RECORD OF DECISION

Glenmere Lake Property
Environmental Restoration Project
Chester, Orange County
Site No. E336071
March 2011

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - RECORD OF DECISION

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Environmental Restoration Project
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Statement of Purpose and Basis

This document presents the remedy for the Glenmere Lake Property site, an environmental restoration site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (the Department) for the Glenmere Lake Property site and the public's input to the proposed remedy 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.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. Implementation of a remedial design program to provide the details necessary for the construction, maintenance and monitoring of the remedial program. Green remediation principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Demolition and off-site disposal of the remnants of Buildings 1 through 7, which represent a source of lead contamination, and removal and off-site disposal of solid waste present at the site.

The remnants of Buildings 1 through 7 also contain asbestos, so the demolition must be performed in the manner required by applicable laws and regulations.

3. Excavation and off-site disposal of soils located in the western portion of the site as depicted on Figure 5 which exceed the unrestricted soil cleanup objectives for the primary contaminants of concern, which are lead and arsenic. By using these indicator compounds, other contaminants detected at the site will also be addressed. It is estimated that approximately 2,000 cubic yards of soil will be excavated. Confirmatory soil samples will be collected. Clean fill and topsoil which meets the requirements of 6 NYCRR 375-6.7(d) will then be brought in to replace the excavated soil and restore the site to its original contours. Disturbed areas will be re-vegetated with appropriate native species. An effort will be made to avoid removing large trees (diameter greater than or equal to 6 inches). Where removal cannot be avoided, trees will be replaced in accordance with Department requirements.

4. Removal (excavation or dredging) and off-site disposal of contaminated sediments from the small embayment to the southeast of the remnants of Buildings 1 through 7, in the vicinity of sediment samples SED-4 and SED-5. The exact area to be removed will be determined during the remedial design and is not expected to extend significantly more than 40 feet off-shore. Excavated sediments will be replaced with an appropriate substrate and the area restored to pre-excavation contours. Disturbed areas will be re-vegetated with locally native nursery stock and/or by stockpiling and re-planting rhizomes. All remediation and restoration activities will comply with the substantive technical requirements of 6 NYCRR Parts 608 and 663.

5. Due to the presence of the endangered northern cricket frog, remedial activities will be consistent with 6 NYCRR Part 182 and applicable guidance, including Guidelines for Reviewing Projects for Potential Impacts to the Northern Cricket Frog, June 2009. Efforts will be made to reduce potential impacts to northern cricket frogs and their habitat during construction, and to maximize the value of cricket frog habitat during restoration. Details of specific habitat actions will be determined during remedial design. All restored areas will be inspected for a period of at least one year following the Department's determination of substantial completion of the site remediation by the contractor. During this time the restored areas will be inspected for erosion, settlement and growth of plantings and grass. Areas will be repaired and restored as directed by the Department. Details of the inspection program will be developed in the remedial design.

New York State Department of Health Acceptance

The New York State Department of Health (NYSDOH) concurs that the remedy 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. This remedy utilizes permanent solutions and alternative treatment or resource recovery technologies, to the maximum extent practicable, and satisfies the preference for remedies that reduce toxicity, mobility, or volume as a principal element.

MAR 31 2011

Date

Dale A. Desnoyers, Director
Division of Environmental Remediation

RECORD OF DECISION

Glenmere Lake Property
Chester, Orange County
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SECTION 1: SUMMARY AND PURPOSE

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 above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum. The remedy is intended to attain the remedial action objectives identified for this site for the protection of public health and the environment. This Record of Decision (ROD) identifies the selected remedy, summarizes the other alternatives considered, and discusses the reasons for selecting the remedy.

The 1996 Clean Water/ Clean Air Bond Act provides funding to municipalities for the investigation and cleanup of brownfields. Brownfields are abandoned, idled, or under-used properties where redevelopment is complicated by real or perceived environmental contamination. They typically are former industrial or commercial properties where operations may have resulted in environmental contamination. Brownfields often pose not only environmental, but legal and financial burdens on communities. 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.

The Department has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: SITE DESCRIPTION AND HISTORY

Location: The Glenmere Lake Property is an approximately 9.9 acre site owned by Orange County located in a rural portion of Orange County. It is located at the north end of Glenmere Lake, to the southeast of the intersection of Glenmere Avenue Extension and Pine Hill Road in the Town of Chester.

Site Features: The main site features include the remnants of several buildings located in the western portion of the site including a former barn, former milk-barn, and a former house. There

were formerly seven buildings in this area; the foundations are the only remaining portion of three of these; three have deteriorated into piles of rubble; and the remaining one is also severely dilapidated, but still standing. These structures were part of the Glenmere Lake Estates, a former resort and golf course. All of the former buildings have been condemned. There is also a small building, referred to as the pump house, located in the eastern portion of the site. Various debris has been abandoned or dumped at the site as well, primarily in the vicinity of the building remnants on the western portion of the site. Much of the site is wooded, with several small meadow areas present across the central portion of the site.

