Inorganics -- beryllium 3/(4), chromium: 22.7/(100), and vanadium: 56.1/(NA). The only potential contaminant of concern found in Laurel (middle) Aquifer was chromium at a maximum concentration of 20.4 ppb (MCL is 100 ppb). Those compounds in the groundwater that exceed Federal and/or State drinking water standards are contained within the property boundaries. The estimated dimensions of the contaminated groundwater plume are: 200 feet wide by 200 feet long by 10 feet deep. Based on the available data, it is believed that the plume remains on site; however, further delineation of the contaminated groundwater plume will occur in design.

#### SUMMARY OF SITE RISK

Based upon the results of the RI, a baseline risk assessment was conducted to estimate the risks associated

with current and future site conditions. The baseline risk assessment estimates the human health and ecological risk which could result from the contamination at the site if no remedial action were taken.

#### Human Health Risk Assessment

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

EPA uses two toxicity factors, reference doses (RfDs) and slope factors to calculate the respective noncarcinogenic and carcinogenic risk attributable to particular contaminants. An RfD is an estimate of a daily exposure level that is not likely to result in any appreciable risk of deleterious effects during a person's lifetime. A slope factor establishes the relationship between the dose of a chemical and the response, and is commonly expressed as a probability of a response per unit intake of a chemical over a lifetime. Section 6.1 of the RI contains a full summary of the contaminants of concern (COCs), their toxicological parameters and their potential human health effects.

Although EPA has established RfDs and slope factors for many chemicals, there are others that currently do not have such accepted toxicological parameters available. Consequently, the risk due to such contaminants cannot be quantified, but can be qualitatively evaluated. Lead, which does not have an RfD or slope factor, was also qualitatively evaluated. A recent EPA directive has recommended a health-based screening level for lead in soil of 400 parts per million (ppm) until RfDs and slope factors are established. Since lead is present in the site soils at a maximum concentration of 385 ppm, which does not exceed the health-based screening level, it has been eliminated as a COC.

The RI data was compiled and screened according to frequency of occurrence, concentration, and toxicity, to develop COCs which would be representative of site risks. The COCs for the lagoon sediments include: 1,2-dichloroethylene, 1,1-dichloroethane, 1,1,1-trichloroethane, trichloroethylene (TCE), tetrachloroethylene (PCE), benzene, toluene, butylbenzylphthalate (BBP), and di-n-ocrylphthalate (DNOP). The COCs for the shallow groundwater include: vinyl chloride, 1,2-dichloroethylene (1,2-DCE), 1,1-dichloroethane, benzene, isophorone, TCE, PCE, beryllium, chromium, and vanadium. The only potential COC for the middle aquifer was chromium. Several of the contaminants in the groundwater and lagoon sediments are possible human carcinogens.

The data collected from the RI were grouped by media corresponding to respective exposure pathways evaluated. The key media are: surface soils (0-2 feet), subsurface soils (greater than 2 feet), lagoon sediments, drainage ditch and intermittent stream sediments, drainage ditch and intermittent stream surface waters, marsh sediments, Barkers Brook sediments, Barkers Brook surface water, Navesink Marl groundwater (shallow groundwater wells), and Wenonah-Mt. Laurel groundwater (deep groundwater wells). Of the above, the only areas characterized in the Baseline Risk Assessment as having a potential for adverse health effects were the lagoon sediments and the shallow groundwater. A detailed description of all site areas and exposure pathways is contained in Section 6 of the RI. Below is a summary of the Baseline Risk Assessment and associated exposure pathways.

Under present use conditions, trespassers and site workers were evaluated for exposure to site soils and lagoon sediments. Specifically, trespassers were evaluated for an ingestion pathway, and workers were evaluated for both inhalation and ingestion routes.

Exposures to groundwater under the present use scenario were evaluated for nearby residents, trespassers, and site workers (under a combined current/future use scenario). Trespassers and residents were evaluated for

inhalation of the Navesink groundwater, and all three groups were evaluated for ingestion of the Navesink and the Wenonah-Mt. Laurel groundwater.

Residential properties surround the site as the zoning in the immediate area of the site is "Neighborhood Commercial." K&M is a non-conforming business, in that it was established prior to the zoning restrictions. Now that facility operations have been discontinued, any future activities on the premises must conform to the zoning code. Due to the present zoning restrictions, there is a distinct likelihood that the site would be used in the future for residential development. Therefore, the future use risk scenario assumes residents would be living on the site and construction workers would be present on the site as a result. Residents were evaluated for exposure to groundwater via ingestion and inhalation of the Navesink groundwater, and via ingestion of the Wenonah-Mt. Laurel drinking water aquifer. Construction workers were evaluated for ingestion of both the Navesink and the Wenonah-Mt. Laurel groundwater. Similarly, both groups were evaluated under the future use scenario for ingestion and inhalation of lagoon sediments and site soils. In taking the most conservative approach, exposure via ingestion of water from the shallow groundwater (Navesink) was evaluated; however, a well search performed within a five mile radius of the site revealed that no drinking water wells were installed in the Navesink. Unlike the Wenonah-Mt. Laurel (middle aquifer), the relatively low permeability, and naturally occurring high levels of iron and manganese, significantly limit the use of the Navesink Marl Formation as a drinking water source. Additionally, sampling of nearby residential wells did not detect any, contaminants above health-based levels. Although the Navesink Formation could be a potential source of public water supply for household purposes, there are no wells registered with the NJDEP that draw from the Navesink Formation. The higher transmissivity, greater hydraulic conductivity, and better water quality of the Wenonah-Mt. Laurel Aquifer make drilling to a greater depth cost effective. A site inspection did reveal two shallow residential wells, one upgradient and one sidegradient to the site; however, the wells are not used for drinking or bathing purposes.

To assess the overall potential for carcinogenic effects to arise, EPA calculates excess cancer risk. Excess cancer risk is an estimation of the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen(s). The current guideline for acceptable exposure is an excess carcinogenic risk in the range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  (one in ten thousand to one in one million).

To assess the overall potential for noncarcinogenic effects posed. EPA developed the Hazard Index (HI). This index is calculated by comparing, as a ratio, the sum of the individual chemical exposure levels over a specified time period (e.g., lifetime) with a reference dose derived for a similar exposure period. The current guideline for acceptable exposure is an HI not to exceed 1.0.

Excess lifetime cancer risks and HIs were calculated for all of the various pathways under the present and future land use scenarios in Section 6.5 of the RI. In the current use scenario, residents are estimated to have an excess cancer risk of  $3.2 \times 10^{-4}$ , and site workers a risk of  $1.9 \times 10^{-4}$  from ingestion of the shallow groundwater, due primarily to vinyl chloride. However, no workers have been observed at the site since facility operations were discontinued. All other pathways are within the guidelines for acceptable exposure to carcinogens and noncarcinogens. In the future use scenario, ingestion of lagoon sediments by a child results in an estimated HI of 7.0, and inhalation of lagoon, sediments results in HIs of 2.0 for an adult resident and 9.4 for a child. The total non-cancer risks for the future construction worker was calculated at 1.1 which slightly exceeds the acceptable risk range for noncarcinogens. The noncarcinogenic risk was attributable to butylbenzylphthalate and di-n-ylphthalate.

Subsequent to the completion of the RI, it was found that provisional slope factors and Reference Doses for trichloroethylene and tetrachloroethylene were not considered in the analysis. The RI states that these chemicals could not be evaluated quantitatively because of the absence of a slope factor, However, provisional slope factors are now available. Consequently, calculations of the risks from these chemicals have been developed. Based on these calculations, the calculated risks for the current residents increased from  $3.2 \times 10^{-4}$  to  $3.3 \times 10^{-4}$  and the risks for site workers increased from  $1.9 \times 10^{-4}$  to  $1.93 \times 10^{-4}$ . For the future risks, the risks to resident adults from lagoon sediment ingestion increased from 0.75 to 1.45 and the risks to children increased from 7.0 to 13.6.

Soil exposure pathways are all within EPA guidelines for acceptable exposure to carcinogens and



noncarcinogens. The routes of exposure to noncarcinogens are all below an HI of 1.0; the greatest risk of carcinogenic exposure is at  $4.2 \times 10^{-6}$  for soils ingestion, which is well within the acceptable risk range of  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$ . Consequently, remedial alternatives for the soils on the site will not be addressed at this time.

The scenarios which exceeded guidelines for acceptable human exposure were as follows: residents and site workers currently taking the Navesink groundwater, although no current exposure is occurring under this scenario; and a future use scenario of adult residents and their children living on the site, ingesting or inhaling noncarcinogenic contaminants in the lagoon sediments.

Actual or threatened releases of hazardous substances from the K&M site, if not addressed by one of the active measures considered in this Proposed Plan, may present a future threat to public health.

#### Ecological Risk Assessment

An environmental assessment was performed to identify and estimate the actual and/or potential adverse ecological impacts of contaminants released by the K&M site. A four-step process, very similar to that used in human health assessment, was utilized. It consists of: Problem Formulation - a qualitative evaluation of contaminant release, migration, and fate; identification of contaminants of concern, receptors, exposure pathways, and known ecological effects of the contaminants; and selection of endpoints for further study. Exposure Assessment - a quantitative evaluation of contaminant release, migration and fate; characterization of exposure pathways and receptors; and measurement or estimation of exposure point concentrations. Ecological Effects Assessment - literature reviews field studies, and toxicity tests, linking contaminant concentrations to effects on ecological receptors. Risk Characterization - measurement or estimation of both current and future adverse effects. Unlike the Human Health Risk Assessment, the science of Environmental Assessment has not evolved to the point where standard risk calculations can be made. Risk Characterization is primarily the process of comparing the results of the Exposure Assessment with the results of the Known Ecological Effects assessment.

The primary objective of this assessment was to estimate the potential ecological impacts associated with the release of contaminants from the K&M facility. Based upon: 1) the baseline information gathered during the field investigation, 2) review of available data and literature, and 3) a comparison of the levels of site contamination to available toxicity data, there appear to be no contaminant-related impacts on the immediate aquatic and terrestrial ecosystems.

The study area of the K&M site has four primary ecological features or community types: open field, riparian woodlands, marsh, and stream. Appropriate media for each were analyzed- i.e., respectively, surficial soils (0-2 feet), and composite soil samples from depths greater than 2 feet, surface water and sediment from Barker's Brook, and sediment and soil from the adjacent marsh along the eastern portion of the site. The ecological risk assessment evaluated the contaminants of concern associated with each medium/community type, and with the biota (plants and animals) of each. For the open field habitats, the soil-borne contaminants list was comprised of phthalates (i.e., butylbenzylphthalate, bis(2-ethylhexyl) phthalate, and di-n-octylphthalate) and lead. The contaminants in the marsh sediments were phthalates, chromium, and lead. The Barker's Brook sediments revealed contaminants of concern - phthalates and chromium; the surface water of the brook was eliminated as a medium of environmental exposure on the basis that no contamination was detected above New Jersey Surface Water Quality Criteria (NJSWQC).

The only contaminant -related ecological impact observed was to some flora in the lagoon-fed marsh. This stressed area was an isolated section adjacent to the lagoon. Obvious signs of phytotoxicity and adverse impacts were yellow, withered vegetation, and vegetation stained black from the overflow of lagoon contents. Recent site inspections indicate that the majority of the marsh area vegetation has recovered; only the black-stained area immediately adjacent to the lagoon still exhibits contaminant-related stress to the flora ecosystem. The flora in the remainder of the study area appeared healthy and exhibited a species composition indicative of similar habitats elsewhere. There were no obvious physical abnormalities observed in the fauna of the study area either, including numerous frogs found in the stressed area of the marsh. The study area contained birds, mammals and herpetofauna species that were representative of each habitat type. Additionally, the assemblage of organisms in Barker's Brook adjacent to, upstream, and downstream of the K&M

facility were typical for the habitat type.

The potential impacts of contaminant exposure on local biota were assessed based upon a review of available criteria and the relevant literature. The primary sources for this information were: EPA Water Quality Criteria and literature compiled by the National Oceanographic and Atmospheric Administration (NOAA). Detailed information on the potential ecological effects of the COCs is contained in Section 7 of the RI. Detailed information on the ecological assessment is contained in Appendix G of the RI.

#### SCOPE AND ROLE OF ACTION

The two media identified in the RI as potentially requiring remedial action are the lagoon sediments and the shallow groundwater. The FS developed remedial alternatives that could remediate both of these media. Therefore, the preferred remedy in this Proposed Plan will address both the lagoon sediments and the shallow groundwater. Additionally, an area stained black from the overflow of the lagoon requires restoration because of the contaminant-stressed vegetation. In light of the fact that this area is immediately adjacent to the lagoon, remedial alternatives for this area will be evaluated along with the lagoon sediments.

#### 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 risk assessment.

The following remedial action objectives were established:

- ! Prevent exposure through ingestion of contaminated lagoon and drainage ditch sediments;
- ! Restore an area of contaminant-stressed vegetation immediately adjacent to the lagoon;
- ! Prevent exposure through ingestion of on-site contaminated groundwater.

To achieve these objectives, EPA has developed site-specific, risk-based remediation goals. These remediation goals would decrease direct contact risks at the site to the 10<sup>-6</sup> level. EPA understands that NJDEP has developed soil cleanup guidelines designed to protect groundwater resources and has requested that the lagoon sediments be remediated consistent with its Proposed Cleanup Standards for Contaminated Sites (February 1992). Based on available information, EPA believes that its planned remedial construction project will achieve the NJDEP guidelines. Notwithstanding this belief, EPA will ensure that any residual soil contamination does not impair the designated uses of the groundwater.

#### SUMMARY OF REMEDIAL ALTERNATIVES

While there is currently not a complete pathway for ingestion of the lagoon sediment, this situation will likely change in the future. As mentioned above, the site is zoned Neighborhood Commercial, which would allow the property to be used for residences or light commerce. Whether the site is used for residential or light commerce, it is likely that the lagoon would be demolished which could result in the sediments being raised to the surface. With the sediments being raised to the surface there will be a complete pathway for ingestion which would then pose an unacceptable risk. In addition to the sediment posing potential unacceptable ingestion risk, it also acts as a continuous source of contamination to the upper aquifer.

CERCLA requires that each selected site remedy be protective of human health and the environment, be cost effective, comply with other statutory laws, and utilize permanent solutions and alternative treatment technologies and resource recovery alternatives to the maximum extent practicable. In addition, the statute includes a preference for the use of treatment as a principal element for the reduction of toxicity, mobility, or volume of the hazardous substances.

The FS report evaluated, in detail, four remedial alternatives address the contamination associated with the lagoon sediments, and three remedial alternatives to address the contamination associated with on-site

groundwater.

