Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
Matt Petroleum Site
Operable Unit No. 1
City of Utica, Oneida County, New York
Site Number B00192-6

June 2007

New York State Department of Environmental Conservation
ELIOT SPITZER, *Governor* Alexander B. Grannis, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

Matt Petroleum Environmental Restoration Site
Operable Unit No. 1
City of Utica, Oneida County, New York
Site No. B00192-6

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for Operable Unit 1 of the Matt Petroleum site, an environmental restoration site. The selected remedial program was chosen in accordance with the New York State Environmental Conservation Law and is not inconsistent with the National Oil and Hazardous Substances Pollution Contingency Plan of March 8, 1990 (40CFR300), as amended.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for Operable Unit 1 of the Matt Petroleum environmental restoration site, and the public's input to the Proposed Remedial Action Plan (PRAP) presented by the Department. A listing of the documents included as a part of the Administrative Record is included in Appendix B of the ROD.

Assessment of the Site

Actual or threatened releases of hazardous substances and/or petroleum products from this site, if not addressed by implementing the response action selected in this ROD, presents a current or potential significant threat to public health and/or the environment.

Description of Selected Remedy

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the Matt Petroleum site and the criteria identified for evaluation of alternatives, the Department has selected to excavate the petroleum contaminated soils and treat onsite by soil turning methods. Contaminated soils which are not amenable to treatment will be disposed offsite at a permitted landfill. The components of the remedy are as follows:

1. Sheet-pile and/or other barriers may be utilized along the Mohawk River to prevent releases to the surface water, to stabilize the river bank and to prevent infiltration of water on to the site during remediation.

2. A soil management and treatment plan will be developed to coordinate the movement, treatment and replacement of soils. The site will be divided in to sections in order to manage and move soils in an effective and efficient manner. Soils will be screened to remove large pieces of debris such as wood, brick and metal. The soils will then be placed in rows and the soil turning will commence. Based on field indicators and subsequently laboratory analysis, soil turning will continue until SCGs are achieved.

3. Some soils which are deemed un-treatable and/or heavily contaminated will be taken off site for disposal at a permitted landfill. Treated soils will be placed back in the de-watered excavation. Imported clean back fill may be used as backfill, incorporated with the treated soil and/or placed on top of treated soil.

4. Soils found off site in the low lying areas to the southwest will be excavated for on site treatment and the areas will be restored.

5. Imposition of an institutional control in the form of an environmental easement.

6. Development of a site management plan.

7. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy selected for this site is protective of human health.

Declaration

The selected remedy is protective of human health and the environment, complies with State and Federal requirements that are legally applicable or relevant and appropriate to the remedial action to the extent practicable, and is cost effective.

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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SECTION 1: SUMMARY Of THE RECORD OF DECISION

The New York State Department of Environmental Conservation (the Department), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the Matt Petroleum Site. The presence of hazardous substances has created threats to human health and/or the environment that are addressed by this proposed remedy.

The 1996 Clean Water/Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of Brownfields. Under the Environmental Restoration Program, the state provides grants to municipalities to reimburse up to 90 percent of eligible costs for site investigation and remediation activities. Once remediated, the property can then be reused.

As more fully described in Sections 3 and 5 of this document, during the operation of this major oil facility, leaking tanks, piping and numerous spills have resulted in the disposal of hazardous substances, including various grades of petroleum products ranging from heavy oils to gasoline. These hazardous substances have contaminated the soils and groundwater at the site, and have resulted in:

- a threat to human health associated with the exposure to petroleum products found in on-site soils and groundwater.
- an environmental threat associated with the current impacts of contaminants to the soil and groundwater and the potential impacts to the surface water in the Mohawk River.

To eliminate or mitigate these threats, the Department has selected excavation of petroleum contaminated soils and treatment onsite by soil turning methods. Contaminated soils which are not amenable to treatment will be disposed offsite at a permitted landfill.

The selected remedy, discussed in detail in Section 8, is intended to attain the remediation goals identified for this site in Section 6. The remedy must conform with officially promulgated standards and criteria that are directly applicable, or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, criteria and guidance are hereafter called SCGs.

SECTION 2: SITE LOCATION AND DESCRIPTION

Operable Unit No. 1 is the land based portion of the site. The Matt Petroleum Site is located on Leland Avenue in the City of Utica, Oneida County (See Figure 1). The site is located in a heavy industrial area in the northern part of the City of Utica. Leland Avenue, the City of Utica Fire Training Facility (former bulk petroleum terminal) and Universal Waste (scrap yard) are located to the east and southeast, the City of Utica Bus Garage, the East Olive Oil Company and rail lines are located to the south, a former bulk petroleum terminal is located to the west and the Mohawk River is found directly north of the site (See Figure 2).

The property is approximately 4.7 acres in size and has one intact building which housed the former operations offices and the maintenance facility. Prior to the Spring of 2004, the site was an abandoned bulk petroleum terminal. From the November of 2003 to June of 2004, an IRM was conducted to remove all structures, including ten bulk petroleum tanks, three above ground blending tanks, a slop tank, an oil/water separator, five loading racks, two pump houses, buried piping, and four buildings (See Figure 3) .

Prior to construction of the Mohawk River in the early 1900s, the path of the Mohawk River was to the south of the site, but was relocated to the north as part of the Canal construction program. The property was the site of a former brickyard during the first half of the 1900s. From about 1950 to the early 1990's the property has been the site of a bulk petroleum terminal. Since the 1990's the site has remained unused.

The site is relatively flat and groundwater is found varying from two (2) to four (4) feet below the ground surface, depending on seasonal fluctuations. The site soils are comprised of a fill unit overlying a clay-silt unit. The overlying fill unit extends from the ground surface to between seven to twelve feet. This soil contains fine to course sand and gravel with brick fragments, concrete and other pieces of rubble and debris. The underlying clay-silt unit starts generally from seven (7) to twelve (12) feet below the ground surface. This material is characterized as a low permeable layer, which creates a barrier to downward contamination migration.

Operable Unit (OU) No. 1, which is the discussed in this document, consists of the land based portion of the site. An operable unit represents a portion of the site remedy that for technical or administrative reasons can be addressed separately to eliminate or mitigate a release, threat of release or exposure pathway resulting from the site contamination. The remaining operable unit for this site is comprised of the offsite area associated with the Mohawk River. A Remedial Investigation (RI) will be required to characterize the surface water and sediments found in the Mohawk River. The RI will evaluate the impacts that the site has had on the surface water and sediment quality.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The use of this site as a bulk petroleum terminal from the 1950 to the 1990s has resulted in the release of petroleum products to the environment. Leaking tanks and piping appears to have been the most significant pathway for contamination to reach soil and groundwater. Several major releases in excess of 50,000 gallons have been documented over the operational period. In addition, frequent releases of small amounts of petroleum products occurred during the filling and transfer process. The facility used and spilled various grades of petroleum products, which ranged from a heavy No. 6 fuel oil to lighter gasoline and diesel products.

3.2: Remedial History

Several phases of subsurface investigations have been performed at the site over the last ten years. Individual remediation projects have consisted of emptying and cleaning various aboveground storage tanks (ASTs) and closure and removal of several underground storage tanks (USTs).

1. Four monitoring wells were installed in the main bulk storage tank area as part of the Major Oil Storage Facility monitoring program in the 1980s. No boring logs or well construction details were available.

2. Engineering plans for the secondary containment and drainage system showed a cut off wall (a slurry wall) was installed around the main bulk storage tank area in approximately 1988 as an upgrade to the secondary spill containment system. Notes on construction details obtained from Department files indicate the cut off wall extends from the ground surface, across the water table, and one (1) foot into the lower permeability silt soil (approximately eight to nine feet below ground surface (bgs)).

3. In 1983, five (5) monitoring wells were installed in the southwestern area of the site as part of a hydrogeologic investigation.

4. In 1989, five USTs were removed from the site. UST-5 was a 2,000 gallon diesel UST. No further information on this removal was found.

