Department of Environmental Conservation

Division of Environmental Remediation

Environmental Restoration
Record of Decision
Proposed Schuyler Heights Fire District
Station House Site
Town of Colonie, Albany County, New York
Site Number E401050

March 2008

New York State Department of Environmental Conservation
DAVID A. PATERSON, *Governor* ALEXANDER B. GRANNIS, *Commissioner*

DECLARATION STATEMENT
ENVIRONMENTAL RESTORATION RECORD OF DECISION

Proposed Schuyler Heights Fire District Station House
Environmental Restoration Site
Town of Colonie, Albany County, New York
Site No. E401050

Statement of Purpose and Basis

The Record of Decision (ROD) presents the selected remedy for the Proposed Schuyler Heights Fire District Station House 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 Proposed Schuyler Heights Fire District Station House 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 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 Proposed Schuyler Heights Fire District Station House site and the criteria identified for evaluation of alternatives, the Department has selected removal of potential source areas of viscous tar-like material and the installation of a cover over the contaminated soil and fill. The components of the 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. Potential on-site sources of viscous tar-like material will be excavated and properly disposed of off-site.

3. A soil cover will be constructed over all vegetated areas to prevent exposure to contaminated soils. The one-foot thick cover will consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the subsurface soil. The top four inches of soil will be of sufficient quality to support vegetation. Clean soil will constitute soil that meets the Division of Environmental Remediation's criteria for backfill. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick. To implement the above cover system, the site will be graded and leveled and the identified potential sources will be removed and disposed off-site.

4. 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 will 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.

5. Development of a site management plan 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) identification of any use restrictions on the site; and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

6. 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.

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.

MAR 3 1 2008

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

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Environmental Restoration
RECORD OF DECISION

Proposed Schuyler Heights Fire District Station House Site
Town of Colonie, Albany County, New York
Site No. E401050
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 this remedy for the Proposed Schuyler Heights Fire District Station House site. The presence of hazardous substances has created threats to human health and/or the environment that are addressed by this 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, operation of railcar loading and unloading facilities, disposal of historic fill, and scrap metal receiving, storage, and sorting operations have resulted in the disposal of hazardous substances, including semivolatile organic compounds, volatile organic compounds and metals. These hazardous substances have contaminated the soil and groundwater at the site, and have resulted in:

- a threat to human health associated with current and potential exposure to surface and subsurface soil.

- an environmental threat associated with the current and potential impacts of contaminants to soil and groundwater.

To eliminate or mitigate these threats, the Department has selected the removal of potential source areas of viscous tar-like material and the installation of a cover over the contaminated soil and fill.

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

The Proposed Schuyler Heights Fire District Station House site (Site) is located at 849 First St . in the Town of Colonie, Albany County. The site is bounded by First St. to the south, an access road and scrap metal recycling facility to the west and north and private residences to the east. The total area of the site is 7.5 acres. A chainlink fence and soil berm prevents access from the road and adjacent residences. It is currently vacant. See Figures 1 & 2.

There are several current and former industrial sites in the immediate area of the Site. There are two Class 2 inactive hazardous waste disposal sites located within one mile of the Site: AL Tech Specialty Steel is located 0.27 miles to the west, and Adirondack Steel is located 0.75 miles to the north. The former D&H Rail Yard is less than 0.1 miles to the north.

The underlying native soil is composed of fine to course sand with varying amounts of silt and gravel. A layer of historic fill exists over the majority of the site at depths averaging 5 to 7 feet below ground surface (bgs) with maximum depths up to 16 feet. Bedrock at the site is Normans Kill Shale which consists of minor mudstone and sandstone. Depth to bedrock is variable across the site ranging from a depth of 17 feet in the northern portion of the site to a surface outcropping in the northeast corner of the site.

Groundwater at the site is shallow. The watertable has been measured between 7.5 feet and 13.5 feet bgs The direction of groundwater flow is to the southwest.

Approximately 2 acres of the Site were densely wooded until 2005 when the current owner cleared the property.

SECTION 3: SITE HISTORY

3.1: Operational/Disposal History

The Site has been the location of many activities since the early 1900s. Initially, the D&H Rail Yard extended onto the property with loading/unloading operations to transport various materials. Indications of this use include historic areal photos and discovery of railroad ties during investigation activities. More recently the site has been utilized by scrap metal salvage businesses which was evidenced by the unearthing of pieces of salvaged scrap metal, small amounts of solid waste and processed material, as well as some crushed and deteriorated metal containers.

