EPA/ROD/R01-97/161
1997

EPA Superfund
Record of Decision:

GALLUP'S QUARRY
EPA ID: CTD108960972
OU 01
PLAINFIELD, CT
09/30/1997

<IMG SRC 971610>

DECLARATION FOR THE RECORD OF DECISION

Gallup's Quarry Superfund Site
Plainfield, Connecticut
September 30, 1997

STATEMENT OF PURPOSE

This decision document represents the selected remedial action for the Gallup's Quarry Superfund Site in Plainfield, Connecticut, developed in accordance with the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986, and to the extent practicable, the National Oil and Hazardous Substances Contingency Plan (NCP), 40 CFR Part 300 et seq., as amended. The region I Director of the Office of Site Remediation and Restoration has been delegated the authority to approve this Record of Decision.

STATEMENT OF BASIS

This decision is based upon the Administrative Record which has been developed in accordance with Section 113 (k) of CERCLA and which is available for public review at the Plainfield Public Library and at the region I Office of Remediation and Restoration Records Center in Boston, Massachusetts. The Administrative Record Index (Appendix E to the ROD) identifies each of the items comprising the Administrative Record upon which the selection of the remedial action is based.

ASSESSMENT OF THE SITE

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to the public health or welfare or the environment.

DESCRIPTION OF THE SELECTED REMEDY

This ROD sets forth the selected remedy for the Gallup's Quarry Superfund Site, which addresses both the source control and management of migration of contamination at the Site.

The selected remedy consists of natural attenuation of contaminants of concern in soil and groundwater, implementation of institutional controls, long-term monitoring of groundwater and soil and Five-Year Site reviews.

The major components of the selected source control remedy include:

- Institutional controls including land use restrictions to limit the use and disturbance of contaminated soils at the Site;
- posting of warning signs;
- periodic maintenance of warning signs and entry gate;
- periodic sampling and analysis of contaminated unsaturated soils for contaminants of concern; and

The major components of the selected management of migration remedy include:

- institutional controls, including land use restrictions to prevent future use of impacted groundwater until Interim Groundwater Cleanup Levels are met;
- long-term monitoring of groundwater and surface water quality to assess compliance with groundwater cleanup levels and to ensure the surface water has not been adversely impacted; and

DECLARATION

The selected remedy is protective of human health and the environment, attains Federal and State requirements that are applicable or relevant and appropriate for this remedial action and is cost-effective. This remedy does not satisfy the statutory preference for remedies that utilize treatment as a principal element to reduce the toxicity, mobility, or volume of hazardous substances. The selected remedy was equally protective and more cost effective and implementable than the treatment alternatives evaluated. This remedy utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

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

EPA has determined that its future response at this site does not require physical construction. Therefore, the site now qualifies for inclusion on the Construction Completion List.

The State of Connecticut has concurred with the selected remedy for this site.

<IMG SRC 97161A>

TABLE OF CONTENTS

ROD DECISION SUMMARY
September 30, 1997

I. SITE NAME, LOCATION AND DESCRIPTION

The Gallup's Quarry Superfund Site (hereafter referred to as the "Site") is located at 86 Tarbox Road, in the Town of Plainfield, Windham County, Connecticut. The Site is bounded by Mill Brook and its associated wetlands to the north, single family residences and Route 12 to the east, an active railroad (Providence and Worcester Railroad) and woodlands to the west, and single family residences and Tarbox Road to the south. The Site encompasses approximately 29 acres and is located one mile southwest of Plainfield Center and approximately 1,800 feet southeast of Plainfield's sewage treatment plant, which is situated at the confluence of Mill Brook and Fry Brook (see Figure 1). Approximately 700 feet north of the Site, on the opposite side of Mill Brook is an industrial park which contains the Intermark Fabric Corporation facility and the Safety Kleen Corporation.

The Site is currently vacant and much of it is heavily vegetated. There are numerous overgrown mounds and excavations throughout the Site which were the result of former quarry activities. There are no structures on-Site. The nearest water supply wells to the Site are private wells located along Route 12 and Tarbox Road. In addition there are four nearby community water supply wells, including: the Gallup Water Service (4,000 feet northwest); Brookside Acres (0.9 miles northeast); Hillsdale Water Company (2.8 miles north); and the Gallup Water Service/Lillibridge Division (0.7 miles southwest). Groundwater at the Site is classified by the State of Connecticut as GA, which means that the groundwater is presumed to be suitable for direct human consumption without treatment. The State's goal is to restore the groundwater to drinking water quality.

Surface water bodies located within, or near the Site, include Mill Brook, Fry Brook and Packers Pond. Mill Brook flows from east to west-southwest along the northern and western edges of the Site. Mill Brook and Fry Brook ultimately discharges to Packers Pond. The State of Connecticut has classified the section of Mill Brook that is north of the Site as B/A, which indicates that these water bodies may not be meeting Class A water quality criteria. The lower portion of Mill Brook, below its confluence with Fry Brook is classified as BC, indicating that the water meets Class B and it is suitable for cold water fisheries.

A more detailed description of the Site history can be found in the Remedial Investigation Report on pages 1-3 and 1-4.

II. SITE HISTORY AND ENFORCEMENT ACTIVITIES

A. Land Use and Response History

Limited information is available regarding the early operational history of the Site. Historical aerial photographs and records at the Town of Plainfieid Assessor's office indicate that from 1951 to 1964 the Site was operated as a sand and gravel quarry. In 1964, Mr. C. Stanton Gallup purchased the property. While detailed usage of the Site from 1964 to 1977 is poorly documented, records indicate that Mr. Gallup's also operated a gravel mining operation and leased a portion of the property to the Connecticut Department of Transportation (DOT) to operate an asphalt batching plant.

As a result of complaints from neighboring residents, the Connecticut Department of Environmental Protection (DEP) and the Connecticut State Police initiated an investigation of the Site in January of 1978. The DEP investigation concluded that the Site was used from the summer of 1977 until December 1977 for unlicensed waste disposal. Evidence collected by DEP indicates that Chemical Waste Removal, Inc. (CWR) of Bridgeport, Connecticut transported drummed and bulk liquid waste material to the Site. These materials included a variety of industrial wastes.

Emergency clean up efforts were performed during the summer of 1978 under the direction of the DEP and the Connecticut State Police. This involved the removal and off-site disposal of 1,584 drums, 5,000 gallons of free liquid, and 2,277 cubic yards of contaminated soil from three distinct locations on the Site (see Figure 2). These disposal sites are known as the former primary disposal area (FPDA), the former secondary disposal area (FSDA) and the former Seepage Bed (Seepage Bed). The drums, as well as liquid waste and contaminated soil, were removed from the Primary and Secondary Disposal Areas, located in the northern portion of the Site. Remedial measures performed at the Seepage Bed, located in the central portion of the Site, included the excavation of contaminated soil and in-situ treatment of the remaining soils through the addition of 20 tons of lime. A buried inverted dump truck body was also removed from the Site. In addition to these remedial activities, mine detectors were utilized to search for additional buried drums. There was no evidence of additional buried drums, and it was believed that all drums were recovered during the cleanup operations.

Since the 1978 cleanup operations, periodic monitoring of soil and groundwater by the DEP, the Connecticut Department of Health and EPA were performed. In May of 1988, EPA initiated a limited Site Investigation to evaluate the Gallup's Quarry Site with respect to conditions for additional removal actions under the National Contingency Plan (NCP). Soil samples collected by EPA confirmed the presence of volatile organic compounds (VOCs), semi-VOCs and metals. Based on the results of the 1988 Site Investigation, on June 24, 1988 the Site was proposed to be added to EPA's National Priorities List (NPL). On October 4, 1989 the Site was listed on the NPL.

While the Site has been vacant since 1978 it has been utilized by trespassers for recreational purposes. In 1994, a fence was erected at the entrance to the Site, and other foot/vehicle paths were blocked with boulders, to limit Site usage by trespassers. Additionally, warning signs were posted around the property.

A more detailed description of the Site history can be found in the Remedial Investigation Report at pages 1-3 to 1-7.

B. Enforcement History

On April 1, 1993, June 2, 1993 and June 17, 1993, EPA notified forty parties, as either an owner/operator of the facility or as generators of wastes that were disposed of at the Site, of their potential liability with respect to the Site. Thereafter, negotiations commenced with these potentially responsible parties (PRPs) regarding the settlement of the PRP's liability at the Site.

On September 7, 1993, EPA and the twenty-three PRPs, entered into an Administrative Order by Consent, U.S. EPA Region I CERCLA Docket No. I-93-1080 for the performance of a remedial investigation and feasibility study (RI/FS). EPA also recovered past costs from the same parties under a separate Administrative Order by Consent, U.S. EPA Region I CERCLA Docket No. I-93-1079.

The PRPs have been active in the remedy selection process for this Site. The PRPs representatives and/or contractors attended the public meeting at the Site and the PRPs contractor prepared the RI/FS Reports.

III. COMMUNITY PARTICIPATION

Throughout the Site's history, community concern and involvement has been relatively low. Prior to EPA's involvement with the Site, residents and town officials have kept up with Site activities by following the local papers. There were no organized citizens groups during the emergency removal effort by the DEP or at any other time in the Site's history. The DEP kept citizens informed of Site activities through the media, the First Selectman, the Fire Marshall and the police. EPA has kept the community and other interested parties apprized of Site activities through fact sheets, press releases and a public meeting.

During November 1993, EPA conducted interviews of various Plainfield town officials, business owners, and residents. These interviews were conducted to identify community concerns for preparation of EPA's Community Relations Plan (CRP). In June of 1994, EPA released the CRP which outlined a program to address community concerns and to keep citizens informed of and involved in activities during remedial activities. Notice of the release of this document was sent to local residents, town officials and to the media on August 3, 1994.
In August of 1994, EPA issued a fact sheet release announcing the start of the remedial investigation at the Site which summarized Site history; the Superfund process and the field activities to be performed at the Site. In March of 1996 EPA notified the public and media of the availability of the Initial Site Characterization Report which detailed the results of the first phase of the field investigation. In November of 1996 EPA issued a fact sheet announcing the completion of the Remedial Investigation report (RI) and detailing the results of this investigation.

On June 17, 1997, EPA issued the Proposed Plan for addressing residual soil and groundwater contamination at the Site. The Proposed Plan was made available to local residents and town officials by mailing copies of this document to the mailing list and placing a copy in the Plainfield public library. On June 25, 1997, EPA made the RI/FS and Human Health and Ecological Risk Assessment (RA) reports available for public review at EPA's offices in Boston and at the Plainfield Town Library.

On June 25, 1997 EPA held an informational public meeting at the Plainfield Town Hall to discuss the results of the RI report and the cleanup alternatives presented in the Feasibility Study Report (FS) and to present the Agency's Proposed Plan. From June 25 to July 25, 1997, the Agency held a 30 day public comment period to accept public comment on the alternatives presented in the Feasibility Study and the Proposed Plan and on any other documents previously released to the public. Also on June 25, 1997, the Agency held a public hearing at the Plainfield Town Hall to accept any oral comments. A transcript of these comments and the Agency's response to comments are included in the responsiveness summary (Appendix

D).

IV. SCOPE AND ROLE OF OPERABLE UNIT OR RESPONSE ACTION

The selected remedy was developed by combining components of different source control and management of migration alternatives to obtain a comprehensive approach for addressing Site contamination. In summary the remedy calls for natural attenuation of contaminants in soil and groundwater, a long-term sampling and analysis program, and institutional controls to restrict Site use. Concentrations of contaminants in the soil and groundwater will be reduced to target cleanup levels through natural processes in the environment within an anticipated time period of approximately 27 years. Compliance with remedial action objectives will be tracked through implementation of a long-term monitoring program of soil, groundwater and surface water. The primary institutional control is to establish land use restrictions to prevent the use of contaminated groundwater and to limit the use and disturbance of residual soil contamination at the Site. This remedial response action was selected to address the primary potential risks to human health and the environment, which has been identified as the future potential ingestion of contaminated groundwater by a industrial or commercial worker at the Site.

V. SUMMARY OF SITE CHARACTERISTICS

The Executive Summary in the remedial investigation report (RI) contains an overview of this investigation. The significant findings of the RI are summarized below.

A. General

The field investigation of the RI was conducted between 1994 and 1996. The RI assessed the type and extent of contaminants present at the Site. The field program included primarily: geophysical surveys; installation of temporary groundwater well points; installation of monitoring wells and piezometers (see Figure 2); a soil gas survey; soil borings; groundwater, soil, surface water/sediment sampling and analyses and a residential well sampling and analyses program. The Human Health and Ecological Risk Assessment (RA) evaluated the potential impacts of Site contaminants posed to human health and the environment. The RI provided baseline data required to evaluate potential cleanup actions. Principal RI field activities included the collection and analysis of samples of groundwater, soil, sediment, surface water, and air. These analyses show that the primary contaminants detected in Site groundwater, soils, surface water and sediments are VOCs. Other contaminants identified include metals, polychlorinated biphenyls (PCBs), pesticides and semi-VOCs.

The following sections summarize the findings of the field investigations.

B. Geology and Hydrogeology

The overburden deposits in the area consist of materials deposited as a result of glacial processes during the Pleistocene epoch. A range of glacially-derived materials, including till, meltwater or stratified drift deposits, and post-glacial deposits of floodplain alluvium, comprise the major surficial geologic units in the vicinity of the Site. The most significant surficial deposits encountered within the Study Area during the RI are till and stratified drift (the overburden soils). Overburden soils can be further classified as coarser-grained or finer-grained components. The Site is dominated by coarser-grained deposits which are representative of the retreat of the ice-mass. Finer-grained components also exist to a limited extent, primarily in the low-lying areas of the Site.

The thickness of the overburden deposits range from non-existent in the vicinity of bedrock outcrops in the eastern portion of the Site, to approximately 70 feet. The overburden thickness increases with a decrease in the elevation of the bedrock surface. Till was encountered just above the bedrock surface at nearly every location. The till horizon ranges in thickness from approximately 10 to 20 feet, with the thickest accumulations located along bedrock highs. The till is relatively dense and is comprised of a fine sandy matrix with abundant gravel, cobbles and boulders.

Bedrock in the vicinity of the Site consists of hornblende gneiss, biotite gneiss and amphibolite, and is strongly faulted and folded. Based on the drilling program, depths to bedrock range from zero to 83 feet below ground surface at the Site. Bedrock elevations are greatest in the eastern central portion of the Site, and decrease to the north and west, and to a lesser degree to the south.

Hydraulic conductivity measurements indicate that coarse-grained stratified drift deposits in the lower portion of the aquifer are the most permeable subsurface materials at the Site. The highest hydraulic conductivities were found in the lower portion of the overburden aquifer northwest of the FPDA. The till appears to be hydrogeologically distinct from the other overburden deposits, and on the average, provides increased resistance to groundwater flow. This added resistance is not considered to be significant,

however, because the consistency of the till and overburden deposits are highly variable and the hydraulic conductivity contrast is relatively small. The bedrock has the lowest average hydraulic conductivity.

Overburden groundwater flow south of the Seepage Bed is primarily east to west. In the vicinity of the FPDA and FSDA groundwater flow is in a northwesterly direction. The hydraulic gradient in these areas is steep and is strongly influenced by the dip of the bedrock surface. Northwest of the railroad tracks, groundwater flow in the middle to lower portions of the aquifer converges from the northeast and southwest toward a centerline area generally defined in the downgradlent direction. The flow direction near these wells is from the former disposal areas to the northwest. Northeast of this centerline groundwater flows in a southwesterly direction from the vicinity of Mill Brook and the industrial park. North of Mill Brook and west of the railroad tracks the predominant groundwater flow direction becomes more westerly (see Figure 3).

Groundwater in bedrock moves primarily in a northwesterly direction in the northern Study Area and exhibits no apparent influence from the locally identified fracture zones. Groundwater is discharging from bedrock into the overburden at most well locations. In the overburden aquifer, the downward vertical flow component is significant within shallow deposits near the FPDA and the upward flow is important in the upper portion of the aquifer near Mill Brook. The downward groundwater flow within the FPDA appears to be primarily associated with infiltration of precipitation and collection of surface water runoff from upland areas. This causes VOC concentrations to be highest in the middle to lower portions of the aquifer. Stream piezometer data and groundwater flow modeling indicate that Mill Brook generally gains water from the overburden aquifer within the Study Area.

C. Groundwater Quality

Groundwater quality data collected during the Remedial Investigation indicate the following:

- No significant groundwater contamination was detected within the overburden or bedrock units in either the southern portion of the Site or in the vicinity of the Seepage Bed.

- In the northern portion of the Site, a narrow, low to moderate-concentration VOC plume was detected in the overburden aquifer, extending from the FPDA northwest towards Mill Brook. VOC compounds including 1,1,1-trichloroethane (TCA) and 1,2-dichloroethene (DCE) were consistently detected at all locations along the plume centerline at concentrations as high as 240 ppb and 1,300 ppb, respectively.

- Comparison of present concentrations with historical data indicate that VOC levels are significantly decreasing with time. From 1978 through 1995, TCA, trichloroethylene (TCE), and tetrachloroethylene (PCE) concentrations have decreased on the average by more than a factor of two, every two years.

- Available information indicates that the leading edge of the VOC plume associated with the FPDA is located in the vicinity of monitoring well clusters MW-102 and MW-101 (see Figure 2). Concentrations of TCA and DCE are below safe drinking water standards at MW-101.

- Results of surface water/sediment sampling and analyses, stream piezometer measurements, and groundwater flow modeling indicate that some discharge of the shallow portion of the plume into Mill Brook is occurring. However, the concentrations of Site contaminants detected in the brook are well below those reported to cause adverse effects in fish or wildlife.

- Bedrock is not considered a preferred pathway for contaminant migration due to its characteristically low hydraulic conductivity and the predominantly upward component of groundwater flow from bedrock to overburden which exists throughout the Study Area.

D. Soil

Results of the soil gas survey and soil boring program indicate that the previous removal activities taken by the State of Connecticut have removed all drums of waste and the bulk liquid waste from the Site. Studies indicate that trace levels of VOCs, semi-VOCs, pesticides, PCBs and cyanide exist at the Seepage Bed and FSDA on Site. In general, metal concentrations in soil are comparable to background levels measured at upgradient locations at the Site, although low levels of cyanide were also detected at various depths within the FPDA and FSDA. Other than the three known disposal areas at the Site, no other disposal areas were found to exist.

The FPDA is the only area with notable levels of residual contamination, primarily VOCs, including ethyl benzene, toluene, xylene, TCE, TCA, and PCE. In general, the highest VOC concentrations are located at or just below the groundwater table, in native materials immediately beneath the fill materials. These concentrations diminish quickly with depth. Toluene, ethyl benzene, xylene, and in one case a low level of PCE were also detected at or near the ground surface, within the fill material (the source of these contaminants could be related to recreational uses of this parcel since disposal occurred). Total VOC concentrations were either below the sample method detection limits, or were less than 1 parts per million (ppm) for the majority of samples. Trace to low-levels of PCBs were also detected in both near surface samples, and (at one location) at a depth of 32 feet below the ground surface. The highest concentration of any single PCB compound was 6.4 ppm in the 1-3.5 foot interval at the FPDA. Most other PCB detections at the Site were below 1 ppm. There does not seem to be any spatial trend or relationship among the detections of PCBs at the FPDA.

E. Surface water, Sediment, and Wetland Soils

Surface water, sediment, and wetland soils upstream, adjacent to, and downstream of the Site were sampled and analyzed during the RI and long-term monitoring program to assess the potential for transport of contaminants from the Site. The samples were analyzed for VOCs, semi-VOCs, metals/cyanide, and pesticide/PCBs.

In the surface water, VOCs were not detected in the upstream portions of Mill Brook. Six VOCs were detected at least once in the five rounds of surface water samples that were collected from the 11 locations sampled. The most consistent detections were DCE and PCE in one upstream location in Fry Brook. This location is approximately 1,500 feet upstream of the confluence of Fry Brook and Mill Brook and therefore these detections are considered not to be Site-related (believed to be the result of nearby industrial activities). The other detections of PCE and DCE were at trace concentrations at locations below the confluence of Fry and Mill Brooks. In addition, TCA was detected once at trace levels at a location adjacent to the Site along Mill Brook. TCE was detected twice at the upgradient Fry Brook location and once at a location adjacent to the Site in Mill Brook. Toluene was detected twice at upgradient Mill Brook locations at trace levels. All of the VOC concentrations detected are well below those expected to cause adverse effects in fish or wildlife.

Only low levels of one semi-VOC compound, 4-methylphenol, were detected in surface water samples. The locations where this contaminant was detected are far upstream along Mill Brook and downstream in Packers Pond, which are locations not expected to have been impacted by the Site. While bis(2-ethyl hexyl)phthalate was detected in the surface water at low levels, it was detected at upgradient Mill Brook locations and in downgradient locations along lower Mill Brook and Packers Pond and is not believed to be Site-related. No pesticides or PCB compounds were detected in any surface water samples. While metals (aluminum, barium, calcium, iron, lead, magnesium, manganese, potassium, sodium and zinc) were detected in the surface water, they were not detected at concentrations that are unexpected in non-contaminated waters.

In the sediments, metals were detected infrequently and, when detected, had concentrations close to the respective detection limit and/or were detected at remote upstream or downstream locations. With the exception of maximum concentrations detected in Packers Pond (which receives stormwater runoff from Lillibridge Road) general metal concentrations in sediments were at concentrations within the ranges expected in naturally occurring soils or sediments. VOCs were generally detected infrequently and at relatively low concentrations. Only toluene was detected at trace levels in a sample collected adjacent to the Site in Mill Brook near the downgradient edge of the Gallup's plume. This occurrence is believed to be Site related. The primary semi-VOC constituents detected were polyaromatic hydrocarbons (PAHs). The detections of PAH likely reflect non-point contributions from local sources, such as stormwater runoff from the railroad tracks and nearby roads. Elevated concentrations of bis(2-ethyl hexyl)phthalate were measured in Fry Brook (1,300 ppm) and lower Mill Brook (64 ppm), below the confluence of these two streams. The source appears to originate in Fry Brook. Organochlorine pesticide compounds were detected infrequently, with no apparent trend with regard to location or source. Their occurrence likely reflects residues of persistent compounds that were routinely used for insect control before being banned from commercial production.

With respect to wetland soil sampling, a total of 10 wetland soil samples were collected during the field survey, most of which were close to the water table at the time of collection. Similar to sediments, metals analysis indicate no levels in excess of what would be expected in naturally occurring wetland soils. VOCs including acetone, 2-butanone, TCE, and carbon disulfide, were detected infrequently and at low concentrations. While acetone was detected in two remote locations and are considered to be non-Site related detections, it was also detected at moderate concentrations at one location approximately 200 feet southeast of the FPDA, along with low concentrations of 2-butanone. A trace level of TCE was detected in a wetlands soil sample collected approximately 50 feet east of the FPDA. This detection may

be related to the FPDA, since TCE has been detected in this area. Based on the topography, however, surface water runoff from the former disposal area is unlikely to impact the wetland. No other wetland soil samples had concentrations detected above the instrument detection limit.

PAHs were detected infrequently at generally below 0.1 ppm. Phthalate esters were also detected infrequently, ranging from non-detect to 2.2 ppm. The presence of these compounds is likely to be associated with periodic or seasonal flooding of wetlands as the wetland sampling locations are remote and generally inaccessible. Since these compounds are relatively immobile except in surface water or as airborne particulates, these compounds may have originated from non-point sources such as the railroad line or runoff from nearby highways. Trace levels of PCB compounds in wetland soil samples that were detected adjacent to the Site may be Site-related. Other sources of contaminant input into the local environment might include atmospheric deposition, transport from upstream sources and deposition following flood events. Organochlorine pesticide compounds were also detected infrequently, with no apparent trend with regard to location or source, and their occurrence likely reflects residues of persistent compounds that were routinely used for insect control before being banned from commercial production.

F. Air Quality

Ambient air quality was determined prior to the start of the field studies to establish a baseline for air quality. For the baseline survey, air quality in the breathing zone (between approximately three and six feet above the ground surface) was determined based on measurements of total VOC and respirable dust at eight locations across the Site. These eight stations were located at each of the three known former disposal areas and at upwind and downwind locations along the perimeter of the Site. During the baseline survey, no VOCs were detected above the EPA approved action level of 1 ppm at any of the eight monitoring locations. Also, no respirable dust readings greater than the EPA-approved action level were recorded during the baseline survey at any of the monitoring stations.

Based on the baseline and periodic air monitoring performed during the investigation, undisturbed ambient air quality in the vicinity of the Site does not appear to have been impacted by former disposal practices at the Site. To confirm this, compound specific air monitoring was performed during the later stages of the field investigation. Quantitative air monitoring was performed in the vicinity of the Former Primary Disposal Area. Toluene, ethyl benzene, total xylenes, PCE, and PCBs were analyzed for. Data indicate that none of these compounds were detected at any of the air sampling locations for the duration (approximately eight hours) of the sampling event.

A complete discussion of Site characteristics can be found in the RI report in Sections 3 and 4.

G. Ecology

An ecological study was performed to delineate wetlands and to make local observations of the types and abundance of plants and animals in the area. Wetlands delineations were performed to the extreme northern and western boundaries of the Site, up to the Mill Brook channel, using both the State of Connecticut's accepted criteria and the Federal criteria using U.S. Army Corps of Engineer methods. The wetland bordering the southwestern portion of the Site is a white cedar swamp supporting a varying density of trees. Additional hydrophytic plant species identified within this wetland include red maple, common reed, duckweed, jewelweed, cattail, and coast pepper-bush. The swamp is hydraulically connected to the Mill Brook system by a narrow stream. The swamp remains inundated during most years with the possible exception of drought years, and receives water through seepage from surrounding uplands and from surface water runoff.

Adjacent to the cedar swamp is an upland system that supports a sub-climax to near climax hardwood forest. Topography of the upland area includes steep slopes to gently undulating land. Canopy vegetation (trees) are dominated by red, white and chestnut oaks, with white oaks nearer to the wetland area and the red and chestnut oaks occurring on the higher portions of the uplands. Other canopy species include white ash, quaking aspen, hickories and dogwoods. Common understory vegetation included sheep laurel, black cherry, and green briar. North of this upland area is the broad floodplain of Mill Brook which coincides with the northern boundary of the Site. The floodplain is generally flat with many small raised hummocks. This area reflects more seasonal water fluctuations than the cedar swamp and has a more efficient drainage system. As a result, this system supports a higher diversity of hardwood canopy, under story and herbaceous species. Wetlands also occur in the area northeast (upgradient) of the FPDA and FSDA and along the northern border of the Site, east of the railroad bed.

Historical use of the property for quarrying activities are responsible for the character of the plant communities found throughout the study area. The Site has numerous excavated depressional areas, and areas of mounded earth material. The features significantly distinguish the quarried area from the area

off Site to the west, which is undeveloped and relatively undisturbed. The quarry consists of many excavated zones which are devoid of vegetation, with adjacent areas which support a mix of successional pioneer species. Density of vegetation ranges from bare soil to dense brush and sapling sized trees. Areas of highest vegetation density are associated with both low elevation (greatest soil moisture regime) and age (length of time since disturbance).

Trees throughout the quarry are young and small, in comparison with those found in the forested areas west of the railroad. Vegetation on Site is characterized as early successional species. The more common species include black willow, northern bayberry, eastern cotton-wood, quaking aspen, goldenrod, and black cherry.

Few wildlife species were observed or noted during wetland delineation activities. Wildlife activity at the Site was limited during the survey period but should be expected to support a much greater diversity of wildlife during the spring and summer seasons when birds (especially migratory) conduct nesting and rearing activities. Most of the species observed during the survey are expected to overwinter at the study area. Bird species recorded include mourning dove, eastern peewee, tufted titmouse, black-capped chickadee, blue jay, white-breasted nuthatch, gray catbird, American robin and northern cardinal. No endangered species were observed nor are reported to reside at the Site.