These alternatives are:

#### LAGOON SEDIMENT ALTERNATIVES

##### Alternative LS-1: No Action

Estimated Capital Cost:	\$0
Estimated Annual O&M Cost:	\$0
Estimated 5 Year Review Cost:	\$36,500
Estimated Present Worth:	\$102,000
Estimated Construction Time:	None

CERCLA and the NCP require the evaluation of a No Action alternative to serve as a point of comparison with other remedial action alternatives. The No Action alternative for the lagoon sediments would allow the site to remain in its present condition. Because this alternative would result in contaminants remaining on site, CERCLA requires that the site be reviewed at least every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes. No other action is proposed under this alternative.

##### Alternative LS-2: Cap/Cover

Estimated Capital Cost:	\$760,000
Estimated Annual O&M:	\$1,000
Estimated 5 Year Review Cost:	\$7,200
Estimated Present Worth:	\$796,000
Estimated Construction Time:	three months

This alternative would require the dewatering of the lagoon, filling and regrading to meet the surrounding topography. and the installation of a cap or cover. Approximately 31,000 square feet of contaminated lagoon sediment area would be capped. The alternative would require deed restrictions to protect the capped area. The three options considered for this alternative are:

Option 2a:	Vegetative Cover
Option 2b:	Asphalt/Concrete Cap
Option 2c:	RCRA Cap

An asphalt cap on the lagoon has been used for costing purposes however, any of the capping. alternatives would be similar in cost because of the small surface area involved. A complete breakdown of costs for each option can be found in Appendix B of the FS. A vegetative cover would be used on the area of contaminant-stressed vegetation immediately adjacent to the lagoon. Because this alternative would result in contaminants remaining on site above health-based levels, CERCLA requires that the site be reviewed every five years.

##### Alternative LS-3: Excavation/Off-Site Treatment of Hot Spot/Off-Site Disposal

Estimated Capital Cost:	\$1,294,000
Estimated Annual O&M:	\$0
Estimated 5 Year Review Cost:	\$0
Estimated Present Worth:	\$1,294,000
Estimated Construction Time:	four months

The lagoon sediments and berm soils contaminated with COCs (approximately 1000 cubic yards) would be excavated and disposed off site. Sampling during the RI indicates the likelihood that hot spots of contamination exist within the lagoon sediments. A conservative costing measure, it was assumed that any lagoon sediments found to exhibit hazardous characteristics would be incinerated with the remaining ash being

disposed of in a RCRA Subtitle C landfill, and those sediments found to be non-hazardous would be disposed off site in a RCRA Subtitle D landfill. All excavated areas would be backfilled with suitable fill and regraded. The area of contaminant-stressed vegetation immediately adjacent to the lagoon would be excavated and backfilled with, compatible soils and at a grade that will preserve a wetland hydrogeology and support wetland vegetation. Any sediments found in the drainage ditch that exceed the cleanup criteria for the contaminants of concern will be excavated and backfilled with compatible soils.

Alternative LS-4:	Excavation/Off-Site Incineration/ Off-Site Disposal
Estimated Capital Cost:	\$2,454,000
Estimated Annual O&M:	\$0
Estimated 5 Year Review Cost:	\$0
Estimated Present Worth:	\$2,454,000
Estimated Construction Time:	three months

A total of approximately 1000 cubic yards of organic contaminated lagoon sediments would be excavated, packed in drums, and transported to a RCRA permitted incineration and disposal facility. The lagoon sediments would be incinerated and appropriately disposed of off site. Incineration is a thermal process that destroys all forms of combustible waste materials. All excavated areas would be filled with clean soil and graded. The area of contaminant-stressed vegetation immediately adjacent to the lagoon would be excavated and backfilled with compatible soils and at a grade that will preserve a wetland hydrogeology and support wetland vegetation. Any sediments found in the drainage ditch that exceed the cleanup criteria for the contaminants of concern will be excavated and backfilled with compatible soils.

#### SHALLOW GROUNDWATER ALTERNATIVES

##### Alternative GW-1: No Action

Estimated Capital Cost:	\$0
Estimated Annual O&M:	\$0
Estimated 5 Year Review Cost:	\$36,500
Estimated Present Worth:	\$102,000
Estimated Construction Time:	None

CERCLA and the NCP require the evaluation of a No Action alternative to serve as a point of comparison with other remedial action alternatives. The No Action alternative for the shallow groundwater would allow the site to remain in its present condition. Because this alternative would result in contaminants remaining on site above health-based levels, CERCLA requires that the site be reviewed at least every five years. If justified by the review, remedial actions may be implemented to remove or treat the wastes. No other action is proposed under this alternative.

##### Alternative GW-2: Limited Action

Estimated Capital Cost:	\$27,300
Estimated Annual O&M:	\$29,000
Estimated 5 Year Review Cost:	\$7,200
Estimated Present Worth:	\$499,000
Estimated Construction Time:	one month

The limited action alternative for the contaminated shallow groundwater underlying the site would include a long-term monitoring program, and an institutional control program. The monitoring program would include the installation of an additional well, and the sampling of all existing and new wells on a periodic basis. If, in the future, the monitoring program detects an exposure to contamination from the site in excess of drinking water standards, additional remedial action would be considered. The institutional control program would place well restrictions on the use of shallow wells in the immediate vicinity of the site.

### Alternative GW-3: Collection and Treatment

Estimated Capital Cost:	\$2,804,000
Estimated Annual O&M:	\$370,000
Estimated 5 Year Review Cost:	\$36,500
Estimated Present Worth:	\$8,415,000
Estimated Construction Time:	two years

This alternative would provide for on-site collection and treatment of contaminated groundwater. Collection of groundwater would be accomplished through the installation of trenches along the downgradient portion of the property. Three cleanup processes would be necessary to treat the Navesink Formation groundwater: pretreatment to reduce scaling or fouling, organic compound removal, and inorganics removal. The treatment system required for these procedures would consist of: 1) Chemical Precipitation and Settling, 2) UV Oxidation, and 3) Ion Exchange. Groundwater would need to be treated to meet both New Jersey Surface Water Quality Criteria and Federal and State drinking water standards (MCLs) prior to surface water discharge.

### EVALUATION OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, including, overall protection of human health and the environment, compliance with applicable or relevant and appropriate requirements, long-term effectiveness and permanence, reduction of toxicity, mobility or volume, short-term effectiveness, implementability, cost, and state and community acceptance.

The evaluation criteria are described below:

- ! Overall protection of human health and the environment addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.
- ! Compliance with applicable or relevant and appropriate requirements (ARARs) addresses whether or not a remedy will meet all of the applicable or relevant and appropriate requirements of other federal and state environmental statutes and requirements or provide grounds for invoking a waiver.
- ! Long-term effectiveness and permanence refers to the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup goals have been met.
- ! Reduction of toxicity, mobility, or volume is the anticipated performance of the treatment technologies a remedy may employ.
- ! Short-term effectiveness addresses the period of time needed to achieve protection and any adverse impacts on human health and the environment that may be posed during the construction and implementation period until cleanup goals are achieved.
- ! Implementability is the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.
- ! Cost includes estimated capital and operation and maintenance costs, and net present worth costs
- ! State acceptance indicates whether, based on its review of the RI/FS reports and Proposed Plan, the state concurs, opposes, or has no comment on the preferred alternative.
- ! Community acceptance will be assessed in the Record of Decision following a review of the public comments, received on the Proposed Plan.

The following is a comparative analysis of the remedial alternatives for the K&M site, based upon the evaluation criteria noted above:

## ! Overall Protection of Human Health and the Environment

The No Action Alternative (LS-1) would not limit or prevent exposure to the contaminated lagoon sediments. Therefore, it would not provide adequate overall protection of human health and the environment. Alternative LS-2 would prevent exposure to the lagoon sediments through the use of a cap or cover. While capping would offer adequate protection of human health, future threats to the environment would remain since the contaminants would remain beneath the cap. Alternative LS-2 would offer better overall protection of human health and the environment than LS-1. The excavation and off-site treatment alternatives, LS-3 and LS-4, would eliminate any potential future exposure. Alternatives LS-2, LS-3 and LS-4 would achieve protectiveness at the completion of construction.

Although no current exposure to contaminated groundwater is occurring, future exposure is possible. Alternative GW-1 does not incorporate any remedial action. A five-year review would involve sampling and analysis of existing groundwater monitoring wells. Therefore, Alternative GW-1 would provide some protection of human health. Alternative GW-2 offers a groundwater monitoring program and incorporates well restrictions. If, during the groundwater monitoring, contaminated groundwater is found to be migrating to a drinking water source, remedial action would be considered. Alternative GW-2, in comparison to GW-1, would more effectively ensure the overall protection of human health. Alternative GW-3, through pumping and treating contaminated groundwater, would offer an increased level of overall protection of human health and the environment compared to GW-1 and GW-2.

## ! Compliance with ARARs

Alternative LS-1 would not achieve the health-based clean goals for the lagoon sediments. The cap in Alternative LS-2 would prevent exposure to lagoon sediments, and therefore would satisfy the remedial action objective. Alternatives LS-3 and LS-4 would meet all ARARs for the sediments.

Although Alternative GW-1 would not accomplish the remedial action objective for the groundwater, there is no current exposure to contaminated groundwater. Therefore, contaminant-specific ARARs (MCLs) are not applicable but could be considered relevant and appropriate. Alternative GW-2 would meet ARARs and effectively ensure the prevention of exposure to contaminated groundwater through a more comprehensive groundwater monitoring program and well restrictions. Alternative GW-3 would treat the groundwater until MCLs are attained within the aquifer; ARARs for extraction and treatment prior to discharge would also be met.

## ! Long-term Effectiveness

Alternative LS-1 would not maintain reliable protection of human health and the environment. Alternative LS-2 would provide acceptable reduction in risk, however, hazardous substances would remain on site, requiring long-term maintenance to preserve its protectiveness. Alternatives LS-3 and LS-4 would remove all hazardous substances in the lagoon sediments, and therefore, would provide the best long-term effectiveness.

Although contaminant levels in the shallow groundwater are above MCLs, they are expected to gradually reduce, through natural attenuation, to health-based levels. Therefore, Alternatives GW-1 and GW-2 would eventually provide adequate long-term protectiveness. Alternative GW-2 incorporates a more comprehensive monitoring program, and therefore, would more reliably ensure protectiveness of human health than Alternative GW-1. Alternative GW-3 would be consistent with the long-term effectiveness goals for the site by treating the groundwater until MCLs are achieved, or it becomes technically infeasible to attain remediation goals.

## ! Reduction in Toxicity, Mobility, or Volume

Alternative LS-1 would not achieve any reduction in toxicity, mobility or volume of the lagoon sediments. Alternative LS-2 would result in a reduction in mobility of the COCs in the lagoon sediments, but would not reduce toxicity or volume. Capping would significantly reduce infiltration of runoff through the lagoon sediments, transport of lagoon sediments via surface runoff, and volatilization of COCs in the lagoon sediments. Alternatives LS-3 and LS-4 would reduce the toxicity, mobility and volume of the COCs in the lagoon sediments.

Alternatives GW-1 and GW-2 would, over time, achieve reductions in toxicity and volume of the low levels of COCs in the groundwater through natural attenuation. Alternative GW-3 would reduce the toxicity, mobility and volume of the COCs in the groundwater through active treatment in a shorter period of time.

#### Short-term Effectiveness

Alternative LS-1 would not have any adverse short-term impacts. Alternatives LS-2, LS-3 and LS-4 would involve disturbing the lagoon sediments to varying degrees, which would generate dust and volatile emissions. Alternative LS-2 would create minimal disturbance of the sediments and short-term impacts during construction of the cap. Excavation in Alternatives LS-3 and LS 4 would have the most short-term adverse effects. These alternatives may require air monitoring and engineering controls to reduce airborne dust and emissions. All of the lagoon sediment alternatives would require implementation of a health and safety plan to minimize any risks to on-site workers and nearby residents.

Alternative GW-1 would not have any adverse short-term impacts. Alternative GW-2 would have minimal short-term impacts associated with the installation and sampling of a monitoring well. Alternative GW-3 would have the greatest short-term impacts, namely hazards associated with the extraction, treatment, and disposal of contaminated groundwater. Alternatives GW-2 and GW-3 would require the implementation of a health and safety plan to minimize the associated short-term risks.

#### ! Implementability

The technical and administrative feasibility of implementing Alternative LS-1 is minimal. The only activity conducted under Alternative LS-1 would be the required five year review. Cap or cover construction, in Alternative LS-2, can be easily implemented using readily available technology. Alternatives LS-3 and LS-4 also incorporate easily implementable technologies. Alternative LS-4 may experience more administrative difficulty than LS-3 due to the potentially limited Availability for off-site hazardous waste incineration capacity.

The technical and administrative feasibility of implementing Alternative GW-1 is minimal. The only activity conducted under Alternative GW-1 would be the required five year reviews. Administratively, Alternative GW-2 would require the implementation of well restrictions for the affected area. Alternative GW-3 would be more complex in its technical and administrative implementation than GW- 1 and GW-2.

#### ! Cost

The estimated present worth costs for the lagoon sediment alternatives are as follows: \$112,600 for Alternative LS-1, \$796,000 for LS-2, \$1.29 million for LS-3 and \$2.45 million for LS-4. In evaluating cost effectiveness, Alternative LS-3 that satisfies the Remedial Action Objectives to the greatest extent at the least cost.

The estimated present worth costs for the groundwater alternatives include \$112,600 for Alternative GW- 1, \$499,000 for GW-2, and \$8.41 million for Alternative GW-3. Of the alternatives that accomplish the Remedial Action Objectives for the groundwater and provide for the protection of human health, Alternative GW-2 is the most cost effective.

#### ! State Acceptance

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

#### ! Community Acceptance

Community acceptance of the preferred alternatives, will be assessed in the ROD following review of the public comments received on the Proposed Plan.

PREFERRED ALTERNATIVES

Based upon an evaluation of the various alternatives, EPA and NJDEP recommend Alternative LS-3: Excavation/Off-Site Treatment of Hot Spots/Off-Site Disposal for the lagoon sediments and Alternative GW-2: Limited Action for the groundwater. The components of the Preferred Alternatives are:

For lagoon sediments (Alternative LS-3):

Approximately 1000 cubic yards would be excavated and disposed off site. Any lagoon sediments found to exhibit hazardous characteristics would be transported off site to a permitted hazardous waste treatment and disposal facility. Those sediments found to be non-hazardous would be disposed off site in a RCRA Subtitle D landfill. All excavated areas would be backfilled with suitable fill and regraded. The area of contaminant-stressed vegetation immediately adjacent to the lagoon would be excavated and backfilled with topsoil and seeded to promote vegetative growth. Any sediments found in the drainage ditch that exceed the cleanup criteria for the contaminants of concern will be excavated and backfilled with compatible soils.