Several oil storage tanks were present at the site, which were removed as part of an interim remedial measure. Contamination at the site is the result of past daily operation and activities and the deterioration of the buildings and debris.

Current Zoning/Use(s): The site is fenced and is currently vacant.

Site Geology and Hydrogeology: Bedrock is shallow across much of the site (less than 10 feet below grade), except for the area around the pump house, where bedrock is approximately 22 feet below grade. Groundwater is not present in the overburden for much of the site. Groundwater was encountered in the overburden in areas immediately adjacent to Glenmere Lake. It is assumed that groundwater flows south, towards Glenmere Lake. Glenmere Lake serves as the drinking water supply for the Village of Florida and is a Class AA water body.

A site location map is attached as Figure 1.

SECTION 3: LAND USE AND PHYSICAL SETTING

The Department may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, an alternative which allows for unrestricted use of the site was evaluated.

A comparison of the results of the investigation against unrestricted use standards, criteria and guidance values (SCGs) for the site contaminants is included in the Tables for the media being evaluated in Exhibit A.

SECTION 4: ENFORCEMENT STATUS

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

No PRPs have been documented to date.

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

SECTION 5: SITE CONTAMINATION

5.1: Summary of the Remedial Investigation

A Remedial Investigation (RI) has been conducted. The purpose of the RI was to define the nature and extent of any contamination resulting from previous activities at the site. The field activities and findings of the investigation are described in the RI Report.

The following general activities are conducted during an RI:

- Research of historical information,
- Geophysical survey to determine the lateral extent of wastes,
- Test pits, soil borings, and monitoring well installations,
- Sampling of waste, surface and subsurface soils, groundwater, and soil vapor,
- Sampling of surface water and sediment,
- Ecological and Human Health Exposure Assessments.

5.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to 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.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. The Department has developed SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. The tables found in Exhibit A list the applicable SCGs in the footnotes. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

5.1.2: RI Information

The analytical data collected on this site includes data for:

- groundwater
- soil
- sediment

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require

evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized in Exhibit A. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

lead
arsenic
unknown petroleum

As illustrated in Exhibit A, the contaminant(s) of concern exceed the applicable SCGs for:

- soil
- sediment

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 issuance of the Record of Decision.

The following IRM(s) has/have been completed at this site based on conditions observed during the RI.

IRM Tank Removal

An IRM was performed to remove several petroleum bulk storage tanks from the site. Four underground storage tanks (USTs) and one aboveground storage tank (AST) were removed.

The contents of the tanks were removed prior to excavating the tanks. Approximately 470 gallons of oil-contaminated water was generated and disposed of off-site.

Soil excavated to access the USTs was disposed off-site due to the presence of lead that was documented during the remedial investigation. Petroleum-contaminated soil, which was identified by staining and odors, was encountered below a vaulted 5,000-gallon UST (UST-3). Petroleum-impacted soil was excavated from an area measuring approximately 620 square feet down to bedrock, which was present at about six to eight feet below grade. Petroleum-contaminated soil was not encountered in the vicinity of any other tanks. A total of 204.5 tons of soil, including lead- and petroleum-contaminated soil, was disposed off-site.

Petroleum-related contamination (i.e., volatile organic compounds and semi-volatile organic compounds) was not detected in soil samples collected at the base of the tank excavations. Soil samples collected from the base of the excavations for UST-6 showed elevated levels of arsenic. The IRM did not address this subsurface metal contamination.

5.3: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

Contact with surface soil contaminants is not likely because the site is heavily vegetated, and access is generally restricted by fencing. Persons who dig below the ground surface may come into contact with contaminants in subsurface soil.

5.4: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water.

The Fish and Wildlife Resources Impact Analysis (FWRIA) for OU 01, 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.

The primary contaminants of concern include lead, arsenic and petroleum. Metals, primarily lead and arsenic, are present in surface soil, primarily in the western portion of the site in the vicinity of the building remnants. Concentrations of lead detected at the site in surface soil range from 0.6 parts per million (ppm) to 9,560 ppm. The soil cleanup objective for lead for the protection of ecological resources is 63 ppm. Arsenic impacts were less widespread than lead, and concentrations in surface soil ranged from 1.3 ppm to 115 ppm. The soil cleanup objective for arsenic for the protection of ecological resources is 13 ppm. The concentrations of lead and other metals in soil generally decrease quickly with depth. Arsenic contamination has been identified in the subsurface adjacent to the remnants of Building 6 and UST-6.

Lead and other metals have been detected in Glenmere Lake sediments in a small embayment to the southeast of the remnants of Buildings 1-7 above sediment criteria. Lead was detected above sediment criteria in every sample collected from this area at levels ranging from 63.9 ppm to 859 ppm, compared to sediment criteria for lead of 31 ppm (lower effect level) and 110 ppm (severe effect level). Ten of the twelve samples from this area exceeded the severe effect level sediment criterion for lead. Other metals were also detected in this area above sediment criteria, but lead was the most widespread.