5. In 1998, an additional investigation was performed to delineate the extent of the Light Non Aquas Phase Liquid (LNAPL) plume in the blending tank area (MW-1). The investigation consisted of the performance of a test boring (TB-12) and installation of two (2) monitoring wells (MW-11 and MW-13).

6. In 1998, the United States Environmental Protection Agency (EPA) completed an Emergency Removal Action at the site. The purpose of the action was to remove oil products from the ASTs, drums and containers, and any accumulation of oil on the ground. At the time of the work, the oil/water separator discharge valve was stuck closed and the separator was overflowing. The main activities included the following:
   a. Emptying and crushing over 50 drums,
   b. Removal of approximately 188,000 gallons of oil-based products from six ASTs,
   c. Removal of approximately 145,000 gallons of water from two ASTs,
   d. Emptying and cleaning six ASTs.

7. In 2002, four USTs were removed, which included two 750 gallon waste oil tanks and two #2 fuel oil tanks (750 gallons and 1000 gallons).

8. Groundwater elevation data and analytical data have been obtained since 1993. Groundwater flows have been shown to be toward the southeast corner of the site and also toward the northeast toward the Mohawk River. Contamination data from a January 2002 report identified the following:
   a. LNAPL layers were reported in MW-1 and MW-11 in the blending tank area,
   b. Moderate levels of VOC contamination were reported in MW-5, MW-6, MW-7, MW-8 and MW-9,
   c. Monitoring wells with a history of non-detect VOC concentrations include MW-2, MW-3 and MW-4 in the main bulk storage area and MW-10 in the UST area,
   d. Monitoring wells MW-5, MW-6 and MW-7 in the UST/loading rack area had low levels of SVOCs ranging from 11 parts per billions (ppb) to 22 ppb,.
   e. Methyl-tert-butyl ether (MTBE) was detected in MW-7 and MW-8 in the UST area at 3 and 8 ppb, respectively. Historically, all other wells had non-detectable levels of MTBE.

9. A pilot test of a high vacuum extraction system was performed in 2002.

SECTION 4: <u>ENFORCEMENT STATUS</u>

Potentially Responsible Parties (PRPs) are those who may be legally liable for contamination at a site. This may include past owners and operators, waste generators, and haulers.

There are currently no ongoing enforcement actions. However, legal action may be initiated at a future date by the state to recover state response costs should PRPs be identified. The City of Utica will assist the state in its efforts by providing all information to the state which identifies PRPs. The City of Utica will also not enter into any agreement regarding response costs without the approval of the Department.

SECTION 5: SITE CONTAMINATION

The City of Utica has recently completed a site investigation/remedial alternatives report (SI/RAR) to determine the nature and extent of any contamination by hazardous waste at this Environmental Restoration Site.

5.1: Summary of the Site Investigation

The purpose of the SI was to define the nature and extent of any contamination resulting from previous activities at the site. The SI was conducted between May of 2004 and September of 2006. The field activities and findings of the investigation are described in the SI report.

The following activities were conducted during the SI (See Figure 4):

- A total of 45 test pits were excavated between May14 and May 18, 2004. Soil lithology and observations were recorded. Test pits ranged in depth from six (6) to ten (10) feet below grade.
- A total of 79 soil borings were advanced across and adjacent to the site. The borings were completed using a Geoprobe percussion sampler. Samples were collected using a two inch in diameter by four feet sleeved sampler.
- A total of 16 permanent monitoring wells were installed during the field activities to evaluate both groundwater flow direction and quality.
- A total of 12 surface soil samples were collected during the investigation, including two samples along the Mohawk River bank. These samples were collected to assess the extent of surficial contamination and for use in the assessment of contaminant fate and transport and for the baseline risk assessment.
- Between January and June of 2006, a bench scale program was conducted to evaluate both biological and chemical treatment options for the petroleum contaminated soils. The results of the bench scale testing were utilized to conduct the pilot scale testing.
- Between June and September of 2006, a pilot scale test program was conducted utilizing a soil turning method. Five soil piles were created and monitored for both chemical and biological parameters in order to determine the effectivness and duration required for the soil turning program.

5.1.1: Standards, Criteria, and Guidance (SCGs)

To determine whether the soil and groundwater contain contamination at levels of concern, data from the investigation were compared to the following SCGs:

- Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

- Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels.".

Based on the SI results, in comparison to the SCGs and potential public health and environmental exposure routes, certain media and areas of the site require remediation. These are summarized in Section 5.1.2. More complete information can be found in the SI report.

5.1.2: Nature and Extent of Contamination

This section describes the findings of the investigation for all environmental media that were investigated.

As described in the SI report, many soil and groundwater samples were collected to characterize the nature and extent of contamination. As seen in Table 1, the main categories of contaminants that exceed their SCGs are volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and inorganics (metals). For comparison purposes, where applicable, SCGs are provided for each medium.

Chemical concentrations are reported in parts per billion (ppb) for water and parts per million (ppm) for waste and soil. Air samples are reported in micrograms per cubic meter ($\mu g/m^3$).

Figure 5 and Table 1 summarize the degree of contamination for the contaminants of concern in and compare the data with the SCGs for the site. The following are the media which were investigated and a summary of the findings of the investigation.

Waste Materials

The site was operated most recently as a bulk storage and dispensing site. The facility primarily stored and dispensed petroleum fuel oils and gasoline products. From the fall of 2003 to June of 2004, the City of Utica conducted an IRM at the site. During the IRM, the following items were cleaned, dismantled and removed from the site for disposal and/or recycling (See Figure 3). The majority of the tank contents had been previously removed except for a bottom sludge/product layer.

1. AST-1 Kerosene (413,800 gallons)
2. AST-2 No. 6 Fuel Oil (720,300 gallons)
3. AST-3 Light Distillate (720,300 gallons)
4. AST-4 No. 6 Fuel Oil (1,551,200 gallons)
5. AST-5 Light Distillate (1,039,500 gallons)
6. AST-6 Light Distillate (1,220,800 gallons)
7. AST-7 No. 6 Fuel Oil (1,789,200 gallons)
8. AST-8 No. 2 Fuel Oil (1,789,200 gallons)
9. AST-9 No. 6 Fuel Oil (986,000 gallons)
10. AST -10 No. 2 Fuel Oil (2,260,500 gallons)
11. AST 11 through 13 Horizontal Fuel Blending Tanks (25,000 gallons each)
12. AST 14 Horizontal Tank (10,000)
13. UST 1 through 5 stored Waste oil, No. 2 and gasoline(750 to 2,000 gallons)
14. A boiler house used to heat residual petroleum products and an adjacent pump room
15. A maintenance bay in the north end of the main building
16. A garage located adjacent to the former AST-9
17. An oil/water separator (25,000 gallons)
18. Fuel oil spills to the ground and around the dispenser loading racks
19. Five loading racks
20. Various small containers of chemicals, petroleum products and other car products

Additional waste in the form of LNAPLS and dense non aquuas phase liquids (DNAPLS) identified during the SI/RAR are being addressed in the remedy selection process. The LNAPLS and DNAPLS are distinct, separate phase "free product" layers of oil which are found on top or beneath the groundwater and/or water column.

Based on the site investigation completed, an Area of Concern (AOC), and two zones of grossly contaminated soils, have been identified at the site. The major zone of gross contamination extends from the southwest site corner, along the western site boundary, and continues toward the Mohawk River. This is the area of former loading racks, USTs, fuel blending, and river dock unloading and underground piping to the tank farm. This major zone of gross contamination also extends eastward to include former ASTs 2 and 3. There is a small non-contiguous zone of gross contamination associated with SB-76 that reported free product in the boring log from a depth of five (5) to twelve (12) feet bgs. The AOC extends from the eastern border of the main zone of gross contamination eastward into the former tank farm for ASTs 1, 2, 3, 5, 7 and 8.

