UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - REGION II
290 BROADWAY
NEW YORK, NEW YORK 10007-1866

546022

Representatives From the U.S. Environmental Protection Agency and New York State Department of Conservation

Invite You to Attend A Public Meeting for the Malta Rocket Fuels Superfund site

On: Wednesday, April 24, 1996
From: 7:00 - 9:00PM

Purpose: To provide an update, give opportunity for public comment and to address any concerns that the community may have regarding contaminants found in the groundwater and soil at the **Malta Rocket Fuel Superfund site.** EPA has prepared the Proposed Plan of cleanup for the site and is prepared to share with the community its various cleanup alternatives.

Place: Malta Town Hall
Route 9
Ballston Spa, New York

For Further Information Contact:

Alison Hess, Project Manager
(212) 637-3959 or

Cecilia Echols, Community Relations Coordinator
(212) 637-3678

Superfund Proposed Plan

Malta Rocket Fuel Area

Towns of Malta and Stillwater
Saratoga County, New York

EPA
Region 2

April 1996

PURPOSE OF PROPOSED PLAN

This Proposed Plan describes the remedial alternatives considered for the Malta Rocket Fuel Area Superfund Site (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 York State Department of Environmental Conservation (NYSDEC). EPA is issuing the Proposed Plan as part of its public participation responsibilities under Section 117(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 following completion of the remedial investigation and feasibility study (RI/FS) for the Site to inform the public of EPA's and NYSDEC'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 into consideration all public comments. We are soliciting public comment on all of the alternatives considered in the detailed analysis of the FS because EPA and NYSDEC may select a remedy other than the preferred remedy.

COMMUNITY ROLE IN SELECTION PROCESS

EPA and NYSDEC 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, this Proposed Plan, and supporting documentation have been made available to the public for a public comment period, which begins on April 17, 1996 and concludes on May 16, 1996. A public meeting will be held during the public comment period at the Malta Town Hall on April 24, 1996 at 7:00 p.m. to present the conclusions of the RI/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:

Alison A. Hess
Project Manager
U.S. EPA (2ERRD-NYCSBII)
290 Broadway, 20th Floor
New York, NY 10007-1866

Dates to remember:
MARK YOUR CALENDAR

April 17 to May 16, 1996
Public comment period on RI/FS report, Proposed Plan, and remedies considered

April 24, 1996
Public meeting at the Malta Town Hall, Route 9 in Malta, 7:00 p.m.

SCOPE AND ROLE OF ACTION

This Proposed Plan describes the overall cleanup plan for the Site, including treatment of the on-site water supply system by air

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

Malta Town Hall
2540 Route 9
Ballston Spa, NY 12020
(518) 899-2552
Contact: Flo E. Sickels, Town Clerk

Round Lake Library
Round Lake, NY 12151
(518) 899-2285
Contact: Jo-Ann Patenaude, Head Librarian

U.S. Environmental Protection Agency
Superfund Records Center
290 Broadway, 18th Floor
New York, NY 10007-1866
(212) 637-3959
Contact: Alison A. Hess, Project Manager

stripping, remediation of the ground water plume by natural attenuation and degradation processes, and remediation of contaminated soil by excavation and off-site disposal. The preferred remedy described in this plan is consistent with several response actions that have already been performed in accordance with EPA-approved work plans submitted as part of the RI/FS and which are described in detail in the RI Summary section of this Proposed Plan, including 1) decommissioning and removal of two compressed gas cylinders, 2) excavation and recycling of 560 empty, buried crushed drums; 3) cleanouts of several septic tanks, catch basins, and dry wells; 4) cleanout of a sump; and 5) disposal of waste generated during the RI, called investigation-derived waste or IDW. By having these response actions performed during the RI/FS rather than at a later date, EPA substantially reduced the remaining scope of work for the final cleanup remedy. The preferred remedy utilizes the existing air stripper installed at the Test Station water supply system to provide acceptable drinking water for the Test Station employees, the ongoing monitoring system to protect users of the downgradient public water supply wells, and the existing fencing and restrictive easement to control access and ground water withdrawal. As part of the final cleanup plan, the preferred remedy requires that the selected remedy be reviewed at least once every 5 years to ensure that it remains protective of human health and the environment.

SITE BACKGROUND

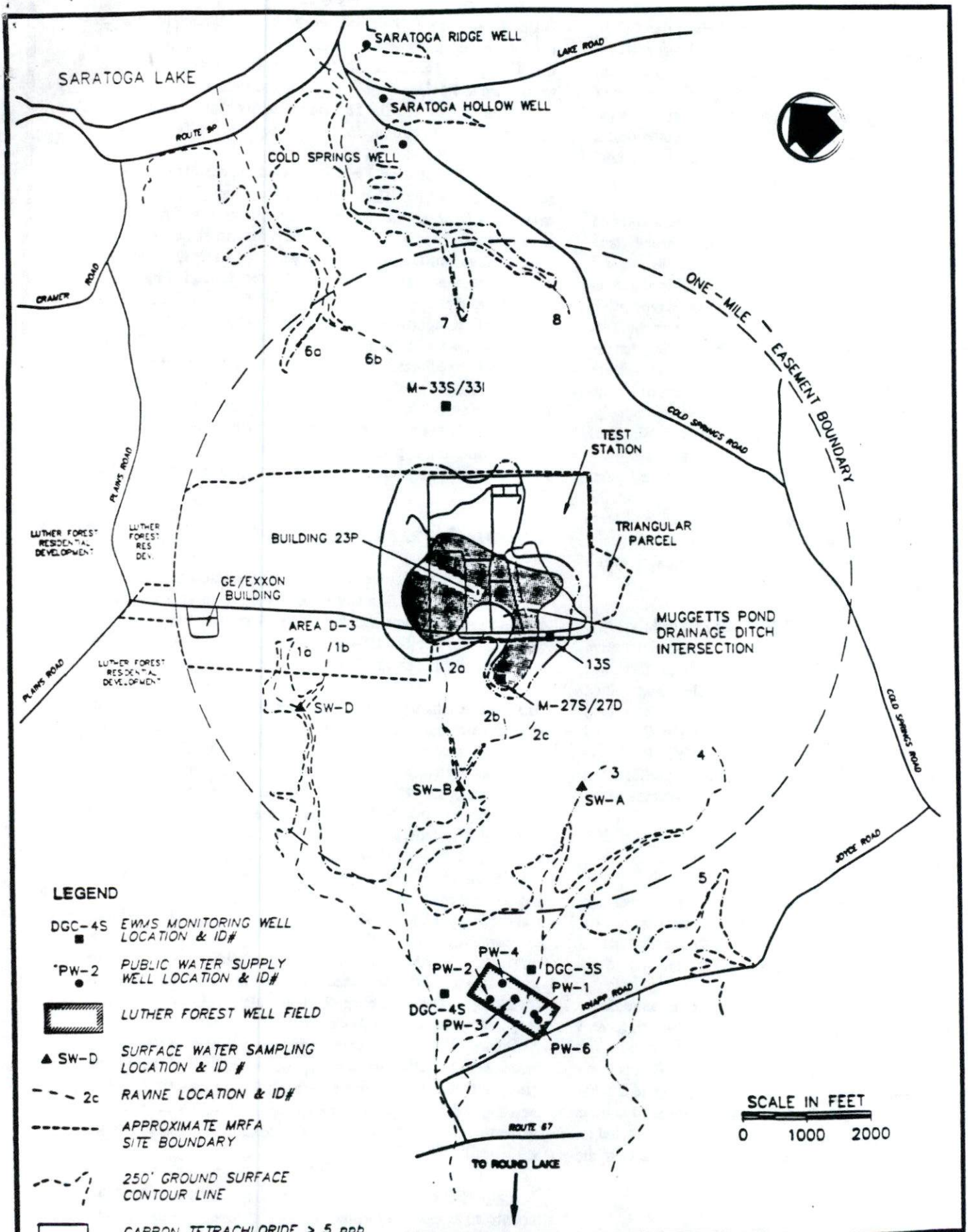
The Malta Rocket Fuel Area Superfund Site, also known as the Saratoga Research and Development Center, is located on Plains Road in the Towns of Malta and Stillwater, Saratoga County, New York. The Site consists of a square parcel of approximately 165 acres of developed land, known as the Malta Test Station (the Test Station), and additional acreage in the predominantly undeveloped woodlands surrounding the Test Station (see Figure 1). The Test Station has thirty-three (33) buildings, numerous concrete quench pits, leach fields/septic tanks, dry wells, storage areas, disposal areas, and a small artificial pond known as Muggett's Pond. A fence surrounds the majority of the Test Station.

