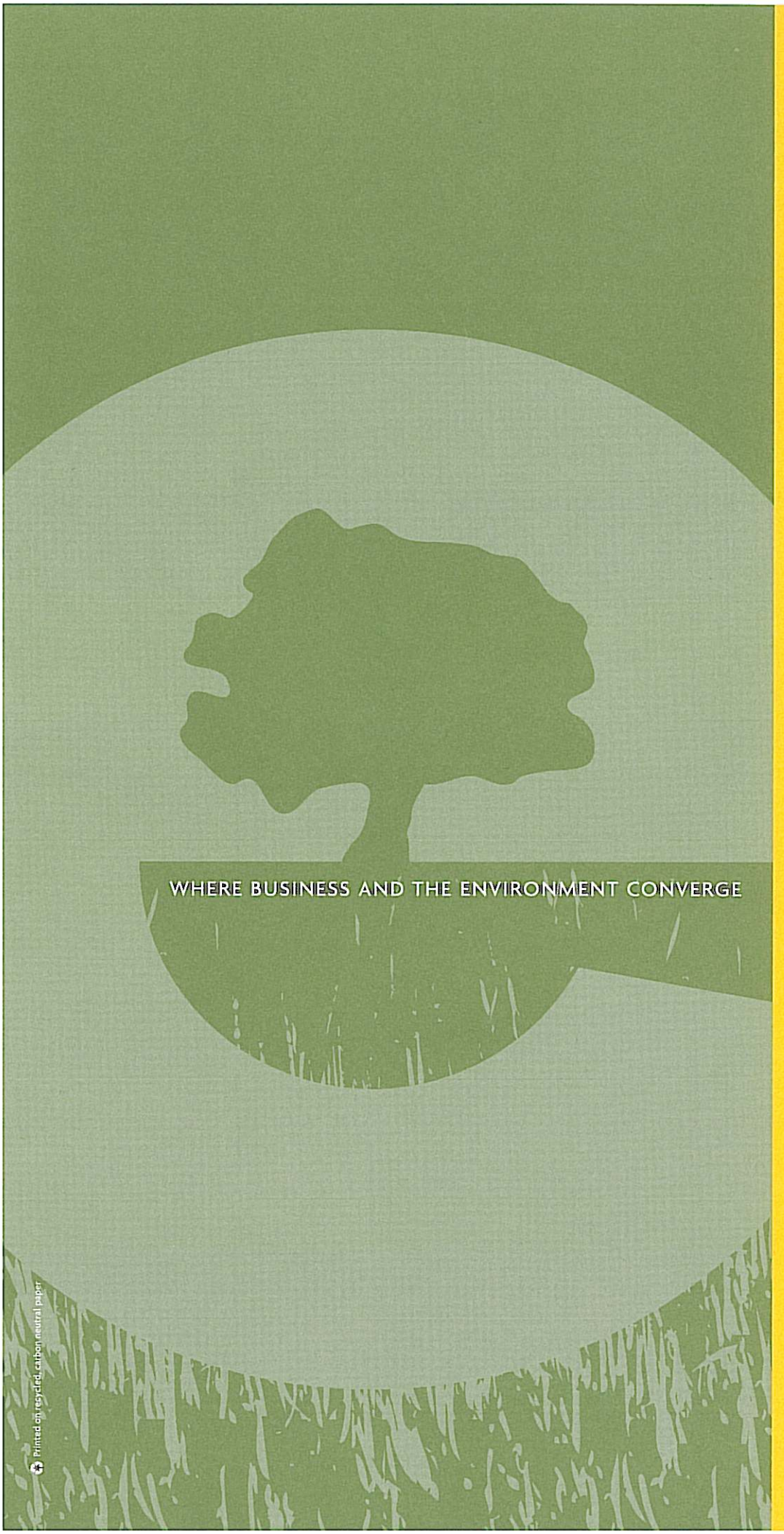

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INTERIM REMEDIAL ACTION WORK PLAN NORTH HALL, SKIDMORE COLLEGE MERCURY SPILL SITE

SARATOGA SPRINGS, NEW YORK
SITE ID: 546051

Prepared for:
Skidmore College
815 North Broadway
Saratoga Springs, NY 12866

Project No. 01-208621
Document No. 35175
February, 2008

Prepared By:
ECS
588 Silver Street
Agawam, MA 01001
tel 413.789.3530 fax 413.789.2776
www.ecsconsult.com

Interim Remedial Measure (IRM) Work Plan

Mercury Impacted Soil Interim Remedial Measure Project
North Hall, Skidmore College, Saratoga Springs, NY
Site ID #546051
Consent Order #A4-0525-0805

The IRM Work Plan for the above referenced site includes the following:

1. a summary of the data supporting the extent of the proposed IRM;

2. a chronological description of the anticipated IRM activities;

3. a schedule for performance of the IRM activities;

4. detailed documents and/or specifications prepared, signed, and sealed by a Professional Engineer providing sufficient detail to implement the Department-approved IRM, including as appropriate:

    - a description of soil and sediment erosion control;
    - storm water management and monitoring;
    - dust, odor, and organic vapor control and monitoring procedures to be implemented during remedial activities; and,
    - detailed description of confirmation sampling and site restoration plans.

5. a health and safety plan, including a community air monitoring plan;

6. a contingency plan, including a description of procedures for dismantling and removing remedial structures and equipment from the Site, if applicable;

7. a citizen participation plan, if required, that incorporates appropriate activities;

8. an OM&M Plan, if the performance of the Department-approved IRM results in a treatment system which is expected to operate for greater than 18 months; and,

9. institutional controls, if warranted.

10. Remediation Work Plan Meets Selection Factors in 375-1.8.

11. Analytical Plan

12. Quality Assurance/Quality Control

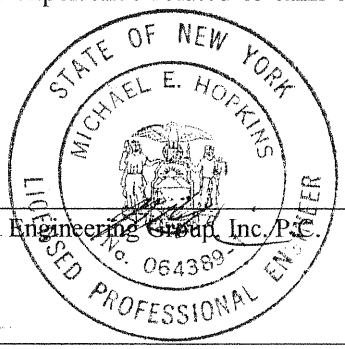
SIGNATURE PAGE – SKIDMORE COLLEGE MERCURY PROJECT
SPILL# 546051
AOC # A4-05250805

In accordance with DER-10 Section 1.5, this Interim Remedial Measure Work Plan has been prepared in final form in accordance with this guidance for submission and is stamped and signed by a professional engineer licensed, or otherwise authorized, to practice in New York State, in accordance with Education Law Section 7200 et seq.

The documents for which such certification is required are:

1. All remedy selection reports prepared pursuant to section 4.3;
2. Any remedial design or remedial design work plan prepared pursuant to sections 5.2 or 5.3;
3. All remedial action reports and as built drawings prepared pursuant to section 5.7.;
4. Interim remedial action (IRM) design/IRM design work plan for a remedial treatment system prepared pursuant to sections 5.2 or 5.3;
5. Any IRM remedial action report prepared pursuant to section 5.7.;
6. Underground storage tank (UST) closure reports, as stated in section 5.5 (a) 2., for the closure of USTs which are not performed pursuant to section 5.5,
7. UST waiver of sampling requirements certification pursuant to section 5.5 (b) 6.
8. Certifications that engineering controls are in place and remain effective pursuant to sections 6.3(b)(4) and 6.4.
9. Operation, maintenance and monitoring reports required pursuant to section 6.3 (c) 3. (b) All health and safety plans submitted in response to section 1.9 should be prepared, signed and implemented by a certified industrial hygienist, or other appropriate individual pursuant to 29 CFR1910.120. (c) Any Fish and Wildlife Resources Impact Analysis submitted under section 3.10 and/or 4.7. should document the education and experience of the biologist, ecologist or other qualified professional conducting the FWRIA; and (d) any tank closure report submitted to the DER in accordance with section 5.5 or operation, maintenance and monitoring report, in accordance with section 6.4 (d) 3 iv., will be prepared and certified by a professional who has knowledge of the physical sciences, technology or the principles of engineering acquired by education and practical experience related to tank closures and any necessary subsequent investigation.

Space is provided below for signatures as needed.



Michael E. Hopkins, PE, LEP, LSP, Jacques Whitford Engineering Group, Inc./P.C.

Bruce Tease, Ph.D., LSP, PG, ECS, Inc.

Michael D. West, VP for Finance/Administration and Treasurer, Skidmore College

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1.0 SUMMARY OF DATA SUPPORTING THE EXTENT OF THE PROPOSED IRM

1.1 MERCURY DETECTION AND STATE NOTIFICATION

Elemental mercury was discovered in a utility line excavation adjacent to a water pump station on the campus of Skidmore College on May 2, 2005. The New York State Department of Environmental Conservation (NYSDEC) Spill Hotline was notified and the site was assigned ID# 546051 as a registry site. Immediate response actions were taken from May 2 to 4, 2005. Skidmore College received a letter dated June 10, 2005 from NYDEC, advising it to halt all work until further notice. The open excavation was temporarily backfilled in July 2005 to eliminate safety hazards, and twenty two drums of excavated soil were properly disposed of. Skidmore and NYDEC subsequently entered into Consent Order #A4-0525-0805 in August 2005.

The Interim Remedial Measure (IRM) was initially submitted to the NYSDEC for review in 2007. The state denied the proposed remedial approach of using a vactor truck to recover impacted soil. ECS has revised the IRM accordingly. The state also recommended the following revisions:

- To determine whether the metals detected at the site (besides mercury) represent background concentrations, soil samples should be collected in accordance with the NYSDEC DER-10 Guidance document. Soil samples should also be collected to establish background concentration levels for chlordane, which was detected at elevated concentrations at the site.

- The figures provided are too small and need to be enlarged showing the excavation and proposed post excavation sample locations.

- *Appendix F Citizen Participation Plan:* The contact for NYSDOH should be changed from Gary Litwin to Ian Ushe and should include a full address and phone number.

- The following updates to the Citizen Participation Plan are required:

    - Inclusion of additional Repositories: DEC Warrensburg Office, Skidmore Library, and Saratoga Springs City Hall.

    - Materials: Should include the Order on Consent, SCWP, IRMWP and Fact sheet - probably not the site characterization report since it will still be in draft. The state must be copied on letters to each of the repository contacts.

    - Public Contacts: Contact names must be updated to reflect any changes in the local political leadership with the 2007 elections (i.e. Scott Johnson is now the mayor of Saratoga Springs).

1.2 SITE LOCATION AND CONDITIONS

The site is located over a utility line corridor adjacent to a water pump station located west of the Facilities Department building known as North Hall on the Skidmore College campus located at 815 North Broadway in the Town of Saratoga Springs, Saratoga County, New York (see Site Location Map presented as Figure 1).

The Skidmore College campus includes 650 acres with approximately 50 buildings. The campus includes parcels in both the City of Saratoga Springs and the Town of Greenfield. The spill site is located within the campus proper, on parcel number 152.00-1-10 in the City of Saratoga Springs. The surface elevation across the campus ranges from approximately 380 feet above mean sea level along the southern property line to approximately 500 feet on a hilltop in the central portion of the campus. The site itself is at an elevation of approximately 440 feet. Figure 2 shows the location of the pump house and spill site.

An asphalt parking lot for occupants of North Hall abuts the site to the east. Landscaped or forested areas abut the site to the north, west and south. Residential development abuts the campus.

The mercury spill location is 10 to 20 feet east of the southeastern corner of the water pump station. The pump house is an approximately 500 square foot (20 by 25 foot) masonry building that was constructed in 1968. The building contains several pumps that are used to lift potable water from a municipal water tank located 800 feet north of the pump house to a distribution tower on a hilltop approximately 1,000 feet to the northwest.

There is no visible indication of discharges other than water (from condensation and occasional maintenance activities) to floor drains in the pump house. Surficial soils were noted to have been impacted to a depth of approximately 3 feet. The floor drain tile invert is located approximately 3 feet below ground surface. Since elemental mercury is very dense and no shallow water table is present, it is unlikely that the mercury could have traveled upwards to the depth at which it was first observed. Therefore, it appears more likely that the release source was a direct spill to ground surface, rather than a discharge to the floor drains or French drain.

1.3 SITE USE THAT LED TO CONTAMINATION

The current Skidmore campus was part of a large residential estate prior to acquisition by Skidmore in 1961. The northern portion of the current campus, which includes the mercury spill location, was undeveloped except for a network of trails and carriage roads prior to that time. The pump house was built by Skidmore in 1968. A mercury containing flow meter (estimated to have contained approximately one pound of mercury) was present in the pump house until 1992. No mercury is known to have been present in the pump house since that time.

Mercury has also been used in the nearby boiler house and in small manufactured articles at various locations throughout the campus. Based on its location, the use of mercury in the boiler house could not have resulted in the contamination discovered adjacent to the pump house in May 2005. The use of mercury containing instruments has been phased out over the last ten years, and none are currently known to be present on site.

No elemental mercury is known to have been used on site for academic purposes. All faculty members interviewed stated that no mercury thermometers or other mercury containing instruments have been used in the laboratories for at least the last ten years. Since no mercury is known to have been present in the pump house since 1992, it is assumed that the spill must have occurred at or before that time.

Based on the location of the spill site (immediately outside the only door to the pump house) and the characteristics of mercury that make it unlikely to migrate (in elemental form) any significant distance laterally through the soil, the mercury was likely spilled inside the pump house. Recent discussions with College staff revealed that when mercury switches were used in the past, it was common practice to have to replace the open-top mercury cups as mercury would sometimes spill out of the switch cup. This could explain where the mercury originated from and how it got dispersed outside the pump-house door.

College personnel maintaining the pump house may have inadvertently dispersed mercury spilled from the switch to outside the pump house during general housekeeping activities (i.e. floor sweeping).

The spill site has not been the subject of previous environmental investigations or releases of petroleum and/or hazardous materials.

1.4 SITE INVESTIGATION

A *Record Review Report* was submitted to the NYSDEC on October 11, 2005. A *Site Characterization Work Plan* was initially submitted in November 2005. Revised *Site Characterization Work Plans* were submitted in February 2006 and June 2006. NYDEC approved the *Site Characterization Work Plan* dated June 6, 2006. The site characterization investigation was initiated in June 2006 and was performed in substantial accordance with the work plan, and the summary report was submitted to the NYDEC in March 2007.

The soil characterization investigations required the minor relocation of several borings due to the presence of underground utility lines at the originally proposed locations. Mercury was detected at concentrations above the TAGM 4046 Recommended Soil Cleanup Objective (RSCO; 0.1 mg/kg for mercury) in seven of 37 soil samples collected. The mercury concentrations exceeded 1 mg/kg in three samples (B3/0' at 4.86 mg/kg, B3/2' at 1.88 mg/kg and B6/0' at 116 mg/kg). No visible elemental mercury was observed in any sample. In general, the highest mercury concentration from each boring was encountered in the surface (0 to 6") interval. The area of impact is located within a 20 foot by 25 foot area immediately southeast of the pump house, to a maximum depth of 4 feet (total volume estimate of 74 cubic yards). Shallow bedrock (encountered in previous borings between 2 and 7 feet below ground surface) and a utility corridor are present within the excavation area, such that the actual volume of soil to be removed is expected to be less than the total volume noted above. ECS estimates that up to approximately 50 cubic yards of soil may have mercury concentrations greater than 0.1 mg/kg.

The data shows no indication of significant impacts from other contaminants, except for low concentrations of chlordane in several shallow soil samples. The chlordane concentration in one sample (B2/2' at 2.73 mg/kg) exceeds the TAGM 4046 Recommended Soil Cleanup Objective of 0.54 mg/kg. The sporadic occurrence of low concentrations of chlordane most likely resulted from historical pesticide applications, rather than waste disposal activities. Regardless, all locations where chlordane was detected are within the estimated area of mercury contamination, and will be remediated in conjunction with the mercury impacted soil

No groundwater was encountered above the bedrock surface in any boring. One bedrock monitoring well (MW-2) was installed at a location assumed to be downgradient of the mercury source area. No mercury was detected in the groundwater sample from MW-2. The other proposed monitoring well locations were determined to be in or adjacent to areas slated for soil removal and as such it was decided to defer the installation of the remaining monitoring wells (and therefore, the completion of the site characterization) until after the removal of the mercury impacted soil. Therefore, the site characterization report was submitted as an interim report, and the site characterization will be completed after removing the mercury impacted soil from the source area as an interim remedial action. As such, this report is referred to as an Interim Remedial Action Work Plan given that groundwater has not been assessed other than the one bedrock well installed downgradient of the spill area. It is not anticipated that groundwater will be impacted as a result of the mercury spill given the absence of a surficial aquifer and limited depth (2 feet) of mercury impacted soil at the site.

1.5 STANDARDS, CRITERIA AND GUIDANCE APPLICABLE TO SITE

As defined by DER-10 Section 7 Standards, Criteria and Guidance (SCG), of the Division of Environmental Remediation Technical Guidance for Site Investigation and Remediation (December 2002):

> *Standards and Criteria are New York State regulations or statutes. They are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria or limitations, which are generally applicable, consistently applied and officially promulgated under federal or state law that are either directly applicable to a contaminant, remedial action, location, or other circumstance, or that are not directly applicable but are relevant and appropriate.*
>
> *Guidance includes non-promulgated criteria and guidance that are not legal requirements, however, those responsible for investigation and/or remediation of the site should consider that, based on professional judgment, are determined to be applicable to the site.*

The following SCGs apply to the remedy proposed at the site:

- TAGM 4031 – Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (October 1989)
- TAGM 4046 – Determination of Soil Cleanup Objectives and Cleanup Levels (January 1994)
- TAGM 4048 – Interim Remedial Measures – Procedures (December 1992)
- Citizen Participation in New York's Hazardous Waste Site remediation Program: A Guidebook (June 1998)
- 6 NVCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities (November 1998)
- Groundwater Monitoring Well Decommissioning Procedures (May 1995)

2.0 A CHRONOLOGICAL DESCRIPTION OF THE ANTICIPATED IRM ACTIVITIES

2.1 REMEDIAL ACTION OBJECTIVES

The remedial action objectives for Public Health Protection are summarized below.

- Prevent ingestion/direct contact with contaminated soil
- Prevent inhalation of or exposure from contaminants volatizing from contaminants in soil

The remedial action objectives for Environmental Protection are summarized below.

- 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

The proposed remedy will consist of the removal of mercury impacted soil in the defined area of impact via hand excavation methods. Chlordane and some metals were also detected in site soils at concentrations exceeding TAGM 4046 levels. The concentration of these metals along with mercury detected in soil within the spill site area were shown to be similar to samples collected outside the spill site area (based on soil samples collected away from the pump house door), with no distinct pattern typical of a release incident. Additional soil samples shall be collected and analyzed for metals to further determine if the metal concentrations detected at the site are consistent with localized background conditions. The proposed sample locations to establish background conditions are shown on the site plans.

The chlordane concentrations detected at the spill site are considered to originate from the use of pesticides in the vicinity of the pump house. A distinct pattern in the concentration of chlordane in soil was shown to exist, which would be consistent with the use of this pesticide within the pump house or in the vicinity of the door to the pump house. The chlordane impacted soils coincide with that for mercury and therefore shall be abated simultaneously during soil removal activities.

Groundwater remediation or institutional controls and/or land use restrictions are not anticipated to be required to achieve the cleanup goals of this interim remedial action work plan.

2.2 SOIL EXCAVATION ACTIVITIES

Underground electrical conduits, water lines, telephone lines, cable television lines, a natural gas line and pump control lines are present in the work area and around the pump house. These lines will be located prior to initiating subsurface remedial actions using the following methods:

- The excavation area will be staked and/or marked with white paint a minimum of five days prior to subsurface investigation.

- Dig Safely – New York will be notified and requested to have any public utility lines in or near the work area marked.

- Facility plans (including all available utility plans) have been reviewed by ECS during previous site investigation activities and underground lines were further located using ground penetrating radar (GPR). Facility maintenance personnel with knowledge of the locations of underground utility line locations will confirm the locations of utilities and any utilities that may have been installed since the previous work.

Figure 3 is a site plan showing the area proposed for excavation. The area of impacted soil coincides with the June 2005 sampling grid established by Clean Harbors. Samples collected by ECS substantiate this location as the area of concern with respect to both mercury and chlordane. The portion of the spill area underlain by a utility corridor shall be excavated by hand methods to a depth of approximately 4 feet (based on site investigation results). Based on the investigations conducted at the site, the spill area is approximately 20 feet by 25 feet or 500 square feet in size. The total volume of soil to be removed is estimated to be approximately 50 cubic yards considering the presence of shallow bedrock (encountered at 2 to 7 feet below grade) which will likely limit the depth of excavation in places, and the presence of the utility corridor. The lateral extent of soil removal may also vary depending upon confirmatory testing results using field screening and laboratory based methods.

To minimize the potential for fugitive dust and/or vapor emissions during soil removal activities, an enclosure shall be built to facilitate the application of negative-air conditions. HEPA filters and carbon canisters shall be used in series to capture dust and vapors generated during soil excavation. This enclosure will also allow for the use of mechanical tools that may be needed to loosen soil (i.e. impact hammer) if such conditions are encountered (i.e. till and/or dense soil). The enclosure will be relocated as the excavation proceeds across the site. Exhaust from the negative air treatment system shall be field screened using Tedlar bags and a Jerome 431-X mercury vapor analyzer, capable of detecting mercury vapor to 3 ug/m^3.

