Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
310 Saw Mill River Road Site
Environmental Restoration Project
Yonkers, Westchester County, New York
Site No.B00179-3

March 2008

New York State Department of Environmental Conservation
David A. Paterson, *Governor* Alexander B. Grannis, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

310 Saw Mill River Road Environmental Restoration Site
Yonkers, Westchester County, New York
Site No.B00179-3

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the 310 Saw Mill River Road 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 the 310 Saw Mill River Road 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 release of hazardous substances including petroleum products from this site have been addressed by implementing the interim remedial measures identified in this ROD. The removal of contaminated soil from the site has significantly reduced the threat to public health and the environment. Therefore, a groundwater monitoring program will be implemented to monitor the effectiveness of previous remedial actions in preventing further contamination of the groundwater.

This site does not present a current or potential threat to public health or the environment.

Description of Selected Remedy

Based on the results of the Site Investigation/Remedial Alternatives Report (SI/RAR) for the 310 Saw Mill River Road site and the criteria identified for evaluation of alternatives, the Department has selected no further action. The components of the remedy are as follows:

1) Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to restricted residential and 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.

2) Development of a site management plan which would include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the pavement. Should the site be excavated for any purpose in the future, excavated soil would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed in a manner acceptable to the Department; (b) monitoring groundwater; (c) identification of any use restrictions on the site; (d) evaluate the potential for vapor intrusion for any buildings developed on the site, including mitigation of any impacts identified; and (e) provisions for the continued proper monitoring and maintenance of the components of the remedy.

3) The property owner would 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 would: (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 would 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.

4) Since the remedy results in untreated hazardous substances remaining at the site, a long-term monitoring program would be instituted. Groundwater samples will be taken from the on-site wells on a periodic basis for five years and analyzed for VOCs. This program would allow the effectiveness of the soil removal and ORC to be monitored and would be a component of the long-term management for the site. Should concentrations of trimethylbenzene, toluene, and xylene not continue to decrease over time, injection of chemical additives such as ORC will be considered to accelerate the breakdown and natural attenuation of these compounds.

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

TABLE OF CONTENTS

SECTION **PAGE**

Environmental Restoration
RECORD OF DECISION

310 Saw Mill River Road Site
Yonkers, New York
Site No. B00179-3 March 2008

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 310 Saw Mill River Road Site.

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, oil spillage and leaking oil and fuel storage tanks resulted in the disposal of hazardous substances, including volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). These hazardous substances contaminated the subsurface soil and groundwater at the site, and resulted in:

- a threat to human health associated with potential exposure to soil vapor.

- an environmental threat associated with the impacts of contaminants to groundwater.

During the course of the investigation certain actions, known as interim remedial measures (IRMs), were undertaken at the Saw Mill River Road Site in response to the threats identified above. An IRM is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before completion of the site investigation/remedial alternatives report (SI/RAR). The IRM undertaken at this site included asbestos abatement, building demolition, and locating and removing fourteen underground storage tanks and petroleum contaminated soil.

Based on the implementation of the above IRMs, the findings of the investigation of this site indicate that the site no longer poses a threat to human health or the environment; therefore No Further Action with groundwater monitoring and an environmental easement which would limit the site to restricted residential and commercial use, restrict groundwater use and require maintenance of the asphalt cover was selected as the remedy for this site.

The selected remedy, discussed in detail in Section 6, 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

The 310 Saw Mill River Road Site is an approximately 0.38 acre property located at the southeast corner of Saw Mill River Road and Lockwood Avenue in Yonkers, New York (see Figure 1 Site Location Map).

The site is bordered by Lockwood Avenue to the north, Saw Mill River Road to the west, a large stone retaining wall and residences to the east, and an adjacent commercial maintenance garage building and stone retaining wall to the south. The site is in an urban area zoned B (Business) and is surrounded by commercial and residential properties (see Figure 2). It is known as the Bryn Mawr commercial neighborhood of the City of Yonkers.

The property had been used as a gasoline service station since 1925. A one story, approximately 1,900 square foot, masonry building occupied the site until it was demolished in 2003. The building consisted of an office and a maintenance garage with two hydraulic lifts.

The Saw Mill River, which flows south through the City of Yonkers and into the Hudson River, is located approximately 1/4 mile west of the site.

Most of the site was underlain by several feet of sand and gravel fill material which is underlain by a native brown silty fine to median sand. Most of the shallow soils were excavated and removed from the site during the IRM, and replaced by a medium sand clean fill. The depth to groundwater occurs at about 6 to 10 feet below grade level. Groundwater flow is generally from southeast to northwest across the site, toward the Saw Mill River.

Across the street, on the west side of Saw Mill River Road, there are several small businesses - a liquor store, a hardware store, a grocery store, a deli, a mobile phone store, and a real estate office. Behind these businesses and down gradient from the site is the Consolidated Edison of New York (ConEd) Yonkers Service Station, a former manufactured gas holder station. This property is NYSDEC site number V00573. A Site Characterization is planned for this ConEd property for the spring of 2008.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The site has a long history as a gasoline service station, having been used as a gas station since 1925.