The U.S. Government established the Test Station in 1945. Since then, all or parts of the Test Station have been leased to G.E., Wright-Malta Corporation, Exxon Nuclear Company, Olin Corporation, Iso-Nuclear Corporation, Mechanical Technology, Inc., and Power Technologies, Inc. and used for a wide range of rocket and weapons testing programs and for space and other research. Detailed information regarding the history of the Site can be found in the Literature Search Report, which is available in the information repositories identified above.

In 1955, the U.S. Government established a perpetual restrictive easement area surrounding the Test Station. The easement area covered approximately 1,800 acres in a circular area of one-mile radius from the approximate geographic center of the Test Station (see Figure 1). The holder of the interest in the easement has the right to prohibit hunting and human habitation, remove buildings being used for human habitation, post signs, and enter the easement area to exercise these rights.

In 1964, the New York State Atomic and Space Development Authority (now the Energy Research and Development Authority, NYSERDA) purchased the 165-acre Test Station and the interest in the surrounding easement. In 1968, NYSERDA purchased an additional 280 acres within the easement area. Because NYSERDA then held both the easement interest and a parcel of property located within the easement area, the restrictions on that parcel were extinguished by merger. In 1984, NYSERDA sold 81 acres of the original Test Station property and its interest in the remaining easement area (approximately 1,500 acres) to Wright-Malta Corporation. The easement interest held by Wright-Malta Corporation provides the right to restrict activity on the 1,500 acres of the remaining easement, but not on the Site itself.

In addition to the Test Station, the Site includes portions of the predominantly undeveloped woodlands that surround the Test Station, including a) the G.E./Exxon Nuclear Building area; b) Area D-3; c) the Triangular Parcel; and d) areas adjacent to the Test Station that have been impacted by Site-related constituents in ground water. The G.E./Exxon Nuclear Building was built between 1968 and 1970 by NYSERDA and used for experiments on low-level radiation of medical equipment and food preservation and for a gas centrifuge uranium enrichment research project conducted by G.E. and the Exxon Nuclear Company (now Advanced Nuclear Fuels, Inc.). NYSERDA currently leases the G.E./Exxon Nuclear Building to Optimum Air Corporation, which manufactures equipment to dry industrial coatings. Area D-3, also owned by NYSERDA, consists of a ravine (Ravine 1b) partially filled with debris and covered with vegetated soil, which reportedly was used by the New York State Department of Transportation for disposal of construction and demolition debris



MALTA ROCKET FUEL AREA SITE

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during the construction of Interstate 87. The Triangular Parcel, owned by Wright-Malta Corporation, is an area of forest adjacent to the southeast corner of the Test Station that was evaluated, but never used, for research and development testing. The portion of the Site beyond the Test Station boundary that has been impacted by contaminated ground water is owned by the Luther Forest Corporation, which built the Luther Forest residential development to the northwest of the Site (see Figure 1).

In 1985 and 1986, ground water at the Site was sampled and found to contain carbon tetrachloride (carbon tet), trichloroethylene (TCE), and chloroform, along with several metals. In January 1987, an air stripper was permitted by NYSDEC and installed on the Test Station water supply wells by Wright-Malta Corporation to treat ground water prior to its use by employees at the Test Station. The purveyor of water is responsible for ensuring that the on-site water supply is in compliance with Part 5 of the New York State Sanitary Code. The New York State Department of Health reviews monitoring data collected from the on-site water supply. In June 1987, the Early Warning Monitoring System (EWMS) of ground water monitoring wells and surface water sampling locations was established between the Test Station and the Luther Forest Well Field to detect any contamination emanating from the Site before it impacted the water supply for the Luther Forest residential development. To date, the EWMS results have indicated that the Site has not impacted the water quality of the Luther Forest residential development.

The Site was placed on the National Priorities List in July 1987. In September 1989, EPA unilaterally issued an Administrative Order to 8 potentially responsible parties (PRPs) for performance of the RI/FS. These parties are Advanced Nuclear Fuels, Inc.; Curtiss-Wright Corporation; G.E.; Mechanical Technology, Inc.; NYSERDA; Olin Corporation; Power Technologies, Inc.; and Wright-Malta Corporation. In March 1990, G.E., NYSERDA, and the U.S. Department of Defense entered into a participation agreement among themselves and undertook performance of the RI/FS.

HYDROGEOLOGIC SETTING

The Site is situated on a topographic drainage divide. Streams in Ravines 6a, 6b, 7, and 8 north of the Site flow northward toward Saratoga Lake. Streams in Ravines 1a, 1b, 2a, 2b, 2c, 3, 4, and 5 flow southward toward Round Lake (see Figure 1).

The Site is underlain by the unconsolidated aeolian sand, Lake Albany sand, and Lake Albany silty sand units, which have a combined thickness of up to 250 feet. The depth to ground water is approximately 15 to 55 feet below land surface. Below these sand layers is an approximately 100-foot layer of clay and silt that hydraulically separates the Lake Albany sand/silty sand aquifer above from the bedrock below. Muggett's Pond was created on the Test Station by excavating a small area (0.07 acre) down to the ground water table.

Ground water at the Site is influenced by the topographic divide and by the geologic layering. In general, ground water flows from the Triangular Parcel across the Test Station and discharges northward to Ravines 6a, 6b, 7, and 8 and southward to Ravines 1a, 1b, 2a, 2b, 2c, and 3. The water supply system for the Site consists of 2 active production wells located at the Test Station.

The Luther Forest Well Field is located approximately 1 mile southwest of the Site. These wells tap the Knapp Road sand and gravel aquifer to provide water for the Luther Forest residential development. The Cold Springs Well is located approximately 1 mile northeast of the Site and also provides water to the Luther Forest residential development. The Cold Springs Well and 2 others located nearby (the Saratoga Hollow Well and the Saratoga Ridge Well) tap unnamed sand and gravel aquifers near Saratoga Lake. The Luther Forest Well Field and the Cold Springs Well are not likely to be affected by Site contamination because these wells tap different aquifers than the Lake Albany aquifer at the Site and the contaminants in the ravine streams volatilize before recharging the aquifers that serve the public water supply. Nevertheless, the EWMS sampling is performed to verify that these public water supplies are not impacted by contamination emanating from the Site.

REMEDIAL INVESTIGATION SUMMARY

The purpose of the RI was to determine the nature and extent of contamination at the Site and to obtain sufficient information to conduct a risk assessment and evaluate cleanup alternatives. Field work began in October 1991 and was completed in May 1994. A total of 48 distinct areas of the Site were investigated.

Analytical results from the RI samples of surface water, sediment, ground water, surface soil, subsurface soil, and septic tank liquid were compared to screening levels established for the Site, also known as the comparative criteria. The comparative criteria for ground water, surface water, and sediment were a combination of their respective maximum measured background concentrations and available federal and state regulatory standards, guidance values, and criteria. The comparative criteria for surface and subsurface soil were a combination of the maximum statistical background concentrations; available federal and state regulatory standards, guidance values, and criteria; and health-based comparative criteria (for 25 inorganic analytes including essential nutrients). Septic tank liquid samples were compared to the ground water effluent standards for discharge to class GA (drinking) waters established in the NYSDEC Water Quality Regulations for Surface Waters and Ground Waters. In general, detections below the comparative criteria indicated no concern and were not investigated further, while detections above the comparative criteria indicated a potential for concern and were investigated further. All of the RI sample results were evaluated in the risk assessment. Key activities conducted during the RI and their results are as follows:

Radiation Survey: A radiation survey was conducted with a geiger counter to assess the potential presence of residual radiation in the

ambient air at the G.E./Exxon Nuclear building, where radioactive materials reportedly had been used in the past. The survey revealed no radiation above background levels.