VI. SUMMARY OF SITE RISKS

A Human Health and Ecological Risk Assessment (RA) was performed to estimate the probability and magnitude of potential adverse human health and environmental effects from exposure to contaminants associated with the Site. The RA followed a four step process: 1) contaminant identification, which identified those hazardous substances which, given the specifics of the Site were of significant concern ; 2) exposure assessment, which identified actual or potential exposure pathways, characterized the potentially exposed populations, and determined the extent of possible exposure; 3) toxicity assessment, which considered the types and magnitude of adverse health effects associated with exposure to hazardous substances, and 4) risk characterization, which integrated the three earlier steps to summarize the potential and actual risks posed by hazardous substances at the Site, including carcinogenic and non-carcinogenic risks. The results of the human health RA for the Gallup's Quarry Site are discussed below followed by the conclusions of the ecological RA.

Fifty-two contaminants of concern (COC), listed on Table 1 in Appendix A were selected for evaluation in the risk assessment. These contaminants constitute a representative subset of the 95 contaminants identified at the Site during the RI. The fifty-two COCs were selected to represent potential Site related hazards based on toxicity, concentration, frequency of detection, and mobility and persistence in the environment. A summary of the health effects of each of the COCs can be found in Appendix C of the RA report.

Potential human health effects associated with exposure to the COCs were estimated quantitatively or qualitatively through the development of several current or future hypothetical exposure pathways. These pathways were developed to reflect the potential for exposure to hazardous substances based on the present uses, potential future uses, and location of the Site. Future residential development of the Site is considered unlikely because the Site is currently zoned for industrial use by the Town of Plainfield, a large portion of the Site is wetlands, and an active railway runs along the property. However, the Site is known to be utilized by residential trespassers for recreational purposes and therefore current exposures to those individuals were assessed.

Limited future development for commercial/industrial use may occur at the Site. Future Site excavation workers or Site employees may be exposed if the Site is developed or operations at the quarry are resumed. Five potential exposure pathways were quantitatively assessed for the Site. A more thorough description can be found in Chapter 4 of the RA. The following is a brief summary of the exposure pathways evaluated.

Current and future potential exposure to a trespasser from ingestion of and dermal contact with contaminated surface soils was evaluated. This pathway assumes that the trespasser is a youth, aged 9 to 18 years old, and that trespassing occurred over a period of 10 years. The exposure period is 39 days per year (assumes contact for 1 day per week for Spring, Summer, and Autumn). It was also assumed that the trespasser would come into contact with contaminated Site sediments 13 days per year (one day each week during the Summer months), with exposure to the hands, arms, legs and feet during wading activities. Incidental ingestions and dermal contact with surface soils represents the only current exposure pathway evaluated in the baseline risk assessment.

Assuming the Site were developed for commercial/industrial use, a future potential exposure from incidental ingestion of and dermal contact with contaminated surface and subsurface soils by an

excavation worker was evaluated. This pathway assumes that over a period of one year that the excavation worker would be exposed to Site soils for 5 days a week for a total of 3 months.

Future potential exposure to surface soils by a Site employee through ingestion and dermal contact was evaluated. This pathway assumes that the Site employee is exposed to contaminated surface soil 250 days per year for 25 years.

While contaminated ground water at the Site is not currently being ingested, future potential exposure to employees of a hypothetical business from ingestion of groundwater as a drinking water supply was evaluated.

This pathway assumes that a future user of Site groundwater would drink 1 liter of contaminated water for 250 days per year for 25 years.

For exposures to soils and sediments, an average and a reasonable maximum exposure (RME) estimate was generated corresponding to exposure to the arithmetic average and the 95 percent upper confidence limit on the arithmetic average concentration detected in that particular medium. For exposure to groundwater, an average and a reasonable maximum exposure estimate was generated corresponding to exposure to the arithmetic average and the maximum concentration detected in groundwater. Excess lifetime cancer risks were determined for each exposure pathway by multiplying the exposure level with the chemical specific cancer potency factor. Cancer potency factors have been developed by EPA from epidemiological or animal studies to reflect a conservative "upper bound" of the risk posed by potentially carcinogenic compounds. That is, the true risk is unlikely to be greater than the risk predicted. The resulting risk estimates are expressed in scientific notation as a probability (e.g., 1 x 10 -6 or 1/1,000,000) and indicate (using this example), that an average individual is not likely to have greater than a one in a million chance of developing cancer over 70 years as a result of site-related exposure of the compound at the stated concentration. Current EPA practice considers carcinogenic risks to be additive when assessing exposure to a mixture of hazardous substances.

The hazard index (HI) was also calculated for each pathway as EPA's measure of the potential for non-carcinogenic health effects. To calculate the HI for each individual compound the exposure level is divided by the reference dose (RfD) or other suitable benchmark for non-carcinogenic health effects. Reference doses have been developed by EPA to protect sensitive individuals over the course of a lifetime and they reflect a daily exposure level that is likely to be without an appreciable risk of an adverse health effect. RfDs are derived from epidemiological or animal studies and incorporate uncertainty factors to help ensure that adverse health effects will not occur. The HQ is often expressed as a single value (e.g., 0.3) indicating the ratio of the stated exposure as defined to the reference dose value (in this example, the exposure as characterized is approximately one third of an acceptable exposure level for the given compound). The HQ is only considered additive for compounds that have the same or similar toxic endpoint and the sum is referred to as the HI. (For example: the HQ for a compound known to produce liver damage should not be added to a HQ of another compound which has kidney damage as a toxic endpoint).

The results of the Human Health RA indicate that the only risks exceeding EPA's threshold for remedial action (i.e., 1 x 10 -4, OSWER Directive 9355.0.30) are those potentially posed to a future employee. Of the exposure pathways evaluated for a future Site employee, the future potential ingestion of groundwater represents the only pathway exceeding EPA's goals for remedial actions (10 -4 to 10 -6 target cancer risk range). Vinyl chloride in groundwater is the predominant contributor to the unacceptable groundwater cancer risk estimates. This is a future use scenario since no individuals are currently ingesting contaminated groundwater at the Site. For non-carcinogenic hazards, the total Hazard Index for groundwater was estimated at 10 and 4, for the maximum and average detected concentrations, respectively. The primary risk driver is silver, which was detected infrequently and at concentrations above drinking water standards **1**. All other pathways evaluated in the human health risk assessment were within the 10 -4 to 10 -6 target risk range, which is the range considered acceptable by EPA pursuant to the National Contingency Plan (NCP). Table 2 is a summary of the carcinogenic and non-carcinogenic risks for all pathways evaluated.

---

1 There were anomalously high detections of a range of metals, including Silver, in select groundwater samples which is believed to be the result of turbid samples (despite the use of low flow sampling procedures). While this is recognized, the data with the high detection of metals were conservatively utilized.

TABLE 2
RISK SUMMARY

Exposure Pathway	Non-Carcinogenic Hazard Index Avg.	Non-Carcinogenic Hazard Index RME	Carcinogenic Total Risk Avg.	Carcinogenic Total Risk RME
Ground Water Future Ingestion by an employee	4	10	5.0×10^{-4}	2.0×10^{-3}
Surface Soils Current/Future Ingestion and Dermal Contact by a Youth Trespasser	0.06	0.3	1.0×10^{-6}	6.0×10^{-6}
Future Ingestion and Dermal Contact by a Site Employee	0.3	1	6.0×10^{-6}	7.0×10^{-5}
Surface and Subsurface Soil Future Ingestion and Dermal Contact by Excavation Worker	0.6	0.8	4.0×10^{-7}	1.0×10^{-6}
Sediments Future Ingestion and Dermal Contact by a Youth Trespasser	0.002	0.004	4.0×10^{-8}	9.0×10^{-8}

RME = Reasonable Maximum Exposure

An Ecological Risk Assessment was also prepared for the Site. The Ecological RA evaluated the potential ecological impacts from the release of hazardous substances to the environment. The Site is located adjacent to and upgradient of wetlands and a small perennial stream (Mill Brook). These habitats support a variety of ecological receptors which may be exposed to Site-related contaminants. Risk to aquatic receptors was evaluated by comparing mean and maximum surface water and sediment concentrations with appropriate criteria (Ambient Water Quality Criteria (AWQC) for surface water impacts and National Oceanic and Atmospheric Administration (NOAA) effects range low and medium sediment quality criteria for sediment impacts). Risks to receptors inhabiting the Site wetlands were assessed by modeling food chain transfer to selected indicator species (deer mouse, short-tailed shrew, woodcock).

Concentrations (total and dissolved) of aluminum and lead detected in surface water samples collected adjacent to or downgradient of the Site exceeded their respective chronic AWQC indicating that potential adverse effects are possible within Mill Brook. However, upstream concentrations of aluminum and lead exceed levels detected adjacent to and/or downgradient of the Site, indicating an upstream source or regionally elevated levels of these constituents.

Concentrations of various inorganics (particularly chromium, copper and nickel), PAHs and PCBs/pesticides detected in adjacent/downgradient Mill Brook sediment samples exceeded sediment quality guidelines associated with adverse affects to sensitive benthic biota. However, upgradient concentrations of these contaminants are generally similar and also exceed sediment quality guidelines, indicating these constituents are not believed to be Site-related.

Impacts to birds and mammals (herbivores and insectivores) foraging within the adjacent wetlands are not anticipated based on the low concentrations of Site-related contaminants.

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this ROD, may present an imminent and substantial endangerment to public health, welfare or the environment. In particular, the future potential ingestion of contaminated groundwater as a drinking water supply would represent an unacceptable risk to human health.

For a complete explanation of risks posed by contamination at the Gallup's Quarry Site please refer to the RA report dated June 1997.

VII. DEVELOPMENT AND SCREENING OF ALTERNATIVES

A. Statutory Requirements/Response Objectives

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, including: a requirement that EPA select remedial action, when complete, must comply with all federal and more stringent state environmental standards, requirements, criteria or limitations, unless a waiver is invoked; a requirement that EPA select a remedial action that is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and a preference for remedies in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment. Response alternatives were developed to be consistent with these Congressional mandates.

Based on preliminary information relating to types of contaminants, environmental media of concern, and potential exposure pathways, remedial response objectives (RRO's) were developed to aid in the development and screening of alternatives. These RRO's were developed to mitigate existing and future potential threats to public health and the environment.

As discussed above in the summary of potential risks at the Site, surface soils, subsurface soils, sediments and surface water did not pose a human health risk above EPA's acceptable risk range. The only unacceptable risk posed by the Site is the future potential ingestion of contaminated groundwater by a hypothetical Site worker.

Although soils do not pose an exposure risk, contaminants may have the potential to leach from soils into groundwater at levels which may cause exceedences of groundwater remediation goals. To this end, the State of Connecticut has enacted soil Remediation Standard Regulations (RSRs) that consider leaching to groundwater. A review of the Site data shows that some soil concentrations within the FPDA and the Seepage Bed exceed the RSRs. Further discussion of these standards is provided in Section 2.2.3 of the Feasibility Study. Therefore, two response media have been identified for further evaluation: soil and groundwater. Soil refers to soils within the FPDA, and within the Seepage Bed. The following specific Remedial Response Objectives have been identified for each response media:

Source Control (Soil)

- Prevent and/or minimize, to the extent practicable, the potential for leaching of hazardous substances, from the soil or waste into the groundwater, at concentrations that will cause groundwater concentrations greater than the cleanup levels;
- Comply with Federal and state "applicable or relevant and appropriate requirements," or (ARARs).

Management of Migration (Groundwater)

- Prevent ingestion of contaminated groundwater in excess of applicable or relevant and appropriate drinking water standards or posing a potential total cancer risk greater than 10 -4 to 10 -6.
- Prevent ingestion of groundwater containing contaminants at concentrations in excess of applicable or relevant and appropriate drinking water standards for each noncarcinogenic compound and a total Hazard Index greater than unity (1) for non-carcinogenic compounds having the same target endpoint of toxicity.
- Comply with Federal and state ARARs.

B. Technology and Alternative Development and Screening

CERCLA and the NCP set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements, a range of alternatives were developed for the site.

With respect to source control, the RI/FS developed a limited range of alternatives in which treatment that reduces the toxicity, mobility, or volume of the hazardous substances is a principal element. This range included an alternative that removes or destroys hazardous substances to the maximum extent feasible, eliminating or minimizing to the degree possible the need for potential long term management. This range included a limited action alternative that involves no treatment but provides limited

protection through engineering or institutional controls. This range also included a no action alternative.

With respect to groundwater response action, the RI/FS developed a limited number of remedial alternatives that seek to attain site specific cleanup levels using different technologies; and a no action alternative.

As discussed in Section 2 of the Feasibility Study, the RI/FS identified, assessed and screened technologies based on implementability, effectiveness, and cost. These technologies were combined into source control (SC) and management of migration (MM) alternatives. Chapter 3 of the Feasibility Study presented the remedial alternatives developed by combining the technologies identified in the previous screening process with the categories identified in Section 300.430(e)(3) of the NCP. The purpose of the initial screening was to narrow the number of potential remedial actions for further detailed analysis while preserving a range of options. Each alternative was then evaluated and screened in Chapter 3 of the Feasibility Study.

In summary, of the nine source control and six management of migration remedial alternatives screened, seven of the SC alternatives and four of the MM alternatives were retained for detailed analysis. Table 3 in Appendix B of this document identify the alternatives that were retained through the screening process, as well as those that were eliminated from further consideration.

VIII. DESCRIPTION OF ALTERNATIVES

This Section provides a narrative summary of each alternative retained for detailed analysis. A detailed assessment of each alternative can be found in Table 4-1 of the Feasibility Study.

A. Source Control (SC) Alternatives Analyzed

The Source Control alternatives that underwent detailed analysis for the Site include:

Alternative SC-1: No Action
Alternative SC-2: Natural Attenuation with Institutional Controls
Alternative SC-3: Capping of FPDA Soil
Alternative SC-4: On-Site Treatment Via Soil Vapor Extraction
Alternative SC-5: Excavation, Off-Site Treatment/Disposal of FPDA Soils
Alternative SC-5a: Off-Site Treatment Via Low-Temperature Thermal Desorption
Alternative SC-5b: Off-Site Treatment Via Asphalt Batching
Alternative SC-5c: Off-Site Disposal at a Landfill

1. Alternative SC-1: No-Action

This alternative was evaluated in detail in the Feasibility Study to serve as a baseline for comparison with the other remedial alternatives under consideration. Under this alternative, no remedial measures beyond the removal effort performed in 1978 would be conducted to address residual contamination remaining in the former disposal areas. Residual contamination would remain on-Site and no contaminants would be removed, treated or destroyed. However, the risk assessment showed that there are no unacceptable heath or environmental risks associated with potential exposure to soils. Future use of the impacted area is not expected to include residential development primarily because the area is industrially zoned. In addition, the property is not conducive to residential development due to the presence of a shallow water table, wetlands, and active railway.

Under this alternative, COC in the unsaturated soil would migrate to groundwater via rainwater infiltration, and concentrations of COC exceeding the soil remediation standards would remain in the soil. However, natural attenuation processes would continue to reduce the volume, toxicity and mobility of the contaminants, and groundwater effects, at a significant rate. Average concentrations of COCs in soil are expected to be reduced to cleanup levels in approximately 15 years (see Appendix D of the Feasibility Study). The presence of COC in soil does not impact groundwater remediation time frames, as demonstrated by the three-dimensional groundwater model developed for the Site (see Appendix B of the Feasibility Study).

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	NA
ESTIMATED TIME FOR OPERATION:	NA
ESTIMATED CAPITAL COST:	$0
ESTIMATED O & M (Present Worth):	$0
ESTIMATED TOTAL COST (Present Worth):	$0

2. Alternative SC-2: Natural Attenuation with Institutional Controls

Alternative SC-2 builds on Alternative SC-1 by adding institutional controls and access restrictions to control future activities in the vicinity of the FPDA and Seepage Bed, periodic monitoring of unsaturated soils in both these areas to track natural attenuation, and Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures. Under Alternative SC-2, concentrations of COC in the soil would not be addressed through active remedial measures, but would continue to be reduced at a significant rate through natural attenuation processes. The presence of COC in FPDA soils has been demonstrated by the three-dimensional groundwater model not to impact overall groundwater remediation time frames (see Appendix B in the Feasibility Study).

Under this alternative a State environmental land use restriction would be placed on the FPDA and Seepage Bed portions of the Gallup's property to limit use and disturbance of the soils, warning signs would be posted and maintained and periodic sampling and analysis of soils for those constituents that exceed the cleanup levels would be performed. Additionally, Five-Year Site Reviews would be conducted to evaluate the effectiveness and adequacy of remedial measures and to ensure the continued protection of human health and the environment.

As with Alternative SC-1, COC in soil would be allowed to naturally attenuate via rainfall infiltration and groundwater flushing. Similar to SC-1, under this alternative average concentrations of COC in the unsaturated soil are anticipated to be achieved in approximately 15 years.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	4 Months
ESTIMATED TIME FOR OPERATION:	Approximately 15 years
ESTIMATED CAPITAL COST:	$53,500
ESTIMATED O & M (Present Worth):	$75,000
ESTIMATED TOTAL COST (Present Worth):	$129,000

3. Alternative SC-3: Capping of Former Disposal Area Soils

Under this alternative, all soils contaminated above cleanup levels would be covered with a low-permeability cap conforming to Resource Conservation and Recovery Act (RCRA) Subtitle C standards. Contaminated soil would remain on Site, and no contaminants would be removed, treated, or destroyed. The construction of the impermeable cap would limit rainwater infiltration and leaching of COC from the unsaturated zone to groundwater, and therefore slow contaminant migration in the groundwater. COC in the saturated zone would continue to impact groundwater, although natural attenuation processes would continue to reduce the volume, toxicity, and mobility of the COC in the saturated zone. Results of a three-dimensional groundwater model (see Appendix B of the Feasibility Study) have demonstrated that the presence of VOC COC in FPDA soils (either unsaturated or saturated) will not impact groundwater remediation time frames. While there are no unacceptable direct contact risks to residual contamination in the soil, a cap would prevent direct contact with residual soils to lower the existing exposure risks. Alternative SC-3 would contain the following components:

- consolidating soil from the former Seepage Bed that exceed cleanup goals with soil within the FPDA;
- filling of the FPDA depression with clean fill material from an on-Site borrow pit;
- installation of an impermeable cap over the FPDA;
- seeding and mulching of the regraded and capped area;
- construction of drainage swale/stormwater controls to channel surface water around the new capped area;
- institutional controls including deed restrictions would be placed on the FPDA portion of the Gallup's property to limit use and disturbance of the soils;
- construction of a fence around the FPDA and posting of warning signs;
- periodic maintenance, including maintenance and repair of the fence and cap system and access road; and,
- Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures.

Institutional controls, along with fencing and warning signs, would be used to prevent development over the FPDA and damage to the cap. A State environmental land use restriction including deed restrictions would be placed on the land to limit use. A 12-foot high chain-linked fence would be installed around the cap, just outside the perimeter drainage. The fence would include a gate to allow access for maintenance. Warning signs would be posted every 100 feet along the fence. Five-Year Site Reviews would also be performed to confirm the effectiveness and adequacy of measures implemented under Alternative SC-3.

Installation of a cap would reduce the transfer of constituents from soil to the groundwater by reducing the volume of rainwater that infiltrates through the soils. Therefore, COC would remain in the soil for

a longer time period. Although soils containing residual COC beneath the groundwater table would continue to impact groundwater, contaminant reduction rates throughout most of the groundwater plume would not be accelerated beyond natural attenuation rates, as demonstrated by results of three-dimensional groundwater modeling. In fact, the reduction of flushing through the FPDA saturated zone soils may lengthen the remediation time
frame for groundwater.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	18 Months
ESTIMATED TIME FOR OPERATION:	30 years
ESTIMATED CAPITAL COST:	$726,000
ESTIMATED O & M (Present Worth):	$150,000
ESTIMATED TOTAL COST (Present Worth):	$876,000

4. Alternative SC-4a: Excavation, On-Site Treatment of FPDA Soils with Ex-Situ Soil Vapor Extraction (SVE)

This alternative involves excavation of Site soils exceeding cleanup levels and ex-situ treatment using soil vapor extraction (SVE) to remove VOCs. Following the remediation of soil to cleanup levels, as confirmed by sampling and analysis, treated soil would be replaced on Site. This alternative would be effective in treating soil for VOCs only, and would not reduce concentrations of semi-VOCs (i.e., bis(2-ethyl hexyl)phthalate). Semi-VOCs would continue to degrade via natural attenuation as discussed under alternatives SC-1 and SC-2. The following elements would be included under Alternative SC-4a:

- excavation and stockpiling of clean soils overlying the FPDA soils;
- excavation of FPDA soils which exceed remediation standards for VOCs, above the historical average, seasonal low water table;
- excavation of saturated soils below the contaminated zone in the FPDA to an elevation of two feet below the historical average, seasonal low water table;
- sampling and analysis for VOCs of the excavation side walls;
- replacement of the stockpiled clean excavated soils into the excavated area;
- sampling and analysis of excavated contaminated materials for baseline characterization;
- ex-situ SVE treatment of Site soils;
- institutional controls including deed restrictions would be placed on the FPDA portion of the Gallup's property to limit use and disturbance of soils;
- construction of a security fence with posted warning signs around the FPDA and treatment area;
- periodic maintenance, including maintenance and repair of the fence and treatment area, SVE system optimization, and periodic soil and vapor sampling;
- confirmatory sampling and analysis of FPDA soils after treatment;
- returning the treated soils to the FPDA, with regrading;
- Site restoration, including disassembly of the treatment area and fence;
- Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures.

Soils which require treatment would be excavated to two feet below the surveyed elevation of the historical average, seasonal low groundwater table. An estimated 3,750 cubic yards of clean soil, currently located above the areas of soil exceeding Remediation Standards, would be stockpiled during excavation activities. Clean soils would be segregated from soils requiring remediation. Following excavation, the clean, stockpiled soils would be returned to the FPDA in sections as soon as confirmatory sampling were conducted, thereby minimizing the resulting depression during soil treatment activities. The clean soils account for approximately 75 percent of the excavated soils.

The volume of soil requiring excavation for treatment is estimated to be approximately 1,300 cubic yards. Assuming a 10% expansion during removal, approximately 1,430 cubic yards would require treatment. Soils to be treated, including contaminated soils and saturated soils, would be placed within a bermed area that would be underlain by an impermeable liner. Via a sump, water draining from the soils would be collected and disposed off site. A chain link fence with a gate and warning signs would be placed around the soil pile and treatment area.

SVE is a technology that uses air as the carrier to remove VOCs from soil. SVE involves inducing airflow in soil with an applied vacuum, thereby flushing the air in the soil pore spaces, removing contaminants entrained in the air stream. The effluent vapor stream is passed through granular activated carbon (GAC) where the contaminants are transferred from the vapor stream to the carbon. The clean air is then discharged to the atmosphere.

Vacuum extraction would be performed ex-situ in an above-ground soil pile located in a containment area. The soil would be covered with an impermeable plastic liner to prevent air emissions from the soil and to enhance the effectiveness of the treatment. Treatment will be completed when sampling and analysis

indicate that VOC COCs are at or below the cleanup levels. Treated soil would be returned to the FPDA, which would then be regraded.

While the RA indicates that there are no unacceptable human health or environmental risks associated with potential exposure to FPDA soils, excavation and treatment of unsaturated zone soils from the FPDA under Alternative SC-4a would eliminate the potential for direct contact with unsaturated zone soil. Under this alternative VOC COCs would be removed from the FPDA soil, and the migration of VOC COC from the FPDA unsaturated zone soil to groundwater via rainwater infiltration would be essentially eliminated once the remediation is complete. Although the unsaturated zone soils would no longer be a significant source of VOC COC for groundwater once the SVE soil treatment is complete, groundwater modeling has demonstrated that the estimated groundwater remediation time frame would not be impacted by implementation of this alternative and would be the same as that for Alternatives SC-1 and SC-2 (see Appendix B in the Feasibility Study).

Because contaminated materials would remain on Site (i.e., bis(2-ethyl hexyl)phthalate), long-term monitoring and Five-Year Site reviews would be implemented. Additionally, a State environmental land use Restriction would be placed on the FPDA portion of the Site to limit use and disturbance of soils. Data obtained in the monitoring program would be evaluated during Five-Year Reviews, and the need for further remedial actions would be assessed.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	5 Months
ESTIMATED TIME FOR OPERATION:	9 months
ESTIMATED CAPITAL COST:	$1,358,000
ESTIMATED O & M (Present Worth):	$205,000
ESTIMATED TOTAL COST (Present Worth):	$1,600,000

5. Alternative SC-5: Excavation, Off-Site Treatment/Disposal of Soils

Alternative SC-5 involves excavation of Site soils exceeding cleanup levels and transportation off-site for treatment and/or disposal. Treatment/disposal methods include low temperature thermal desorption (LTTD), asphalt batching, or disposal at a licensed waste management facility. The following common elements would be included under Alternative SC-5:

- temporary dewatering and subsequent treatment of extracted groundwater during soils excavation in the FPDA;
- excavation and stockpiling of clean soils currently above the FPDA soils which exceed remediation standards;
- excavation of FPDA impacted soil to two feet below the historical average, seasonal low water table;
- excavation of impacted soil in the FPDA
- sampling and analysis of excavated soil for RCRA characteristics;
- sampling and analysis for VOC and bis(2-ethyl hexyl)phthalate of the excavation side walls;
- replacement of excavated soils with clean fill materials, with regrading;
- transportation of impacted soils for off-Site treatment via Low Temperature Thermal Desorption (SC-5a), or Asphalt Batching (SC-5b), or disposal at a landfill (SC-5c), as described below,
- Five-Year Site Reviews.

Soils requiring treatment in the FPDA will be excavated to two feet below the surveyed elevation of the historical average, seasonal low water table. The soil would need to be dewatered prior to excavation, using a well point system with extracted groundwater treated on-site using GAC. Excavated soils would be loaded into trucks, and transported for treatment and/or disposal. Sampling of excavated soils would be required for treatment/disposal facility acceptance and to determine whether they are RCRA characteristic hazardous wastes. If soils are designated RCRA characteristic hazardous wastes, facilities which accept soils for treatment via asphalt batching would not have the appropriate permits to accept this material. Facilities which accept soils for treatment via LTTD may require special conditions for RCRA characteristic hazardous wastes. Land disposal ban restrictions for hazardous materials would also become pertinent, and may require additional testing or processing prior to disposal.

The volume of soil containing COC above cleanup levels is estimated to be approximately 1,850 cubic yards. With an assumed 10% expansion during removal, the total soil volume requiring treatment would be approximately 2,030 cubic yards (or 3,150 tons). Clean soils will be segregated from the dirty soils using field screening methods and confirmatory sampling and analyses. Clean soils that would need to be excavated are estimated at approximately 3,750 cubic yards. Replacement of the 3,750 cubic yards of clean soil removed from above and between the contaminated soil areas, would be performed utilizing traditional construction equipment. Additional Site restoration would be performed as necessary.

Excavation and treatment of soils under Alternative SC-5 would eliminate the potential for direct contact with unsaturated zone soil. However, according to the Risk Assessment, there are no unacceptable health or environmental risks associated with potential exposure to soils.

The leaching of COC from the unsaturated zone to groundwater through rainwater infiltration would be eliminated under this alternative. COC in the saturated zone would continue to impact groundwater; however, natural attenuation processes would continue to reduce the volume, toxicity, and mobility of the COC, and therefore groundwater effects, at a significant rate. The three-dimensional groundwater model has demonstrated that removal of FPDA soils would not impact groundwater remediation time frames. The need for erosion and sediment controls or other measures to protect wetlands during excavation activities would be assessed during pre-design studies.