Documentation shows that the original owner of the site was Cities Service Company. In 1965 Cities Service Company changed it's name to CITGO. It had been operated as "Vinny's Auto Service."

On May 29, 2001, the Yonkers Parking Authority (YPA) obtained the site under eminent domain from Rex Realty of Connecticut, Inc. The site is now being used as a parking lot for surrounding commercial businesses.

Petroleum contamination of soil and groundwater occurred by spillage and leaking underground storage tanks over the years.

3.2: Remedial History

On December 12, 1987, petroleum contaminated soil was discovered at the site during the removal of four 3,000 gallon underground storage tanks, and a spill (NYSDEC spill # 8812003) was later reported to the NYSDEC. At the time the site was operated by Rex Realty of Connecticut, Inc., and records indicate that the NYSDEC recommended the installation of two monitoring wells.

An Environmental Assessment, dated February 2, 1989, was performed by Aaron Environmental Specialists for Rex Oil Company. The assessment included drilling three soil borings, screening of soil samples, installation of one monitoring well, and analysis of groundwater. The one on site monitoring well was sampled quarterly through 1995.

On March 16, 2000, a Phase I Environmental Assessment was prepared by Vollmuth & Brush for the Yonkers Parking Authority (YPA). At the time of the Phase I Investigation, the site was an abandoned gasoline service station surrounded by a chain link fence. A preliminary Phase II Investigation was performed by Vollmuth & Brush for the YPA in the spring of 2001. A map showing groundwater, soil, and soil vapor results was prepared, but no Phase II Report was issued. The Phase II Investigation map showing data collected in the spring of 2001 is shown as Figure 3.

SECTION 4: ENFORCEMENT STATUS

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.

The PRPs for the site documented to date include: Cities Service Company which changed it's name to CITGO in 1965 and in the 1990's was purchased by Petroleos de Venezuela, S.A. (PDVSA); Rex Oil Company; and Rex Realty of Connecticut, Inc.

The YPA will assist the state in their efforts by providing all information to the state which identifies PRPs. The YPA will also not enter into any agreement regarding response costs without the approval of the Department.

SECTION 5: SITE CONTAMINATION

The YPA has recently completed a site investigation/remedial alternatives report (SI/RAR) to determine the nature and extent of any contamination by hazardous substances 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 work was conducted between June 2003 and May 2006. The field activities and findings of the investigation are described in the SI report and the May 2006 "Sub-Slab Soil Gas Investigation and Additional Groundwater Report". Figure 2 is an aerial photograph showing sample locations.

Site investigation activities started with an asbestos and lead paint inspection of the former one story on site building, and included on-site and off site soil sampling, groundwater sampling, and off site sub-slab and indoor air sampling. An extensive interim remedial measure (IRM), described in detail in Section 5.2, included asbestos abatement, building demolition, underground storage tank removal, soil removal, Oxygen Release Compound (ORC) application, groundwater diversion drain construction, backfilling with clean fill, grading and paving.

5.1.1: Standards, Criteria, and Guidance (SCGs)

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

- Groundwater and surface water SCGs are based on the Department's "Ambient Water Quality Standards and Guidance Values".

- Soil SCGs are based on 6 NYCRR Part 375, the Department's Cleanup Objectives ("Technical and Administrative Guidance Memorandum [TAGM] 4046; Determination of Soil Cleanup Objectives and Cleanup Levels.") and the Department's Hazardous Waste Regulatory Levels for Toxicity Characteristics ("Spills Technology and Remediation Series (STARS) Memo #1, Petroleum-Contaminated Soil Guidance Policy) for analyses using the Toxicity Characteristic Leaching Procedure (TCLP).

- Concentrations of VOCs in air were evaluated using the air guidelines provided in the NYSDOH guidance document titled " Guidance for Evaluating Soil Vapor Intrusion in the State of New York," dated October 2006. For benzene, toluene, and xlyene, indoor air background levels were referenced.

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 required 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 and supplemental report, soil, groundwater, soil vapor, and indoor air samples were collected to characterize the nature and extent of contamination. As seen in Figures 3 through 8 and summarized in Table 1, the main categories of on site contaminants that exceed their SCGs are volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs). For comparison purposes, where applicable, SCGs are provided for each medium.

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

Figures 5 through 8 and Table 1 summarize the degree of contamination for the on site contaminants of concern in soil and groundwater and compares 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

Waste materials at this site include asbestos containing material (ACM), lead-based paint, building demolition debris, the underground storage tanks (UST's) and any residual petroleum contained within the USTs, and petroleum contaminated soil.

Waste identified during the SI/RAR was addressed during the IRM described in Section 5.2.