Geophysical Surveys: Geophysical surveys were conducted at 19 areas to identify locations of possible buried metal. A total of 82 anomalies in 13 areas were interpreted as areas of possible buried metal. Subsurface investigations (81 test pits and 9 soil borings) revealed that most of the buried metal at the Site is construction-related scrap metal debris or scrap artillery projectiles. Two areas of empty, buried crushed drums and an unlabeled compressed gas cylinder were found in Area S-1, a burn pit structure and a third area of empty, buried crushed drums were found at Area D-1, and a compressed gas cylinder labeled pentaborane was found at Area D-4. At Area D-5, 4 five-gallon pails of sodium hydroxide and 3 thirty-five gallon stainless steel drums, 1 approximately half-full with a black, oily caustic liquid (pH>13) were found. During the RI, the compressed gas cylinders were decommissioned and disposed off-site. In October 1995, the stainless steel drums and 560 empty, crushed drums were excavated and taken off-site for recycling. The chemicals (the sodium hydroxide and the black caustic liquid) were stored in overpack drums and removed from the Site in February 1996. All these response actions were performed in accordance with EPA-approved work plans.

Soil Gas Surveys: Soil gas surveys were performed at 46 areas of the Site, with a total of 844 soil gas points installed and sampled. These surveys were used as a screening-level tool to provide a semi-quantitative evaluation of the extent of volatile organic compounds (VOCs) in shallow soil. The soil gas analytical results were used to select locations for soil borings and monitoring wells.

Ground Water Investigation: Thirty (30) wells were installed at the Site to supplement the existing network of 18 monitoring wells and water supply wells. Ground water samples were collected and analyzed in June 1992, November 1992, and March 1994. These sample results confirm the presence of VOCs in ground water above Federal drinking water standards (Maximum Contaminant Levels, or MCLs) and were used to prepare a map of the ground water plume (see Figure 1). As can be seen in Figure 1, the 5-ppb limit of ground water plume is well within the easement area. Carbon tet and TCE were detected near the center of the Test Station at maximum concentrations of 220 parts per billion (ppb) and 280 ppb, respectively, compared to their MCLs of 5 ppb.The EWMS and RI ground water and surface water samples show that VOC concentrations are generally steady or decreasing, suggesting that the plume is not migrating in the subsurface into uncontaminated areas under current ground water flow conditions. Three additional ground water samples taken from within the plume in January 1996 were consistent with the RI results.

Surface Water Investigation: Fourteen (14) surface water samples were collected from 6 surface water bodies (quench pits at Buildings 3, 4, and 25; Muggett's Pond; and Ravines 1b and 6a). EWMS and surface water data from other sampling events were used to evaluate Ravines 1a, 2a, 2b, 2c, 3, 4, 5, 6b. 7, and 8. Analytical results from samples collected in Ravine 6a were interpreted to be representative of background conditions. Samples from Ravine 1b at Area D-3 showed concentrations of several inorganics (aluminum, calcium, iron, manganese, potassium, and sodium) above the comparative criteria. The 3 quench pits showed iron, manganese, and antimony above the comparative criteria and the Building 3 quench pit also showed two (2) pesticides (aldrin and heptachlor epoxide) above the comparative criteria. Surface water samples from Muggett's Pond showed only iron and manganese above the comparative criteria. The data from the EWMS and other historical sampling events indicate that low levels of carbon tet and TCE are present in the headwaters of Ravine 2b where the ground water plume discharges to surface water, and that they volatilize before reaching midstream or downstream sampling locations (see Appendix F of risk assessment report).

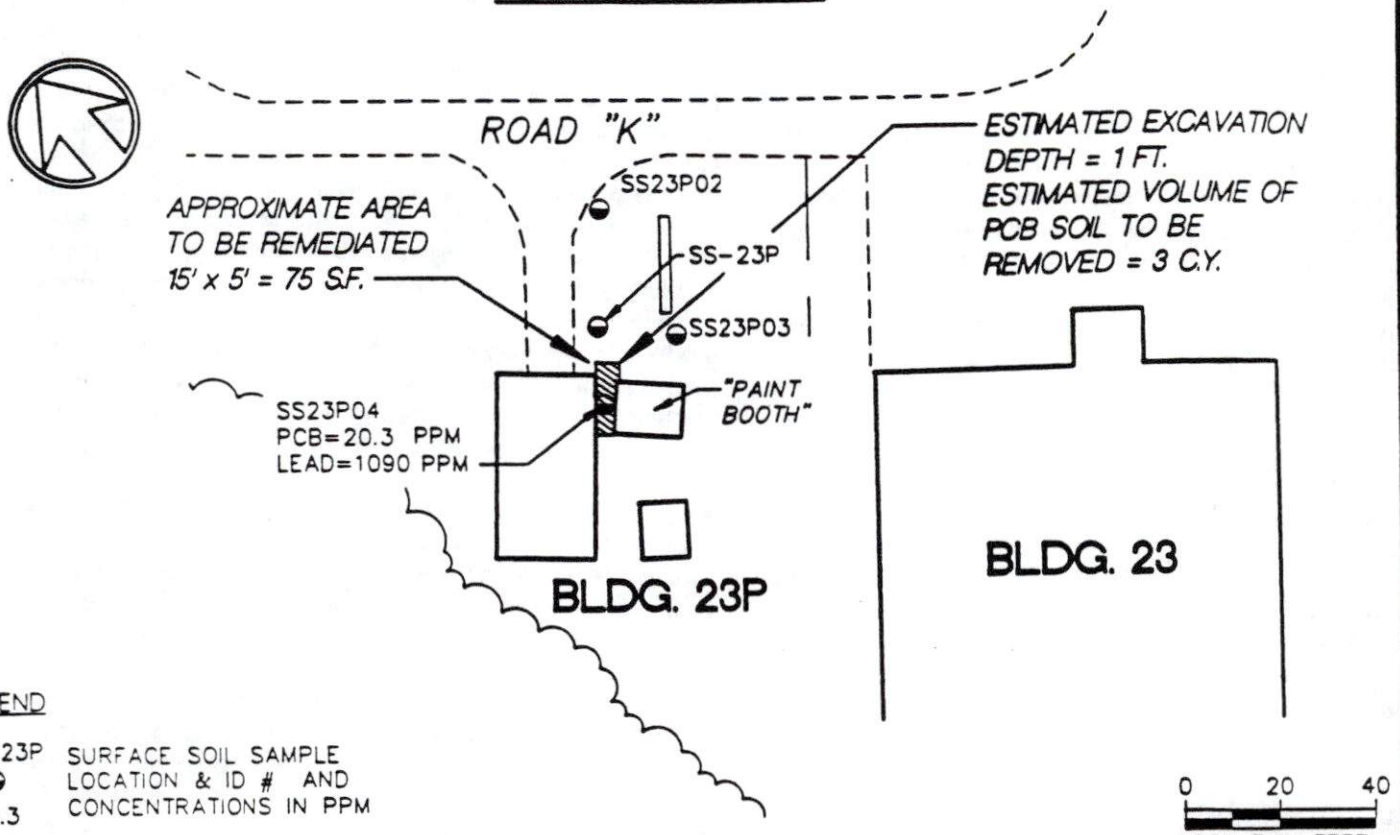
Sediment Investigation: Sediment samples were collected from Muggett's Pond and the ravines at the same locations where the RI surface water samples were taken. Because Muggett's Pond Drainage Ditch rarely contains water, the results from samples taken there are reported in the following section on surface soil investigation. Sediment samples from Ravine 6a were interpreted as representative of background conditions. Samples from Ravine 1b showed only inorganic analytes above the comparative criteria, such as aluminum, barium, manganese, and potassium. Sediment samples from the 3 quench pits and Muggett's Pond showed detections above the comparative criteria for organic and inorganic analytes, including polychlorinated biphenyls (PCBs), cadmium, lead, manganese, mercury, nickel, and zinc. Additional sampling indicated that the exceedences were localized.

Surface Soil Investigation: Twenty-one (21) surface soil samples were collected and analyzed for a background soil quality investigation, which was used in developing the comparative criteria for surface soil. In addition, 67 surface soil samples were analyzed from 60 locations at the Site. The results showed localized exceedences of semivolatile organic compounds (SVOCs) at Buildings 6, 24, and 27 that are likely attributable to nearby asphalt paving. PCBs were found at concentrations from 720 ppb to 20.3 parts per million (ppm) and lead from 102 to 1090 ppm at Building 23P, and mercury was found at concentrations of 0.02 to 124 ppm at Muggett's Pond Drainage Ditch Intersection, where a spur joins the main ditch (see Figure 2).