Excavated soil shall be deposited directly into one-cubic yard cardboard containers, which shall be staged at the site on a flat bed trailer. A fork truck or Bobcat shall be used to maneuver and load the containers which are equipped with plastic liners that effectively seal the soil within. This approach will minimize the handling of soil as the soil shall be transferred to the boxes within the negative air enclosure and transported directly to the disposal facility. A fine-water spray shall also be used to suppress any dust generated during soil excavation.

The concentration of mercury detected is not expected to exceed levels classifying the excavated soil as hazardous waste or be in excess of the Land Ban (>250 ppm Total Mercury). However, if the mercury impacted soil turns out to be hazardous or in excess of levels permitted for disposal in permitted landfills, stockpiling of soil on ground would violate hazardous waste regulations which require such material to be containerized. Therefore, the use of the one-cubic yard containers is considered to be an appropriate and effective approach to soil removal and disposal at the site.

2.3 CONFIRMATORY SAMPLING

Following the excavation of impacted soil to a predetermined depth of 4 feet based on previous site investigation results, discrete soil samples shall be collected employing a 5 foot grid sampling pattern. Samples shall be collected at 6-inch depth intervals at each location and field screened using a Jerome 431-X mercury vapor analyzer following head space protocol. Based on the findings a decision to excavate additional soil or submit confirmatory samples for laboratory analysis shall be made. If the latter is applicable, a total of 16 base samples and 12 sidewall samples, representing the samples with the highest field screened mercury levels, shall be containerized in 4-ounce amber glass jars, labeled and stored on ice prior to delivery to Spectrum Analytical, Inc. located in Agawam, MA. Spectrum is a New

York State Department of Health ELAP CLP-tier certified laboratory. Samples shall be analyzed for mercury via EPA Method 245.2, TAL Metals via EPA Methods 200.7/200.8, and Chlordane via EPA Method 3550B for Organochlorine Pesticides. Based on the results obtained during previous site investigations, no other analyses are proposed given the absence of these parameters detected in the soil samples submitted.

All analyses shall be performed in accordance with the procedures and QA/QC requirements specified in the NYSDEC Analytical Services Protocol (ASP) meeting ASP Category B Data Deliverables.

The number of samples to be collected and the commensurate quality control quality assurance samples/measures shall be implemented in accordance with the Analytical Plan provided in Section 5 of this IRWP. This plan was previously submitted to and approved by the NYSDEC for the ISC work conducted at the spill site.

Following the confirmation that soil excavation actions achieved site cleanup goals, the excavation pit shall be backfilled with clean fill, including a 6 inch layer of loam which will be seeded and maintained by Skidmore College campus grounds staff.

2.4 SOIL EROSION, DUST, ODOR AND ORGANIC VAPOR CONTROL AND MONITORING MEASURES

The site is flat and the potential for erosion during soil excavation activities is minimal since the duration of this project will be approximately 2 weeks. A 3-inch berm shall be installed surrounding the excavation area to minimize the potential for stormwater runoff entering the excavation pit. Excavated areas shall be covered with 6 mil polysheeting until the entire pit is backfilled with clean fill.

Volatile organic compounds (VOCs) are not considered to pose a risk given the nature of the site contaminants and previous field screening of VOCs using a photoionization detector (PID). However, Community Air Monitoring (CAM) for VOCs will be performed during the soil excavation actions planned at the site as required during all remedial actions in accordance with NYDOH CAMP (see Appendix A).

Mercury vapor shall be field screened using a Jerome 431-X Mercury Vapor Analyzer, which has a detection limit of 3 ug/m^3. Mercury vapor concentrations detected during site investigations ranged from 5 ug/m^3 (2 foot depth) and 55 ug/m^3 (0-6 inch depth) in soil samples collected from boring B-6. These mercury readings corresponded to the 0.126 mg/kg and 116 mg/kg results detected by laboratory methods, respectively. Mercury readings were not detected above 3 ug/m^3 in any of the other soil samples field screened.

The Jerome 431-X analyzer shall be used to guide soil excavation along with visual observation of samples for the presence of elemental mercury. It should be noted that the cleanup threshold concentration for mercury (0.1 mg/kg) is considered to be insufficient to produce vapor readings above the minimum detection limit of the analyzer, such that the meter shall be relied upon only as a guide. Since analytical results obtained during site investigations demonstrated the absence of mercury at concentrations above the minimum detection limit (MDL) and reporting detection limit (RDL) of approximately 25 and 50 ug/kg at the 4 foot depth limit, respectively, soil excavation shall extend to this target depth level where feasible (e.g. when shallow bedrock and/or utilities do not prevent such access).

The potential for dispersion of site contaminants during soil excavation does exist through its association with fine particulates susceptible to co-migration with wind blown dust. Dust suppression measures shall be utilized including creating conditions of negative air ventilation via the construction of an enclosure

over the portion of the site being excavated, emission treatment using HEPA filters and carbon canisters, spraying site with a fine water mist to minimize dust dispersion when warranted, and covering excavated area with polysheeting during non-work periods. Community Air Monitoring (CAM) for dust will be performed during the soil excavation actions planned at the site as required during all remedial actions in accordance with NYDOH CAMP (see Appendix A).

The NIOSH 8-hour time weighted average concentration for mercury is 0.05 mg/m^3. The OSHA permissible exposure limit (PEL) for mercury is 0.1 mg/m^3. NIOSH guidelines allow for the use of cartridge-type air purifying respirators in atmospheres with mercury vapor concentrations up to 0.5 mg/m^3. Work will be temporarily suspended if mercury vapor concentrations are detected above 0.25 mg/m^3 at the breathing zone within the enclosure. Work will resume after emissions have decreased below 0.25 mg/m^3.

2.5 BACKGROUND METALS DETERMINATION

Six discrete soil samples shall be collected at the 0-2 foot and 2-4 foot depth intervals north and west of the pump house for laboratory analysis of Total mercury via EPA Method 245.2, Chlordane via EPA Method 3550B for Organochlorine Pesticides, and TAL Metals via EPA Methods 200.7/200.8 as conducted during previous investigations. The data shall be used to develop background concentrations for the metals and chlordane detected in the spill area.

2.6 WASTE DISPOSAL MANAGEMENT

The total volume of soil to be removed is estimated to be approximately 50 cubic yards. This material shall be stored and transported in a total of approximately 50 one-cubic yard containers (tripacks) loaded onto a flat bed trailer, thereby eliminating the need to stockpile soils on site. Three composite soil samples collected from the recovered material shall be submitted for laboratory analysis in accordance with soil disposal requirements (i.e. RCRA 8 Metals including total and TCLP mercury, total petroleum hydrocarbons via EPA Method 8100M, PCBs via EPA Method 8082, Total and TCLP Chlordane via EPA Method 3550B for Organochlorine Pesticides, VOCs via EPA Method 8260B, flashpoint, pH and reactivity). The composite soil samples shall be field screened using the Jerome 431-X analyzer to assess the presence of mercury vapors.

Waste from equipment decontamination and used disposable personal protective equipment (PPE) will be collected in appropriate containers (55-gallon steel drums), and upon the completion of the abatement actions, be disposed of simultaneously with the one-cubic yard containers.

All wastes generated from this work will be removed from the site within 90 days of generation.

3.0 SCHEDULE FOR PERFORMANCE OF THE IRM ACTIVITIES

The schedule for the remedial actions proposed at the site is summarized in the Gant Chart provided as Appendix B. Due to the need to perform soil excavation by hand, it will not be possible to perform the field activities in conditions when the ground is frozen. Skidmore would also like to initiate remedial operations during the summer of 2008 (after June 1, 2008) to avoid conducting this work when the campus is in session. For the above reasons, the Gant Chart is assuming a project startup of June 1, 2008, pending approval by the NYSDEC.

The NYDEC will be notified a minimum of seven days prior to performing field activities. Monthly status reports will be provided to the NYDEC beginning 30 days after approval of this plan. It is anticipated that at least two weeks (ten working days) will be required to perform the soil excavation, post excavation sample collection and backfilling of excavation grave.

Three monitoring wells will be installed at the locations shown on Figure 3. The well locations were selected to provide data upgradient and downgradient of the source area, based on assumed groundwater flow directions. The wells will be screened within the uppermost water bearing zone, which is assumed to be in the upper portion of the bedrock. The wells will be constructed with two-inch nominal inside diameter PVC casing and well screen, an appropriately sized sand pack, a bentonite annulus seal and a gasketed, flush-mounted steel protective casing set in a grout collar. Other well construction details will be established upon determination of the actual depth to bedrock and the actual characteristics of the formation in which groundwater is encountered.

The monitoring wells will be developed prior to sampling via hand bailing. The four monitoring wells will be sampled using low flow purging and sampling techniques, in accordance with EPA protocols. A minimum seven day equilibration period will be provided between the completion of the well installation and development and the date of the initial sampling. The groundwater samples will not be filtered prior to analysis.

Relative wellhead elevations will be determined using standard differential leveling procedures to a minimum accuracy of +/- 0.01 feet. The elevations will be referenced to an arbitrary on-site datum. Depth to groundwater measurements will be performed prior to purging or sampling the wells using a calibrated electronic probe.

Four weeks shall be required for laboratory turnaround, data interpretation, QA/QC review and report preparation. On this basis, the *Final Site Characterization Report* should be submitted within 60 days of the completion of the proposed remedial actions.

4.0 PROFESSIONAL ENGINEER CERTIFICATION

Detailed documents and/or specifications prepared, signed, and sealed by a Professional Engineer providing sufficient detail to implement the Department-approved IRM, including as appropriate:

- a description of soil and sediment erosion control;
- storm water management and monitoring;
- dust, odor, and organic vapor control and monitoring procedures to be implemented during remedial activities; and,
- detailed description of confirmation sampling and site restoration plans.

Micheal Hopkins, PE shall serve as the Professional Engineer overseeing remedial actions on this project. Contact information is provided below.

Michael E. Hopkins, PE
Jacques Whitford Engineering Group, Inc. P.C.
3447 Eddy Road
Marion, NY 14505

(315) 589-7012
(315) 589-7013 (fax)

5.0 ANALYTICAL PLAN

5.1 SOIL SAMPLE COLLECTION

Following the excavation of impacted soil to a predetermined maximum depth of 4 feet based on previous site investigation results, discrete soil samples shall be collected employing a 5 foot grid sampling pattern which establishes approximately 26 sample locations. Soil samples shall be collected at 6-inch depth intervals at each location for head space field screening using a Jerome 431-X mercury vapor analyzer. If soil excavation occurs to at least a depth of 3 feet throughout the release area, a total of 156 soil samples shall be collected to determine the limits of excavation. Based on these findings a decision to excavate additional soil or submit confirmatory samples for laboratory analysis shall be made.

Once mercury vapor concentrations are at or below 3 ug/m^3 (vapor concentration previously demonstrated to likely reflect mercury concentrations in soil below target of 100 ug/kg), approximately 30 representative soil samples (reflecting highest mercury vapor readings) from the limit of excavation (base and side walls) shall be submitted to Spectrum Analytical, Inc. located in Agawam, MA. Spectrum is a New York State Department of Health ELAP CLP-tier certified laboratory. Samples shall be analyzed for mercury via EPA Method 245.2, TAL Metals via EPA Methods 200.7/200.8, and Chlordane via EPA Method 3550B for Organochlorine Pesticides. Based on the results obtained during previous site investigations, no other analyses are proposed given the absence of these parameters detected in the soil samples submitted.

All analyses shall be performed in accordance with the procedures and QA/QC requirements specified in the NYSDEC Analytical Services Protocol (ASP) meeting ASP Category B Data Deliverables. Soil data shall be evaluated by direct comparison to the corresponding Recommended Soil Cleanup Objectives (RSCO) provided in NYDEC *Technical and Administrative Guidance Manual #4046.*

5.2 GROUNDWATER SAMPLE COLLECTION

Groundwater samples will be collected from the bedrock monitoring wells for laboratory analysis of the same parameters listed above and preserved as specified in USEPA Publication SW-846. The groundwater samples will not be field filtered. Low flow purging and sampling techniques will be used to ensure that the results are not unduly influenced by turbidity or suspended soils in the samples.

All analyses shall be performed in accordance with the procedures and QA/QC requirements specified in the NYSDEC Analytical Services Protocol (ASP) meeting ASP Category B Data Deliverables. The specific laboratory methods, container types, preservative and holding time requirements for each media are specified in Table 1. Minimum detection limits less than the corresponding RSCO (for soil samples) and the Part 703.5 GA Groundwater Quality Standard (for groundwater samples) will be requested for all analytes.

Groundwater data shall be evaluated by direct comparison to the corresponding NYDEC Part 703.5 GA Groundwater Quality Standards.

6.0 QUALITY ASSURANCE/QUALITY CONTROL

6.1 PURPOSE AND OBJECTIVE

The primary purpose of this project is to remove mercury and chlordane impacted soil previously detected adjacent to the water pump house at North Hall on the campus of Skidmore College. Secondary objectives including verification of the source of the mercury, verification that no other contaminants of concern are present (or the identification of such contaminants, if present) and a determination as to whether the air or groundwater have been impacted by the presence of mercury in the soil was initiated during the Interim Site Characterization work performed in 2006.

6.2 PROJECT ORGANIZATION

Bruce Tease, Ph.D., LSP, PG of ECS will serve as both the Project Manager and Quality Assurance Officer. Dr. Tease has 18 years of professional environmental assessment and remediation experience. His resume is provided as Appendix C.

6.3 SAMPLING PROCEDURES AND EQUIPMENT DECONTAMINATION

Standard operating procedures for field operations, including sampling, sample management and equipment decontamination are provided as Appendix D. The Jerome 431-X mercury vapor analyzer and a photoionization detector for the screening of potential VOCs will be operated and calibrated in accordance with the manufacturer's recommendations.

6.4 SITE MAP AND SAMPLING LOCATIONS

A Site plan provided as Figure 3 shows the proposed excavation boundary and soil sample locations, including the six sample locations proposed for background assessment of metal and/or chlordane concentrations.

6.5 ANALYTICAL METHODS AND QUALITY ASSURANCE

Table 2 summarizes the analytical and quality assurance procedures to be used.

6.6 LABORATORY REQUIREMENTS

All laboratory analyses will be provided by a NYDOH ELAP CLP-certified laboratory. The laboratory will be certified in all appropriate laboratory categories. The specific laboratory to be used will be Spectrum Analytical Inc. of Agawam, MA. NYDEC ASP Category B laboratory deliverables will be provided for all analyses performed under this work plan.

6.7 DATA VALIDATION

The analytical data will be validated in accordance with the following standards and guidelines:

- NYDEC Analytical Services Protocol (ASP), June 2000
- USEPA Publication SW-846 (for the specific analytical methods used)

- USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, Publication 9240.1-05, EPA-540/R-94/012, OSWER February 1993
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, Publication 9240.1-05-01, EPA-540/R-94/013, PB-963502, OSWER February 1994

Analytical data validation will be documented and summarized in accordance with Division of Environmental Remediation Data Usability Summary Report (DUSR) guidelines. The DUSR will be prepared by Bruce Tease of ECS.

6.8 BLANK AND DUPLICATE SAMPLE ANALYSES

The following duplicate and blank samples will be collected and analyzed for quality control/quality assurance purposes:

- Duplicate soil samples will be collected at a frequency of one for every twenty soil samples, with a minimum number of one per day on which soil sampling is performed for laboratory analysis of mercury, chlordane and other metals of concern.

- One duplicate groundwater sample will be collected and analyzed for laboratory analysis of mercury and chlordane.

- One equipment rinsate blank will be collected and analyzed for each day on which soil samples were collected.

- One trip blank will be provided for each day on which samples are collected.

- Field blanks will be prepared and analyzed at a frequency of one for every twenty soil samples collected, with a minimum of one per day.

7.0 HEALTH AND SAFETY PLAN

All work will be performed in accordance with OSHA requirements, including those pertaining to construction work on uncontrolled hazardous waste sites. Based on the anticipated mercury concentrations in the soil, and the potential for inhalation of mercury contaminated dust or mercury vapors, work will be performed in "Level C" protective equipment. Work area air monitoring will be performed with a Jerome 431-X Mercury Vapor Analyzer. The NIOSH 8-hour time weighted average concentration for mercury is 0.05 mg/m^3. The OSHA permissible exposure limit (PEL) for mercury is 0.1 mg/m^3. NIOSH guidelines allow for the use of cartridge-type air purifying respirators in atmospheres with mercury vapor concentrations up to 0.5 mg/m^3. Work will be temporarily suspended if mercury vapor concentrations greater than 0.25 mg/m^3 are detected in the breathing zone air.

Access to the work area will be restricted to authorized personnel with proper training. All workers will have completed an OSHA accredited hazardous waste operations ("HAZWOPER") health and safety course, and have completed all required annual refresher courses. All personnel will be briefed on the contents of the health and safety plan prior to starting work. An ECS health and safety officer will be present whenever subsurface sampling, decontamination, equipment removal or excavation is in progress.

A copy of the HASP is included as Appendix E.

8.0 CONTINGENCY PLAN

A Contingency Plan presenting procedures for dismantling and removing remedial structures and equipment from the Site is not considered to be warranted given that the remedial actions proposed will be limited to soil excavation.

9.0 CITIZEN PARTICIPATION PLAN (CPP)

A CPP has been prepared and is included in this IRM Plan as Appendix F.

10.0 OM&M PLAN

An Operations, Maintenance and Monitoring (OMM) Plan is not considered to be warranted given the remedial actions proposed at the site will not require a treatment system.

11.0 INSTITUTIONAL CONTROLS

The remedial actions proposed at the site are not predicated on the use of Institutional Controls.

12.0 REMEDIATION WORK PLAN MEETS SELECTION FACTORS IN 375-1.8.

The Remediation Work Plan meets the remedy selection factors presented in *§375-1.8 Remedial Program.* The selection of the proposed remedy has considered the following nine factors:

1. *Overall protectiveness of the public health and the environment.*

   The Interim Site Investigation report did not find any adverse environmental effects of contaminants found on the site. No wetlands or surface water bodies exist in the subject area. Groundwater was not encountered as a surficial aquifer but was present in bedrock at considerable depth below the site.

   The principal form of contamination on the site is from mercury presumably released in side the water pump station from a previously used mercury switch, and low levels of what appears to be a pesticide (chlordane) used in the same release area. Soil excavation conducted as an emergency response activity has reduced contaminant levels, and exposure risk has been reduced by backfilling the shallow soil excavation pit with clean fill.

   The proposed remediation will reduce these contaminants from the site to background levels or at least below applicable standards. New soils placed on the site will prevent any residual contaminants on the site from coming into contact with residents or from moving off-site through erosion. The combination of these activities provides overall protectiveness of public health and the environment.

2. *Standards, criteria and guidance.*

   The remedial program was designed with consideration given to TAGM 4046 and other Standards, Criteria, and Guidance (SCGs) and with consultation with NYS DEC and NYS DOH.

3. *Long-term effectiveness and permanence: a program or project that achieves a complete and permanent cleanup of the site is preferred over a program or project that does not do so.*

   The long-term effectiveness and permanence of the remedial program are consistent with the short term benefits, as the site contaminants will be effectively reduced to background concentrations or at least below applicable standards within a short period of time (days). No long term monitoring will be required.

4. *Reduction in toxicity, mobility or volume of contamination through treatment, a program or project that permanently and significantly reduces the toxicity, mobility or volume of contamination, is to be preferred over a program or project that does not do so. The following is the hierarchy of technologies ranked from the most to least preferable:*

   (i) destruction, on-site or off-site;
   (ii) separation or treatment, on-site or off-site;
   (iii) solidification or chemical fixation, on-site or off-site; and
   (iv) control and isolation, on-site or off-site.

The proposed remedial option involves the excavation and off-site disposal of impacted soil, and as such is considered the most preferable approach given the elemental nature of mercury, which can not be destroyed by other in situ treatment technologies.

5. *Short-term impacts and effectiveness.*

   The short-term effectiveness will result in the removal of contaminants from the site. This will prevent the future potential of direct exposure to sensitive receptors.

6. *Implementability.*

   A feasible remedy is one that is suitable to site conditions, capable of being successfully carried out with available technology, and that considers, at a minimum, implementability and cost-effectiveness. The proposed remedy (soil excavation) uses currently accepted technologies, which are routinely used on remediation projects and have been found to be most successful.

7. *Cost-effectiveness, including capital costs and annual site maintenance plan costs.*

   Costs associated with the proposed remedy is limited to the excavation of approximately 50 cubic yards of impacted soil, transportation of impacted soil and waste disposal. Capital or annual site maintenance costs are not expected. Costs associated with soil excavation and environmental monitoring and testing (assuming 10 days of field work) are estimated to be approximately $70,000, with disposal and transportation costs ranging from $18,000 (non hazardous) to $28,000 (hazardous) depending upon final characterization of waste.