At some time a large quantity of fill was placed at the site. The fill consists of slag, cinders, ash, brick, asphalt, wood, and metal. The origin of much of the fill is likely the former steel mills in the immediate vicinity as it resembles material observed at those sites.

3.2: Remedial History

A limited Phase I Environmental Site Assessment (ESA) was performed for the Site in 2002 over a 3-acre portion of the property. The assessment included observations of the surficial conditions and historical document review. Based on the results of the Phase I ESA, a Phase II ESA was also

performed 2002. As part of the Phase II ESA, 12 test pits were excavated and one temporary monitoring well was installed. Two soil samples were collected from the test pits and one water sample was collected from the monitoring well. Semivolatile organic compounds (SVOCs) were found in the soil. The groundwater was tested for volatile organic compounds (VOCs) and methyl tertiary butyl ether (MTBE). No compounds were detected.

A full Phase I ESA was conducted by the site owner in 2003 as part of the ERP application. This ESA included a historical document review for the entire 7.5 acre site. Two documented petroleum releases were discovered and both cases had been closed. The ESA was submitted in support of the ERP application.

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.

Since no viable PRPs have been identified, 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 Schuyler Heights Fire District will assist the state in its efforts by providing all information to the state which identifies PRPs. The Fire District will also not enter into any agreement regarding response costs without the approval of the Department.

SECTION 5: SITE CONTAMINATION

The Schuyler Heights Fire District has recently completed a site investigation/remedial alternatives report (RI/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 RI was to define the nature and extent of any contamination resulting from previous activities at the site. The RI was conducted between June and August of 2006. The field activities and findings of the investigation are described in the RI report.

Tasks performed during the investigation included test trenches, test pits and soil borings to facilitate the collection of subsurface soil samples as well as the installation of monitoring wells to enable the collection of groundwater samples. Surface soil samples were collected using hand tools from the upper 6 inches of soil (depth was dependent on the presence or absence of vegetation).

Eight trenches were excavated across the site to the water table, generally in an east to west direction. The trenching allowed for observation of subsurface conditions, discovery of potential sources of contamination and collection of subsurface soil samples.

Six soil borings were drilled on-site to document subsurface conditions such as depth to bedrock and depth of historic fill. Subsurface soil samples were collected from each boring and monitoring wells

were installed to document water table elevations and groundwater flow direction. Several weeks after monitoring well installation, groundwater samples were collected for analysis.

All samples of the collected media (surface/subsurface soil and groundwater) were analyzed for SVOCs, VOCs, inorganics (metals), pesticides and polychlorinated biphenyls (PCBs).

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 Title 6 of the New York Code of Rules and Regulations [6NYCRR] Part 375 Restricted Use Soil Cleanup Objectives [SCOs] for Commercial Use, Table 375-6.8(b).

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 RI 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 RI report, many soil and groundwater samples were collected to characterize the nature and extent of contamination. As seen in Figures 3 through 6 and summarized in Table 1, the main categories of contaminants that exceed their SCGs are semivolatile organic compounds (SVOCs), and inorganics (metals). Other contaminants that were found sporadically at the Site exceeding SCGs include VOCs, PCBs and pesticides. 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 soil.

Figures 3 through 6 and Table 1 summarize the degree of contamination for the contaminants of concern in soil and groundwater 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

A viscous tar-like material was located on the site as shown in Figures 3 through 6. This feature is referred to as a "potential source" of contamination because analytical data from samples of the surrounding media including soil and groundwater did not exhibit impacts from this material.

Waste identified during the RI/RAAR will be addressed in the remedy selection process.

Surface Soil

Surface soil samples (samples taken within six inches of the ground surface) were collected from across the site based on a 150 foot square grid pattern overlaid on the site. Twenty discrete samples were collected and analyzed for contaminants in the categories specified above. Inorganics were the primary contaminant found in this medium exceeding Part 375 Restricted Use - Commercial SCOs as defined previously. PCBs were also detected above soil SCOs in three of the samples in the northern portion of the Site. Limited and sporadic detections of SVOCs greater than SCOs were found at the surface as well. Full results are included in Table I and Figures 3, 4, and 5.

Surface soil contamination identified during the RI/RAAR will be addressed in the remedy selection process.