The site has been characterized in to two areas of contamination. Figure 5 shows the two areas of concern. The first area, known as the area of gross contamination is characterized by extensive free product. The zone of gross contamination shows the frequent presence of free product, field soil observations of high PID values, strong petroleum odors and visually heavy staining, and the zone also includes areas of high contaminant concentrations in groundwater. Free product was observed in April 2005 in the 12-inch recovery sump installed approximately twenty (20) feet southeast of the location of surface soil sample 5 (PSS-5). This location is within the zone of gross contamination along the Mohawk River.

The second area of contamination is distinguished by frequent observations of residual petroleum soil staining and sheens, and moderate to high PID readings, but relatively few and small pockets of free product. The observation of staining and odor in the AOC were also more likely to have been observed to occur from several feet below the ground surface downward the silty clay layer.

Surface Soil

A total of 12 surface soil samples were collected across the site, including two along the site perimeter of the Mohawk River. These samples were analyzed for VOCs by method 8260, for SVOCs by Method 8270, and for PCBs and Target Analyte List metals plus mercury. Significant results are summarized below.

1. Four of 12 surface soil samples (0-2 inches below grade) contain minor concentrations of VOCs that are all below the soil SCGs,

2. Eleven of the 12 surface soil samples contained SVOCs, seven of which contained one or more constituents at concentrations above soil SCGs,

3. Six surface soil samples analyzed for metals showed zinc concentrations above the typical background concentrations. Arsenic, cadmium, copper and mercury were also present in some of the samples at concentrations above soil SCGs,

4. Six surface soil samples analyzed for PCBs showed the presence of aroclor 1260 at a concentration below the soil SCGs,

The perimeter investigation/evaluation of off-site contaminant migration was performed in three locations: at the low-lying wet area located at the southwest site corner; along Leland Avenue; and along the Mohawk River.

In the southwest corner, three soil samples (HB-1, HB-2, P-1) were collected during the storm drain investigation in the southwestern site corner. A backhoe investigation confirmed a hydraulic connection between this storm drain and the off-site low-lying wet area when fluorescent dye was observed flowing from the pipe extending from the site out into the external low-lying wet area. Soil sample results then confirmed that off-site discharge of petroleum had occurred from the site into this low-lying wet area. Hand boring samples, HB-1 and HB-2, each contained nine identified SVOCs. Two of these SVOCs, 2-methyl naphthalene and dibenzofuran at concentrations of 51 ppm and 7.2 ppm, respectively, are above the soil SCGs of 36.4 ppm and 6.2 ppm, respectively. In addition, these samples contained total SVOCs at concentrations of 721 ppm and 763 ppm, which are above the soil SCGs of 500 ppm total (Table 1). The same two VOCs were found in these samples, cyclohexane and methylcyclohexane at concentrations of 0.19 to 0.46 ppm and 2.6 to 7.1 ppm, respectively, neither of which have specified SCGs. The total VOC concentrations in these samples were 300 and 205 ppm, respectively, exceeding the soil SCG of 10 ppm for total VOCs (Table 1). A sediment sample (P-1) collected from inside this pipe on the site property was sandy and contained only a trace of acetone and no identified SVOCs. A hand boring sample PSB-64 collected from the low-lying wet area contained one compound, 2-methyl naphthalene, which at a concentration of 200 ppm was above the soil SCG of 37 ppm and the total SVOCs in this sample were 2,291 ppm, which was above the soil SCG of 500 ppm.

Review of the contaminants present in site soil borings in the vicinity of the low area at the southwestern site corner (SB-41, SB-43, SB-46, SB-47, SB-48) suggests that the suite of compounds present onsite correlates with the suite of compounds found in HB-1 and HB-2. Therefore, it is concluded that the proven hydraulic connection from a site storm drain to the low-lying wet area did act as a conduit for the release of hydrocarbons from the site.

Results of samples collected from offsite along Leland Avenue are summarized as follows. Soils samples from PSB-62, PSB-63, PSB-77 and PSB-78 all showed the presence of both VOCs and SVOCs, but none of these four soil samples contained individual or total concentrations above the soil SCGs. In addition, two groundwater samples were collected from TW-26 and PSB-63, both of which showed the presence of one or more VOC and one or more SVOC compound. In addition, TW-26 contained one compound, sec-Butylbenzene at a concentration of 7.7 ppb, that is above the groundwater SCG of 5.0 ppb.

Along the Mohawk River, three borings (SB-65, SB-66, SB-67) and two surface soil (PSS-11 and PSS-12) samples were collected at the site perimeter. Based on this data, it is concluded that discharge of VOC and SVOC compounds into the Mohawk River is occurring.

Surface soil contamination identified during the SI/RAR will be addressed in the remedy selection process.

Subsurface Soil

A test pit program at fifty-four (54) locations was implemented to guide selection of locations for soil borings that provided soil samples for analysis of VOCs, SVOC, PCBs and metals. A total of seventy-nine (79) soil borings were installed across this 4.5 acre site. Soil intervals were typically screened with a PID meter and samples collected from the zones of highest PID readings for laboratory analysis. Twelve (12) surface soil locations were sampled to assess the extent of contamination in the surficial soils. The following conclusions are drawn from the soil analytical data:

- Fifty (50) of seventy-seven (77)soil boring and six of six test pit samples showed the presence of VOCs in the subsurface soils and twenty-one (21) of the fifty (50) samples contained either individual VOCs or total VOCs at concentrations that were above the soil SCGs.

- Sixty-five (65) of seventy-seven (77) soil boring samples detected SVOCs in the subsurface soils and 17 of the 65 samples contained one or more individual SVOCs at concentrations that were above the soil SCGs.

- Four (4) soil boring samples were collected for metals analysis. One (1) sample contained cyanide at 2.15 ppm, another sample contained mercury at 0.60 ppm, arsenic at 14.90 ppm and zinc at 115 ppm, each above their respective SCGs .

- Five (5) subsurface soil boring samples were analyzed for PCBs. One sample detected Aroclor 1016 at a concentration well below the SCG.

- Soil contamination is present in the zone of grossly contaminated soil from at or near ground surface down to five (5) to ten (10) foot depths in many borings (ground surface down to the silty clay layer), and in the AOC frequently occurs from several feet below the ground surface down to the silty clay layer or into the top of this soil unit.

- No evidence of on-site migration of petroleum contaminants from the adjacent property located to the northwest, or from any other direction, was discovered.

Subsurface soil contamination identified during the SI/RAR will be addressed in the remedy selection process.

Groundwater

Groundwater quality contours are shown on (See Figure 4). Groundwater sampling results from the sixteen (16) monitoring and fourteen (14) temporary wells are summarized below.

- Eleven (11) of sixteen (16) monitoring wells contained VOCs, and eight (8) of these contained one (1) or more VOC at a concentration that exceeds the groundwater SCGs. Thirteen (13) of fifteen (15) temporary monitoring wells sampled contained VOCs, and ten (10) of these contained one (1) or more VOCs at concentrations exceeding SCGs .

- The distribution of VOCs at concentrations above the groundwater SCGs extended across the entire site and reached into the four site corners, as evidenced by exceedances in monitoring wells MW-1, MW-3, MW-4 and MW-6.

- Five (5) of sixteen (16) monitoring wells contained SVOCs, and one (1) of these contained one (1) SVOC at a concentration exceeding the groundwater SCGs. Nine (9) of fifteen (15) temporary monitoring wells sampled contained SVOCs, and two (2) of these contained one (1) or more SVOC compound at a concentration exceeding the groundwater SCGs.

- Four (4) monitoring wells sampled were analyzed for metals. All wells displayed elevated iron and manganese levels, and one well also had elevated magnesium and sodium concentrations. No other metals were present above groundwater SCGs.

- Four (4) monitoring wells sampled and analyzed for PCBs displayed results that were all below PCB detection limits.

- No on-site migration of contaminated groundwater from the adjacent properties was documented to have occurred.