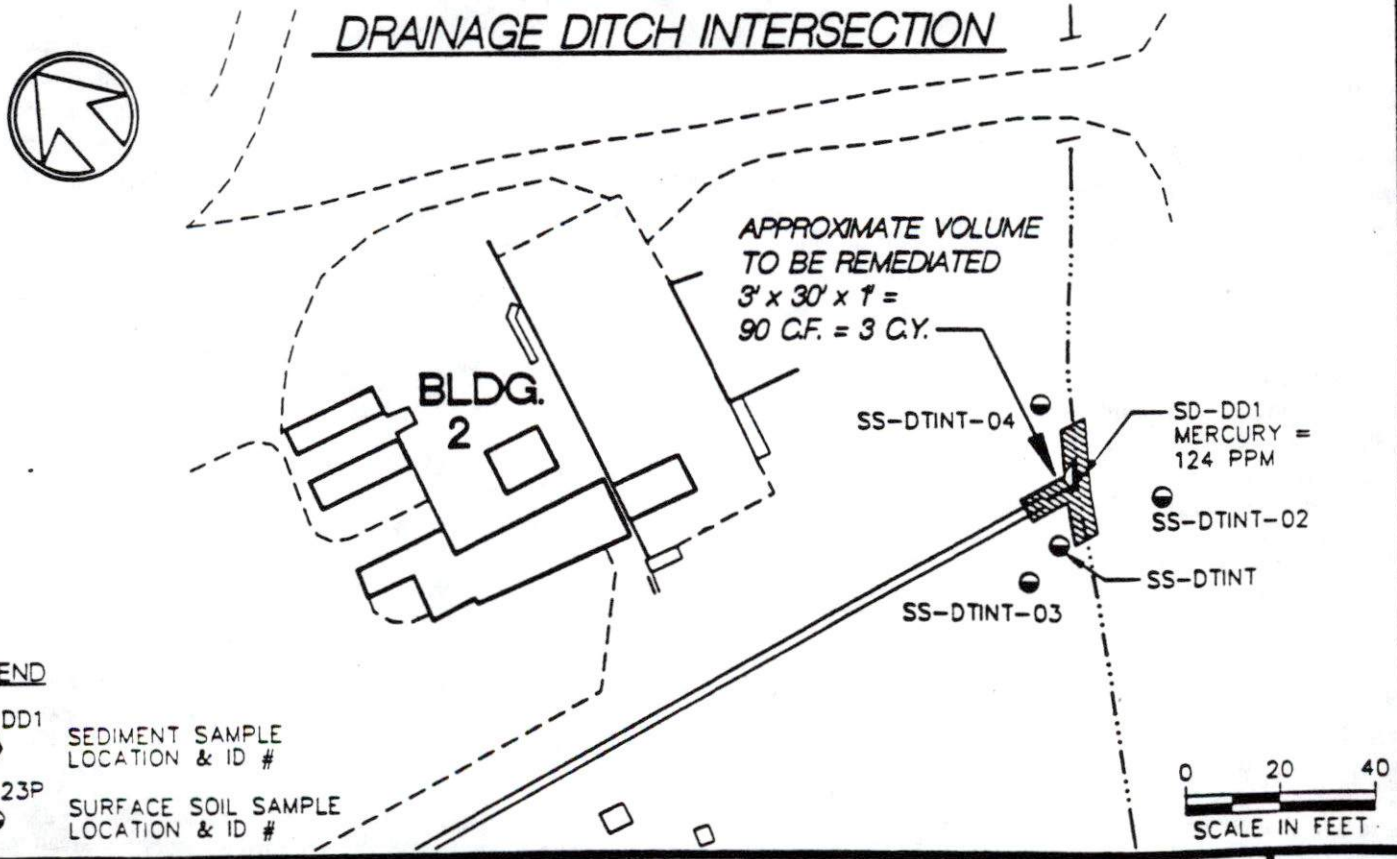
Subsurface Soil Investigation: Thirty-three (33) subsurface soil samples were collected and analyzed as part of the background soil quality investigation. In addition, 254 shallow subsurface soil samples and 3 deep subsurface soil samples were collected and analyzed from 172 shallow borings, 3 deep borings (now monitoring wells), and 23 test pit locations at the Test Station, Area D-3, and the G.E./Exxon Nuclear Building. The soil samples showed detections of inorganics and various VOCs and SVOCs above the comparative criteria in small areas at several locations on the Test Station.

Dry Well Investigation: Thirty-one (31) soil and sediment samples were collected and analyzed from 23 dry well features

BUILDING 23 P



MUGGETT'S POND
DRAINAGE DITCH INTERSECTION



DATE	AREAS PROPOSED FOR SOIL REMEDIATION MALTA ROCKET FUEL AREA SITE	FIGURE
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(dry wells, catch basins, floor drains, a swale, and an open sump) at the Site. Thirteen (13) of the dry wells (12 on the Test Station and 1 at G.E./Exxon Nuclear) showed detections of inorganic and organic analytes above the comparative criteria. Additional sampling below and adjacent to these dry wells confirmed that the exceedences were localized. The sump at Building 1A was cleaned out in October 1992 and 4 catch basins and 1 dry well were cleaned out in October and November 1995 in accordance with an EPA-approved work plan.

Septic Tank Investigation: Seven (7) liquid samples and 2 sludge samples were collected from septic tanks on the Site. The analytical results showed detections above the comparative criteria, including inorganics, VOCs and PCBs. These septic tanks were cleaned out from October 1995 to February 1996 in accordance with an EPA-approved work plan. Additional soil sampling confirmed that these constituents do not contaminate soil outside the septic tanks or beneath the cesspools.

SUMMARY OF SITE RISK

The RI, EWMS, and historical Site data were evaluated in a baseline risk assessment to estimate the risks associated with current and future Site conditions. The baseline risk assessment estimates the human health and ecological risk that 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: *Hazard Identification*--identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration. *Exposure Assessment*--estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathways (e.g., ingesting contaminated well-water) by which humans are potentially exposed. *Toxicity Assessment*--determines the types of adverse health effects associated with chemical exposures, and the relationship between magnitude of exposure (dose) and severity of adverse effects (response). *Risk Characterization*--summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative assessment of site-related risks.

The baseline risk assessment began with selecting contaminants of concern which would be representative of Site risks. These contaminants included VOCs, SVOCs, PCBs, and inorganics. Several of the contaminants, including carbon tet and TCE, are known to cause cancer in laboratory animals and are suspected to be human carcinogens.

The baseline risk assessment evaluated the health effects that could result from exposure to contamination as a result of ingestion, inhalation, and dermal contact with ground water; ingestion and dermal contact with surface and subsurface soils; and ingestion and dermal contact with surface water and sediments. The current land use of the Test Station and G.E./Exxon Nuclear Building area is industrial and much of the land surrounding the Site is subject to easement restrictions that prohibit human habitation and hunting. Therefore, the potential current receptors identified were an on-site employee, a utility worker, and a youth trespasser. Other potential receptors identified were future on-site residents (adult and child), who could be present at the Site if the current Test Station land use was changed to residential or if the easement restrictions were discontinued, and a future excavation worker.

Current regulations under CERCLA establish acceptable exposures that equate to an excess carcinogenic risk for an individual lifetime in the range of 10^{-4} to 10^{-6} (i.e., an excess cancer risk of 1 in 10,000 to 1 in 1,000,000) or less and a maximum health Hazard Index, which reflects noncarcinogenic effects for a human receptor, equal to 1.0. A Hazard Index greater than 1.0 indicates a potential for noncarcinogenic health effects.

The baseline risk assessment indicated that the carcinogenic risk and the Hazard Index for noncarcinogenic effects associated with ground water at the Site are acceptable for all current and future human receptors. For example, the carcinogenic risk for current Test Station employees who ingest ground water treated by the existing air stripper is 9×10^{-7} (9 in 10 million), which is acceptable. If the existing air stripper were discontinued, the carcinogenic risk for Test Station employees drinking untreated ground water would be 4×10^{-5} (4 in 100,000), which is higher but still within the acceptable risk range. The carcinogenic risk calculated for exposure of a future child resident, a sensitive subpopulation, is 1×10^{-5} (1 in 100,000), which is also within the acceptable risk range. Although the risk due to ground water contamination falls within the acceptable risk range, EPA's preferred remedy requires treatment of the Test Station water supply to MCLs and monitoring of natural attenuation and degradation processes until the ground water plume attains MCLs, consistent with the NCP.