Alternative SC-5a: Off-Site Treatment via Low Temperature Thermal Desorption (LTTD)

Under Alternative SC-5a, following excavation of soil exceeding the cleanup levels, the soil would be transported off-Site to a licensed facility for treatment using LTTD. LTTD is a process similar to incineration, except that much lower temperatures are used. Contaminants are stripped or driven off heated soils. The treatment process begins with material sizing via crushing or screening to produce a uniform material which can flow through the treatment mechanism. Miscellaneous debris, unsuitable for treatment via thermal desorption, is separated from the recyclable soil. Temperatures usually range from 2005F to 6005F, which allows contaminants to be volatilized off of the soils without reaching their flash point. Air is blown through the soil as a carrier for the desorbed organic contaminants, then captured and treated. Concentrated streams are then further treated in an afterburner. Remediated soils would be disposed of by the treatment facility. Decontaminated soil retains its physical properties and ability to support biological activity.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	6 Months
ESTIMATED TIME FOR OPERATION:	3 months
ESTIMATED CAPITAL COST:	$2,559,000
ESTIMATED O & M (Present Worth):	$13,500
ESTIMATED TOTAL COST (Present Worth):	$2,572,000

Alternative SC-5b: Off-Site Treatment via Asphalt Batching

Under alternative SC-5b, excavated soil would be transported off Site and treated using Asphalt batching. The treatment process begins with material sizing via crushing or screening to produce a maximum 3-Inch size material. Miscellaneous debris, unsuitable for inclusion in the final paving product, is separated from the recyclable soil. Contaminated soils are then blended with aggregate (if used) and chemically engineered asphalt emulsion. Fixatives are added via a cement silo for heavy metals stabilization and structural integrity, as needed. As soil passes through a series of counter rotating blades in a mill, the emulsion is applied and the asphalt emulsion coated mixture exits the mill and is stockpiled for 72 hours to cure. After curing, the stabilized asphalt material can be used immediately or maintained for later use. Contaminants are chemically and physically bound in the cured asphalt matrix where they are rendered environmentally unavailable. The stabilized asphalt is then available for use as a paving base.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	6 Months
ESTIMATED TIME FOR OPERATION:	3 months
ESTIMATED CAPITAL COST:	$2,573,000
ESTIMATED O & M (Present Worth):	$13,500
ESTIMATED TOTAL COST (Present Worth):	$2,586,000

SC-5c: Off-Site Disposal

Under alternative SC-5c, excavated soil would be transported off Site and disposed of in a licensed waste disposal facility. The excavated soils would be handled as appropriate based on their analysis for RCRA characteristics. If determined to be hazardous, compliance with federal land disposal restrictions would be required, and soils may require additional testing or processing prior to disposal.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	6 Months
ESTIMATED TIME FOR OPERATION:	3 months
ESTIMATED CAPITAL COST:	$2,493,000
ESTIMATED O & M (Present Worth):	$13,500
ESTIMATED TOTAL COST (Present Worth):	$2,507,000

B. Management of Migration (MM) Alternatives Analyzed

Management of Migration (MM) alternatives address contaminants that have migrated from the original source of contamination. At the Gallup's Site, contaminants have migrated from the former disposal areas into groundwater primarily northwest toward Mill Brook. According to the risk assessment, groundwater is the only response media that presents an unacceptable risk to human health. This risk is associated with one scenario; a potential future on-site worker ingesting one liter of groundwater per day, 250 days per year, for 25 years. Vinyl chloride is responsible for the majority of the carcinogenic risk. The MM alternatives evaluated for the Site include the following:

Alternative MM-1: No Action
Alternative MM-2: Natural Attenuation and Institutional Controls
Alternative MM-3: Containment: Groundwater Extraction, Treatment, and Discharge
Alternative MM-4: Remediation: Groundwater Extraction, Treatment, and Discharge

Significant reductions in COC concentrations over time have been observed in the northern portion of the Site from the late 1970's through the 1996 sampling rounds. Evaluation of reductions in COC concentrations with time indicate that natural degradation and dilution by rainwater infiltration are reducing most VOC concentrations (with the exception of vinyl chloride) by about a factor of two every two years. This rapid rate of reduction is also attributable to the success of the source removal actions which took place in 1978. As confirmed by the soil concentration data collected during the RI, only residual VOC soil contamination remains in a relatively thin zone in the FPDA. The levels of VOC contamination in this zone continue to be reduced at a rapid rate due primarily to rainwater infiltration (flushing).

In addition to VOCs, which are responsible for most of the potential risk associated with the potential ingestion of groundwater, bis(2-ethyl hexyl)phthalate and metal COC (lead, chromium and vanadium) have been detected at concentrations which exceed the Interim Groundwater Cleanup Levels (i.e., cleanup levels as described in Section X.A of the ROD). These exceedences have been sporadic, and there is no discernable spatial pattern associated with these four COCs.

1. Alternative MM-1: No Action

This alternative was evaluated in detail in the FS to serve as a baseline for comparison with the other remedial alternatives under consideration. Under this alternative, no remedial measures would be conducted to address residual contamination remaining in the Site groundwater. No institutional controls, beyond the industrial zoning currently in place, would be used to restrict groundwater use and groundwater quality would not be monitored. However, groundwater within and downgradient of the present plume boundaries is not currently used as a drinking water supply. Residual contamination would remain on-Site and no contaminants would be actively removed, treated or destroyed. However, concentrations of COC in the groundwater would continue to be reduced at a significant rate through natural attenuation processes. Natural attenuation is the reduction of contamination levels in the groundwater through dispersion, dilution, transformation (natural chemical breakdown), sorption (bonding of the contaminants to the particles in the soil), and biodegradation (the action of naturally occurring microorganisms that break down the contaminant).

Based on the measured reduction rates in the aquifer since 1980, and three-dimensional groundwater modeling (see Appendix D of the Feasibility Study), vinyl chloride and DCE, the two COC which would take the longest time to remediate, would meet cleanup levels in approximately 27 years. As discussed in Section 5.2.3 of the RI Report, groundwater VOC concentrations immediately downgradient from the former disposal areas reduced by a factor of two or more every two years during the period from 1980 to present. Since 1993, these reduction rates have been higher, with the exception of vinyl chloride, which is being formed by the breakdown of its parent compounds (PCE and TCE). Analyses of these reduction rates indicate that flushing by rainwater infiltration and other degradation processes listed above are likely primarily responsible for the declines in groundwater VOC levels. These high natural reduction rates in VOC concentrations would continue under Alternative MM-1. There would be limited further migration of the plume, since the plume is naturally contained by Mill Brook, as demonstrated by three-dimensional groundwater modeling.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	NA
ESTIMATED TIME FOR OPERATION:	NA
ESTIMATED CAPITAL COST:	$0
ESTIMATED O & M (Present Worth):	$0
ESTIMATED TOTAL COST (Present Worth):	$0

2. Alternative MM-2: Management Controls with Natural Attenuation

Alternative MM-2 builds upon Alternative MM-1 by including institutional controls to limit the use of Site groundwater, long-term monitoring and Five-Year Site Reviews to ascertain the performance of natural attenuation. Under Alternative MM-2, the following measures would be implemented:

- institutional controls, including deed restrictions and a State environmental land use restriction to prevent future use of impacted groundwater until cleanup levels are met;
- long-term monitoring of groundwater and surface water quality to confirm that levels of COC are continuing to decline and ensure the surface water has not been adversely impacted, and
- Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures.

Treatment processes would not be employed under Alternative MM-2 to reduce the toxicity, mobility, and volume (TMV) of COC. However, significant reductions in COC concentrations in groundwater would occur through natural degradation processes described above under alternative MM-1. Since source materials were removed in 1978, considerable reduction in concentrations of VOC COC in groundwater due to flushing and natural degradation have been observed. In addition, COC concentrations in soil within the FPDA are also significantly decreasing, as is their potential to impact groundwater. There would be limited further migration of the plume because the plume is naturally contained by Mill Brook.

Three dimensional groundwater fate and transport modeling developed for the Site (see Appendix B of the FS) estimate that cleanup levels for VOCs will be attained in approximately 27 years. Concentrations of Bis(2-ethyl hexyl)phthalate and metal COC would also be reduced through Natural Attenuation processes. However, it is difficult to estimate reduction rates for these constituents because of their sporadic occurrence and lack of defined plume. Concentration reductions of Bis(2 ethyl hexyl)phthalate and metal COC downgradient of the Site would be tracked as part of a long-term groundwater monitoring program developed for the Site.

Institutional controls including deed restrictions would be placed on all parcels of land impacted by the plume to restrict the use of contaminated groundwater. There are five properties potentially impacted by the groundwater plume. One of these is the Gallup's property. Of the other four, three are independent land owners and one is the Town of Plainfield. Deed restrictions would be maintained until all cleanup levels have been attained for a period of three consecutive years.

A long-term monitoring program would be developed to evaluate the migration of and concentration of the COC at the Site and to ensure compliance with the cleanup levels identified in Section X of the ROD. The long-term monitoring program for this alternative would use the existing monitoring well network and additional wells to be installed downgradient of the current groundwater plume. Groundwater would be sampled from each of the existing and new wells and analyzed for COCs. Surface water would also be sampled and analyzed for COCs at locations along Mill Brook and Fry Brook.

EPA would review the Site every five years after initiation of the remedial action to assure that the remedial action continues to protect human health and the environment.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	3 months
ESTIMATED TIME FOR OPERATION:	Approximately 27 years
ESTIMATED CAPITAL COST:	$272,000
ESTIMATED O & M (Present Worth):	$1,751,000
ESTIMATED TOTAL COST (Present Worth):	$2,023,000

3. Alternative MM-3: Containment via Groundwater Extraction, Treatment and Discharge

Alternative MM-3 builds on Alternatives MM-1 and MM-2 by providing containment of the groundwater VOC plume by extraction of groundwater, with subsequent treatment and discharge to Mill Brook or the local sewage treatment facility. Alternative MM-3 would include the following measures:

- installation of two well clusters, each cluster consisting of three groundwater extraction wells and pumps, extracting groundwater at approximately 100 gallons per minute (gpm);
- installation of a groundwater treatment system, consisting of: air stripping, liquid phase granular activated carbon (GAC) or UV/oxidation, or an equivalent treatment process as determined during the design phase, and pretreatment for metals;
- sampling and analysis of groundwater at the treatment system;
- discharge of groundwater treatment effluent to Mill Brook or to a sewage treatment facility;
- off-Site disposal and/or further treatment or destruction of treatment residuals, if required;

- institutional controls, including deed restrictions placed on impacted properties to prevent use of impacted groundwater until cleanup levels are achieved;
- operation and maintenance of the groundwater treatment system;
- long-term monitoring of groundwater and surface water quality; and
- Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures.

A three-dimensional groundwater model was used to determine the number, location, and pumping rate of extraction wells necessary to prevent further migration of the groundwater plume. To optimize the containment of the plume, it was determined that three wells would be required at each of two pumping locations. To create a sufficient capture zone to intercept upgradient groundwater, the two well clusters would pump at a combined rate of 100 gallons per minute (gpm). A final pumping rate and capture zone would be verified during a pumping test that would be completed as part of the remedial design.

Above-ground treatment of extracted groundwater would involve flow equalization, followed by one of three treatment processes (air stripping, GAC, or UV/oxidation) with discharge to Mill Brook or the local sewage treatment facility (POTW) located adjacent to Fry Brook. The treatment system would be located west of the railroad tracks. A road would be constructed to allow vehicles and utilities to access the facility. Groundwater would be pumped from the wells to the plant for treatment, then discharged from the plant to Mill Brook.

Groundwater would be conveyed from the wells to a flow equalization tank within the plant. The equalization tank serves to provide adequate storage and attenuate fluctuations in flow rates. Groundwater would be pumped from the equalization tanks through two filters which would remove particulates that may clog downstream processes. After flowing through the bag filters, water would be treated by one of the following three options:

Air Stripping

While there are different air stripping methods available, including packed tower air strippers and low-profile tray aerators, a horizontal aerator was evaluated for this Site in the FS. With this system, groundwater enters the horizontal aerator unit where the groundwater travels through a pipe and is exposed to turbulent air throughout its length. The treated water falls through the bottom of the pipe where the air and groundwater make contact, and the VOCs are transferred from the water to an air stream (or vapor phase). The vapors flow out of the pipe through the top where they are collected for further treatment (i.e., vapor phase carbon adsorption). A vapor phase carbon treatment system consisting of three 1,500-pound units would be installed to remove organic vapors.

Granular Activated Carbon

Activated carbon consists of granular carbon that adsorbs organic compounds from the groundwater. The carbon has a large surface area which provides many sites for the adsorption process. GAC is typically contained within a plastic or metal vessel. GAC units are usually arranged in series. When the first unit depletes its adsorptive capacity (i.e., breakthrough occurs), it is removed from service and regenerated to remove the contaminants for further treatment off Site. The last unit is rearranged to become the first unit and is used until it has reached its capacity.

For this alternative, with a flow rate of 100 gpm two 24,000-pound GAC units would be needed to reduce VOC to discharge standards. The actual design may vary based on influent concentrations and pumping rate as determined during the design phase.

UV/Oxidation

UV/oxidation is a destruction technology that utilizes ultraviolet light and an oxidizer (usually hydrogen peroxide) to break the chemical bonds of organic compounds. The UV light breaks down the hydrogen peroxide to form free hydroxyl radicals. These radicals, coupled with the energy from the UV light, break down organic compounds. The end products from the reaction are CO 2 and water.

A typical UV/oxidation unit consists of a metering pump for the hydrogen peroxide, an in-line mixer, and a UV reactor. The hydrogen peroxide is mixed with the contaminated water prior to entering the UV reactor. The UV reactor operates at a high voltage (typically between 1,000 and 3,000 volts) to produce the energy necessary to break the chemical bonds. Depending on the flow rate and influent concentrations, multiple units might be needed. The actual design may vary based on influent concentrations and pumping rate as determined during the design phase.

After treatment by either of the three processes described above, water would now to an effluent holding tank. The tank would act as a reservoir for clean water that may be needed for maintenance of the treatment system (e.g., backwashing, cleaning).

From each of the three remedial technologies discussed above treated water would be pumped to Mill Brook through a discharge pipe. The treated water would meet the substantive requirements of all state and federal discharge limits. Initial and long-term sampling of the treatment system would be required to ascertain efficiency of the system and to ensure that discharge requirements were met.

The majority of the VOC groundwater plume lies on property west of the railroad tracks, which is not owned by the Gallup's estate. To reduce administrative difficulties with the railroad, the treatment building and access road would be located west of the tracks. This eliminates crossing the tracks either for access or utilities. Access agreements with property owners, however, would be required. The treatment building would consist of a concrete slab with a prefabricated shell.

Institutional controls would be used on properties within the plume boundary to limit access to or use of impacted groundwater. Land use restrictions would be placed on each parcel of land to limit use. There are five properties impacted by the plume. One of these is the Gallup's property. Of the other four, three are independent land owners and one is the Town of Plainfield. Several other properties may require institutional controls to prohibit installation of a production well to prevent potential contamination if operation of a production well were to cause the plume to migrate toward the well.

Monitoring at the treatment plant would include influent and effluent water quality analysis to determine efficiency of the treatment system and attainment of discharge requirements as well as compliance with the state discharge permit. Samples would be analyzed for Site COC. Additionally, groundwater samples would be collected from the existing monitoring well network that was installed during the RI field investigation, as well as from new wells that would be installed during the remedial design phase. Samples would be analyzed for each of the COC. Samples would be collected quarterly for the first two years, semi-annually for the next three years, and annually thereafter. The frequency of monitoring would be determined during the remedial design phase.

Five-Year Site Reviews would also be performed to confirm the effectiveness and adequacy of measures implemented under Alternative MM-3.

Three dimensional modeling estimates that concentrations of Site COC would meet the cleanup levels in approximately 22 years. The levels of COC would continue to be reduced at a rapid rate through natural attenuation processes that would be augmented by extraction of the groundwater. Further migration of the VOC plume would be prevented under MM-3. As with Alternatives MM-2 and MM-4, potential human health risks associated with ingestion of impacted groundwater would be addressed through the use of institutional controls until remediation goals were met. Pre-treatment would reduce metal COC concentrations in the extracted groundwater.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	24 months
ESTIMATED TIME FOR OPERATION:	Approximately 22 years

Air Stripping

ESTIMATED CAPITAL COST:	$1,751,000
ESTIMATED O & M (Present Worth):	$7,201,000
ESTIMATED TOTAL COST (Present Worth):	$8,952,000

Granulated Activated Carbon

ESTIMATED CAPITAL COST:	$1,742,000
ESTIMATED O & M (Present Worth):	$19,474,000
ESTIMATED TOTAL COST (Present Worth):	$21,216,000

UV/Oxidation

ESTIMATED CAPITAL COST:	$1,941,000
ESTIMATED O & M (Present Worth):	$8,296,500
ESTIMATED TOTAL COST (Present Worth):	$10,238,000

4. Alternative MM-4: Remediation via Groundwater Extraction, Treatment and Discharge

Alternative MM-4 builds on Alternative MM-3 by providing active remediation of the groundwater plume by extraction of groundwater, with subsequent treatment and discharge to Mill Brook or the POTW. Alternative MM-4 is the most aggressive MM alternative developed for the FS. The only difference between this and the previous alternative (MM-3) is the addition of more extraction wells. Other components of the groundwater treatment system are similar to Alternative MM-3 except that the system would be designed

to treat a higher groundwater flow rate. Alternative MM-4 would include the following measures:

- installation of three well clusters, each cluster consisting of three groundwater extraction wells and pumps, extracting groundwater at combined flow rate of approximately 150 gpm;
- installation of a groundwater treatment system consisting of air stripping, liquid phase GAC or UV/oxidation, or an equivalent treatment process as determined during the design phase, and pre-treatment for metals;
- sampling and analysis of groundwater at the treatment system,
- discharge of groundwater treatment effluent to Mill Brook or the POTW;
- off-site disposal and/or further treatment or destruction of treatment residuals;
- institutional controls, including deed restrictions placed on impacted properties to prevent use of impacted groundwater until cleanup levels are achieved;
- operation and maintenance of the groundwater treatment system;
- long-term monitoring of groundwater and surface water quality; and
- Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures.

For a detailed description of the components listed above please refer to the description of MM-3.

Implementation of a groundwater extraction and treatment system under this alternative would prevent potential further migration of the Site-related VOC plume and reduce the remediation time frame for groundwater relative to the other alternatives. The estimated groundwater remediation time frame for Site VOC COC is approximately 17 years, based on three-dimensional groundwater modeling.

Under Alternative MM-4 (and Alternatives MM-2 and MM-3), potential human health risks associated with ingestion of impacted groundwater would be addressed through the use of institutional controls until cleanup levels are met. Pre-treatment would reduce metal COC concentrations in extracted groundwater.

ESTIMATED TIME FOR DESIGN AND CONSTRUCTION:	24 months
ESTIMATED TIME FOR OPERATION:	Approximately 17 years

Air Stripping

ESTIMATED CAPITAL COST:	$1,932,000
ESTIMATED O & M (Present Worth):	$7,772,000
ESTIMATED TOTAL COST (Present Worth):	$9,704,000

Granulated Activated Carbon

ESTIMATED CAPITAL COST:	$1,968,000
ESTIMATED O & M (Present Worth):	$22,328,000
ESTIMATED TOTAL COST (Present Worth):	$24,296,000

UV/Oxidation

ESTIMATED CAPITAL COST:	$2,147,000
ESTIMATED O & M (Present Worth):	$8,921,000
ESTIMATED TOTAL COST (Present Worth):	$11,068,000

IX. SUMMARY OF THE COMPARATIVE ANALYSIS OF ALTERNATIVES

Section 121(b)(1) of CERCLA presents several factors that, at a minimum, EPA is required to consider in its assessment of alternatives. Building upon these specific statutory mandates, the National Contingency Plan (NCP) articulates nine evaluation criteria to be used in assessing the individual remedial alternatives.

A detailed analysis was performed on the alternatives using the nine evaluation criteria in order to select a site remedy. The following is a summary of the comparison of each alternative's strength and weakness with respect to the nine evaluation criteria. These criteria are summarized as follows:

A. Evaluation Criteria

Threshold Criteria

The two threshold criteria described below must be met in order for the alternatives to be eligible for selection in accordance with the NCP.

1. 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.

2. Compliance with applicable or relevant and appropriate requirements (ARARS) addresses whether or not a remedy will meet all of the ARARs of other Federal and State environmental laws and/or provides grounds for invoking a waiver.

Primary Balancing Criteria

The following five criteria are utilized to compare and evaluate the elements of one alternative to another that meet the threshold criteria.

3. Long-term effectiveness and permanence addresses the criteria that are utilized to assess alternatives for the long-term effectiveness and permanence they afford, along with the degree of certainty that they will prove successful.

4. Reduction of toxicity, mobility, or volume through treatment addresses the degree to which alternatives employ recycling or treatment that reduces toxicity, mobility, or volume, including how treatment is used to address the principal threats posed by the site.

5. 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.

6. Implementability addresses the technical and administrative feasibility of a remedy, including the availability of materials and services needed to implement a particular option.

7. Cost includes estimated capital and Operation Maintenance (O&M) costs, as well as present worth costs.

Modifying Criteria

The modifying criteria are used on the final evaluation of remedial alternatives generally after EPA has received public comment on the RI/FS and Proposed Plan.

8. State acceptance addresses the State's position and key concerns related to the preferred alternative and other alternatives, and the State's comments on ARARs or the proposed use of waivers.

9. Community acceptance addresses the public's general response to the alternatives described in the Proposed Plan and RI/FS report.

A detailed assessment of each alternative according to the nine criteria can be found in Chapter 5 of the Feasibility Study.

Following the detailed analysis of each individual alternative, a comparative analysis, focusing on the relative performance of each alternative against the nine criteria, was conducted. This comparative analysis can be found in Chapter 5 and Plate 5-1 of the Feasibility Study.

The section below presents the nine criteria and a brief narrative summary of the alternatives and the strengths and weaknesses according to the detailed and comparative analysis.

B. Summary of Comparative Analysis

1. Overall Protection of Human Health and the Environment addresses how an alternative as a whole will protect human health and the environment. This includes an assessment of how public health and environmental risks are properly eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls.

All of the alternatives except for the No Action Alternatives provide a similar level of human health protection. According to the RA, there are no unacceptable risks associated with direct contact with soils under current conditions. All of the alternatives except for No Action would rely primarily on institutional controls to prevent ingestion of groundwater until remediation goals are met. Interim Groundwater Cleanup Levels would be attained in approximately 17 to 27 years, with MM-4 being the most aggressive alternative evaluated. Soil cleanup levels would be attained in approximately 9 months to 15 years, with Alternative SC-5 being the most aggressive.

There are currently no unacceptable impacts to wetlands, according to the Risk Assessment. Under alternatives involving excavation and/or construction (Alternatives SC-3, SC-4a and SC-5), there would be potential short-term impacts to wetlands that would need to be controlled through the use of drainage and siltation controls or other wetlands protection procedures. Alternatives including extraction and treatment of groundwater (MM-3 and MM-4) would involve construction and operation of a treatment plant, extraction wells, piping and access roads near wetlands areas. This would require wetlands protection procedures and may require mitigation of wetlands damage. Short-term risks to workers during construction activities under SC-3, SC-4a, SC-5, MM-3 and MM-4 would need to be addressed through appropriate health and safety procedures.

Although some alternatives would involve removal, treatment or isolation of unsaturated zone soils, impacts to groundwater in the vicinity of the FPDA would be similar for all of the alternatives, since COC in the saturated zone would continue to impact groundwater. However, the three-dimensional groundwater model indicates that even removal of all source material would not shorten overall estimated groundwater cleanup times. Capping may actually result in extending groundwater remediation times. Alternatives including groundwater extraction and treatment (MM-3 and MM-4) would prevent further migration of the VOC plume. However, even with no extraction and treatment only limited further migration beyond the present plume boundaries would occur. The three-dimensional groundwater model estimates that the plume is naturally contained by Mill Brook and Fry Brook. COC concentrations would continue to decrease further and groundwater between the present plume boundaries and the furthest projected extent of the plume is not currently, and is not expected to be, used as a drinking water supply. Institutional controls would be implemented to prevent exposure to contaminated groundwater.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) addresses whether or not a remedy complies with all state and federal environmental and public health laws and requirements that apply or are relevant and appropriate to the conditions and cleanup alternatives at a specific Site. If an Applicable or Relevant and Appropriate Requirement (ARAR) cannot be met, the analysis of the alternative must provide the grounds for invoking a statutory waiver (see Table 2-1, 2-2, & 2-3 in the Feasibility Study).

All alternatives, except for the No Action alternative, that include institutional controls which would limit Site use to industrial would be protective of human health and the environment.

According to the risk assessment, there are no unacceptable risks associated with direct contact with soils. Only alternatives including the removal and treatment/disposal of unsaturated zone soils (SC-4a and SC-5) would include treatment to meet most soil cleanup levels associated with impacts to groundwater. Alternative SC-4a would have some effect on the removal of bis(2-ethyl hexyl)phthalate, but the cleanup level for this constituent is unlikely to be achieved through this treatment (it would be achieved through natural attenuation). Although alternatives including SC-4a and SC-5 would remove VOC COC from the unsaturated zone, groundwater remediation time frames would not be reduced by taking these actions. Alternative SC-5 is the only source control alternative that would meet all soil cleanup levels in the short-term.

Groundwater cleanup levels for VOC COC (as described in Section 10.A of this document) would be met under all alternatives, including Natural Attenuation, within approximately 27 years. Alternatives involving extraction and treatment of groundwater (MM-3 and MM-4) would meet VOC COC in a somewhat shorter time period (22 years and 17 years, respectively) than with alternatives MM-1 and MM-2. The period to reduce concentrations of metals and bis(2-ethyl hexyl)phthalate under any of the alternatives has not been calculated due to the difficulties of modeling accurate estimates for these constituents. However, like VOCs, these constituents are affected by natural attenuation processes and are expected to attain cleanup levels over time and would be evaluated during the long-term groundwater monitoring program. Under alternatives MM-3 and MM-4, metals and bis(2-ethyl hexyl)phthalate would be treated in extracted groundwater with pretreatment. Groundwater at the Site is not currently used, and institutional controls would effectively prevent development of the aquifer as a drinking water supply.

3. Long-term Effectiveness and Permanence refers to the ability of an alternative to maintain reliable protection of human health and the environment over time once the remedial action objectives and cleanup levels have been met.

All of the alternatives considered, except for No Action, would result in a similar level of residual risk, since there is no unacceptable risk associated with soil contact. Institutional controls, including deed restrictions to prohibit the use of the contaminated groundwater as a drinking water supply, would prevent the ingestion of impacted groundwater. Institutional controls should perform reliably, since they are consistent with current use and zoning of the Site, and a municipal water supply is available.

With respect to this criterion, the alternatives vary primarily in the degree of groundwater control (other than institutional controls) that they provide. The cap under SC-3, excavation/treatment under SC-4a, and treatment/disposal under SC-5 would prevent rainwater infiltration and leaching of COC from the unsaturated zone soils in the FPDA to groundwater. However, this would not reduce the groundwater remediation time frames as evidenced by modeling. Alternative SC-4a would not address bis(2-ethyl hexyl)phthalate in the Seepage Bed. The cap may in fact extend the time period for groundwater treatment or containment alternatives by reducing rainwater infiltration and groundwater flushing.

Alternatives MM-3 and MM-4 would prevent the migration of the plume beyond its present boundaries. However, only limited migration would occur even without this active control, since the plume is naturally contained by Mill Brook. Groundwater Extraction and Treatment under MM-3 and MM-4 would reduce the groundwater remediation time frames for VOC COC relative to Natural Attenuation (from 27 years to 22 years and 17 years, respectively), but not significantly. Under Natural Attenuation, three-dimensional groundwater modeling indicates that VOC COC levels within the plume would continue to decrease, and would meet cleanup levels in approximately 27 years.

The technologies/measures that would be implemented under any of the alternatives considered have been implemented effectively at other hazardous waste sites, and would therefore perform reliably, although the long-term effectiveness of asphalt batching is unproven.

4. Reduction of Toxicity, Mobility, or Volume (TMV) through Treatment are three principal measures of the overall performance of an alternative. The 1986 amendments to the Superfund statute emphasize that, whenever possible, EPA should select a remedy that uses a treatment process to permanently reduce the level of toxicity of contaminants at the Site, the spread of contaminants away from the source of contamination, and the volume, or amount, of contamination at the Site.

Alternatives including excavation and treatment via on-site Soil Vapor Extraction (SC-4a) and Off-Site treatment of the FPDA soil (SC-5), and/or extraction and treatment of groundwater (MM-3 and MM-4) would reduce TMV through treatment. However, with certain groundwater treatment technologies (air stripping and activated carbon), the toxicity would be transferred to spent carbon treatment residuals which would then require appropriate treatment/disposal. The treatment technologies primarily target removal of VOCs and would be less effective for treating bis(2-ethyl hexyl)phthalate.