- Operable Unit No. 1 Groundwater contamination identified during the SI/RAR will be addressed in the remedy selection process.

- Operable Unit No. 2 will evaluate the impacts, if any, that the contaminated groundwater has had on the surface water and sediment quality found in the Mohawk River.

Surface Water

Surface water was not addressed during the OU No. 1 RI. The Canal system in the vicinity of the site and in this part of Utica passes numerous industrial, commercial and contaminated sites. Operable Unit No. 2 will evaluate the surface water quality in the vicinity of the site to determine what the impacts, if any, Operable Unit 1 has had the Mohawk River.

Sediments

Operable Unit No. 2 will evaluate the quality of the sediments in the vicinity of the site to determine what the impacts, if any, Operable Unit 1 has had the Mohawk River.

Soil Vapor/Sub-Slab Vapor/Air

All buildings on site were demolished, or are proposed for demolition. Therefore, no sampling of soil vapor, sub-slab vapor and/or air was conducted.

5.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the SI/RAR.

The site was operated most recently as a bulk storage and dispensing site. The majority of the area was covered by ASTs, loading racks, buildings and other pumping devices used in the movement of petroleum products. In order to remove known sources of contamination, both around and beneath tanks, buildings and piping, an IRM was conducted. In addition, the need to obtain access to the ground surface for the gathering of environmental data was not possible given the extensive nature that the ASTs and piping covered. From the fall of 2003 to June of 2004 an IRM was conducted at the site. During the IRM, multiple tanks, pipes and other vessels were cleaned, dismantled and removed from the site for disposal and/or recycling. The majority of the tank contents had been previously removed, except for a bottom sludge/product layer. Once the product and sludge were removed from the tanks were dismantled and cut up for recycling. A total of fourteen (14) ASTs were removed. On site piping was drained, cleaned and cut up for recycling. Loading racks, pumps and other blending tanks were cleaned and dismantled for scrap. Five USTs, which held waste oil and gasoline, were excavated, cleaned and removed. Several buildings were abated of asbestos and demolished which included the boiler house, the maintenance building and a garage. The IRM allowed for access to conduct the SI and further Pilot Scale Studies.

5.3: Summary of Human Exposure Pathways:

This section describes the types of human exposures that may present added health risks to persons at or around the site. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has five elements: [1] a contaminant source, [2] contaminant release and transport mechanisms, [3] a point of exposure, [4] a route of exposure, and [5] a receptor population.

The source of contamination is the location where contaminants were released to the environment (any waste disposal area or point of discharge). Contaminant release and transport mechanisms carry contaminants from the source to a point where people may be exposed. The exposure point is a location where actual or potential human contact with a contaminated medium may occur. The route of exposure is the manner in which a contaminant actually enters or contacts the body (e.g., ingestion, inhalation, or direct contact). The receptor population is the people who are, or may be, exposed to contaminants at a point of exposure.

An exposure pathway is complete when all five elements of an exposure pathway exist. An exposure pathway is considered a potential pathway when one or more of the elements currently does not exist, but could in the future.

Under current site conditions, site workers or trespassers may be exposed to VOCs and SVOCs in site soils via incidental ingestion, dermal contact or inhalation. A fence has been installed and maintained in an effort to minimize potential exposure to contaminated site soils. The presence of VOC contaminated groundwater and potentially soil vapor do not pose an exposure risk because no current exposure pathways exist. The groundwater does not pose a risk via consumption because the area is served by a public water supply with a source remote from the site. Potentially contaminated soil vapor does not pose a current risk due to the absence of occupied on-site structures. The unoccupied on-site storage building is in a state of disrepair and will be demolished. The vapor intrusion exposure pathway will need to be evaluated for any future on-site structures.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts include existing and potential future exposure pathways to fish and wildlife receptors, as well as damage to natural resources such as aquifers and wetlands.

The following environmental exposure pathways and ecological risks have been identified:

- Current and past discharges to the Mohawk River have, and may pose, a risk to surface water and sediment. Soil and groundwater samples taken along the Mohawk River showed the presence of VOCs and SVOCs at levels above SCGs.

- Site contamination has impacted the groundwater resource throughout the site. Eleven of 16 monitoring wells contained VOCs, and eight of these contained one or more VOCs at a concentration that exceeds the groundwater SCGs. Five of 16 monitoring wells contained SVOCs, and one of these contained one SVOC at a concentration exceeding the groundwater SCGs. Four monitoring wells sampled were analyzed for metals displayed elevated iron and manganese levels, and one well also had elevated magnesium and sodium concentrations.

- Fifty (50) of seventy-seven (77) soil boring and six of six test pit samples showed the presence of VOCs in the subsurface soils and 21 of the 50 samples contained either individual VOCs or total VOCs at concentrations that were above the soil SCGs. Sixty-five of 77 soil boring samples detected SVOCs in the subsurface soils and 17 of the 65 samples contained one or more individual SVOCs at concentrations that were above the soil SCGs. Four soil boring samples were collected for metals analysis. One sample contained cyanide at 2.15 ppm, another sample contained mercury at 0.60, arsenic at 14.90 and zinc at 115 ppm, each above their respective SCGs.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS AND PROPOSED USE OF THE SITE

Goals for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. At a minimum, the remedy selected must eliminate or mitigate all significant threats to public health and/or the environment presented by the hazardous substances disposed at the site through the proper application of scientific and engineering principles.

The remediation goals for this site are to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to VOCs, SVOCs, and metal contamination in the surface soils, subsurface soils and groundwater.

- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards; and

- the release of contaminants from site groundwater and soils into the surface waters of the Mohawk River through run off.

Further, the remediation goals for the site include attaining to the extent practicable:

- ambient groundwater quality standards and

- soil cleanup objectives.

SECTION 7: <u>SUMMARY OF THE EVALUATION OF ALTERNATIVES</u>

The selected remedy must be protective of human health and the environment, be cost-effective, and comply with other statutory requirements. Potential remedial alternatives for the Matt Petroleum Site were identified, screened and evaluated in the RA report, which is available at the document repositories established for the site.

A summary of the remedial alternatives that were considered for this site is discussed below. The present worth represents the amount of money invested in the current year that would be sufficient to cover all present and future costs associated with the alternative. This enables the costs of remedial alternatives to be compared on a common basis. As a convention, a time frame of 30 years is used to evaluate present worth costs for alternatives with an indefinite duration. This does not imply that operation, maintenance, or monitoring would cease after 30 years if remediation goals are not achieved.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated soils and groundwater at the site.

Alternative 1A: No Further Action

The No Further Action alternative recognizes remediation of the site conducted under a previously completed IRM. The IRM conducted at the site successfully removed the above ground structures and contamination. However, due to the extent of contamination, a full site investigation, bench scale study and pilot scale study were necessary in order to develop a comprehensive alternative analysis report. Therefore, the remaining contamination was not removed during the IRM. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment.

Alternative 1B: Cover & Groundwater Monitoring

This alternative involves placing a clean soil cover across the site and monitoring the groundwater to document that the plume remains stable. It includes natural attenuation of groundwater with ongoing groundwater quality monitoring as part of the Operations, Maintenance & Management (OM&M) Plan. A soils management plan would then be prepared to govern any future soil disturbance at this site. The time to design and implement the cover would be less than six months. The OM&M program costs would be based on a 30 year monitoring period. The site would remain unusable in this condition.

Present Worth: *$698,522*
Capital Cost: *$200,000*
Annual Costs:
(Years 1-5): *$32,429*

(Years 5-30): *$32,429*

Alternative 1C: Soil Cover, Groundwater Treatment

This alternative involves soil cover, as described in Alternative 1B, but adds active groundwater treatment via interceptor trenches along Leland Avenue and the Mohawk River to capture impacted groundwater prior to discharge from the site. Trenches would be installed down to the clay layer and groundwater collected, treated and managed properly. This system would be designed to passively collect groundwater with minimal drawdown of the water table to maintain treatment volume at a minimum. Substantial contamination would remain at this site. A soils management plan would be required to govern any future soil disturbance at this site.