Subsurface Soil

Subsurface soil samples were collected from 29 locations distributed around the site at various depths; 2 samples were collected from each test trench, one sample was collected from each boring and one sample was collected from each group of test pits. Selection of sampling locations was based on field observations including instruments readings. Each sample was analyzed for contaminants in the categories specified above. Subsurface soil analytical results indicate varied conditions from those found in the surface soil. SVOCs exceeding Part 375 Restricted Use - Commercial SCOs were detected in more samples and over a larger area at the site though the exceedences remain sporadic from sampling point to point. Concentrations of all SVOCs exceeding SCOs are highest in Test Trench 2. One exceedence of SCOs for PCBs was found at Test Pit 3. Exceedences of Part 375 Restricted Use - Commercial SCOs for inorganics exist to varying degrees over most of the site, the northwest corner being the exception. Copper is the most frequently detected inorganic constituent. A complete summary of the findings is in Table I and Figures 3, 4, and 5.

Subsurface soil contamination identified during the RI/RAAR will be addressed in the remedy selection process.

Groundwater

Groundwater samples were collected from seven monitoring wells installed at the site during the RI. The samples were analyzed for contaminants listed previously. The groundwater sample from MW-6 exceeded groundwater standards for one VOC, two pesticides, and two inorganics. All other wells yielded samples that exhibited slightly elevated levels of various inorganics. With the exception of

sodium, which is the most frequently detected metal, found in all seven monitoring wells, other inorganics appeared to be localized occurrences.

Many of the prevalent contaminants detected in the surface and subsurface soil were not found in the groundwater including SVOCs and inorgaincs (arsenic, cadmium, chromium, copper, mercury, and nickel). This indicates that soil contaminants are not mobilizing to the groundwater.

The contaminants detected in MW-6 are not detected in the groundwater from the downgradient well (MW-4) which suggests that off-site migration is not occurring.

A complete summary of the findings is presented in Table 1 and Figure 6.

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 RI/RAAR.

There were no IRMs performed at this site during the RI/RAAR.

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 RI 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.

The site is currently undeveloped, vacant land with limited vegetative cover and piles of miscellaneous debris. Direct exposure is possible to those working, playing or trespassing within the fence line. There is a potential for exposure to SVOC and PCB contaminated surface soil detected in the northern portion of the site. There is also a potential for exposure to metals detected in surface soil at levels above site cleanup goals throughout the site. The potential for dermal contact, inhalation and ingestion of impacted surface and subsurface soil would increase during

construction and site maintenance activities. Exposure to contaminated groundwater is unlikely since the area surrounding and downgradient of the site is serviced by public water and no private water supply wells are known to exist in the immediate vicinity of the site.

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 Fish and Wildlife Impact Analysis, which is included in the RI report, presents a detailed discussion of the existing and potential impacts from the site to fish and wildlife receptors.

On-site habitats are characterized as "Urban: Vacant Lots," therefore, there are no significant ecological resources on the site and no pathways to valuable resources exist.

Site contamination has had limited impacts on the groundwater resource in the upper water bearing zone.

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 proposed use of the site is commercial, which includes passive recreational use.

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

- exposures of persons at or around the site to SVOCs, inorganics, and PCBs in surface and subsurface soil as well as inorganics, pesticides, and VOCs in groundwater;
- environmental exposures of flora or fauna to SVOCs, inorganics, and PCBs in surface and subsurface soil; and
- the release of contaminants from waste materials (viscous, tar-like material) into groundwater

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

- ambient groundwater quality standards and;

- the Department's Soil Cleanup Objectives - (SCO) for Restricted Use - Commercial ("NYSDEC Regulations 6 NYCRR Subpart 375-6 Remedial Program Soil Cleanup Objectives")

SECTION 7: SUMMARY OF THE EVALUATION OF ALTERNATIVES

The selected remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements. Potential remedial alternatives for the Schuyler Heights Fire District were identified, screened and evaluated in the RAAR 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 will 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 will cease after 30 years if remediation goals are not achieved.

Removal of all historic fill material and replacement of that material with acceptable clean fill was also evaluated as a method of attaining pre-disposal conditions at the site. The total amount of material that would have to be removed from the site and disposed is estimated to be 40,000 cubic yards. A determination was made during a preliminary analysis by calculating the estimated cost in dollars and considering the disruption to the community that it would be neither beneficial nor cost effective to pursue this alternative. The financial cost was estimated to exceed 5.5 million dollars. Implementation would require a minimum of 4000 truckloads of fill to be transported through the community.