If asphalt batching is employed for FPDA soils, the mobility of COC would be reduced through treatment. However, the toxicity would not be reduced, and the volume of soil would be increased by the asphalt additive. The mobility of COC in the unsaturated zone would be reduced through capping under SC-3.

The low temperature thermal desorption process, under SC-5c, would remove approximately 200 pounds of COC from Site soils. Groundwater treatment, under MM-3 (Containment) would remove approximately 303 lbs/year total VOC and generate approximately 37,000 lbs/yr spent carbon with air stripping and 864,000 lbs/yr spent carbon with granular activated carbon (GAC). Under MM-4, groundwater treatment would remove approximately 304 lbs/year total VOC and generate approximately 73,000 lbs/yr spent carbon with air stripping and 1,450,000 lbs/yr spent carbon with GAC. These treatment processes would be irreversible. The large volume of GAC treatment residuals would require special handling procedures and would likely cause significant implementability concerns related to the logistics associated with handling such large quantities of carbon.

5. Short-term Effectiveness refers to the likelihood of adverse impacts on human health or the environment that may be posed during the construction and implementation of an alternative until remedial action objectives and cleanup levels are achieved.

Alternatives SC-1, SC-2, MM-1 and MM-2 would pose the lowest short-term risk to community and workers during implementation, since they would involve minimal activities. Short-term risks to workers during implementation of excavation or construction activities (under SC-3, SC-4a and SC-5) would be minimized by ensuring that workers employ appropriate safety precautions. Short-term risks to the community would be controlled through special precautions, such as dust control measures.

A stormwater/erosion control management study would need to be performed to ensure that impacts to Mill Brook or associated wetlands are avoided or minimized during excavation/construction activities and/or construction of the groundwater treatment facility, extraction wells, piping, and access roads under MM-3 and MM-4.

None of the alternatives would meet remedial response objectives in the short-term, since groundwater cleanup levels would not be met under the most aggressive remediation (MM-4) until approximately 17 years.

6. Implementability refers to the technical and administrative feasibility of an alternative, including the availability of materials and services needed to implement the alternative. Other than No Action, Natural Attenuation with Institutional Controls (SC-2 and MM-2) would be the easiest alternative to implement, since it would only involve institutional controls, monitoring, and Five-Year Site Reviews. Monitoring of the soils, groundwater and surface water could be easily implemented, since a long-term monitoring plan is already in place and can be easily adapted. Institutional controls could be implemented, and would be readily enforceable, since they would be consistent with current use of the Site.

The remaining alternatives, in addition to the above measures, would also include engineering measures to address soils and/or groundwater. For the most part, they employ standard, proven technologies, although the long-term effectiveness of asphalt batching (SC-5b) is unproven.

Alternatives SC-4a, SC-5a and SC-5b would require sampling and laboratory testing of soils to determine the effectiveness of the soil vapor extraction (SVE), low temperature thermal desorption (LTTD) or asphalt batch mix process and to develop design and operational parameters. If analytical results show the soils are a RCRA characteristic hazardous waste, the number of LTTD facilities which are permitted to accept hazardous waste are limited. Asphalt batching would also be precluded, since asphalt batching facilities are not permitted to accept RCRA hazardous waste. Likewise, many asphalt batching facilities are limited in the concentration of halogenated VOCs and semi-VOCs which they are able to accept, or will not accept soils with any halogenated VOCs that originated at a Superfund site, even if they are nonhazardous.

7. Cost includes the capital (up-front) cost of implementing an alternative as well as the cost of operating and maintaining the alternative over the long term, and net present worth of both capital and operation and maintenance costs.

Other than No Action (which would have no cost), Natural Attenuation with Institutional controls for both soil (SC-2) and groundwater (MM-2) would be the least expensive to implement. The present worth cost estimates for SC-2 and MM-2 combined would cost $2,152,000. Costs would be primarily associated with the implementation of institutional controls and long-term monitoring programs, and could vary according to the number of wells sampled, parameters analyzed for, and reporting requirements.

The addition of active source control measures for soils (SC-3, SC-4a or SC-5) to Natural Attenuation with Institutional Controls for groundwater (MM-2) would increase the costs, with cost estimates ranging from approximately $2.9 million to $4.6 million, depending on the type of source control measure included, and the extent to which sampling and analysis is performed under SC-5. Of the source control alternatives evaluated, capping would be the least costly, and excavation and off-site treatment via asphalt batching or low temperature thermal desorption would be the most costly to implement, depending on waste characterization.

The addition of active groundwater extraction and treatment measures (MM-3 or MM-4) to Natural Attenuation with Institutional Controls (SC-2) would increase the present worth cost estimates to a range of approximately $10.4 million to $24.4 million, depending on the number of wells and flow rate, and the method of groundwater treatment employed. The present worth cost of groundwater containment (MM-3), combined with SC-2, is estimated to cost approximately $10.4 million. The present worth cost of groundwater remediation (MM-4) combined with SC-2 is expected to range from $9.8 million to $24.4 million. The median estimate presented in the FS for MM-4 is less than the MM-3 median estimate because groundwater remediation would be completed in less time than groundwater containment.

The most costly alternative to implement at the Site would be Excavation and Off-Site Treatment/Disposal of soils (SC-5) combined with groundwater remediation: Groundwater Extraction, Treatment, and Discharge (MM-4). The median present worth cost associated with this alternative is estimated to range from $12.2 million to $26.9 million.

8. State Acceptance addresses whether, based on its review of the RI/FS and Proposed Plan, the State concurs with, opposes, or has no comment on the alternative EPA has selected as the remedy for the Site.

The Connecticut Department of Environmental Protection (DEP) has been involved in all Site activities to date. The Commissioner of the DEP has provided EPA with a letter of concurrence with the selected remedy. This letter is attached as Appendix C.

9. Community Acceptance addresses whether the public concurs with EPA's Preferred Alternative. Community acceptance of this cleanup proposal will be evaluated based on comments received at the upcoming public meetings and during the public comment period.

As presented in the Responsiveness Summary, attached as Appendix D, the public did not strongly oppose the selected remedy. Three members of the public opposed the selected remedy and were in favor of selecting the most aggressive alternatives considered (i.e., SC-5 and MW-4) as they both had shorter remediation time frames.

EPA considered all of the public comments received and a response to all comments received is presented in the Responsiveness Summary.

X. THE SELECTED REMEDY

The remedy selected to address contamination at the Gallup's Quarry Site is Alternative's SC-2 and MM-2. The selected remedy combines natural attenuation processes to reduce contaminant concentrations at the Site to protective levels with institutional controls to prevent exposure to Site contaminants for both source control and management of migration. This combination of source control and management of migration actions will result in the restoration of the groundwater to drinking water standards within approximately 27 years.

A. Interim Groundwater Cleanup Level

Interim cleanup levels have been established in groundwater for Contaminants of Concern (COC) identified in the RA found to pose an unacceptable risk to either human health or the environment. Interim Groundwater Cleanup Levels have been set based on the ARARs (e,g., as shown on Table 5, Maximum Contaminant Levels (MCLs), and Connecticut Groundwater Protection Criteria). Because the aquifer beneath the Site is classified by the State of Connecticut as a class GA aquifer, which is considered suitable for drinking or other domestic uses without treatment, State Groundwater Remediation Standards (22a-133k-3) are ARARs. The standards include four types of remediation levels. They comprise of surface water protection criteria; volatilization criteria; groundwater protection criteria (GWPC), and background concentrations (see Section 2 of the FS for more detail. Additionally, federal MCLs and non-zero MCLGs established under the Safe Drinking Water Act are ARARs based on the State of Connecticut's determination that the Site groundwater is of "medium" Use and Value **2** (see DEP's August 1997 Groundwater Use and Value Determination).

While these interim cleanup levels are consistent with ARARs or suitable TBC criteria for groundwater, a cumulative risk that could be posed by these compounds may exceed EPA's goals for remedial action due to the risk posed by vinyl chloride at the MCL and Connecticut Groundwater Protection Criteria of 2 parts per billion (see Table 5). Consequently, these levels are considered interim cleanup levels and periodic assessments of the protection afforded by remedial actions will be made as the remedy is being implemented and at the completion of the remedial action. At the time that Interim Groundwater Cleanup Levels identified in the ROD, and newly promulgated ARARs and modified ARARs which call into question the protectiveness of the remedy, have been achieved and have not been exceeded for a period of three consecutive years, a risk assessment shall be performed on the residual groundwater contamination to determine whether the remedial action is protective. This risk assessment of the residual groundwater contamination shall follow EPA procedures and will assess the cumulative carcinogenic and non-carcinogenic risks posed by an individual ingesting groundwater.

The residual risk assessment will include sampling of a sufficient number of Site monitoring wells for VOCs, Semi-VOCs, PCBs/pesticides and metals to determine if constituents not previously identified as cleanup levels represent an unacceptable carcinogenic or non-carcinogenic risk, or exceed federal or state drinking water standards. If, after review of the risk assessment, the remedial action is not determined to be protective by EPA, the remedial action shall continue until either protective levels are achieved, and are not exceeded for a period of three consecutive years, or until the remedy is otherwise deemed protective. These protective residual levels shall constitute the final cleanup levels for this Record of Decision and shall be considered performance standards for this remedial action.

All Interim Groundwater Cleanup Levels identified in the ROD, and newly promulgated ARARs and modified ARARs which call into question the protectiveness of the remedy, and the protective levels determined as a consequence of the risk assessment of residual contamination, must be met at the completion of the remedial action at every point in the Site groundwater. EPA has estimated that these levels will be obtained within approximately 27 years.

---

2 Pursuant to EPA Region I's 1995 Beneficial Reuse Superfund Initiative and the Groundwater Use and Value Determination Guidance (4/96), the responsibility for determining the use and value of groundwater at Region I Superfund Sites is delegated to the State. Their determination, upon agreement by EPA, establishes the Remedial Action Objectives (RAO). Where either a "medium" or "high" determination is made for a site, the groundwater RAO's will include the restoration of contaminated groundwater to drinking water standards and trigger ARARs.

B. Unsaturated Soil Cleanup Level

Based on the RA, no unacceptable human health risk is present from Site soils. The only ARARs for remediation of soils are the newly enacted Connecticut Remediation Standard Regulations (22a-l33k-2)(RSRs). For contaminants in soil, the CT RSR has Direct Exposure Criteria (DEC) and Pollutant Mobility Criteria (PMC). DEC were established to be protective of individuals who may be directly exposed to contaminants in site soils via ingestion or dermal contact. PMC are standards established by the State to prevent the leaching of contaminants in the soil to groundwater at levels in excess of groundwater protection criteria. The PMC vary depending on the groundwater classification for the area where the soils reside. Groundwater beneath the Site has been designated as Class GA and, therefore, GA PMC apply to this Site. Based on the anticipated future use of the Site, the FS has presumed that industrial DEC are applicable. None of the contaminants detected at the Site exceed the industrial DEC. Using the standards and formulas provided in the State's regulations, and the data collected during the RI field investigation it was determined that 6 contaminants at the Site exceed the State PMC. The volume of soil containing VOC COC in excess of the PMC is approximately 770 cubic yards. In addition to the 770 cubic yards containing VOC COC above the PMC, approximately 425 cubic yards of soil may contain bis(2-ethyl hexyl)phthalate in excess of the PMC; approximately 355 cubic yards in the FPDA and 70 cubic yards in the Seepage Bed. In summary, approximately 1,200 cubic yards of soil are estimated to contain COCs in excess of the Soil Cleanup Levels (see Section 2 and Appendix E of the FS).

The Soil Cleanup Levels listed below must be attained at every point throughout the contaminated unsaturated zone in the FPDA and the Seepage Bed. Periodic sampling and analysis for the COC must be performed during the remedial action to determine compliance with the Soil Cleanup Levels. It is estimated that average concentrations of Soil Cleanup Levels will be attained in approximately 15 years.

TABLE 5: INTERIM GROUNDWATER CLEANUP LEVELS

Carcinogenic Contaminants of Concern	Cleanup Level (Ig/l)	Basis	Level of Risk
benzene	1	CT GWPC	4E-07
1,2-dichloroethane	1	CT GWPC	8E-07
1,1-dichloroethene	6	CT Vol. Criteria	4E-05
methylene chloride	5	CT GWPC & EPA MCL	9E-07
tetrachloroethene (PCE)	5	CT GWPC & EPA MCL	5E-06
trichloroethene	5	CT GWPC & EPA MCL	2E-06
vinyl chloride	2	CT GWPC & EPA MCL	2E-03
bis(2-ethyl hexyl) phthalate	2	CT GWPC	2E-06
lead	15	CT GWPC/EPA ACTION LEVEL	NA 1
			Sum 2E-03

Non-Carcinogenic Contaminants of Concern	Cleanup Level(Ig/l)	Basis	Level of Risk
1,1,1-trichloroethane	200	CT GWPC & EPA MCL	NA 2
xylene (total)	530	CT GWPC	3E-03
1,2-dichloroethene	70	CT GWPC	8E-01 3
chromium	50	CT GWPC	NA 2
vanadium	50	CT GWPC	NA 2

1 - While lead is a potential carcinogen, an individual cancer risk was not calculated because an oral slope factor is not available. However, concentrations detected in Site groundwater exceed both State and Federal ARARs

2 - These contaminants were not determined to be a contaminants of concern pursuant to EPA Region I risk assessment policy, therefore no individual non-carcinogenic risks were calculated. However, concentrations detected in Site groundwater exceed both State and Federal ARARs.

3 - The individual risk level provided is for the total of cis-1,2-DCE and trans-1,2-DCE. However, the specific cleanup levels listed above are 70 ppb for cis-1,2-DCE and 100 ppb for trans-1,2-DCE.

TABLE 6: UNSATURATED SOIL CLEANUP LEVELS

Contaminants of Concern	Cleanup Level (Ig/kg)	Basis
ethyl benzene	10.1	CT PMC
tetrachloroethane (PCE)	0.1	CT PMC
trichloroethene	0.1	CT PMC
chloromethane	0.01	CT PMC
bis(2-ethyl hexyl) phthalate	10	CT PMC (FPDA)
	1	CT PMC (SEEPAGE BED) 1
total xylenes	19.5	CT PMC

1 - Pursuant to the CT RS for PMC's, a non-VOC contaminant in a soil located in a GA area may be remediated to the PMC multiplied by 10 provided that it meets certain conditions. One of the conditions is that the water table is at least 15 feet above the surface of bedrock. The water table at the Seepage bed is less than 15 feet from the surface of bedrock and therefore the PMC for bis(2-ethyl hexyl)phthalate at this location cannot be multiplied by 10.

C. Description of Remedial Components

i. Source Control

The selected remedy, SC-2, consists of natural attenuation of contaminants in the FPDA and the Seepage Bed to Soil Cleanup Levels, periodic sampling and analysis of soil, and institutional controls to restrict Site use. The selected source control alternative includes the following major components:

- Institutional controls including a State environmental land use restriction to limit the use and disturbance of the affected portions of the Site (i.e., the FPDA and Former Seepage Bed);
- posting of warning signs;
- periodic maintenance of warning signs and entry gate;
- periodic sampling and analysis of the FPDA unsaturated soils for COCs (VOCs, and bis(2-ethyl hexyl)phthalate) and the Former Seepage Bed unsaturated soils for bis(2-ethyl hexyl)phthalate; and
- Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures.

Under the selected SC alternative, COC in the unsaturated soils would migrate to groundwater via rainwater infiltration, and concentrations of COC exceeding the Connecticut soil remediation standards would remain in the soil. While no remedial measures would be taken beyond the removal action performed by the State in 1978, natural attenuation processes will continue to reduce the volume and toxicity of the COC, and groundwater effects, at a significant rate. VOC COC levels in soil are expected to be reduced to Soil Cleanup Levels in less than 11 years, and average concentrations of bis(2-ethyl hexyl)phthalate is anticipated to be reduced to Soil Cleanup Levels in approximately 15 years (see Appendix D of the FS). The presence of COCs in soil does not impact groundwater remediation time frames, as estimated by the three-dimensional groundwater model (see Appendix B of the FS).

During each Five-Year Site Review, soil at the FPDA and Seepage Bed would be sampled and analyzed to evaluate reductions in contaminant concentrations and compliance with Soil Cleanup Levels. Samples of FPDA unsaturated soils would be analyzed for COCs (VOCs and bis(2-ethyl hexyl)phthalate) and the Seepage Bed unsaturated soils would be analyzed for bis(2-ethyl hexyl)phthalate until all Soil Cleanup Levels are attained. A more comprehensive sampling event and statistical analyses will be performed once the limited sampling program indicates that the cleanup levels have been met to ensure adequate compliance with ARARS (see Table 7).

While residual concentrations of COC will remain on Site, the RA shows that there are no unacceptable heath or environmental risks associated with potential exposure to soils by current/future trespassers and future employees/excavation workers. The Site is currently zoned for industrial/commercial use and is unlikely to be developed for residential use due to the shallow groundwater table, active railway and

presence of wetlands. Institutional controls, including a deed restriction and State environmental land use restriction, will be implemented to limit the use of the affected portions of the Site (i.e., former disposal areas) to commercial/industrial purposes and to prevent disturbance of the soil.

Additional warning signs will be installed at the Site to alert the public of the existence of residual contamination, and periodic maintenance will be performed to ensure the integrity of the signs and of the entrance gate.

Because residual levels of contaminated material will remain on Site, Five year Site Reviews will be conducted to evaluate the effectiveness and adequacy of remedial measures and to ensure the continued protection of human health and the environment. The 1986 CERCLA amendments require that Site conditions be reviewed every five years at NPL sites where wastes remain on site. All data collected during the long-term soil monitoring program will be evaluated in the Five-Year reviews. These reviews will consider all relevant data and determine if additional remedial measures are necessary.

ii. Management of Migration

The selected MM remedy, MM-2, consists of natural attenuation of contaminants in Site groundwater to Interim Groundwater Cleanup Levels, long-term groundwater and surface water monitoring, and institutional controls to prevent the ingestion of contaminated groundwater. The selected MM alternative includes the following major components:

- institutional controls, including deed restrictions and a State environmental land use restriction to prevent future use of impacted groundwater until Interim Groundwater Cleanup Levels are met;
- long-term monitoring of groundwater and surface water quality to confirm that levels of COC are continuing to decline and to ensure the surface water has not been adversely impacted; and
- Five-Year Site Reviews to evaluate the effectiveness and adequacy of remedial measures.

Under this alternative, the levels of COC in groundwater would reduce through natural attenuation processes. Natural attenuation is the reduction of contamination levels in the groundwater through dispersion, dilution, transformation (natural chemical breakdown), sorption (bonding of the contaminants to the particles in the soil), and biodegradation (the action of naturally occurring microorganisms that break down the contaminant). There would be limited further movement of the plume since the plume is naturally contained by Mill Brook. Natural attenuation has been occurring at the Site, and is demonstrated by the significant reductions in groundwater VOC concentration over time that have been observed at the Site from the late 1970's through the recent 1996 sampling rounds. Most VOCs (with the exception of vinyl chloride) concentrations are reducing by approximately a factor of two every two years. Vinyl chloride is expected to take the longest to reach the cleanup levels in the aquifer under natural attenuation because it is the final breakdown product of other chlorinated COC within the plume, and because its biodegradation rate is much slower than that of parent VOCs.

A three dimensional groundwater fate and transport mode has estimated that Interim Groundwater Cleanup Levels for VOCs will be attained in approximately 27 years (see Appendix B of the FS). The remedial times calculated in this model conservatively assumes that there will be no biodegradation of vinyl chloride (concentration reductions would be due to groundwater flushing only). Initial concentrations of vinyl chloride in the plume were developed based on the existing concentration of vinyl chloride plus the additional vinyl chloride which could be formed based on degradation of the DCE present. Graphical simulations of the groundwater VOC plume under natural attenuation showing the extent of the plume for various times from present until the cleanup levels would be achieved are presented in Figures 4-2 through 4-4 of the Feasibility Study.

Concentrations of bis(2-ethyl hexyl)phthalate and metal COC would also be reduced through natural attenuation processes. However, it is difficult to estimate reduction rates for these constituents because of their sporadic occurrence and lack of defined plume. Concentration reductions of Bis(2-ethyl hexyl)phthalate and metal COC downgradient of the Site will be tracked as part of a long-term groundwater monitoring program developed for the Site.

Institutional controls including deed restrictions and a State environmental land use restriction will be placed on all parcels of land impacted by the plume (currently and in the future) to restrict the use of contaminated groundwater. There are five properties potentially impacted by the groundwater plume (see Figure 4-1 in the FS). One of these is the Gallup's property. Of the other four, three are independent land owners and one is the Town of Plainfield. All deed restrictions will be implemented and maintained until the groundwater cleanup levels are met and the remedy is deemed protective of human health and the environment.

A long-term monitoring program will be instituted to evaluate the migration of and concentrations of VOCs, Semi-VOCs, and metals, to ensure compliance with the Interim Groundwater Cleanup Levels and to ensure the remedy remains protective of human health and the environment. During the RI/FS, groundwater was sampled quarterly and surface water was sampled semi-annually. The long-term monitoring program for this alternative will use the existing monitoring well network, with the addition of new monitoring wells located downgradient of the current groundwater plume in areas where the plume is expected to migrate. Groundwater will be sampled from each of the existing and new wells and analyzed for VOCs, Semi-VOCs, and metals. Surface water will also be sampled and analyzed for COCs at locations along Mill Brook and Fry Brook. This sampling program will be implemented until all Interim Cleanup Levels are attained for a period of three consecutive years to ensure compliance with cleanup levels.

Again, to the extent required by law, EPA will review the Site at least once every five years after initiation of the remedial action to assure that the remedial action continues to protect human health and the environment.

The time required to implement MM-2 is estimated to be six months. This is attributed to development of a long-term groundwater monitoring program and negotiating deed restrictions with five property owners.

XI. STATUTORY DETERMINATIONS

The remedial action selected for implementation at the Gallup's Quarry Site is consistent with CERCLA and the NCP. The selected remedy is protective of human health and the environment, will attain ARARs and is cost effective. The selected remedy will return contaminated groundwater to beneficial uses within a time frame that is considered reasonable compared to the other alternatives. The selected remedy does not satisfy the statutory preference for treatment which permanently and significantly reduces the mobility, toxicity or volume of hazardous substances as a principal element. Treatment alternatives for the groundwater were not considered cost effective given the similar extended time periods for attaining cleanup levels for both natural attenuation and the most aggressive groundwater extraction and treatment alternative (i.e., 27 years vs. 17 years for MM-4). Additionally, treatment alternatives for soil were not considered cost effective in the absence of an unacceptable human health and environmental risk from the residual levels of contaminants and because removal of the source would not increase the cleanup times for groundwater under any of the MM alternatives. Both the selected alternatives and those involving treatment would require institutional controls which would equally ensure the necessary protection of human health and the environment until cleanup levels are attained.

A. The Selected Remedy is Protective of Human Health and the Environment

The remedy at the Gallup's Quarry Site will permanently reduce the risks posed to human health and the environment by eliminating, reducing or controlling exposures to human and environmental receptors through natural attenuation and institutional controls; more specifically the selected remedy will provide for the restoration of groundwater in approximately 27 years and of soil in approximately 15 years and prevent unacceptable exposures to human health and the environment through the implementation of institutional controls.

Moreover, the selected remedy will achieve potential human health risk levels that attain the 10 -4 to 10 -6 incremental cancer risk range and a level protective of noncarcinogenic endpoints, and will comply with ARARs and to-be-considered criteria. At the time that Interim Ground Water Cleanup Levels identified in the Record of Decision, and newly promulgated ARARs and modified ARARs which call into question the protectiveness of the remedy, have been achieved and have not been exceeded for a period of three consecutive years, a risk assessment shall be performed on the residual groundwater contamination to determine whether the remedial action is protective. This risk assessment of the residual groundwater contamination shall follow EPA procedures and will assess the cumulative carcinogenic and non-carcinogenic risks posed by occupational ingestion of groundwater. If, after review of the risk assessment, the remedial action is not determined to be protective by EPA, the remedial action shall continue until protective levels are achieved and have not been exceeded for a period of three consecutive years, or until the remedy is otherwise deemed protective. These protective residual levels shall constitute the final cleanup levels for this Record of Decision and shall be considered performance standards for any remedial action.

B. The Selected Remedy Attains ARARs

This remedy will attain all applicable or relevant and appropriate federal and state requirements that apply to the Site. Substantive portions of environmental laws identified as ARARs and those to-be-considered for the selected remedial action include:

- Clean Water Act (CWA)
- Safe Drinking Water Act (MCLs/non-zero MCLGs)
- Federal Executive Order 11990 (Protection of Wetlands)
- Connecticut Groundwater Quality Standards
- Connecticut Standards for Public Drinking Water Quality
- Connecticut Remediation Standard Regulations
- Connecticut Surface Water and Wetlands Regulations
- Resource Conservation and Recovery Act (RCRA)
- Closure/Post Closure Requirements for Hazardous Waste Facilities
- Connecticut Hazardous Waste Management requirements
- Connecticut Control of Noise Regulations
- Connecticut Regulations for the Well Drilling Industry
- Federal Clean Water Regulations governing activities in Wetlands

A more detailed discussion of why these requirements are applicable or relevant and appropriate may be found in Section 4 of the FS Report. The RCRA Land Ban requirements do not apply to the selected remedy as no excavation, placement, or disposal of Land Ban waste will occur as a result of the remedial action.

The following policies, criteria, and guidances will also be considered (TBCs) during the implementation of the remedial action:

- Federal Drinking Water Health Advisories
- Federal Groundwater Protection Strategy
- Federal Groundwater Use and Value Determination

Below is a brief narrative summary of the ARARs and TBCs for the selected remedial action.

CHEMICAL-SPECIFIC ARARS

Chemical-specific ARARs identified for Alternative MM-2 include federal and state Drinking Water Standards, Connecticut Groundwater Quality Standards, Connecticut Groundwater Criteria, and Connecticut Groundwater Remediation Standard Regulations, all of which prescribe numerical standards for the COC. In most cases, the most stringent of these are the Connecticut Groundwater Criteria and site-specific background concentrations for class GA groundwater. Because no remedial action would be employed under this alternative, COC concentrations would exceed State Standards. However, concentrations would continue to decline under natural conditions. Three-dimensional groundwater modeling estimates that groundwater quality standards for vinyl chloride (the VOC COC requiring the longest remediation time frame) would be met in approximately 27 years under this alternative. Institutional controls would effectively prevent development of the aquifer as a drinking water supply. Bis(2-ethyl hexyl)phthalate and metal COC reduction rates are difficult to estimate, but are also expected to naturally attenuate to cleanup levels and will be tracked through long-term monitoring. Connecticut groundwater remediation regulations (RCSA Section 22a-133k-3(d)) provide that groundwater in a GA area may be remediated to chemical specific Groundwater Protection Criteria provided certain conditions exist. EPA and the Connecticut Department of Environmental Protection concur that one of these provisions was not identified by the state in a timely manner and therefore RCSA Section 22a-133k-3(d)(1) is not applicable to this Site and will not be required.

While Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs) promulgated under the federal Safe Drinking Water Act are not applicable to groundwater, they are relevant and appropriate to groundwater cleanup whenever groundwater may be used as a drinking water source. In addition, the NCP requires that usable groundwater be restored to its beneficial uses whenever practicable. See 40 CFR 300.430(a)(iii)(F).

Chemical specific ARARs for SC-2 include Connecticut Soil Remediation Standards. These standards are based on the risk from direct contact and pollutant mobility, and depend on land use or groundwater classification. Alternative SC-2 would not promote immediate compliance with chemical specific ARARs, but would depend on natural attenuation to achieve concentration reductions necessary to meet the Connecticut Remediation Standards over time. Natural attenuation has been demonstrated to effect a significant reduction in contaminant concentrations. It is estimated that VOC COCs will be reduced to below Soil Cleanup Standards in 11 years and that average concentrations of bis(2-ethyl hexyl)phthalate will be met in approximately 15 years.