For groundwater (Alternative GW-2):

A comprehensive groundwater monitoring program would be established, including installation of an additional monitoring well, and sampling and analysis of all new and existing monitoring wells. Additionally, well restrictions on the affected groundwater would be incorporated. NJDEP will establish a Classification Exemption Area (CEA) based on the groundwater monitoring to ensure that new wells will not be installed without appropriate precautions.

The preferred alternatives (Alternatives LS-3 and GW-2) would achieve cleanup objectives, and at less cost than the other options. EPA and the NJDEP believe that the preferred alternatives would be protective of human health and the environment, would comply with ARARs, be cost effective, and would utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable.

In summary, the preferred alternatives are protective of human health and the environment, comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action, and are cost effective. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable. Therefore, EPA believes the preferred alternatives provide the best balance among alternatives with respect to the evaluation criteria..

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Representatives of the U.S. Environmental Protection Agency

Invite you to Attend Public Meeting

on the Proposed Clean Up of the

Kauffman & Minter Superfund Site in Jobstown, N.J.

The Time: 7:00 p.m.

The Date: Tuesday, July 23, 1996

The Place: Springfield Township Municipal Hall

Jacksonville-Jobstown

Road  
Jobstown, N.J. 08041

Representatives from the EPA will give presentations on the proposed clean UP of the Kauffman & Minter superfund site, and will be available to answer your questions and take public comment. If you wish to review site-related documents, they are available to the public at the Town Clerk's office at the above address. Please make every effort to attend this meeting and if you have any questions you may contact Ann Rychlenski, Community Relations Coordinator, U.S. EPA, 212/637-3672.

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THE UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY

IN RE:

KAUFFMAN & MINTEER  
SUPERFUND SITE

PUBLIC MEETING  
SPRINGFIELD TOWNSHIP MUNICIPAL HALL  
2159 Jacksonville Road  
Jobstown, New Jersey      New Jersey  
Tuesday, July 23, 1996  
7: 00 p.m.

B E F O R E:

CHARLIE TENERELLA, Section Chief, Hearing officer

GUY J. RENZI & ASSOCIATES  
824 West State Street  
Trenton, New Jersey 08618  
609-989-9199 or 800-368-7652 (TOLL FREE)  
(609) 392-7978 (FAX)

Guy J. Renzi & Associates

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2 A L S O P R E S E N T:

3 PAOLO PASCETTA, EPA, Program Manager

4 ANN RYCHLENSKI, Community Relations Coordinator

5 PAM PIERCE, Senior Engineer (TAMS Consultant)

6 MELISSA GIRARD, Remedial Project Manager

7 JANET FELDSTEIN, Section Chief

8 MARY LOU PARRA, Representative from NJDEP

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3	N A M E	P A G E
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MS. RYCHLENSKI: Good evening.

Thank you all for coming out here tonight. My name is Ann Rychlenski, and I'm the Community Relations Coordinator from the U.S. Environmental Protection Agency for the Kauffman and Minter Superfund Site.

I want to thank you all for coming out here tonight. This meeting is for EPA to present to you its proposed plan for the cleanup of the Kauffman & Minter site. And I'm just going to go through a couple of things very quickly before we open up the floor.

I want to introduce my colleagues here from EPA and also from TAMS Consultants. They are our contractors that are working on this site for us.

I'm going to start at the far end of the table. Pam Pierce. Pam is a Senior Engineer with TAMS Consultants.

And if you take a look at your meeting agenda, you'll see that Pam is going to be giving the results of the investigation that we did out at the site.

And then, at the other end here, is Paolo Pascetta. Paolo will be the new Remedial

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1  
2 Project Manager for this site. I'm going to talk a  
3 little bit about that. It's sort of changing hands  
4 due to a reorganization at EPA.

5                                 And then, to my immediate right is  
6 Charlie Tenerella. I think some of you know  
7 Charlie. Charlie has been in other meetings down  
8 here.

9                                 Charlie is the Section Chief for  
10 this particular site. But that will be changing,  
11 too, and I'll be introducing the new Section Chief  
12 for that under the EPA reorganization.

13                                And right here to my left is the  
14 lady who has been the Project Manager for this site.  
15 This is Melissa Girard. And she's going to be giving  
16 a presentation, also, on our Proposed Plan for the  
17 cleanup of the site. And Charlie is going to be  
18 talking to you a little bit about how Superfund  
19 works.

20                                It's been a while since we've been  
21 out here. And maybe some people have forgotten. I  
22 don't whether things have changed, whether there are  
23 interesting policies going on that may effect the  
24 site, but Charlie is going to talk to you a little  
25 bit about that.

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And again, like I said, the purpose of the meeting is to talk about what it is that we are proposing for the cleanup of Kauffman and Minter.

Now, one of the reasons that we hold a public meeting is to get public comment. Because one of the criteria by which EPA makes a decision on how we clean up a site, if to clean up a site, one of the things we look at is public comment.

So we are here tonight to hear your concerns, to hear your questions, to hopefully answer them.

And we have a stenographer here this evening for that purpose. She will take your comments down, your questions down. Like I said, we will answer them.

There's a document that we put out after we go through a public meeting, it's called a Responsiveness Summary.

It's exactly lay as it sounds. It is our responses to your questions and comments. That is a published document that will come out a little while later along with this transcript from this meeting.

1  
2                               Because a transcript is being done  
3 tonight, I'm going to ask you all to please hold your  
4 questions until the very, very end. When you do ask  
5 your questions, please stand up, speak very clearly,  
6 give your name if you're comfortable with that. If  
7 you're not, that's okay. But I do ask that you  
8 mention where it is that you live. Just the town is  
9 fine. And please do that so that we could have an  
10 accurate recording of this particular meeting.

11                               It makes it a lot easier on the  
12 person who is doing the transcription. So please do  
13 that when we get to the very, very end.

14                               A few other things that are going on  
15 here, and when we look at public comment, we look at  
16 the meeting itself and what you're to be hearing here  
17 tonight, there are other ways to look at a site.

18                               We have an Information Repository.  
19 And that's made up of the documents that are  
20 generated by EPA that are pertinent to this  
21 particular site.

22                               You can find those documents in  
23 Virginia Freck's office in the Office of the Clerk.  
24 Virginia you want to say.

25                               MS. FRECK: Hi.



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MR. RYCHLENSKI: Okay. Virginia has been very good, Springfield Township has been real good, about holding those documents for us and keeping them in good order.

You are welcome to come and look at them at any time, make copies if you'd like. And you can get an good idea of what has happened on the site and the history of it so that you could put things into perspective.

We have a public comment period on this site as we do with all others when we come to this point when we put out a Proposed Plan for cleanup.

There will be comment taken here tonight. But if there are things that you may think of or if you wish to investigate further and send your comments in writing, you can send them to Melissa Girard.

And we need to have those postmarked by close of business August 7, 1996. So if you have anything written, please make sure you get them to Melissa by that time.

Now, you can find Melissa's address in this, in the Proposed Plan. I hope you all have a

1  
2 copy of this. They're right outside.

3                   Please, take a copy this so that you  
4 can read through the Proposed Plan and understand  
5 exactly what it is that we're going to be doing.

6                   Also, please take a meeting agenda  
7 if you don't have one. And, also, make sure that you  
8 sign in. If you don't sign in, I can't keep a good  
9 mailing list and keep it up to date.

10                   So this way, if your name is on  
11 there with your address, I can at least keep you  
12 abreast of the other things that are going on at  
13 Kauffman and Minter.

14                   Before I turn this over to Charlie  
15 to talk to you a little bit about Superfund sites, I  
16 just want to introduce the other people that are here  
17 this evening and that will be taking over the site.

18                   Again, Paolo Pascetta, who will be  
19 the new Remedial Project Manager; and Janet  
20 Feldstein, you want to say hi?

21                   MS. FELDSTEIN: Hi.

22                   MS. RYCHLENSKI: She will be taking  
23 Charlie's place on this one. Again, like I said,  
24 there's been a reorganization at EPA.

25                   I also want to acknowledge two

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1  
2 people. There is a lady by the name of Mary Lou  
3 Parra who is here from New Jersey DEP.

4 Mary Lou, want to say hi?

5 MS. PARRA: Hi.

6 MS. RYCHLENSKI: Thank you. And  
7 also, I want to acknowledge Martin Poinsett, longtime  
8 mayor. I met Mr. Poinsett a very long time ago.  
9 Thanks for being here and for the continuity,  
10 certainly.

11 And without further ado, let me hand  
12 this over to Charlie.

13 MR. TENERELLA: I wanted to give you  
14 just a little overview of what Superfund is. It's  
15 basically the federal law that cleans up hazardous  
16 waste sites around the country.

17 And the first step in that process  
18 is for a site to be listed on something we call the  
19 National Priority List. And Kauffman and Minter  
20 made that list a number of years ago.

21 What that allowed us to do, was use  
22 federal money to study the site, do a full scale of  
23 what we call a Remedial Investigation.

24 And also, in the past couple of  
25 years, in fact, there has been some activity at the

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1  
2 site while we have taken some activities in an area  
3 we call Removal Actions. Where we are allowed to  
4 bring our staff out quickly and spend federal money  
5 to take some of the, in this case, wastewater out of  
6 the lagoon and some trailers and some drums and  
7 things that were on the site. And we got those out  
8 quick.

9                   But that's -- we knew we were going  
10 take it off, but we got that done quickly without  
11 going through the full process where we are now,  
12 something called a Record of Decision, which is the  
13 full scale cleanup.

14                   In the meantime, we concurrently  
15 have been looking at the site to determine what risks  
16 it had.

17                   When we first came out here -- I've  
18 had the site for a long. When we first came out  
19 here, it was some sense that Kauffman and Minter  
20 might be a rather nasty site, either from a public  
21 health perspective or ecologically. Because there  
22 was some -- I think there was a dead duck or  
23 something, 'dead animals in the area. And as we did  
24 our initial investigations, we found that it wasn't  
25 quite so bad here.

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In fact, one of the burdens we've had on the site that's caused us a long time in coming back to you with this decision was that the risks were not extreme at the site. And we had to question what kind of an action to take, if any, at the site.

So the good news is, that this is not a real problem site. The bad news is, it took us a while to get here to tell you that. But we are going to take some actions which will be described to you tonight.

Right now we're in the process of the public comment period before we issue a former Record of Decision.

What that does is, it allows the agency to use the Federal Superfund to pay for the full scale cleanup, whatever is determined to be the cleanup in our plan, and then we could go on from there.

Realistically, right now, money is an object. It wasn't a couple of years ago, but it is now in terms of the priority setting nationally for site cleanups.

And as I said before, as we studied

1 BY MS. PIERCE

2 Kauffman and Minter and found out that we don't have  
3 a lot of heavy risks, and where we did have some  
4 risks we took out the offending chemicals quickly and  
5 earlier, the remaining part of the cleanup may not  
6 happen immediately because funds may not be  
7 available.

8 Because there is a national limited  
9 pot of money now, and the priorities are set based on  
10 public health issues.

11 And Kauffman and Minter is not an  
12 extreme public health danger, so it might be some  
13 time before the actual cleanup can get started.

14 When it does, because of the scale  
15 of cleanup on this site, we think we can get it done  
16 rather quickly. And it won't take a number of years  
17 like a dozen or so of the larger sites that we have  
18 in New Jersey. So that's where we are now.

19 We'll go into some detail in terms  
20 of what we found on our investigations and what our  
21 plans for the cleanup are. And we'll try to keep the  
22 presentations fairly short and then open it up for  
23 questions, and use the detail of your questions to  
24 provide other answers to you.

25 Thank you.

1 BY MS. PIERCE

2 MS. RYCHLENSKI: Pam.

3 MS. PIERCE: Can everyone see this?

4 I'd like to start by giving you a little bit a of  
5 background about the Kauffman and Minter site.

6 First, it operated as a transport  
7 company for bulk liquids. Some of the chemicals that  
8 they transported included plasticizer agents and  
9 soaps.

10 As part of the operations, Kauffman  
11 and Minter rinsed the trucks after transporting the  
12 bulk liquids and disposed of the wastewater, the wash  
13 water, into an on-site lagoon which is shown here in  
14 blue (Indicating).

15 Now, the site is located on the  
16 corner at the intersection of Monmouth Road and  
17 Jobstown-Juliustown Road.

18 The property itself is only five  
19 and-a-half acres, but for the purposes of Remedial  
20 Investigation, we considered it to be a 25 -- roughly  
21 a 25-acre area that's bounded by the -- that includes  
22 the site in the marsh area, which is to the east of  
23 the site over towards Barker's Brook, which is this  
24 line here (Indicating) towards the south of the site  
25 and along Jobstown-Juliustown Road. So that was what

1 BY MS. PIERCE

2 we considered as the site in our Remedial  
3 Investigation..

4 To give you a little bit of a  
5 history on the work that's been done thus far at the  
6 site. As Charlie explained, there have been  
7 several -- the site has a long history. And there  
8 have been several investigations of the site between  
9 the period of roughly 1981 to 1988.

10 In 1985, a Site Investigation was  
11 performed where they determined that there was enough  
12 of a potential risk associated with the site to place  
13 it on the National Priorities List, and that occurred  
14 in 1989.

15 In 1991, EPA removed the liquid  
16 contents of the lagoon. And the Remedial  
17 Investigation was conducted between 1991 and 1995.  
18 And that's the bulk of- what I'll be talking about  
19 tonight.

20 In 1995, EPA also removed tankers  
21 and drums containing wastewater that were on the  
22 site.

23 The Remedial Investigation was  
24 broken down into seven major components. The first  
25 of which was the geophysical survey and soil gas

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1 BY MS. PIERCE

2 survey.

3 Geophysical survey is where we  
4 evaluated the subsurface on the site and tried to get  
5 some idea of the characteristics of the site.

6 We investigated the characteristics  
7 of the Navesink aquifer, which is the shallow aquifer  
8 that derives directly beneath the site, as well as  
9 the characteristics of the Wenonah-Mount Laurel  
10 aquifer, which is the deeper aquifer and below the  
11 Navesink, which is where the wells in the area obtain  
12 their groundwater -- their potable water from.

13 We also sampled from the lagoon and  
14 took various surface water samples across the site.  
15 This figure shows some of the lagoon surface soil  
16 sampling locations (Indicating).