The risk assessment indicated that the carcinogenic risk and the Hazard Index for noncarcinogenic effects may be unacceptable under a future resident scenario due to the concentration of PCBs in soil at the Building 23P area. For example, the carcinogenic risk with the contaminated soil is 2×10^{-4} (2 in 10,000) for a future child resident, a sensitive subpopulation. Assuming the top foot of contaminated soil is cleaned up to 10 ppm of PCBs and contaminated soil below a depth of one foot is cleaned up to 25 ppm of PCBs, based on EPA policy, the risk is reduced by half to 1×10^{-4} (1 in 10,000), which is within EPA's acceptable risk range. Assuming the same cleanup levels, the Hazard Index is reduced from 1.2 to 0.8, indicating that health effects from noncarcinogenic constituents would not be expected following remediation. All calculations in the risk assessment are conservatively protective of human health; therefore, any actual risk posed by exposure is likely to be overestimated.

The risks calculated for exposure to Site soil for the other receptors (utility worker, excavation worker, and trespasser) were

within EPA's acceptable risk range. The risk assessment also indicated that risks posed by exposure to sediment and surface water at the Site were acceptable for all current and future receptors.

The baseline risk assessment did not include a calculation of the risk associated with lead in soil because appropriate toxicity factors do not exist, and therefore the calculation could not be performed. However, the maximum detection of lead in soil (1090 ppm at Building 23P) was determined to be unacceptable because it is slightly above 1000 ppm, which is a generally accepted cleanup level used by EPA for commercial/industrial land use. For comparison, EPA's cleanup level for residential land use is 400 ppm. Other detections of lead in soil at the Site were less than 1000 ppm and determined to be acceptable.

Ecological Risk Assessment

A four-step process is utilized for assessing site-related ecological risks for a reasonable maximum exposure scenario: *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.

The ecological risk assessment began with evaluating the contaminants associated with the Site in conjunction with the Site-specific biological species and habitat information. The contaminants of concern and their respective ecological receptors (plant or animal species or habitat) are: PCBs in Muggett's Pond sediment for benthic invertebrates and aquatic plants; and lead, mercury, zinc, and PCBs for terrestrial plants, soil invertebrates such as the earthworm, and terrestrial vertebrates such as the meadow vole, short-tailed shrew, red-tailed hawk, barn swallow, and red fox.

The ecological risk assessment indicated that the soil contaminated with mercury at the Muggett's Pond Drainage Ditch Intersection may pose an ecological risk to terrestrial species. A cleanup goal of 2 ppm of mercury was established for these soils based on ecological risk calculations. The potential risk posed to Muggett's Pond itself was determined to be minimal based on its small size (0.07 acre) and limited habitat for aquatic receptors.

Based on the results of the RI and the conclusions of the risk assessment discussed above, EPA has determined that actual or threatened releases of hazardous substances from the Site, if not addressed by the preferred alternative or one of the other active measures considered, may present a current or potential threat to public health, welfare or the environment.

REMEDIAL ACTION OBJECTIVES

Remedial action objectives are specific goals to protect human health and the environment. They specify the contaminants of concern, the receptors, and acceptable contaminant levels for each exposure route. 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 for the Site:

Ground Water

- Prevent ingestion of ground water with concentrations of Site-related constituents (primarily the VOCs carbon tet and TCE) above current Federal drinking water standards or, if more stringent, New York State drinking water standards.

- Prevent ingestion of ground water with concentrations of Site-related VOCs that pose an unacceptable risk to human health (total carcinogenic risk greater than 1 in 10,000 or a noncarcinogenic Hazard Index greater than 1).

- Prevent further migration of the ground water plume containing Site-related VOCs above current Federal drinking water standards or, if more stringent, New York State ground water standards, into areas with concentrations of contaminants in ground water below such standards.

- Restore ground water so that concentrations of Site-related VOCs in the water bearing zone are reduced to current Federal drinking water standards or, if more stringent, New York State ground water standards.

Soil

- Prevent human exposure to soil at the Building 23P area containing concentrations of PCBs that pose an unacceptable risk to human health (i.e., an excess cancer risk greater than 1 in 10,000) and concentrations of lead in excess of generally accepted cleanup levels for commercial/industrial land use. Specifically, prevent human exposure to PCBs in soil at concentrations greater than 10 ppm from the surface to a depth of 1 foot and in soil at concentrations greater than 25 ppm for soil below a depth of 1 foot, and prevent human exposure to lead in soil at the Building 23P area at concentrations greater than 1000 ppm.

- Prevent unacceptable ecological risk attributable to mercury in soil at the Muggett's Pond Drainage Ditch Intersection. The cleanup level established is 2 ppm of mercury.

SUMMARY OF REMEDIAL ALTERNATIVES

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 evaluates in detail 5 remedial alternatives that address ground water contamination and 4 remedial alternatives that address soil contamination at the Site. The construction time listed for each alternative includes only the time to actually construct or implement the remedy and does not include any time required for design of the remedy, or for negotiating with the PRPs or procuring contracts for design and construction of the remedy. The estimated ground water restoration time for each ground water alternative is based on contaminant fate and transport modeling performed during the FS. These time periods are provided for comparative purposes only and should not be construed as representing actual cleanup timeframes, which may be shorter or longer than estimated. The alternatives are described below:

GROUND WATER ALTERNATIVES

Alternative G1: No Action

CERCLA requires that the "no action" alternative be considered as a baseline for comparison with other alternatives. Under Alternative G1, no action would be taken to remediate, control or monitor the contaminated ground water. The existing air stripper would be disconnected and would no longer treat the Test Station water supply to acceptable drinking water levels. The EWMS would be discontinued and there would be no monitoring of contaminants in surface water or ground water. The easement restrictions would not be enforced to restrict human habitation within the vicinity of the plume. The concentrations of VOCs in ground water would be reduced to acceptable levels in an estimated 110 years by natural attenuation and degradation processes such as dilution, dispersion, adsorption, and possibly biological and chemical degradation. Ground water would continue to discharge naturally to the ravines, where concentrations of VOCs are reduced to acceptable levels in surface water through volatilization. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years.

Capital Cost:	$ 0
O & M Cost:	$ 0/yr
Present Worth Cost:	$ 0
Construction Time:	None

Alternative G2b: Continue Existing System (Pump Water Supply Well(s) and Treat by Air Stripper) and Institutional Controls

Under Alternative G2b, the Test Station water supply well(s) would continue to pump contaminated ground water and the existing air stripper would continue to treat the Test Station water supply system to acceptable drinking water levels. The concentrations of VOCs in ground water would be reduced to acceptable levels by natural attenuation and degradation processes, and to a lesser extent by the pumping and treating, in an estimated 110 years. Ground water and surface water would continue to be monitored to ensure that downgradient water supply wells are not impacted, that the ground water plume does not migrate into uncontaminated areas, and that natural attenuation and degradation processes are restoring the ground water to cleanup standards. The minimum average pumping rate would be the estimated current demand, which is 0.6 gallons per minute (gpm). Ground water would continue to discharge naturally to the ravines, where concentrations of VOCs are currently reduced to acceptable levels through volatilization. The air stripper influent and effluent would continue to be monitored. New deed restrictions and continued maintenance of the easement restrictions would be used to restrict withdrawal of ground water that could adversely impact the restoration of the ground water, and the existing fencing would continue to control access to the Test Station. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years to ensure that the remedy is protective of human health and the environment. If justified by the review, EPA may require implementation of additional remedial actions.

Capital Cost:	$ 7,000
O & M Cost:	$ 17,100/yr
Present Worth Cost:	$ 269,900
Construction Time:	None

Alternative G3: Pump Water Supply Well(s), Treat at Maximum Capacity of Existing Air Stripper, and Institutional Controls

Alternative G3 incorporates the provisions of Alternative G2b (pumping Test Station water supply wells, treatment of the water using the existing air stripper, natural attenuation and degradation of ground water, surface water and ground water monitoring, and institutional controls), except that the Test Station water supply system would be operated to maximize the capacity of the air stripper (approximately 25 gpm). Water pumped and treated in excess of the water supply needs of the Site would be discharged on-site in a manner that enhances the ground water remediation and in compliance with applicable regulations. Various discharge options, such as an outfall discharge structure at the head of Ravine 2a, reinjection wells, or a surface infiltration trench or bed, would be evaluated during remedial design (reinjection wells were assumed for cost estimating purposes). Under this alternative, the concentrations of VOCs in ground water would be reduced to acceptable levels within an estimated 90 years. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years. If justified by the review, EPA may require implementation of additional remedial actions.