ACTION SPECIFIC ARARS

Action-specific ARARs identified for Alternative MM-2 include federal and state requirements for groundwater monitoring associated with disposal facilities. These requirements are relevant and appropriate and would be considered in the development of a long-term groundwater monitoring program,

which would address the number of wells, their location and depth, as well as the analytical parameters to be analyzed and frequency of monitoring. These include federal RCRA closure/post-closure requirements at hazardous waste facilities, Connecticut Hazardous Waste Management regulations, Connecticut Surface Water Protection Criteria, and Connecticut Regulations for the Well Drilling Industry. Connecticut's Control of Noise Regulation is applicable with respect to installation of additional groundwater monitoring wells at the Site. These regulations establish allowable noise levels. Additionally, while federal Water Quality Criteria establishes specific pollutant concentrations which are considered to be adequate to protect surface water quality, they have been identified as a relevant and appropriate action specific ARAR because exceedences of these criteria may cause an additional action to be taken at the Site.

Because the selected source control action does not include active treatment involving extraction and treatment of soils, there are no action specific ARARs for source control.

LOCATION SPECIFIC ARARS

The only federal location specific ARARs identified for MM-2 are the Federal Clean Water Regulations, Federal Executive Order 11990 and Federal Executive Order 11988 which govern activities in wetlands and floodplains. These regulations are applicable at the Site because additional groundwater monitoring wells will be installed in wetlands and potential adverse impacts from this activity must be mitigated by utilizing the appropriate procedures. The Federal Groundwater Protection Strategy was identified as a to-be-considered requirement, which identifies groundwater as ecologically vital if the aquifer supports a particularly sensitive ecosystem which, if polluted, would destroy a unique habitat. Another to-be-considered guidance identified for MM-2 is the Federal Groundwater Use and Value Determination. This regional guidance was utilized to evaluate the reasonable use of groundwater at the Site and to identify state and federal Safe Drinking Water standards. Applicable State requirements identified for MM-2 include the Connecticut Aquifer Protection Areas standard, the Connecticut Public Health Code, and the Connecticut Surface Water and Wetlands-Inland Wetlands and Watercourses Regulations. The first two listed above were identified to regulate activities that might occur within a protected aquifer, including restrictions on the installation of water supply wells. The third regulation listed above regulates any operation within a wetland, including the installation of monitoring wells which is a component of the selected remedial action.

Because the selected source control action does not include active treatment involving extraction and treatment of soils, there are no location specific ARARs.

C. The Selected Remedial Action is Cost-Effective

In the Agency's judgment, the selected remedy is cost effective, in that it affords overall effectiveness proportional to its costs. In selecting this remedy, once EPA identified alternatives that are protective of human health and the environment and that attain ARARs, it evaluated the overall effectiveness of each alternative by assessing the next three balancing criteria: long term effectiveness and permanence, reduction in toxicity, mobility, and volume through treatment, and: short term effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs.

The costs of this remedial alternative are:

ESTIMATED TIME FOR OPERATION:	Approximately 27 years
ESTIMATED CAPITAL COST:	$325,500
ESTIMATED O & M (Present Worth):	$1,826,999
ESTIMATED TOTAL COST (Present Worth):	$2,152,000

The selected alternative provides the same level of protection and achieves groundwater restoration in a comparable time frame to SC-3, SC-4, SC-5, MM-3 and MM-4, which costs would range from an estimated $8,952,000 (SC-3 and MM-3) to $26,882,000 ((SC-5b and MM-4). While the selected source control remediation will take significantly more time to meet the Soil Cleanup Levels (e.g., 15 years) than excavation and off-site treatment or disposal (e.g., 9 months), there is no unacceptable direct contact risk from the residual levels and calculations indicate that residual contamination will not impact the groundwater cleanup time frames. The Soil Cleanup Levels identified for this Site are Connecticut Pollutant Mobility Criteria, which are requirements developed to protect the groundwater from further degradation.

D. The Selected Remedy Utilizes Permanent Solutions and Alternative Treatment or Resource Recovery Technologies to the Maximum Extent Practicable

Once the Agency identified those alternatives that attain or, as appropriate, waive ARARs and that are protective of human health and the environment, EPA identified which alternative utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable. This determination was made by deciding which one of the identified alternatives provides the best balance of trade-offs among alternatives in terms of: 1) long-term effectiveness and permanence; 2) reduction of toxicity, mobility or volume through treatment; 3) short-term effectiveness; 4) implementability; and 5) cost. The balancing test emphasized long-term effectiveness and permanence and the reduction of toxicity, mobility and volume through treatment; and considered the preference for treatment as a principal element, the bias against off-site land disposal of untreated waste, and community and state acceptance.

The selected remedy provides the best balance of trade-offs among the alternatives. The selected remedy provides long-term effectiveness and permanence by implementing institutional controls to prevent future exposures to contaminated media. Through natural attenuation of Site contaminants of concern, there will be a permanent reduction in the toxicity and volume of hazardous constituents. While there will be some additional mobility of COC at the Site until Cleanup Levels are attained, calculations indicate that there will be only limited further movement of the Site plume as it is naturally contained by Mill Brook. Additionally, calculations show that further leaching of Site COC from the former disposal areas will not impact groundwater cleanup times. The selected remedy will achieve the restoration of groundwater in approximately 27 years and will achieve the restoration of soil in approximately 15 years. The selected remedy complies with all identified ARARs.

As described above, the selected remedy achieves long-term effectiveness through natural attenuation processes known to be occurring at the Site and with the implementation of institutional controls to prevent unacceptable exposures to human health and the environment. The selected remedy does not include treatment of the groundwater or soil. However, the selected remedy for groundwater will achieve the restoration of the groundwater in a time period comparable with the alternative that included treatment (27 years vs. 17 years for MM-4). While the selected remedy for soil will take a significantly longer time period to attain the cleanup levels, as stated above, there is no unacceptable human exposure to the residual contamination and calculations show that removal of the source area will not impact cleanup time frames for groundwater. The selected remedy provides protection until the remedial response objectives are achieved through natural attenuation and implementation of institutional controls to prevent groundwater use, and long-term monitoring to detect any changes in groundwater flow paths or contaminant distribution. The selected remedy is readily implementable and was the most cost effective of the alternatives evaluated.

The State of Connecticut supports the selected remedy. Public comments were carefully considered in developing the selected remedy and EPA's response is provided in the Responsiveness Summary (Appendix D).

E. The Selected Remedy does not Satisfy the Preference for Treatment Which Permanently and Significantly reduces the Toxicity, Mobility, or Volume of the Hazardous Substances as a Principal Element

The selected remedy does not include treatment which Permanently and significantly reduces the toxicity, mobility or volume of the hazardous substances as a principal element. However, permanent and significant reductions in toxicity and volume will be achieved through natural attenuation processes and contaminated groundwater will be returned to its beneficial uses. While further migration of contaminants are anticipated, data and calculations show that the plume is being naturally contained by Mill Brook and natural attenuation.

XII. DOCUMENTATION OF SIGNIFICANT CHANGES

EPA presented a Proposed Plan (preferred alternative) for remediation of the Site on June 25, 1997. The preferred alternative includes natural attenuation of contaminants of concern in soil and groundwater, implementation of Institutional controls and long-term monitoring of groundwater and soil.

No significant changes from the Proposed Plan have been made to the selected remedy as detailed in this Record of Decision.

XIII. STATE ROLE

The Connecticut Department of Environmental Protection has reviewed the various alternatives and has indicated its support for the selected remedy. The State has also reviewed the Remedial investigation, Human Health and Ecological Risk Assessment, and Feasibility Study to determine if the selected remedy is in compliance with applicable or relevant and appropriate State Environmental laws and regulations. The State of Connecticut concurs with the selected remedy for the Gallup's Quarry Site. A copy of the declaration of concurrence is attached as Appendix C.

APPENDIX A

TABLES

TABLE 1 CONTAMINANTS OF CONCERN - HUMAN HEALTH EVALUATION

VOCs	Ground Water	Surface Soils	Surface/ Subsurface Soils	Site-Related Sediments
1,2-Dichloroethane	X			
1,1-Dichloroethene	X			
1,2-Dichloroethene (total)	X			
1,2-Dichloropropane	X			
Benzene	X			
Carbon tetrachloride	X			
Chloroform	X			
Methylene chloride	X			
Tetrachloroethene	X			
Trichloroethene	X			
Vinyl Chloride	X			
Xylenes (total)	X			
BNAs				
Acenaphthene				X
Acenaphthylene				X
Benzo(a)anthracene				X
Benzo(a)pyrene				X
Benzo(b)fluoranthene				X
Benzo(g,h,i)perylene		X	X	X
Chrysene				X
Benzo(k)fluoranthene				X
Bis(2-ethylhexyl)phthalate	X		X	
Fluoranthene				X
Fluorene				X
Di-n-butylphthalate	X		X	
Di-n-octylphthalate	X			
1,4-Dichlorobenzene	X			
Indeno(1,2,3cd)-pyrene				X
Methylnaphthalene,2-			X	X

TABLE 1 CONTAMINANTS OF CONCERN - HUMAN HEALTH EVALUATION

VOCs	Ground Water	Surface Soils	Surface/ Subsurface Soils	Site-Related Sediments
Naphthalene				X
Phenanthrene	X	X	X	X
PCBs/PEST				
Aroclor 1242	X		X	
Aroclor 1248			X	
Aroclor 1254		X	X	X
Aroclor 1260		X	X	X
alpha-Chlordane				X
Dieldrin		X	X	
4,4'-DDD				X
4,4'-DDE				X
4,4'-DDT				X
Endosulfan sulfate				X
Endrin ketone				X
Inorganics				
Aluminum				X
Antimony				X
Arsenic	X	X	X	X
Beryllium	X	X	X	X
Cyanide		X	X	
Iron	X	X	X	X
Lead	X	X	X	X
Manganese	X			X
Silver	X			
Thallium			X	
Zinc	X			

TABLE 3
PRELIMINARY SCREENING OF REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Alternative	Description	Effectiveness	Implementability	Cost	Status
		Source Control			
SC1	No Action	There would be no reduction in COCs through treatment, although COCs would continue to decrease via soil flushing.	Readily implemented; no permits would be required.	$0	Retained: Required by NCP; COCs would decrease under natural attenuation.
SC2	Management Controls with Natural Attenuation	Same as SC1, with institutional controls to restrict current and future site use and periodic soil sampling and analysis.	Readily implemented; periodic maintenance and 5-year site reviews would be conducted.	$ 120,000 to $ 140,000	Retained: Readily implemented and effectively limits potential exposure to COCs.
SC3	Capping	Same as SC2, installation of a cap would reduce rainwater infiltration through residual COCs in FPDA only.	Large volume of clean fill and regrading of FPDA would be required prior to installation of cap; construction permits for fence and capping would be required; periodic maintenance and 5-year site reviews would be conducted.	$ 810,000 to $ 940,000	Retained: Effective in minimizing impact of COC in the FPDA unsaturated soils on groundwater.
SC4a	On-Site, Ex-situ Treatment via Soil Vapor Extraction	VOCs would be reduced but treatment residuals would require disposal. Would be less effective in treating DEHP.	Shallow water table would necessitate excavation of soils prior to on-site treatment. Permitting would be required for construction activities, air emissions and wastewater discharges; periodic maintenance and 5-year site reviews would be conducted.	$ 1,400,000 to $ 2,700,000	Retained: Effective in remediating VOC COC in unsaturated soils.

Note: Alternatives retained for detailed analysis are highlighted in bold.

TABLE 3
PRELIMINARY SCREENING OF REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Alternative	Description	Effectiveness	Implementability	Cost	Status
		Source Control			
SC4b	On-site, Ex-situ Treatment via Low-Temperature Thermal Desorption	VOC COCs would be destroyed by LTTD. Volume requiring treatment is normally the volume required for pilot testing.	Permitting would be required for construction activities, air emissions and wastewater discharges; periodic maintenance and 5-year site reviews would be conducted.	$ 3,500,000	Not Retained: Small volume of soils requiring treatment would make equipment mobilization and associated permitting costs prohibitive.
SC4c	On-site, Ex-situ Treatment via Asphalt Batching	Mobility of COCs would be reduced, but would not be rendered less toxic or reduced in volume.	Permitting would be required for construction activities, air emissions and wastewater discharges; stabilized material would remain on-site as road base, significantly restricting future site use; periodic maintenance and 5-year site reviews would be conducted.	$ 2,300,000	Not Retained: Does not reduce the toxicity or volume of COCs on-site. Small volume of soils requiring treatment would make equipment mobilization and associated permitting costs prohibitive.
SC5a	Off-site Treatment via Low-Temperature Thermal Desorption	COCs would be removed and ultimately destroyed by LTTD. Dewatering activities would require treatment of wastewater.	Sampling and laboratory testing would be required to determine the effectiveness of LTTD. Excavation, materials handling, and dewatering activities could be readily implemented; 5-year site reviews would be conducted.	$ 2,100,000 to $ 3,400,000	Retained: Effectively treats VOC by reducing TMV.
SC5b	Off-site Treatment via Asphalt Batching	COCs would be removed from Site, but would not be rendered less toxic or reduced in volume; long-term effectiveness of asphalt batching is unproven. Dewatering activities would require treatment of wastewater.	Sampling and laboratory testing would be required to determine the effectiveness of asphalt-batching. Excavation, materials handling, and dewatering activities could be readily implemented; 5-year site reviews would be conducted. conducted.	$ 2,000,000 to $ 3,500,000	Retained: Effective in removing COC from the site.

Note: Alternatives retained for detailed analysis are highlighted in bold.

TABLE 3
PRELIMINARY SCREENING OF REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Alternative	Description	Effectiveness	Implementability	Cost	Status
		Source Control			
Sc5c	Off-site Disposal	COCs would be removed from the Site, but would not be would not be rendered less toxic or reduced in volume. Dewatering activities would require treatment of wastewater.	Sampling and laboratory testing would be required to determine if it is a hazardous wage prior to disposal. Excavation, materials handling, and dewatering activities could be readily Implemented; 5-year site reviews would be conducted.	$2,000,000 to $3,400,000	Retained: Effective in removing COC from the site.
		Management of Migration			
MM1	No Action	There would be no reduction in COCs through treatment, although COCs would continue to decrease via natural degradation processes and dilution.	Readily Implemented; no permits would be required.	$0	Retained: Required by NCP; COCs would decrease under natural attenuation.
MM2	Management Controls with Natural Attenuation	Same as MM1.	Readily implemented; institutional controls would prevent use of impacted groundwater, long-term monitoring would confirm that levels of COCs are continuing to decline, and 5-year site reviews would be conducted.	$1,900,000 to $2,100,000	Retained: COCs would continue to decrease under natural attenuation.
MM3	Containment: Groundwater Extraction, Treatment and Discharge	COCs would continue to decrease via natural degradation processes; containment would prevent potential further migration of Site-related COCS.	Moderately difficult to Implement; permitting and exemption from wetland regulations would be required; access roads and treatment building would need to be constructed; discharge permits would be required; institutional controls, long-term monitoring and 5-year site reviews would be conducted.	$8,300,000 to $28,800,000	Retained: Effective in removing Vocs.

Note: Alternatives retained for detailed analysis are highlighted in bold.

TABLE 3
PRELIMINARY SCREENING OF REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Alternative	Description	Effectiveness	Implementability	Cost	Status
		Source Control			
MM4	Remediation: Groundwater Extraction, Treatment and Discharge	COCs would be extracted from groundwater and potential further migration of COCs would be prevented; COCs would only be destroyed if UV-oxdation were used, air stripping and activated carbon would transfer COCs to treatment residual requiring disposal. Pretreatment would reduce metals in extracted groundwater.	Moderately difficult to implement; permitting and exemption from wetland regulations would be required; access roads and treatment building would need to be constructed; discharge permits would be required; institutional controls, long-term monitoring and 5-year site reviews would be conducted.	$8,100,000 to $34,400,000	Retained: Effective in Removing Vocs.
MM5	Groundwater Containment Using a Permeable Reaction Wall	COCs would continue to decrease via natural degradation processes; containment would prevent potential further migration of Site-related COCs.	Difficult to implement; deeper walls are more expensive to excavate and fill with reactive material; potentially significant impacts to wetlands during construction; permitting and exemption from wetland regulations would be required; access roads would need to be constructed; institutional controls, long-term monitoring and 5-year site reviews would be conducted.	$8,100,000	Not Retained: Difficult to implement in wetland area; potential construction problems with installing walls deeper than 30-40 feet below the surface; would not significantly reduce groundwater remediation time frames.
MM6	Enhanced In-Situ Biodegradation	Organic COCs would be effectively tested, although it would be difficult to ensure that an adequate supply of nutrients would reach microorganisms because of preferential flow paths in heterogeneous aquifers.	Moderately difficult to implement; permitting and exemption from wetland regulations would be required; access roads and treatment unit would need to be constructed; institutional controls, long-term monitoring and 5-year site reviews would be conducted.	$10,600,000	Not Retained: Technology is still being developed; difficult to regulate in a heterogeneous aquifer.

Note: Alternatives retained for detailed analysis are highlighted in bold.

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	SC1: No Action	SC2: Management Controls with Natural Attenuation	SC3: Capping	SC4a: On-site Treatment via Ex-situ Soil Vapor Extraction	SC5: Excavation, Offsite Treatment/Disposal		
					SC5a: Low-Temperature Thermal Desorption	SC5b: Asphalt Batching	SC5c: Disposal
Major Components	No remedial measures would be taken.	State environmental land use restriction would be placed on affected portion of the property to limit use and disturbance of soils. Posting of warning signs. Periodic maintenance. Periodic sampling and analysis of unsaturated soils in FPDA for VOC and DEHP, and in Former Seepage Bed for DEHP, Five year site reviews.	State environmental land use restriction would be placed on affected portion of the property to limit use and disturbance of soils. Filling of FPDA depression with clean fill. Installation of impermeable cap over the FPDA. Seeding and mulching of the regraded and capped area. Construction fo drainage controls around capped area. Construction of a fence and posting of warning signs around FPDA. Periodic maintenance. Five year site reviews.	State environmental land use restriction would be placed on affected portion of the property to limit use and disturbance of soils. Installation of security fence and warning signs around FPDA. Ambient air monitoring around excavation area. Excavation of FPDA soils. Sidewall sampling to confirm COC Extent. Replacement of excavated soils or new fill into depression. Collection and treatment/disposal of groundwater drainage from soil pile. Ex-situ treatment of FPDA soils via soil vapor extraction. Sampling and analysis of treated soil for COCs. Replacement of treated soils to FPDA. Site restoration and regrading. Five year site reviews.	Temporary dewatering and subsequent treatment of extracted groundwater during soils excavation. Ambient air monitoring around excavation area. Excavation and stockpiling of clean soils currently above the FPDA soils which exceed remediation standards. Sampling and analysis for RCRA characteristics. Replacement of excavated soils with clean fill materials, with regarding. Transportation of FPDA soils for off-site treatment via low temperature thermal desorption. Sidewall sampling to confirm COC Extent. Five year site reviews.	Temporary dewatering and subsequent treatment of extracted groundwater during soils excavation. Ambient air monitoring around around excavation area. Excavation and stockpiling of of clean soils currently above the FPDA soils which exceed remediation standards. Sampling ana analysis for RCRA characteristics. Replacement of excavated soils with clean fill materials, with regarding. Transportation of FPDA soils soils for off-site treatment via asphalt batching. Sidewall sampling to confirm COC Extent. Five year site reviews.	Temporary dewatering and and subsequent treatment of extracted groundwater during soils excavation. Ambient air monitoring around excavation area. Excavation and stockpiling of clean soils currently above the FPDA soils which exceed remediation standards. Sampling and analysis for RCRA characteristics. Replacement of excavated soils with clean fill materials, with regarding. Transportation of FPDA soils for off-site disposal at a landfill. Sidewall sampling to confirm COC Extent. Five year site reviews.

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	SC1: No Action	SC2: Management Controls with Natural Attenuation	SC3: Capping	SC4a: On-site Treatment via Ex-situ Soil Vapor Extraction	SC5: Excavation, Offsite Treatment/Disposal		
					SC5a: Low-Temperature Thermal Desorption	SC5b: Asphalt Batching	SC5c: Disposal
Overall Protection of Human Health and the Environment	No unacceptable human health risk associated with soil contact. Future use is not expected to include residential development. COCs in unsaturated zone would migrate to groundwater; but natural attenuation process would continue to reduce the volume, toxicity and mobility of COC. Presence of COCs in soil has no impact on groundwater remediation time frames. There would be no impacts on wetlands.	Same as SC1, except that institutional controls would effectively prevent contact with FPDA soil until remediation goals are met. Soil quality would be monitored.	Potential for direct contact with soil would be restricted but there are no unacceptable risks associated with exposure to soils. Stormwater/erosion control study would help minimize impacts to Mill Brook and wetlands during and after cap construction. Leaching of COC to groundwater would be reduced by cap but COC in saturated zone would continue to impact groundwater.	Potential direct contact with soil would be eliminated, for VOCs, but there are no unacceptable risks associated with exposure to soils. Migration of COC in unsaturated soils to groundwater would be eliminated but residual contamination in saturated soils would continue to impact groundwater. Implementation of remedy would have little overall groundwater remediation time frame.	Same as SC4a.	Same as SC4a.	Same as SC4a.

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	SC1: No Action	SC2: Management Controls with Natural Attenuation	SC3: Capping	SC4a: On-site Treatment via Ex-situ Soil Vapor Extraction	SC5: Excavation, Offsite Treatment/Disposal		
					SC5a: Low-Temperature Thermal Desorption	SC5b: Asphalt Batching	SC5c: Disposal
Compliance with ARARs	Would not achieve immediate compliance with chemical-specific ARARs, but would depend on natural attenuation to achieve COC reductions to meet CT Remediation Standards. Would meet most soil ARARs in approximately 11 years. DEHP would be expected to require a longer time to meet ARARs (2-20 years on average). No action-specific or location-specific ARARs were identified.	Same as SC1.	Would not meet chemical specific ARARs because COCs above CT standards would remain in soils. Would increase time required to achieve ARARs by reducing infiltration and resultant flushing. Federal RCRA and State Solid Waste requirements would apply, as would Control of Noise Regulations. No applicable location-specific ARARs unless impacted area is located within 100 feet of wetlands.	Compliance with most chemical-specific ARARs would be met for all COCs except DEHP. Action-specific ARARs include RCRA land ban restrictions, State Control of Noise Regulations, Air Pollution Regulations and Gudelines for Soil Erosion and Sediment Control. No location-specific ARARS have been identified. Federal and State Hazardous Waste Regulations would apply if soils are determined to be RCRA characteristic.	Would meet all chemical-specific soil ARARs in short term. Action-specific ARARs include Federal NPDES Regs., Federal RCRA standards, State Control of Noise Regs., Air Pollution Regs., Water Pollution Control Regs., Well Drilling and Well Permitting Regs., Water Diversion Policy and Guidelines for Soil Erosion and Sediment Control, Federal and State transportation reqs. Treatment/Disposal facility would need to have appropriate permits. Federal and State Hazardous Waste Regulations and transportation would apply if soils are determined to be RCRA characteristic. No location-specific ARARs were identified.	Same as SC5a.	Same as SC5a.

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	SC1: No Action	SC2: Management Controls with Natural Attenuation	SC3: Capping	SC4: On-site Treatment via Ex-situ Soil Vapor Extraction	SC5: Excavation, Offsite Treatment/Disposal		
					SC5a: Low-Temperature Thermal Desorption	SC5b: Asphalt Batching	SC5c: Disposal
Reduction of Toxicity, Mobility, or Volume	No reduction in TMV through treatment, since no treatment would be employed. No treatment residuals would be generated.	Same as SC1.	Same as SC1.	TMV of VOCs in excavated soils would be reduced; however toxicity may be transferred to treatment residuals, which would require disposal. Reduction in concentrations of COC in unexcavated soil would occur through infiltration, bioactivity, and groundwater flushing.	Would be reduction in TMV through excavation and soil treatment, total mass of COCs destroyed would be approximately 50 lbs. 85-95% reduction of COCs is typical. COC in unexcavated soils would reduce through infiltration, bioactivity and groundwater flushing.	Reduction in mobility, but not toxicity; toxicity transported off-site. Increase in volume through treatment of COCs in excavated soil. Treatment should be permanent, but long-term effectiveness data are not yet available. COC in unexcavated soils would reduce through infiltration, bioactivity and groundwater flushing.	No reduction in TMV through treatment, toxicity in soil transported off-site to secure facility. COC in excavated soils would reduce through infiltration, bioactivity and groundwater flushing.
Short-Term Effectiveness	No short term risk to community and workers or environmental impacts during remedial actions associated with implementation. Would not achieve remedial response objectives in the short-term, since CT Remediation Standards would not be met.	Same as SC1.	Potential short-term risks during construction minimized through adherence to health and safety plan and sedimentation and erosion controls. Infiltration of precipitation into soil would be eliminated immediately upon construction of cap, but this alternative would not achieve remedial response objectives in short-term, since CT Remediation Standards would not be met.	Potential short-term risks during installation and operation would be minimized through adherence to health and safety plan, monitoring, use of dust control procedures, and erosion control procedures. Soil remedial response objectives for VOCs would be achieved upon completion of remedy. DEHP would continue to decline via natural attenuation.	Soil remedial response objectiveness would be achieved upon completion of remedy.	Same as SC5a.	Same as SC5a.

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	SC1: No Action	SC2: Management Controls with Natural Attenuation	SC3: Capping	SC4a: On-site Treatment via Ex-situ Soil Vapor Extraction	SC5: Excavation, Offsite Treatment/Disposal		
					SC5a: Low-Temperature Thermal Desorption	SC5b: Asphalt Batching	SC5c: Disposal
Long-Term Effectiveness and permanence	No direct engineering or institutional controls would be implemented, but there are no unacceptable health or environmental risks. COCs in soils would continue to decline via natural attenuation. Groundwater plume would Continue to migrate, regardless of the presence of COC in soils.	Same as SC1, except that institutional controls would be effective in the long-term in preventing contact with FPDA soil. Effectiveness would be assessed through periodic sampling and analysis.	COC would remain in FPDA soils for longer period than with other alternatives Reduction in flushing may lengthen groundwater remediation time frame. Long-term effectiveness would depend upon potential penetration of cover system. Effectiveness of remedy would be assessed during Five Year Site Reviews.	TMV of VOCs in soils would be reduced; however toxicity may be transferred to treatment residuals, which would require disposal. Long-term effectiveness in treating VOC with SVE is proven; SVE is EPA's presumptive remedy for VOC-contaminated soils; would be considerably less effective for DEHP. VOC migration from unsaturated soils eliminated. DEHP would continue to decline via natural altenuation. Overall groundwater remediation time frame would not be reduced.	Migration of COC from unsaturated zone soil would be eliminated. Long-term effectiveness is proven, wastes are permanently destroyed. Overall groundwater remediation time frame not be reduced.	Migration of COC from unsaturated zone soil would be be eliminated. Degree of stabilization success is dependent on site-specific conditions. Relatively new recycling process, long-term effectiveness is unproven. Overall groundwater remediation time frame would not be reduced.	Migration of COC from unsaturated zone soil would be eliminated. Landfill disposal will permanently remove COCs from Site but will not destroy them; COC transported to another location. Overall groundwater remediation time frame would not be reduced.