8. *Community Acceptance.*

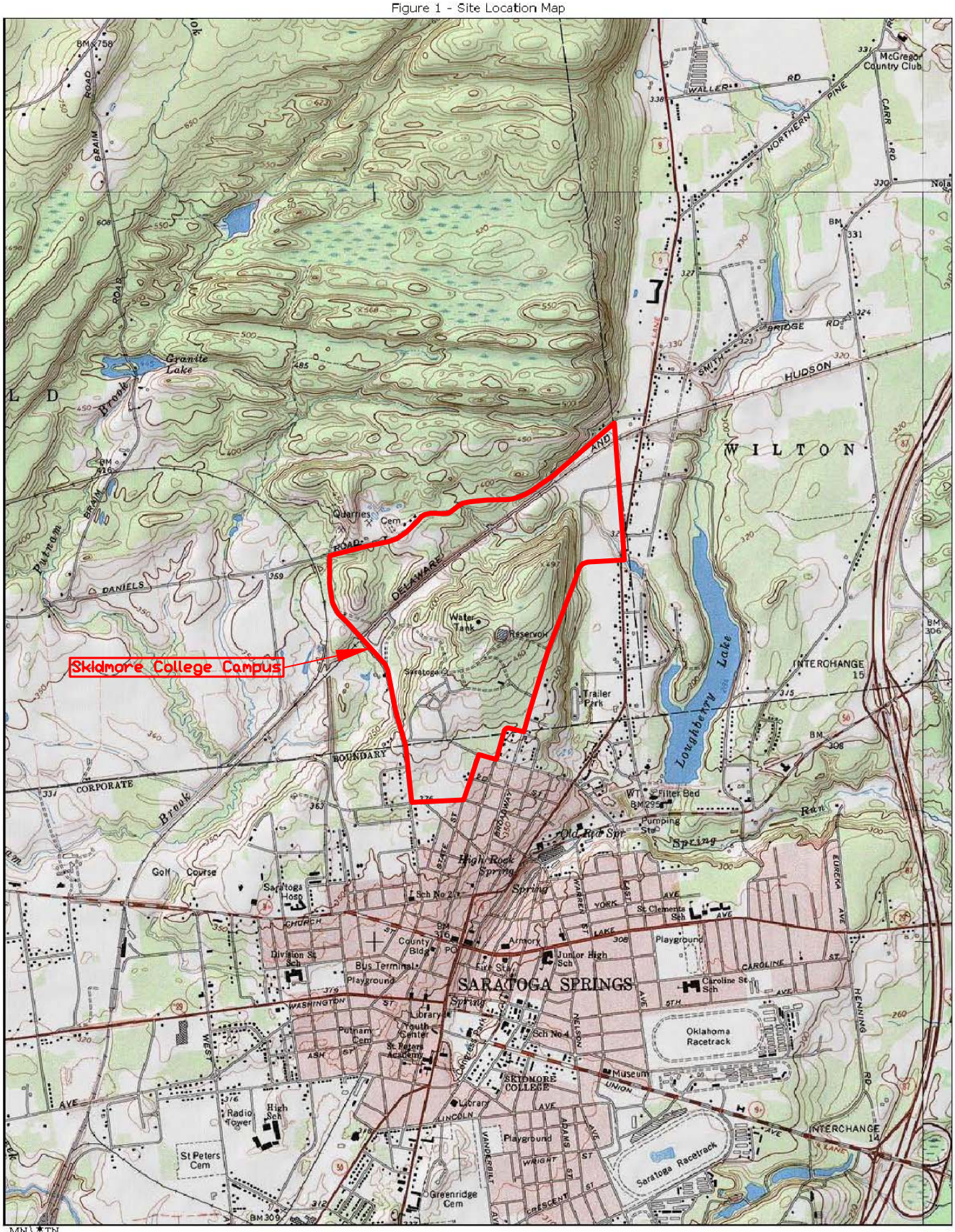
   The opportunity for community involvement will be provided through the preparation and distribution of a Citizens Participation Plan (CPP). Given the small size of the site and its location within the Skidmore College campus, the remedy is not expected to be received unfavorably by the public.

9. *Land use provided the Department determines that there is reasonable certainty associated with such use.*

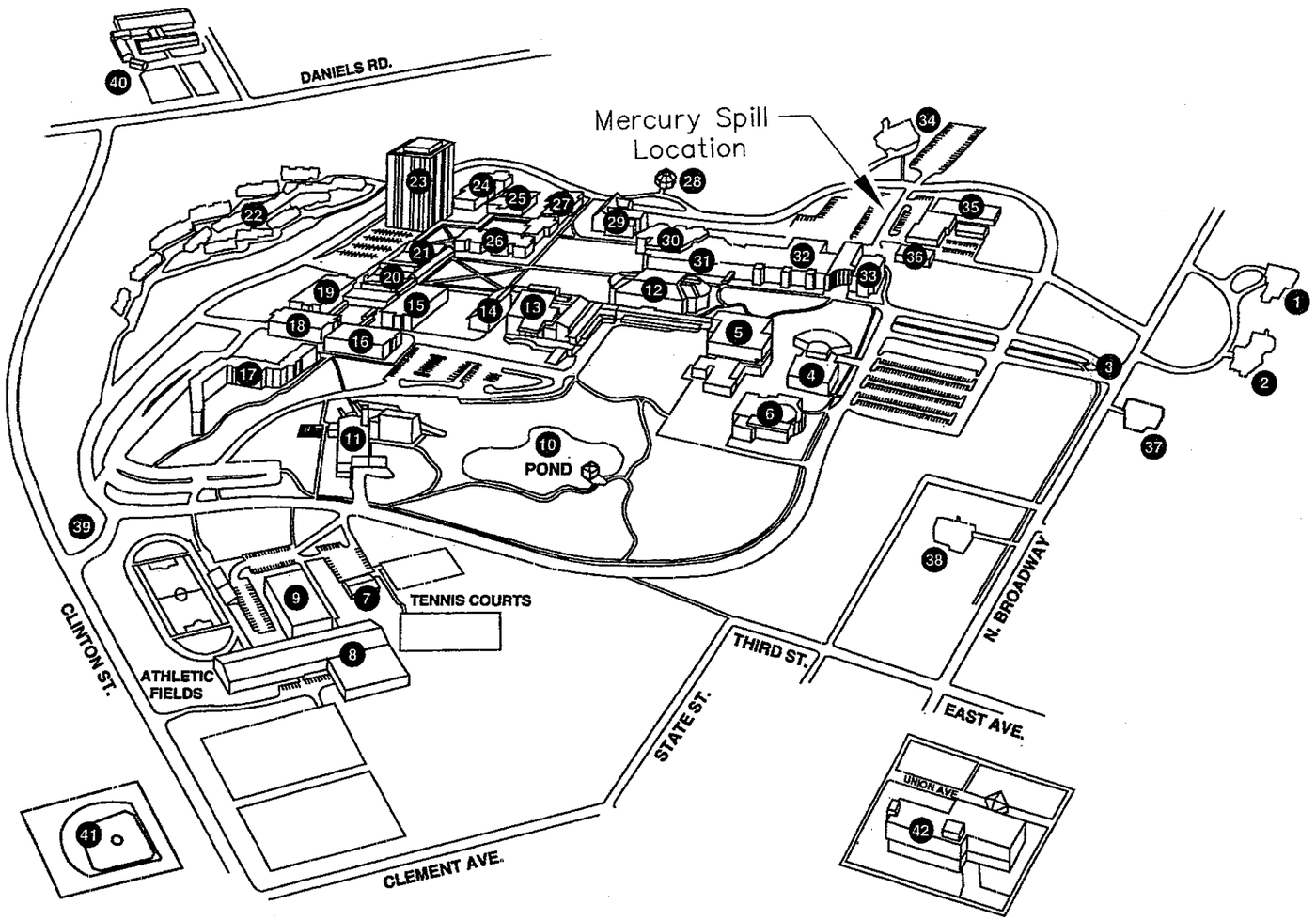
   The site is currently used as a water pump station that abuts a parking lot to North Hall, the location of facilities services at the Skidmore College campus. Land use will not change following the completion of remedial actions.

FIGURES

Figure 1 - Site Location Map



SKIDMORE
C O L L E G E



Key

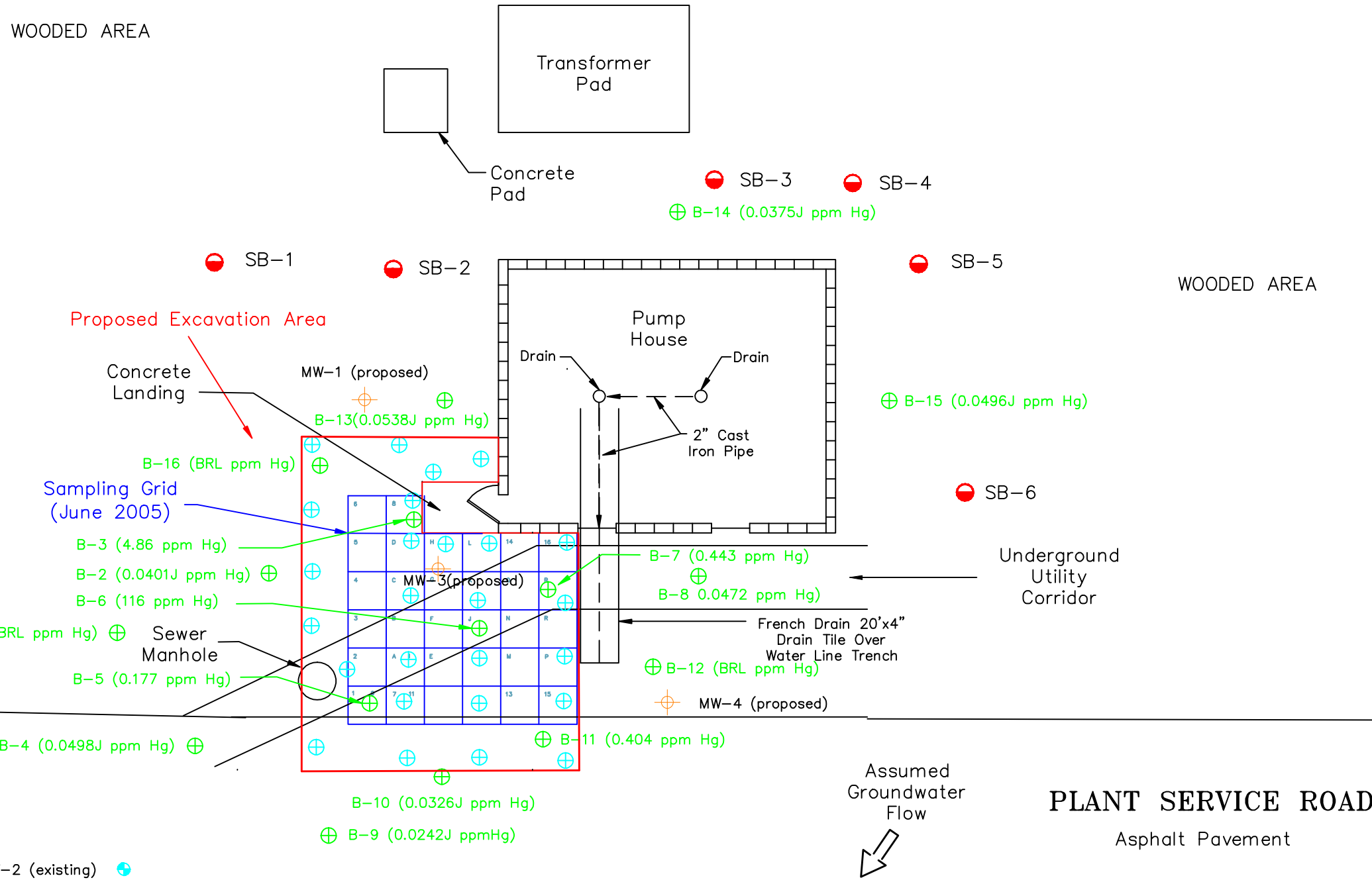
Barrett Center (25)
Bernhard Theater (6)
Bolton Hall (31)
Case Center (13)
Castle Baseball Diamond/Ingram Park (41)
Clinton Street Entrance (39)
Colton House (37)
Dana Science Center (32)
Dance Center (9)
Eissner Admissions Center (1)
Falstaff's (34)
Filene Music Building (4)
Greenberg Child Care Center (7)
Harder Hall (33)
Haupt Pond/South Park (10)
Hoge Heating Plant (36)
Howe Hall (26)
Jonsson Tower (23)
Kimball Hall (19)
Ladd Hall (14)
Main Entrance (3)
McClellan Hall (16)
Moore Hall (42)
Murray and Aikins Dining Halls (21)
North Hall (35)
Palamountain Hall (30)
Penfield Hall (18)
Rounds Hall (27)
Saisselin Art Building (5)
Scribner House (38)
Scribner Library (12)
Scribner Village Apartments (22)
Skidmore Hall (17)
Sports and Recreation Center (8)
Starbuck Center (20)
Surrey Williamson Inn (2)
Tang Teaching Museum and Art Gallery (11)
Tisch Learning Center (29)
Van Lennep Riding Center (40)
Wait Hall (24)
Wilmarth Hall (15)
Wilson Memorial Chapel (28)

Visitors Directory

Admissions - Eissner Admissions Center (1)
Alumni Affairs - North Hall (35)
Auditoriums - Palamountain Hall (30)
Bookstore - Case Center (13)
Business Affairs - Barrett Center (25)
Development Office - North Hall (35)
Facilities Services - North Hall (35)
Health Services - Jonsson Tower (23)
Human Resources - Barrett Center (25)
Information Desk - Case Center (13)
Master's Program - Ladd Hall (14)
Post Office - Case Center (13)
President's Office - Palamountain Hall (30)
Purchasing - Dana Science Center (32)
Schick Gallery - Saisselin Art Building (5)
Security - Jonsson Tower, lower level (23)
Spa Snack Bar - Case Center (13)
Special Programs Office - Palamountain Hall (30)
Student Affairs - Case Center (13)
Student Services - Starbuck Center (20)
- Career Services
- Dean of Studies
- Higher Education Opportunity Program
- International Programs
- Registrar
- Residential Life
- Student Aid and Family Finance

Surrey Williamson Inn (2)
Tang Teaching Museum and Art Gallery (11)
University Without Walls - Ladd Hall (14)

Figure 2
Mercury Spill Location



Legend

- POST EXCAVATION SAMPLE LOCATION
- PROPOSED MONITORING WELL
- BACKGROUND SURFACE SOIL LOCATIONS
- Hg Concentration in ppm in Soil

General Notes:

All locations, dimensions, and property lines depicted on this plan are approximate. This plan should not be used for construction or land conveyance purposes.

ecs
586 Silver Street * Agawam, MA 01001
Phone: 1-800-789-3530 Fax: 413-789-2776

PROJECT:
Skidmore College
Saratoga Springs, New York

TITLE:
Proposed and Previous Sample Locations

CLIENT:
Skidmore College

GRAPHIC SCALE: 10 5 0 5 10

COMPUTER CADFILE : 208621SP.dwg

DRAWN BY:	DESIGNED BY:	CHECKED BY:	APPROVED BY:
RSW	RSW	BT	BT
SCALE:	DATE:	JOB NO.:	FIGURE NO.:
1'=10'	Jan 2008	208621	3

TABLES

Table 1. Summary of Analytical Procedures and Sample Requirements

Description	Method*	Matrix	Sample Container	Preservative	Prep/Analysis Holding Time	Container Volume
Mercury	245.2 (CVAA)	Soil	Plastic w/ acid wash	Cool 4C	28 days	8 oz jar
Organochlorine Pesticides**	3550B	Soil	Amber Glass w/ Teflon cap	Cool 4C	14/40 days	8 oz jar
TAL Metals	200.7/200.8	Soil	Plastic w/ acid wash	Cool 4C	6 months	8 oz jar
Mercury	245.2 (CVAA)	Groundwater	Plastic	Cool 4C; HNO_3 to pH<2	28 days	250 ml
Organochlorine Pesticides**	3550B	Groundwater	Amber Glass w/ Teflon cap	Cool 4C; NaOH or H_2SO_4 to pH 5-9	7/40 days	1 liter
*All Methods specified are per US EPA Publication SW-846 ** Chlordane						

APPENDIX A

NYDOH CAMP

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all <u>ground intrusive</u> activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

P:\Bureau\Common\CommunityAirMonitoringPlan (CAMP)\GCAMPR1.DOC

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Table 2. Summary of Quality Assurance Samples for IRMWP (June 2007)

Sample Type	Parameter	Media	Sample Numbers	Criteria/Comments
Assessment Samples	Mercury	Soil	12 sidewalls (0-6 inch depth) 16 Base (4 ft depth)	Additional samples may be needs as field monitoring indicates
	Pesticides	Soil		
	TAL Metals	Soil		
	Mercury	Groundwater	4	Collected once all wells are installed
	Pesticides	Groundwater	4	
	TAL Metals			Collected once all wells are installed
Duplicate Samples	Mercury	Soil	1 per 20 samples (assume 4)	Minimum of 1 per day based on a 4 day estimate to complete soil excavation. Additional samples may be warranted base don time to complete soil removal
	Pesticides	Soil	1 per 20 samples (assume 4)	
	TAL Metals	Soil	1 per 20 samples (assume 4)	
	Mercury	Groundwater	1	Collected once all wells are installed
	Pesticides	Groundwater	1	
	TAL Metals			Collected once all wells are installed
Field Blanks	Mercury	Groundwater	1	
	Pesticides	Groundwater	1	
Lab Performance Evaluation Samples	Mercury	Soil	Matrix Spike Matrix Spike Duplicate Duplicate Lab Control Sample Lab Blank	As specified by laboratory (not less than one per 20 samples of each media)
	Pesticides	Soil		
	TAL Metals	Soil		
	Mercury	Groundwater	Matrix Spike Matrix Spike Duplicate Duplicate Lab Control Sample Lab Blank	
	Pesticides	Groundwater		

APPENDIX B

GANT CHART

Proposed Schedule of Tasks for
Skidmore College Mercury Impacted Soil Excavation Project

Task	Proposed Schedule of Tasks														
	6/1	6/6	6/7	6/8	6/9	6/10	6/20	7/1	7/7	7/14	7/21	7/28	8/1	8/7	8/14
Site Preparation, Mobilization and Staging of Equipment															
Dig Safe Notification and Marking of Subsurface Utility Corridor															
Removal of Mercury Impacted Soil															
Confirmatory Soil Sample Collection and Laboratory Analysis															
Backfill of Excavation Pit															
Installation of 3 Groundwater Wells															
Groundwater Sample Collection and Laboratory Analysis															
Preparation of Final Site Characterization Report															
Submittal of Report to Skidmore College for Review															
Submittal of Report to NYSDEC															

APPENDIX C

RESUMES OF PROFESSIONALS

Bruce Tease, Ph.D., PG, LSP

Senior Environmental Scientist

Experience Summary:

Mr. Tease has diverse experience in managing personnel and technical projects involving the assessment and remediation of sites impacted by petroleum and hazardous materials in Massachusetts, Vermont, New Hampshire and Connecticut. He has extensive experience as Senior Project Manager on several EPA and MassDevelopment funded Brownfields projects in Massachusetts. He also conducts indoor air quality and mold assessments. He is the principal author of several papers and has presented at national conferences including the US Chamber of Commerce. He is also a Certified Lake Manager/limnologist specializing in the assessment of impacted river and lake habitats. He has conducted numerous MCP related site investigations and remedial action plans, and several Stage I and II Environmental Risk Characterizations as a practicing Licensed Site Professional in Massachusetts. Dr. Tease is an Adjunct Professor in the Environmental Sciences Program at the University of Massachusetts where he has developed courses in River Survey Methods, Environmental Site Assessment and OSHA HAZWOPER training.

Representative Project Experience:

EPA Brownfields Pilot Study, Former GTD Factory, Greenfield, MA
Served as LSP during assessment and partial cleanup activities resulting in the preparation of a QAPP, submittal of Comprehensive Site Assessment and Remedial Action Plan reports to the Town of Greenfield, MADEP and EPA. Project involved Stage I and II Environmental Risk Characterization of the Green River, coordination of asbestos inspection and abatement, the design and coordination of limited site cleanup, public involvement education activities and negotiations with PRPs.

EPA Brownfields Pilot Study, AF&F and Upper Mill Sites, Colrain, MA
Provided LSP services to the Town of Colrain involving negotiation for site access with PRPs at the privately owned AF&F cotton bleachery site, preparation of a QAPP, subsurface investigations, evaluation of the potential for impact to the North River and preparation of assessment reports for the AF&F site and the product assembly (upper) mill site. Documents prepared by the PRP's LSP were reviewed. Based on comments provided, the MADEP revised the tier ranking classification from Tier II to Tier 1A (most concern), resulting in the remedial actions presently being conducted by the site owner under a Tier 1A Permit.