Petroleum impacts were detected in two isolated locations: one in the eastern portion of the site in the vicinity of an underground storage tank adjacent to the pump house building (UST-8); another in the vicinity of an underground storage tank (UST-3) adjacent to the building remnants in the western portion of the site. The petroleum-contaminated soil near UST-3 was excavated and disposed of off-site as part of an interim remedial measure (IRM). UST-8 was removed along with other storage tanks during the IRM. Groundwater sampling results did not show any impact to groundwater.

The site and adjacent portions of Glenmere Lake provide important habitat for a wide range of wildlife. Wildlife, or evidence of wildlife (e.g., carcasses, feces, footprints), observed at the site include deer, bear, beaver, fox, mice, vultures, turkey, turtles, salamanders, several frog species and snakes. Wildlife observed adjacent to the site includes bald eagles, osprey and swans.

Glenmere Lake and the surrounding area, including the site, is important habitat for the northern cricket frog (NCF), which is an endangered species in the State of New York. In spring 2008 a drift fence survey was conducted to determine if the NCFs were using the on-site buildings or building remnants as overwintering hibernacula. A hibernaculum is a shelter for a hibernating animal. The drift fence study concluded the buildings and building remnants were not being used for hibernation; however, NCF were identified in the eastern portion of the site, which was determined to be important NCF habitat.

SECTION 6: SUMMARY OF THE EVALUATION OF ALTERNATIVES

To be selected the remedy must be protective of human health and the environment, be cost-effective, comply with other statutory requirements, and utilize permanent solutions, alternative technologies or resource recovery technologies to the maximum extent practicable. The remedy must also attain the remedial action objectives identified for the site, which are presented in Exhibit B. Potential remedial alternatives for the Site were identified, screened and evaluated in the alternatives analysis (AA) report.

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

6.1: Evaluation of Remedial Alternatives

The criteria to which potential remedial alternatives are compared are defined in 6 NYCRR Part 375. A detailed discussion of the evaluation criteria and comparative analysis is included in the AA report.

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

3. 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.

4. 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.

5. Short-term Impacts and 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.

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-Effectiveness. 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.

8. Land Use. The Department may consider the current, intended, and reasonable anticipated future land use of the site and its surroundings in the selection of the soil remedy.

The final criterion, Community Acceptance, 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.

9. Community Acceptance. Concerns of the community regarding the investigation, the evaluation of alternatives, and the PRAP are evaluated. A responsiveness summary will be prepared that describes public comments received and the manner in which the Department will address 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.

6.2: Elements of the Remedy

The basis for the Department's remedy is set forth at Exhibit E.

The estimated present worth cost to implement the remedy is $1,620,000. The cost to construct the remedy is estimated to be $1,620,000 and the estimated average annual cost is $0.

The elements of the selected remedy are as follows:

1. Implementation of a remedial design program to provide the details necessary for the construction, maintenance and monitoring of the remedial program. Green remediation principals and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows:

- Considering the environmental impacts of remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gas and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

2. Demolition and off-site disposal of the remnants of Buildings 1 through 7, which represent a source of lead contamination, and removal and off-site disposal of solid waste present at the site. The remnants of Buildings 1 through 7 also contain asbestos, so the demolition must be performed in the manner required by applicable laws and regulations.

3. Excavation and off-site disposal of soils located in the western portion of the site as depicted on Figure 5 which exceed the unrestricted soil cleanup objectives for the primary contaminants of concern, which are lead and arsenic. By using these indicator compounds, other contaminants detected at the site will also be addressed. It is estimated that approximately 2,000 cubic yards of soil will be excavated. Confirmatory soil samples will be collected. Clean fill and topsoil which meets the requirements of 6 NYCRR 375-6.7(d) will then be brought in to replace the excavated soil and restore the site to its original contours. Disturbed areas will be re-vegetated with appropriate native species. An effort will be made to avoid removing large trees (diameter greater than or equal to 6 inches). Where removal cannot be avoided, trees will be replaced in accordance with Department requirements.

4. Removal (excavation or dredging) and off-site disposal of contaminated sediments from the small embayment to the southeast of the remnants of Buildings 1 through 7, in the vicinity of sediment samples SED-4 and SED-5. The exact area to be removed will be determined during

the remedial design and is not expected to extend significantly more than 40 feet off-shore. Excavated sediments will be replaced with an appropriate substrate and the area restored to pre-excavation contours. Disturbed areas will be re-vegetated with locally native nursery stock and/or by stockpiling and re-planting rhizomes. All remediation and restoration activities will comply with the substantive technical requirements of 6 NYCRR Parts 608 and 663.