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	SC1: No Action	SC2: Management Controls with Natural Attenuation	SC3: Capping	SC4a: On-site Treatment via Ex-situ Soil Vapor Extraction	SC5: Excavation, Offsite Treatment/Disposal		
					SC5a: Low-Temperature Thermal Desorption	SC5b: Asphalt Batching	SC5c: Disposal
Implementability	Easily implemented. Effectiveness of natural attenuation processes would not be monitored. Would not obstruct additional remedial actions, if necessary, although unrestricted future development could make some remedial measures more difficult to implement.	Readily implemented. effective in the long-term in implemented and are readily enforceable. Periodic maintenance and repair of warning signs would be easily accomplished. Effectiveness and adequacy of measures would be assessed during periodic monitoring and five-year site reviews.	Uses standard and proven technologies. Physical hazard risks for on-site workers would be minimized by employing appropriate safety precautions. Increase in truck traffic and noise during construction Large volume of clean fill would be required to filled existing depression. Periodic inspections and maintenance would be necessary to ensure integrity of cap. Effectiveness would be assessed during periodic monitoring and five-year site reviews.	Uses standard equipment and proven technologies. Physical hazard risks for on-site workers would be minimized by employing appropriate safety precautions. Increase in truck traffic and noise during excavation. Vapor extraction and treatment system are readily available. Excavated soils would need to comply with RCRA land-ban restrictions. Effectiveness of system would be assessed through sampling and analysis.	Uses standard equipment, and proven technologies. Physical hazard risks for on-site workers would be minimized by employing appropriate safety precautions. Increase in truck traffic and associated noise during excavation and removal.	Uses standard equipment, but not a proven technology. Not implementable for RCRA characteristic soils. Vendor availability Physical hazard risks for on-site workers would be minimized by employing appropriate safety precautions. Increase in truck traffic and associated noise during excavation and removal.	Uses standard equipment, and proven technologies. Physical hazard risks for on-site workers would be minimized by employing appropriate safety precautions. Increase in truck traffic and associated noise during excavation and removal.
Cost (present worth)	$0	$120,000 - $140,000	$810,000 - $940,000	$1,400,000 - $2,700,000	$2,100,000 - $3,400,000	$2,000,000 - $3,500,000	$2,000,000 - $3,400,000

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	MM1: No Action	MM2: Management Controls with Natural Attenuation	MM3: Containment, Groundwater Extraction, Treatment, and Discharge	MM4: Remediation, Groundwater Extraction, Treatment, and Discharge
Major Components	No remedial actions would be taken.	Institutional controls, including a State environmental land use restriction to prevent use of impacted groundwater during future development until remediation goals are met. Long term monitoring of groundwater and surface water quality. Five year site reviews.	Same as MM2, with: Installation of two well clusters, each cluster consisting of 3 extraction wells and pumps, extracting groundwater at approximately 100 gpm. Installation of groundwater treatment system, consisting of air stripping, liquid phase granular activated carbon (GAC) or UV/oxidation, and pretreatment for metals. Sampling and analysis of treatment effluent. Discharge of treatment effluent to Mill Brook or the POTW. Off-site disposal and/or further treatment or destruction of treatment residuals, if required; Operation and maintenance of groundwater treatment system.	Same as MM2, with: Installation of three well clusters, each cluster consisting of 3 extraction wells and pumps, extracting groundwater at approximately 150 gpm. Installation of groundwater treatment system, consisting of air stripping, liquid phase granular activated carbon (GAC) or UV/oxidation, and pretreatment for metals. Discharge of treatment effluent to Mill Brook or the POTW. Off-site disposal and/or further treatment or destruction of treatment residuals, if required. Sampling and analysis of groundwater at the treatment system. Operation and maintenance of groundwater treatment system.

TABLE 4
SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	MM1: No Action	MM2: Management Controls with Natural Attenuation	MM3: Containment, Groundwater Extraction, Treatment, and Discharge	MM4: Remediation, Groundwater Extraction, Treatment, and Discharge
Overall protection of Human Health and the Environment	COC in groundwater would continue to reduce at a significant rate (metal COC and DEHP may be slower) through natural attenuation, but would remain in groundwater for approximately 27 years. Some potential of ingestion of groundwater by industrial worker, since zoning does not prohibit use. Source Control measures, if implemented, would not impact groundwater remediation time frame. Wetlands would not be impacted.	COC in groundwater would continue to reduce at a significant rate (metal COC and DEHP may be slower) through natural attenuation, but would remain in groundwater would be approximately 27 years. Ingestion, of groundwater would be prevented by institutional controls until remdiation goals are met. Source Control measures, if implemented, would not impact groundwater remediation time frame. Wetlands would not be impacted. Groundwater and surface water quality would be monitored.	VOC COC would meet ARARs in approximately 22 years, metal COC and DEHP may take longer but are difficult to predict; further migration of the plume would be prevented. Ingestion of groundwater would be prevented by institutional controls until remediation goals are met. Source Control measures, if implemented, would not impact groundwater remediation time frame. Wetlands study would help minimize potential impacts from groundwater extraction. Groundwater land surface water would be monitored.	Sames as MM3.

TABLE 4

SUMMARY OF DETAILED ANALYSIS - SOURCE CONTROL (SC) REMEDIAL ALTERNATIVES

Gallup's Quarry Superfund Project

Plainfield, Connecticut

Assessment Factor	MM1: No Action	MM2: Management Controls with Natural Attenuation	MM3: Containment, Groundwater Extraction, Treatment, and Discharge	MM4: Remediation, Groundwater Extraction, Treatment, and Discharge
Compliance with ARARs	Would not achieve immediate compliance with chemical-specific ARARs, but would depend on natural attenuation to achieve COC reductions to meet Remediation Standards. Action-specific ARARS for groundwater monitoring would not be achieved. No location-specific ARARs were identified.	Would not achieve immediate compliance with chemical-specific ARARs, but would depend on natural attenuation to achieve COC reductions to meet Remediation Standards. Institutional controls would effectively prevent development of the aquifer as a drinking water supply. Federal and State requirements for groundwater monitoring associated with disposal facilities would apply, as would State requirements for well installation. No location-specific ARARs were identified.	Would not achieve immediate compliance with chemical-specific ARARs, but chemical-specific ARARs would be achieved in approximately 22 years (metal COC and DEHP times are difficult to predict) Institutional controls would effectively prevent development of the aquifer as a drinking water supply. Action-specific ARARs include Federal and State requirements for discharge of treated groundwater to surface water or POTWs, groundwater diversion, groundwater monitoring associated with disposal facilities, well installations, impacts to wetlands, noise and air pollution permitting and/or controls, and Federal, State and local standards for construction of treatment facilities. Location-specific ARARs identified include Federal and State wetlands protection regulations, Federal floodplain regulations and State surface water/stream encroachment regulations. Federal and State hazardous waste regulations, and transportation requirements would apply if treatment residuals are determined to be RCRA characteristic.	Same as MM3, except that it would meet groundwater ARARs in approximately 17 years (metal COC and DEHP times are difficult to predict).

TABLE 4
SUMMARY OF DETAILED ANALYSIS - MANAGEMENT OF MIGRATION (MM) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	MM1: No Action	MM2: Management Controls with Natural Attenuation	MM3: Containment, Groundwater Extraction, Treatment, and Discharge	MM4: Remediation, Groundwater Extraction, Treatment, and Discharge
Short-Term Effectiveness	No short term risk to community and workers or environmental impacts, since no remedial measures would be performed. Would not achieve remedial response objectives in the short-term, since Remediation Standards would not be met.	Same as MM1, except that institutional controls would work effectively to prevent groundwater use.	Potential short term risks during construction minimized through adherence to health and safety plan and sedimentation and erosion controls. Air emissions from treatment operations may require controls Wetlands impacts would be assessed during predesign study. Remedial response objectives would not be achieved in the short-term, but institutional controls would effectively prevent groundwater use.	Same as MM3.
Implementability	Easily Implemented. Effectiveness of natural attenuation processes would not monitored. Would not obstruct additional remedial actions, if necessary.	Readily Implemented. Institutional controls could be implemented, and are readily enforceable. Periodic monitoring of groundwater and surface water would be easily implementable. Implementation would not obstruct additional remedial actions, if necessary. Effectiveness would be assessed through long-term monitoring program and five-year site reviews.	Same as MM2, except that groundwater treatment would be conducted in accordance with applicable permit requirements and periodic repair of pumps and treatment equipment would be required. Access agreement and permits would be required to construct access road, treatment facility, etc. Potential adverse wetlands impacts would be determined during predesign phase, and may result in off-site replacement of wetlands. Uses standard equipment and proven technologies.	Same as MM3.
Cost (present worth)	$0	$1,900,000 - $2,100,000	Air Stripping ($8,3000,000 - $10,900,000) GAC ($15,200,000 - $28,800,000) UV/Oxidation ($9,100,000 - $12,800,000)	Air Stripping ($8,1000 - $12,500,000) GAC ($21,100,000 - $34,400,000) UV/Oxidation ($9,500,000 - $14,600,000)

TABLE 4
SUMMARY OF DETAILED ANALYSIS - MANAGEMENT OF MIGRATION (MM) REMEDIAL ALTERNATIVES
Gallup's Quarry Superfund Project
Plainfield, Connecticut

Assessment Factor	MM1: No Action	MM2: Management Controls with Natural Attenuation	MM3: Containment, Groundwater Extraction, Treatment, and Discharge	MM4: Remediation, Groundwater Extraction, Treatment, and Discharge
Long-Term Effectiveness and Permanence	COC in groundwater would not be addressed through active remedial measures, but would continue to reduce due to natural attenuation processes. Groundwater plume would continue to migrate, but would be naturally contained by Mill Brook. Groundwater use within the plume would not be controlled, and groundwater and surface water quality would not be monitored.	COC in groundwater would not be addressed through active remedial measures, but would continue to reduce due to natural attenuation processes. Groundwater plume would continue to migrate, but would be naturally contained by Mill Brook. Institutional controls would effectively restrict groundwater use until remedial action objectives are achieved.	Same as MM2, except that remediation of plume would be augmented by extraction of groundwater. Extraction system should reliably prevent the movement of groundwater plume beyond the capture zone of the system.	Same as MM3.
Reduction of Toxicity, Mobility, or Volume	TMV would not be reduced through treatment, since no treatment would be employed; however, significant reductions in COC (VOC may reduce greater than metal COC and DEHP) would occur through natural degradation processes. No treatment residuals would be generated,	Same as MM2	TMV of COC in groundwater would be reduced; however, air stripping and GAC treatment would transfer toxicity and volume be treatment residual, which would require disposal. Would be reduction in TMV through groundwater treatment Pretreatment would address metal COC in extracted groundwater, but would result in significant treatment residuals. Treatment residual generated: Air stripping (37,000 lbs/year); GAC (86,000 lbs/year).	Same as MM3 except for: Treatment residual generated: Air stripping (73,000 lbs/year); GAC 1,440,000 lbs/year).

TABLE 4
CHEMICAL-SPECIFIC ARARs: CRITERIA, ADVISORIES AND GUIDANCE
FOR THE SELECTED ALTERNATIVE

Gallup's Quarry Superfund Project

Plainfield, Connecticut

Authority	Medium	Requirements	Status	Requirement Synopsis	Action Taken to Attain Requirement
Federal Regulatory Requirements	Groundwater	Federal Safe Drinking Water Maximum Contaminants Levels (MCLs) for organic and inorganic chemicals (40 CFR 141 Subparts B,G, and 1).	Relevant and Appropriate	McLs have been promulgated for a number of common organic and inorganic contaminants. These levels regulate the concentrations of contaminants in public drinking water supplies, and are considered relevant and appropriate for groundwater aquifers potentially used for drinking water.	These standards will be met through natural attenuation processes. Institutional controls will present the aquifer from being used as a water supply until MCL's are attained.
		Federal Safe Drinking Water Maximum Contaminant Level Goals (MCLGs) for organic and inorganic chemicals (40 CFR 141 Subpart F).	Relevant and Appropriate	MCLGs are health-based goals for public water supplies. MCLGs are levels considered to have no known or anticipated adverse health effects which includes a margin of safety. These goals are available for a number of organic and inorganic contaminants. MCLGs greater than zero are relevant and appropriate for this site.	These standards will be met through natural attenuation processes. Institutional controls will prevent the aquifer from being used as a water supply until these standards are attained.
		Federal Drinking Water Health Advisories.	To Be Considered	EPA publishes contaminant-specific health advisories that indicate the non-carcinogenic risks associated with consuming contaminated drinking water.	These advisories will be considered as necessary.
State Regulatory Requirements	Groundwater	Connecticut Groundwater Standard (Water Quality Standards IV).	Applicable	Standards have been promulgated in accordance with Section 22a-425 of Connecticut General Statutes to preserve and enhance the quality of state water. The aquifer under the Study Site is classified as GA. Class Ga groundwater is suitable for existing private supplies and potential public and private supplies and is suitable for drinking or other domestic uses without treatment.	These standards will be met through natural attenuation processes. Institutional controls will prevent the aquifer from being used as a water supply until these standards are attained.

TABLE 7
CHEMICAL-SPECIFIC ARARs: CRITERIA, ADVISORIES AND GUIDANCE
FOR THE SELECTED ALTERNATIVE
Gallup's Quarry Superfund Site
Plainfield, Connecticut

FS

Revision: 1
Date: 06/97

Authority	Medium	Requirements	Status	Requirement Synopsis	Action Taken to Attain Requirement
State Regulatory Requirements (Continued)	Groundwater	Connecticut Standards for Public Drinking Water Quality (RCSA °19-13-B102(e)(1 - 6)).	Relevant and Appropriate	State MCLs have been promulgated for a number of inorganic contaminants, and maximum permissible health-based limits have been set for a number of pesticides and organic chemicals. Action levels are also established under this act. These levels regulate the concentrations of contaminants in public drinking water supplies, but may also be considered appropriate for groundwater aquifers potentially used for drinking water.	These standards will eventually be met through natural attenuation processes. Institutional controls will prevent the aquifer from being used as a water supply until these standards are attained.
		Connecticut Remediation Standard Regulations (RCSA °22a-133k 1 to 3) (Established pursuant to CGS °22a-133k)	Applicable	Establishes remediation standards for contaminated groundwater. Standards are based on surface water protection, volatilization, and groundwater protection. The regulations include a procedure for establishing criteria where none exist for a particular pollutant, and for establishing alternative criteria where those specified in the regulations are not appropriate.	Natural attenuation processes will eventually reduce concentrations of COCs to meet remediation standards.
	Soil	Connecticut Soil Remediation Standards (RCSA 22a-133k 1 to 3)	Applicable	Establishes remediation standards for contaminated soils. Standards are based on risk from direct contact and pollutant mobility and depend on land use or groundwater classification. These regulations provide specific numeric cleanup criteria for a wide variety of contaminants in soil. They provide separate criteria for threats to human health and environmental receptors posed by direct contact with contaminants, and for risks to environmental receptors posed by migration of contaminants via groundwater or soil vapor.	Natural attenuation processes, rainfall infiltration, and groundwater flushing will eventually reduce concentrations of COCs in soil. VOC COC levels are anticipated to be reduced to below remediation standards in approximately 15 years.

TABLE 7
ACTION-SPECIFIC ARARs: CRITERIA, ADVISORIES AND GUIDANCE
FOR THE SELECTED ALTERNATIVE
Gallup's Quarry Superfund Site
Plainfield, Connecticut

Authority	Requirements	Status	Requirement Synopsis	Action Taken to Attain Requirement
Federal Regulatory Requirement	Federal RCRA closure/post-closure requirements for hazardous waste landfills (40 CFR 264 Subpart G).	Relevant and Appropriate	Requires hazardous waste disposal facility operators to develop a plan for closure and post-closure care and monitoring of the facility, including groundwater and soil monitoring.	Closure and post-closure monitoring requirements will be implemented through the Long-Term Monitoring Plan (LTMP).
	Federal RCRA groundwater limits for hazardous constituents (40 CFR 264 Subpart F)	Relevant and Appropriate	General requirements for groundwater monitoring for releases of hazardous constituents from RCRA solid waste management facilities.	Requirements for groundwater monitoring will be performed with the LTMP.
	Federal Water Quality Criteria (40 CFR 131)	To be Considered	Non-enforceable guidelines establishing pollutant concentrations which are considered to be adequate to protect surface water quality.	Long-term groundwater monitoring will be performed to ensure standards are not exceeded.
State Regulatory Requirements	Hazardous Waste Management: Generator & Handler Requirements-General Standards, Listing & Identification (RCSA °22a-449(c)100-101)	Applicable	These sections establish standards for listing and identification of hazardous waste. The standards of 40 CFR °°260-261 are incorporated by reference. Chromium is not exempted from listing as a hazardous waste. These standards are applicable to investigation derived waste.	Per 40 CFR °°260-261, any derived waste identified as hazardous waste will be managed as listed.
	Hazardous Waste Management: Generator Standards (RCSA °22a-449(c)102)	Applicable	This section establishes standards for various classes of generators. The standards of 40 CFR °262 are incorporated by reference. Storage requirements given at 40 CFR °265.15 are also included. These standards are applicable to investigation derived waste.	Management of investigation derived waste will comply with the standards of 40 CFR °°262 and 40 CFR °°265.15.

TABLE 7
ACTION-SPECIFIC ARARs: CRITERIA, ADVISORIES AND GUIDANCE
FOR THE SELECTED ALTERNATIVE
Gallup's Quarry Superfund Site
Plainfield, Connecticut

Authority	Requirements	Status	Requirement Synopsis	Action Taken to Attain Requirement
State Regulatory Requirements Cont'd.	Hazardous Waste Management: TSDF Standards (RCSA °22a-449(c)104)	Applicable	This section establishes standards for treatment, storage, and disposal of hazardous waste, and establishes standards for closure, post closure, and groundwater monitoring. The standards of 40 CFR °264 are incorporated by reference.	Standards for treatment, storage and disposal of hazardous waste and closure, post-closure and groundwater monitoring will be complied with. Groundwater monitoring will be performed with implementation of the long-term monitoring of groundwater plan (LTMP).
	Hazardous Waste Management: Interim Status Facilities and Groundwater Monitoring requirements, Closure and Post Closure Requirements (RCSA °22a-449(c)105)	Applicable	This section establishes interim status standards for treatment, storage, and disposal of hazardous waste, and establishes standards for closure, past closure, and groundwater monitoring. The standards of 40 CFR °265 are incorporated by reference.	Requirements for ground water monitoring, closure, and post-closure will be compiled with. Ground water monitoring will be performed with the LTMP.
	Connecticut Control of Noise Regulations (RCSA 22a-69-1 to 69-7.4)	Applicable	These regulations establish allowable noise levels. They would apply to construction activities on the site, including installation of groundwater monitoring wells.	Adequate controls will be utilized to meet these requirements.
	Connecticut Regulations for the Well Drilling Industry (RCSA 25-128-33 through 64).	Applicable	These rules apply mainly to any new water supply or withdrawal wells. The rules specify that non-water supply wells must be constructed so that they are not a source or cause of groundwater contamination. Procedures for abandonment of wells apply to both water wells and other types of wells.	Non-water supply wells will not be constructed on the site unless it can be shown that they will not be a source or cause of groundwater contamination.
State Regulatory Requirements Cont'd.	Public Health Code Well Permit Requirements (RCSA °19-13-B51)	Applicable	Prohibits issuance of a permit for drilling of a water supply well for any property where the boundary is within 200 feet of an approved water supply. Specifies separation distances between wells and pollution sources. Gives construction standards for water supply wells.	Institutional controls will ensure that water supply wells are not constructed at the Gallup's Quarry site and on downgradient properties.

TABLE 7
ACTION-SPECIFIC ARARs: CRITERIA, ADVISORIES AND GUIDANCE
FOR THE SELECTED ALTERNATIVE
Gallup's Quarry Superfund Site
Plainfield, Connecticut

FS

Revision: 1
Date: 06/97

Authority	Media	Requirements	Status	Requirement Synopsis	Action to be Taken to Attain Requirement
Federal Regulatory Requirements	Wetlands	Federal Clean Water Regulations governing dredge and fill activities in wetlands (33 CFR 320-328).	Relevant and Appropriate	No discharge of dredged or fill materials to wetlands or other waters or the US is allowed if there is a practicable alternative to the discharge which would have a less adverse impact to the aquatic ecosystem, so long as the alternative does not have other significant adverse impacts. Appropriate and practicable steps must be taken to minimize adverse impacts, during construction activities in wetlands.	Appropriate and practicable steps will be taken in accordance with these regulations to minimize adverse impacts to wetlands from well drilling efforts.
		Federal Executive Order 11990, Statement of Proceedings for Wetland Protection (40 CFR 6, Appendix A).	Applicable	Requirements to avoid adversely impacting wetlands, minimize destruction and mitigate impacts to wetlands.	Appropriate and practicable steps will be taken in accordance with these regulations to minimize adverse impacts to wetlands from well drilling efforts.
		Federal Executive Order 11988, Floodplains Protection (40 CFR, Appendix A)	Applicable	Requirements to avoid adverse effects, minimize potential harm, and preserve beneficial values of floodplains.	Appropriate and practicable steps will be taken in accordance with these regulations to minimize adverse impacts to wetlands from well drilling efforts.
	Groundwater	Federal Groundwater Protection Strategy (EPA, August 1984).	To Be Considered	EPA's GPS includes a component which states that groundwater is ecologically vital if the aquifer provides the base flow for a particularly sensitive ecosystem which, if polluted, would destroy a unique habitat.	Adequate controls will be utilized to prevent damage to any particularly sensitive ecosystem which, if polluted, would destroy a unique habitat.

TABLE 7
ACTION-SPECIFIC ARARs: CRITERIA, ADVISORIES AND GUIDANCE
FOR THE SELECTED ALTERNATIVE
Gallup's Quarry Superfund Site
Plainfield, Connecticut

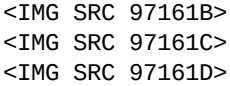
FS

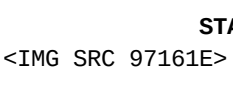
Revision: 1
Date: 06/97

Authority	Media	Requirements	Status	Requirement Synopsis	Action to be Taken to Attain Requirement
Federal Regulatory Requirements (Cont'd)		Federal Groundwater Use and Value Determination (EPA Region 1, 1995).	To Be Considered	Combines two regional initiatives, the Superfund Beneficial Reuse Initiative and the Comprehensive Groundwater Protection Strategy. The guidance is intended to result in more cost-effective groundwater cleanups and facilitate beneficial reuse of contaminated parcels.	These regional initiatives will be applied while implementing the groundwater control measures.
State Regulatory Requirements	Groundwater	Connecticut Aquifer Protection Areas (CGS 22a-354 through 354bb).	Applicable	These statutes provide for the municipal regulation of various activities in aquifer protection areas.	All municipal regulations will be complied with.
		Connecticut Public Health Code (RCSA °19-13-B51(m)).	Applicable	Requires that water wells be located away from groundwater flow from a source of pollution. Installation of water wells is prohibited within 200 feet of a community water system.	Institutional controls will ensure that water supply wells are not constructed at the site and in downgradient areas.
	Surface Water	Connecticut Surface Water and Wetlands - Inland Wetlands and Watercourses Regulations (RCSA ° 22A-39-1 through 15).	Applicable	Regulates any operation within or use of a wetland or watercourse involving removal of material, or any construction, alteration, or pollution of such wetlands or watercourses.	During monitoring well construction adequate controls will be utilized to minimize adverse impact to wetlands,
	Groundwater and Soil	Connecticut Environmental Land Use Restriction Regulations (RCSA °22A-133q-1)	Applicable	Requirements to prevent disturbance of contaminated soil and to ensure that contaminated groundwater is not used for human consumption.	Implementation of environmental land use restrictions including deed restrictions.

APPENDIX B

FIGURES





APPENDIX C

STATE OF CONNECTICUT CONCURRENCE LETTER

APPENDIX D

RESPONSIVENESS SUMMARY

GALLUP'S QUARRY SUPERFUND SITE

PLAINFIELD, CONNECTICUT

September 30, 1997

U.S. Environmental Protection Agency

Region I

GALLUP'S QUARRY SUPERFUND SITE
RESPONSIVENESS SUMMARY
PLAINFIELD, CONNECTICUT

TABLE OF CONTENTS

RESPONSIVENESS SUMMARY
GALLUP'S QUARRY SUPERFUND SITE
PLAINFIELD, CONNECTICUT
Preface

The U.S. Environmental Protection Agency (EPA) held a 30-day public comment period from June 25, 1997 to July 25, 1997 to provide an opportunity for the public to comment on the Remedial Investigation (RI), Feasibility Study (FS), the Proposed Plan, and other documents developed for the Gallup's Quarry Superfund site in Plainfield, Connecticut (the Site). The FS examined and evaluated various options, called remedial alternatives, to address contamination at the Site. EPA made a preliminary recommendation of its Preferred Alternative for Site remediation in the Proposed Plan issued on June 25, 1997 at the start of the comment period. All documents on which the preferred alternative was based have been placed in the Administrative Record for public review. The Administrative Record is a collection of all the documents considered by EPA to select the remedy for the Site. It is available at the EPA Records Center at 90 Canal Street in Boston, Massachusetts and at the Plainfield Public Library on Railroad Avenue in Plainfield, Connecticut.

The purpose of this Responsiveness Summary is to document EPA responses to the questions and comments raised during the public comment period. EPA has considered all of the comments in this document before selecting a final remedial alternative to address contamination at the Site.

The Responsiveness Summary is organized into the following sections:

I. Overview of Remedial Alternatives Considered in the Feasibility Study and Proposed Plan, including the Preferred Alternative - This section briefly outlines the remedial alternatives evaluated in the FS and the Proposed Plan, including EPA's Preferred Alternative.

II. Site History and Background on Community Involvement and Concerns - This section provides a brief Site history and a general overview of community interests and concerns regarding the Site.

III. Summary of Comments Received During the Public Comment Period and EPA Responses - This section summarizes and provides EPA's responses to the oral and written comments received from the public during the public comment period. In Part I of this Section, the comments received from citizens are presented. Part II summarizes comments received by State officials. Part III summarizes comments from the Potentially Responsible Parties (PRPs).

In addition, two attachments are included in this Responsiveness Summary. Attachment A provides a chronology of community relations activities at the Site. Attachment B contains a copy of the transcript from the informal public hearing held on June 25, 1997 in Plainfield, Connecticut. The comments submitted during the public comment period are available in the Administrative Record for the Gallup's Quarry Site.

I. OVERVIEW OF REMEDIAL ALTERNATIVES CONSIDERED IN THE FEASIBILITY STUDY AND PROPOSED PLAN

Using the information gathered during the RI, EPA identified several objectives for the cleanup of the Gallup's Quarry Site. The primary cleanup objective is to reduce the risks to human health and the environment posed by potential future exposure to groundwater contamination that has already or may in the future migrate off site. Cleanup levels for groundwater and soil are set at levels that EPA considers to be protective of human health and the environment.

After identifying the cleanup objectives, EPA developed and evaluated potential cleanup alternatives, called remedial alternatives. The FS describes the remedial alternatives considered to address the contaminants of concern and the pathways in which they pose a threat. The FS also describes the criteria EPA used to narrow the range of alternatives to five potential source control (SC) remedial alternatives and four potential management of migration (MM) remedial alternatives.

The five source control remedial alternatives considered are:

SC-1:	No Action
SC-2:	Natural Attenuation with Institutional Controls
SC-3:	RCRA Cap
SC-4:	Excavation, On-site Treatment of soils with Ex-Situ Soil Vapor Extraction
SC-5:	Excavation, Off-site Treatment/Disposal of Soils

The four management of migration remedial alternatives are:

MM-1:	No Action
MM-2:	Natural Attenuation with Institutional Controls
MM-3:	Containment via Groundwater Extraction, Treatment, and Discharge
MM-4:	Remediation via Groundwater Extraction, Treatment, and Discharge

The preferred alternative selected by EPA to address Site contamination includes natural attenuation of contamination in soil and groundwater, implementation of institutional controls, long-term monitoring of groundwater and soil and Five-Year Site Reviews (SC-2 and MM-2).

The cleanup plan will rely on natural processes known to be occurring at the site to reduce the concentrations of contaminants in soil and groundwater to protective levels, and institutional controls to prevent unnecessary use and disturbance of Site soil and any use of groundwater until target cleanup levels are attained. A long-term monitoring program will also be implemented and will continue until the target cleanup levels have been attained and EPA determines that the remedy is protective of human health and the environment.

After a careful review of the comments made during the public comment period, EPA documented the selected remedy in the Record of Decision. The selected remedy shows no significant changes from the preferred alternative. All of the remedial alternatives considered for implementation at this Site can be found in the Record of Decision Summary, the Proposed Plan, and the FS.