Brownfields Redevelopment, Royal Typewriter Factory, Hartford, CT
Served as Senior Project Manager coordinating the assessment and remediation of a former industrial site leading to its redevelopment into a large chain supermarket. Investigations revealed the presence of DNAPL, mainly Trichloroethene, occurring 20-30 feet below the groundwater table. Designed an innovative passive recovery system that exploited the ability of DNAPL to migrate towards void spaces below the water table. Despite the construction of the site building over the impacted area, DNAPL collection proceeded during site development and are ongoing through the use of dedicated recovery pumps.

Waste Oil Release, GMTA Garage, Greenfield, MA
Served as LSP coordinating emergency response actions and Immediate Response Actions (IRA) pursuant to the MCP following the release of waste oil to site soils and an abutting residential property. Coordinated soil excavation, sample collection and analysis that defined the extent of the release.

Bruce Tease, Ph.D., PG, LSP
btease@ecsconsult.com

Years of Experience: 18

Education:
- Ph.D., Plant & Soil Sciences, 1987, University of Massachusetts, Amherst
- M.S., Plant & Soil Sciences, 1983
- University of Massachusetts, Amherst
- B.S., Environmental Sciences , 1981
- University of Massachusetts, Amherst,
- A.S. Environmental Science Technology
- Holyoke Community College, 1977

Licenses:
Licensed Site Professional, Massachusetts (No. 4275)
Professional Geologist, New Hampshire (No. 700)

Certificates:
- OSHA 40-Hour HAZWOPER
- Current 8-Hour Refresher
- OSHA Confined Space Entry

Professional Affiliations:
Licensed Site Professional Association

National Ground Water Association

Sigma Xi Scientific Research Society

Skills and Abilities:
- Project Management
- LSP/MCP Experience
- Brownfields Redevelopment Assessment and Remediation
- River and Lake Diagnostic Feasibility Studies and Risk Characterization
- Contaminant Fate and Transport Evaluation
- Public Involvement Presentations
- Assessment and Abatement of Mold Forming Bacteria and Fungi
- Emergency Response

Analytical results were used to meet waste disposal requirements and to identify compounds of concern for risk characterization purposes, which indicated the absence of contamination above applicable MCP Method 1 standards. Response actions resulted in achieving a Permanent Solution at the site and permitted the submittal of a Class A-2 Response Action Outcome Statement to the MADEP.

Publications:

Tease, B. (2001) **Community Based Tools for Successful Brownfields Redevelopment: An Interactive Panel and Audience Discussion**. Proceedings from ENTECH 2001 Environmental Management and Technology Conference and Exhibition, Atlantic City, NJ

Tease, B., Lanza, G., McCabe, K. and Anderson, T. (2000) **Utilizing academic resources in Brownfields investigations.** Proceedings from Brownfields 2000, Atlantic City, NJ

Tease, B. and Longs, S. (1999) **Cost effective identification of properties underutilized or abandoned due to potential releases of hazardous materials.** Environmental Engineering and Policy. Vol. 1:195-200

Tease, B. and Gagnon, D. (1995) **Passive recovery of DNAPL from clayey soil via vertical collection wells.** Proceedings from the National Association of Environmental Professionals 20th Annual Conference and Exposition, Washington D.C.

Tease, B., Jurgens, U.J., Golecki, J.R., Heinrich, U.R., Rippka, R., and Weckesser, J. (1991) **Fine-structural and chemical analysis on inner and outer sheath of the cyanobacterium Gloeothece sp. PCC 6909.** Antonie van Leeuwenhoek 59:27-34.

Tease, B. and Walker, R.W. (1987) **Comparative composition of the sheath of the cyanobacterium Gloeothece ATCC 27152 cultured with and without combined nitrogen.** J. Gen. Microbiology 133:3331-3339.

Tease, B. and Coler, R.A. (1984) **The effect of mineral acids and aluminum from coal leachate on substrate periphyton composition and productivity.** J. Freshwater Ecology 2:459-467.

Tease, B. and Coler, R.A. (1984) **Using algae to monitor stream quality.** Cooperative extension services. Bulletin C-168.

Tease, B., Hartman, E. and Coler, R.A. (1983) **An in situ method to compare the potential for periphyton productivity of lotic habits.** Water Research 17:589-591.

Kaufman, E., Tease, B., Correa, M., Pyott, C. and Coler, R.A. (1982) **Application of the residual oxygen bioassay as a screening/diagnostic tool in the assessment of hazardous waste sites.** Cooperative Extension Service, University of Massachusetts, U.S. Dept. Agriculture and County Extension Services. Bulletin SP-140.

Employment History:

- Environmental Compliance Services, Inc., Agawam, MA, 1997 to Present – Senior Environmental Scientist
- ERD Environmental, Inc., 1993 to 1997 - Senior Environmental Scientist
- AES, Inc., 1989 to 1993 - Environmental Sciences Manager
- University of Massachusetts, Amherst, Environmental Sciences Program, 1990 to Present - Adjunct Professor
- Amherst College, Biology Department, 1988 to 1989 - Post-Doctorate Research Assistant
- Albert-Ludwigs-Universitat, 7800 Freiburg, Germany, 1987 to 1988, Institut fur Biologie II, Mikrobiologie - Post-Doctorate Research Position

MICHAEL E. HOPKINS, P.E., LSP, LEP
Principal/New York Branch Manager/Director of Due Diligence Services

EDUCATION

State University of New York at Buffalo
B.S. Civil Engineering, 1981

SUNY College of Environmental Science and Forestry (in conjunction with Syracuse University)
B.S. Forest Engineering, 1980

PROFESSIONAL EXPERIENCE

Environmental Compliance Services, Inc., January 1, 2000 to present
Principal/New York Branch Manager/Director of Due Diligence Services

Hopkins Environmental Management, Inc., 1991 to 1999
President

C/P Utility Services Company, Inc., 1990 to 1991
Manager of Environmental Engineering

Environmental Risk Limited, 1989 to 1990
Senior Associate

Niagara County (New York), Health Department, 1981 to 1989
Public Health Engineer/Supervising Public Health Engineer

PROJECT EXPERIENCE

Remediation

- Performed remedial investigations, developed work plans, interpreted data and designed various remediation systems.
- Projects have included soil removal, capping, groundwater recovery and treatment, sparging, soil vapor extraction, free product recovery, drum removal, building decontamination, asbestos abatement, and complex, multi-phased remediation projects.
- Managed all phases of remedial projects including initial assessments, detailed remedial investigations, cost estimates, negotiations with regulatory agencies, permitting, remedial system design, plan implementation, system start-up and operations, and professional engineering certifications.
- Managed more than 200 remediation projects with budgets up to $3 million dollars.

MICHAEL E. HOPKINS, P.E., LSP, LEP
Principal/New York Branch Manager/Director of Due Diligence Services

Environmental Site Assessments

- Corporate Director of Due Diligence Services. Manages and directs more than 500 phase I, II and III assessments per year, including personally reviewing and approving all final reports.
- Conducted environmental site assessments for more than 2,000 properties in 35 states, and managed more than 6,000 assessment projects.
- Assessment clients have included financial institutions, government agencies, attorneys, industries, developers, investment firms, municipalities, property owners and potential buyers.
- Conducted assessments of properties valued up to $600 million.
- Peer reviewed and evaluated more than 1,400 assessment reports prepared by other firms.
- Routinely provides second opinions and independent peer reviews of environmental site assessments, risk assessments and remedial cost estimates.

Hydrogeology/Site Investigation

- Worked as a hydrogeologist, chief investigator, technical supervisor, project engineer and project manager on soil and groundwater contamination studies, aquifer characterization projects, hydrogeologic investigations, and remedial investigations.
- Has substantial experience in interpreting hydrogeologic and groundwater quality data.

Engineering

- Licensed Professional Engineer with experience as a project, remedial, public health and design engineer.
- Managed engineering groups of up to twelve professionals for consulting firms and a government agency.
- Designed groundwater collection, wastewater treatment, spill contaminant and tank systems.
- Provided professional engineering evaluations and certifications for a variety of projects.
- Prepared bid specifications and technical contract documents for various projects.

Regulatory Compliance

- Has enforcement and regulatory experience in solid and hazardous waste management, underground storage tank compliance, water pollution control, air pollution control, and public health regulations.
- Worked as a review engineer, regulatory analyst, technical supervisor and program manager.
- Acted as a consultant to a variety of companies to audit regulatory compliance, to develop compliance programs and as a day-to-day advisor on compliance matters.
- Has managed solid and hazardous waste, wastewater discharge and air emission source permitting projects.

MICHAEL E. HOPKINS, P.E., LSP, LEP
Principal/New York Branch Manager/Director of Due Diligence Services

Environmental Auditing/Risk Management

- Skilled environmental auditor with experience in conducting both internal and third party audits.
- Developed protocols, policy guidance and screening procedures for use by a major international insurance company in conjunction with underwriting underground storage tank insurance policies, and coordinated field investigations of more than 600 claims for that client.
- Developed environmental risk management programs for clients including banks, an insurance company, manufacturers, numerous small businesses, and an electric utility company.

Data Validation/Quality Assurance

- Prepared more than 200 sampling plans, Quality Assurance Project Plans, Quality Assurance/Quality Control Plans and similar documents for inclusion in Site Characterization Work Plans, Remedial Investigation Work Plans and other field investigation plans.
- Routinely develops scopes of work, including specifying analytical methods, sampling procedures and quality assurance procedures for site investigation and site remediation projects.
- Peer reviewed more than 200 sampling and/or quality assurance/quantity control plans prepared by other firms.
- Has more twenty five year of environmental data interpretation experience including a wide range of analytical methods, all types of media, and reviews such data on a nearly daily basis.
- Has completed professional short courses and seminars in data validation, analytical methods, sampling procedures and quality control/quality assurance procedures
- Formal education includes 28 hours of college level chemistry courses, including general chemistry, organic chemistry, physical chemistry and wastewater chemistry.

Miscellaneous

- Acted as on-site technical assessment officer at more than 600 hazardous material emergency response incidents.
- Provided expert opinions in hazardous waste management enforcement and public health assessment cases.
- Was implemental in remedial actions and public health assessment activities at the Love Canal (1981-1988). Acted as Niagara County spokesman with respect to Love Canal communications (1984 -1988).

PROFESSIONAL CERTIFICATIONS AND LICENSES

Licensed Professional Engineer, Connecticut and New York
Connecticut Licensed Environmental Professional (#153)
Massachusetts Licensed Site Professional (#9599)

APPENDIX D

STANDARD OPERATING PROCEDURES

Standard Operating Procedure Addendum

For purposes of this project, the attached Standard Operating Procedures (ECS SOPs 2.00, 3.00, 5.30, 8.30, 9.00 and 10.00) will be modified as follows:

- In all cases where air monitoring, field screening and or other measurements are specified using a photoionization detector, flame ionization detector or other organic vapor monitoring instrument, mercury vapor screening, monitoring and/or measurements are to be made in parallel using a Jerome 431-X (or equivalent) Mercury Vapor Analyzer (MVA) and all media encountered will be visually examined for the presence of elemental mercury. The Jerome 431-X MVA has a detection limit of 0.003 mg/m^3. All MVA readings and field observations will be recorded in a field log. The MVA will be operated and calibrated in accordance with all manufacturers recommended procedures and all calibration and quality assurance data will be recorded in the field log.

MONITORING WELL CONSTRUCTION PROCEDURE

The following Monitoring Well construction procedures are based on standard methods found in the Massachusetts Department of Environmental Protection (DEP) "Standard References for Monitoring Wells " (WSC-310-91) and the United States Environmental Protection Agency (EPA) "Subsurface Characterization and Monitoring Techniques: Volume 1" (EPA/625/R-93/00300)

1. MONITORING WELL MATERIALS

All materials used in the completion of monitoring wells shall be in good condition and free of any signs of possible contamination. The following materials may be used in the completion of monitoring wells.

- Schedule 40, flush-joint threaded PVC slotted well screen and solid riser
- Clean silica sand (graded appropriately for site-specific formation; No. 2 typical)
- Bentonite pellets and grout
- Portland Cement
- Flush-mounted curb box or vented steel locking aboveground protective well-casing and lock.

The attached Figure depicts a typical well construction schematic.

2. PROCEDURES

- Upon establishing the bottom elevation of the monitoring well, followed by the placement of a specified length of well screen and riser within the drill casing. If warranted, filter fabric may be placed on the screen prior to insertion into the drill casing to facilitate filtration. The sand pack will then be continuously added to the annular space as the drill casing are withdrawn. The drill casing will not be pulled above the sand as it is added, ensuring the placement of a continuous sand pack. A weighted tape will be used to continuously monitor the sand pack elevation relative to the auger bottom to ensure the screen has been fully covered. Unless otherwise specified, the sand pack will be placed to an elevation of two feet above the top of the well screen.

- A one-foot (or greater if specified) thick bentonite seal composed of pellets or chips will be added to the annular space. If the seal is placed above the water table, the pellets will be hydrated with potable water. A weighted tape will be used to assure that the bentonite is placed at the proper elevation, is the proper thickness, and is not hung up in the borehole. The drill casing will be withdrawn from above the elevation of the bentonite seal and the natural materials will be allowed to collapse, if specified. If natural materials are not collapsing, clean native materials or No. 2 silica sand will be used to fill the voids.

- From the top of the bentonite seal to two feet below grade, the annular space will be backfilled with natural materials unless other materials are specified.

- If well is to be screened below the water table, the annular space above the bentonite seal is to backfilled with a cement/bentonite grout, mixed according to a ratio of approximately 20:1 cement to bentonite (not less than 5:1, if porous formations require more bentonite), with a maximum of 8 gallons of water per 94-pound bag of cement. Grout to be put in place with a sideways or upwards discharging tremie pipe.

- Each well will be completed with either a flush mount or elevated locking, protective casing as specified. Any asphalt or concrete surface will be square-cut. The flush mount casings will be set in Portland cement that extends from the top of the native fill to ground surface. The cement seal shall be a minimum of 2 feet in diameter. The top of the cement surface will be tapered outward to drain water away from the well.

- A vent hole will be placed near the top of a solid riser. On wells with a flush mount protective casing, a vented, locking compression cap will be used to plug the PVC riser. The wells requiring an aboveground protective casings will be completed with a vented slip-on PVC cap and locking metal cover.

WELL DEVELOPMENT PROCEDURES

Fine-grained materials are often smeared on the sides of the borehole during drilling reducing the hydraulic conductivity of the materials opposite the screened portion of the well. These fine-grained materials must be removed from the well and well borehole in order to enhance the hydraulic connection between the well and the aquifer. Undeveloped wells may produce groundwater samples containing suspended sediments that will clog field filtering equipment and bias the chemical analysis. Well development procedures are based on the Massachusetts DEP guidelines (MADEP, 1991) and ASTM Designations D 5092 - 90 and D 4750 - 87 (References).

Well Development will be completed by (1) surging and bailing; or (2) mechanical surging and pumping, as specified.

The surging will start with a slow pace near the top of the water column and progress to a faster pace near the well screen. Care will be taken during well development to avoid entrapping air in the aquifer formation or plugging the well screen with fine-grained materials. All equipment placed in the monitoring well for development will be either dedicated to each well or decontaminated following specified or standard operating procedures. Decontamination will occur between each well location. In cases of gross contamination, rinse water will be drummed and disposed of according to applicable municipal, state, and federal regulations.

1. SURGING AND BAILING

Decontaminated stainless-steel bailers will be used to surge and bail the wells. Surging will be performed to first loosen the fine materials and draw them through the well screen followed by bailing to remove the sediment-laden water from the well. This procedure will be continued until the turbidity of the water is reduced and the water appears clear.

2. MECHANICAL SURGING AND PUMPING

OPTION 1: Wells can be developed using a QED Environmental Systems, Inc. Sample Pro 2-inch Well Development Pump or equivalent. This device combines mechanical surging (to loosen fine materials and draw them through the well screen) and pumping (to remove sediment laden materials from the well). Flexible wipers (Buna-N) are attached to the pump with a small clearage between the wiper and the walls of the well. As the pump is lowered into the well the wipers create a surging action forcing water within the well out through the well screen into the aquifer formation. As the pump is moved up, the water is pulled back through the screen into the well along with fine-grained materials. The QED pump will pump the sediment laden water from the well at an average flow of 5 gallons per minute during development. This procedure will be continued until the turbidity of the water is reduced and the water appears clear.

OPTION 2: Wells can be developed using a Waterra™ check valve attached to polyethylene tubing, which is then inserted to the screened portion of the well, and then gently pumped up and down. The pumping action of the check valve will both surge the filter pack and surrounding formation, while at the same time remove sediment and water. When operated by hand, a pumping rate of at least 0.5 gallons per minute can be achieved over a short period of time. A higher pumping rate (up to 4 gallons per minute) for longer periods can be achieved with a power-actuated tubing pump. This procedure will be continued until the turbidity of the water is reduced and the water appears clear.

SUBSURFACE SOIL SAMPLE COLLECTION USING AN EARTHPROBE™

The following applicable procedures will be performed during collection of soil samples using a 48-inch macro-core sampler:

- Representative subsurface soil samples will be collected in 4-foot intervals by direct push using a clean, decontaminated 48-inch long, 2-inch outside diameter, nickel-plated macro-core sampler containing a dedicated 45-inch long by 1.5-inch inside diameter PETG clear plastic liner. Samples obtained from the macro-core sampler are suitable for physical and chemical analysis.

- Other equipment used during sampling such as mixing bowls and sampling tools will be made of stainless steel.

- The macro-core sampler will be advanced from the surface to a depth of 4 feet. In order to collect samples below four feet, the soil above the sampling interval must be removed. If the borehole remains open samples can be collected continuously to the desired depth.

- Careful visual inspection of the sample will be performed to identify different soil in the top of the sampler that may have been caused by soil sloughing into the open borehole. In this case the judgment of the sampler must be used before completing boring logs or collecting representative soil sample. If the borehole does not stay open or if the sloughing of soils is excessive, the integrity of the soil samples is jeopardized and the 24-inch large bore sampler should be used for sampling below the initial 0- to 4-foot interval.

- Upon retrieval of the macro-core sampler, the following applicable procedures will be followed:

    - The liner will be removed from the sampler and cut open with a pre-decontaminated knife. The soil will be scanned for total volatile organic vapors using a PID or FID and the length of recovery will be measured. This information will be recorded on a boring log. **Alternative:** A hole will be drilled through the side of the liner, allowing for the collection of a sub-sample using a stainless steel syringe.

    - Soil will be described and logged according to a modified Burmister system. The soil description will be given in the following format: soil name; sorting and plasticity; particle size distribution, shape, and angularity; color; moisture content; density or consistency. This information will be recorded in a field book and/or on a boring log.

    - Duplicate samples for field screening for total organic vapors will be collected by filling two 8-ounce glass soil jars half full with soil and covering the jar with a double layer of aluminum foil and securing the lid over the foil. One sample will be collected from the top portion of the recovered soil and one from the bottom portion. The sample will be screened by using a PID or FID according to the Jar Headspace Analytical Screening Procedure found in the Massachusetts Department of Environmental Protection (DEP)

Interim Remediation Waste Management Policy for Petroleum Contaminated Soils #WSC-94-400. **Alternative:** If a sample is collected with a stainless steel syringe, this sub-sample can be placed into a 40-ml VOA vial, filling the vial 1/2 full, and then covering the vial with foil prior to capping with the teflon-lined cap.

- Samples for analysis for volatile organic compounds (VOCs and VPH) will be collected directly from the liner using a decontaminated stainless steel tool. No mixing of the soil sample will occur.

- Representative samples shall be transferred by clean spoon to 15 ml of MeOH contained in 40ml amber VOAs with teflon septum. The level of MeOH prior to sample addition shall be marked. Soil shall be added to at least this line on the VOA. A duplicate VOA shall be collected and submitted for each sample as standard procedure. Additional soil from the sample location shall be submitted in a separate container (2-4 oz glass jar) without preservation solution for dry weight determination purposes for each set of MeOH preserved VOAs.

- Loose soil will be removed from the glass threads of the vial with a paper towel to ensure a good seal. The cap will be secured tightly. The sample containers will immediately be placed in a chilled, thermally insulated container. The container will include a trip blank consisting of methanol in a 40-ml vial.

- Grab samples of soils collected from the sampler for laboratory analysis for semivolatile organic compounds, PCBs, pesticides, TPH, EPH, and inorganics will be composited by homogenized by mixing the soil in a stainless steel bowl or a polyethylene bag, or by the following method, if specified. The soil will be placed on a 1-meter square piece of polyethylene sheeting and rolled backward and forward by lifting and releasing the corners of the sheet. The sample will be spread out on the sheet and divided into quarters. Soil will be collected from each quarter consecutively until the sample containers are full. The container lid will be secured tightly. No chemical preservation is necessary.

- Sample containers will be checked to see that a Teflon liner is present in the cap prior to filling. ECS Standard Operating Procedure (SOP) # 4.00 should be referenced for selection of proper sample containers and preservation methods for each analytical method.

- All sample containers will be labeled with the following information: site; project number; earth probe number; sample interval or depth; sample matrix; date; time of collection; testing parameters; grab or composite sample; initials of sampling personnel.

- Sample containers will be capped immediately after filling and cooled to 4°C by placing them into a chilled, thermally insulated container for transport to the laboratory.

- All equipment used to collect samples for analysis will be either decontaminated before each use or dedicated to a particular sample location after initial decontamination according to the attached procedures.