5. Due to the presence of the endangered northern cricket frog, remedial activities will be consistent with 6 NYCRR Part 182 and applicable guidance, including Guidelines for Reviewing Projects for Potential Impacts to the Northern Cricket Frog, June 2009. Efforts will be made to reduce potential impacts to northern cricket frogs and their habitat during construction, and to maximize the value of cricket frog habitat during restoration. Details of specific habitat actions will be determined during remedial design. All restored areas will be inspected for a period of at least one year following the Department's determination of substantial completion of the site remediation by the contractor. During this time the restored areas will be inspected for erosion, settlement and growth of plantings and grass. Areas will be repaired and restored as directed by the Department. Details of the inspection program will be developed in the remedial design.

Exhibit A

Nature and Extent of Contamination

This section describes the findings of the Remedial Investigation (RI). This section describes the findings for all environmental media that were evaluated. As described in Section 6.1.2, samples were collected from various environmental media to characterize the nature and extent of contamination. Figure 2 depicts soil, groundwater and several sediment sampling locations. Figure 4 depicts additional sediment sampling locations from the area indicated on Figure 2.

For each medium, a table summarizes the findings of the investigation. The tables present the range of contamination found at the site in the media and compares the data with the applicable SCGs for the site. The contaminants are arranged into one category; metals. For comparison purposes, the SCGs are provided for each medium that allows for unrestricted use.

Waste/Source Areas

As described in the RI report, waste/source materials were identified at the site and are impacting soil and sediment. Wastes are defined in 6 NYCRR Part 375-1.2 (aw) and include solid, industrial and/or hazardous wastes. Source Areas are defined in 6 NYCRR Part 375 (au). Source areas are areas of concern at a site were substantial quantities of contaminants are found which can migrate and release significant levels of contaminants to another environmental medium. Wastes and Source areas which were identified at the site include the following: the remnants of the buildings in the western portion of the site (labeled as Buildings 1 through 7), which contain lead paint and represent a source of lead contamination in soil; the debris present at the site, primarily in the vicinity of the remnants of Buildings 1-7; and the former petroleum bulk storage tanks, which were removed as an interim remedial measure and were formerly a source or potential source of petroleum contamination. The building debris also contains asbestos-containing material (ACM); however, soil samples did not identify asbestos in the soil. ACM has become detached from the buildings and is in contact with soil. Refer to Figure 2 for a depiction of site features, including the locations of the building remnants and former petroleum bulk storage tanks.

Certain waste/source areas identified at the site were addressed by the IRM described in Section 6.2 (*i.e.*, the petroleum bulk storage tanks). The remaining waste/source areas identified during the RI will be addressed in the remedy selection process.

Groundwater

No site-related groundwater contamination of concern was identified during the RI. Therefore, no remedial alternatives need to be evaluated for groundwater.

Soil

Surface and subsurface soil samples were collected at the site during the RI. Surface soil samples were collected from a depth of 0-2 inches to assess the potential for direct exposure to contaminants by humans. Subsurface soil samples were collected from depths ranging from 1 - 12 feet to assess the potential for subsurface soil contamination and to determine if contamination was present at concentrations that would pose a threat to groundwater. Samples were analyzed for volatile organic compounds, semi-volatile organic compounds, pesticides, polychlorinated biphenyls (PCBs), metals and cyanide. The results indicate that metals, primarily lead and arsenic, are the

contaminants of concern for the site. Lead is present as a result of the deteriorating buildings which contain lead paint. A definitive source of the arsenic contamination was not identified; however, arsenic-containing compounds were formerly used as pesticides.

As noted on Figure 3, soil contamination has been identified on the western portion of the site adjacent to the remnants of Buildings 1-7 and in the area between the building remnants and the lakeshore. Lead and arsenic are present in surface soils above their SCOs for the protection of ecological resources (ecological SCO) which is equivalent to their SCOs for unrestricted site use (unrestricted SCO). Soil impacted with lead above its unrestricted SCO is present over an area of approximately 1.3 acres. Arsenic-impacted surface soil is present over a smaller area, and the affected area is mostly within the area impacted by lead. Arsenic has also been detected in subsurface soils above SCOs in the vicinity of the remnants of Building 6 and UST 6.

Subsurface soils which exhibited signs of petroleum contamination (odors or staining or both) were found in two locations at the site; adjacent to UST-3 and adjacent to UST-8. However, soil samples from those locations did not contain contaminants above SCOs. Petroleum-impacted soil under and adjacent to UST-3 was removed during the IRM discussed in Section 6.2. Soil contamination was not found upon excavation of UST-8.

Table 1 summarizes the results of the soil sampling conducted during the RI for the primary contaminants of concern. The areas where these samples were collected were outside of the areas affected by the IRM, and so represent post-IRM soil conditions. Site-specific background was used for certain metals as the unrestricted SCO for the site. The site-specific background values were determined by analytical results obtained from five surface soil samples collected from the eastern periphery of the site, in areas which were not impacted by site operations.