The soil Cover and initial groundwater treatment can be completed in four to six weeks in the field, but would require ongoing operations and maintenance for the passive dewatering and treatment system. The remedial investigation demonstrated low level of off-site contaminant migration despite high VOC levels in groundwater. High organic content in soils may be sequestering contaminants. This alternative addresses groundwater contamination leaving the site with a passive approach.

This alternative does not treat VOCs in soils, resulting in continued contaminant release to groundwater. An extended operational period for the passive groundwater collection system would be required. This alternative provides minimal address to groundwater contamination through well pumping (i.e., remove free product in existing two to three wells) and the passive collection system. Ongoing associated operation and maintenance costs and uncertainty for the duration of ongoing operations are significant negatives.

Present Worth: . . . . *$1,207,450 to $1,438,037*

Capital Cost: *$900,000*
Annual Costs:
(Years 1-5): . . . . *$20,000 to $35,000*
(Years 5-30): . . . . *$20,000 to $35,000*

Alternative 2A: Excavate Soils Down to 5 feet Only, Dispose and Replace with Clean Fill

This alternative would involve the excavation of site soils in cells down to a five-foot depth (this depth reaches below the groundwater surface) for disposal and replacement with clean fill. This alternative involves the excavation of approximately 26,000 cubic yards (48,200 tons) of soil. As the water table would be exposed, this approach allows for skimming of the groundwater surface to remove free product (if present). Once completed, site redevelopment may proceed without restriction in the top 5 feet of the soil zone.

A soils management plan would then be required to govern any future soil disturbance at this site. Any building constructed would be required to install a slab-on-grade structure with a sub-slab depressurization system incorporated into the design.

This alternative removes all contaminated soils within 5 feet of ground surface, allows for access to groundwater to skim free product from surface and treatment of pumped groundwater. Soil put back would be free of contamination. The time required to complete this alternative would be one construction season. The site has been shown to retain contamination mainly within its borders, with little off-site migration (possible due to high organic content as a sequestering agent) that lowers concern over contamination left in the ground. The 5-foot depth was chosen to minimize impacts to future site redevelopment, as most construction activity occurs within 5 feet of ground surface.

Present Worth: *$4,098,514*

Capital Cost: *$3,600,000*
Annual Costs:
(Years 1-5): *$32,429*
(Years 5-30): *$32,429*

Alternative 2B: Excavate and Dispose of All Contaminated Soil

This alternative would involve large scale excavation of soils down to and below the water table to remove all affected soils. Excavation would be performed down to the impeding clay layer that was encountered between 5 and 12 feet below ground surface. For the purpose of estimating soil volume, a depth of 8 feet was uniformly applied. It is estimated that approximately 41,000 cubic yards (77,000 tons) of affected soils would be excavated. Within the soil excavation process, groundwater would be pumped to establish hydraulic control, treated and managed properly. This alternative includes direct landfill disposal of all excavated soils from within the impacted areas.

Present Worth: *$6,000,000*
Capital Cost: *$6,000,000*
Annual Costs:
(Years 1-5): *0*
(Years 5-30): *0*

Alternative 3A: Excavate Soils to 5 feet, Onsite -Soil Turning Treatment, Replace Soils

This alternative would involve the excavation of 26,000 cubic yards (48,000 tons) of contaminated soils, down to a depth of 5 feet below ground surface for onsite ex-situ soil turning treatment. Treatment would consist of ex-situ mechanical aeration by soil turning to enhance natural degradation of petroleum in soils. This alternative requires soil excavation, draining and soil turning processing. The site would be segmented into three or four sections for the soil turning process to treat these soils over two construction seasons.

Present Worth: *$2,598.514*
Capital Cost: *$2,100,000*
Annual Costs:
(Years 1-5): *$32,429*
(Years 5-30): *$32,429*

Alternative 3B: Excavate Soils, 100% Onsite Soil Turning Treatment, Re-Inter Soils

This alternative would involve the excavation and treatment of approximately 42,000 cubic yards (77,000 tons). The excavation would be conducted down to the underlying clay layer which ranges from a depth of 5 to 12 feet below ground surface. The excavated soils would be treated onsite utilizing a soil turning process. Based on the bench scale study the soil turning was highly success in treating VOCs and the majority of SVOCs. Soils contaminated with residual SVOCs may need to be managed under a soil management plan and an environmental easement.

Present Worth: *$3,300,000*

Capital Cost: *$3,300,000*
Annual Costs:
(Years 1-5): *$0*
(Years 5-30): *$0*

Alternative 3C: Excavate Soils, Ex-Situ Treatment and Replacement, Dispose up to 25%

As with Alternative 3B, this alternative would involve the excavation of 42,000 cubic yards (77,000 tons) of contaminated soils for onsite ex-situ soil treatment. However, this alternative would allow for off site disposal of up to 25% of site soils which may be heavily contaminated or not receptive to treatment such as clay. Therefore with the potential for up to 25% of site soils going off-site, the quantity of soils treated is the same as alternatives 3B. Based on the bench scale study the soil turning was highly success in treating VOCs and the majority of SVOCs. Soils contaminated with residual SVOCs may need to be managed under a soil management plan and an environmental easement

Present Worth: *$4,300,000*
Capital Cost: . . . . *{$4,300,000}*
Annual Costs:
(Years 1-5): *$0*
(Years 5-30): *$0*

Alternative 4A: Excavate Soils, Ex-Situ Soil Turning Method with Hydrogen Peroxide Treatment and Replacement

This alternative would involve the excavation of 42,000 cubic yards (77,000 tons) of impacted soils in segments down to the underlying clay layer (a depth of 5 to 12 feet below ground surface, an average depth of 8 feet) for onsite ex-situ soil treatment. Treatment would consist of ex-situ mechanical aeration by a soil turning method (as described in Alternative 3C) and added chemical oxidation through the addition of hydrogen peroxide to chemically degrade COCs. The oxidant would be added after eight to ten soil turnovers are completed to degrade residual VOCs and SVOCs. As hydrogen peroxide spontaneously decomposes with an approximate half-life of 4 hours, the benefit from the oxidant is primarily derived within 24 hours of application. Currently, the oxidant demand can only be estimated, as no direct testing was done. Soil organic matter content exerts an oxidant demand that is additive to that of the soil contaminants, and according to the literature, typically exceeds the contaminant oxidant demand. Site soils contain significant natural organic matter that will exert a high background oxidant demand. The fundamental process is that described in Alternative 9, with the addition of chemical oxidation.

This alternative will leave residual SVOCs with low mobility (i.e., low water solubility, low volatility, high adsorption capacity to soil organic matter) that pose little threat to human health or the environment. A soils management plan would then be required to govern any future soil disturbance at this site.

Present Worth: . . . . *$4,800,000 to $8,000,000*
Capital Cost: . . . . *$4,800,000 to $8,000,000*
Annual Costs:
(Years 1-5): *$0*
(Years 5-30): *$0*

Alternative 4B: Excavate Soils, Ex-Situ Soil Turning Method with Sodium Persulfate Treatment and Replacement

This alternative would involve the excavation of 42,000 cubic yards (77,000 tons) of impacted soils in segments down to the underlying clay layer (a depth of 5 to 12 feet below ground surface) for onsite ex-situ soil treatment. Treatment would consist of ex-situ mechanical aeration by a soil turning method (as described in Alternative 3C) and added chemical oxidation through the addition of sodium persulfate to chemically degrade COCs. The oxidant would be added after eight to ten soil turnovers are completed to degrade residual VOCs and SVOCs.