The following remedial alternatives address the soil contamination at the site. No remedial alternatives are evaluated for groundwater because the area is served by public water, data supports that soil contaminants are not mobilizing to the on-site groundwater, and the investigation documented that localized groundwater contaminants are not migrating from the site.

7.1: Description of Remedial Alternatives

The following potential remedies were considered to address the contaminated soil at the site.

Alternative 1: No Action

The No Action Alternative is evaluated as a procedural requirement and as a basis for comparison. It allows the site to remain in an unremediated state. This alternative would leave the site in its present condition and would not provide any additional protection to human health or the environment. Under this alternative the monitoring wells installed on the site for the investigation would be decommissioned.

Present Worth: *$5,000*

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

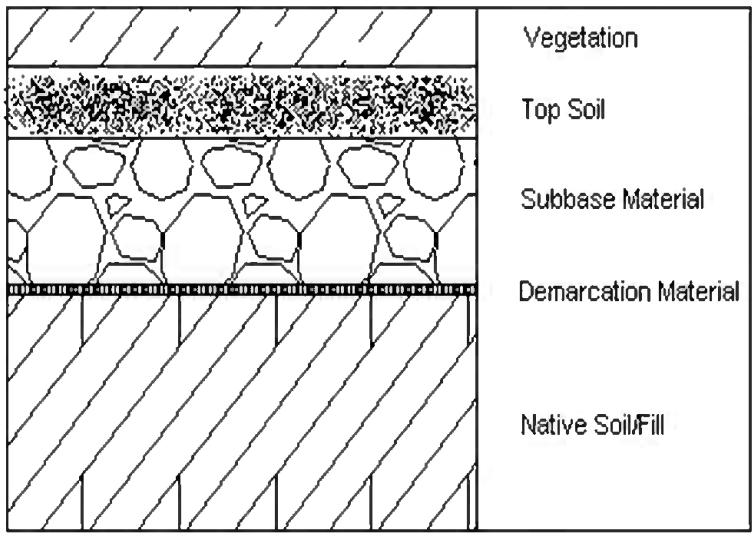
Alternative 2: Institutional Controls

Alternative 2 includes the imposition of institutional controls and the development of a Site Management Plan (SMP). The controls would include restrictions on the use of groundwater, land use, and would require notification to a potential purchaser of site contamination upon a change of property ownership. Access to the site would be restricted by maintaining the existing fence to prevent trespassers to limit the public's exposure to the contaminants at the site. These controls would be codified in an environmental easement granted to the New York State Department of Environmental Conservation.

Present Worth: *$24,000*
Capital Cost: *$18,000*
Annual Costs:
(Years 1-5): *$1,000*
(Years 5-30): . . . . . *$< 1,000*

Alternative 3: Institutional Controls, Site Management Plan with Excavation of Potential Sources and installation of a Soil Cover

Alternative 3 would include all of the components of the Site Management Plan and institutional controls described above in addition to the removal of on-site potential sources of viscous tar-like material as indicated on Figures 3 through 6 and installation of a soil cover. To implement this alternative, extensive site work would be performed to distribute on-site piles of mixed soil and processed material over the site to facilitate the placement of the soil cover. Areas of the site where potential sources were discovered during the Remedial Investigation would be excavated and removed from the site for proper disposal. The soil cover system would consist of



Detail 1: Cover System Cross Section

the following components starting from the bottom: a demarcation layer, a minimum of 8 inches of soil, and a minimum of 4 inches of soil capable of supporting vegetation. See Detail 1 for a cross section of the described cover. The vegetation would be established to prevent erosion of the cover except where concrete or asphalt surfaces would be installed as part of future development. If coordination of development and remediation is possible, the soil cover can be replaced by the paving system or concrete surface not less than 6 inches thick.

The SMP would provide guidance on the use of the site to ensure protection of future occupants and workers at the site and would be approved by the Department. It would include provisions for managing soils and historic fill during excavation and site work and it would specify procedures for characterization, disposal and acceptable use of excavated material. The specification, maintenance requirements and repair procedures for the cover would be included in the SMP and it would also require evaluation of the potential for vapor intrusion into habitable buildings to be constructed and may require measures to prevent vapor intrusion.