Table 1 - Soil

Detected Constituents	Concentration Range Detected (ppm)[a]	Unrestricted SCG[b] (ppm)	Frequency Exceeding Unrestricted SCG
Lead	11.1 – 9,560	63	39/62
Arsenic	0.851 - 115	13	17/44
Cadmium	0.079 – 10.7	4[c]	3/19
Copper	17.8 – 157	50	9/27
Mercury	0.011 – 2.4	0.239[c]	10/27
Nickel	10.5 – 49.8	30	1/19
Silver	2.25 – 7.9	6.06[c]	1/19
Zinc	46.6 - 872	109	11/27

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in soil.
b - SCG: Part 375-6.8(a), Unrestricted Soil Cleanup Objectives, unless otherwise noted.
c - Site background concentration

Based on the findings of the Remedial Investigation, the presence of lead, arsenic and several other metals has resulted in the contamination of soil. The site contaminants identified in soil which are considered to be the primary contaminants of concern, to be addressed by the remedy selection process, are lead and arsenic, since the area affected by those contaminants encompasses the areas where other metals exceed their corresponding site-specific unrestricted soil SCG.

Sediments

Sediment samples were collected during the RI from Glenmere Lake in areas immediately adjacent to the site to assess the potential for impacts to lake sediments from the site. The results indicate that sediments in certain areas, in particular in a small embayment to the southeast of the remnants of Buildings 1-7, exceed the Department's SCGs for lead, arsenic, and several other metals. The sediment sampling results were also compared to the results obtained from five background samples collected from areas of the lake not affected by the site. Copper was detected above SCGs in background samples. Lead was detected in sediments above SCGs over a larger area than other metals. Samples impacted by other metals were also impacted by lead. The locations of sediment samples and the results of the sampling are depicted on Figures 2 and 4. Table 2 summarizes the results of the sediment sampling conducted during the RI for the primary contaminants of concern for sediments.

Table 2 - Sediment

Detected Constituents	Concentration Range Detected (ppm)[a]	SCG[b] (ppm)	Frequency Exceeding SCG	Site Derived Value[c] (ppm)	Frequency Exceeding Site Derived Value
Metals					
Lead	63.9 - 859	LEL – 31.0	15/15	44.7	15/15
		SEL – 110.0	11/15		
Arsenic	3.04 – 176	LEL – 6.0	10/15	NA	NA
		SEL – 33.0	4/15		
Antimony	ND – 5.79	LEL – 2.0	4/15	NA	NA
		SEL – 25.0	0/15		
Cadmium	0.53 – 4.68	LEL – 0.6	11/15	1.38	9/15
		SEL – 9.0	0/15		
Chromium	5.69 – 35.2	LEL – 26.0	1/15	NA	NA
		SEL – 110.0	0/15		
Copper	37.1 - 1350	LEL – 16.0	15/15	71.7	11/15
		SEL – 110.0	10/15		
Manganese	158 – 1,490	LEL – 460	6/15	NA	NA
		SEL – 1,100.0	2/15		
Mercury	ND – 6.5	LEL – 0.15	8/15	NA	NA
		SEL – 1.3	4/15		
Silver	ND – 4.61	LEL – 1.0	5/15	NA	NA
		SEL – 2.2	5/15		
Zinc	72.3 - 698	LEL – 120	13/15	NA	NA
		SEL – 270	5/15		

a - ppm: parts per million, which is equivalent to milligrams per kilogram, mg/kg, in sediment.
b - SCG: The Department's "Technical Guidance for Screening Contaminated Sediments."
c - Site Derived Value: Background value
LEL = Lowest Effects Level and SEL = Severe Effects Level. Sediment is considered contaminated if either of these criteria is exceeded.
ND = not detected; NA = not applicable. The background value is less than the LEL.

Based on the findings of the RI, the presence of lead and other metals has resulted in the contamination of sediment. The site contaminant that is considered to be the primary contaminant of concern which will drive the evaluation of remedial alternatives for sediment is lead, since the area of the lead contamination encompasses sediment areas where other metals exceed sediment SCGs.

Exhibit B

SUMMARY OF THE REMEDIATION OBJECTIVES

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial objectives for this site are:

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.
- Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.

Sediment

RAOs for Public Health Protection

- Prevent direct contact with contaminated sediments

RAOs for Environmental Protection

- Prevent releases of contaminants from sediments that would result in surface water levels in excess of Class AA, which is the classification of Glenmere Lake, surface water criteria.
- Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the aquatic food chain.
- Restore sediments to background conditions to the extent feasible.

Exhibit C

Description of Remedial Alternatives

The following alternatives were considered based on the remedial action objectives (see Exhibit B) to address the contaminated media identified at the site as described in Exhibit A:

Alternative 1: No Further Action

The No Further Action Alternative recognizes the remediation of the site completed by the IRM(s) described in Section 6.2. This alternative leaves the site in its present condition and does not provide any additional protection of human health and the environment.