Present Worth: . . . . *$8,500,000 to $10,000,000*
Capital Cost: . . . . *$8,500,000 to $10,000,000*
Annual Costs:
(Years 1-5): *$0*
(Years 5-30): *$0*

Alternative 4C: In-Situ Thermal Treatment of Soils

This alternative involves in-situ treatment of 42,000 cubic yards (77,000 tons) of impacted soils by applying heat to the subsurface to volatilize sorbed constituents and extract them from the soil column via a vapor extraction system. This technology involves the application of four components: hydraulic control of the groundwater table to induce drawdown and expose the smear zone; a distribution system to deliver heat to the subsurface; a vapor collection system; and a vapor treatment system. Due to the shallow depth to groundwater at this site, ranging from 3 to 8 feet below ground surface, and the contaminant penetration depth in some areas of 8 to 12 feet, this approach would require the application of enough heat to elevate groundwater temperature to volatilize petroleum hydrocarbons. As a significant portion of the petroleum hydrocarbon is comprised of long chain hydrocarbons with low vapor pressures (i.e., SVOCs), this approach may have limited effectiveness in removing low volatility SVOC residual compounds. Residual SVOCs are likely to be low mobility compounds (i.e., low water solubility, low volatility, high adsorption capacity to soil organic matter) that pose little threat to human health or the environment. A soils management plan would then be required to govern any future soil disturbance at this site. The total estimated cost for this remedial action to address soil contamination is in the range of $4.5 to $7.7 million and may require more than one construction (summer) season to complete.

Present Worth: *$4,400,000*
Capital Cost: . . . . *$4,400,000 to $7,100,000*
Annual Costs:
(Years 1-5): *$0*
(Years 5-30): *$0*

7.2 Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375, which governs the remediation of environmental restoration projects in New York. A detailed discussion of the evaluation criteria and comparative analysis is included in the RA report.

1. Protection of Human Health and the Environment. This criterion is an overall evaluation of each alternative's ability to protect public health and the environment.

2. Compliance with New York State Standards, Criteria, and Guidance (SCGs). Compliance with SCGs addresses whether a remedy will meet environmental laws, regulations, and other standards and criteria. In addition, this criterion includes the consideration of guidance which the Department has determined to be applicable on a case-specific basis.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection. . Alternatives 2A, 3A, 3B, 4A, 4B and 4C would also comply with the threshold selection criteria, but to a lesser degree, or with lower certainty. Alternative 2B would provide for the highest level of degree of certainty in restoring groundwater, but at the highest cost. Because Alternatives 2A, 2B, 3A, 3B, 3C, 4A, 4B and 4C would satisfy the threshold criteria, the five balancing criteria are particularly important in selecting a final remedy for the site.

The next five "primary balancing criteria" are used to compare the positive and negative aspects of each of the remedial strategies.

3. Short-term Effectiveness. The potential short-term adverse impacts of the remedial action upon the community, the workers, and the environment during the construction and/or implementation are evaluated. The length of time needed to achieve the remedial objectives is also estimated and compared against the other alternatives.

Alternatives 1B and 1C (capping), 4A, 4B and 4C (chemical/physical treatment), and 2A, 2B 3A, 3B, 3C (excavation, removal and/or treatment) would all have short-term impacts which can easily be controlled. The time needed to achieve the remediation goals would be longest for Alternative 1B and 1C, followed by alternatives 2A and 2B, then 3A, 3B, 3C, 4C, 4A and 4B in descending order.

4. Long-term Effectiveness and Permanence. This criterion evaluates the long-term effectiveness of the remedial alternatives after implementation. If wastes or treated residuals remain onsite after the selected remedy has been implemented, the following items are evaluated: 1) the magnitude of the remaining risks, 2) the adequacy of the engineering and/or institutional controls intended to limit the risk, and 3) the reliability of these controls.

Achieving long-term effectiveness would be best accomplished by excavation, removal and/or treatment of the contaminated overburden soils (Alternatives 2B, 3B, 3C 4A and 4C). These alternatives require all contaminated soils to be removed for off-site disposal or on-site treatment, or a combination of both. Alternatives 2A and 3A are also favorable because both would result in the removal and/or treatment of approximately 50% of the contaminated soil at the site.

5. Reduction of Toxicity, Mobility or Volume. Preference is given to alternatives that permanently and significantly reduce the toxicity, mobility or volume of the wastes at the site.

Alternatives 2A and 3A, excavation and removal, would reduce the volume of waste on-site by approximately 50%. Approximately 26,000 cubic yards of material would be removed with Alternatives 2A and 3A. Contaminated soil would remain in the saturated zone and ongoing releases to the groundwater would continue. Alternatives 2B, 3B, 3C, 4A, and 4B would remove almost all of the contamination onsite. These alternatives would require the excavation and removal of approximately 42,000 cubic yards of soil. These alternatives would excavate, remove and/or treat almost all soils onsite. Alterative 2B would require all soils to be removed and taken offsite for disposal. Subsequently clean fill would need to be imported to backfill the site. Alternatives 3B, 3C, 4A and 4B require treatment of most, if not all, soils onsite.

Alternative 2B would remove all contaminated soil to an off-site secure landfill. Alternatives 3A, 3B, 3C, 4A, 4B and 4C would reduce the toxicity of contaminants by chemical/physical treatment.

6. Implementability. The technical and administrative feasibility of implementing each alternative are evaluated. Technical feasibility includes the difficulties associated with the construction of the remedy and the ability to monitor its effectiveness. For administrative feasibility, the availability of the necessary personnel and materials is evaluated, along with potential difficulties in obtaining specific operating approvals, access for construction, institutional controls, and so forth.

Alternatives 2B, 3B, 3C, 4A and 4 B would be favorable in that they are readily implementable and they remove and/or treat the entire mass of contamination. Alternatives 2A and 3A and 4C would also implementable. However, they do not treat the entire mass of contamination and/or the ability to deliver in-situ chemicals is limited.

7. Cost-Effectivness. Capital costs and annual operation, maintenance, and monitoring costs are estimated for each alternative and compared on a present worth basis. Although cost effectiveness is the

last balancing criterion evaluated, where two or more alternatives have met the requirements of the other criteria, it can be used as the basis for the final decision. The costs for each alternative are presented in Table 2.This final criterion is considered a "modifying criterion" and is taken into account after evaluating those above. It is evaluated after public comments on the Proposed Remedial Action Plan have been received.

The cost of the alternatives would vary significantly. Although covering the site (Alternatives 1B and 1C) would be less expensive than excavation (Alternatives 2A, 2B, 3A, 3B, 3C, 4A and 4B), they are not a permanent remedy. Alternatives 2B, 3B, 3C 4A and 4C would be very favorable because it would be a permanent remedy that will eliminate most of a continuing source of groundwater contamination at the site. Treatment (Alternative 4B) is the most costly remedy and its implementability and effectiveness are uncertain. The costs of Alternatives 4A 4B and 4C would be similar to each other in that the volume of soils treated either in-situ and ex-situ are the same. Similarly, the actual handling of these materials is not the largest costs associated with these remedies, but the costs of the treatment options. Designing the remedy, mobilizing the equipment, preparing the site, and construction management are substantial costs associated with each of these remedies and would not change appreciably with the increase in soil to be excavated.

8. Community Acceptance - Concerns of the community regarding the SI/RAR reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department addressed the concerns raised. In general, the public comments received were supportive of the selected remedy. Several comments were received which encouraged the Department to evaluate the remedy in conjunction with the larger Brownfield Opportunity Area identified as the Utica Waterfront.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 3C, Excavate Soils, Ex-Situ Treatment using a soil turning method and replacement, dispose up to 25% as the remedy for this site. The selected remedy is based on the results of the SI and the evaluation of alternatives presented in the RAR. This alternative has been selected because, as described below, it satisfies the threshold criteria and provides the best balance of the primary balancing criteria described in Section 7.2. It would achieve the remediation goals for the site by removing the soils that create the most significant threat to public health and the environment, it would greatly reduce the source of contamination to groundwater, and it would create the conditions needed to restore groundwater quality to the extent practicable. The elements of this selected remedy are as follows:

1. A remedial design program will be implemented to provide the details necessary for the construction, operation, maintenance, and monitoring of the remedial program.