GROUNDWATER SAMPLE COLLECTION PROCEDURES USING LOW FLOW SAMPLING METHODOLOGY

The following groundwater sampling protocols are based on the USEPA Region 1 Low Stress (low flow) Purging and Sampling Procedure for the Collection of Ground Water Samples from Monitoring Wells (July 30, 1996, Revision 2) (Region 1 Low Flow SOP #: GW 0001) with the following modifications.

1.0 MATERIALS

The following equipment and materials may be used during groundwater sampling. Not all material and equipment is necessary all of the time.

- health and safety equipment;
- map of well locations;
- well construction data;
- field data from last sampling and/or gauging event;
- well keys;
- interface probe;
- electronic water level indicator;
- PID or FID;
- a multiprobe water quality monitoring system (pH, specific conductivity, temperature, ORP, and optional dissolved oxygen)-i.e. Geotech Multiprobe Sampling System™ or YSI Model 3560 Water Quality Monitoring System™
- field book;
- adjustable rate peristaltic pump;
- 3/16-inch inside diameter and ¼-inch outside diameter polyethylene tubing;
- ¼-inch inside diameter silicone tubing;
- cable ties;
- folding table;
- disposable gloves;
- bucket (calibrated in gallons);
- sample containers and labels;
- chain-of-custody forms;
- cooler and ice;
- decontamination equipment;
- polyethylene sheeting;
- field filtering apparatus.

In order to ensure the collection of groundwater samples representative of the aquifer, stabilization of groundwater parameters must occur prior to sampling. Note: Depth to water level measurements will be performed in each monitoring well prior to purging and sampling (see Water-Level Measurement Procedures).

2.0 WELL PURGING

An electronic water level indicator will be lowered slowly to the air-water interface and the depth to water will be recorded. Care should be taken such that any particulates in the water column are not mobilized. Depth of the well should be based on previous sampling logs or measurements made after the collection of the groundwater sample. If the presence of a free phase product (light non-aqueous phase liquid - LNAPL) is suspected, an interface probe will be lowered to the product-water interface and the thickness of the product will be measured. If LNAPL is present, the well will not be sampled using the low flow sampling procedure.

- If no free phase product is present in the well purging will begin.

  - Purging of each well prior to sampling is conducted using an adjustable rate peristaltic pump in line with a multiprobe water quality monitoring system. This instrument allows for the visual monitoring of five parameters (temperature, pH, specific conductivity, dissolved oxygen and Eh -- oxidation-reduction potential) simultaneously in real time. This system uses an adjustable rate peristaltic pump system to collect the purge water directly into a flow-through chamber assembly containing the parameter probes.

  - A dedicated polyethylene tubing of 3/16-inch inside diameter and ¼-inch outside diameter is tied flush with the tip of a water-level measurement indicator using a plastic cable tie and is lowered into the well casing until it is at the mid-point of the saturated screen length and at least 2 feet from the bottom of the well.

  - A dedicated section, approximately one foot long, of ¼-inch inside diameter silicone tubing is fit through the peristaltic pump. The silicone tubing connects the dedicated polyethylene tubing from the well to a small piece of polyethylene tubing (approximately 24-inch), which attaches to the flow-through chamber of the multiprobe water quality monitoring system.

  - The pump is started at its lowest speed setting and slowly increased until the purge water is directly discharged into the chamber. Once the chamber is filled with purge water, the multiprobe meter displays are turned on and the initial stabilization parameter measurements should be recorded. The volume of purge water will be measured by pumping groundwater directly into a container of known volume.

  - The pumping rate is adjusted until there is little or no water level drawdown. Any adjustments made should be recorded. During the initial pump start-up, the drawdown may exceed 0.3 feet as pump flow adjustments are made and the water level stabilizes. If the minimal drawdown possible exceeds 0.3 feet but remains stable, continue purging at the stabilized groundwater drawdown level.

  - If drawdown exceeds 0.3 feet and does not stabilize, sampling should proceed.

  - The water level inside the well casing is monitored every three to five minutes or approximately every 0.25 to 0.5 gallons during purging. Drawdown of less than 0.3

feet during purging is desirable but not mandatory. The volume of water purged from the well, field measurement data (temperature, pH, specific conductance, ORP/Eh and dissolved oxygen if available) along with observations of color, odor and turbidity are recorded during the purging process every three to five minutes or as appropriate. An example of the ECS Low Flow Groundwater Sampling Log is attached.

- Purging is complete when stabilization of the groundwater parameters has been reached and the volume purged exceeds the stabilized groundwater drawdown volume plus the extraction tubing volume (approximately 0.014 gallons per 10 feet of tubing). Stabilization is achieved when three consecutive readings, taken at 3 to 5 minute intervals, are within the following limits: within +/- 0.5 degrees Celsius; within +/- 0.1 pH units; within +/- 10 µmhos/cm (or µS/cm) specific conductance or within 3% if specific conductance is greater than 300 µmhos/cm (or µS/cm); within +/- 10mV ORP/Eh.

- The amount of dissolved oxygen in the groundwater should be measured in each well after stabilization.

- A turbidity reading will be taken before the collection of the groundwater sample and the value will be recorded on the sampling log. Turbidity levels of less than 5 NTU are desirable but not mandatory.

- All measuring equipment will be decontaminated between uses (See Decontamination Protocols). The groundwater measuring equipment will be calibrated daily prior to use and in the field if field personnel suspect a problem with the calibration.

- Groundwater collected during purging and sampling of groundwater monitoring wells will be discharged to the subsurface at the point of withdrawal in accordance with Massachusetts General Law Chapter 21E and 310 CMR 40.0056 of the Massachusetts Contingency Plan. If purge water is grossly contaminated (i.e. contains free phase product) this water will be drummed and disposed of according to applicable municipal, state, and federal regulations (See Disposal Procedures).

3.0 GROUNDWATER SAMPLING PROTOCOL USING THE PERISTALTIC PUMP

- Once stabilization of the groundwater parameters occurs, the sampling of the groundwater from the well begins. The following SOP describes groundwater sampling using peristaltic pump, the dedicated section of silicon tubing, and the dedicated section of polyethylene tubing in the well.

- Immediately prior to sampling, the polyethylene tube leading to the flow-through chamber of the multiprobe water quality monitoring system is disconnected so that the groundwater flows directly from the ¼-inch silicone tubing into the sample vials.

- The location of the sampling point (or position of the end of the dedicated in-well tubing) will be the same location as it was during the purging process.

- If drawdown increases such that the recharge rate of the well is less than the slowest possible extraction rate, the well should be sampled as soon as the water level has recovered sufficiently to collect the appropriate volume needed for all required samples even though the parameters have not stabilized. The intake should not be lowered during the recovery period.

- Water samples for the analysis of volatile organic compounds (VOCs) and volatile petroleum hydrocarbons (VPH) will be collected first from the tubing in the water column in the well.

- Groundwater samples collected for the analysis of VOCs will be collected in duplicate 40-milliliter glass vials with zero headspace. Vials will be pre-preserved with hydrochloric acid to a pH of <2. The vial will be uncapped carefully in order to avoid contact with the Teflon septum. The vial will be filled slowly taking care not to agitate the sample which may mean slowing down the rate of the peristaltic pump. Each vial will be filled until there is a meniscus over the lip of the vial. If no meniscus forms, a sample of water will be collected in the cap and poured slowly into the vial to create a meniscus. The Teflon-faced septum will be placed on the convex meniscus and the cap screwed down. The vial will be inverted and tapped to check for the presence of air bubbles. If air bubbles are present, the sample will be discarded and another vial will be selected and filled.

- Groundwater samples for analysis for PCBs, pesticides, total petroleum hydrocarbons, extractable petroleum hydrocarbons (EPH), semivolatiles organic compounds, metals, other inorganic compounds, and general chemical parameters will be collected last but immediately after collecting groundwater samples for analysis of VOCs.

- Groundwater samples for the analysis for dissolved (soluble) metals will be collected by connecting a dedicated 0.45 micron filter in-line to the ¼-inch silicone tubing. Care will be taken to adjust the pumping rate, in order to avoid any potential failure of the cartridge filter. The sample will be collected directly in a 1-liter HDPE bottle pre-preserved with nitric acid to achieve a pH <2.

- The sample containers for groundwater samples collected for all analyses other than VOCs will be filled to 90% capacity. Care will be taken so that no portion of the sample comes in contact with the sampler's gloves. ECS Standard Operating Procedure (SOP) # 4.00 should be referenced for selection of proper sample containers and preservation methods for each analytical method.

- Duplicate samples, field blanks, and equipment rinsate blanks will be collected according to specified QA/QC frequency

- A trip blank consisting of deionized hydrocarbon-free laboratory water in a 40-milliliter Teflon-septum vial, prepared prior to sampling, will be present with the volatile samples at all times during sampling and transportation to the analytical laboratory, and will be subjected to the same analyses as the samples.

- All sample containers will be capped immediately after filling. The exterior of the container will be rinsed with deionized water and dried with paper towels. All sample containers will be labeled immediately upon collection with the following information: site; project number; well number; date; time of collection; testing parameters; initials of sampling personnel.

- All groundwater samples will be cooled to 4°C by placing them immediately in a chilled, thermally insulated container with ice and submitted as soon as possible to a Massachusetts-certified analytical laboratory under Chain of Custody protocol. Information regarding sample holding times is found in Table 1. Information regarding Chain of Custody protocol is found in the Sample Custody Procedure.

- All equipment used to collect samples for analysis will be either decontaminated before each use or dedicated to a particular sample location after initial decontamination.

- Based on the results of previous sampling and analysis, sampling will progress from the least contaminated well to the most contaminated well.

WATER-LEVEL MEASUREMENT PROCEDURES

Depth to water-level measurements are taken to determine the elevation of the potentiometric surface. Water level measurements will be performed in each monitoring well prior to sampling. Because of fluctuating groundwater levels, all wells will be measured prior to sampling and within the same day, if possible. If the presence of NAPL is suspected, measurements will be made with an oil/water interface probe, otherwise, an electronic water level indicator will be used. These instruments are accurate to 0.01 feet. The following procedures are based on Massachusetts DEP guidelines (DEP, 1991) and ASTM Designations D 5092 - 90 and D 4750 - 87.

- The measuring instrument will be decontaminated prior to use and between wells according to the standard decontamination procedures.

- Measurements will progress from the least contaminated wells to the most contaminated wells.

- The well casing will be opened and the headspace will be monitored for total organic vapors using a PID or FID. If a reading of 5 ppm or greater is detected, the well will be allowed to vent for 5 to 10 minutes. If after this time the reading is 5 ppm or greater, a determination regarding the level of personal protective equipment needed will be made before sampling continues. If specified, PID or FID readings for well casing headspace will be recorded for each well.

- An interface probe will be lowered to the air-water interface and the depth to water will be recorded. The interface probe will be lowered to the bottom of the well to measure the depth of the well and in wells where chlorinated hydrocarbons were detected to determine if dense non-aqueous phase liquid (DNAPL) is present. If the presence of a free phase product (LNAPL) is indicated, the probe will be lowered to the product-water interface and the thickness of the product will be recorded but the depth of the well will not be measured.

- One water-level measurement will be made from a reference point on the PVC well riser pipe and another from the top of the protective well casing at the surface elevation. The reference point on the PVC will be a V-notch cut into the top edge of the riser pipe at the highest point. This will be the surveyed point on the riser. The reference point on the well riser is preferred for determining depth to water-level due to its stability. The protective well casing is more susceptible to movement through settling, frost heaving, or displacement by impact.

- The volume of standing water in the well (static volume) will be calculated and used during well purging prior to sampling.

- The total depth of the well, depth to product, depth to water, standing water height, and static volume will be recorded on the groundwater sampling log (attached).

DECONTAMINATION

Decontamination will be performed in order to: minimize the spread of contaminants on the Site and from one sampling location to another; reduce the potential exposure of field personnel to contaminants; and to ensure good data quality and reliability. Decontamination of all field analytical testing and sampling equipment will be performed according to the following procedures. These procedures are based on ASTM Designation D 5088-90, USEPA CERCLA QAPP Review Guidance, 1987, and Massachusetts DEP Standard Reference for Monitoring Wells, 1991.

Equipment cleaning procedures include pre-field, field, and post-field decontamination. Non-disposable equipment will be decontaminated after completing each sampling event. In cases of gross contamination (free phase product), rinse water will be contained for proper disposal according to municipal, state, and federal regulations. Decontamination procedures will be monitored through sampling and analysis when quality assurance/quality control checks are necessary.

Equipment will be dedicated to each sampling point and decontamination will be performed at the off-site facility as much as possible.

Decontaminated equipment will be rested on polyethylene sheeting at each sampling point.

Samplers will use new disposable gloves at each sampling point.

Potable water from the public water supply will be used for control rinse water.

A certified laboratory supply of deionized water will be used for decontamination of field testing and sampling equipment and for the collection of rinsate blanks. Deionized water will be stored in Nalgene, glass, or Teflon containers. The storage area containing the deionized water will be separated from the storage area for solvents.

Equipment rinsate blanks will be collected when a quality control check of the decontamination procedure is necessary. This check will not be performed if dedicated equipment is used. One blank will be collected at least once during a sampling event for each different piece of sampling equipment used. Rinsate blanks will be prepared by pouring deionized water over the decontaminated piece of equipment and collecting it in the sample container. The equipment rinsate blank will be analyzed for the same analytes as the samples that have been collected with that piece of equipment.

1.0 MATERIALS

- health and safety equipment;
- laboratory-supplied deionized water;
- phosphate-free detergent (Alconox, Liquinox);
- potable water (municipal water source);
- methanol;
- Hexane;
- Acetone;
- nitric acid rinse solution;
- wash basins;
- inert brushes;
- polyethylene sheeting;
- large heavy duty garbage bags;
- spray bottles;
- zip-lock bags;
- paper towels/Handiwipes;
- disposable gloves.

2.0 DECONTAMINATION PROCEDURES

- Stainless steel bailers will be disassembled, soaked in hot potable water and scrubbed with a brush in "Alconox" detergent and potable water , and rinsed with clean potable water at the company's facility. Bailers will be allowed to air dry in a vertical position in a contaminant-free environment.

- Prior to the sampling event, bailers used for the collection of samples which will undergo analysis for total petroleum hydrocarbons and volatile organic compounds will be rinsed with hot potable water followed by a 10% methanol solution of pesticide grade methanol and deionized water, followed by a final rinse with deionized water. The volume of deionized water will be at least five times the volume of the methanol. Bailers used for the collection of samples which will undergo analysis for semi-volatile organic compounds, PCBs, and pesticides will be rinsed with a technical grade acetone followed by a pesticide grade hexane, and a final deionized water rinse as above. Bailers used for the collection of groundwater samples which will undergo analysis for metals will be rinsed with 10 per cent nitric acid solution prepared from reagent grade nitric acid and deionized water followed by a potable water rinse, and a final deionized water rinse.

- Bailers will be wrapped in an inert material (i.e. plastic bags) and stored in a clean environment during transport to the Site.

- Following sample collection, the stainless-steel bailers will be rinsed with clean potable water and placed in a plastic bag for transport to the company's facility where decontamination will take place.

- Soil and sediment sampling equipment (stainless steel sampling scoop, tool, and bowl, split-spoon and macro-core sampler, knife) will be decontaminated in the field after each use.

- Soil and sediment sampling equipment will be decontaminated as follows: scrubbed with inert brushes in a bucket containing phosphate-free detergent and potable water; rinsed with potable water; rinsed with pesticide grade methanol; and finally rinsed with deionized water. The final potable water and deionized water rinse volumes will equal 5 times the volume of the methanol rinse. The equipment will be allowed to air dry and will be stored in a clean environment until reused.

- Non-dedicated field equipment used for the collection of samples to be analyzed for metals and filtering apparatus will be cleaned prior to each use by using a phosphate-free detergent solution, a potable water rinse, followed by a 10 percent nitric acid rinse solution prepared from reagent grade nitric acid and deionized water, a potable water rinse, and a final rinse with deionized water. Used filters will be properly disposed of.

- The YSI Water Quality Monitoring System™, Geotech Multi Parameter™ meter, interface probe, down-hole slug test equipment, QED Water Wizard well development equipment, and other measuring instruments will be decontaminated between uses by rinsing with Alconox or Liquinox, followed by potable water and deionized water rinses. A methanol rinse will be utilized prior to the deionized water rinse in the event of gross contamination such as contact with free-phase product.

- The drill rig and earthprobe and all drilling equipment and associated tools, including but not limited to augers, drill casing, drill rods, sampling equipment, and wrenches, will be steam cleaned prior to beginning the drilling on the Site. This cleaning will consist of using a high pressure detergent steam cleaning equipment, followed by a nanograde methanol swabbing if gross contamination was present. This will be followed by a controlled water rinse. Any down-hole equipment (auger flights, rods, sampling equipment, etc.) coming in contact with gross contamination (i.e. free phase product) will be steam-cleaned between uses. Otherwise equipment will be scrubbed manually with potable water and Alconox as needed to remove soil between uses.

- Sampling equipment and probes will be decontaminated in an area covered by polyethylene sheeting adjacent to the sampling location.

- In cases of gross contamination (i.e. free phase product) rinse water will be collected for proper disposal according to municipal, state or federal regulations. Contaminated solids (disposable gloves, clothing, polyethylene tubing and sheeting, etc.) will be collected and characterized for proper disposal.

- Decontamination procedures will be fully documented in the field notebook. The following information should be recorded: Site location, date, time and weather; sample location where equipment used; location where decontamination was performed; field personnel performing the decontamination; decontamination procedures; disposal of rinse water if necessary; samples collected for QA/QC and analytical results.

- Health and safety procedures associated with decontamination are found in the Health and Safety Plan.

APPENDIX E

HEALTH AND SAFETY PLAN

Health and Safety Plan
Site Characterization Activities

Skidmore College
Mercury Spill Location
NYDEC Spill #0501301
AOC #A4 -0525-0805
Saratoga Springs, New York

Prepared on Behalf of:

Skidmore College
815 North Broadway
Saratoga Springs, NY 12866

For Submission to:

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau A
625 Broadway
Albany, NY 1223307015

Prepared by:

Environmental Compliance Services, Inc.
588 Silver Street
Agawam, MA 01001

ECS Project Number 01-208621.00

June 2007

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Attachment VI NYDOH Community Air Monitoring Plan

1.0 INTRODUCTION

This site specific Health and Safety Plan (HASP) provides guidance to authorized personnel engaged in subsurface investigation activities in area potentially impacted by mercury and other contaminants at Skidmore College. The scope of the site investigation activities is as specified in the Site Characterization Work Plan by Environmental Compliance Services, Inc. dated November 9, 2005.

Bruce Tease, PhD, LSP, PG of Environmental Compliance Services, Inc. (ECS) will act as Health and Safety Officer on this project. Dan Rodecker of Skidmore College will act as the primary client contact.

1.1 Background

This project involves the borings, monitoring well installation, soil sampling, groundwater sampling and surveying in an area assumed to be contaminated with elemental mercury. Mercury concentrations up to 7,080 mg/kg were previously detected in subsurface soil samples in this area. The impacted area is assumed to be no more than approximately 20 feet in diameter, but a full delineation has not yet been performed. Figure 1 (Attachment II) shows the general layout of the suspected spill site and the proposed sampling locations. No other contaminants are expected to be present at concentrations that would pose a risk to workers or the public.

1.2 Available Soil Analysis

Elemental mercury may be presence as visible droplets in the soil in the work area. Mercury has been detected in prior soil samples from this area at concentrations ranging from less than 0.2 mg/kg to more than 7,000 mg/kg. The available data is summarized in Table 1 in Attachment V. Laboratory reports were provided in a report entitled Record Review Report by ECS dated October 11, 2005. The possibility of higher concentrations being present cannot be precluded at this time. The only other metals identified in prior soil samples were barium and silver (in one sample only). The concentrations of these metals were low and do not warrant implementing health and safety procedures beyond those required by the presence of mercury. No organic compound analyses have been performed, but there are no indications that significant concentrations of organic contaminants are present. The need to be revise this plan will be re-evaluated whenever additional data is received, and the HASP will be updated or revised as appropriate in light of such data.

1.3 Assumptions

- Work activities involving contact with soil or groundwater on this site are considered controlled activities until a negative exposure determination can be made through an appropriate industrial hygiene assessment.

- At all times basic personal hygiene requirements must be followed. This consists of prohibitions on eating, drinking, smoking within the work area and hand and face washing prior to eating, breaking or leaving site. The work area will be clearly defined by the Health and Safety Office using one or more of the following items; caution tape, signs, flags and or snow fences prior to the initiation of subsurface activities.

- Work plans are designed to prevent or minimize worker contact with contaminated media. Industrial hygiene monitoring in compliance with OSHA's hazardous substance rules will be performed to verify occupational exposures are not occurring.

- Only limited contact with mercury contaminated soil is expected to occur during the Site Characterization Investigation. Regardless, work will be performed in "Level D" or "Level C" personal protective equipment (as will be defined later in this HASP), depending or the results of mercury vapor monitoring. This provides additional worker protection by reducing requirements for physical contact.