Alternative 2: Restoration to Pre-Disposal Conditions for Site-Specific Contaminants of Concern

This alternative achieves all of the SCGs discussed in Section 6.1.1 and Exhibit A and soil meets the unrestricted soil clean objectives listed in Part 375-6.8 (a) for the contaminants of concern. This alternative will include demolition of the remnants of Buildings 1 through 7 and excavation and off-site disposal of all waste and soil contaminated with lead or arsenic above the unrestricted soil cleanup objectives. It will also include the excavation or dredging and off-site disposal of sediments contaminated with site-related contaminants of concern. The remedy will not rely on institutional or engineering controls to prevent future exposure.

The remnants of Buildings 1 through 7 are to be demolished and/or removed because their deteriorated condition is resulting in contamination of surrounding soils and sediments, and they pose a hazard to workers that will be performing the remediation. The building remnants contain asbestos-containing materials (ACM), and they are in such disrepair that proper asbestos abatement cannot be conducted prior to demolition. In cases where buildings are demolished prior to abatement, applicable regulations require that all building components must be removed as ACM, and the surrounding soils removed to a depth of six inches. This results in the removal of an estimated 700 cubic yards of ACM-contaminated soils.
In order to remove all soils that contain contamination above unrestricted soil cleanup objectives for the contaminants of concern, excavation will be required across approximately 1.5 acres on the western portion of the site to depths of approximately 2 feet or more. The areas to be excavated will need to be cleared of vegetation prior to excavation. Certain trees may be able to be preserved if the excavation does not extend too deep in the immediate vicinity of the tree. The approximate area of sediment removal has been determined; however, further sampling will need to be conducted prior to implementation of the remedy to refine the boundaries of the area to be removed. It is estimated that approximately 2,000 cubic yards of soil and approximately 100 cubic yards of sediment will need to be removed for off-site disposal.

Once all contaminated soil and sediment has been removed, the site and lake bottom will be restored by importing clean soil to restore the site and appropriate clean material to restore the lake bottom. Affected areas will be re-vegetated as well. The approximate area to be excavated under this remedy is depicted by Figure 5.

The estimated cost of Alternative 2 is as follows:

Capital Cost:.....$1,620,000

Exhibit D

Remedial Alternative Costs

Remedial Alternative	Capital Cost ($)	Annual Costs ($)	Total Present Worth ($)
Alt. 1: No Further Action	0	0	0
Alt. 2: Restoration to Pre-Disposal Conditions	1,620,000	0	1,620,000

Exhibit E

SUMMARY OF THE SELECTED REMEDY

The Department has selected Alternative 2: Restoration to Pre-Disposal Conditions. The elements of this remedy are described in Section 7.2. The selected remedy is depicted in Figure 5.

Basis for Selection

The selected remedy is based on the results of the RI and the evaluation of alternatives.

Alternative 2 is being selected because, as described below, it satisfies the threshold criteria and will restore the site to pre-disposal conditions. It will achieve the remediation goals for the site by removing soils which contain lead and arsenic above applicable soil cleanup objectives for disposal off-site.

Alternative 1 (No Further Action) does not provide any additional protection to public health and the environment and will not be evaluated further. Alternative 2 (Restoration to Pre-Disposal Conditions), by removing all soil contaminated above the unrestricted soil cleanup objectives for the contaminants of concern and sediment above SCGs, meets the threshold criteria.

Alternative 2 will create short-term impacts during the course of remediation which could be controlled, including the potential for generation of dust and the potential for erosion of contaminated soils following clearing of the area to be excavated. It will also generate truck traffic associated with the transportation of soils, sediments and clean backfill to and from the site. The removal of sediments will suspend sediments which could impact water quality in the work area; however, suspended sediments will be contained in the immediate work area and will not impact water quality at the intakes to the water treatment plant. As a result of the presence of the northern cricket frog (NCF) at the site and in Glenmere Lake, remediation will be limited to certain times of year to limit the impact to the NCF and the near-shore habitat in Glenmere Lake. Since the NCF is an endangered species, remediation must be conducted so as to prevent "takes" of NCFs, as defined by 6 NYCRR Part 182. For the on-site area, remediation can occur during the winter and summer months. The time available for remediation in the summer will be enough time to implement the on-site remedy. Allowable seasons for removal of lake sediments will need to be determined so as to minimize the potential impact to the NCFs and the near-shore habitat.

Alternative 2 will be effective in the long-term by removing all contaminants of concern from the site which are present at levels above background or unrestricted SCGs.

Alternative 2 will reduce the toxicity, mobility and volume of on-site contamination by transferring the material to an approved off-site location (*i.e.*, a landfill).