2. The remedial action will entail the development of a water management program to de-water the site and to collect and manage the water. Sheet-pile and/or other barriers may be utilized along the Mohawk River to prevent releases to the surface water, to stabilize the river bank and to prevent infiltration of water on to the site during remediation.

3. A soil management and treatment plan will be developed to coordinate the movement, treatment and replacement of soils. The site will be divided in to sections in order to manage and move soils in an effective and efficient manner. Soils will be screened to remove large pieces of debris such as wood, brick and metal. The soils will then be placed in rows and the soil turning will commence. Based on field indicators and subsequently laboratory analysis, soil turning will continue until SCGs are achieved.

4. Some soils which are deemed un-treatable and/or heavily contaminated will be taken off site for disposal at a permitted landfill. Treated soils will be placed back in the de-watered excavation. Imported clean back fill may be used as backfill, incorporated with the treated soil and/or placed on top of treated soil.

5. Soils found off site in the low lying areas to the southwest will be excavated for on site treatment and the areas will be restored.

6. Imposition of an institutional control in the form of an environmental easement that will require (a) limiting the use and development of the property to commercial use, which would also permit industrial use; (b) compliance with the approved site management plan; (c) restricting the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by NYSDOH; and (d) the property owner to complete and submit to the Department a periodic certification of institutional and engineering controls.

7. Development of a site management plan, if soil cleanup objective are not achieved, which will include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the soil cover's demarcation layer, pavement, or buildings. Excavated soil will be tested, properly handled to protect the health and safety of workers and the nearby community, and will be properly managed in a manner acceptable to the Department; (b) continued evaluation of the potential for vapor intrusion for any buildings developed on the site, including provision for mitigation of any impacts identified; (c) monitoring of groundwater; (d) identification of any use restrictions on the site; (e) fencing to control site access; and (f) provisions for the continued proper operation and maintenance of the components of the remedy.

8. The property owner will provide a periodic certification of institutional and engineering controls, prepared and submitted by a professional engineer or such other expert acceptable to the Department, until the Department notifies the property owner in writing that this certification is no longer needed. This submittal will: (a) contain certification that the institutional controls and engineering controls put in place are still in place and are either unchanged from the previous certification or are compliant with Department-approved modifications; (b) allow the Department access to the site; and (c) state that nothing has occurred that will impair the ability of the control to protect public health or the environment, or constitute a violation or failure to comply with the site management plan unless otherwise approved by the Department.

9. The operation of the components of the remedy will continue until the remedial objectives have been achieved, or until the Department determines that continued operation is technically impracticable or not feasible.

TABLE 1
Nature and Extent of Contamination
May of 2004 and September of 2006

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	ND - 700 B	0.2	14 out of 79
	Benzene	ND - 42 J	0.06	9 out of 79
	Toluene	ND - 86 D	1.5	4 out of 79
	Ethyl benzene	ND - 140 D	5.5	5 out of 79
	m/p Xylene	ND - 560 D	1.2	7 out of 79
	o Xylene	ND - 230 D	1.2	4 out of 79
	Isoproplbenzene	ND - 21	2.3	4 out of 79
	n-Propylbenzene	ND - 27	3.7	6 out of 79
	1,3,5-Trimethylbenzene	ND - 93	3.3	7 out of 79
	1,2,4-Trimethylbenzene	ND - 220 D	10	5 out of 79
	sec-Butylbenzene	ND - 17	10	1 out of 79
	4-Isopropyl toluene	ND - 19	10	2 out of 79
	n-Butylbenzene	ND - 53 J	10	3 out of 79
	Naphthalene	ND - 48	13	2 out of 79
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	ND-2.8	.224 or MDL	9 out of 79
	Chrysene	ND - 2.6	0.4	6 out of 79
	Benzo(b)flouranthene	ND - 2	1.1	1 out of 79
	Benzo(a)pyrene	ND - 1.4	0.61 or MDL	2 out of 79
	Dibenzo(a,h)anthracene	ND - 0.086	0.014 or MDL	2 out of 79
Inorganic Compounds	Arsenic	ND - 14.90	38787	1 out of 4
	Cyanide	2.15	N/A	1 out of 4
	Mercury	.01 - 0.60	0.001 - 0.2	1 out of 4
	Nickel	11.5 - 35.2	0.5 - 25	2 out of 4
	Zinc	27.3 - 115.0 JN	20 or SB	2 out of 4

SURFACE SOILS	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	2,4-Dinitrophenol	ND - 1.2	0.2	1 out of 12
	Benzo(a)anthracene	ND - 1.7	0.224 or MDL	5 out of 12
	Chrysene	ND - 2.2	0.4	4 out of 12
	Benzo(b)flouranthene	ND - 2.2	1.1	4 out of 12
	Benzo(k)flouranthene	ND - 1.8	1.1	2 out of 12
	Benzo(a)pyrene	ND - 1.5	0.61 or MDL	6 out of 12
Inorganic Compounds	Arsenic	3.67 - 15.20	LEL[c] -3-12	1 out of 12
			SEL[c] -	
	Cadmium	0.568 - 1.4	LEL -1	3 out of 12
			SEL -	
	Mercury	0.207 - 0.225	LEL - 0.001 - 0.2	3 out of 12
			SEL -	
	Nickel	13 - 27.8	LEL - 0.5 - 25	2 out of 12
			SEL -	
	Zinc	53.4 - 639	LEL- 9-50	5 out 12
			SEL	

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	Acetone	ND - 230	50	3 out of 34
	Methyl ter-butyl ether	ND - 22	10	2 out of 34
	Methylene Chloride	ND - 12	5	9 out of 34
	Chloroform	ND - 28	7	1 out of 34
	Benzene	ND - 240 D	1	9 out of 34
	Ethyl benzene	ND - 1,100	5	5 out of 34
	m/p Xylene	ND - 3,100	5	5 out of 34
	o-Xylene	ND - 150	5	3 out of 34
	Isoproplbenzene	ND - 180	5	11 out of 34
	n-Propylbenzene	ND - 210	5	11 out of 34
	1,3,5-Trimethylbenzene	ND - 560	5	10 out of 34
	1,2,4-Trimethylbenzene	ND - 1,700	5	10 out of 34
	sec-Butylbenzene	ND - 47 J	5	7 out of 34
	p-Isopropyl toluene	ND - 100	5	3 out of 34
	n-Butylbenzene	ND - 140	5	10 out of 34
	Naphthalene	ND - 530	10	5 out of 10
Semivolatile Organic Compounds (SVOCs)	Naphthalene	ND - 1300 D	10	2 out of 34
	Chrysene	ND - 1.8 J	0.002	1 out of 34
	bis(w-Ethylhexyl) phthalate	ND - 16.0 J	5	1 out of 34
Inorganic Compounds	Iron	4,770 - 17,800	300	4 out of 4
	Magnesium	11,500 - 56,900	35000	1 out of 4
	Manganese	702 J - 11,000 J	300	4 out of 4
	Sodium	11,800 J - 430,000 J	20000	1 out 4

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ppm = parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil;
ug/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values;

Groundwater, drinking water, and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values" and Part 5 of the New York State Sanitary Code.

Soil SCGs are based on the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels." and 6 NYCRR Subpart 375-6 - Remedial Program Soil Cleanup Objectives).