The timeframe required to implement this remedy would be approximately one year. The remedy design would consist of a grading plan so that mounded material currently on-site could be appropriately distributed to provide for proper drainage. Construction of the remedy once designed could be accomplished within a single construction season.

Present Worth: *$585,000*
Capital Cost: *$559,000*
Annual Costs:
(Years 1-5): *$2,000*
(Years 5-30): ..... *$< 1,000*

Alternative 4: Institutional Controls and Site Management Plan with Off-Site Disposal of Contaminated Media and Soil Cover

Alternative 4 would address contamination at the site through excavation and disposal at an off-site, permitted disposal facility in addition to a soil cover, institutional controls and a SMP. Soil and historic fill that exceeds commercial SCOs, as determined during the RI and shown in Figures 3, 4 and 5, would be excavated and removed from the site. This would include the two large mounds of mixed soil and processed material that are located in the northern and central areas of the site. Like Alternative 3, potential sources of viscous tar-like material discovered during the RI would also be removed from the site for disposal. This alternative would also entail filling excavated areas with imported soil to attain proper grade at the site. Confirmation sampling would be required at all locations of soil/fill excavation to assure adequate removal of contaminated media. Sampling would be performed at the bottom and sidewalls of each excavation site.

Similarly to the SMPs for Alternatives 2 and 3, the SMP would specify the procedures necessary to maintain the site remedy and protect the future occupants of the site. These procedures include provisions for managing the contaminated soils/fill present at the site during future construction activities. It would specify the procedures for proper characterization, disposal and/or replacement

of excavated material. The SMP would also require and evaluation of the potential for vapor intrusion into any buildings developed on the site.

Like Alternative 3, this remedy could be implemented in one year. The remedy design would be similar to 3 though it would be accomplished with a significant portion of imported material. The design would require approximately three months to develop and implementation would take approximately nine months.

Present Worth: *$1,400,000*
Capital Cost: *$1,376,000*
Annual Costs:
(Years 1-5): *$2,000*
(Years 5-30): ..... *< 1,000*

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 RAAR.

The first two evaluation criteria are termed "threshold criteria" and must be satisfied in order for an alternative to be considered for selection.

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 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.

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 on-site 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.

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.

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.

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.

8. Community Acceptance - Concerns of the community regarding the RI/RAAR reports and the PRAP have been evaluated. The responsiveness summary (Appendix A) presents the public comments received and the manner in which the Department will addressed the concerns raised. If the selected remedy differs significantly from the proposed remedy, notices to the public will be issued describing the differences and reasons for the changes.

In general, comments were received that were substantially supportive of the selected remedy.

SECTION 8: SUMMARY OF THE SELECTED REMEDY

Based on the Administrative Record (Appendix B) and the discussion presented below, the Department has selected Alternative 3, Institutional Controls, Site Management Plan with Excavation of Potential Sources and installation of a Soil Cover as the remedy for this site. The elements of this remedy are described at the end of this section. The selected remedy is based on the results of the RI and the evaluation of alternatives presented in the RAAR.

Alternative 3 was 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 covering the soil and fill materials that pose a direct exposure threat to public health and the environment and by removing waste that poses a potential threat to groundwater resources on the site. This alternative addresses the five balancing criteria. It will quickly address exposure threats to the public. It will be effective in the long term through the implementation of appropriate institutional controls that would be included in the SMP. Alternative 3 is easily implementable and cost effective. The toxicity, mobility, or volume of the waste on site will not be significantly improved or altered, however, the current pathway as described above in Section 5.3 would be eliminated through the installation of the soil cover.

Alternatives I and 2 do not satisfy the remedial goals specified in Section 6 and have been eliminated from consideration.

Like Alternative 3, Alternative 4 would also satisfy all evaluation criteria because the soil barrier would quickly eliminate the exposure pathway identified in section 5.3. It would also provide long term protection through the implementation of appropriate institutional controls within the SMP. Alternative 4 differs from Alternative 3 in that it would also require the removal and off-site disposal of contaminated areas of the site identified during the RI as well as removal of the processed material mounded in the two large piles on-site. An examination of the Figures included with the PRAP shows the distribution of the contamination is not clearly associated with any discrete source. If Alternative 4 were implemented, undiscovered contamination would likely remain on-site after an extensive spot-removal phase of the remedy was completed. Therefore, the contaminant volume could be reduced but not by a significant quantity, failing the meet the requirement of reduction of toxicity, mobility or volume and would not justify the added expense.