2.0 DESCRIPTION OF PROJECT

Project Name: Skidmore College – Mercury Remediation Site
ECS Project No. 11-202748.00

Location: 814 North Broadway, Saratoga Springs, New York 12866

Project Start: June 2006 (pending NYDEC approval of Site Characterization Work Plan)

Project Finish: July 2006 (estimated duration of field activities is six working days over a three week period)

Working Hours (normal) Monday through Friday – 6:30 am to 5:00 pm

Dig Safe Number: To be obtained prior to field activities

Title/Trade	Name/Address	Contact/Phone
Facility Manager/ Primary Client Contact	Dan Rodecker Assistant Facility Director 815 North Broadway Saratoga Springs, NY 12866	Work (518) 580-5000
Project Manager Health and Safety Officer	Bruce Tease, PhD, LSP, PG- ECS 588 Silver Street Agawam, MA 1001	Work (413) 789-3530 Cell (413) 519-0418 Fax (413) 789-2776
Geoprobe and Operator	ECS 588 Silver Street Agawam, MA 01001	Work (413) 786-7887
Environmental Technician	Amy Butler - ECS 30 Harris Place Brattleboro, VT 05301	Work (802) 257-1195 Cell (315) 576-6683

General Operations: (Note to User – See Site Characterization Work Plan)

The scope of work includes the excavation of mercury and chlordane impacted soil to a maximum depth of 3-4 feet, the collection of soil samples at the limit of excavation, field screening using a mercury vapor analyzer and surveying. Following soil excavation actions, three bedrock wells shall be advanced in the vicinity of the soil excavation.

The work at the Skidmore Mercury Remediation Site poses a potential hazard to workers due to exposures to mercury. In addition, the potential exists (in an uncontrolled workplace) for the migration of the mercury off the site via worker clothing or equipment.

Industrial hygiene sampling will be performed to verify that personnel are not at risk of occupational exposure to target contaminants. This includes monitoring the breathing zone air quality of the workers performing various tasks. This monitoring will be performed with a Mercury Vapor Analyzer with a detection limit of 0.003 mg/m^3 or less. The proposed activities are not expected generate significant quantities of dust[1] and no contaminants other than mercury are expected to be present, regardless organic vapor monitoring and particulate (PM-10) monitoring will be performed in accordance with the NYDOH Community Air Monitoring Plan (CAMP). Sampling of various work surfaces and materials may also be performed to verify site control. This plan makes use of engineering controls and hygiene practices to control worker exposures. Work will proceed with the limited controls specified in this plan.

Workers operating within the scope of this plan must have at least the following minimum training:

1. Hazard Communication Training in accordance with 29 CFR 1926.59/29 CFR 1910.1200 and;
2. Safety Training and Education as required by 29 CFR 1926.21. This includes training in the recognition and avoidance of unsafe conditions.
3. Personal Protective Equipment – 29 CFR 1926.93-106

Additionally, site specific training on the contents of this plan is required prior to conducting work.

[1] Air rotary drilling equipment will not be used. Neither Geoprobe nor hollow stem auger drilling are expected to generate significant quantities of dust.

3.0 CONTROLLED WORK AREA ACTIVITY SUMMARY AND HAZARD ASSESSMENT

The following work practices will be used for all work within the work area.

Included Tasks:	Hand excavation, backhoe excavation soil sampling, monitoring well installation, groundwater sampling and surveying
Potential Impacted Media:	Soil, air and groundwater
Primary Contaminant of Concern:	Mercury and chlordane
Expected Contaminant Concentration Range:	Mercury at <0.2 to >7,000 mg/kg in soil; elemental mercury droplets may be present in the soil; mercury concentrations in groundwater have not been determined, but are expected to be minimal; no impact on ambient air is expected, but will be verified as part of the monitoring specified in this plan.
Worker Exposure Limits:	PEL-OSHA - 0.1 mg/m^3 (8 hour time weighted average) TLV-ACGIH: 0.025 mg/m^3 (8 hour time weighted average)
Protective Practices to be Employed:	1) Breathing zone air to be monitored using a mercury vapor analyzer with minimum detection level of 0.003 mg/m^3 2) Level D Personal Protective Equipment (with chemically resistant coveralls) to be used. 3) Upgrade to Level C Personal Protective Equipment (with air purifying respirator) if mercury concentrations in the breathing zone exceed 0.05 mg/m^3 (50% of PEL for three or more consecutive readings. Note: NIOSH allows the use of air purifying respirators in atmospheres with mercury concentration up to 0.5 mg/m^3 4) All work to be stopped immediately if mercury concentrations in breathing zone air exceed Worker Exposure Limits 5) Work Area to be defined and access controlled 6) Community air monitoring to be performed in accordance with NYDOH CAMP

7) Personal and equipment decontamination procedures to be used (see Sections 10 and 11)

8) Standard hazardous waste site work practices to be followed

4.0 WORKER AND ENVIRONMENTAL MONITORING

Air Contaminants	Equipment/ Method	QA/QC	Use/Frequency
Mercury-Elemental/ Inorganic	NIOSH Method 6009 or equal	As Specified	8-hour TWA (time weighted average) of 25% of workers assigned to tasks identified in Section 3. Sampling results < 50% worker exposure limits is the target. Attempts will be made to ensure sample quantity sufficient for 95% confidence.
Refer to Enclosed Sampling Methods for specific details.			
Comments: **Air sampling data is collected for each of the tasks identified in Section 3. As appropriate, environmental sampling of soils and various work surfaces may also be conducted to verify site control. Documentation pertaining to NIOSH Method 6009 is provided in Attachment III.**			

Persons authorized to conduct air sampling:

Bruce Tease, Ph.D., LSP, PG – Health and Safety Officer - ECS
Amy Butler – Technician - ECS

Sampling Summary – the data below represent maximum exposures measured on each task or group of tasks. Based on this summary, requirements of this plan may be amended or suspended.

Task	Sample	Maximum Exposure > PEL/TLV	Tasks Combined? Y or N	Date (mg/m^3)/(ppm) Y or N

5.0 SITE CONTROL MEASURES (CHECK ALL THAT APPLY)

Dust Suppression Techniques		No significant dust generation anticipated; monitoring will be performed.
	Wet Methods	
	Vacuum Equipment	
	Manual Methods	
Vapor Suppression Techniques		Mercury vapor monitoring will be performed and work will be stopped if PEL is exceeded, but no vapor suppression activities are practical in this case.
	Wet Methods	
	Vacuum Equipment	
	Manual Methods	
Site Security Measures		
X	Controlled Access	The project perimeter will be marked. Site personnel must be authorized and logged in.
X	Designated Decontamination	Decontamination methods are established in this plan.
	Temporary Fencing or Barriers	
	Perimeter Security Fencing	
	Danger or Warning Signs/Tape	Activity areas will be marked and maintained.
	Traffic Control Plan	No formal plan is necessary. Cones and/or barricades will be used to prevent vehicle entry into the work area as necessary.
	Police/Security Detail	

6.0 PERSONAL PROTECTIVE EQUIPMENT

Level A: **N/A**	Full face-piece self-contained breathing apparatus (SCBA) Totally encapsulating chemical protective suits Coveralls Long underwear Gloves (outer–chemical resistant) Gloves (inner-chemical resistant) Boots (chemical resistant & steel toe and shank) Hard Hat Disposable protective suit, gloves, and boots
Level B: **N/A**	Full face-piece self-contained breathing apparatus (SCBA) Hooded chemical resistant clothing Coveralls Long underwear Gloves (outer-chemical resistant) Gloves (inner-chemical resistant) Boots (outer-chemical resistant: disposable) Hard Hat Face shield
Level C: **To be used mercury vapor >.05 mg/m3 (50% PEL) are present for three consecutive readings**	Full face or half-mask, air purifying respirators, (NIOSH approved) Hooded chemical resistant clothing Coveralls Gloves (outer-chemical resistant) Gloves (inner-chemical resistant) Boots (outer-chemical resistant steel toe and shank Boot-covers, outer, chemical resistant (disposable) Eye Protection (Safety glasses or chemical splash goggles). Ear Protection Safety shoes with lugged soles and leather uppers. Hard Hat
Level D: **Minimum PPE requirement for work within the work area.**	Standard coveralls or work clothing. Hooded chemical resistant clothing Coveralls Gloves (outer-chemical resistant) Gloves (inner-chemical resistant) Boots (outer-chemical resistant steel toe and shank Boot-covers, outer, chemical resistant (disposable) Hard Hat Eye Protection (Safety glasses or chemical splash goggles). Ear Protection Face shield (available for use as necessary)
Comments: It is the responsibility of the foreman of each contractor/subcontractor to ensure each work crew's usage of Personal Protective Equipment (PPE) on the work site. At a minimum, Level D will be implemented during on-site activities regarding oil and/or Hazardous materials if encountered.	

7.0 PERSONNEL DECONTAMINATION

Level A	Not Applicable	Segregated equipment drop; buddy inspection for contaminants; exterior suit wash/rinse; boot cover and glove wash; boot cover and glove rinse; tape removal; boot cover removal; outer glove removal; suit removal; SCBA backpack removal, inner glove removal; inner clothing removal, field wash, redress.
Level B	Not Applicable	Segregated equipment drop; buddy inspection for contaminants; boot cover and glove wash; boot cover and glove rinse; tape removal; boot cover removal; outer glove removal; suit and hard hat removal; SCBA backpack removal; inner glove wash and rinse; inner glove removal. (Optional) Inner clothing removal, field wash, redress
Level C	Applicable	Segregated equipment drop; buddy inspection for contaminants; boot cover and glove wash; boot cover and glove rinse; tape removal; boot cover removal; outer glove removal; suit/safety boot and hard hat removal; respirator removal; cartridge removal; inner glove wash; inner glove removal. (Optional) Inner clothing removal, field wash, redress
Level D	Applicable	Remove dirt from clothing and boots. Do not use compressed air. Use waterless cleaner or suitable hygiene facilities to wash hands and face when leaving the immediate work area for any reason. Dispose of work gloves daily.
Notes: * Depending on results of sampling, Level D may be amended to include site dedicated work clothing.		

8.0 EQUIPMENT DECONTAMINATION – Necessary if worker exposure to oils or hazardous materials exceeds project limits

Tools & Materials	Clean tools with garden sprayer filled with detergent and water. Provide plastic ground cover and then rinse tools. Collect and dispose of plastic.
Vehicles & Heavy Equipment	Avoid direct contact on wheels or exterior. If gross contamination occurs, vehicles set up a dedicated wash area. The area should be underlain by geotechnical membrane or similar and diked on each side to prevent liquid runoff. Use low-pressure sprayers and brushes to remove sediments. Personnel should wear full body rain gear and a face shield when washing the vehicle.
Sampling Equipment	Decontaminated with alconox scrub; potable water rinse; methanol spray; potable water rinse; 10% nitric acid rinse; final potable water rinse. Equipment decontamination will be conducted in washtub separate from any used for personal contamination.
Sample Containers	Sample containers will be securely sealed and wiped clean of liquid and solid material using a clean paper towel or wipe (moistened with field blank water if necessary)
Monitoring Equipment	Monitoring equipment should not be allowed to contact contaminated media (if such contact occurs, notify the equipment manager). Monitoring equipment is wiped down in the field.
Personal Equipment	Overboots, overgloves, and inner gloves will be washed in the field (water and alconox followed by a clean water rinse) and stored in sealed plastic bags.
Decontaminated Waste	Decontaminated waste including but not limited to PPE and cleaning materials will be drummed and properly disposed of in accordance with state and federal regulations. Quantitative laboratory analysis will be determined by the Site Supervisor/Site Competent Person.

9.0 HAZARDOUS MATERIAL HANDLING AND SPILL CONTAINMENT[1]

Contaminated Soil (release to non impacted area of the site or release of Hazardous Materials brought onto the site)	1. Excavate soil by hand and/or equipment. 2. Transfer excavated materials to the stockpiling site if necessary. 3. Keep vehicle traffic in designated areas. Do not leave the project zone. 4. Stockpile in a location designated by the Facility Manager. 5. Stockpiles will be covered to prevent storm water runoff or wind action on fines.
Contaminated Liquid Spills	1. Evaluate nature and extent of spill and apply immediately available containment measures. 2. Notify on-site contact. 3. Notify emergency personnel is spill poses a threat of fire or explosion, is substantial or not easily contained, if any off-site property is or could be impacted, or if utilities are/may be impacted; 4. Effect containment using materials and equipment at hand (sand, dirt, plastic sheeting, etc.) 5. Guard against releases to utilities, contain releases to utilities if possible; contain release on impervious surface; 6. Stabilize situation if possible; 7. Notify NYDEC.
Drums and Containers[2]	1. Hazardous substances, contaminated soils, liquids, and other residues should be handled, transported, labeled, and disposed of in accordance with DOT, OSHA, EPA, and NYSED regulations. 2. Dumpsters, dump truck bodies and other similar containers will be lined with polyethylene sheeting if necessary to prevent contamination migration. 3. Drums and containers will be inspected and their integrity shall be assured prior to being moved. 4. Media in unlabeled drums and containers should be considered hazardous and handled accordingly until properly identified. 5. Site operations shall be organized to minimize the amount of drum or container movement.
Sample Materials	1. Excess sample materials (soil/surface water) will be disposed of onsite in the immediate vicinity of the sample location. 2. Separate-phase product will be drummed on site for subsequent off-site disposal. (i.e. gasoline, fuel oil) 3. Groundwater resulting from well development and/or well purging will be drummed and managed in accordance with waste management regulations.

Comments:

1. Application: No conditions Immediately Dangerous to Life or Health exist, or are likely or possible. No personal injury or uncontrolled hazards are involved.

2. Containers include roll-off dumpsters and dump trucks.

10.0 CONTROLLED AREAS – SITE CONTROL PROCEDURES

Applicability	The following conditions require establishing controlled areas. 1. Established project boundaries. 2. Identification of hazardous materials in unknown concentrations. 3. Hazardous materials exceeding or likely to exceed worker exposure limits. 4. Uncontrolled releases of hazardous materials. 5. Other hazards relating to the work which can't be controlled.
Site Safety Briefing	HSO conducts site safety briefing prior to commencement of field activities. Persons needing to work on the site must attend the briefing. Additional briefings are conducted during progress of work at the site if conditions on site change, additional contaminants or hazards are recognized, or if tasks change. The site safety briefing includes: 1. The scope and reason for the work to be performed. 2. The history of the site with regard to the present work. 3. The tasks to be performed; the locations of the work areas, and the specific hazards or potential hazards anticipated. 4. The means to be used to perform the anticipated tasks. 5. Information on the types of hazards present. 6. The initial proposed locations and approximate dimensions of the exclusion, decontamination, and support zone.
Exclusion Zone (EZ)	Establish exclusion zones in the work area using caution tape, fencing, signs, or other conspicuous markings. The exclusion area should include: 1. Areas within the swing of the crane/excavator/backhoe arm plus 10'; 2. Areas in the vicinity of drilling rigs within the maximum length of rods plus 10' 3. Open excavations 4. Areas of contaminated surface "soil" 5. Contaminated **"soil"** stockpiles Within the exclusion zone: 1. Unauthorized personnel are prohibited 2. Control of hot work and ignition sources 3. No eating, drinking, or smoking 4. Use of proper PPE and work practices are required 5. No entry after daylight hours without adequate artificial lighting.
Contamination Reduction Zone (CRZ)	Separately mark the CRZ. The CRZ is used for decontamination. Locate the CRZ upwind or crosswind from the area of operation in the exclusion zone and outside of the swing of heavy equipment or the fall or rods. The CRZ should be away from and upwind of excavations, areas of contaminated surface soil, and soil stockpiles. Within the decontaminant area: 1. Unauthorized personnel are prohibited 2. Control of hot work and ignition sources 3. No eating, drinking, or smoking 4. Use of proper PPE and work practices are required. 5. No entry after daylight hours without adequate artificial lighting.

Support Zone (SZ)	Locate the SZ outside and upwind of the EZ and CRZ. Mark and define the SZ from the surrounding site area. The SZ goes into the CRZ. The CRZ goes into the EZ. The SZ should be from and upwind of excavations, areas of contaminated surface soil, and soil stockpiles.

SITE SPECIFIC MARKING AND ADDITIONAL INSTRUCTION	
TASK	DESCRIPTION

11.0 EMERGENCY RESPONSE PLAN

Personal Injury	1. Evaluate injury. 2. Delegate personnel to notify emergency personnel. 3. Apply Emergency First Aid. 4. Decontaminate injured personnel as necessary. 5. Wait for emergency personnel or transport to hospital, as necessary.
Chemical Spill	Immediately Dangerous to Life or Health (actual or potential); 1. Evacuate area; 2. Roll-call of personnel on-site; 3. Notify site contact and emergency personnel; Notify off-site personnel if off-site impacts are possible. 4. Notify CTDEP. If personal injury is involved: 1. Follow procedure above: 2. Notify emergency personnel; 3. Immediate containment (using materials and equipment at hand (sand, dirt, plastic sheeting, etc.). Stabilize situation if possible. Release of Gas or consequent Fire: 1. Evacuate area; 2. Roll-call of personnel on-site; 3. Notify site contact and emergency personnel; Notify off-site personnel if off-site impacts are possible. 4. Notify CTDEP. Not Immediately Dangerous to Life or Health (actual or potential): 1. Notify emergency personnel and on-site contact if release poses any threat of fire or explosion, is 2. substantial, if off-site property is or is likely to be impacted, or if utilities are or may be impacted: 3. Immediate containment (using materials and equipment at hand (sand, dirt, plastic sheeting, etc.) ; 4. Guard against releases to utilities, contain releases to utilities if possible; contain release on impervious surface; 5. Stabilize situation if possible; 6. Notify CTDEP.
Utility-Related	Unknown utility, possible release of gas; or possible release of oil, hazardous, or flammable liquid; 1. Evacuate area 2. Roll-call of personnel on-site; 3. Notify site contact and emergency personnel; 4. Notify off-site personnel if off-site impacts are possible; 5. Notify utilities; 6. Notify CTDEP. Electrical 1. Isolate area, establish safety perimeter (i.e. work zone); 2. Notify emergency personnel; 3. Notify on-site personnel; 4. Notify utility;

	5. Notify agency Known, non flammable or hazardous material; 1. Evaluate nature of release; 2. Notify utility operator. 3. Notify on-site personnel; 4. Notify utility; 5. Notify agency
Comments:	

12.0 EMERGENCY RESPONSE CONTACT LIST

Police, Fire, Emergency	911
HOSPITAL	St. Peter's Hospital 315 South Manning Boulevard Albany, NY 12208 Phone: (518) 525-1315
NYDEC Emergency Spill Reporting (24 Hour)	1-800-457-7362
NYDEC Region 5 Office	(518) 897-1200
CBYD (Call Before You Dig)	1-800-962-7962
	Comments: Record CBYD authorization number(s) in Section 2 of this plan.
NRC (National Response Center)	1-800-424-8802
General Contractor Project Manger	
Health and Safety	ECS – Office: (413) 789-3530
Electric Utility	
Water Utility	
Gas Utility	
Other	

Directions to St. Peter's Hospital are provided in Attachment I.

13.0 AUTHORIZED PERSONNEL

The undersigned have read and understand the requirements of this Health and Safety Plan. This plan is intended to prevent worker and environmental exposure to hazardous levels of fly ash in impacted soils. Only persons trained on this plan may enter Controlled Work Zones.

TITLE/ORGANIZATION	NAME	SIGNATURE	PHONE
Skidmore Facility Manager	Matthew Baker		(585) 580-5872
ECS Project Manager	Bruce Tease		(413) 789-3530
ECS Technician	Amy Butler		(802) 257-1195
Health and Safety Consultant	Dan Knapik - ECS		(413) 789-3530
Other			
Other			

14.0 TRAINING REQUIREMENTS

Employees of employers working on this site must provide Skidmore with verification of prior training as listed below or attend training at the site:

- Hazard Communication – 29 CFR 1926.59/29 CFR 1910.1200
- Safety Training and Education– 29 CFR 1926.21
- Personal Protective Equipment – 29 CFR 1926.93-106

Site specific training required prior to conducting site operations:

- contents of this plan

Title/Organization	Employee Name	Verification Received

IMPORTANT DEFINITIONS PERTAINING TO THIS PLAN

1. **ACGIH** is the American Conference of Governmental Industrial Hygienists. It recommends upper limits (called TLVs) for exposure to workplace chemicals.

2. **Authorized Person** means a person approved or assigned by the employer to perform a specific type of duty or duties or to be at a specific location or locations at the job site. This person has been trained, and has authorization to work in the controlled areas.

3. **Coal tar pitch volatiles (CTPVs)** are composed of various chemical vapors that become airborne during the heating of coal tar pitch. Coal tar pitch is usually a thick, black or dark-brown liquid or semisolid that has a smoky odor. Other names for coal tar pitch volatiles include coal tar pitch, pitch, pitch oil, topped coal tar, coal tar pitch >351°C (AWPI), and creosote.

4. **DEP** is the Connecticut Department of Environmental Protection.

5. **EPA is** the Environmental Protection Agency, the federal agency responsible for regulating environmental hazards.