Alternative 2 is readily implementable. Sediment removal is somewhat more specialized than excavation and requires additional controls (turbidity curtains in the lake and containment pad for dewatering sediments) to manage potential short-term impacts; however, these are manageable issues.

Since the remedy does not result in any restrictions on the use of the site, there is no recurring (annual) costs created by the remedy.

Alternative 2 will not place any restrictions on the use of the property.

APPENDIX A

Responsiveness Summary

RESPONSIVENESS SUMMARY

Glenmere Lake Property
Environmental Restoration Project
Town of Chester, Orange County, New York
Site No. E336071

The Proposed Remedial Action Plan (PRAP) for the Glenmere Lake Property 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, 2011. The PRAP outlined the remedial measure proposed for the contaminated soil and sediment at and emanating from the Glenmere Lake Property site.

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

A public meeting was held on March 1, 2011, which included a presentation of the remedial investigation and alternative analysis (RI/AA) for the Glenmere Lake Property 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. These comments have become part of the Administrative Record for this site. The public comment period for the PRAP ended on March 25, 2011.

This responsiveness summary responds to all questions and comments raised during the public comment period. The following are the comments received, with the Department's responses:

COMMENT 1: Where were northern cricket frogs (NCF) found on-site? As the property owner, the County should be told.

RESPONSE 1: The report titled "Results of a Northern Cricket Frog Drift Fence Survey at Glenmere Lake" dated October 2008, prepared by the County's consultant, identifies specific locations where NCF were observed. NCF are known to be present in and around Glenmere Lake and, in general, should be considered to potentially utilize upland areas within several hundred feet of the lakeshore.

COMMENT 2: Will there be sediment removal in the lake?

RESPONSE 2: The proposed plan includes removal of lake sediments in a relatively small area.

COMMENT 3: What type of lead levels were detected on the site and in the sediment?

RESPONSE 3: Lead was detected in on-site soils as high as 9,560 parts per million (ppm), compared to its applicable soil cleanup objective of 63 ppm. Lead was detected in Glenmere Lake sediments as high as 859 ppm, compared to a background value of 44.7 ppm and sediment guidance values for lead of 31 ppm (lowest effect level) and 110 ppm (severe effect level). All of the

sediment samples in the area targeted for removal exceeded the background value, and many exceeded the severe effect level.

COMMENT 4: If the County decided to just leave the site alone rather than re-use it as passive parkland, would the State have proposed No Further Action as the remedy for the site?

RESPONSE 4: No. The remedy selected must protect human health and the environment and must comply with applicable standards, criteria and guidance. Since contamination remains at the site following the interim remedial measure, further action is required in order for the remedy to protect human health and the environment.

COMMENT 5: Why is it necessary to remediate building debris? Would this be necessary for every lead paint site in the county?

RESPONSE 5: Decisions as to whether remediation is necessary, and what form that remediation would take, are made on a site-by-site basis. Because lead associated with the debris has contaminated surface soil and lake sediments above standards, criteria and guidance values (SCGs) for the protection of public health and ecological resources, and given the ecological sensitivity of this site, remediation is necessary at this site.

COMMENT 6: How far out into the lake will the removal go?

RESPONSE 6: The removal is currently estimated to extend approximately 40 feet from the lake shore, in a rather limited area.

COMMENT 7: What mechanism will be used to prevent silt from spreading out into the lake and to protect the water intake pipe providing drinking water for 3,000 Village of Florida residents?

RESPONSE 7: Silt curtains and/or other controls will be placed in the lake during sediment removal which will extend from the water's surface to the lake bottom to contain any sediment stirred-up by the remediation process. Silt curtains will likely be installed in two rows of curtains, one primary and one secondary curtain, to ensure areas outside the removal area are not impacted by silt. These controls will remain in place until the water within the work area is no longer turbid. Monitoring of water quality will be conducted during remediation outside of the removal area and near the water supply intakes to ensure there is no impact to the drinking water.

COMMENT 8: The Village of Florida is in support of the proposed remedy, but too much is being made of the northern cricket frog. I would rather see the remediation done for what it will cost to keep the peoples' interests first. Remove the contamination, but do not be so worried about the frog.

RESPONSE 8: Comment noted.

COMMENT 9: Is the site completely owned by the County?

RESPONSE 9: Yes.

Mr. John Bienskie submitted an email dated February 10, 201,1 which included the following comments:

COMMENT 10: As a life-long resident on Glenmere Road in Chester I feel this project is much needed and overdue.

RESPONSE 10: Comment noted.

Mr. Jay Westerveld submitted a letter dated March 25, 2011, which included the following comments:

COMMENT 11: If public monies are used for site remediation, then the site should remain public property.