II. SITE HISTORY AND BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS

The Gallup's Quarry site was used as a former gravel mining operation in the 1950's and 1960's. In 1977, complaints from neighboring residents led to an investigation by the Connecticut Department of Environmental Protection (DEP) and the Connecticut State Police. The DEP investigation concluded that the Site was used from the summer of 1977 until December 1977 for unlicensed waste disposal. Evidence collected by DEP indicates that Chemical Waste Removal, Inc. (CWR) of Bridgeport, Connecticut transported drummed and bulk liquid waste material to the Site. These materials included a variety of industrial wastes.

Emergency clean up efforts were performed during the summer of 1978 under the direction of the DEP and the Connecticut State Police. This involved the removal and off-site disposal of drums of liquid wastes, free liquids, and contaminated soil from three disposal locations on the site. A buried inverted dump truck was also removed from the Site.

Since the 1978 cleanup operations, periodic monitoring of soil and groundwater was performed by the DEP, the Connecticut Department of Health and EPA. In May of 1988, EPA initiated a limited Site Investigation to evaluate the Gallup's Quarry Site with respect to conditions for additional removal actions under the National Contingency Plan (NCP). Soil samples collected by EPA confirmed the presence of volatile organic compounds (VOCs), semi-VOCs, and metals. Based on the results of the 1988 Site Investigation, on June 24, 1988 the Site was proposed to be added to EPA's National Priorities List (NPL). On October 4, 1989 the Site was finally listed on the NPL.

While the Site has been vacant since 1978 it has been utilized by trespassers for recreational purposes. In 1994, a fence was erected at the entrance to the Site, and other foot/vehicle paths were blocked with boulders, to limit Site usage by trespassers. Additionally, warning signs were posted around the property.

In 1993 EPA notified forty parties, who were either an owner/operator of the facility, transporter, or a generator of wastes that were disposed of at the Site, of their potential liability with respect to the Site. Thereafter, negotiations commenced with these potentially responsible parties (PRPs) regarding the settlement of the PRP's liability at the Site. On September 7, 1993, EPA and twenty-three of the forty PRPs, entered into an Administrative Order by Consent for the performance of the RI/FS.

Throughout the Site's history, community concern and involvement has been relatively low. Prior to EPA's involvement with the Site, residents and town officials have kept up with Site activities by following the local papers. There were no organized citizens groups during the emergency removal effort by the DEP. The DEP kept citizens informed of Site activities through the media, the First Selectman, the Fire Marshall and the police. EPA has kept the community and other interested parties apprized of Site activities through fact sheets, press releases, and a public meeting.

During November 1993, EPA conducted interviews of various Plainfield town officials, business owners, and residents. These interviews were conducted to identify community concerns for preparation of EPA's

Community Relations Plan (CRP). In June of 1994, EPA released the CRP which outlined a program to address community concerns and to keep citizens informed of and involved in activities during remedial activities. Notice of the release of this document was sent to local residents, town officials, and to the media on August 3, 1994.

In August of 1994, EPA issued a fact sheet announcing the start of the RI at the Site. The fact sheet also summarized site history, the Superfund process, and the field activities to be performed at the Site. In March of 1996 EPA notified the public and media of the availability of the Initial Site Characterization Report which detailed the results of the first phase of the field investigation. In November of 1996, EPA issued a fact sheet announcing the completion of the RI and detailing the results of this investigation.

On June 17, 1997, EPA issued the Proposed Plan for addressing residual soil and groundwater contamination at the Site. The Proposed Plan was made available to local residents and town officials by mailing copies of this document to the mailing list and placing a copy in the Plainfield Public Library. On June 25, 1997, EPA made the RI/FS and Human Health and Ecological Risk Assessment (RA) reports available for public review at EPA's offices in Boston and at the Plainfield Town Library.

On June 25, 1997, EPA held an informational public meeting at the Plainfield Town Hall to discuss the results of the RI report and the cleanup alternatives presented in the FS and to present the Agency's Proposed Plan. From June 25 to July 25, 1997, the Agency held a 30 day public comment period to accept public comment on the alternatives presented in the FS and the Proposed Plan and on any other documents previously released to the public. Also on June 25, 1997, the Agency held a public hearing at the Plainfield Town Hall to accept any oral comments.

III. SUMMARY OF COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND EPA RESPONSES

This Responsiveness Summary addresses comments received by EPA during the public comment period. While a number of concerns were raised to EPA during the June 25, 1997 public meeting, only one citizen of Plainfield commented on EPA's Preferred Alternative during the public hearing on June 25, 1997. Three sets of written comments were received by EPA during the public comment period including: local residents, the Connecticut Department of Environmental Protection and the Gallup's Quarry PRP Group.

Part I - Citizens

Comment 1: One citizen, representing the "homeowners of Tarbox Road", requested that the equipment, trailers, and fencing located at 86 Tarbox Road (the Gallup's Site) be removed as quickly as possible, as they believe it to be visually unattractive.

EPA Response: All equipment and trailers that were utilized to conduct the RI of the site will be removed in 1997. The fence erected at the entrance to 86 Tarbox Road was installed to 1) protect the equipment and trailers during the field investigation and to 2) limit the use of the site by trespassers for recreational purposes. While EPA has determined that the presence of hazardous substances remaining at the site does not pose an unacceptable risk to human health, low levels of contaminants do exist at the site and potential exposures to those contaminants by trespassers should be limited to the extent practicable. While modifications to the fence will be sought to reduce the obtrusive nature of this fence, a modified fence will remain to restrict use of the site by users of recreational vehicles.

Comment 2: A former resident adjacent to the Site stated their preference for alternatives SC-4 or SC-5 and MM-4, which include active treatment of Site contaminants. This resident feels that these alternatives are the only feasible options to ensure the safety of Plainfield residents. This former resident stated that additional unidentified areas of disposal may exist at the site and that incidences of cancer and other illnesses in the family may be attributable to contamination at the Site.

EPA Response: EPA has determined that neither alternatives SC-4 or SC-5 and MM-4 would yield results that are proportionate to the selected remedy in terms of their overall protectiveness, implementability, effectiveness and cost. Section 121(b)(1) of CERCLA presents several factors that EPA is required to consider at a minimum in its assessment of alternatives. Building upon these specific statutory mandates, the National Contingency Plan articulates nine evaluation criteria to be used in assessing the individual remedial alternatives. A detailed analysis is performed on the alternatives using the nine evaluation criteria in order to select a site remedy. [A summary of the comparison of each alternative's strength and weakness with respect to the nine evaluation criteria is found in Section IX of the attached Record of Decision].

While alternatives SC-4/SC-5 and MM-4 would permanently reduce the concentrations of contaminants to acceptable levels, the selected remedy (SC-2 and MM-2) will also achieve the target cleanup levels. EPA

recognizes that the estimated time period to achieve the cleanup goals is considerably longer for the selected remedy (15 years/SC-2 and 27 years/MM-2) than for the most conservative alternatives (9 months/SC-5 and 17 years/MM-4). However, each of these alternatives would provide the same level of protection to human health and the environment through the implementation of institutional controls to prevent unacceptable potential future exposure to site contaminants for significantly less money. The total cost of implementing SC-5 and MM-4 is estimated to range between $12.2 million and $26.9 million. Whereas, the total cost of implementing SC-2 and MM-2 are expected to cost approximately $2,152,000.

With respect to the citizen's concern that there may be additional unidentified disposal areas at the Gallup's Quarry Site, the results of the comprehensive Site investigation (documented in the June 1997 RI Report) indicate that no additional sources of contamination are known to be present at the Site. Given the illegal nature of the former disposal activities at the Site, one of the primary objectives of the Site investigation was to identify a potential disposal areas. This investigation included a thorough multi-phased approach designed to meet this objective, as well as to characterize the nature and extent of all sources of contamination identified. These studies included: a visual Site reconnaissance; geophysical surveys to identify potential buried drums/waste locations with follow-up test pits; a soil gas survey to analyze Site soil gas for VOC contamination at 106 locations; soil sampling and analysis at identified disposal areas; installation of 50 temporary groundwater well points and 39 multi-level monitoring wells for sampling and analysis; and sampling and analysis of adjacent residential water supplies. This investigation documents that there were only three disposal areas at the Site and that all adjacent residential water supplies have not been impacted by the Site contaminants.

While past exposures to site contaminants by local residents are not known and cannot be evaluated by EPA, the human health and ecological risk assessment prepared for the Gallup's Quarry Site indicate that there are no current unacceptable adverse impacts to the public. The only unacceptable potential risk to the public would be from the ingestion of groundwater by a future hypothetical worker if the Site were developed for commercial/industrial uses and the contaminated groundwater were utilized. Site data provided to the Agency for Toxic Substances and Disease Registry (ATSDR) for the purpose of performing a health consultation, indicate that exposures to residual concentrations of contaminants in soils at the former disposal areas do not constitute a public health threat. Additionally, an investigation of cancer occurrences in Plainfield and its surrounding communities, prepared by the State of Connecticut Department of Health Services (March 24, 1993), reported no increase of cancer incidences in Plainfield.

Part II - State Officials

Written comments were received from the Connecticut DEP. The DEP agrees that the environmental land use restrictions described in its regulations (i.e., RCSA Section 22a-133q-1) could be used to prevent both the disturbance of contaminated soil and the ingestion of contaminated groundwater. However, the DEP submits that an easier and more cost effective alternative to prevent the ingestion of groundwater is to extend public water to properties affected by groundwater contamination. It has been DEP's experience that the public health code, which prohibits the installation of a drinking water well if a community water system is located within 200 feet of the property, effectively prevents the installation of drinking water wells where public water is available.

EPA Response: There are no current human health risks from exposure to groundwater at the site as the contaminated groundwater is not currently being used as a public or private water supply. Under controlling state and federal law, EPA is required to prevent future ingestion of groundwater until safe drinking water standards are met. EPA did not propose an extension of the public water supply as part of the selected remedy because the most conservative means to prevent the ingestion of groundwater is to require deed restrictions. Although EPA is not opposed to an extension of the public water supply to serve future growth, such an extension is not required for this site as deed restrictions will effectively prevent the ingestion of groundwater.

Part III - Potentially Responsible Parties (PRPs)

Written comments were received from the Gallup's Quarry PRP Group, comprised of 23 PRPs at the Site. This group expressed their support of the June 1997 Proposed Plan as a technically sound remedy, that reflects the significant prior remediation conducted by the DEP and is consistent with the scientific investigations conducted at the Site. The group further states that the proposed remedy will ensure cleanup of the groundwater within a reasonable time frame and will be protective of human health and natural resources while allowing for beneficial use of the Site for future industrial development.

EPA Response: EPA concurs with the statements made by the Gallup's Quarry PRP Group.

TOWN OF PLAINFIELD
PUBLIC HEARING
PLAINFIELD TOWN HALL
JUNE 25, 1997
7:00 p.m.

ORIGINAL

Re: Gallup's Quarry Superfund Site
Information Session
and Formal Comment Session

Leslie McVickar, Remedial Project Manager
U.S. Environmental Protection Agency
JFK Federal Building, HBT
Boston, MA 02203

Shea & Sullivan
10 Lanyard Lane
Waterford, CT 06385-3208

(Portions of which were recorded and audible by court reporter.)

(Beginning at approximately 9:05 p.m.)

PAUL SWEET: For the record, Paul Sweet, First Selectman for the Town of Plainfield. Just another question: Are the owners of the property also responsible in part for contamination?

LESLIE McVICKAR: Right now on our list the owners of the Gallup's Quarry site is one of those parties that we have found to be legally responsible. And in terms of their successors, it's a tricky issue of which I can't answer. I'm not an attorney.

PAUL SWEET: I understand that. I guess if the property is in a probate situation--(Inaudible by court reporter)--I guess in the best interest of the Town of Plainfield is what I'm trying to protect here. I understand the deed restrictions. And I know what you're saying. I'm just saying if there's an opportunity here for the future of Plainfield for that site. No one's ever going to buy that site. No one's ever going to buy that site without water. What I'm saying to you, if the minimal layout here I understand is $129,000 to let nature take its course, it will be well into the next century before anything can possibly

happen without the influence of water and possibly sewer lines being out there.

LESLIE McVICKAR: I do understand what your point is and do sympathize with that. But unfortunately, the way Superfund's set up, we're not in the business to extend water lines to make it easier for the property to be developed.

PAUL SWEET: I guess what I'm saying is if there is somebody in position that has the liability and responsibility--I don't know if it's--sure it's a big number. But I don't know if it's that big a number to deal with the issue now somehow in order--I don't want to say penalty--is that what I'm calling it, is it? And I guess what I'm saying to you is the parties that were responsibility for it, let them mediate the problem now by getting water out to the site so the site can be usable. I'm not disputing the way you want to do that.

LESLIE McVICKAR: Yes. It's an interesting prospective. It's just a different prospective than what EPA has. We can't do that within our authority. We're trying to take an action here to, you know, ensure that no one is drinking the water. That's our goal.

PAUL SWEET: I appreciate that. I really do.

LESLIE McVICKAR: One of the things developers do look at is they because the property will have been--is degraded, because there will be deed restrictions on it, a developer is going to get a, possibly, a better price better, price on that parcel. And running a water line, it's just an operational cost that it would be factored into the plan. It might not make or break whether that site gets developed or not because there is, as far as I know, there's water line to inner mark just across the river.

MARY JANE McDONALD: In terms of this overhead, one of the two threshold criteria is protecting the health of the environment and meeting the state and federal requirements. Those are the threshold criteria. Not included in that criteria is any sort of economical development which is really what you're alluding to in terms of extending a water line.

PAUL SWEET: No ma'am. What I'm telling you--(Inaudible by court reporter)--deed restrictions will accomplish that. What I'm saying to you is and I'm asking you to follow-up on somehow on that--(Inaudible by court reporter)--I trust you at your word. But is it in your authority--don't tell me EPA can't order cleanup. I don't want your money. I'm not asking--Plainfield's not asking for EPA money. I'm

basically saying I understand there's a group of people that are part of this problem. I'm sure there's insurance involved. Sure there's other things involved. I'm just saying to you: Is there an avenue to deal with the problem now to show that the site is not barren or whatever else in the future.

MARY JANE McDONALD: What I'm trying to say is that in terms of our threshold criteria--

PAUL SWEET: Twenty-seven years is a long time.

MARY JANE McDONALD: Just let me finish. There's two criteria: protecting human health and the environment and the state and federal requirements. Those are the threshold criteria that we have to meet. Not included in those criteria is economic development. In answer to your question, the answer to your question is no, you don't have the authority to order somebody to do something unless it's in violation of those criteria. Unfortunately---

PAUL SWEET: So basically, what you're saying is that the deed restrictions are appropriate--

MARY JANE McDONALD: I'm sorry. I didn't hear the question.

PAUL SWEET: You're saying that the deed restrictions are appropriate; and that's as far as your

taking it?

MARY JANE McDONALD: In terms of this situation, we think that that is an appropriate vehicle to deal with it.

RICHARD MERCIER: Am I correct in assuming that the responsible parties are far more numerous than just the person who owns the land?

LESLIE McVICKAR: Yes. There are--EPA identified 40 parties.

PAUL SWEET: How many?

LESLIE McVICKAR: Forty.

PAUL SWEET: Do you have a legal attorney here?

LESLIE McVICKAR: No. Our attorney is not here.

PAUL SWEET: I guess my question is: Can the town take a legal action against those 40 parties?

LESLIE McVICKAR: You know, I can't answer that. I'm not an attorney. I apologize.

PAUL SWEET: I understand. I'm just trying to protect the area. (Inaudible by court reporter).

LESLIE McVICKAR: We really don't have authority to extend a water line just to aid in trying to develop this parcel. And I don't disagree with you. It's a wonderful idea. But maybe to attract

developers, the owner might want to do that and expend the money.

PAUL SWEET: It's the only way it's ever going to happen.

LESLIE McVICKAR: Yeah. Yeah.

TRISHA HAUGHT: (Inaudible by court reporter.)

LESLIE McVICKAR: Trisha, could you speak up?

TRISHA HAUGHT: If I could just add something--(Inaudible by court reporter)--if there was some law that they have violated and that law provided cause of action if my client contaminated ground water knowing he did something bad, you would be able to say, You broke the law. I'm going to sue you for breaking the law, perhaps, hypothetically, of course. What you have to understand Superfund law and how parties become so-called potentially responsible party--(Inaudible by court reporter).

MARSAL MARTIN: Who do you represent?

TRISHA HAUGHT: I represent Pitney Bowes.

MARSAL MARTIN: So they're one of the contributors to the chemicals on the front end.

TRISHA HAUGHT: Well, let me explain--(Inaudible by court reporter)--is that a company can legally dispose of its waste, everything's legal. (Inaudible by court reporter)--they transfer

this waste to in fact a site that someone tells them to dispose of that. The state can say you disposed of the waste at this site, the company does that dots every "I", crosses every "T", absolutely by the book, legally.

If that site is later to be called a Superfund site, the law allows them to go after those companies that did everything legally and go after those companies to recover the cost of cleaning up that site.

LESLIE McVICKAR: Trisha, I just want to add one thing to this. When I mentioned that we found these parties to be legally responsible for the site in some way, it's--you know, this is a very debatable issue of who's responsible for this. There are elements of liability and whether it's an owner operator, generator, transporter EPA--or Congress decided when it passed this law to take a--(Inaudible by court reporter)--even if these parties, you know, didn't know that their waste was ending up in this spot, it did. And we've got evidence to tie them into it. And it's just the way the law was enacted. (Inaudible by court reporter).

PAUL SWEET: So my point is, Counselor, is that there's lot of big outfits out there that revolve

in this. I'm not calling them polluters. I'm not trying to label them. I'm trying to say--(Inaudible by court reporter)--if you want to settle the issue, and if it's two hundred thousand--(Inaudible by court reporter)--then I'm going to do what I can to do what's best for the town.

TRISHA HAUGHT: Absolutely.

PAUL SWEET: (Inaudible by court reporter)--the number may be insignificant in the life of 40 people involved. I'm not accusing anyone.

TRISHA HAUGHT: I understand that. (Inaudible by court reporter.)--the people that owned the site. In fact, we have documents that told us that our stuff was going elsewhere but landed at this site. So that's why I said you--it's very difficult to unless you have a law that allows you to pursue someone you can't just--(Inaudible by court reporter.)

MARSAL MARTIN: You're trying to say your client did everything right. Is that it.

TRISHA HAUGHT: I'm not here to defend my client or support anything. I'm simply responding to the question.

LESLIE McVICKAR: I think we're-

MARSAL MARTIN: (Inaudible by court reporter)--two hundred thousand dollar water main going

to the property, the EPA is recommending natural attenuation at the cost of two million dollars. Why should the neighborhood accept that? Why wouldn't we want to go after the twelve million dollars to get it cleaned up as fast as we could. Why should we accept the natural attenuation? (Inaudible by the court reporter.)

LESLIE McVICKAR: I think there's no real good answer for this. You know, we're dealing with the government. What you have to remember is the state DEP did do an initial removal. And they did a very good removal. But 1978 is not 1997. And things changed drastically over in the--in the '80's and '90's. And residual levels were tracked. And you know, we--we wanted--it's a very long process. There's not a good answer few you. It's a very slow process. What we were most concerned about is mitigating any immediate threat to the public. And we knew that there wasn't an immediate threat to the public during those years. People were not drinking the contaminated ground water. And what was left in the soil were residually low levels.

(Inaudible by the court reporter.)

LESLIE McVICKAR: We had wells out there. We had collected soil samples. So we did actually have a

study out there that--(Inaudible by court reporter)--so it wasn't until it ran to the Superfund side that we had to get into the very nitty-gritty of it, which is what you saw tonight to look at future, you know, what future actions really need to be done.

PAUL SWEET: Does the EPA feel comfortable--(Inaudible by court reporter)--

LESLIE McVICKAR: Very much. I feel two years worth of comfortable about--(Inaudible by court reporter).

LESLIE McVICKAR:--you can have your well water tested. Sure. The answer to number one, depending on where you live, you can have your well water tested privately. Most people do that when they have their own--have drilled their own well.

(Inaudible by court reporter).

LESLIE McVICKAR: Sure. You can hire someone to test for whatever chemicals you want if that's what you're concerned about. But before you do that, you have to look at where you live. I don't know where you live. But I can certainly sit down and tell you whether there's a potential impact from us onto your side. And I can tell you right now there isn't because the plume is not impacting any of the nearest wells around it.

If you're concerned about other sources, you know, I mean--individual wells are contaminated by often times so many things. You can dump some waste soil on your--when you're changing the oil in your car or you spill some paint thinner and it can somehow migrate into your own well. So it's really tricky in terms of what might be the source of contamination. But yes, you can have it tested, you know, by independent consultants.

(Inaudible by court reporter).

LESLIE McVICKAR: I think that was just bought. I think I just spoke with the gentleman a couple weeks ago. He's a developer. But you're question is?

(Inaudible by court reporter.)

LESLIE McVICKAR: No. The condemnation of the house has nothing to do with the site.

(Inaudible by court reporter).

LESLIE McVICKAR: Okay. Any more questions? All right. Well, we have a court stenographer here. And what we'd like you to do is come up and speak so she can hear you possibly in the microphone and state your comment or concern. And your concerns are again something we will address in our response and summary along with the final record and decision. And we

really do welcome--

MARSAL MARTIN: Can I do the same thing in writing?

LESLIE McVICKAR: Yes. You can do the same thing in writing or E-mail to me.

MARSAL MARTIN: Well, I think at this point I would prefer to write.

LESLIE McVICKAR: Okay. Does anybody have any statements they would like to make?

FORMAL COMMENT SESSION:

LAURIE LAVALLEE: My name is Laurie Lavallee. I live on Norwich Road in Plainfield. And I just feel as with that gentleman that they should go the aggressive route with the cleanup and make the parties, whoever they are responsible--may not be that woman's company she's representing--but whoever is ultimately responsible should be responsible for aggressive cleanup of the site. I think it's been put off way too long now. Thank you.

LESLIE McVICKAR: Thank you all for coming. If you have any additional questions, feel free to contact me.

(Whereupon the hearing was adjourned at 9:45 p.m.)

C E R T I F I C A T E

STATE OF CONNECTICUT

COUNTY OF WINDHAM

I, Jennifer Vernon, Professional Reporter and Notary Public duly commissioned and qualified, do hereby certify that the foregoing is a true and accurate transcript of the proceedings as taken stenographically and which were audible by me at the time and place aforementioned.

IN WITNESS WHEREOF, I have hereunto set my hand this 28th day of June, 1997, at Moosup, Connecticut.

<IMG SRC 97161F>

Shea & Sullivan
10 Lanyard Lane
Waterford, CT 06385-3208

APPENDIX E

ADMINISTRATIVE RECORD INDEX

ROD Signed: September 1997

Prepared By
EPA New England
Office of Site Remediation & Restoration
U.S. Environmental Protection Agency

2 SITE ASSESSMENT - PRELIMINARY ASSESSMENT

Title: Preliminary Assessment Package for Gallup's Quarry, Plainfield, Connecticut.
Addressee: DON SMITH - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: KENNETH JONES - NUS CORPORATION/FIELD INVESTIGATION TEAM
Date: July 24, 1986
Format: MEMORANDUM No. Pgs: 12
AR No. 01.02.1 Document No. 000001

Title: Trip Report: Gallup's Quarry, Plainfield, Connecticut.
Addressee: DON SMITH - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: KENNETH JONES - NUS CORPORATION/FIELD INVESTIGATION TEAM
Date: January 9, 1987
Format: MEMORANDUM No. Pgs: 2
AR No. 01.02.2 Document No. 000002

Title: Summary of Telephone Conversation between EPA Contractor and Plainfield Crystal Water Company Regarding Water Services in Plainfield, Connecticut.
Addressee: RANDY KEMPAIGN - PLAINFIELD/CRYSTAL WATER CO.
Authors: JANE CONNET - NUS CORPORATION/FIELD INVESTIGATION TEAM
Date: June 17, 1987
Format: TELEPHONE MEMO No. Pgs: 1
AR No. 01.02.3 Document No. 000003

Title: Summary of a Telephone Conversation between EPA Contractor and Gallup Water Company Regarding Their service Area in Plainfield.
Addressee: GALLUP WATER CO.
Authors: JANE CONNET - NUS CORPORATION/FIELD INVESTIGATION TEAM
Date: June 18, 1987
Format: TELEPHONE MEMO No. Pgs: 1
AR No. 01.02.4 Document No. 000004

Title: Removal Program, Preliminary Assessment/Site Investigation for Gallup's Quarry Site, Plainfield, Connecticut.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: ROY F. WESTON/TECHNICAL ASSISTANCE TEAM
Date: August 1991
Format: REPORT, STUDY No. Pgs: 27
AR No. 01.02.5 Document No. 000005

02.02 REMOVAL RESPONSE - REMOVAL RESPONSE REPORTS

Title: Gallup's Quarry Site, Drinking Water Sampling Survey, Plainfield, Connecticut.
Addressee: US EPA REGION I/LEXINGTON
Authors: ROY F. WESTON/TECHNICAL ASSISTANCE TEAM
Date: 1993
Format: REPORT, STUDY No. Pgs: 78
AR No. 02.02.1 Document No. 000006

02.03 REMOVAL RESPONSE - SAMPLING & ANALYSIS DATA

Title: Evaluation of Soil Sample Taken from Gallup's Quarry Site Using Soil pH Method 9045.
Addressee: DOROTHY GIRTEN - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: KATHLEEN M. POLGAR - US EPA REGION I/LEXINGTON
Date: January 14, 1993
Format: MEMORANDUM No. Pgs: 2
AR No. 02.03.1 Document No. 000007

Title: Evaluation of Soil Samples Taken from Gallup's Quarry Site Using Test Method 335.2.
Addressee: DOROTHY GIRTEN - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: KATHLEEN M. POLGAR - US EPA REGION I/LEXINGTON
Date: January 28, 1993
Format: MEMORANDUM No. Pgs: 4
AR No. 02.03.2 Document No. 000008

03.01 REMEDIAL INVESTIGATION - CORRESPONDENCE

Title: Addendum to Ground Water Monitoring Report, Former Pervel Industries Flocking Plant, August and December 1992 Sampling Events.
Addressee: ROBINSON & COLE
Authors: HRP ASSOCIATES, INC.
Date: April 20, 1993
Format: LETTER No. Pgs: 117
AR No. 03.01.1 Document No. 000009

Title: Addendum to Ground Water Monitoring Report, Former Pervel Industries Flocking Plant, March and June 1993 Sampling Events.
Addressee: FRANK WILSON - CT YANKEE COMMUNITY AVENUE PARTNERSHIP
Authors: HRP ASSOCIATES, INC.
Date: October 25, 1993
Format: REPORT, STUDY No. Pgs: 28
AR No. 03.01.2 Document No. 000010

Title: Gallup's Quarry Superfund Site, Approval of Amended RI/FS Work Plan.
Addressee: THOMAS HARRISON - DAY, BERRY AND HOWARD
Authors: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: August 19, 1994
Format: LETTER No. Pgs: 1
AR No. 03.01.3 Document No. 000011

Title: Gallup's Quarry Superfund Project, CT DEP File Review.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: JIM BANNON, RUTH KRUMHANSL - ENVIRONMENTAL SCIENCE & ENGINEERING, INC
Date: March 28, 1995
Format: LETTER No. Pgs: 4
AR No. 03.01.4 Document No. 000012

Title: Gallup's Quarry Superfund Site: Third Draft Phase 1B Work Plan.
Addressee: THOMAS HARRISON - DAY, BERRY AND HOWARD
Authors: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: October 6, 1995
Format: LETTER No. Pgs: 2
AR No. 03.01.5 Document No. 000013

3.02 REMEDIAL INVESTIGATION - SAMPLING & ANALYSIS DATA

Title: Data Validation Report, Case No. 23076, SDG AJH43.
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 53
AR No. 03.02.1 Document No. 000014

Title: Data Validation Report, Case No. 23076.
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 31
AR No. 03.02.2 Document No. 000015

Title: Data Validation Report, Case No. 0008T SDG DAT070.
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 33
AR No. 03.02.3 Document No. 000016

Title: Data Validation Report, Case No. 23127 SDG MAC249.
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 36
AR No. 03.02.4 Document No. 000017