Soil

The TAGM 4046 soil clean up guidance values for organic chemicals are based upon the lower of two criteria: the groundwater protection criteria or the USEPA health based criteria.

New Part 375 Environmental Program Regulations became effective in December 2006 after the completion of the October 2005 "Site Investigation/Remedial Alternatives Report", and the May 2006 "Sub-Slab Soil Gas Investigation and Additional Groundwater Report". Part 375-6.4 lists soil cleanup objectives developed for the protection of public health and groundwater depending on the proposed uses of the property. TAGM 4046 soil clean up guidance values are cited as they did apply when the field work was done at the site.

During the IRM (October through December 2003), subsurface soil samples were taken of each of the UST excavation pit areas following the excavation of the USTs from that pit area. One VOC exceeded the TAGM 4046 soil clean up guidance value of 3.3 ppm for 1,3,5-trimethylbenzene in one sample from IRM excavation pit "E" at a concentration of 9.6 ppm. Four SVOC's exceeded guidance values in one sample from IRM excavation pit "C" - 0.84 ppm of benzo(a)anthracene exceeding the guidance value of 0.224 ppm, 0.83 ppm of chrysene exceeding the guidance value of 0.4, 1 ppm of benzo(b)fluoranthene exceeding the guidance value of 0.22 ppm, and 0.56 ppm of benzo(a)pyrene exceeding the guidance value of .061 ppm. Test pit locations are shown on Figure 4 and the exceedances of TAGM 4046 soil clean up guidance values for VOCs and SVOCs from soil borings are shown on Figure 5. All of the TAGM exceedances are well below that Part 375 commercial soil cleanup objectives.

Surface soil sampling (0-2 inches) was not necessary at this site during the SI as the entire site is a paved parking lot.

Five subsurface soil samples were collected for analysis from on-site subsurface soils, obtained through soil borings as part of the site investigation performed after the completion of the IRM. Samples were analyzed for VOCs and SVOCs. Analysis for metals was not done as soil samples obtained in May 2001 during the Vollmuth & Brush Phase II Study were analyzed for metals, and the concentration of metals in samples were below TAGM 4046 guidance values and Part 375 soil cleanup objectives.

Subsurface on-site soil samples obtained in January 2004 indicated three VOCs and one SVOC exceeded TAGM 4046 guidance values. The sample obtained from 6 to 8 feet below grade at SB-1 had 34 ppm of ethylbenzene exceeding the TAGM 4046 soil clean up guidance value of 5.5 ppm; 120 ppm of 1,2,4 - trimethylbenzene exceeding the TAGM 4046 soil clean up guidance value of 3.4 ppm.; and total xylenes of 198 ppm exceeding the TAGM 4046 guidance value of 1.2 ppm. One SVOC, diethylphthalate, had a concentration of 0.04 ppm at SB-1, and the 10-12 foot on-site soil sample from SB-2 had a concentration of 0.25 ppm diethylphthalate, both exceeding the TAGM 4046 guidance value of 0.0071 ppm. In summary, some on site VOC and SVOC subsurface soil results slightly exceed TAGM 4046 guidance values.

On-site subsurface soil contamination identified during the SI/RAR was addressed during the IRM UST removal and soil removal activities described in Section 5.2. As previously stated in Section 2 above, a preliminary site assessment is planned for on this ConEd property for the spring of 2008.

Groundwater

Following the completion of the IRM, five groundwater monitoring wells were installed on site in January 2004. These five monitoring wells were sampled in January 2004 and again in June 2005. Monitoring well MW-1 was re-sampled in May 2006 when a sample of water seeping into the basement of the off-site *Grab-n-Go* Deli was also obtained.

Samples from on-site wells were analyzed for VOCs and SVOCs. Analysis for metals was not done in on-site wells as soil samples obtained in May 2001 during the Vollmuth & Brush Phase II Study were analyzed for metals, and the concentration of metals in samples were below guidance values. Off site groundwater samples were analyzed for VOCs, SVOCs, PCBs and metals.

Groundwater samples obtained from the site in January 2004 indicated 16 VOCs and four SVOC exceeded groundwater standard/guidance values.

The on-site groundwater sample obtained from MW-1 indicated 14 VOCs exceeded the groundwater standard/guidance values. Duplicate samples were taken for analysis from MW-1. Duplicate samples are often taken during groundwater sampling events for quality control. The MW-1 location was selected for duplicate analysis as water from MW -1 had a slight petroleum odor, and this location was suspected to be most effected by residual contamination. Although most of the petroleum contaminated soil was excavated in this area, residual contamination remains under the sidewalk adjacent to Saw Mill River Road, and possibly under Saw Mill River Road. The degree of contamination in this area did not warrant removal due to the level of effort required and the amount of disruption that would ensue. Continuing to excavate petroleum contaminated soil in this area would would have required removing the sidewalk along Saw Mill River Road next to the site. This would have created logistical problems due to the presence of overhead and underground utilities, and a large volume of traffic on Saw Mill River Road. Excavating off-site would have forced closure of Saw Mill River Road. Petroleum contaminated soil was excavated and removed in this area below the watertable to a depth of about 14 feet (the limits of the excavator).