17 We took samples around the perimeter  
18 of the lagoon to try to get a representative sample  
19 to get an idea what the contents of the lagoon  
20 sediments were.

21 And we also took surface soil  
22 samples across the site, including samples in the  
23 marsh, to address or to investigate potential  
24 contamination in the marsh area.

25 We also did a surface water and

1 BY MS. PIERCE

2 sediment sampling. These locations, as you can see.

3 We took samples upstream of the site on Barker's

4 Brook; we took a sample midstream and a sample

5 downstream of the site.

6 We also took a couple samples along

7 the drainage ditch which runs along

8 Jobstown-Juliustown Road. This overhead also shows

9 the groundwater sampling locations.

10 We installed nine wells to

11 supplement the three existing wells. The three

12 existing wells were wells that were in the shallow

13 Navesink aquifer, and we installed the three deep

14 wells.

15 Of those nine, three of them were

16 deep wells down in the Wenonah-Mount Laurel aquifer.

17 Then the remaining six were shallow wells as well.

18 We investigated the subsurface to

19 try to get an idea of the extent of contamination

20 below the site. How much of any site contamination

21 has migrated downward.

22 And this indicates some of the

23 locations we investigated, which includes the septic

24 tank area off the northern corner of the existing

25 building; within the underground storage tank area,

1 BY MS. PIERCE

2 which is south of the building; as well as the  
3 wastewater collection pit that was used to store some  
4 of the wash water prior to transfer to the lagoon.

5 Also, as part of the Remedial  
6 Investigation, we conducted an ecological  
7 investigation to determine if there ecological  
8 impacts associated with the contamination that's  
9 on-site.

10 It's not listed here, but we also  
11 performed a Human Health Risk Assessment to evaluate  
12 the impacts, if any, on human health due to exposure  
13 to site contaminants.

14 The results of the Human Health Risk  
15 Assessment. We determined that there was some risk  
16 associated with ingestion of the Navesink  
17 groundwater. And that risk was driven by vinyl,  
18 chloride and beryllium. And there was also some risk  
19 associated with ingestion of lagoon sediment and that  
20 risk being phthalates. I want to qualify the risks  
21 here in that.

22 For the Navesink ingestion  
23 scenario. What that requires is, that you are  
24 withdrawing water, you're ingesting water that has  
25 been withdrawn from the site.

1 BY MS. GIRARD

2 There's no evidence of any of the  
3 contamination moving off the property boundaries. So  
4 you would be required to drink water on a daily basis  
5 from a well on the site for a matter -- for a period  
6 of years.

7 And the ingestion of lagoon  
8 sediments, again, is a fairly conservative scenario.  
9 And it's somewhat self explanatory.

10 You know, if you ingest the -- if  
11 you have access to the lagoon sediments and ingest  
12 them for a period of seven years, then there is a  
13 risk associated with that as well.

14 We also determined, that for the  
15 ecological investigation that the real -- the only  
16 real evidence of any ecological stress on the system  
17 was the vegetation that's directly adjacent to the  
18 marsh, which is a result of the lagoon overflowing  
19 into the marsh.

20 That was the only evidence of any  
21 contaminated-related stress to the Ecological  
22 System.

23 MS. GIRARD: okay. So I took Pam's  
24 information and the information from the Remedial  
25 Investigation. And the next step involved is to do

1 BY MS. GIRARD

2 what's called a Feasibility Study.

3 And what that does is go over some  
4 different alternatives to address the areas of  
5 concern at the site, and that being the lagoon  
6 sediments and the Navesink groundwater.

7 There's a number of general Response  
8 Actions that we look at in the FS. Anywhere from  
9 being No Action, which will be nothing at all, to a  
10 Limited Action. And then we have Containment,  
11 On-site Treatment and Off-site Treatment.

12 And from that we go to the Proposed  
13 Plan, and we develop Remedial Action Objectives.  
14 Those Remedial-Actions Objectives consisted of  
15 preventing exposure through ingestion of contaminated  
16 lagoon and drainage ditch sediments; restoring an  
17 area of contaminant-stressed vegetation immediately  
18 adjacent to the lagoon; and preventing' exposure  
19 through ingestion of on-site contaminated  
20 groundwater.

21 The drainage ditch sediments are  
22 something that we will be addressing during design.  
23 There was one hit of phthalates over our cleanup  
24 criteria in a drainage ditch. That testing was done  
25 in the early 1990's.

1 BY MS. GIRARD

2 We want to confirm that that is  
3 still a problem, and if so, we will be taking that  
4 out with the lagoon sediments at the time of the  
5 Remedial Action.

6 What the Proposed Plan does is -- we  
7 have nine evaluation criteria that we use to  
8 determine which Remedial Action we're going to take  
9 at the site.

10 Of course, the first and most  
11 important is, Overall Protection of Human Health and  
12 the Environment.

13 Second, is the Compliance With  
14 ARARs, which is Applicable, Relevant and Appropriate  
15 Requirements. Basically what that is, is just the  
16 federal and state statutes and regulations that apply  
17 to these alt alternatives.

18 The third one is, Long-term  
19 Effectiveness and Permanence. Just to make sure that  
20 this Remedial Action will take care of. the problem  
21 associated with the site.

22 Reduction of Toxicity, Mobility and  
23 Volume. That's pretty self explanatory.

24 Short-term Effectiveness. If you  
25 can do it in a short period of time and what's the

1 BY MS. GIRARD

2 effectiveness of doing it in that period of time.

3 Implementability. That's self  
4 explanatory. How implementable is the alternative.

5 Cost. How much it's going to cost  
6 with respect to all the other criteria.

7 State Acceptance is one of our  
8 criteria as well, and we do have the state's concerns  
9 for the Proposed Plan on this.

10 And the last, but not least is,  
11 Community Acceptance. And that's why we're here  
12 today.

13 Okay. Lagoon Sediment  
14 Alternatives. These are the alternatives that have  
15 been chosen for the Proposed Plan from evaluation  
16 through the Feasibility Study that we think pertain  
17 the most to what is the issue at the site for the  
18 lagoon sediments.

19 No Action has to be evaluated. It's  
20 just one of our requirements to give sort of a  
21 baseline for what occurs here.

22 The second one is a cap or a cover  
23 that would adequately help the protection of human  
24 health and the environment at a relatively decent  
25 cost.

1 BY MS. GIRARD

2 The third one is excavation and  
3 off-site treatment of hot spots and off-site  
4 disposal.

5 And what that would entail is pretty  
6 much similar to the last one, which is excavation,  
7 off-site incineration, and off-site disposal.

8 However, what we believe at the  
9 site, from the data that we've collected, is that  
10 there is distinct spots of contamination in the  
11 sediment -- in the lagoon sediment that aren't  
12 necessarily widespread.

13 So what we want to do is not  
14 necessarily spend the absolute amount of money,  
15 taking out all of the sediments and treating them all  
16 at once.

17 What we're planning to do is,  
18 actually, to take out all of the sediments, test  
19 them, see which ones are hazardous.

20 If they're hazardous, then we'll  
21 send them to a RCRA Subtitle C treatment and disposal  
22 facility.

23 The rest of those sediments that are  
24 not hazardous will end up going to a Subtitle B  
25 facility, which is just a municipal landfill.

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1 BY MS. GIRARD

2 And this is just some of  
3 the -- I just want to show you this quickly, about  
4 what we're looking at here.

5 These are the different time frames  
6 it will take to implement each of the plans or each  
7 of the options, and what they're cost would be.

8 As you could see, the difference  
9 between not doing anything here, a hundred and two  
10 thousand dollars in no time, and what we're actually  
11 going to be presenting as our preferred alternative,  
12 which is excavation, off-site treatment of hot spots  
13 and off-site disposal. You know, which is  
14 approximately 1.2 million dollars.

15 The difference between those two and  
16 the excavation and off-site incineration and disposal  
17 is relatively large. And the implementation time is  
18 the same.

19 And the protection to the human  
20 health and the environment is just the-same for any  
21 residents in this area.

22 The sediments are going to be taken  
23 off-site and either treated, like I said, in a  
24 hazardous waste facility or sent to a Subtitle B  
25 landfill. We're not planning on leaving any of the

1 BY MS. GIRARD

2 sediments here.

3 So the third option and the fourth  
4 option are pretty much the same from your  
5 standpoint.

6 As for the shallow groundwater  
7 alternatives, same thing as for the lagoon sediment  
8 alternatives, No Action has to be evaluated as a  
9 baseline.

10 The second alternative was a Limited  
11 Action, which includes monitoring and institutional  
12 controls.

13 What that basically consists of, is  
14 that during design we're going to -- we have -- as  
15 Pam, who spoke before, we have some monitoring wells  
16 that are already in existence now.

17 We are planning on installing an  
18 additional monitoring well to make sure that we can  
19 adequately monitor the shallow aquifer and see if  
20 it's contaminating the lower aquifer, which is -- as  
21 of now, we have no evidence of that. And there's no  
22 risk associated with that, as Pam mentioned. So  
23 that's part of what that action calls for.

24 As well as institutional controls,  
25 which would basically be well restrictions on the

1 BY MS. GIRARD

2 Navesink so that nobody could actually build a well  
3 that was used for drinking water purposes or any  
4 other purposes, for that matter, and registered with  
5 the New Jersey Department of Environmental  
6 Protection; is that correct, the well restrictions?  
7 Yeah.

8 And the third option is collection  
9 and treatment. This option has a number of things  
10 involved with it.

11 You'd have to -- we'd have to build  
12 a big collection trench all along the downgrading  
13 inside of the lagoon and use a number of treatment  
14 trains.

15 I won't get into what that is  
16 because it's very technical and complicated. If you  
17 want more information on that I can send it to you.  
18 But there's a number of things involved with treating  
19 that, and it would take a number of years to do that.

20 And actually, to be honest, we're  
21 not even sure if it would work because the yield of  
22 the Navesink is so low that it would be very  
23 difficult to even collect most of this groundwater.

24 And just like I did with the  
25 sediment alternatives, I just wanted to show you sort

1 BY MS. GIRARD

2 of a comparison as to the implementation time and the  
3 cost involved.

4 Limited Action would take  
5 approximately one month to implement at a cost of  
6 about \$500,000 for the actual monitoring and  
7 institutional controls that are involved with that.

8 Limited Action will also have annual  
9 monitoring as well as a five-year detailed review of  
10 what is actually occurring on the site.

11 At that five-year review, we  
12 determine whether or not any contamination has spread  
13 into the drinking water aquifer below that, that's  
14 the Wenonah-Mount Laurel.

15 If that's the case, then we  
16 reevaluate it and possibly do a Remedial Action as a  
17 result.

18 And finally, these are EPA's  
19 preferred alternatives after going through all the  
20 nine criteria that I explained before,

21 These are the two alternatives we  
22 think that will most adequately address the problems  
23 at the site. And those are excavation and off-site  
24 treatment of all -- of hot spots, and we'll dispose  
25 of all sediments on the site.

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BY MS. GIRARD

And for the shallow groundwater. We will be installing an additional monitoring well and doing annual monitoring of that shallow aquifer to make sure that nothing has spread to the underlying drinking water aquifer, and to actually monitor the actual natural attenuation, or, I guess what you would say, disintegration of the chemicals that are actually in the shallow aquifer.

So those are our preferred alternatives. I'll hand it over to, I guess, Ann. Which I will have, now, a question-and-answer period. And we can try to address any questions you may have. Thank you.

MS. RYCHLENSKI: Thank you, Melissa once again, I'm just going to ask you to please wait until you're called upon. I'm going to hand this over to Charlie, and then Charlie can moderate.

And please wait until you're called upon. And, like I said, please speak clearly, identify yourself for the stenographer that's present so that we can have a clear record of this. Charlie. Okay. And we'll open to questions, comments.

MR. TENERELLA: Yes, sir?

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BY MR. POINSETT

MR. POINSETT: Mayor Poinsett from Springfield here. I'd just like to go on record as saying, of course we are most concerned with the health, safety and welfare of all of our residents.

I've read over your report. And I would like to go on record as agreeing with the EPA and the DEP while selecting the LS-3 alternative, excavation/off-site treatment of the hot spots/off-site disposal of the material, and also on record as a agreeing with the EPA and the DEP with the GW-2 Limited Action, which is basically monitoring the well water in the area.

And I think that we should go on record, the Town Council, and I'm going to recommend that at the next meeting.

I'm here tonight as the mayor of the town. And I'm going on record as recommending that. And if it takes further action, if we have to go on record with our congressman or whoever,.that puts the okay on spending of the Superfund money, I think we'll do that also.

Thank you.

MR. TENERELLA: Yes, sir?

MR. MILLER: My name is Ron Miller.

1 BY MR. MILLER/MS. STEVENSON

2 I live next to the site.

3 There's two test wells right across  
4 the street, I was wondering if one is a deep one and  
5 one is a shallow one, and are there any contaminants  
6 in the shallow one?

7 MS. GIRARD: Where exactly do you  
8 live?.

9 MR. MILLER: Right on the corner.

10 MR. GIRARD: Right on the corner?

11 MR. MILLER: Um-hum.

12 MS. GIRARD: Yeah, one is shallow  
13 and one is deep. And no, there's no contaminants  
14 there.

15 MR. MILLER: Okay. Thank you.

16 MR. TENERELLA: Veronica Stevenson?

17 MS. STEVENSON: A couple questions.  
18 Clarification. Subtitle D Disposal Facility, that is  
19 a municipal landfill?

20 MS. GIRARD: Correct.

21 MS. STEVENSON: Okay. So our county  
22 landfill would qualify for that, right? It's a  
23 municipal landfill.

24 Just a clarification, too. Where  
25 would off-site treatment occur?

1 BY MR. MILLER/MS. STEVENSON

2 MS. GIRARD: It would occur at a  
3 Subtitle C facility. That facility has not been  
4 chosen at this time.

5 MS. STEVENSON: Which would  
6 be -- would that be a municipal sewer plant?

7 MS. GIRARD: No It would be for  
8 hazardous waste.

9 MR. TENERELLA: No. It's a  
10 hazardous waste facility.

11 MS. STEVENSON: It would be a  
12 hazardous waste facility.

13 MR. TENERELLA: It would be RCRA,  
14 RCRA is the acronym, the Resource Conservation  
15 Recovery Act, and it regulates all hazardous waste  
16 landfills in the country or disposal facilities.

17 And as Melissa was saying, we have  
18 something called ARARs. And those are other  
19 regulations of other agencies or EPA and the state  
20 agency that we have to abide by.

21 And one of them is, when we dispose  
22 the materials, they have to be disposed of just like  
23 an industry would, properly.