Title: Data Validation Report, Case No. 23127 SDG MAC238.
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 33
AR No. 03.02.5 Document No. 000018

Title: Data Validation Report, Case No. 23127 SDG AJHM.
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 58
AR No. 03.02.6 Document No. 000019

Title: Data Validation Report, Case No. 23127 SDG:AJH49 [Confidential].
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 57
AR No. 03.02.7 Document No. 000020
Title: Data Validation Report, Case No. 23127 SDGMAC238 [Confidential].
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 33
AR No. 03.02.8 Document No. 000021

Title: Data Validation Report, Case No. 23076 SDG: MAEP53 [Confidential].
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 31
AR No. 03.02.9 Document No. 000022

Title: Data Validation Report, Case No. 23127 SDG:MAC249 [Confidential].
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 36
AR No. 03.02.10 Document No. 000023

Title: Data Validation Report, Case No. 0008T SDG:DAT070 [Confidential].
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 34
AR No. 03.02.11 Document No. 000024

Title: Data Validation Report, Case No. 23076 SDG:AJH43 [Confidential].
Addressee: CHRISTINE CLARK - US EPA REGION I/LEXINGTON
Authors: EDWARD J. MACKINNON - TRC ENVIRONMENTAL CORPORATION
Date: April 17, 1995
Format: REPORT, STUDY No. Pgs: 53
AR No. 03.02.12 Document No. 000025

3.03 REMEDIAL INVESTIGATION - SCOPES OF WORK

Title: Statement of Work, Remedial Investigation and Feasibility Study, Gallup's Quarry Superfund Site.
Authors: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: September 7, 1993
Format: WORK PLAN No. Pgs: 55
AR No. 03.03.1 Document No. 000026

3.04 REMEDIAL INVESTIGATION - INTERIM DELIVERABLES

Title: Well Survey Performed at the Gallup's Quarry Site on January 21, 1993
Addressee: MIKE JASINSKI - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: KRISTINE CAMPBELL - METCALF & EDDY
Date: January 27, 1993
Format: LETTER No. Pgs: 8
AR No. 03.04.1 Document No. 000027

Title: Final Remedial Investigation/Feasibility Study, Work Plan - Phase 1A, Volume 1 - Work Plan.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: ENVIRONMENTAL SCIENCE & ENGINEERING, INC
Date: August 29, 1994
Format: REPORT; STUDY No. Pgs: 185
AR No. 03.04.2 Document No. 000028

Title: Final Remedial Investigation/Feasibility Study, Work Plan - Phase 1A, Volume 2 - Appendices A and B.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: ENVIRONMENTAL SCIENCE & ENGINEERING, INC
Date: August 29, 1994
Format: REPORT, STUDY No. Pgs: 232
AR No. 03.04.3 Document No. 000029

Title: Final Remedial Investigation/Feasibility Study, Work Plan - Phase 1A, Volume 3 - Appendices C, D and E.
Addressee: GALLUP'S QUARRY PRP GROUP TECH COMMITTEE
Authors: HALEY & ALDRICH
Date: August 29, 1994
Format: REPORT, STUDY No. Pgs: 582
AR No. 03.04.4 Document No. 000030

Title: Laboratory Comprehensive Quality Assurance Plan for Environmental Science & Engineering, Inc. Peoria Laboratory.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: BARBARA BEARD, KIM JOHNSON, BARBARA RAYA-HASH, LETTIE SCHMITT - ESE/PEORIA, IL LABORATORY
Date: October 1994
Format: REPORT, STUDY No. Pgs: 288
AR No. 03.04.5 Document No. 000031

Title: Phase 1B Work Plan, Gallup's Quarry Superfund Project, Revision 3.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: ENVIRONMENTAL SCIENCE & ENGINEERING, INC
Date: November 1995
Format: REPORT, STUDY No. Pgs: 46
AR No. 03.04.6 Document No. 000032

Title: Review of Initial Site Characterization Report--Phase IA, Draft October 6, 1995.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: MARK LEWIS - CT DEP/BUREAU OF WATER MANAGEMENT
Date: November 17, 1995
Format: LETTER No. Pgs: 3
AR No. 03.04.7 Document No. 000033

03.06 REMEDIAL INVESTIGATION - REMEDIAL INVESTIGATION REPORTS

Title: Gallup's Quarry Superfund Project, Remedial Investigation Report, Volumes I-VII.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: QST ENVIRONMENTAL
Date: June 1997
Format: REPORT, STUDY
AR No. 03.06.1 Document No. 000034

3.09 REMEDIAL INVESTIGATION - HEALTH ASSESSMENTS

Title: Health Consultation: Evaluation of Well Water Sampling, Gallup's Quarry, Plainfield, Connecticut.
Addressee: ALEX SHERRIN - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: LOUISE HOUSE - US EPA/ATSDR
Date: May 29, 1989
Format: MEMORANDUM No. Pgs: 2
AR No. 03.09.1 Document No. 000035

Title: Health Assessment for Gallup's Quarry Site, Plainfield, Connecticut. CERCLIS No. CTD108960972.
Authors: US DEPT. OF HEALTH & HUMAN SVCS/ATSDR
Date: January 30, 1991
Format: REPORT, STUDY No. Pgs: 15
AR No. 03.09.2 Document No. 000036

Title: Request for Health Consultation, Gallup's Quarry Superfund Site, Plainfield, CT.
Addressee: LOUISE HOUSE - US EPA/ATSDR
Authors: MIKE JASINSKI - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: February 19, 1993
Format: MEMORANDUM No. Pgs: 1
AR No. 03.09.3 Document No. 000037

Title: ATSDR Record of Activity: Review of Private Well Water Sampling Results for Eight Private Wells in the Vicinity of the Gallup's Quarry Site.
Addressee: MIKE JASINSKI - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: LYNN C. WALDEN - AGENCY FOR TOX SUBS. & DISEASE REGISTRY
Date: February 25, 1993
Format: PRINTOUT No. Pgs: 2
AR No. 03.09.4 Document No. 000038

Title: Investigation of Cancer Occurrence in Canterbury, Griswold, Lisbon, and Plainfield, Connecticut, 1971-1990.
Authors: DIANE D. AYE - CT DEPARTMENT OF HEALTH SERVICES
Date: March 24, 1993
Format: MEMORANDUM No. Pgs: 10
AR No. 03.09.5 Document No. 000039

Title: ATSDR Record of Activity: Health Consultation for Additional Data Collected During Follow-up Site Visits, with Attached Analytical Data.
Authors: EDWARD BAZENAS - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: March 31, 1993
Format: PRINTOUT No. Pgs: 11
AR No. 03.09.6 Document No. 000040

Title: ATSDR Record of Activity: Explanation of Soil Sampling Results for the Gallup's Quarry Site.
Authors: LYNN C. WALDEN - AGENCY FOR TOX SUBS. & DISEASE REGISTRY
Date: March 31, 1993
Format: PRINTOUT No. Pgs: 2
AR No. 03.09.7 Document No. 000041

Title: Health Consultation, Gallup's Quarry, Plainfield, Connecticut, CERCLIS No. CTD10896072.
Date: June 2, 1994
Format: REPORT, STUDY No. Pgs: 4
AR No. 03.09.8 Document No. 000042

Title: Gallup's Quarry Superfund Site, Plainfield, CT, Request for Health Consultation.
Addressee: LOUISE HOUSE - US EPA/ATSDR
Authors: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: May 3, 1995
Format: MEMORANDUM No. Pgs: 1
AR No. 03.09.9 Document No. 000043

Title: ATSDR Record of Activity: Review of Results of Soil Sample Analysis for PCBs.
Authors: ROBERT WILLIAMS - AGENCY FOR TOX SUBS. & DISEASE REGISTRY
Date: May 30, 1995
Format: PRINTOUT No. Pgs: 3
AR No. 03.09.10 Document No. 000044

Title: ATSDR Record of Activity: Comments on PCB Levels Analyzed in Soil Samples Taken from the Gallup's Quarry site.
Authors: ROBERT WILLIAMS - AGENCY FOR TOX SUBS. & DISEASE REGISTRY
Date: July 12, 1995
Format: PRINTOUT No. Pgs: 2
AR No. 03.09.11 Document No. 000045

3.10 REMEDIAL INVESTIGATION - ENDANGERMENT/BASELINE RISK ASSESSMENTS

Title: Risk Assessments, Gallup's Quarry Project.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: W. GARY WILSON - ENVIRONMENTAL SCIENCE & ENGINEERING, INC
Date: April 12, 1995
Format: LETTER No. Pgs: 2
AR No. 03.10.1 Document No. 000046

Title: Risk Assessment, Gallup's Quarry Superfund Site, Plainfield, Connecticut, Pathway Analysis Report, Revision 1.0.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: November 1995
Format: REPORT, STUDY No. Pgs: 88
AR No. 03.10.2 Document No. 000047

Title: Comments on a February 2, 1996 Letter from TRC Corporation.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: February 22, 1996
Format: MEMORANDUM No. Pgs: 2
AR No. 03.10.3 Document No. 000048

Title: Gallup's Quarry Risk Assessment, Draft Risk Assessment, Contract No. 68-W9-0033, WA No. 23-1LB7.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: PAUL HUGHES - TRC ENVIRONMENTAL CORPORATION
Date: May 10, 1996
Format: LETTER No. Pgs: 2
AR No. 03.10.4 Document No. 000049

Title: Review of Gallup's Quarry Draft Human Health Risk Assessment.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: SARAH LEVINSON - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: June 25, 1996
Format: MEMORANDUM No. Pgs: 3
AR No. 03.10.5 Document No. 000050

Title: Gallup's Quarry Risk Assessment, Draft Risk Assessment (Revision 1).
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: PAUL HUGHES - TRC ENVIRONMENTAL CORPORATION
Date: July 19, 1996
Format: LETTER No. Pgs: 2
AR No. 03.10.6 Document No. 000051

Title: Comments on Draft Risk Assessment, Gallup's Quarry Superfund Project, ESE Project No. 7194138.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: W. GARY WILSON - ENVIRONMENTAL SCIENCE & ENGINEERING, INC
Date: February 4, 1997
Format: LETTER No. Pgs: 4
AR No. 03.10.7 Document No. 000052

Title: Human Health Risk Assessment Addendum, Gallup's Quarry Superfund Site, Plainfield, Connecticut.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: TRC COMPANIES
Date: May 1997
Format: REPORT, STUDY No. Pgs: 416
AR No. 03.10.8 Document No. 000053

04.06 FEASIBILITY STUDY - FEASIBILITY STUDY REPORTS

Title: Gallup's Quarry Superfund Project Development and Initial Screening of Alternatives Report.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: MARK LEWIS - CT DEP/BUREAU OF WATER MANAGEMENT
Date: August 1, 1986
Format: LETTER No. Pgs: 18
AR No. 04.06.1 Document No. 000054

Title: Gallup's Quarry Superfund Project, Draft Feasibility Study.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: MARK LEWIS - CT DEP/BUREAU OF WATER MANAGEMENT
Date: March 10, 1997
Format: LETTER No. Pgs: 13
AR No. 04.06.2 Document No. 000055

Title: Feasibility Study, Volume 1 - Text, Figures, Tables & Plates.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: QST ENVIRONMENTAL
Date: June 1997
Format: REPORT, STUDY No. Pgs: 353
AR No. 04.06.3 Document No. 000056

Title: Feasibility Study, Volume 2 - Appendices A, B, C, D & E.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: QST ENVIRONMENTAL
Date: June 1997
Format: REPORT, STUDY No. Pgs: 219
AR No. 04.06.4 Document No. 000057

04.09 FEASIBILITY STUDY - PROPOSED PLANS FOR SELECTED REMEDIAL ACTION

Title: Proposed Plan for the Gallup's Quarry Superfund Site.
Authors: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: June 1997
Format: REPORT, STUDY No. Pgs: 14
AR No. 04.09.1 Document No. 000058

5.03 RECORDS OF DECISION - RESPONSIVENESS SUMMARIES

Title: Comments on Proposed Plan for Gallup's Quarry Site.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: CAROL LYNN SHAGZDA
Date: 1997
Format: FORM No. Pgs: 2
AR No. 05.03.1 Document No. 000059

Title: Comment on the Equipment, Trailers and Fencing Left Behind at the Gallup's Quarry Site.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: JOHN BLAKNEY, RUTH BLAKNEY
Date: June 27, 1997
Format: MEMORANDUM No. Pgs: 1
AR No. 05.03.2 Document No. 000060

Title: Comments on the Proposed Plan for the Gallup's Quarry Superfund Site.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: W. GARY WILSON
Date: July 15, 1997
Format: LETTER No. Pgs: 2
AR No. 05.03.3 Document No. 000061

Title: State Comments Regarding Proposed Plan for the Gallup's Quarry Superfund Site.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: MARK LEWIS - CT DEP/BUREAU OF WATER MANAGEMENT
Date: July 22, 1997
Format: LETTER No. Pgs: 2
AR No. 05.03.4 Document No. 000062

9.10 STATE COORDINATION - STATE TECHNICAL AND HISTORICAL RECORDS

Title: Gallup's Quarry Federal National Priorities List Superfund Site, Plainfield, Connecticut, Preliminary Ground Water Use and Value Determination.
Authors: SIDNEY HOLBROOK - CT DEPT. OF ENVIRONMENTAL PROTECTION
Date: March 18, 1996
Format: MEMORANDUM No. Pgs: 15
AR No. 09.10.1 Document No. 000063

Title: Draft Preliminary Ground Water Use & Value Determination, Gallup's Quarry Superfund Project.
Addressee: MARK LEWIS - CT DEP/BUREAU OF WATER MANAGEMENT
Authors: W. GARY WILSON - ENVIRONMENTAL SCIENCE & ENGINEERING, INC
Date: October 28, 1996
Format: LETTER No. Pgs: 2
AR No. 09.10.2 Document No. 000064

Title: Final Ground Water Use & Value Determination for the Gallup's Quarry Superfund Site.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: SIDNEY HOLBROOK - CT DEPT. OF ENVIRONMENTAL PROTECTION
Date: August 11, 1997
Format: REPORT, STUDY No. Pgs: 16
AR No. 09.10.3 Document No. 000065

10.07 ENFORCEMENT/NEGOTIATION - EPA ADMINISTRATIVE ORDERS

Title: Consent Order, Gallup's Quarry Superfund Site, Plainfield, Connecticut, CERCLA Docket No. I-93-1080.
Authors: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: August 1993
Format: No. Pgs: 129
AR No. 10.07.1 Document No. 000066

Title: Final Acceptance of Cost Recovery Settlement, Gallup's Quarry Superfund Site, Plainfield, Connecticut.
Addressee: JOHN DEVILLARS - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: MARGERY ADAMS, LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: February 16, 1994
Format: MEMORANDUM No. Pgs: 147
AR No. 10.07.2 Document No. 000067

13.02 COMMUNITY RELATIONS - COMMUNITY RELATIONS PLANS

Title: Community Relations Plan, Gallup's Quarry Superfund Site, Plainfield, Connecticut.
Authors: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: June 1994
Format: REPORT, STUDY No. Pgs: 15
AR No. 13.02.1 Document No. 000068

13.03 COMMUNITY RELATIONS - NEWS CLIPPINGS/PRESS RELEASES

Title: Now What Do We Do With It?!.
Authors: MARK KESHGIAN
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.1 Document No. 000069

Title: Plainfield Executive Charged in Chemical Wastes Burial.
Authors: GERALD DEMEUSY
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.2 Document No. 000070

Title: EPA Targets Two Sites for Superfund Cleanup.
Authors: DON BOND
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.3 Document No. 000071

Title: Gallup Demands Respect - Commands Great Power.
Authors: NORWICH BULLETIN
Date: 1978
Format: NEWS CLIPPING No. Pgs: 2
AR No. 13.03.4 Document No. 000072

Title: Trailer Truck Photograph May Identify Source of Gravel Pit Chemical Dumping.
Authors: MARION PROKOP - NORWICH BULLETIN
Date: January 17, 1978
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.5 Document No. 000073

Title: Police Raid Five Businesses in Toxic Chemical Crime sweep.
Authors: ED MAHONY, MARION PROKOP - NORWICH BULLETIN
Date: March 11, 1978
Format: NEWS CLIPPING No. Pgs: 2
AR No. 13.03.6 Document No. 000074

Title: Barrels Impounded in Case Involving Toxic Chemicals.
Authors: THEODORE DRISCOLL - HARTFORD COURANT
Date: March 11, 1978
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.7 Document No. 000075

Title: Chemicals in Plainfield Pit Part of Illegal Interstate Venture.
Authors: MARION PROKOP - NORWICH BULLETIN
Date: March 11, 1978
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.8 Document No. 000076

Title: Toxic Chemicals Under Guard.
Authors: THEODORE DRISCOLL - HARTFORD COURANT
Date: March 12, 1978
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.9 Document No. 000077

Title: State Police Continue to Probe Disposal of Flammable Chemicals.
Authors: BRIDGEPORT POST
Date: March 16, 1978
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.10 Document No. 000078

Title: Latest Form of Recognition Taints Gallup's Reputation.
Authors: PAUL FRISMAN
Date: April 8, 1978
Format: NEWS CLIPPING No. Pgs: 2
AR No. 13.03.11 Document No. 000079

Title: Court Tells Gallup to Pay $790,000.
Authors: ED MAHONY - NORWICH BULLETIN
Date: May 13, 1978
Format: NEWS CLIPPING No. Pgs: 2
AR No. 13.03.12 Document No. 000080

Title: Region May Be Littered with Hazardous Dump Sites.
Authors: DENIS MORIN - NORWICH BULLETIN
Date: December 2, 1978
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.13 Document No. 000081

Title: Hazardous Waste Disposal Plan Needed to Retain Industries.
Authors: ANSON SMITH - NORWICH BULLETIN
Date: February 1, 1979
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.14 Document No. 000082

Title: A Case of Too Little Action Too Late - Toxic Waste Dumping Has Taken Its Toll.
Authors: MARK KESTIGIAN
Date: March 21, 1980
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.15 Document No. 000083

Title: EPA Wants Comments On Potential Superfund Sites.
Authors: CLAIRE BESSETTE - NORWICH BULLETIN
Date: September 9, 1988
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.16 Document No. 000084

Title: Gallup Quarry on Cleanup List.
Authors: DON BOND - NORWICH BULLETIN
Date: September 29, 1989
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.17 Document No. 000085

Title: Firms Agree to Pay for Toxic Waste Study at Gallup's Quarry.
Authors: CLAIRE BESSETTE - NORWICH BULLETIN
Date: September 15, 1993
Format: NEWS CLIPPING No. Pgs: 1
AR No. 13.03.18 Document No. 000086

13.04 COMMUNITY RELATIONS - PUBLIC MEETINGS/HEARINGS

Title: Gallup's Quarry Superfund Site - Plainfield, Connecticut - Community Meeting and Public Hearing on the Proposed Plan.
Authors: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: June 5, 1997
Format: PUBLIC MEETING RECORDS No. Pgs: 1
AR No. 13.04.1 Document No. 000087

13.05 COMMUNITY RELATIONS - FACT SHEETS/INFORMATION UPDATES

Title: 23 Parties Sign Administrative Agreement with the EPA to Undertake Studies at the Gallup's Quarry Superfund Site.
Authors: US EPA/OFFICE OF COMMUNITY RELATIONS
Date: August 1994
Format: FACT SHEET, PRESS RELEASE No. Pgs: 3
AR No. 13.05.1 Document No. 000088

Title: EPA Announces the Start of the Remedial Investigation at the Gallup's Quarry Site.
Authors: US EPA/OFFICE OF COMMUNITY RELATIONS
Date: August 1994
Format: FACT SHEET, PRESS RELEASE No. Pgs: 9
AR No. 13.05.2 Document No. 000089

Title: Announcement of Availability of the Gallup's Quarry Superfund Site Community Relations Plan.
Authors: US EPA/OFFICE OF COMMUNITY RELATIONS
Date: August 3, 1994
Format: FACT SHEET, PRESS RELEASE No. Pgs: 2
AR No. 13.05.3 Document No. 000090

Title: Site Investigations Complete at Gallup's Quarry Superfund Site.
Authors: US EPA/OFFICE OF COMMUNITY RELATIONS
Date: November 1996
Format: FACT SHEET, PRESS RELEASE No. Pgs: 4
AR No. 13.05.4 Document No. 000091

Title: Remedial Investigation Activities Completed at the Gallup's Quarry Site.
Authors: US EPA/OFFICE OF COMMUNITY RELATIONS
Date: November 1996
Format: REPORT, STUDY No. Pgs: 7
AR No. 13.05.5 Document No. 000092

16.01 NATURAL RESOURCE TRUSTEE - CORRESPONDENCE

Title: Analysis of Potential Offsite Migration of Hazardous Substances in the Watershed.
Addressee: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: KENNETH FINKELSTEIN - NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.
Format: LETTER No. Pgs: 1
AR No. 16.01.1 Document No. 000093

Title: Notification of Impending RI/FS Negotiations with Gallup's Quarry Potentially Responsible Parties.
Addressee: WILLIAM PATTERSON - US DEPARTMENT OF THE INTERIOR
Authors: LESLIE MCVICKAR - ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Date: March 3, 1993
Format: LETTER No. Pgs: 1
AR No. 16.01.2 Document No. 000094

16.05 NATURAL RESOURCE TRUSTEE - TECHNICAL ISSUE PAPERS

Title: Finalized Habitat Characterization Report for the Gallup's Quarry National Priorities List Site, Plainfield, Connecticut.
Addressee: ENVIRONMENTAL PROTECTION AGENCY/REGION 1
Authors: US FISH AND WILDLIFE SERVICE/NEW ENGLAND
Date: March 1995
Format: REPORT, STUDY No. Pgs: 18
AR No. 16.05.1 Document No. 000095

17.08 SITE MANAGEMENT RECORDS - FEDERAL AND LOCAL TECHNICAL AND HISTORICAL

Title: Geohydrology of the Gallup's Quarry Area, Plainfield, Connecticut.
Authors: US GEOLOGICAL SURVEY
Date: 1995
Format: REPORT, STUDY No. Pgs: 62
AR No. 17.08.1 Document No. 000096

Guidance Documents

The EPA guidance documents listed below were considered during the process of selecting the response action for the Gallup's Quarry site. These EPA guidance documents may be reviewed at the EPA Region I Office of Site Remediation and Restoration Records Center, 90 Canal Street, Boston, MA 02114.

1. Additional Interim Guidance for Fiscal Year 1987 Records of Decision, J. Winston Porter, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. (OSWER Directive No. 9355.0-21). July 24, 1987.

2. Alternate Concentration Limit Guidance Part 1 - ACL Policy and Information Requirements, U.S. Environmental Protection Agency, Office of Solid Waste/Waste Management Division. (OSWER 9481.00-6c).

   July 1, 1987.

3. ARARs Q'a & A's. General Policy: RCRA CWA & SWDA. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. (OERR 9234.2-01FS). May 1, 1989.

4. CERCLA Compliance With Other Laws Manual-CERCLA Compliance with the CWA and SDWA [Quick Reference Fact Sheet]. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. (OSWER 9234.2-06FS). February 1, 1990.

5. CERCLA Compliance With Other Laws Manual-Overview of ARARs-Focus on ARAR Waivers [Quick Reference Fact Sheet]. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. (OSWER 9234.2-03FS). December 1, 1989.

6. CERCLA Compliance With Other Laws Manual Part II: Clean Air Act and Other Environmental Statutes and State Requirements [Quick Reference Fact Sheet]. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. (OSWER 9234.1-02). August 1, 1989.

7. Community Relations in Superfund: A Handbook (Interim Version). U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. (OERR 9230.0-038). June 1, 1988.

8. Comprehensive Environmental Response, Compensation, and Liability Act of 1980. U.S. Environmental Protection Agency. October 17, 1980.

9. Considerations in Groundwater Remediation at Superfund Sites. U.S. Environmental Protection Agency. (9355.3-11). October 18, 1989.

10. Determining Soil Response Action Levels Based on Potential Contaminant Mbaration to Ground Water: A Compendium of Examples. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. (EPA/540/2-89/057). October 1989.

11. Drinking Water Regulations Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper Proposed Rule. U.S. Environmental Protection Agency. (Federal Register, Volume 53, No. 160). August 18, 1988.

12. EPA Guide for Minimizing Adverse Environmental Effects of Cleanup of Uncontrolled Hazardous Waste Sites. U.S. Environmental Protection Agency, Environmental Research Laboratory. (EPA/600/8-85/008). June 1, 1985.

13. Estimated Soil Ingestion Rates for Use in Risk Assessment. Peter K. Lagoy. Taken from Risk Analysis, Vol. 7, No. 3. January 8, 1987.

14. Estimating Potential for Occurrence of DNAPL at Superfund Sites. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response. (OSWER 9355.4-07FS). January 1, 1992.

15. Evaluating Cover Systems for Solid and Hazardous Waste. R.J. Lutton, U.S. Army Corps of Engineers. (9476.00-1). September 1, 1982.
16. Evaluation of Ground-Water Extraction Remedies-Volume 1 Summary Report. U.S. Environmental Protection Agency. (EPA/540/2-89/054). September 1, 1989.

17. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Department of Army, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Soil Conservation Service. January 10, 1989.

18. Final Guidance on Oversight of Potentially Responsible Party Remedial Investigations and Feasibility Studies. Volumes 1 & 2. U.S. Environmental Protection Agency, Office of Research and Development. July 1, 1991.

19. Final Ground Water Use and Value Determination Guidance. U.S. Environmental Protection Agency. April 3, 1996.

20. Ground Water Protection Strategy. U.S. Environmental Protection Agency, Office of Ground-Water Protection. (EPA/440/6-84/002). August 1, 1984.

21. Guidance on Remedial Actions for Superfund Sites with PCB Contamination. U.S. Environmental Protection Agency. (9355.4-01). August 1, 1990.

22. Guide to Selecting Superfund Remedial Actions. U.S. Environmental Protection Agency. (9355.02FS-4). April 1, 1990.

23. Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response/Office of Emergency and Remedial Response. (OSWER/OERR 9355.3-01). October 1, 1988.

24. Interim Final Guidance on Preparing Superfund Decision Documents: Proposed Plan, Record of Decision, ESDs, Record of Decision Amendment. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. (OERR 9355.3-02). June 1, 1989.

25. Interim Guidance on Superfund Selection of Remedy. J.W. Porter, U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response (OSWER 9355.0-19). December 24, 1986.

26. National Oil and Hazardous Substances Pollution Continency Plan. U.S. Environmental Protection Agency. (CFR Title 40, Part 300). November 20, 1985.

27. National Primary and Secondary Drinking Water Regulations. U.S. Environmental Protection Agency. (Federal Register, Vol. 54, No. 97). May 22, 1989.

28. National Primary Drinking Water. Regulations Volatile Synthetic Organic Chemicals. U.S.Environmental Protection Agency. (Federal Register, Vol. 50, No. 219). November 13, 1985.

29. Protection of Wetlands: Executive Order 11990. President Jimmy Carter. (Federal Register Vol. 42, No. 26961. May 24, 1977.

30. Risk Assessment Guidance for Superfund. Volume I, Human Health Evaluation Manual. U.S. Environmental Protection Agency. (9285.7-01a). September 29, 1989.

31. Risk Assessment Guidance for Superfund. Volume II, Environmental Evaluation Manual. U.S. Environmental Protection Agency. (EPA/540/1-89/001). March 1, 1989.

32. Risk Assessment Guidance for Superfund. Volume 1. Human Health Evaluation Manual Supplemental Guidance: Standard Default Exposure Factors. Interim Final. U.S. Environmental Protection Agency, Office of Emergency and Remedial Response. (OERR 9285.6-03). March 25, 1991.

33. Risk-Based Concentration Table, Third Quarter 1994. Roy L. Smith, U.S. Environmental Protection Agency, Region III. July 11, 1994.

34. Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions. U.S. Environmental Protection Agency, Office of Solid Waste and Emergency Response (OSWER 9355.0-30). April 22,1991.

35. Superfund LDR Guide #5: Determining When Land Disposal Restrictions (LDRs) are Applicable to CERCLA Response Actions. U.S. Environmental Protection Agency. (OSWER 9347.3-05FS). July 1, 1989.