Alternative 4 also does not meet the Cost-Effectivness criterion (Number 7) because of the significant cost increase without a corresponding significant reduction in toxicity, mobility, or volume of contamination at the site.

The estimated present worth cost to implement the remedy is $585,000. The cost to construct the remedy is estimated to be $559,000 and the estimated average annual costs for 30 years is less than $1,000.

The elements of the selected remedy are as follows:

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

- Potential on-site sources of viscous tar-like material will be excavated and properly disposed of off-site.

- A soil cover will be constructed over all vegetated areas to prevent exposure to contaminated soils. The one-foot thick cover will consist of clean soil underlain by an indicator such as orange plastic snow fence to demarcate the cover soil from the subsurface soil. The top four inches of soil will be of sufficient quality to support vegetation. Clean soil will constitute soil that meets the Division of Environmental Remediation's criteria for backfill. Non-vegetated areas (buildings, roadways, parking lots, etc.) will be covered by a paving system or concrete at least 6 inches thick. To implement the above cover system, the site will be graded and leveled and the identified potential sources will be removed and disposed off-site.

- 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 will 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.

- Development of a site management plan 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) identification of any use restrictions on the site; and (d) provisions for the continued proper operation and maintenance of the components of the remedy.

- 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.

SECTION 9: 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 factsheet was distributed to the contact list upon issuing the Proposed Remedial Action Plan in January.

- A public meeting was held on February 13, 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 Contamination
June - August, 2006

SURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Benzo(a)pyrene	0.2 - 1.7	1	3 of 20
PCB/Pesticides	Aroclor 1254	0.2 - 4.1	1	3 of 20
Inorganic Compounds	Arsenic	3.6 - 19.9	16	2 of 20
	Barium	37.7 - 417	400	1 of 20
	Cadmium	0.1 - 14.3	9.3	3 of 20
	Chromium	13 - 5,280	400	1 of 20
	Copper	14.9 - 2,160	270	8 of 20
	Lead	15.1 - 2,720	1000	6 of 20
	Mercury	0.03 - 10.1	2.8	6 of 20
	Nickel	14.7 - 1,980	310	5 of 20

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
Semivolatile Organic Compounds (SVOCs)	Benzo(a)anthracene	0.06 - 18	5.6	2 of 29
	Benzo(a)pyrene	0.25 - 15	1	5 of 29
	Benzo(b)fluoranthene	0.05 - 19	5.6	2 of 29
	Dibenz(a,h)anthracene	0.05 - 0.68	0.56	1 of 29
	Indeno(1,2,3-cd)pyrene	0.05 - 6.6	5.6	1 of 29
PCB/Pesticides	Aroclor 1254	0.003 - 1.2	1	1 of 29
Inorganic Compounds	Arsenic	1.4 - 48.2	16	3 of 29
	Cadmium	0.46 - 16.4	9.3	3 of 29
	Chromium	0.70 - 5,700	400	2 of 29
	Copper	0.93 - 2,850	270	9 of 29
	Lead	3.63 - 2,680	1000	6 of 29

TABLE 1
Nature and Extent of Contamination (Continued)

SUBSURFACE SOIL	Contaminants of Concern	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)[a]	Frequency of Exceeding SCG
	Mercury	0.01 - 6.8	2.8	2 of 29
	Nickel	0.83 - 1,760	310	4 of 29

GROUNDWATER	Contaminants of Concern	Concentration Range Detected (ppb)[a]	SCG[b] (ppb)[a]	Frequency of Exceeding SCG
Volatile Organic Compounds (VOCs)	1,2 Dichloroethane	2.9	0.6	1 of 7
PCB/Pesticides	beta-BHC	0.12	0.04	1 of 7
	gamma-BHC	0.084	0.05	1 of 7
Inorganic Compounds	Aluminum	42.2 - 885	100	1 of 7
	Antimony	18.6	3	1 of 7
	Iron	2,740 - 10,500	300	2 of 7
	Magnesium	15,300 - 38,400	35,000	1 of 7
	Manganese	32.6 - 1,880	300	4 of 7
	Sodium	24,200 - 92,800	20,000	7 of 7

[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;

Table 2
Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
No Action (Alternative 1)	5,000	-	5,000
Alternative 2	18,000	6,000	24,000
Alternative 3	559,000	26,000	585,000
Alternative 4	1,376,000	28,000	1,400,000