24 MS. STEVENSON: At a Superfund site,  
25 then, it would go to this type of facility?



1 BY MR. MILLER/MS. STEVENSON

2 MR. TENERELLA: If it's hazardous.

3 MS. STEVENSON: If it's hazardous.

4 So leachate, like in the Superfund Site, FLR, is  
5 being taken presently to Willingboro sewer plant

6 MR. TENERELLA: That's a different  
7 type of contaminant coming off of the landfill as  
8 part of the landfill

9 MS. STEVENSON: It's a leachate?

10 MR. TENERELLA: Yeah. It's a  
11 leachate off of a landfill. It's different than what  
12 we have here. We don't have any leachate here. It's  
13 not landfilled.

14 We have sediments in the lagoon.  
15 The lagoon water, in fact, a couple of years ago,  
16 '91, was removed and treated to a wastewater  
17 treatment plant because it was a liquid. The  
18 sediments are now heavier, sludge or mud-like  
19 material.

20 MS. STEVENSON: Okay-Then, the  
21 difference really is, sediments would be treated in  
22 the facility that you would just -- a different type,  
23 and then the liquid would be treated

24 MR. TENERELLA: It won't be a  
25 liquid, it will be a solid.

1 BY MR. MILLER/MS. STEVENSON

2 MS. STEVENSON: But if it was  
3 liquid, it could be treated at a local sewer plant?

4 MR. PAOLO: It depends. If it's  
5 nonhazardous, it's a possibility.

6 MR. TENERELLA: There are certain  
7 types of plants that will accept that kind of liquid  
8 and there are others that won't.

9 In this case, with Kauffman and  
10 Minter, we won't see liquid disposals except,  
11 perhaps, from test well or monitoring well water  
12 disposal, if need be.

13 And if it's hazardous, it's disposed  
14 of one way. If it's nonhazardous, it could be  
15 disposed of in a sewer line like anyone else would do  
16 from a household.

17 So it very much depends on what the  
18 contents of the sampling is of the material that  
19 we're trying to get rid of.

20 As I said before in my introduction,  
21 the problem that we've had over the years here and  
22 has given us somewhat of a delay, unlike most  
23 Superfund sites that we deal with, certainly unlike  
24 anyone I've ever dealt with, was the big question of,  
25 is there a risk at Kauffman and Minter sufficient

1 BY MR. MILLER/MS. STEVENSON

2 enough to spend federal money to take an action? And  
3 if so, how much of a risk is there and how much of an  
4 action do we take?

5 So it's kind of the opposite of what  
6 we would normally see on a site where we have,  
7 perhaps, a serious risk, and we have to -- the scale  
8 of the action might be quite large. Here it's quite  
9 limited, actually.

10 MS. STEVENSON: Okay. Another  
11 clarification.

12 Did you investigate the number of  
13 wells that were in the Navesink aquifer? You  
14 wouldn't consider it an aquifer.

15 But the Navesink portion, do you  
16 know the actual number of residents or are you just  
17 making an assumption that there are some wells that  
18 are in that area?

19 Do you know the actual number?

20 MS. GIRARD: I think there's two.  
21 There's one upgradient and one sidegradient, but  
22 neither of them are used for drinking water purposes.

23 MS. STEVENSON: You're talking the  
24 residents in the local area. Because you're talking  
25 wells that are between 10 and 28 feet. And a lot of

1 BY MR. MILLER/MS. STEVENSON

2 these homes are older homes, and they probably  
3 wouldn't be registered or on record as having a well  
4 the depth of 10 to 28 feet.

5 But you're sure there are only two  
6 residents?

7 MS. GIRARD: There was a well survey,  
8 that was done that went to residents in the area all  
9 around the area.

10 MS. STEVENSON: There was a well  
11 survey done?

12 MS. GIRARD: Yes.

13 MS. STEVENSON: I reviewed your  
14 documents--

15 MR. TENERELLA: Nobody can actually  
16 drink that--

17 MS. GIRARD: You wouldn't even want  
18 to drink it. It's mud, basically. It's just very  
19 cloudy, high iron content, that you wouldn't -- I  
20 mean, it would be, first of all, aesthetically  
21 unpleasing to even drink if you wanted to.

22 MS. STEVENSON: I just wondered with  
23 older homes. Because I know, in the area, there are  
24 people that have shallow wells. And 10 to 28  
25 feet--

1 BY MR. MILLER/MS. STEVENSON

2 MS. GIRARD: Sure. But there's  
3 also -- as Bruce -- Bruce did some work on this as  
4 well. Bruce Fiddler who is also with TAMS and did  
5 some work additionally on this.

6 There's an outcropping of the  
7 Navesink. So it's not necessarily in all areas 10 to  
8 28 feet deep. It could be as little as, you know,  
9 just a couple of feet deep.

10 MS. STEVENSON: See, I'm taking this  
11 from your information that's on record here.

12 MS. GIRARD: We obviously have to do  
13 an average. But there's a definite outcropping of  
14 the Navesink where there's basically nothing around  
15 there.

16 MS. STEVENSON: But I want you to be  
17 aware that I got all the information that I'm about  
18 to question from the Record of Decision on file here.

19 MS. GIRARD: There's no Record of  
20 Decision.

21 MS. FELDSTEIN: The Administrative  
22 Record.

23 MS. GIRARD: Oh, you mean the  
24 Administrative Record.

25 MS. STEVENSON: Well, I guess.

1 BY MR. MILLER/MS. STEVENSON

2 Technical terms, okay. I'm a novice at this.

3 what I'm concerned about is, in  
4 1984, according to the records on file here, whatever  
5 they are, the chemical trichlorethylene, and this is  
6 on Page 10 in the first section, lists the Cronin  
7 residence of having exceeded maximum contaminant  
8 levels of this chemical.

9 I was concerned. And I went to  
10 Ms. Cronin today and I questioned her. She was never,  
11 notified. And this is not something new to me.  
12 Because this has happened before in this township  
13 with the residents that lived near the Superfund  
14 Site.

15 My concern as a resident living near  
16 a Superfund site is process. Now, I'm really a  
17 little concerned because of -- if this is true, she  
18 should have been notified especially when it exceeded  
19 maximum contaminant levels.

20 MR. TENERELLA: In 1984?

21 MS. STEVENSON: In 1984. I don't  
22 care if it happened in 1969. You know, you've got a  
23 chemical contamination in your water. The Cronins  
24 have children in the family.

25 MR. TENERELLA: I don't think we'll

1 BY MR. MILLER/MS. STEVENSON

2 be able to answer it now, though.

3 MR. FIDLER: I just want to  
4 comment. Bruce Fidler, TAMS. That was a sample  
5 collected by DEP, not EPA. Just to clarify for you.

6 MR. TENERELLA: Okay. That's a  
7 state sample.

8 MR. FIDLER: That's a state sample,  
9 not a federal. Normally they would notify them.

10 MS. FELDSTEIN: Typically there's  
11 notification that the results are provided to any  
12 resident who's well was sampled.

13 So we have to go back -- we'll ask  
14 DEP to go back and look at the records, and

15 A SPEAKER: My water was sampled at  
16 that time, and I didn't get a letter from them.

17 MS. FELDSTEIN: You got the results.

18 A SPEAKER: I got the results of  
19 what the water tested at after that.

20 MR. TENERELLA: Are you from the  
21 state?

22 A SPEAKER: Yes.

23 MR. PAOLO: Usually, it's common  
24 protocol that whoever comes to sample the wells of  
25 the resident will then send the results.

1 BY MR. MILLER/MS. STEVENSON

2 MS. FELDSTEIN: We'll look into

3 that.

4 MS. GIRARD: That's the Cronin

5 residence?

6 MS. STEVENSON: Cronin. And then in

7 1988, you don't list the five residents, but they had

8 phthalates in their water, di-n-butypthalates and

9 bis (z) ethylhexpthalates in their water.

10 I don't -- it doesn't say whether

11 that exceeded MCLs. Regardless if it did, I know as

12 a consumer, and I'm sure you, if that were in your

13 drinking water, even if it didn't exceed MCLs and you

14 have children and you're bathing babies, you would

15 want to know.

16 And we have five people here. Who

17 are you? Okay.

18 MS. PARRA: What year was that?

19 MS. STEVENSON: 1988. This is from

20 your documents. Again, from your document -- oh,

21 boy. There's a list of chemicals here.

22 This one disturbs me. Where you

23 talk about no health risk. Background health

24 statistics survey for Burlington County. Again,

25 taken from your documents.



1 BY MR. MILLER/MS. STEVENSON

2 When you do a health survey,  
3 evidently you take the whole county. You're not  
4 taking this locality. This is what your information  
5 says if you read it. Okay. You're taking the whole  
6 county and comparing it to the state. I don't see  
7 the logic in that.

8 Quote, Available information on the  
9 Springfield Township was reviewed to determine if any  
10 sensitive subpopulations were present in the  
11 vicinity.

12 The only subpopulation identified  
13 that may be at increased risk are the children living  
14 in the vicinity of the site. Page 16 of this section  
15 here (Indicating).

16 MR. TENERELLA: What's the problem?  
17 I don't understand your question.

18 MS. STEVENSON: The problem is, you  
19 are stating -- according to this health survey,  
20 you're looking for a subpopulation in the vicinity  
21 that might be at risk.

22 MR. TENERELLA: Based on the risks  
23 of the chemicals that we have at the levels we have,  
24 right.

25 MS. STEVENSON: Right.

1 BY MR. MILLER/MS. STEVENSON

2 MR. TENERELLA: Right.

3 MS. STEVENSON: You're saying hear,  
4 the subpopulation identified.

5 MR. TENERELLA: That's potentially  
6 be at risk.

7 MS. STEVENSON: You have a potential  
8 risk to children.

9 MR. TENERELLA: Correct.

10 MS. STEVENSON: Children are more  
11 vulnerable. Their bodies are smaller.

12 MR. TENERELLA: That's why we  
13 decided to take the action.

14 MS. STEVENSON: Right.

15 MR. TENERELLA: Yes.

16 MS. STEVENSON: In bathing they  
17 could get the chemicals into their system; in  
18 breathing in the water they can get the chemical into  
19 their system.

20 MR. TENERELLA: Correct. Although,  
21 I wouldn't bring my kids to that sediment lagoon to  
22 bathe them.

23 MS. STEVENSON: And I don't think  
24 you would take your children to the Cronin's house to  
25 be bathed. I don't think any of you would.

1 BY MR. MILLER/MS. STEVENSON

2 And I think if we sat their water in  
3 front of you, You wouldn't --

4 MR. TENERELLA: Where are they  
5 getting their water from, the shallow aquifer or the  
6 deep?

7 MS. STEVENSON: They are --

8 MS. CRONIN: 60 feet.

9 MR. TENERELLA: That's the deeper  
10 one. That's the Wenonah. That's the one that's  
11 okay.

12 MS. STEVENSON: Well, the five  
13 residents in '88 that have the chemical contamination  
14 the phthalates -- you were saying that there are two  
15 residents that had wells in  
16 the -- whatever it was. Navesink?

17 MS. GIRARD: Um-hum.

18 MS. STEVENSON: So that leaves three  
19 other ones with these chemicals in it. That would  
20 indicate -- no. You take two--

21 MR. TENERELLA: That's the kind of  
22 information, in the early days of the program or the  
24 and do a full Remedial Investigation.  
25 When we did additional studies and

1 BY MR. MILLER/MS. STEVENSON

2 couldn't find those chemicals, there was no risk any  
3 longer. Maybe they went through system.

4 One thing that this site has unique  
5 to other sites is, the cessation-of operations of  
6 Kauffman and Minter helped to cease any chemicals  
7 that might have been occurring because of whatever  
8 was being transported in the tanker trucks and then  
9 washed out.

10 So as he ceased operations, whatever  
11 chemicals might have been appearing in the  
12 environment, say in the mid-80s, late-80s,  
13 disappeared. So there's nothing for us to remediate  
14 any longer, except what we've identified now in the  
15 lagoon, and then, of course, the monitored  
16 groundwater.

17 In case there's a problem, part of  
18 the Superfund process is that after five years of  
19 taking the action that we select, we go back and  
20 check it again. We remonitor, if you will, after  
21 five years. We look at the site to see if we missed  
22 anything.

23 So if, in this case, Kauffman again,  
24 during the five-year period while we're doing  
25 groundwater monitoring, if we start seeing a trend

1 BY MR. MILLER/MS. STEVENSON

2 for chemicals reappearing, say, that showed up in  
3 early '80s, we'd come back and take additional  
4 action, if necessary. So this is not the end of the  
5 process, if necessary, from a risk point of view.

6 But right now, given the risk that  
7 we have seen in our Remedial Investigations over the  
8 last couple of years, there's really not much of a  
9 risk other than the sediment. And, of course, that's  
10 to children. And so that's what-the report is  
11 saying.

12 MS. STEVENSON: From information I  
13 read from environmental books and so forth, I'd like  
14 to read this section to you.

15 Monitoring wells are a type of  
16 hit-and-miss system of monitoring. The contamination  
17 moves. Some move in plumes, some dissipate.

18 MR. TENERELLA: Right.

19 MS. STEVENSON: Okay. Because  
20 groundwater moves slowly. A slug of contaminant  
21 moving through the groundwater will slow and disperse  
22 into a plume, the dimensions of which are controlled  
23 by the structure of the aquifer because of the slow  
24 rate of travel and the vagaries of slow and  
25 dispersion of groundwater making it heavily

1 BY MR. MILLER/MS. STEVENSON

2 contaminated in one place, but remain pristine only a  
3 few hundred feet away. Size of the openings  
4 influence how fast water can flow through the  
5 aquifer.

6 MR. TENERELLA: That's right.

7 MS. STEVENSON: There's a lot of  
8 variables there.

9 MR. TENERELLA: That's what took  
10 us - -

11 A.) That's what took us time in  
12 coming to an assessment of what we should do, and;

13 B.) Because we wanted to-make sure  
14 that the upper shallower aquifer wasn't contaminating  
15 the lower drinking water aquifer where people are  
16 drinking right now. And that's why we're taking the  
17 action on the additional monitoring, exactly that  
18 reason.

19 MS. STEVENSON: You have had --

20 MR. TENERELLA: You're asking these  
21 questions like there's a problem, but

22 MS. STEVENSON: There is a problem.  
23 There is a problem. Big problem for me is, and I  
24 have raised this to Town Council, I wanted to know  
25 DEP's procedures for notifying people when

1 BY MR. MILLER/MS. STEVENSON

2 contamination was found in the water supplies.