6. **Exposure**: Contact with a substance through inhalation, ingestion or some other means for a specific period of time.

7. **Heavy Metal (RCRA Metals)** - A common hazardous waste; can damage organisms at low concentrations and tends to accumulate in the food chain. Examples are Lead, Chromium, Cadmium, and Mercury

8. **mg/m^3** means milligrams of a chemical in a cubic meter of air. It is a measure of concentration (weight/volume).

9. **NIOSH** is the National Institute for Occupational Safety and Health. It tests equipment, evaluates and approves respirators, conducts studies of workplace hazards, and proposes standards to OSHA.

10. **OSHA** is the Occupational Safety and Health Administration, which adopts and enforces health and safety standards.

11. **Particulates:** Fine liquid or solid particles such as dust, smoke, mist, fumes or smog, found in the air or emissions.

12. **PEL** is the Permissible Exposure Limit which is enforceable by the Occupational Safety and Health Administration.

13. **ppm** means parts of a substance per million parts of air. It is a measure of concentration by volume in air.

14. **Resource, Conservation, and Recovery Act (RCRA)** – RCRA gave EPA authority to control hazardous waste from "cradle-to-grave." This includes the minimization, generation, transportation, treatment, storage, and disposal of hazardous waste. RCRA also set forth a framework for the management of non-hazardous solid wastes. RCRA focuses only on active and future facilities and does not address abandoned or historical sites.

15. **Semi-Volatile Organic Compounds (SVOCs)** - are indicative of petroleum, are byproducts of combustion, and some examples include; wood products, coal, coal ash, coal tar, and asphalt.

16. **"Soil"** consists of ash, cinders, concrete, pulp, paper residue, and clay as well as native soils.

17. **TLV** is the Threshold Limit Value, the workplace exposure limit recommended by ACGIH.

18. **Volatile Organic Compounds (VOCs):** Carbon-containing compounds that evaporate into the air (with a few exceptions). VOCs contribute to the formation of smog and / or may themselves be toxic. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Many volatile organic chemicals are also hazardous air pollutants; for example, benzene causes cancer.

MSDSs for:	PEL (8-hr TWA)	TLV (8-hr TWA)
Metals		
• Arsenic (As)	0.010 mg/m^3	0.01 mg/m^3
• Barium (Ba)	0.5 mg/m^3	0.5 mg/m^3
• Cadmium (Cd)	0.005 mg/m^3	0.002 mg/m^3 (respirable fraction)
• Chromium (Cr)	1 mg/m^3	0.5 mg/m^3
• Mercury (Hg)	0.1 mg/m^3 (vapor)	0.025 mg/m^3 (vapor)
• Nickel (Ni)	1 mg/m^3	1.5 mg/m^3
• Lead (Pb)	0.05 mg/m^3	0.05 mg/m^3
• Antimony (Sb)	0.5 mg/m^3	0.5 mg/m^3
• Selenium (Se)	0.2 mg/m^3	0.2 mg/m^3
• Vanadium (V)	0.5 mg/m^3 (respirable dust)	0.05 mg/m^3
• Zinc (Z) (oxide dust)	5 mg/m^3 respirable dust)	10 mg/m^3 dust
VOC's		
• Acetone	1.000 ppm	500 ppm
• 1,2-Dichloropropane	N/A	N/A
• Methylene Chloride	25 ppm	50 ppm
• Naphthalene	10 ppm	10 ppm
• Toluene	200 ppm	50 ppm
SVOCs		
• Acenaphthylene	N/A	N/A
• Anthracene	0.2 mg/m^3 (coal tar pitch volatiles)	0.2 mg/m^3 (coal tar pitch volatiles)
• Benz(a)anthracene	N/A	N/A
• Benzo(a)pyrene	0.2 mg/m^3 (coal tar pitch volatiles)	N/A
• Benzo(b)fluoranthene	0.2 mg/m^3 (coal tar pitch volatiles)	0.2 mg/m^3 (coal tar pitch volatiles)
• Benzo(k)fluoranthene	N/A	N/A
• Benzo(ghi)perylene	N/A	N/A
• Chrysene	0.2 mg/m^3 (coal tar pitch volatiles)	N/A
• 1,2-Dichlorobenzene	N/A	N/A
• Fluoranthene	N/A	N/A
• Fluorene	N/A	N/A

• Indeno(123-cd)pyrene	N/A	N/A
• 2-Methylnaphthalene	N/A	N/A
• Naphthalene	10 ppm	10 ppm
• Phenanthrene	0.2 mg/m^3 (coal tar pitch volatiles)	0.2 mg/m^3 (coal tar pitch volatiles)
• Pyrene	0.2 mg/m^3 (coal tar pitch volatiles)	N/A
DIESEL FUEL	N/A	N/A
FLY ASH	N/A	N/A
HYDRAULIC OIL	N/A	N/A
SILICA	Table Z-3 in 29 CFR 1910.1000	TLV = 0.1 mg/m^3

* DO NOT CITE – REFER DIRECTLY TO LISTED PUBLICATIONS

ATTACHMENT I

HOSPITAL DIRECTIONS

Yahoo! Driving Directions

Maps | **Driving Directions** MY YAHOO!

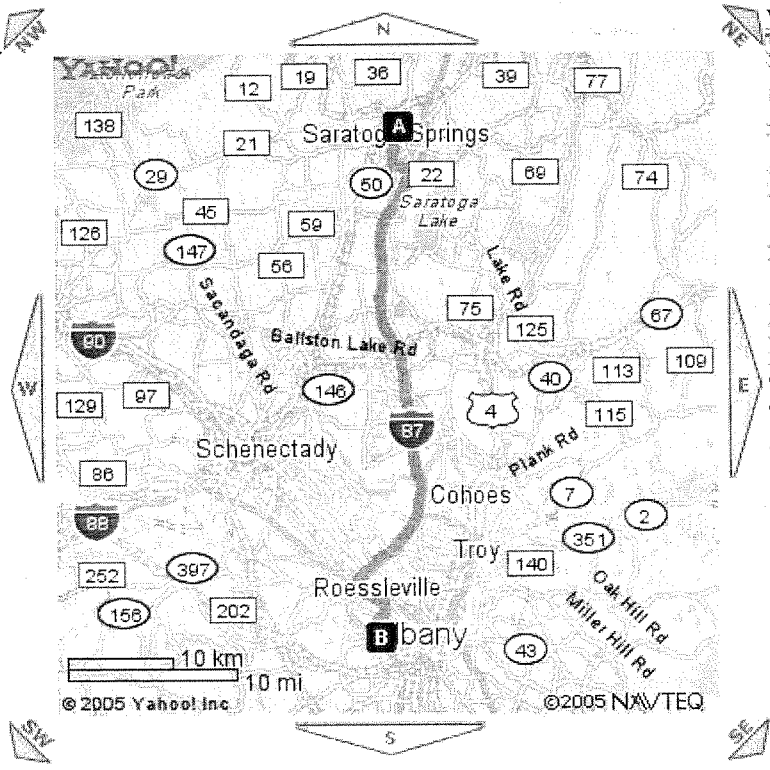
Starting from: A 714 N Broadway, Saratoga Springs, NY 12866-1622 Save Address

Arriving at: B St Peter's Hospital 315 S Manning Blvd, Albany, NY 12208-1707
(518) 525-1550 Save Address

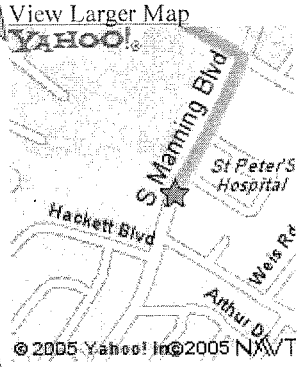
Distance: 36.1 miles **Approximate Travel Time:** 51 mins Get Reverse Directions

New Send to Phone | Text Only | Printable Version | Email Directions

Your Full Route
Zoom In - 1st.3city567state910- Zoom Out



Your Destination
View Larger Map



Traffic
Traffic info is not yet available for this area.

Find traffic for another ar
SmartView [tm]
See locations on this map

- Restaurants
- Hotels
- ATMs
- Gas Stations
- More

What's this?

Zoom in & Re-Center Re-Center only

Directions Show Turn by Turn Maps

1.	Start at **714 N BROADWAY, SARATOGA SPRINGS** going toward **1ST ST** - go **0.4** mi
2.	Continue on **BROADWAY[US-9]** - go **1.3** mi
3.	Continue on **S BROADWAY[US-9]** - go **0.6** mi
4.	Turn L on **CRESCENT AVE** - go **1.1** mi
5.	Bear R onto **I-87 SOUTH** - go **26.9** mi
6.	Take exit **#1** onto **I-90 EAST** toward **ALBANY/BOSTON** - go **2.6** mi
7.	Take exit **#4** onto **RT-85 SOUTH** toward **VOORHEESVILLE/SLINGERLANDS** - go **2.0** mi
8.	Take the **MARIA COLLEGE/KRUMKILL RD** exit toward **BUCKINGHAM DR** - go **0.2** mi
9.	Turn L on **BUCKINGHAM DR** - go **0.5** mi
10.	Turn L on **NEW SCOTLAND AVE** - go **0.4** mi
11.	Turn R on **S MANNING BLVD** - go **0.2** mi
12.	Arrive at **315 S MANNING BLVD, ALBANY,** on the L

When using any driving directions or map, it's a good idea to do a reality check and make sure the road still exists, watch out for construction, and follow all traffic safety precautions. This is only to be used as an aid in planning.

Get New Driving Directions

A Enter starting address or select from My Locations

My Locations Sign In
-- My Locations --
Address
714 N Broadway
City, State or Zip
Saratoga Springs, NY 12866
Country
United States

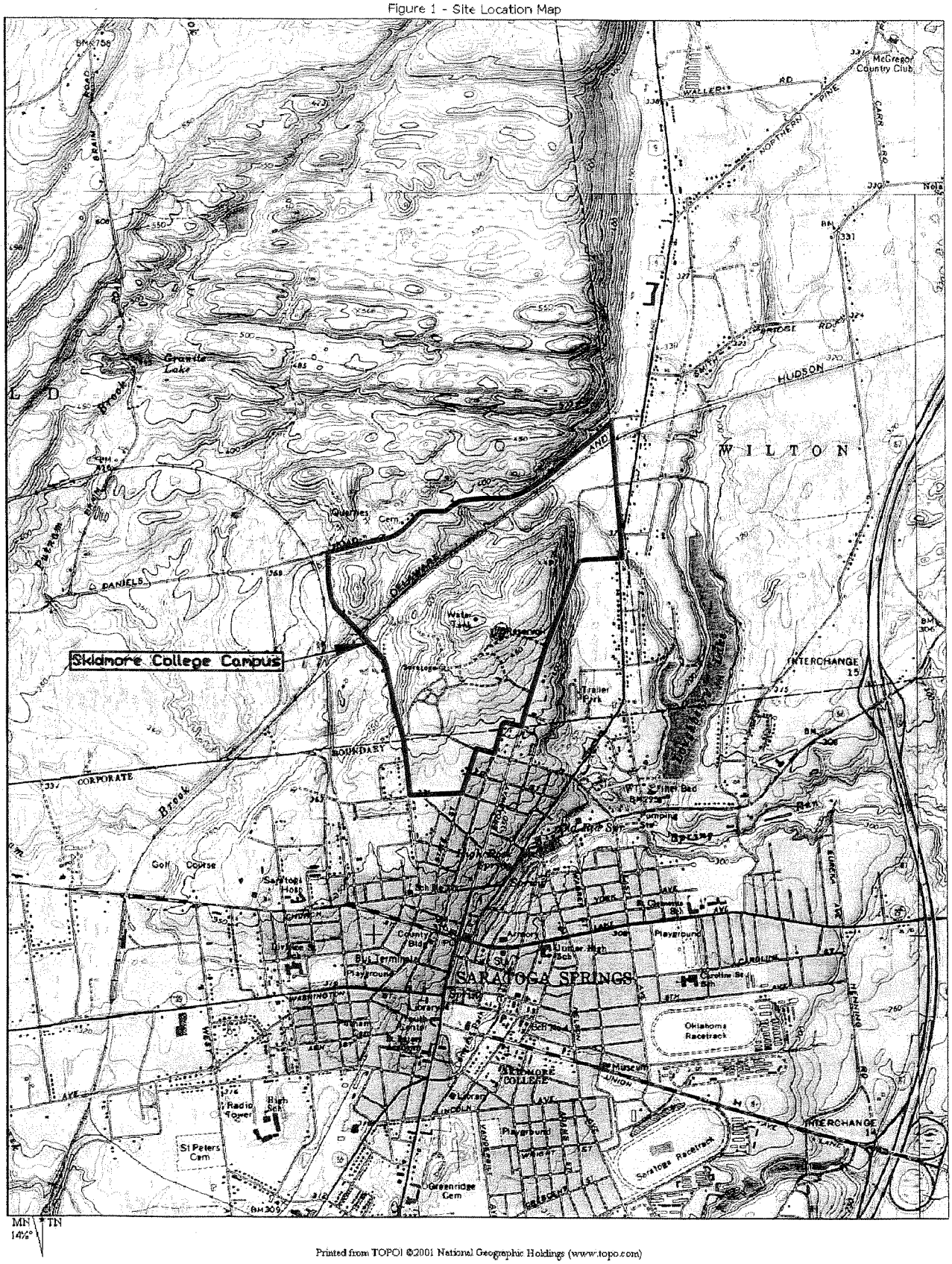
B Enter destination address or select from My Locations

My Locations Sign In
-- My Locations --
Address
315 S Manning Blvd
City, State or Zip
Albany, NY 12208-1707
Country
United States

Get Directions

Learn about Mobile Phone Directions

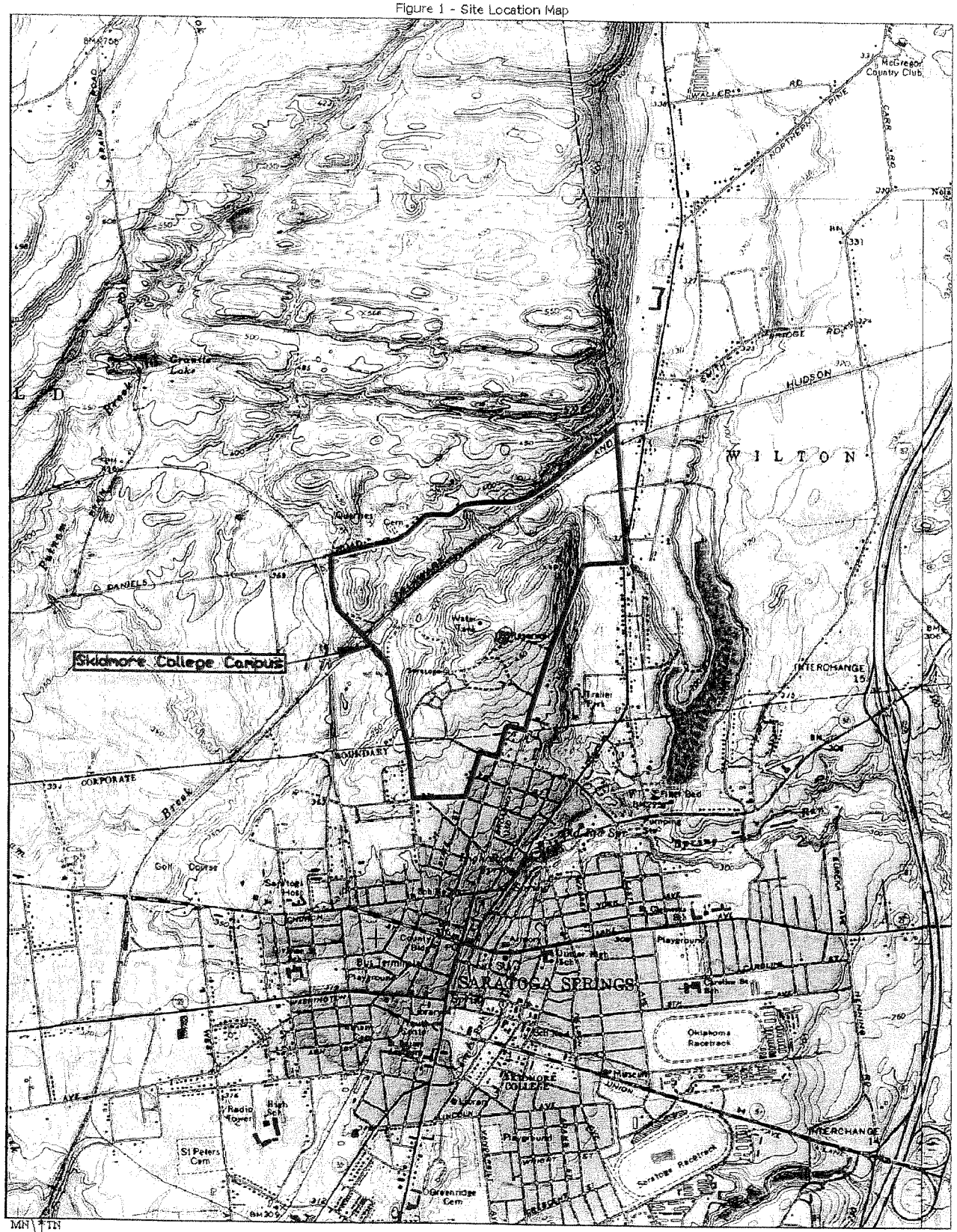
Figure 1 - Site Location Map



ATTACHMENT II

SITE PLAN

Figure 1 - Site Location Map



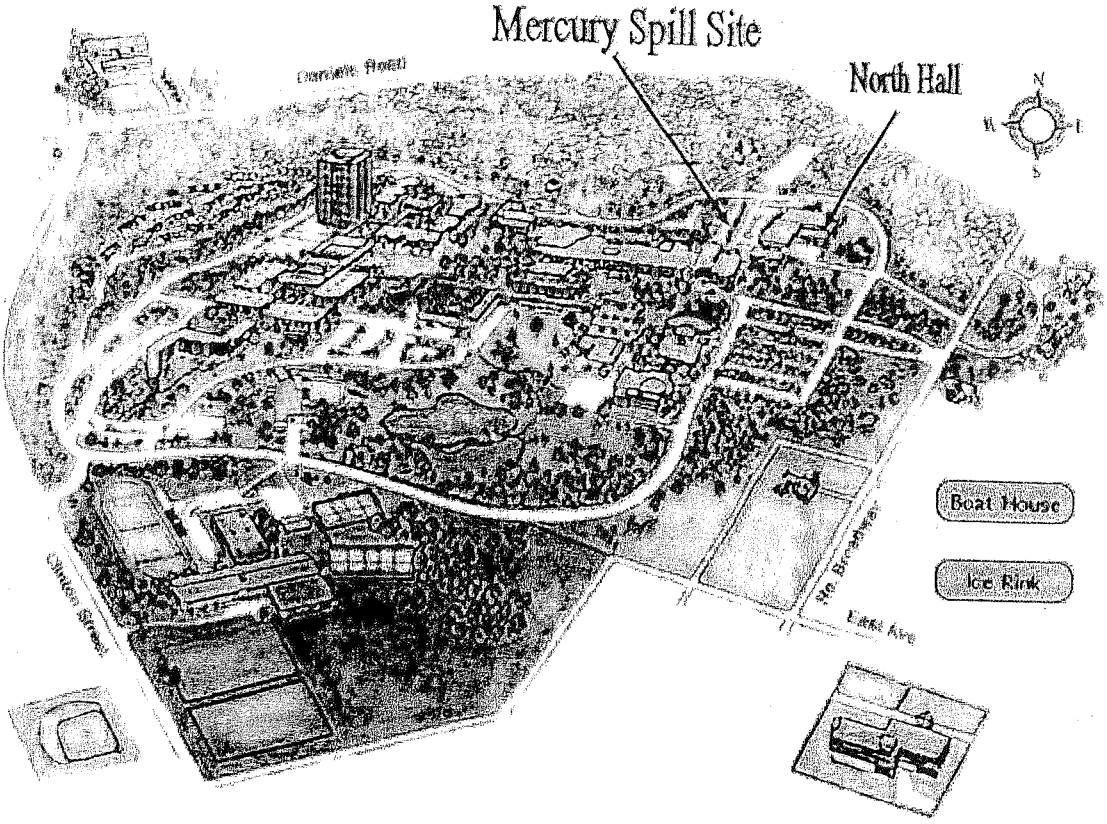


Figure 2. Map of Skidmore College Showing Mercury Spill Location

ATTACHMENT III

NIOSH AIR SAMPLING METHODS

MERCURY 6009

Hg MW: 200.59 CAS: 7439-97-6 RTECS: OV4550000

METHOD: 6009, Issue 2 **EVALUATION: PARTIAL** **Issue 1: 15 May 1989**
Issue 2: 15 August 1994

OSHA : C 0.1 mg/m^3 (skin)
NIOSH: 0.05 mg/m^3 (skin)
ACGIH: 0.025 mg/m^3 (skin)

PROPERTIES: liquid; d 13.55 g/mL @ 20 °C; BP 356 °C; HP -39 °C; VP 0.16 Pa (0.0012 mm Hg; 13.2 mg/m^3) @ 20 °C; Vapor Density (air=1) 7.0

SYNONYMS: quicksilver

SAMPLING

SAMPLER: SOLID SORBENT TUBE (Hopcalite in single section, 200 mg)

FLOW RATE: 0.15 to 0.25 L/min

VOL-MIN: 2 L @ 0.5 mg/m^3
-MAX: 100 L

SHIPMENT: routine

SAMPLE STABILITY: 30 days @ 25 °C [1]

FIELD BLANKS: 2 to 10 field blanks per set

MEDIA BLANKS: at least 3 per set

ACCURACY

RANGE STUDIED: 0.002 to 0.8 mg/m^3 [2] (10-L samples)

BIAS: not significant

OVERALL PRECISION ($\hat{S}_{rT}$): not determined

ACCURACY: not determined

MEASUREMENT

TECHNIQUE: ATOMIC ABSORPTION, COLD VAPOR

ANALYTE: elemental mercury

DESORPTION: conc. HNO_3/HCl @ 25 °C, dilute to 50 mL

WAVELENGTH: 253.7 nm

CALIBRATION: standard solutions of Hg^{2+} in 1% HNO_3

RANGE: 0.1 to 1.2 µg per sample

ESTIMATED LOD: 0.03 µg per sample

PRECISION ($\bar{S}_r$): 0.042 @ 0.9 to 3 µg per sample [4]

APPLICABILITY: The working range us 0.01 to 0.5 mg/m^3 for a 10-L air sample. The sorbent material irreversibly collects elemental mercury. A prefilter can be used to exclude particulate mercury species from the sample. The prefilter can be analyzed by similar methodology. The method has been used in numerous field surveys [3].