Much of the 116,300 gallons of free-product/petroleum-contaminated groundwater that was pumped out and removed from the site for treatment off site was removed from this area of the site, and the approximately 300 gallons of liquid Oxygen Release Compound (ORC) were also applied in the area in November 2003 (see Section 5.2). When ORC comes into contact with organic compounds such as benzene, toluene, or xylene, an oxidation reaction occurs breaking down the organic compounds to relatively benign compounds such as carbon dioxide and water.

The January 2004 sample results indicated some discrepancy between the two analyses of the same water sample from MW-1. The analytical results from the duplicate sample for trimethylbenzene and xylene indicated higher concentrations of these compounds. Results from re-sampling of MW-1 in June 2005 showed an even greater discrepancy between the duplicate analysis of the same samples. However, sample results from the May 2006 groundwater sampling show much more consistent results and lower concentrations of VOCs. This May 2006 groundwater data does show an overall reduction of the VOC groundwater concentration on site. Therefore, further reduction of the on site VOC groundwater concentration is expected to occur with time. The MW-1 sample results

from May 2006 are shown on Figure 7.

The on-site groundwater sample obtained from MW-2 indicated 4 VOCs exceeded the groundwater standard/guidance values. The on-site groundwater sample obtained from MW-3 indicated 3 VOCs exceeded the groundwater standard/guidance values. Samples from MW-4 and MW-5 had no exceedances of standard or guidance values. The on-site groundwater exceedances are depicted in Figures 5, 6, and 7.

Three off-site monitoring wells were installed in the northeast corner of the ConEd property downgradient of the site and sampled in March 2005. Groundwater samples obtained from the off site monitoring wells indicated 3 VOCs, six metals and two PCBs exceeded groundwater standard/guidance values. The off-site groundwater exceedances are depicted in Figure 8.

On-site sources of groundwater contamination were addressed during the IRM UST removal, soil removal, the pumping of free-product/petroleum-contaminated groundwater, ORC application, and groundwater diversion drain construction activities described in Section 5.2. Groundwater monitoring is proposed to determine if an overall reduction of the VOC groundwater concentration on-site continues to occur. No site-related off site groundwater contamination of concern was identified during the SI/RAR. Therefore, no remedial alternatives need to be evaluated for groundwater.

Soil Vapor/Sub-Slab Vapor/Air

In May 2006, one sub-slab soil vapor and one indoor ambient air sample were obtained from the basement of two off-site commercial businesses located downgradient and across the street from the site. In addition, one outdoor ambient air sample was obtained from the western property boundary of the site concurrently with the sub-slab soil vapor sampling. The two sub-slab soil gas samples, two indoor ambient air samples and one outdoor ambient air sample were analyzed for VOCs.

Sub-slab soil vapor samples, indoor ambient samples, and outdoor ambient samples obtained during this SI/RAR were compared to the NYSDOH derived air guideline values for methylene chloride, tetrachloroethene (PCE) and trichloroethene (TCE). Sub-slab sample SG-1 had 24 ug/m^3 of TCE and 1,500 ug/m^3 of PCE. Indoor ambient air sample SG-1 had 73 ug/m^3 of methylene chloride exceeding the NYSDOH derived air guideline value of 60 ug/m^3. These chlorinated VOCs are not site related.

Various petroleum (benzene, toluene, ethylene and xylene)-derived compounds and chlorinated solvents were detected in the outside ambient sample obtained during the SI/RAR at concentrations greater than the outdoor ambient concentrations reported in the NYSDOH Study Background Levels provided in the NYSDOH SVI Guidance. In addition, various petroleum-derived compounds and chlorinated solvents in the indoor ambient samples were detected at concentrations greater than the outdoor ambient sample, some of which were also detected at concentrations greater than the indoor ambient concentrations reported in the NYSDOH Study Background Levels provided in the NYSDOH SVI Guidance. Petroleum-derived compounds were not detected in sub-slab sample SG-1. Petroleum-derived compounds detected in the sub-slab soil gas samples were limited to benzene and toluene in sub-slab sample SG-2.

The results of the sub-slab soil vapor investigation indicate that site related compounds, specifically petroleum-derived compounds, are not present at concentrations of concern in the sub-slab soil gas at buildings located downgradient of the site. No site-related soil vapor and/or indoor air contamination of concern was identified during the SI/RAR. Therefore, no remedial alternatives need to be evaluated for this medium.

The Site Characterization planned for the spring of 2008 on the ConEd property will evaluate the nature and extent of contamination that exists on that property. This Site Characterization will include sampling and analysis of groundwater, soil and soil vapor, and will evaluate human and environmental exposure pathways.