Capital Cost:	$ 247,000
O & M Cost:	$ 46,200/yr
Present Worth Cost:	$ 957,400
Construction Time:	1 to 2 months

Alternative G4a: Pump Existing Water Supply Wells, New Air Stripper, and Institutional Controls

Alternative G4a incorporates many of the provisions of Alternative G3 (pumping the Test Station water supply wells,

treatment by air stripping, discharge of water in excess of on-site demand, natural attenuation and degradation of ground water, surface water and ground water monitoring, and institutional controls). However, Alternative G4a would require that the 2 on-site water supply wells be pumped at a combined pumping rate of approximately 75 gpm to capture most of the ground water with concentrations of individual VOCs greater than 50 ppb. A new air stripper would be required to treat this volume of pumped water. As with Alternative G3, treated water in excess of the water supply needs of the Site would be discharged on-site in a manner that enhances ground water remediation and in compliance with applicable regulations. Various discharge options, such as a discharge structure at the head of Ravine 2a, reinjection wells, or a surface infiltration trench or bed, would be evaluated during remedial design (reinjection wells were assumed for cost estimating purposes). Under this alternative, the concentrations of VOCs in ground water would be reduced to acceptable levels within an estimated 80 years. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years. If justified by the review, EPA may require implementation of additional remedial actions.

Capital Cost:	$ 348,700
O & M Cost:	$ 47,600/yr
Present Worth Cost:	$ 1,080,400
Construction Time:	4 to 6 months

Alternative G4b: Pump Two Existing Water Supply Wells and Two New Wells, New Air Stripper, and Institutional Controls
Alternative G4b incorporates many of the provisions of Alternative G4a (pumping of the existing water supply wells, treatment by a new air stripper, discharge of water in excess of on-site demand, natural attenuation and degradation of ground water, surface water and ground water monitoring, and institutional controls). In Alternative G4b, however, water would be pumped from 4 wells (2 new wells and 2 existing water supply wells) at a combined pumping rate of approximately 140 gpm, to capture all of the ground water with concentrations of individual VOCs greater than 50 ppb. A new air stripper would be required to treat the increased volume of pumped water. Treated water in excess of the water supply needs of the Site would be discharged on-site in a manner that enhances ground water remediation and in compliance with applicable regulations. As in Alternatives G3 and G4a, various discharge options, such as a discharge structure at the head of Ravine 2a, reinjection wells, or a surface infiltration trench or bed, would be evaluated during remedial design (reinjection wells were assumed for cost estimating purposes). Under this alternative, the concentrations of VOCs in ground water would be reduced to acceptable levels within an estimated 60 years. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years. If justified by the review, EPA may require implementation of additional remedial actions.

Capital Cost:	$ 649,600
O & M Cost:	$ 51,800/yr
Present Worth Cost:	$ 1,445,900
Construction Time:	4 to 6 months

SOIL ALTERNATIVES

Alternative S1: No Action
CERCLA requires that the "no action" alternative be considered as a baseline for comparison with other alternatives. Under Alternative S1, no action would be taken to remediate or control the contaminated soil. The contaminated soil at the Building 23P area and at the Muggett's Pond Drainage Ditch Intersection would be left in place. No action would be taken to control access to the contaminated soil, such as maintaining the existing fence around the Test Station or enforcing the easement restrictions. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years.

Capital Cost:	$ 0
O & M Cost:	$ 0/yr
Present Worth Cost:	$ 0
Construction Time:	None

Alternative S2: Institutional Controls
Under Alternative S2, deed restrictions such as prohibiting all property use except for commercial/industrial use or prohibiting future development of selected areas would be implemented to minimize exposure to contaminated soil and to eliminate a future resident exposure scenario. These restrictions would be specific to and would be incorporated into the property deeds for the Building 23P area and the Muggett's Pond Drainage Ditch Intersection, which are currently owned by Wright-Malta Corporation. The existing fence would continue to restrict access and the existing easement restrictions would continue to prohibit human habitation within the easement area. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years. If justified by the review, EPA may require implementation of additional remedial actions.

Capital Cost:	$ 16,800
O & M Cost:	$ 0/yr
Present Worth Cost:	$ 16,800
Construction Time:	None

Alternative S3b: Asphalt Caps and Institutional Controls
Under Alternative S3b, asphalt caps would be placed over the contaminated soil at the Building 23P area (estimated area 15 ft x 5 ft) and the Muggett's Pond Drainage Ditch Intersection (estimated area 3 ft x 30 ft), in addition to the institutional controls outlined in Alternative S2 (deed restrictions, easement restrictions, and fencing). Placement of the cap in the drainage ditch would require altering the ditch to maintain flow and prevent erosion. Because this alternative would result in contaminants remaining on-site, CERCLA would require that Site conditions be reviewed at least once every 5 years. If justified by the review, EPA may require implementation of additional remedial actions.

Capital Cost:	$ 27,000
O & M Cost:	$ 1,000/yr
Present Worth Cost:	$ 42,400
Construction Time:	1 week

Alternative S4: Excavation and Off-Site Disposal
Alternative S4 involves excavation of the contaminated soil at Building 23P (estimated volume 3 to 5 cubic yards [yd^3]) and at the Muggett's Pond Drainage Ditch Intersection (estimated volume 3 yd^3). Excavated areas would be backfilled with clean fill material, graded to blend with the surrounding areas, and revegetated. The excavated soil would be transported to an appropriate off-site facility for final disposal.

Capital Cost:	$ 25,100
O & M Cost:	$ 0/yr
Present Worth Cost:	$ 25,100
Construction Time:	1 week

EVALUATION OF ALTERNATIVES

During the detailed evaluation of remedial alternatives, each alternative is assessed against nine evaluation criteria, namely, 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 will 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 through treatment 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 the Proposed Plan, the State concurs, opposes, or has no comment on the preferred alternative at the present time.

- Community acceptance is assessed in the Record of Decision (ROD) following a review of the public comments received on the RI/FS reports and the Proposed Plan.

The following is a comparative analysis of the alternatives for the Site based upon the evaluation criteria noted above.

- Overall Protection of Human Health and the Environment

Ground Water Alternatives
Alternative G1: No Action is not protective of human health and the environment, because it does not prevent ingestion of contaminated ground water or require monitoring to ensure that the ground water plume does not migrate into uncontaminated areas. Alternatives G2b, G3, G4a, and G4b would be protective of human health and the environment, because ingestion of contaminated ground water and plume migration would be prevented through on-site ground water pumping and treatment, institutional controls, and surface water and ground water monitoring. Although Alternative G4b would be the most protective of the environment because it would restore the ground water in the shortest period of time, all the ground water alternatives are expected to restore the contaminated ground water to acceptable levels within similar relative timeframes (i.e, from 60 to 110 years). Alternative G2b would be somewhat more protective of the ravine habitat than Alternatives G3, G4a, and G4b because there would be no potential impact to the streams due to discharge of large volumes of treated water in excess of the Test Station demand; this impact could be reduced by using reinjection wells or infiltration trenches upgradient of the streams rather than through a discharge structure at the head of Ravine 2a.

Soil Alternatives
Alternative S1: No Action is not protective of human health and the environment because it does not prevent human exposure to contaminated soil at Building 23P or reduce ecological risks associated with contaminated soil at Muggett's Pond Drainage Ditch Intersection. Of the remaining alternatives, S2 is least protective of human health and the environment because it relies

on institutional controls. Alternative S3b is more protective of human health and the environment, because exposure to contaminated soil would be reduced through capping and institutional controls. Alternative S4 is the most protective of human health and the environment because exposure to contaminated soil would be eliminated through excavation and off-site disposal.

o Compliance with ARARs

Ground Water Alternatives

Chemical-specific ARARs identified for ground water are the Federal MCLs for drinking water or, if more stringent, New York State ground water standards. Examples of these levels are 5 ppb for carbon tet and 5 ppb for TCE. All the ground water alternatives are expected to attain these standards, with estimated restoration time periods ranging from 60 to 110 years. The estimated time to attain MCLs is 110 years for Alternatives G1 and G2b, 90 years for Alternative G3, 80 years for Alternative G4a, and 60 years for Alternative G4b. As noted above, actual timeframes for ground water restoration may be shorter or longer than these time periods, which are estimated based on ground water fate and transport modeling. Chemical-specific ARARs for the air stripper effluent are the Federal MCLs or, if more stringent, New York State drinking water standards, which would include the 5 ppb for carbon tet and 5 ppb for TCE. These standards would be met for each ground water alternative utilizing an air stripper (i.e., all but Alternative G1: No Action).