3 Did I not, Mayor Poinsett, did I ask  
4 that?

5 MR. POINSETT: That's correct, yes.

6 MS. STEVENSON: With a response from  
7 the DEP. There aren't

8 MR. TENERELLA: I'm going to say  
9 this. I don't know DEP's regular procedures. But  
10 most of the times the Health Department, and it's the  
11 State Health Department -- I now in other sites that  
12 I've had, when it comes to water supply sampling of  
13 local, single, private wells, we usually involve the  
14 State Health Department, through us and through DEP,  
15 and they're the ones that do the testing for us, get  
16 the results, and give them out to residents.

17 I can't say in this case. I don't  
18 remember, going back that far, what exactly happened  
19 or who did the sampling.

20 But the normal protocol for all  
21 three agencies, no matter what the results are,  
22 whether they're good or bad, is that they're released  
23 to the people who's wells are tested.

24 MS. STEVENSON: Well, the  
25 information of the safety of the drinking water

1 BY MR. MILLER/MS. STEVENSON

2 doesn't seem to be released. And this is the second  
3 case.

4 And I'll tell you, the first couple  
5 that was involved and not being notified is methylene  
6 chloride.

7 MR. TENERELLA: Well, that could  
8 be--

9 MS. STEVENSON: But in the Remedial  
10 Investigation Study Report it said, for prudent  
11 purposes, the residents will be notified not to drink  
12 the water. For prudent purposes.

13 MR. TENERELLA: Right.

14 MS. STEVENSON: Right. This couple  
15 both died and left several children. They lived very  
16 close to the Superfund Site and were never told.

17 MR. TENERELLA: You can't make a  
18 relationship between people dying and being next to  
19 the Superfund Site. Most people die.

20 MS. STEVENSON: They do. And, you  
21 know--

22 MR. TENERELLA: Again, I'm not sure  
23 what you're getting at because there's no connection  
24 that we saw on a risk basis for the kinds of levels  
25 we have, certainly methylene chloride and things like



1 BY MR. MILLER/MS. STEVENSON

2 that.

3 First of all, they are -- tend to be  
4 lab contaminants at low levels if you don't find them  
5 on a site as a process chemical or something that was  
6 used as a cleaning solvent or something like that.

7 If not, and to be prudent as we say  
8 in the report, we still would notify and maybe take  
9 action. Again depending on the levels, if they're  
10 above MCLs or the lowest level of contamination that  
11 you would allow in drinking water.

12 But at those very, very low levels,  
13 we're talking about an additional potential cancer  
14 risk. And MCL is defined as a one in a million  
15 additional cancer risk to what the regular cancer  
16 population is.

17 And the regular cancer population is  
18 something like one in five citizens over their  
19 lifetime will get cancer.

20 So to say there's one in a million  
21 additional risks versus the national trend of one in  
22 five will get cancer sometime in their lifetime, you  
23 can't make that correlation on a given single  
24 chemical and say, well, those two people died.

25 As I say--

1 BY MR. MILLER/MS. STEVENSON

2 MS. STEVENSON: I've read enough  
3 books--

4 MR. TENERELLA: -- there's not a  
5 connection there unless you have a very, very direct  
6 relationship. Which, actually, is quite highly  
7 unusual, to have a direct relationship, accepting  
8 very, very high concentrations of any chemical.

9 MS. STEVENSON: See, denial is a big  
10 thing with the DEP and EPA. Because every incident  
11 where contamination has been found and problems,  
12 health problems, have been found, it is all because  
13 residents were very aware of clusters, such as Toms  
14 River, with that cancer cluster. And now, there is  
15 going to be more in depth studies on the water.

16 That doesn't surprise me because of  
17 the concerns and contamination that area faced  
18 before.

19 There was serious--

20 MR. TENERELLA: You're jumping the  
21 gun again because there's nothing proven in Toms  
22 River between -- the connection between the health  
23 effects of the people and drinking water yet. But  
24 they're willing to look because of concern registered  
25 by the residents.

1 BY MR. MILLER/MS. STEVENSON

2 I'm not an expert on that site.

3 It's not mine. But I know from reading, myself, in  
4 the paper and knowing the risk connections of  
5 chemicals, that it's going to be very difficult, from  
6 a epidemiological point of view, to connect any  
7 chemicals at low levels to people dying of any  
8 specific disease, except when the chemicals is very  
9 specific and is very high level. Anyplace, Toms  
10 River or anyplace else. You just cannot make those  
11 kinds of connections.

12 Although the public would like to  
13 make them because it's easier to say, it must be "A"  
14 and "B", and, therefore, "C". It just doesn't happen  
15 that way.

16 In most cases, the majority of  
17 cases, and in rare is the case, where you'll get a  
18 direct correlation between health effects or health  
19 risks and cleanup of a Superfund site.

20 And the one example in New Jersey  
21 that comes immediately to my mind is radon  
22 contamination in some homes in one area of  
23 Montclair-Glen Ridge where there is a relationship,  
24 direct relationship, between that radon and things  
25 like lung cancer, potentially for people. And so

1 BY MR. MILLER/MS. STEVENSON

2 that's a very high risk-related site being cleaned up  
3 right now.

4 MS. STEVENSON: See that's

5 MR. TENERELLA: So where we see  
6 those kinds of connections we take very aggressive  
7 action. But we have to see the correlation. In most  
8 cases we don't if it's very, very low levels  
9 affected.

10 Are we wrong? Maybe people will  
11 prove that parts per quadrillion or something was bad  
12 for you. But right now, we don't have that proof.

13 MS. STEVENSON: You don't put too  
14 much stock in the MCLs that are given.

15 MR. TENERELLA: No, that's our  
16 baseline. That's we operate from.

17 MS. STEVENSON: That's your  
18 baseline?

19 MR. TENERELLA: Right. Out of one  
20 in a million cancer risks. That's the regulatory  
21 baseline, that one in a million additional cancer  
22 risk. Anything above that which can give you your  
23 MCL or your maximum contaminant level from drinking  
24 water, anything above that and you take some action.

25 MS. STEVENSON: And some

1 BY MR. MILLER/MS. STEVENSON

2 action -- so no action was taken here.

3 Will you look into why no action was  
4 taken in regards to that?

5 MR. TENERELLA: And Janet will be  
6 following up because the site will be transferring to  
7 Janet and Paolo.

8 I'm sure they'll follow up with the  
9 state, also. If it was a state sampling event, we  
10 won't have those records in terms of what might have  
11 happened.

12 MS. STEVENSON: Also, what I would  
13 request of you, and it would make it a lot easier and  
14 cheaper for residents in the area to want to have  
15 their water tested, if you would supply a list to the  
16 Township of the chemicals you think would be the high  
17 priority pollutants that may be found in the water.

18 So that when they have their water  
19 tested, they can focus in on this. Because you know  
20 that it would cost thousands of dollars to do an  
21 in- depth water test.

22 This would be an asset to the DEP  
23 and EPA because you would have individuals paying for  
24 their own water to have it tested. And if they can  
25 pick up anything, then they can refer that

1 BY MR. MILLER/MS. STEVENSON

2 information to you.

3 MR. TENERELLA: Bruce, is there a  
4 list of MCLs in the RI?

5 MS. FELDSTEIN: Chemicals of concern  
6 for the site. Yeah, we can get a list.

7 MR. TENERELLA: No, but in addition,  
8 is there a list of MCLs that compares the chemicals  
9 concerned at the site?

10 MS. PIERCE: Yes, they're in the  
11 record.

12 MR. TENERELLA: So they should be  
13 able to get that.

14 MR. FIDLER: In Volume II in the  
15 section on the tables, I'm sure that with the  
16 groundwater sampling there is a list, also, of the  
17 criteria that they were compared against for drinking  
18 water, the MCLs.

19 If you give me a second, I'm sure I  
20 could come up with the specific table that would show  
21 that. And it's, of course, already in the record  
22 that you have here.

23 MR. TENERELLA: While Bruce is  
24 looking that up so that we can answer it right away,  
25 I'd ask if we could answer some other questions,

1 BY MS. BICE

2 other people's questions.

3 Yes, ma'am?

4 MS. BICE: I have a question. Ruth  
5 Ann Bice. My property is part -- was at one time,  
6 before we bought our house, was part of the trucking  
7 of Kauffman and Minter. They owned our property.  
8 Okay.

9 I was under the impression, when  
10 they came in a couple of years ago and tested it,  
11 that this lagoon, that they put a barrier around it  
12 to keep it so that this water did not move. And that  
13 one of the things that was -- we had going for us was  
14 the fact that our -- the property in town is very  
15 clay and the water was not moving as fast or would  
16 not go into the people's wells like as if it  
17 was -- this lagoon was someplace else.

18 MR. TENERELLA: Yeah, the lagoon is  
19 sort of self contained. There's a clay layer under  
20 it.

21 The biggest concern we had at the  
22 time when we drained the lagoon is, that it was  
23 overfilling into those marshlands.

24 In fact, it was creating that  
25 marshland over years as he washed his trucks. That

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BY MS. BICE

marshland is a -- sort of artificial, and it was created by the activity of the company. Now the company is out of business. I wonder if that marshland will become dry.

In the meantime, we saw a soap sudsy kind of effect, and you probably saw that years ago in the area. And there was a concern in terms of what was in it and whether there was either a public health risk, which determined there wasn't, or something that's a little more difficult to determine easily is the ecological risk on animals and birds and things in the neighborhood.

And so for both reasons, we drained the lagoon immediately. There's no sense in 'waiting for that and letting it keep overflowing, so we drained it.

MS. BICE: So now what is happening is that most of this rain water is running into there?

MR. TENERELLA: In fact, we had think we tested it at one point to make sure that's all it was.

MS. GIRARD: Right, we did. And it's not hazardous. It's just drain water.



1 BY MS. BICE

2 MS. BICE: So, therefore, when you  
3 come in and clean that out, okay, then what you're  
4 doing is you're just cleaning out what's in the  
5 bottom?

6 MR. TENERELLA: Right.

7 MS. BICE: And then, what are you  
8 going to do with the holes?

9 MS. GIRARD: Fill it up.

10 MS. BICE: Fill it up with some  
11 soils?

12 MS. GIRARD: Fill it up with soils  
13 and seeded on top.

14 MS. BICE: How about the  
15 other -- behind the property, are you finished back  
16 there, the cleanup?

17 MS. GIRARD: No. That will actually  
18 be included with the lagoon sediments.

19 MS. BICE: Well, what they have  
20 cleaned up -- like, they dug up. They were back  
21 there digging up, and --- for several months.

22 Has that been removed from back  
23 there?

24 There was dumpsters back there.  
25 Have they removed the dumpsters?

1 BY MS. BICE

2 They have dumpsters--

3 MR. PASCETTA: Most recently, this  
4 past summer?

5 MS. BICE: Yes.

6 MS. GIRARD: Oh, yeah. That was  
7 actually -- that was the newest Removal Action that  
8 just occurred. There was a release of some -- it was  
9 basically a phthalates contaminated petroleum product  
10 that is somewhat -- phthalates are basically a  
11 plasticizer. They're what's in a plastic bottle,  
12 that type of thing. So they harden a little bit.

13 But some of that had come out of one  
14 of the tanker trucks and we tested it. Because it  
15 had some phthalates in it, we decided to get rid of  
16 all of those.

17 So that -- what were in those  
18 dumpsters was the contents of those tanker trucks  
19 that was then taken off-site.

20 MS. BICE: They did take it  
21 off-site. You see, it's done while I'm at work, so,  
22 therefore, I don't know.

23 MS. GIRARD: Yes, that's been taken  
24 off.

25 MS. BICE: Okay. So really, the

1 BY MS. BICE/MS. BAIER

2 main thing now is just the lagoon?

3 MS. GIRARD: The lagoon and the area  
4 right in back of the lagoon where the marsh area was  
5 from the overflow that happened.

6 MS. BICE: But not like in front of  
7 the building towards -- where you go in?

8 MS. GIRARD: No. Yes, right.  
9 That's all taken care of.

10 MR. TENERELLA: Yes, ma'am.

11 MS. BAIER: My name is Joan  
12 Baier. I live adjacent to the lagoon, and I have  
13 some concerns.

14 It is still coming over on my  
15 property. And from the pictures I saw there, it  
16 doesn't look like -- I have one section that's about  
17 60 feet long, maybe 8 feet wide that nothing can  
18 grow.

19 MR. TENERELLA: Are you getting rain  
20 water runoffs, is that the problem there?

21 MS. BAIER: It is flooded there.

22 MR. TENERELLA: When it rains  
23 because it's not operating anymore. So you're still  
24 getting a water flow. That's probably a rain event  
25 in a

1 BY MS. BAIER

2 MS. BAIER: Yes. One section  
3 is -- it's all green now except for this one section  
4 that you can't see now because it's overgrown.

5 But there is one section that  
6 is looks like it's the moon. It's real black and  
7 there's nothing growing there, and I'm really  
8 concerned about that area.

9 And it seems to me -- are you going  
10 to take care of that area as well?

11 I was under the impression that I  
12 was not going to get cleaned up from your office.

13 MR. TENERELLA: When we did -- I  
14 don't know. I have to ask Pam for this.

15 When we did the soil investigation,  
16 the original soil investigation, were there samples  
17 taken toward that property.

18 MR. FIDLER: Bruce Fidler with  
19 TAMS.

20 Let's put up on the screen the map  
21 of the site so you could point out the area you're  
22 talking about. And then we can see where the samples  
23 were and what's included in the stuff in the lagoon  
24 area overflow which might be related to the cleanup.

25 Okay. Could you point out

1 BY MS. BAIER

2 where -- let me let you right into here and you can  
3 point out on the map where your --

4 MS. BAIER: This is a picture of  
5 where the overflow which seems to be right here.  
6 This is the section I'm concerned about.  
7 (Indicating).

8 It seems that you've done --

9 MS. FELDSTEIN: Melissa, is that the  
10 marsh area?

11 MR. PASCETTA: That's your property,  
12 ma'am?

13 MS. FELDSTEIN: This is the stressed  
14 area that's talked about in here.

15 MR. FIDLER: Ma'am, this property  
16 right here is yours?

17 MS. BAIER: Yes.

18 MR. FIDLER: Okay. This is included  
19 in the lagoon overflow area which is included in the  
20 remediation of the lagoon sediments.

21 MS. BAIER: Right. But this is the  
22 area where I think it's overflowing. This is where  
23 you've done your test site.

24 MR. FIDLER: Right.

25 MS. BAIER: You haven't done,

1 BY MS. BAIER

2 anything here, and this is where my problem is.