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alternative 1A - No Further Action	0	0	0
Alternative 1B - Cover & Groundwater Monitoring	200,000	37,200	698,522
Alternative 1C - Cover & Groundwater Recovery and Treatment	900,000	75,000	1,207,450 to 1,438,037
Alternative 2A - Excavate Soils Down to 5 Feet, Dispose and Replace with Clean Fill	3,600,000	37,200	4,098,514
Alternative 2B - Excavate and Dispose of All Soils and Replace with Clean Fill	6,000,000	0	6,000,000
Alternative 3A - Excavate to 5 feet, On-Site Soil Turning Treatment and Replace Soils	2,100,000	37,200	2,598.514
Alternative 3B - Excavate All Soils, On-Site Soil Turning Treatment and Replace Soils	3,300,000	0	3,300,000
Alternative 3C - Excavate All Soils, On-Site Soil Turning Treatment of 75% of Soils and Up To 25 % off Site Disposal.	4,300,000	0	4,300,000
Alternative 4A, Excavate Soils, Ex-Situ Soil Turning with Hydrogen Peroxide and Replacement	4,800,000 to 8,000,000	0	4,800,000
Alternative 4B, Excavate Soils, Ex-Situ Soil Turning with Sodium Persulfate Treatment and Replacement	8,500,000 to 10,000,000	0	8,500,000 to 10,000,000
Alternative 4C, In-Situ Thermal Treatment of Soils	4,400,000 to 7,100,000	0	4,400,000 to 7,100,000

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Matt Petroleum Environmental Restoration Site
Operable Unit No. 1
City of Utica, Oneida County, **New York**
Site No. B00192-6

The Proposed Remedial Action Plan (PRAP) for the Matt Petroleum site, was prepared by the New York State Department of Environmental Conservation (the Department) in consultation with the New York State Department of Health (NYSDOH) and was issued to the document repositories on March 20, 2007. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the Matt Petroleum site.

The release of the PRAP was announced by sending a notice to the public contact list, informing the public of the opportunity to comment on the proposed remedy.

A public meeting was held on April 3, 2007, which included a presentation of the Site Investigation (SI) and the Remedial Alternatives Report (RAR) as well as a discussion of the proposed remedy. The meeting provided an opportunity for citizens to discuss their concerns, ask questions and comment on the proposed remedy.

The public comment period for the PRAP ended on May 4, 2007. This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

Universal Brownfield Revitalization Corp. (UBRC) provided a comment letter dated April 26, 2007. The letter represented verbal comments made by Eckardt C. Beck (Synapse), Vita DeMarchi (Synapse), Mayor Tim Julian (City of Utica) and Mr. Richard Pertz (UBRC) at the April 3, 2007 public Meeting.

Comment 1

I would first like to respond positively to the overall support of the NYSDEC in working with UBRC to facilitate the redevelopment of environmentally contaminated property in the Utica area. UBRC's Brownfield Opportunity Areas ("BOA") grant was recently approved by NYSDEC, and the BOA funding will be a key component in implementing UBRC's and the City of Utica's redevelopment vision for the Utica Waterfront. NYSDEC's completion of the City's ERP for the former Matt Petroleum site also indicates the state's willingness to work with the City to address Utica's significant Brownfield issues.

UBRC and the City alone lack the necessary resources for tackling the problem of Utica's environmental legacy. That legacy has obstructed some of Utica's most important natural resources and community assets, most prominently the Utica waterfront area along the Mohawk River, Harbor Point, and Utica Marsh. UBRC is encouraged that the state's recent demonstrations of support for Brownfield revitalization efforts in the Utica waterfront area can help the City realize its comprehensive vision to reclaim that area for public benefit.

Response 1

The Department recognizes the efforts and goals being made under the BOA. The Department ROD provides a remedial program that is both protective of human health and the environment and will allow for reuse of the site. This remedial program will allow for the future uses identified by all parties.

Comment 2

The PRAP includes a $4,300,000 cost estimate to construct and implement the proposed remedy, with the City of Utica responsible for ten percent (10%) of such costs. In light of the substantial proposed investment in this project, UBRC wishes to ensure that such investment is being made with an eye toward the general context in which the Matt Petroleum remediation is taking place.

As the NYSDEC is aware, the Matt Petroleum site is located within UBRC's proposed BOA Waterfront Zone 1A. UBRC and the City have inventoried the Matt Petroleum site, as well as numerous other parcels, within the general waterfront area. Directly adjacent to the Matt Petroleum site are two properties that also were historically operated as petroleum storage facilities. These properties are currently inactive and underutilized, and residual petroleum contamination at these properties is being managed under various NYSDEC regulatory programs. Such a piecemeal management approach misses the broader context in which these properties should be understood.

It is likely that there exists a fair amount of cross-contamination between the Matt Petroleum site and the adjacent sites to the west. It is also likely that these sites share very similar contamination issues. Accordingly, an area-wide remedy would make abundant sense in this case. The remedy selected at the Matt Petroleum site could potentially be applied in a similar manner to the two adjacent properties.

UBRC has taken its own action to facilitate a comprehensive management plan for the Utica waterfront. The City and UBRC are in active discussions with CSW Petroleum and Wurz 57 Properties, Inc., the owners of the two adjacent properties, to determine if a cooperative program can be established. The City and UBRC are seeking to take ownership of these properties in order to effectuate the Mayor's vision for restoring the waterfront for public access and recreational use.

In summary, UBRC urges NYSDEC to consider the transferability of the selected remedy at the Matt Petroleum site to these adjacent properties. Should the City succeed in taking common ownership, the entire remediation could be efficiently managed under one regulatory program, namely the ERP.

Response 2

The selected remedy for the Matt Petroleum may be applicable to the adjacent properties. The City of Utica may apply for the Environmental Restoration Program for the adjacent parcels and enter into separate agreements which may be implemented on a unified track. Presently, the ERP is for individual sites and/or parcels, however given the proximity of these parcels, shared services may be applicable.

Comment 3

It is my understanding that the level of cleanup prescribed in the proposed remedy, Alternative 3C, will leave partially contaminated soils on site, with easements and use restrictions. This would seem to inhibit private development of the site, as residual contamination may discourage private investment and reuse opportunities.

Practically, then, the value of the remediation to the City must focus on the potential public recreational uses for the Matt Petroleum site. This supports the need for a comprehensive approach encompassing the adjacent properties. The Matt Petroleum site, taken alone, has limited recreational value. Should the City succeed in taking ownership of the adjacent sites, however, the City will have successfully restored access to a large portion of Utica's waterfront, and the public use opportunities will be many.

Response 3

The Matt Petroleum Site ERP application was provided by the City of Utica and a commercial designation was the requested future use of the property. This alternative would allow for the City's requested use. The residually contaminated soils, if any, will be at depth and will allow for the City's intended use. Other restrictions such as non-use of groundwater as a potable drinking water source should not interfere with the use, since public water is available. The implementation of a soil management plan (if required) will protect future workers from exposure and will allow for development under a controlled and safe conditions. The Environmental Restoration Program must consider both human health and the environment as part of the decision making process.

APPENDIX B

Administrative Record

Administrative Record

Matt Petroleum Site
Operable Unit No. 1
Site No. B00192-6

1. Proposed Remedial Action Plan for the Matt Petroleum site, Operable Unit No. 1 dated March 2007, prepared by the Department;

2. Remedial Alternatives Volume I, dated November 2006, prepared by Plumley Engineering;

3. Remedial Alternatives Volume I, Appendix A-K, dated November 2006, prepared by Plumley Engineering;

4. Pilot Scale Treatability Study Work Plan, dated June 2006, prepared by Plumley Engineering;

5. Site Investigation Report Volume I, dated August 2005, prepared by Plumley Engineering;

6. Site Investigation Report Volume II, dated August 2005, prepared by Plumley Engineering;

7. Site Investigation Report Volume III, dated August 2005, prepared by Plumley Engineering;

8. Site Investigation Report Volume IV, dated August 2005, prepared by Plumley Engineering;

9. Health and Safety Plan for Interim Remedial Measures and Site Investigation Activities, dated January 2004, prepared by Plumley Engineering;

10. Force Account Work Plan for Interim Remedial Measures and Site Investigation Activities, dated January 2004, prepared by Plumley Engineering;

11. Work Plan for Site Investigation / Remedial Alternatives Analysis and Interim Remedial Measure, dated January 2004, prepared by Plumley Engineering;