There are no location-specific or action-specific ARARs associated with Alternative G1, which requires no action. Alternative G2b and G3 utilize the existing air stripper, which was permitted by NYSDEC and has met the New York State Air Emissions Requirements (VOC Emissions for Air Strippers and Process Vents, General Air Quality). Alternatives G4a and G4b require new air strippers, which also could be designed to meet these requirements. Alternatives G3, G4a, and G4b, which involve discharge of treated water in excess of on-site demand, would have additional ARARs depending on the method of discharge selected in remedial design. For example, discharge to Ravine 2a through an outfall structure would require compliance with the Federal and New York State Pollutant Discharge Elimination System Programs (NPDES and SPDES, respectively), the Federal Fish and Wildlife Coordination Act, and the Federal Clean Water Act (Part 404(b) Army Corps of Engineers Nationwide Permit Program). Discharge through reinjection wells or infiltration trenches would require compliance with the Federal Underground Injection Control (UIC) Program of the Safe Drinking Water Act and SPDES.

Soil Alternatives

The ARARs associated with the soil alternatives would be attained. There are no location-specific or action-specific ARARs associated with Alternatives S1 or S2. Alternative S3b would comply with Resource Conservation and Recovery Act (RCRA) requirements for detection monitoring. Alternative S4 would comply with RCRA requirements for transport of the excavated soil and disposal at an EPA-approved landfill. There are no chemical-specific ARARs that establish the cleanup level for the PCB-contaminated soil at Building 23P, since the concentrations are below 50 ppm and therefore are not regulated by the Toxic Substances Control Act (TSCA). Similarly, there are no ARARs for the cleanup level of mercury in soil at the Muggett's Pond Drainage Ditch Intersection or the lead in soil at Building 23P. However, Alternative S4 would comply with EPA's "Guidance on Remedial Actions for Superfund Sites with PCB Contamination," OSWER Directive No. 9355.4-01, dated August 1990, which utilizes the TSCA PCB spill policy to establish cleanup levels for PCBs at restricted access (industrial) sites. Alternative S4 would also meet the Site-specific cleanup levels for lead and mercury, which are 1000 ppm and 2 ppm, respectively.

o Long-Term Effectiveness and Permanence

Ground Water Alternatives

Alternative G1 is neither effective nor permanent because it would not prevent ingestion of contaminated ground water and does not provide a means for monitoring the ground water plume. Alternatives G2b, G3, G4a, and G4b all would be effective and permanent in the long-term, because each prevents ingestion of contaminated ground water, eventually restores ground water to acceptable levels, and includes provisions for monitoring the ground water over time.

Soil Alternatives

Alternative S1 is neither effective nor permanent because it would not address the long-term risks due to exposure to contaminated soils at Building 23P and Muggett's Pond Drainage Ditch Intersection. Of the remaining alternatives, S2 is the least effective means of reducing long-term risk because it relies on institutional controls. Alternative S3b uses capping, which is somewhat more effective in the long-term. Alternative S4 would have the greatest long-term effectiveness and permanence, because the risks would be eliminated through excavation and off-site disposal.

o Reduction in Toxicity, Mobility, or Volume

Ground Water Alternatives

Alternative G1:No Action would not employ treatment to reduce the toxicity, mobility or volume of VOCs in ground water. Of the remaining alternatives, G2b has the lowest pumping rate and would offer the least reduction in toxicity, mobility, and volume through treatment. Alternative G3 would require a higher pumping rate than Alternative G2b and would therefore offer greater reduction through treatment. Alternative G4b would require the highest pumping rate and would utilize treatment to the greatest extent to reduce toxicity, mobility, and volume of contaminants. Alternatives G2b, G3, and G4b would rely upon natural attenuation and degradation processes in addition to treatment to reduce the toxicity, mobility, and volume of VOCs in the ground water.

Soil Alternatives

Alternatives S1 and S2 require no action and institutional controls, respectively, and therefore would not reduce the toxicity, mobility, or volume of contaminated soil at Building 23P or Muggett's Pond Drainage Ditch Intersection. The asphalt caps required by Alternative S3b would reduce the mobility of the contaminated soil from wind and water erosion, but would not reduce its toxicity or volume. Alternative S4 provides the greatest reduction in toxicity, mobility, and volume by excavation of the contaminated soil and off-site disposal in an EPA-approved landfill. None of the soil alternatives utilizes a treatment technology to reduce the toxicity, mobility or volume of contaminants in soil.

o Short-Term Effectiveness

Ground Water Alternatives

Alternatives G1, G2b, and G3 do not pose any short-term risk during construction because they rely on either no action or existing systems. Alternatives G4a and G4b include installation of a new air stripper and disassembly of the existing one, which may pose short-term risks if workers come into direct contact with contaminated ground water. Alternatives G4a and G4b are equivalent with respect to this potential risk, which is expected to be easily controlled through proper construction and health and safety practices. Alternative G4b is the most effective during implementation, because cleanup goals would be expected to be met in the shortest period of time compared to the other alternatives.

Soil Alternatives

Alternative S1 and S2 do not pose any short-term risk because they rely on either no action or institutional controls. Alternative S3b would pose minimal short-term risk to workers and the environment during asphalt capping of the contaminated soil. Alternative S4 would pose minimal short-term risk for a short period of time when the contaminated soil is excavated and disposed off-site. However, this risk is expected to be easily controlled through standard health and safety practices.

o Implementability

Ground Water Alternatives

Alternative G1 would not require any construction, operation, or monitoring; therefore it is easily implementable. Alternatives G2b, G3, and G4a would make use of the existing wells, and Alternatives G2b and G3 would also use the existing air stripper treatment system, making these alternatives easy to implement. Installation of new pumping wells (G4b), installation of a new air stripper (G4a and G4b) and construction of a discharge system for excess treated water (G3, G4a, and G4b) would require no specialty equipment or contractors and could be implemented using common construction practices.

Soil Alternatives

Alternatives S1 and S2 require no action and institutional controls, respectively, and are readily implementable. The routine asphalt caps of Alternative S3b and the excavation and off-site disposal required of Alternative S4 could be easily implemented using readily available materials, equipment, and construction practices.

o Cost

Ground Water Alternatives

Costs for the ground water alternatives G1 to G4b are as follows:

	Capital	O&M/yr	Present Worth
G1	$0	$0	$0
G2b	7,000	17,100	269,900
G3	247,200	46,200	957,400
G4a	348,700	47,600	1,080,400
G4b	649,600	51,800	1,445,900

The capital and present worth costs for Alternatives G1 and G2b are relatively low or zero. Alternatives G3 and G4a are intermediate with present worth costs of approximately $1 million, and Alternative G4b is the most expensive at approximately $1.5 million.

Soil Alternatives

Costs for the soil alternatives S1 to S4 are as follows:

	Capital	O&M/yr	Present Worth
S1	$0	$0	$0
S2	16,800	0	16,800
S3b	27,000	1,000	42,400
S4	25,100	0	25,100

The present worth cost for Alternative S1 is zero. Of the remaining alternatives, S2 is the least expensive at $16,800, S4 is intermediate at $25,100, and S3b is the most expensive at $42,400.

o State Acceptance

The State of New York concurs with the preferred alternative.

o Community Acceptance

Community acceptance of the preferred alternative will be assessed in the ROD following review of the public comments received on the RI/FS report and the Proposed Plan.

PREFERRED ALTERNATIVE

Based upon the results of the RI/FS and after careful consideration of the alternatives, EPA and NYSDEC recommend Alternative G2b: Existing System (Pump Water Supply Well(s) and Treat by Air Stripper) and Institutional Controls for ground water and Alternative S4: Excavation and Off-Site Disposal for soil, as the preliminary choice for the Site remedy. The capital cost of the preferred remedy is $32,100 and the present worth cost is $295,000.

Specifically, the preferred alternative involves the following:

1) Continued pumping of the on-site water supply well(s) and treatment of the water using the existing air stripper. Continued monitoring of the influent and effluent of the air stripper in accordance with NYS requirements to ensure that it effectively treats the on-site water supply to acceptable drinking water levels. The average pumping rate of the system shall be at least 0.6 gpm, which is the estimated pumping rate for the current demand at the Site.