3 It seems you've gone all the way  
4 around, but this section here (Indicating). That's  
5 where the problem is.

6 MS. GIRARD: That's where the  
7 excavation is going occur as well, and that's going  
8 to be--

9 MR. TENERELLA: In addition to the  
10 sediments in the lagoon, let's talk a little bit the  
11 area just off the berm that's distressed. I think  
12 it's a blackened area it looks like. And it's that  
13 area right there that will also be taken out.

14 So is that your property, ma'am?

15 MS. BAIER: That is my property.

16 MR. TENERELLA: Okay. That's going  
17 to be handled.

18 MS. BAIER: I'd also like to know  
19 when this nightmare is going to end?

20 MR. TENERELLA: When we take that  
21 off the property and when we get the money.

22 MS. BAIER: The problem is, since  
23 you've done the removal of the water and such, and  
24 since you've done activity there, it's under  
25 my -- I would like to have my water tested again.

1 BY MS. BAIER

2 I was under the impression that I  
3 had a 200-foot well. I came to find out that I don't  
4 have one. I have a 60-foot well.

5 And I understand, that when the  
6 water tables are very low, which are not this year,  
7 but they have been in previous years, it does bring  
8 water -- suck water back into the other aquifers.

9 MR. TENERELLA: It depends on the  
10 area of how the aquifer operates.

11 MS. BAIER: I have a four-year-old  
12 grandson. I have four kids in that house and plus an  
13 aunt. That's -- actually, two kids plus an aunt.  
14 And the thing of it is, four of us have tried to sell  
15 our property and we cannot do that.

16 MR. TENERELLA: Right. I remember  
17 we talked a couple of years ago about it.

18 MS. BAIER: I can't sell that  
19 piece -- my property with a sign saying, danger, do  
20 not go into it.

21 MR. TENERELLA: Right.

22 MS. BAIER: Now, I hear a five-year  
23 plan when it's done. Then five years later more  
24 tests will be done.

25 MR. TENERELLA: Let me explain that

1 BY MS. BAIER

2 again so you'll -- you don't misunderstand me.

3 Theoretically, if I was here three  
4 or four years ago and it was time for the cleanup, I  
5 would be able to say, with some quite degree of  
6 confidence, that we would go on in the next couple of  
7 months.

8 Because of the scale of the  
9 situation here at Kauffman, we would be able to skip  
10 a full scale engineering design, which takes a couple  
11 of years.

12 We would skip that and do a quick  
13 design and start pulling sediments out of the lagoon,  
14 actually do the action, within at least during the  
15 time of the four-month action.

16 So within six months, say, of the  
17 decision to do it, we can get it done if we had the  
18 money.

19 The trick in the past couple of  
20 years, unfortunately, with congressional -- with  
21 budget cuts, federal budget cuts, is we don't have  
22 the money to do all of the actions we need to in the  
23 country that have been signed off as we're going to  
24 do it, and we're sort of stuck.

25 MR. BAIER: I do understand that.



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BY MS. BAIER

What I'm getting at is, when you start --

MR. TENERELLA: When we start it

will be in six months. The five years that I just mentioned is, that in addition to doing the cleanup, after five years we go back and do an investigation again, a mini investigation, to make sure we got it all, that there are no surprises, that the groundwater didn't recontaminate or that something didn't go quite right.

In this site, in addition to that

five-year review, we're doing groundwater monitoring from day one. We're including it as part of the action as opposed to even waiting five years to look at it again. Just to keep an eye.

So that if there's something that

goes askew from what we don't that will happen, but just in case, we're including some groundwater monitoring in the action.

MS. BAIER: And at that point, do we

get a clean bill of health? We can remove our signs, remove our wells

MR. TENERELLA: Right.

MS. BAIER: And at that point, put

an end to it?

1 BY MS. BAIER

2 MR. TENERELLA: That's always a  
3 difficult thing for us to do. Because while we want  
4 to keep, especially, teenagers and children who tend  
5 to want to play in abandoned areas out, it is  
6 alarmist to some people to see those kinds of signs.  
7 It's kind of a general call we have to make to try to  
8 keep people off the site. A lot of it

9 MS. DAIER: I haven't been able to  
10 use that for the past 12 years. I'd like to use that  
11 acre that I have or be able to sell it, you know.

12 Because I'm not going to sell  
13 this -- when this property was sold to me, I inquired  
14 about what was happening in the lagoon, I was told  
15 there was nothing wrong there at all. And I said, I  
16 had four children, I'm coming here, are they going to  
17 be healthy? Thank God they are. But --

18 MR. TENERELLA: You didn't have to  
19 wallow in it for years to have a health it's very  
20 conservative.

21 MS. BAIER: There was a lot of  
22 spraying going on. And they would get itches and  
23 things like that.

24 MR. TENERELLA: Right.

25 MS. BAIER: And I would not sell

1 BY MS. BAIER.

2 this property knowing that it was -- when you start  
3 five years--

4 MR. TENERELLA: When you sell, you  
5 will be able to get a certificate, if you will,  
6 of -- sort of a clean bill of health, if you will.  
7 Because people will know, if they can accept this,  
8 that EPA had been there and had cleaned up the  
9 place.

10 Now, whether they like that idea is  
11 another matter. But at least you will have known by  
12 then that we will have done something.

13 MS. BAIER: Is there also a  
14 possibility of getting -- since you've done -- moving  
15 things around, is it possible to get water tested  
16 again?

17 MR. TENERELLA: It might be. I'll  
18 refer to Janet because I don't have the site anymore  
19 in terms of following up.

20 MS. FELDSTEIN: I think -- can't we  
21 do that as part of the monitoring?

22 MR. TENERELLA: Yeah, we might.  
23 Yeah.

24 MS. FELDSTEIN: We can arrange it.  
25 After the meeting, make sure you see Paolo and give

1 BY MR. PETRINO

2 him your name and phone number.

3 MS. BAIER: I appreciate that.

4 Thank you.

5 MR. TENERELLA: Yes, sir?

6 MR. PETRINO: John Petrino. There

7 were underground storage tanks there, do you know

8 what the capacities of the storage tanks?

9 (Brief Pause).

10 MR. PETRINO: There were ten

11 underground storage tanks, do you know what the

12 capacities of the tanks were and what they

13 contained?

14 MR. TENERELLA: This is referred to

15 TAMS for the details. Do you know offhand?

16 MS. GIRARD: I don't know offhand

17 what the capacities were. I know that some of the

18 tanks were used to hold some of the heels of the

19 loads that they were carrying.

20 What was -- the remainder that was

21 left, the residues in their trucks, they would

22 temporarily hold that on site in some of the tanks,

23 but I don't know what --

24 MR. PETRINO: Would they be below

25 the plain levels?

Guy J. Renzi & Associates

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BY MR. PETRINO

MR. FIDLER: Mr. Fidler. I think there are three different things that you might have found in underground storage tanks based on my recollection, petroleum products like gasoline or diesel or fuel for the trucks, waste oil from changing oil in the trucks, and three, plasticizer heels, as she mentioned. Specifically plasticizers. Okay. And that material was recycled back to Monsanto.

MR. PETRINO: They would come and pick it up?

MR. FIDLER: Or they transported it back. Whatever the case may be, there was some recycling of that material.

MR. TENERELLA: Actually, K&M transported it because they were a transporter.

MS. GIRARD: In addition to that, in the 1995 Removal Action that we did to remove the tanker truck contents, DEP had some concerns with regards to these underground storage tanks, so we did additional sampling of each of these underground storage tanks and found that one did have some plasticizers left in them, so we did remove that.

MR. PETRINO: The tanks are partly

1 BY MR. PETRINO

2 removed then, except the water, right?

3 MS. GIRARD: The tanks are there.

4 MR. FIDLER: The tanks are still  
5 under the ground.

6 MS. FELDSTEIN: The tanks are there,  
7 but they're empty.

8 MS. GIRARD: For all intents and  
9 purposes, there's some small amounts of petroleum  
10 products that are

11 MR. FIDLER: Fuel Oil.

12 MS. GIRARD: -- that are still in a  
13 few of the underground storage tanks. However, EPA,  
14 because of a petroleum exclusion that we have, we're  
15 unable to remove those contents. So that's something  
16 that DEP would be handling.

17 MR. PETRINO: Will DEP, then,  
18 eventually remove all the underground tanks?

19 MS. PARRA: DEP will be following  
20 proper closure procedures concerning the tanks.

21 I can't say that they're going to  
22 remove -- what the removal will be.

23 MR. PETRINO: Has the area around  
24 the tanks been checked for contamination?

25 MS. GIRARD: Yes.

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BY MR. PETRINO

MR. PETRINO: And there was no  
contamination?

MS. PARRA: But I think, also, two  
of the tanks we had diesel fuel, and they -- weren't  
they emptied during the 1995 --

MS. GIRARD: Right, they were. The  
ones that had either water in them or a very small  
amount, what's considered RCRA empty, which is, I  
guess, less than one or two inches of any type of a  
material in an underground storage tank or any  
container, that -- that still remains. That was not  
removed.

MR. PETRINO: But right now, they're  
still in one tank with some product in them?

MS. GIRARD: There are  
probably -- I'm not sure as to the number. But there  
are probably a couple of tanks still on site that  
have very little amounts of petroleum products in  
those -- in those tanks.

MR. PETRINO: You have no idea?  
That's why I asked the capacity of the tanks.  
It could be 50 gallons, a hundred gallons, 200.

MS. GIRARD: I have to get back to  
you on that.

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BY MR. PETRINO

MR. FIDLER: We did not determine

the capacities of the tanks in the RI. It was not part of what was done because -- specifically because the petroleum product tanks are not part of CERCLA.

MS. FELDSTEIN: It sounds like we're

not answering your question, and that's -- I just want to say why that is.

We're not answering your question.

That's probably because Superfund -- we deal with the Superfund and the Hazardous Waste Program, hazardous waste, sediments of the lagoon, soil contamination, specifically groundwater contamination.

Specifically fuel oil and petroleum

products that are covered in underground storage tanks are something more -- congress told us, that's not your job. You're not allowed to deal with that. So we sort of excluded that. That gets deferred to other state-regulated programs that are not dealt with at the federal level.

That's sort of why we're hedging

around. So we didn't investigate that possibly -- we didn't do that.

The ones that had the plasticizers

in them and the chemicals, we removed.



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BY MR. PETRINO

MR. PETRINO: After the contaminants

that the federal government will complete with, if there is contamination levels, let's say, by the petroleum product, could the future owners of that site be held liable for that?

MR. TENERELLA: Not under the

Superfund because it excludes them, but under the state's underground storage tank program, maybe. But they'll be closing those tanks.

You asked can the tanks be removed.

A lot of times, the tank itself is not. It's foam-filled or filled with sand and stabilized that way after the contents are removed. Depends on the type of tank.

So there are a variety of ways, not necessarily excavation of a tank, to stabilize a tank in place that are also allowable under tank closure laws, state laws. But those don't come under Superfund because they petroleum products in them.

They didn't want to have confusion in the federal law. Because there's another law that deals with oil spills that's separate from the Superfund. And in order not to have all this conflict in terms of what goes where, this is

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BY MR. PETRINO

exclusive.

Unfortunately, when you have an industrial site with any kind of diesel or fuel oil tank or gasoline, we're held about -- took back from doing anything on that legally

MR. PASCETTA: If you're interested in the property and the issue of the underground storage tanks, the best person to speak to is Mary Lou right there.

Because if the state is going to do something with the underground storage tanks, they'd be the ones to know.

MR. PETRINO: Second question.

You have a school directly across the street which is probably less than three quarters of a mile away.

Has the water in the school been tested?

MR. TENERELLA: We'd have to check the report on that. I think it was a few years ago.

MS. GIRARD: Way back when in 19-- during the initial--

MS. PARRA: 1990.

MS. GIRARD: 1990. I don't remember

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BY MR. PETRINO

what date it was, but I'm almost positive--

MS. PARRA: Were you on it at the  
this time?

MS. GIRARD: Not in 1990.

MR. PETRINO: As a member of the  
Board of Education, I would like to make a request,  
if it wasn't tested, could it be tested?

MS. FELDSTEIN: We can look back at  
the data.

MR. TENERELLA: I hate to promise  
you, though. But if memory serves me correctly, when  
were doing the more board of scale study, we were  
concerned about the school because of its location.  
And we did the sampling and it came up clean.

Because it was one of the major  
well -- or one of the major water-used facilities in  
the area. But I don't want to swear to it without  
seeing the report myself. I'm pretty sure we did it,  
but we'll check. And that it came up clean, if  
memory serves me right.

MS. RYCHLENSKI: Anymore questions?

MR. TENERELLA: Bruce, do you have  
the--

MR. FIDLER: Yes. I have some

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BY MR. RUSSELL

information to kind of follow up with the earlier--

MR. TENERELLA: One more question.

I'm sorry.

MR. RUSSELL: My name is Jim

Russell. I'm concerned that Joan's water hasn't been tested in five years.

How can you be assured that the Navesink aquifer hasn't gone down into the Mount.Laurel-Wenonah aquifer and right now she's drinking contaminated water?

MR. TENERELLA: Can you describe exactly the dynamics or should we? Of the two aquifers and how they operate together or don't operate together.

MS. PIERCE: There isn't a lot of interaction between the two -- the shallow Navesink aquifer and the deeper Wenonah-Mount Laurel. The Navesink has a very low transmissivity. It's very tight. And so you don't have a lot flow of the contaminants through that. In the sampling that we did, there was no evidence, even in the shallow aquifer, that any of that contamination had moved outside. It was pretty much centralized to the west of the

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BY MR. RUSSELL

lagoon.

MR. RUSSELL: I really think you're Remedial Action is deficient in not checking the tap water of the people in the area to know --

How do you know there isn't contamination if you don't check it?

You're moving on assumptions.

MS. PIERCE: We--

MR. RUSSELL: You're assuming that there's no contamination in the water. You should get a sample from the tap and test it, and that should be included in your Remedial Action.

MR. FIDLER: Pam, maybe you want to describe how the groundwater moves under the site. I mean, not just the speed with which it moves, and that's the Navesink moves very slow, the Wenonah-Mouth Laurel underneath it moves relatively quickly, but also the direction of that flow. If you want to point out on the map, perhaps

MS. PIERCE: Based on the underground contour that we've measured during the investigation, we found that the groundwater flow is in this direction (Indicating). So it's away from the property.

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BY MR. RUSSELL

And based on the wells, there are wells based on this side of the lagoon, that's what we used to establish the fact that there was no contamination.

Although, contamination was moving in this direction, it hadn't moved outside.

MR. PASCETTA: Now, to answer your question--

MR. RUSSELL: That doesn't give me a lot of comfort. I mean, testing it is a quantitative test to know there's no contaminants. You're assuming there isn't any.