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.

In September 2003, prior to the commencement of the SI, IRM activities were initiated with asbestos abatement from the one story building. Areas of the building which tested positive for asbestos, including floor tiles, roof flashing, soffit panels, and door caulking were removed. Following the asbestos removal in October 2003, the hydraulic lifts were removed and the building was demolished. All demolition debris was removed from the site and properly disposed.

Petroleum tank removal activities commenced on-site on October 20, 2003 and were completed on December 13, 2003. These activities consisted of the removal of all on-site underground storage tanks (USTs) and petroleum-contaminated soil. A total of 4,981 tons of petroleum-contaminated soil, 116,300 gallons of free-product/petroleum-contaminated groundwater and fourteen USTs were removed from the site. Most of the soil above the water table was removed in excavation pits A through E shown in Figure 4. In excavation pits A3 and A2, where the most contaminated soil was encountered, soil was excavated below the water table.

Immediately after the tank removal, approximately 300 gallons of liquid Oxygen Release Compound (ORC) was applied to the open trenches prior to backfilling with clean fill. The ORC was added to help accelerate the breakdown of residual petroleum in the soil and groundwater in the western portion of the site in the vicinity of MW-1.

The IRM activities were concluded by the construction of an on-site groundwater diversion drain and paving of the entire site to minimize the on site groundwater intrusion and flow. The groundwater diversion drain was constructed by digging a trench along the east and south side of the site. The side of the trench which was downgradient with respect to groundwater flow was lined with an impermeable plastic membrane. The trench was then backfilled with gravel and a perforated plastic pipe was laid in the trench. This pipe was connected to a solid pipe which was then connected directly to the stormwater sewer located at the corner of Lockwood Avenue and Saw Mill River Road. The groundwater diversion drain was constructed to divert shallow groundwater moving on to the site from the east and divert it around any residual contaminated soil left on site.

Following the backfilling of the diversion drain, the entire site was evenly regraded with an approximate 4 foot gradient sloping toward the western side of the property to enable surface water runoff toward two catch basins and off site storm drains on Saw Mill River Road. The entire site was then paved with six inches of asphalt.

Figure 4 shows the location of the tanks that were removed during the IRM and excavation areas.

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. A more detailed discussion of the human exposure pathways can be found in Section 7.0 of the SI report.

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.

Based on the implementation of the above IRMs, the findings of the investigation of this site indicate that the site no longer poses a threat to human health or the environment. The entire Site is currently paved with asphalt, and is being used as a YPA parking lot for the local business and residences, thus the Site does not provide an exposure pathway for human receptors.

Implementation of the above referenced IRM has removed the primary contaminant source. Construction of the groundwater diversion drain and paving of the Site have minimized groundwater flow through any residual contamination. Analytical results obtained during the Site Investigation that followed the IRM activities indicate that, based on the level and frequency of exceeding recommended cleanup objectives, residual VOCs and SVOCs are the primary contaminants of concern in Site groundwater and soil.

Current and reasonable anticipated potential future exposures were evaluated for Site visitors (i.e.: construction workers and individuals using the parking facility) and nearby residents from contaminants in groundwater, soil and soil vapor. The following discussion addresses the current/potential exposure pathways present at the Site:

5.3.1: Groundwater:

On-site monitoring well data indicates that site groundwater has been impacted with elevated levels of volatile organic compounds and to a lesser extent with semi-volatile organic compounds. An evaluation of off-site groundwater does not indicate that site related contaminants have moved off-site. Exposure to site related contaminants in drinking water is not expected as area businesses and homes are serviced with a public water supply and there are no known private drinking water supply wells on or near the site. It is unlikely that visitors to the site will be exposed to contaminated groundwater through direct contact or incidental ingestion. Should a building be constructed on the site, there is a potential for individuals that occupy the building to be exposed to contaminated vapors that volatilize off of the groundwater. During construction activities, workers could be exposed to contaminated groundwater through dermal contact, incidental ingestion, and inhalation of vapors.

Off-site monitoring well data, however, indicates that groundwater has been impacted with chlorinated VOCs (primarily tetrachloroethene), PCBs, and metals which do not appear to be related to Site activities.

5.3.2: Soil:

Localized residual VOC and SVOC contamination has been identified in on-site soil. It is unlikely that visitors to the site will be exposed to contaminated soil because the entire site has been covered with asphalt. During construction activities, where soils are disturbed or removed, workers could be exposed to contaminated soil through dermal contact, incidental ingestion, or inhalation of contaminated dust.

Off-site soil data does not indicate that site related waste in soil has moved off site.

5.3.3: Soil Vapor:

On-site soil vapor samples were not collected as part of the Site Investigation because there are no buildings on the site nor are there expected to be any building on the property. Exposure to soil vapors by visitors to the site is not expected. As noted above, should a building be constructed on the property, there is a potential for individuals to be exposed to contaminated soil vapors that enter the building. During construction activities, workers could be exposed to contaminated vapors that volatilize off of the groundwater.