RESPONSE 11: The goal of the Environmental Restoration Program is, in part, to make brownfields suitable for reuse. Specific use of a property is a local decision, subject to all pertinent reviews and requirements (*e.g.*, zoning, State Environmental Quality Review). In the event the property is sold, Orange County is required to share any proceeds that exceed their acquisition (*i.e.*, taxes owed) and remediation costs with the State of New York. Further, the State can seek to recover remedial costs from potentially responsible parties.

COMMENT 12: A restrictive covenant should be placed on the site preventing sale to a private party due to the presence of rare and endangered species.

RESPONSE 12: DEC has regulatory processes to protect the habitat of endangered, rare and sensitive species, and will rely on these rather than a restrictive covenant to achieve these protections.

COMMENT 13: The drift fence study was not conducted properly. The fences were too low and did not have a flap at the top. The fence had openings which allowed seeps of water to pass and the northern cricket frogs (NCFs) would likely follow such seeps during migration. The hide boxes and traps had numerous gaps that would allow NCFs to escape. There were several snakes noted in the boxes that prey on small frogs.

RESPONSE 13: The Department has sufficient confidence in the results of the study to conclude that the former building foundations do not serve as hibernacula for the NCF, and that they may be removed as an element of the remedy. The hide boxes were specifically designed so as to prevent captured individuals from being overly vulnerable to predation or death by other means (*e.g.*, dehydration, starvation). The boxes, traps and the entire length of the drift fence were checked twice daily, which further prevented any unintended loss of individuals. While no NCFs were captured during the drift fence survey, other frogs were. So, not all frogs captured in the hide boxes and traps during the study were lost to predation.

COMMENT 14: The planned dredging of lake sediments raises concerns due to the presence of several rare species other than the NCF, including some which are listed as endangered, threatened or of concern in New York (wood, spotted and bog turtles).

RESPONSE 14: The Department will ensure that the remedy is performed in technical compliance with applicable laws and regulations for the protection of endangered, threatened and rare species. The presence of contaminants at elevated levels presents a threat to the environment, including any species present in the lake. The measures which will be taken to prevent unintended mortality of NCFs should also help prevent unintended mortalities of other species. The area proposed to be dredged is quite limited; therefore, construction should not have a significant impact on the shoreline habitat as a whole. The potential short-term impacts of construction were considered when developing the remedy and were weighed against other factors, including the long term benefit of remediation. It was decided the benefits outweigh the short-term impacts. Further, the survey conducted in spring 2008 noted the species of all individuals observed. While several turtles were observed during the survey period, no wood, spotted or bog turtles were observed.

COMMENT 15: The presence of copper in Glenmere Lake sediments is most likely attributable to treatment of the lake with copper sulfate.

RESPONSE 15: The Department is aware that the lake was treated using copper sulfate. Dredging is not planned due to the presence of copper.

COMMENT 16: The site is a popular fishing spot and has been for years. The lead in sediments is likely due to the use of lead sinkers for fishing. A background study should be conducted at nearby lakes to evaluate the presence of lead in sediments due to lead sinkers.

RESPONSE 16: There is lead and arsenic contamination of soils on site and a clear migration path (drainage swale) from the site to sediments in the area planned to be dredged. Lead sinkers were not noted in the sediment samples collected. Based on the documented source of contamination at the site, the clear migration pathway and the lack of evidence of lead sinkers, the Department believes that the sediment contamination targeted for remediation is attributable to the site.

COMMENT 17: Glenmere Lake's status as a public water supply is irrelevant, since contamination from the site is unlikely to impact the intakes to the water supply which are "upstream" of the site. The justification for remediation of the site to protect the public water supply is without merit.

RESPONSE 17: The fact that the lake is utilized as a public water supply has a bearing on the classification of the water body. Glenmere Lake is a class AA water body, and that classification applies to the entire water body. One of the remedial action objectives listed in Exhibit B is to prevent releases which would result in a contravention of class AA surface water standards; however, that is only one of several objectives. While the primary justification for the sediment component of the remedy is remediation of valuable habitat, protection of the public water supply is also an important consideration.

APPENDIX B

Administrative Record

Administrative Record

Glenmere Lake Property
Environmental Restoration Project
Town of Chester, Orange County, New York
Site No. E336071

1. Proposed Remedial Action Plan for the Glenmere Lake Property site, dated February 2011, prepared by the Department.

2. The Department and the County of Orange entered into a State Assistance Contract, Contract No. C303649, February 15, 2008.

3. State Assistance Contract No. C303649 and Amendments 1 & 2.

4. "Results of a Northern Cricket Frog Drift Fence Survey at Glenmere Lake", October 2008, prepared by Herpetological Associates, Inc.

5. "Interim Remedial Measure Construction Completion Report", January 2011, prepared by Dvirka and Bartilucci Consulting Engineers.

6. "Site Investigation/Remedial Alternatives Report", February 2011, prepared by Dvirka and Bartilucci Consulting Engineers.

7. Letter dated February 10, 2011 from John Bienskie.

8. Letter dated March 25, 2011 from Jay Westerveld.