MS. PIERCE: We tested the groundwater samples that we took during the investigation.

MR. RUSSELL: It hasn't been tested in five years. You would not know if it's contaminated right now.

MR. TENERELLA: Not right at the moment. But in 1990, I guess, we tested the taps when Kauffman was operational. That's a very critical point here.

We tested at a worse case, when he was operating and when he was saturating the lagoon

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BY MR. RUSSELL

and the nearby wetlands with his wastewater. Now we're at the point where he's closed operations for a number of years.

If anything, the situation is going to get drier, basically, and better.

MR. RUSSELL: You're assuming the situation should get better. Why don't you just test the water?

MR. TENERELLA: The assumption is of science. It's not a blind assumption. We sampled individual drinking water wells, including that one, in 1990 because of that concern that we had, too.

MR. RUSSELL: Right.

MR. TENERELLA: They came up clean. All of the test results that we have to date show that the water flows opposite of that direction.

In fact, if something happened there now, quite candidly, because of the flow and the information we have, if you got a problem well, you got a problem and it ain't ours. Because the flow is in the opposite direction, it's not the site.

MR. RUSSELL: Well, why don't you test the people's ground drainage then?

MR. TENERELLA: We have. That's

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BY MR. RUSSELL

fine. And we have looked -- we had the flow of the waters -- you're sensing this plume like it's very as opposed to the fact that the upper aquifer is tightly located on the site, and the lower aquifer, which you all drink out of if you have private wells in the area, has been tested clean all along.

It just shows that there's a pocket -- a very low nothing flow pocketed on the site versus the higher. And just to make sure, we're going to monitor some more.

MR. RUSSELL: For the cost of doing the test, you should do it.

MR. TENERELLA: That's what we're going to do. It's part of the remedy.

MR. RUSSELL: And another thing is, it takes a year for her to get the results after you make the test. I mean, I think a couple of weeks

MR. TENERELLA: Well, it takes a while to take the test, get them to a lab, certify the results, do a QA-QC on the results.

We just don't go out and take your sample and then the next thing they come back with the test results. It does take a while.

MR. RUSSELL: I think a year is



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long.

MR. TENERELLA: It shouldn't take quite that long. No, I agree with you there. it should have been months. Months, yes, but not years.

MR. RUSSELL: And I'm sure the cost of doing these last tests, it would -- I think it will-be well worth and should be part of your remedial plan. It's not that

MR. TENERELLA: We'll see that in the record so we can assess that before we go to our final decision.

Your concerns are certainly legitimate I don't want to mean that they're not.

MS. STEVENSON: You pointed the flow in that direction (Indicating). Is that towards the school?

MR. MILLER: That's towards -- right up near my house.

Are these wells going, to be tested every year now? I mean, it's flowing right towards my house.

MS. GIRARD: Yes, they will.

MR. TENERELLA: Again, don't misinterpret the word "flow". I mean, we're talking

1  
2 in a very slow rate of movement.

3 MR. MILLER: I'm on the corner.  
4 This is towards the back. I mean, I don't expect  
5 to come right to my house.

6 MR. BRUCE: Show us where your house  
7 is.

8 MR. MILLER: Right on the corner of  
9 537 and Jobstown-Juliustown Road.

10 MS. PIERCE: Right here  
11 (Indicating). Okay. This flow is upstream. The  
12 water is moving in this direction (Indicating). It's  
13 not moving in this direction. You're not  
14 downgrading

15 MS. GIRARD: And there are clean  
16 wells that separate those -- between that.

17 MR. SPEAKER: So the water goes this  
18 way and not

19 MS. PIERCE: It flows in this  
20 direction (Indicating).

21 MS. STEVENSON: Would you consider  
22 the knowledge on the flow of water an exact science  
23 or are there some variables, like water draw can  
24 reverse the way it's flowing and other considerations  
25 have to be made?

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If you have a large draw on water,  
it can reverse the flow if there is one.

MS. PIERCE: If you have a very  
large local well, very large local well, drawing  
water you can have -- it can have a radial inward  
flow within a small area around that well. But there  
is no incidence of that in this case. And the water  
flow is governed by the geology of the area of it.

MR. FIDLER: And it's a regional  
phenomenon.

MS. PIERCE: It's regional, it's not  
site related.

MR. MILLER: Does the state own the  
property now?

MR. TENERELLA: No

MR. MILLER: Who exactly owns it?

MR. TENERELLA: The Kauffman

family. And I guess there's a lien on it for  
nonpayment of taxes or something. Basically, it's  
the Kauffman family.

MR. MILLER: And then it put into a  
sheriff's sale, I guess, or

MR. POINSETT: Please identify  
yourselves so that the lady can get a record.

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Mayor Poinsett?

MS. FELDSTEIN: Ron Miller asked the initial question.

MR. POINSETT: The Township has a tax certificate to the property. They didn't pay the taxes. They filed bankruptcy and it's in the courts.

MR. TENERELLA: Our assumption, from EPA's standpoint-as a policy all the time, as the sites get cleaned up, and if they're sort of an abandoned 'property, then it would be put back to public reuse.

MR. POINSETT: The Township is interested in -- the state passed the law identifying the municipal governments, that they pick up the site. Because, quite frankly, they're off the tax roles. And if the Township residents can get some use out of the property, it's not a health risk, we would try to utilize that.

MR. TENERELLA: It's certainly one of our motivations in trying to get cleanups done quickly so--

MR. POINSETT: There's a lien on it as of right now. I'm sorry to interrupt you.

MS. RYCHLENSKI: Anymore questions,

1 BY MS. DOROFACHUK

2 comments.

3 MR. FIDLER: In the report, Table  
4 4-2, if you would like that information, provides the  
5 groundwater MCLs.

6 MR. TENERELLA: I just want to  
7 obviate. If you would like to come by after the  
8 meeting is formally over and have some other  
9 questions that you might want to inquire of our  
10 consultants or the EPA staff, by all means, we'd be  
11 happy to talk to you after the formal part of the  
12 meeting is over.

13 MS. RYCHLENSKI: Anymore questions  
14 or comments? Going once, going twice. Do I see a  
15 hand in the back? Okay. Your name, please.

16 MS. DOROFACHUK: Jane Dorofachuk.  
17 Since the size is not too bad,  
18 exactly when is it going to be taken care of?

19 MR. TENERELLA: We are not sure at  
20 the moment. It depends on the availability of  
21 funding.

22 Because the cost is relatively low  
23 relative to other sites in the country, if there is  
24 some money available, say, at the end of this year or  
25 early next year that we can get for the site we're

1 BY MS. DOROFACHUK

2 transferring the site to Paolo and Janet there.

3 We've already talked about a hope to maybe get some  
4 money to get this particular site cleaned up because  
5 it's not going to cost that much.

6 But money is a big question for us  
7 now. And the priorities are how -- have heavy health  
8 risks sites nationally. So all sites nationally  
9 going on this large Priority List now. And then they  
10 take them off the top in terms of risk, in terms of  
11 what was funded for cleanup.

12 Kauffman's is going to probably be  
13 pretty low because the risks are not high. And so it  
14 may have to wait awhile to get funding for cleanup.

15 We also have -- Superfund was never  
16 re-authorized. The legislation we worked under was  
17 supposed to be re-authorize last year and this year  
18 in those congresses. And because of other  
19 legislation, they haven't gotten to it yet.

20 So it won't happen, now, until the  
21 next congress from the time that we are -- it will be  
22 another year before we get re-authorized with a lot  
23 of new money, if at all. Depending on what they're  
24 giving.

25 So right now we're in sort of a

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BY MS. STEVENSON

continual resolution where congress gives us "X"  
number of dollars to operate as much as we can with,  
but it's not sufficient to do everything. We're in a  
little bit of a bind for now.

MS. DOROFACHUK: And if nothing  
happens in a year's time or a year and-a-half, to  
whom shall I write?

MS. RYCHLENSKI: You should exercise  
your constitutional right that is given to you by our,  
forefathers, and I would suggest that you get in  
touch with your elected representative since they're  
the ones that have the power of the vote on the  
hills. Make some ruckus. You're a citizen, it's  
your right.

MS. STEVENSON: I'd like to point  
out a discrepancy between this and the report. And I  
asked the question earlier about the Navesink and how  
many people have wells? You said probably, two.

This ones says, a well survey  
performed within a five-mile radius. No drinking  
water wells were installed in the Navesink.

MS. GIRARD: That's correct.

MS. STEVENSON: And here it says,  
some individual homeowners may have placed wells in

1 BY MS. STEVENSON

2 the shallow Navesink.

3 MS. GIRARD: Right. They're not  
4 drinking water wells.

5 MS. STEVENSON: Well, what are they  
6 doing with it?

7 MS. TENERELLA: Irrigation, crop  
8 irrigation, or animal we're not sure because we  
9 weren't able to find--

10 MR.. FIDLER: There's a important  
11 distinction to be made, too. And that is that a well  
12 search, where we go to the Department of  
13 Environmental Protection and do a search of their  
14 records, would only turn up those wells which  
15 actually have permits for them. And those are  
16 wells --

17 The state requires that any well  
18 that's dug in the state or drilled, and that's been  
19 true for many years, has to have a permit.

20 There are some wells in  
21 the -- very shallow, that are not in those records.  
22 And those were turned up through other means of  
23 surveying the area. Okay.

24 But there is no information on those  
25 wells that says whether they're in the Navesink or



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BY MS. STEVENSON

whether they go down through the Navesink to some other -- to the formation below.

MS. STEVENSON: It wouldn't be hard for you to find out if they're shallow wells. Really, that's a shallow well, right?

MR. TENERELLA: Sure. Somebody could dig a hole in their back yard, we wouldn't know. And that's a well.

MS. STEVENSON: If you turned up one. that was a older home and it was a question, that shouldn't be that hard to find out.

MR. TENERELLA: Well, because of the nature of the well, as we mentioned before, in this situation, in the shallow aquifer, somebody could dig a shallow well and say, wow, I got free water. That's why people don't want their wells done, because they don't want to -- you know, there's some charges and stuff sometimes.

But let's say they dig, a well, theoretically, and take the water out of the lower aquifer, they won't go to drink it. It's undrinkable. The animals won't even drink it. Just this particular aquifer is naturally nasty, a high iron content, muddy.

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BY MS. STEVENSON

But the deeper aquifer isn't all that far down either. You don't have to go 200 feet to get drinkable water in this area. So it's a very -- it's not a motivation to steal the water from the lower aquifer when you can drill a few feet more and get good, clean water.

So that's why we don't see such a problem here, that we're aware of. I mean, someone could be doing it, but I don't know why they would. It would not be rational to do it, let's put it that way.

MS. STEVENSON: That's my concern. The persons who might not be aware that they're in a shallow aquifer and are

MR. TENERELLA: But they wouldn't use it. Would you use muddy, smelly water, even for washing?

MS. STEVENSON: Is it muddy and smelly? Because some of the statements in your reports indicate that it's possible to be potable. From the report the way it's written.

MR. TENERELLA: Potable water -- how do I describe this one. Potable water can have a high iron content. It's potable. It's safe to drink

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BY MS. STEVENSON

it, but you wouldn't want to drink it because it  
wouldn't taste right.

MS. STEVENSON: You have this with  
your deep wells. You have a lot of iron in a deep  
well, but it's good water.

MR. TENERELLA: Yeah, if it has a  
filter or whatever. But it's not a dangerous. It's  
not a public health issue. It's an issue  
of--

Actually, we have something called  
Secondary Aesthetic Levels which includes high iron  
content, odor, turbidity, things like that, that we  
can also monitor for. But it's not a public health  
threat, it's more of an aesthetic threat. It's just  
not pleasant.

And that's why, as I say again, in a  
shallow aquifer like this, when you have accessible  
drinking water so close below it, relatively close,  
that you don't have to go down a hundred feet or so,  
there's no rational need for anyone to dig a well  
into that shallow aquifer and none that we are aware  
of.

MS. STEVENSON: If when you check  
the area of Springfield Township -- I know for a

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BY MS. STEVENSON

fact that there are older homes, not necessarily this area, there are shallow wells and they're using them.

MR. TENERELLA: Site specifically, in looking for things, we could not find them. That's all we can say.

MS. GIRARD: And Ann can answer -- give some additional information on that at that time.

MS. RYCHLENSKI: We went door-to-door because a lot of the people that are here in this room, Ms. Bice and Ms. Joan Baier and Jake Coulter.

In fact, Jake Coulter, we got down under his crawl space, and our water sampler had to hang dowry into the well while I held her feet under his crawl space.

And I just know from what we remember that a lot of people here complained about the iron taste of their water. A lot of people have softeners. We had to take them off and take the tap samples.

But we did a lot of sampling in this area. We went all the way around the perimeter of the site and did tap samples. And I don't know of

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BY MS. STEVENSON

anybody that was into the shallow aquifer.

And a lot of those were very old homes. I know Joan Baier's home is old. I know Jake's home is old. And I don't know of anybody that I was at. And we tried to get to as many people as we could and we really looked around the area.

MS. GIRARD: We also left letters, too. We have people responding to it, asking them how deep their well is; do they drink their the water out of that well; is it a privately dug well?

All of this information that was then returned to us for the people that we didn't contact.

MS. RYCHLENSKI: And there was no one that I saw that was into the shallow aquifer, and those included some very old homes. And that was close to the site, Monmouth Road, Jobstown-Juliustown Road, Sailor's Pond, that whole area.

MR. TENERELLA: Any other informal questions for the record, comment?

(No Response).

MR. TENERELLA: We certainly -- this does not obviate written comments, if you'd like, during the comment period. You can send us written

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comments at any time during the 30-day open comment period. And those will be reviewed and responded to also, and our Responsiveness Summary goes along with the Record of Decision.

Thank you all for coming.

MS. RYCHLENSKI: Okay. The only last thing I want to say is, if you didn't sign on the sign-in sheet outside, please do so.

Please print I beg with everybody, to please print so I get your name straight. And also, put your full address with the zip code.

And if you want to do any written comments, make sure you have one of these to refer to. Okay.

And thanks a lot.

(Whereupon the meeting was adjourned at approximately 8:30 p.m.)

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9 I, MIRIAM RIOS (License No. X102031), a  
10 Certified shorthand Reporter and Notary Public of the.  
11 State of New Jersey, do hereby certify the foregoing  
12 to be a true and accurate transcript of my original  
13 stenographic notes taken at the time and place  
14 hereinbefore set forth.  
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20 <IMG SRC 0296278P>  
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23 Dated: August 12, 1996.  
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Guy J. Renzi & Associates