2) Natural attenuation and degradation of VOCs in ground water that are not captured by the pumping well(s) to Federal MCLs, or if more stringent, New York State ground water standards.

3) Monitoring of surface water and ground water to ensure that downgradient water supplies are not impacted, that contaminated ground water does not migrate into uncontaminated areas (i.e., plume containment), and that the natural attenuation and degradation processes are restoring the ground water to the cleanup standards. The existing surface water and ground water sample locations of the EWMS may be modified as necessary to meet the objectives of this monitoring program.

4) Implementation of institutional controls, which may include new deed restrictions and maintenance of the existing easement restrictions and fencing, to prevent ingestion of contaminated ground water, to restrict withdrawal of ground water that could adversely impact the remediation of the ground water, and to control access.

5) Excavation of contaminated soil at the Building 23P area at a depth of 1 foot or less having a concentration of more than 10 ppm of PCBs, soil at a depth below 1 foot having a concentration of more than 25 ppm of PCBs, and soil at any depth with a concentration of lead of more than 1000 ppm.

6) Excavation of contaminated soil at the Muggett's Pond Drainage Ditch Intersection with a concentration of more than 2 ppm of mercury.

7) Backfilling of excavations in the Building 23P area and at Muggett's Pond Drainage Ditch Intersection with clean fill material, grading to blend with the surrounding areas, and revegetation.

8) Transportation of the excavated soil from the Building 23P area and Muggett's Pond Drainage Ditch Intersection and disposal off-site at an appropriate EPA-approved landfill, consistent with RCRA and all other ARARs.

9) Evaluation of Site conditions at least once every 5 years to ensure that the remedy is protective of human health and the environment. If justified by the review, additional remedial actions may be implemented.

The preferred alternative, G2b and S4, will provide the best balance of trade-offs among alternatives with respect to the evaluation criteria. Alternative G2b is the most cost-effective ground water remedy that meets all the remedial action objectives, and Alternative S4 provides the greatest reduction in risk at an intermediate cost. EPA and the NYSDEC believe that the preferred alternative will be protective of human health and the environment, comply with ARARs, be cost effective, and utilize permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. With regard to the statutory preference for the use of treatment as a principal element of the remedy, the preferred alternative requires treatment by air stripping to prevent ingestion of contaminated ground water. The preferred alternative requires natural attenuation rather than treatment as a principal element for ground water restoration, which is consistent with the ground water policy set forth in the NCP, because ground water restoration through pumping and treatment is not cost-effective or warranted based on the estimated time periods to reach MCLs.

SUMMARY OF SITE-RELATED COMMUNITY ACTIVITIES

In October 1991, EPA held a public meeting and issued a fact sheet to announce the beginning of the RI field work. Following that meeting, EPA issued fact sheets in January 1992, February 1993, and September 1994 to report progress on the RI and mailed them to all persons on EPA's mailing list for the Site. This Proposed Plan announces a public meeting and the opportunity to submit comments during the public comment period on the RI and FS reports, the Proposed Plan, and the remedies considered.

If you have any questions about the Site or would like more information, please contact Alison A. Hess, Project Manager, at the address and telephone number listed above or:

Cecilia Echols
Community Relations Coordinator
U.S. Environmental Protection Agency
290 Broadway, 26th Floor
New York, New York 10007-1866
(212) 637-3678

NEXT STEPS

After EPA has presented the preferred alternative at the public meeting and has received comments and questions during the public comment period, EPA will summarize and respond to these questions and comments in a Responsiveness Summary. The Responsiveness Summary will then become part of the ROD.

In addition to the Responsiveness Summary, the ROD will include a description of the final alternative selected by EPA, the rationale for selecting it, a discussion of the alternatives that were considered but rejected, and the reasons for rejecting those alternatives.

EPA will place the ROD in the Administrative Record file, which will be located at EPA's offices and at the local information

repositories. The Administrative Record file includes all Site findings and reports that were instrumental in the Agency's decision regarding a remedy. If the selected remedy differs significantly from preferred alternative presented in this Proposed Plan, EPA will inform the public of the change. Upon issuance of the ROD, EPA will give the PRPs an opportunity to implement the selected remedy.

GLOSSARY
Of Terms Used In the Proposed Plan

This glossary defines the technical terms used in this Proposed Plan. The terms and abbreviations contained in this glossary are often defined in the context of hazardous waste management, and apply specifically to work performed under the Superfund program. Therefore, these terms may have other meanings when used in a different context.

Administrative Order: A legally binding document issued by EPA directing the potentially responsible parties to perform site cleanups or studies.

Air stripping: A process whereby volatile organic chemicals are removed from contaminated material by forcing a stream of air through it in a pressurized vessel. The contaminants are evaporated into the air stream. The air may be further treated before it is released into the atmosphere.

Backfill: To refill an excavated area with removed earth; or the material itself that is used to refill an excavated area.

Cap: A layer of material, such as clay or a synthetic material, used to prevent rainwater from penetrating and spreading contaminated materials. The surface of the cap is generally mounded or sloped so water will drain off.

Decommission: To render inoperable and/or take out of service.

Downgradient/downslope: A downward hydrologic slope that causes groundwater to move toward lower elevations. Therefore, wells downgradient of a contaminated groundwater source are prone to receiving pollutants.

Effluent: Wastewater, treated or untreated, that flows out of a treatment system.

Infiltration trench or bed: A crushed rock drain system constructed of perforated pipes, which is used to drain and disperse wastewater.

Influent: Water or other liquid flowing into a treatment system.

Landfill: A disposal facility where waste is placed in or on land.

Migration: The movement of contaminants, water, or other liquids through porous and permeable rock.

Outfall: The place where wastewater is discharged into receiving waters.

Overpacking: Process used for isolating volumes of waste by jacketing or encapsulating waste to prevent further spread or leakage of contaminating materials. Leaking drums may be contained within oversized barrels as an interim measure prior to removal and final disposal.

Plume: A body of contaminated ground water flowing from a specific source. The movement of the ground water is influenced by such factors as local ground water flow patterns, the character of the aquifer in which ground water is contained, and local pumping wells.

Polychlorinated Biphenyls (PCBs): A group of toxic chemicals used for a variety of purposes including electrical applications, carbonless copy paper, adhesives, hydraulic fluids, microscope emersion oils, and caulking compounds. PCBs are also produced in certain combustion processes. PCBs are extremely persistent in the environment because they are very stable, non-reactive, and highly heat resistant. Burning them produces even more toxins. Chronic exposure to PCBs is believed to cause liver damage. It is also known to bioaccumulate in fatty tissues. PCB use and sale was banned in 1979 with the passage of the Toxic Substances Control Act.

Potentially Responsible Parties (PRPs): Parties, including owners or operators, who may have contributed to the contamination at a Superfund site and may be liable for costs of response actions. Parties are considered PRPs until they admit liability or a court makes a determination of liability. A PRP may participate in site investigation and cleanup activity without admitting liability.

Remedial: A course of study combined with actions to correct site contamination problems through identifying the nature and extent of cleanup strategies under the Superfund program.

Sediment: The layer of soil, and minerals at the bottom of surface waters, such as streams, lakes, and rivers that absorb contaminants.

Sludge: Semi-solid residue from industrial or water treatment processes that may be contaminated with hazardous materials.

Stripping: A process used to remove volatile organic compounds from a substance (see Air Stripping).

Sump: A pit or tank that catches liquid runoff for drainage or disposal.

Trichloroethylene (TCE): A stable, colorless liquid with a low boiling point. TCE has many industrial applications, including use as a solvent and as a metal degreasing agent. TCE may be toxic to people when inhaled, ingested, or through skin contact and can damage vital organs, especially the liver (see also Volatile Organic Compounds).

Unilateral Order: A legally binding document issued by EPA directing the potentially responsible parties to perform site cleanups or studies.

Upgradient/Upslope: Upstream; an upward slope. Demarks areas that are higher than contaminated areas and, therefore, are not prone to contamination by the movement of polluted groundwater.

Volatile Organic Compounds (VOCs): VOCs are made as secondary petrochemicals. They include light alcohols, acetone, trichloroethylene, perchloroethylene, dichloroethylene, benzene, vinyl chloride, toluene, and methylene chloride. These potentially toxic chemicals are used as solvents, degreasers, paints, thinners, and fuels. Because of their volatile nature, they readily evaporate into the air. Due to their low water solubility, environmental persistence, and wide-spread industrial use, they are common contaminants found in soil and ground water.

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