Off-site sub-slab and indoor air samples were collected from two commercial businesses. With the exception of two non-site related chlorinated VOCs (tetrachloroethene and trichloroethene) the results of the samples collected at these properties indicate that exposure to site related compounds in soil vapor is not currently occurring nor is it expected to occur. Further evaluation into the detection of non-site related compounds is necessary.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site prior to the IRM. 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.

Prior to the implementation of the IRM, USTs, petroleum contaminated soil, and groundwater were a source of groundwater contamination. Relatively high concentrations of petroleum derived VOCs and SVOCs posed a significant threat to groundwater quality. Since the completion of the IRM, the level of groundwater contamination has decreased and groundwater monitoring will be continued.

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

- an environmental threat associated with the impacts of contaminants to groundwater

The Saw Mill River Creek is located approximately ¼ mile downgradient of the site and could have been impacted if the site were left unaddressed.

SECTION 6: SUMMARY OF THE REMEDIATION GOALS, SELECTED REMEDY, AND THE 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.

Prior to the completion of the IRM described in Section 5.2, the remediation goals for this site were to eliminate or reduce to the extent practicable:

- exposures of persons at or around the site to petroleum based compounds in the soil, This threat was significantly reduced through the excavation and removal of the fourteen USTs and 4,981 tons of petroleum contaminated soil;

- the release of contaminants from soil into groundwater that may create exceedances of groundwater quality standards. This threat was significantly reduced through the removal of 116,300 gallons of free-product/petroleum-contaminated groundwater, the construction of the shallow groundwater diversion trench, UST and soil removal, and the application of ORC; and

- the release of contaminants from groundwater to soil vapor and the buildup of contaminant concentrations in indoor air. As noted in Section 5.3.3, the evaluation of this exposure pathway indicated no measurable site related impacts on indoor air quality.

The main SCGs applicable to this project are as follows:

- ambient groundwater quality standards. VOC contamination in on site well MW-1 is anticipated to decrease over time and eventually meet ground water standards. Off site downgradient monitoring wells did not identify an impact to groundwater quality for contaminants related to the site;

- 6 NYCRR Part 375 and TAGM 4046. While concentrations of certain individual compounds in on-site soil may exceed TAGM 4046 guidance values, remediation to the extent practicable was achieved through the IRM and concentrations in on-site soil were below Part 375 restricted commercial use soil cleanup objectives;

- NYSDOH SVI Guidance. No site-related soil vapor or indoor air contamination of concern was identified during the SI/RAR .

The Department believes that the IRM has accomplished the remediation goals and satisfied the SCGs for the site.

Based on the results of the investigations at the site, the IRM that has been performed, and the evaluation presented here, the Department has selected No Further Action with groundwater monitoring and an environmental easement which would limit the site to restricted residential and commercial use, restrict ground water use and require maintenance of the asphalt cover as the preferred alternative for the site. The Department believes that this alternative will be protective of human health and the environment and will satisfy all SCGs as described above. Overall protectiveness is achieved through meeting the remediation goals listed above.

Therefore, the Department concludes that No Further Action is needed other than deed restrictions, maintenance of the asphalt cover, and groundwater monitoring.

The elements of the IRM already completed, and the institutional controls are listed below:

1.) Imposition of an institutional control in the form of an environmental easement that would require (a) limiting the use and development of the property to restricted residential and 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.

2.) Development of a site management plan which would include the following institutional and engineering controls: (a) management of the final cover system to restrict excavation below the pavement. Should the site be excavated for any purpose in the future, excavated soil would be tested, properly handled to protect the health and safety of workers and the nearby community, and would be properly managed in a manner acceptable to the Department; (b) monitoring groundwater; (c) identification of any use restrictions on the site; (d) evaluate the potential for vapor intrusion for any buildings developed on the site, including mitigation of any impacts identified; and (e) provisions for the continued proper monitoring and maintenance of the components of the remedy.

3.) The property owner would 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 would: (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 would 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.

4) Since the remedy results in untreated hazardous substances remaining at the site, a long-term monitoring program would be instituted. Groundwater samples will be taken from the on-site wells on a periodic basis for five years and analyzed for VOCs. This program would allow the effectiveness of the soil removal and ORC to be monitored and would be a component of the long-term management for the site. Should concentrations of trimethylbenzene, toluene, and xylene not continue to decrease over time, injection of chemical additives such as ORC will be considered to accelerate the breakdown and natural attenuation of these compounds.

The proposed future use for the 310 Saw Mill River Road Site is the same as it's current use, a parking lot, although future proposals for the property may include adding commercial and restricted residential use.

SECTION 7: HIGHLIGHTS OF COMMUNITY PARTICIPATION

As part of the environmental restoration process, a number of Citizen Participation activities were undertaken to inform and educate the public about conditions at the site and the potential remedial alternatives. The following public participation activities were conducted for the site:

- Repositories for documents pertaining to the site were established.
- A public contact list, which included nearby property owners, elected officials, local media and other interested parties, was established.
- A fact sheet announcing the start of the Remedial Investigation and Removal Action was sent in June 2003.
- A fact sheet and public meeting invitation announcing the issuance of the Proposed Remedial Action Plan, public comment period, and public meeting was sent in February 2008.
- A public meeting was held on February 25, 2008 to present and receive comment on the PRAP.
- A responsiveness summary (Appendix A) was prepared to address the comments received during the public comment period for the PRAP.

TABLE 1
Nature and Extent of On Site Groundwater & Soil Vapor Contamination
January 2004 – May 2006

ON SITE GROUNDWATER January 2004	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	benzene	ND-180	1	1 of 5
	sec-butylbenzene	ND-8	5	1 of 5
	cis-1,2-dichloroethene	ND-270	5	2 of 5
	1,3-dichloropropene	ND-270	0.4	3 of 5
	ethylbenzene	ND-360	5	1 of 5
	isopropylbenzene	ND-33	5	1 of 5
	4-isopropyltoluene	ND-13	5	1 of 5
	methylene chloride	ND-38	5	1 of 5
	n-propylbenzene	ND-8	5	1 of 5
	styrene	ND-45	5	1 of 5
	tetrachloroethylene	ND-970	5	2 of 5
	1,2,4,5-tetramethylbenzne	ND-150	5	1 of 5
	toluene	ND-2100	5	1 of 5
	1,2,4-trimethylbenzene	ND-2700	5	1 of 5
	1,3,5-trimethylbenzene	ND-800	5	1 of 5
	m/p-xylene	ND-6600	5	1 of 5
	o-xylene	ND-4000	5	2 of 5
Semivolatile Organic Compounds (SVOCs)	2-Methylphenol	ND-10	5	1 of 5
	4-Methylphenol	ND-8	5	1 of 5
	Naphthalene	ND-20	0.4	2 of 5
	Total Phenolic Compounds	ND-2	1	1 of 5

ON SITE GROUNDWATER June 2005	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	benzene	ND-80	1	1 of 5
	bromobenzene	ND-8	5	1 of 5
	Bromomethane	ND-9	5	1 of 5
	sec-butylbenzene	ND-33	5	1 of 5
	chloroform	ND-19	7	1 of 5
	1,1-dichloroethene	ND-30	5	1 of 5
	cis-1,2-dichloroethene	ND-66	5	2 of 5
	1,3-dichloropropene	ND-66	0.4	2 of 5
	1,1-Dichloroethane	ND-14	5	1 of 5
	1,2-Dichloroethane	ND-7	0.6	1 of 5
	1,2-Dichloropropane	ND-42	1	1 of 5
	2,2-Dichloropropane	ND-22	5	1 of 5
	ethylbenzene	ND-6800	5	1 of 5
	isopropylbenzene	ND-180	5	1 of 5
	4-isopropyltoluene	ND-40	5	1 of 5
	Methyl tert-butyl ether (MTBE)	ND-55	10	2 of 5
	Naphthalene	ND-1300	10	1 of 5
	n-propylbenzene	ND-220	5	1 of 5
	tetrachloroethylene	ND-73	5	2 of 5
	1,1,2,2-tetrachloroethane	ND-26	5	1 of 5
	1,2,4,5-tetramethylbenzne	ND-390	5	1 of 5
	toluene	ND-5000	5	1 of 5
	1,2,3-Trichlorobenzene	ND-8	5	1 of 5
	1,2,4-Trichlorobenzene	ND-8	5	1 of 5
	1,1,1-Trichloroethane	ND-56	5	1 of 5
	1,2,4-trimethylbenzene	ND-9300	5	1 of 5
	1,3,5-trimethylbenzene	ND-2600	5	1 of 5
	vinyl chloride(chloroethene)	ND-6	2	1 of 5

ON SITE GROUNDWATER June 2005	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
	m/p-xylene	ND-25000	5	1 of 5
	o-xylene	ND-14000	5	1 of 5
Semivolatile Organic	bis(2-ethylhexyl)phthalate	ND-1000	50	2 of 5
	Naphthalene	ND-78	0.4	1 of 5

ON SITE GROUNDWATER May 2006	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic	benzene	ND-19	1	1 of 1
	ethylbenzene	ND-1300	5	1 of 1
	isopropylbenzene	ND-57	5	1 of 1
	Naphthalene	ND-160	10	1 of 1
	n-propylbenzene	ND-140	5	1 of 1
	toluene	ND-200	5	1 of 1
	1,2,4-trimethylbenzene	ND-750	5	1 of 1
	1,3,5-trimethylbenzene	ND-250	5	1 of 1
	m/p-xylene	ND-1700	5	1 of 1
	o-xylene	ND-540	5	1 of 1
	total xylenes	ND-2200	5	1 of 1
Semivolatile Organic	Naphthalene	ND-120	0.4	1 of 1

SUBSLAB SO	Contamina	Concentra		Frequency

IL VAPOR May 2006	**nts of Concern**	**tion Range Detected (µg/m3)a**		**of Exceeding SCG**
Volatile Organic C	Tetrachloroethene	33-1500		-

o m p o u n d s (V O C s)	(P C E)			
	T r i c h l o r o e t h e n e (T C E)	1 . 7 - 2 4		-

INDOOR AIR May 2006	**Contaminants of Concern**	**Concentration Range Detected (µg/m^3)[a]**	**SCG[b] (µg/m^3)[a]**	**Frequency of Exceeding SCG**
Volatile Organic Compounds (VOCs)	Methylene Chloride	13-73	60	1 of 2
	Tetrachlorethene	2.5-25	100	0 of 2
	Trichloroethylene	0.91-2.7	5	0 of 2

[a] ppb = parts per billion, which is equivalent to micrograms per liter, ug/L, in water;
ug/m^3 = micrograms per cubic meter

[b] SCG = standards, criteria, and guidance values; {list SCGs for each medium}

ND – Non-detect

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Approximate Total Present Worth ($)
No Action	0	0	0
Bi-Annual Groundwater Sampling and Monitored Natural Attenuation (MNA) for 5	0	39,000	169,000

APPENDIX A

Responsiveness Summary
RESPONSIVENESS SUMMARY

310 Saw Mill River Road Environmental Restoration Site

Yonkers, New York
Site No. B00179-3

The Proposed Remedial Action Plan (PRAP) for the 310 Saw Mill River Road 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 February 8, 2008. The PRAP outlined the remedial measure proposed for the contaminated soil and groundwater at the 310 Saw Mill River Road 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. Approximately 110 Public Meeting Invitations/Fact Sheets were mailed out to the public contact list which included the press, environmental groups, elected officials, community groups, and surrounding property owners.

A public meeting was held on February 25, 2008, 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. No one attended the public meeting other than representatives of the Yonkers Parking Authority and their consultant, and representatives of the New York State Departments of Health and Environmental Conservation.

The public comment period for the PRAP ended on March 27, 2008. One written comment was received.

Michael J. Dalton, Executive Director of the Yonkers Parking Authority, submitted a letter dated March 19, 2008 which contained the following comment:

COMMENT: The site may be developed in the future to include residential use.

RESPONSE: The institutional control in the Record of Decision will allow for restricted residential use of the property in the future.

APPENDIX B

Administrative Record

Administrative Record

310 Saw Mill River Road Site
Site No. B00179-3

Proposed Remedial Action Plan for the 310 Saw Mill River Road site, dated February 2008, prepared by the Department.

Public Meeting Invitation/Fact Sheet dated February 2008 for the Proposed Remedial Action Plan

Concurrence letter dated February 4, 2008 from Steven M. Bates, Assistant Director, Bureau of Environmental Exposure, NYSDOH to Dale A. Desnoyers, Director, Division of Environmental Remediation, NYSDEC.

"Final Site Investigation/Remedial Alternatives Report, 310 Saw Mill River Road, Yonkers New York", February 2008, Prepared by Henningson, Durham & Richardson Architecture and Engineering, P.C.

"Sub-slab Soil Gas Investigation and Additional Groundwater Sampling Report", Yonkers New York", May 2006, Prepared by Henningson, Durham & Richardson Architecture and Engineering, P.C.

Correspondence dated April 18, 2006 from Noemi Santiago, Henningson, Durham & Richardson Architecture and Engineering, P.C. to Hank Gammoh of the YPA amending the Work Plan for sub-slab soil gas investigation and additional groundwater sampling.

Correspondence dated February 10, 2005 from Stephanie C. Nakai, Henningson, Durham & Richardson Architecture and Engineering, P.C. to Brian Davidson amending the Work Plan.

Correspondence dated December 15, 2004 from Stephanie C. Nakai, Henningson, Durham & Richardson Architecture and Engineering, P.C. to Brian Davidson amending the Work Plan.

Correspondence dated January 6, 2004 from Noemi Castillo, Henningson, Durham & Richardson Architecture and Engineering, P.C. to Brian Davidson amending the Work Plan.

Fact Sheet dated June 2003 announcing the beginning of the Site investigation and Removal Action

Site Investigation/Remedial Alternatives Report Work Plan, 310 Saw Mill River Road, Yonkers New York", May 2003, Prepared by Henningson, Durham & Richardson Architecture and Engineering, P.C.

"Brownfields Program Investigation Application", Prepared by Vollmuth & Brush, January 2002