INTERFERENCES: Inorganic and organic mercury compounds may cause a positive interference. Oxidizing gases, including chlorine, do not interfere.

OTHER METHODS: This replaces method 6000 and its predecessors, which required a specialized desorption apparatus [4,5,6]. This method is based on the method of Rathje and Marcero [7] and is similar to the OSHA method ID 145H [2].

REAGENTS:

1. Water, organics-free, deionized.
2. Hydrochloric acid (HCl), conc.
3. Nitric acid (HNO_3), conc.
4. Mercuric oxide, reagent grade, dry.
5. Calibration stock solution, Hg^{2+}, 1000 µg/mL. Commercially available or dissolve 1.0798 g of dry mercuric oxide (HgO) in 50 mL of 1:1 hydrochloric acid, then dilute to 1 L with deionized water.
6. Intermediate mercury standard, 1 µg/mL. Place 0.1 mL 1000 µg/mL stock into a 100 mL volumetric containing 10 mL deionized water and 1 mL hydrochloric acid. Dilute to volume with deionized water. Prepare fresh daily.
7. Stannous chloride, reagent grade, 10% in 1:1 HCl. Dissolve 20 g stannous chloride in 100 mL conc. HCl. Slowly add this solution to 100 mL deionized water and mix well. Prepare fresh daily.
8. Nitric acid, 1% (w/v). Dilute 14 mL conc. HNO_3 to 1 L with deionized water.

EQUIPMENT:

1. Sampler: glass tube, 7 cm long, 6-mm OD, 4-mm ID, flame sealed ends with plastic caps, containing one section of 200 mg Hopcalite held in place by glass wool plugs (SKC, Inc., Cat. #226-17-1A, or equivalent).
   NOTE: A 37-mm, cellulose ester membrane filter in a cassette preceding the sorbent may be used if particulate mercury is to be determined separately.
2. Personal sampling pump, 0.15 to 0.25 L/min, with flexible connecting tubing.
3. Atomic absorption spectrophotometer with cold vapor generation system (see Appendix) or cold vapor mercury analysis system.*
4. Strip chart recorder, or integrator.
5. Flasks, volumetric, 50-mL, and 100-mL.
6. Pipet, 5-mL, 20-mL, others as needed.
7. Micropipet, 10- to 1000-µL.
8. Bottles, biological oxygen demand (BOD), 300-mL.

* See SPECIAL PRECAUTIONS

SPECIAL PRECAUTIONS: Mercury is readily absorbed by inhalation and contact with the skin. Operate the mercury system in a hood, or bubble vented mercury through a mercury scrubber.

SAMPLING:

1. Calibrate each personal sampling pump with a representative sampler in line.
2. Break ends of sampler immediately prior to sampling. Attach sampler to pump with flexible tubing.
3. Sample at an accurately known rate of 0.15 to 0.25 L/min for a total sample size between 2 and 100 L.
   NOTE: Include a minimum of three unopened sampling tubes from the same lot as the samples for use as media blanks.
4. Cap sampler and pack securely for shipment.

SAMPLE PREPARATION:

5. Place the Hopcalite sorbent and the front glass wool plug from each sampler in separate 50-mL volumetric flasks.
6. Add 2.5 mL conc. HNO_3 followed by 2.5 mL conc. HCl.
   NOTE: The mercury must be in the oxidized state to avoid loss. For this reason, the nitric acid must be added first.
7. Allow the sample to stand for 1 h or until the black Hopcalite sorbent is dissolved. The solution will turn dark brown and may contain undissolved material.
8. Carefully dilute to 50 mL with deionized water. (Final solution is blue to blue-green).
9. Using a volumetric pipet, transfer 20 mL of the sample to a BOD bottle containing 80 mL of deionized water. If the amount of mercury in the sample is expected to exceed the standards, a smaller aliquot may be taken, and the volume of acid adjusted accordingly. The final volume in

the BOD bottle must be 100 mL. To prevent possible loss of mercury during transfer, place the pipet tip below the surface of the liquid in the BOD bottle.

CALIBRATION AND QUALITY CONTROL:

10. Prepare a minimum of two series (six levels each) of working standards covering the range 0.01 to 0.5 µg Hg per aliquot by adding known amounts of the intermediate standard to BOD bottles containing enough 1% nitric acid to bring the final volume to 100 mL.
11. Analyze the working standards together with the samples and blanks (steps 13 through 16). Analyze full set of standards at the beginning of the run, and a second set at the end of the run. Additional standards may be run intermediately during the analysis to confirm instrument response.
12. Prepare calibration graph (peak height vs. solution concentration, µg/sample).

MEASUREMENT:

13. Zero the spectrophotometer by removing the bubbler from the BOD bottle, allowing the baseline on the recorder to stabilize.
14. Place the bubbler in a BOD bottle containing 0.5 µg mercury in 100 mL 1% nitric acid. Adjust the spectrophotometer so that it will give a 75% to full-scale deflection of the recorder.
15. Vent the mercury vapor from the system.
16. Analyze standards, samples and blanks (including media blanks).
    a. Remove the bubbler from the BOD bottle.
    b. Rinse the bubbler with deionized water.
    c. Allow the recorder tracing to establish a stable baseline.
    d. Remove the stopper from the BOD bottle containing the next sample to be analyzed. Gently swirl the BOD bottle.
    e. Quickly add 5 mL 10% stannous chloride solution.
    f. Quickly place the bubbler into the BOD bottle.
    g. Allow the spectrophotometer to attain maximum absorbance.
    h. Vent the mercury vapor from the system.
    i. Place the bubbler into an empty BOD bottle. Continue venting the mercury until a stable baseline is obtained.
    j. Close the mercury vent.

CALCULATIONS:

17. Calculate the amount of mercury in the sample aliquot (W, µg) from the calibration graph.
18. Calculate the concentration C (mg/m ^{3}), of mercury in the air volume sampled, V (L):

$$C = \frac{W \cdot \frac{V_s}{V_a} - B}{V}.$$

Where: Vs = original sample volume (step 8; normally 50 mL)
Va = aliquot volume (step 9; normally 20 mL)
B = average amount of mercury present in the media blanks

EVALUATION OF METHOD:

Rathje and Marcero originally used Hopcalite (MSA, Inc.) as the sorbent material [7]. Later, Hopcalite was shown superior to other methods for the determination of mercury vapor [8]. Atmospheres of mercury vapor for the study were dynamically generated in the range 0.05 to 0.2 mg/m ^{3} and an adsorbent tube loading of 1 to 7 µg was used. The Hydrar material sometimes used is similar to Hopcalite. No significant difference in the laboratory analysis of mercury collected on the two sorbent materials was observed [9]. OSHA also validated a method for mercury using Hydrar [2]. An average 99% recovery, with $\bar{S}r = 0.042$, was seen for 18 samples with known amounts (0.9 to 3 µg) of mercury added (as $Hg(NO_3)_2$) [10]. No change in recovery was seen for samples stored up to 3 weeks at room temperature or up to 3 months at -15 °C; longer storage times were not investigated [10].

REFERENCES:

[1] Evaluation of Mercury Solid Sorbent Passive Dosimeter, Backup Data Report. Inorganic Section, OSHA Analytical Laboratory, Salt Lake City, Utah, 1985.
[2] Mercury in Workplace Atmospheres (Hydrar Tubes). Method ID 145H, Inorganic Section, OSHA Analytical Laboratory, Salt Lake City, UT, 1987.
[3] NIOSH/MRSB. Reports for analytical Sequence Nos. 5854, 5900, 6219, and 6311, NIOSH (Unpublished, 1987-1988).
[4] NIOSH Manual of Analytical Methods, 3rd. ed., Method 6000. (1984).
[5] NIOSH Manual of Analytical Methods. 2nd. ed., V. 4, S199, U.S. Dept. of Health. Education, and Welfare Publ. (NIOSH) 79-141 (1979).
[6] Ibid., V. 5, P&CAM 175, Publ. (NIOSH) 79-141 (1979).
[7] Rathje, A.O., Marcero, D.H. Improved hopcalite procedure for the determination of mercury in air by flameless atomic absorption, Am. Ind. Hyg. Assoc. J. 37, 311-314 (1976).
[8] McCammon, C.S., Edwards, S.L., Hull, R.D., Woodfin, W.J., A comparison of four personal sampling methods for the determination of mercury vapor, Am. Ind. Hyg. Assoc. J., 41, 528-531 (1980).
[9] Internal Methods Development Research, DataChem Laboratories, Inc., Salt Lake City, UT (1982).
[10] Eller, P.M., NIOSH, unpublished data (1987-88).

METHOD WRITTEN BY:

Keith R. Nicholson and Michael R. Steele, DataChem Laboratories, Inc., Salt Lake City, Utah, under NIOSH contract No. 200-87-2533.

APPENDIX: COLD VAPOR MERCURY ANALYSIS SYSTEM

1. The valve should direct the vented vapors to a hood or to a mercury scrubber system.
2. When the valve is opened to "Vent" the peristaltic pump should draw room air. Place a Hopcalite tube in the air intake to eliminate any mercury that may be present.
3. Adjust the peristaltic pump to a flow that will create a steady stream of bubbles in the BOD bottle, but not so great that solution droplets enter the tubing to the quartz cell.
4. If water vapor condenses in the quartz cell, heat the cell slightly above room temperature by wrapping it with a heating coil and attaching a variable transformer.
5. The bubbler consists of a glass tube with a bulb at the bottom, slightly above the bottom of the BOD bottle. The bulb contains several perforations to allow air to escape into the solution (in a stream of small bubbles). A second tube is provided to allow the exit of the vapor. The open end of the second tube is well above the surface of the liquid in the bottle. The two tubes are fixed into a stoppering device (preferably ground glass) which fits into the top of the bottle. A coarse glass frit can be used in place of the bulb on the first tube. However, it is more difficult to prevent contamination when a frit is used.
6. Replace the flexible tubing (Tygon or equivalent) used to connect the bubbler, cell, and pump periodically to prevent contamination from adsorbed mercury.

ATTACHMENT IV

TRAINING MATERIALS

Training documentation for all project staff will be provided and included in this section prior to the initiation of on-site work.

ATTACHMENT V

SUMMARY OF AVAILABLE SOIL SAMPLING DATA

Table 1

Summary of Mercury Analytical Results

Date	Grid Location	Sample Depth (ft)	Mercury Concentration (mg/kg)
5/13/05	A		5.5
5/13/05	C		24
5/13/05	H		18
5/13/05	J		251
5/13/05	O		0.275
5/20/05	A		7.84
5/20/05	C		1.14
5/20/05	H		49.8
5/20/05	J		7080
5/20/05	O		ND
5/24/05	A	3	1.02
5/24/05	A	5	7.95
5/24/05	C	3	3.24
5/24/05	C	5	2.35
5/24/05	H	3	17.4
5/24/05	H	5	1.86
5/24/05	J	3	16.1
5/24/05	J	5	1040
5/24/05	O	3	3.98
5/24/05	1	3	23.6
5/24/05	1	5	8.13
5/24/05	3	3	1.33
5/24/05	3	5	1.49
5/24/05	5	3	4.25
5/24/05	5	5	5.32
5/24/05	8	3	1.27
5/24/05	M	3	0.380

Date	Grid Location	Sample Depth (ft)	Mercury Concentration (mg/kg)
5/24/05	N	3	10.3
5/24/05	9	3	ND
5/24/05	9	5	226
5/24/05	I	3	1.07
5/24/05	K	3	ND
5/24/05	K	5	0.433
5/24/05	15	3	0.481
5/24/05	Q	3	0.286
5/24/05	N	5	0.785

ATTACHMENT VI
NYDOH COMMUNITY AIR MONITORING PLAN

Table 2
Summary of Mercury Analytical Results

Date	Boring Number	Sample Depth (ft)	Mercury Concentration (mg/kg)
6/21/06	B-1	1.5	BRL
6/20/06	B-2	0	0.0401 J
6/20/06	B-2	2	00369 J
6/20/06	B-3	0	**4.86**
6/20/06	B-3	2	**1.88**
6/21/06	B-4	0	0.0313 J
6/21/06	B-4	1.5	0.0498 J
6/20/06	B-5	0	**0.177**
6/20/06	B-5	2	0.0403 J
6/20/06	B-6	0	**116**
6/20/06	B-6	2	**0.126**
6/20/06	B-7	0	**0.443**
6/20/06	B-7	2	BRL
6/20/06	B-7	4	0.0606
6/20/06	B-8	0	0.0472
6/20/06	B-8	2	BRL
6/21/06	B-9	0.5	0.0242 J
6/21/06	B-10	0	0.0314 J
6/21/06	B-10	2	0.0326 J
6/21/06	B-11	0	**0.404**
6/21/06	B-11	2	0.0326 J
6/20/06	B-12	0	BRL
6/20/06	B-12	2	BRL
6/20/06	B-12	4	BRL
6/20/06	B-12	6	BRL
6/20/06	B-13	0	0.0538 J
6/20/06	B-13	2	BRL

Date	Boring Number	Sample Depth (ft)	Mercury Concentration (mg/kg)
6/20/06	B-13	4	BRL
6/20/06	B-13	6	BRL
6/20/06	B-14	0	0.0375 J
6/20/06	B-14	2	BRL
6/21/06	B-15	0	0.0496 J
6/21/06	B-15	2	BRL
6/21/06	B-15	4	0.0355 J
6/20/06	B-16	0	0.0675 J
6/20/06	B-16	2	BRL
6/20/06	B-16	4	BRL

Table 3

Summary of VOC, Pesticide, Herbicide, PCB and SVOC Analyses of Soil Samples[i]

Sample Location	B-1/1.5'	B-2/2'	B-3/2'	B-4/1.5'	B-5/2'	B-6/2'	B-7/4'	B-8/2'	TAGM 4046 RSCO[ii]
Volatile Organic Compounds by USEPA Method 8260 (ug/kg)									
Acetone	**269**[iii]	**330**	126	178	**272**	BRL[iv]	**289**	110	**200**
2-Butanone	9.9J[v]	14.6J	6.3J	9.0J	9.5J	221J	7.9J	BRL	**300**
Bromomethane	BRL	BRL	0.9J	1.1J	1.3J	BRL	1.0J	1.7J	**NE**[vi]
Chloroform	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**300**
Carbon Disulfide	BRL	2.3J	4.2J	6.1J	0.6J	BRL	2.1J	BRL	**2,700**
Chloromethane	BRL	BRL	BRL	0.6J	BRL	BRL	BRL	BRL	**NE**
Toulene	1.1J	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**1,500**
4-Isopropytoluene	BRL	BRL	BRL	BRL	BRL	37.4J	BRL	BRL	**NE**
Tetrahydrofuran	BRL	BRL	BRL	BRL	BRL	82.5J	BRL	BRL	**NE**
All other VOC analytes	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**
Pesticides by USEPA Method 8081A (ug/kg)									
Chlordane	34.0	**2,730**	81.0	BRL	BRL	32.3	BRL	BRL	**540**
All other pesticide analytes	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**
Chlorinated Herbicides by USEPA Method 8151A (ug/kg)									
All herbicide analytes	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**
Polychlorinated Biphenyls by USEPA Method 8082 (ug/kg)									
PCBs (all Arochlors)	32.7 J	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**1,000**
Semivolatile Organic Compounds by USEPA Method 8270C (ug/kg)									
Benzo(a)pyrene	BRL	BRL	BRL	BRL	BRL	11.8	BRL	BRL	**61**
Benzo(k)flouranthene	10.5 J	BRL	BRL	9.4 J	BRL	13.9	BRL	BRL	**1,100**
Pyrene	16.2 J	BRL	BRL	24.4 J	BRL	29.6	BRL	BRL	**50,000**
Fluoranthene	15.0 J	BRL	BRL	19.7 J	BRL	33.4	BRL	13.9	**50,000**
All other SVOC analytes	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**

Table 3
(Continued)

Sample Location	B-9/0.5'	B-10/2'	B-11/2'	B-12/6'	B-13/6'	B-14/2'	B-15/4' [vii]	B-16/4'	TAGM 4046 RSCO[4]
Volatile Organic Compounds by USEPA Method 8260 (ug/kg)									
Acetone	NA	**298**	172	BRL	103	81.9J	**354**	161	**200**
2-Butanone	NA	11.9J	BRL	BRL	4.1J	BRL	12.0J	8.8J	**300**
Bromomethane	NA	1.1J	BRL	BRL	BRL	BRL	1.0J	1.0J	**NE**
Chloroform	NA	0.9J	BRL	BRL	BRL	BRL	BRL	BRL	**300**
Carbon Disulfide	NA	0.5	BRL	2.6J	1.6J	1.2J	BRL	3.8J	**2,700**
Chloromethane	NA	0.9J	BRL	BRL	BRL	0.4J	0.5J	0.4J	**NE**
Toulene	NA	BRL	BRL	BRL	0.6J	1.1J	BRL	0.7J	**1,500**
4-Isopropytoluene	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**NE**
Tetrahydrofuran	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**NE**
All other VOC analytes	BRL	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**
Pesticides by USEPA Method 8081A (ug/kg)									
Chlordane	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**540**
All other pesticide analytes	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**
Chlorinated Herbicides by USEPA Method 8151A (ug/kg)									
All herbicide analytes	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**
Polychlorinated Biphenyls by USEPA Method 8082 (ug/kg)									
PCBs (all Arochlors)	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**1,000**
Semivolatile Organic Compounds by USEPA Method 8270C (ug/kg)									
Benzo(a)pyrene	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**61**
Benzo(k)flouranthene	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**1,100**
Pyrene	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**50,000**
Fluoranthene	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**50,000**
All other SVOC analytes	NA	BRL	BRL	BRL	BRL	BRL	BRL	BRL	**---**

Notes for Table 3:

[i] Only analytes detected in one or more samples are included in Table 2

[ii] Recommended Soil Cleanup Objectives, NYDEC Technical and Administrative Guidance Manual #4046

[iii] Concentrations in bold fonts exceed the RSCO

[iv] "BRL" indicates that this compound was not detected at the laboratories minimum detection limit.

[v] Concentration reported with a "J" designation were detected but at concentrations below the laboratory reporting limit. Therefore, these concentrations are estimated.

[vi] "NE" designates that no RSCO has been established this analyte

[vii] This sample was mislabeled in the laboratory report as "B14-4". Based on a review of field notes, it was determined that this sample was actually collected from boring B-15.

Table 4
Metals Concentrations in Groundwater
(ug/l)

Boring Number/Depth	MW-2	Duplicate	Part 703 GA Groundwater Standard
Mercury	0.06J	0.20J	0.7
Silver	ND	ND	50
Aluminum	399	23J	NE
Arsenic	4.2J	5.0J	25
Barium	45.6J	5.0J	1,000
Beryllium	0.8J	ND	NE
Calcium	123	63.5J	NE
Cadmium	ND	ND	5
Cobalt	1.6J	ND	NE
Chromium	1.8J	ND	50
Copper	1.6J	ND	200
Iron	**1,570**	41.2J	300
Potassium	2,780J	2,680J	NE
Magnesium	45.0	0.201	NE
Manganese	189	1.2J	300
Sodium	122	391	20,000
Nickel	4.2J	ND	100
Lead	0.68J	ND	25
Antimony	ND	ND	3
Selenium	ND	ND	10
Thallium	6.7J	4.9J	NE
Vanadium	2.1J	ND	NE
Zinc	86.6J	8.0J	NE

ATTACHMENT VI
NYDOH COMMUNITY AIR MONITORING PLAN

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

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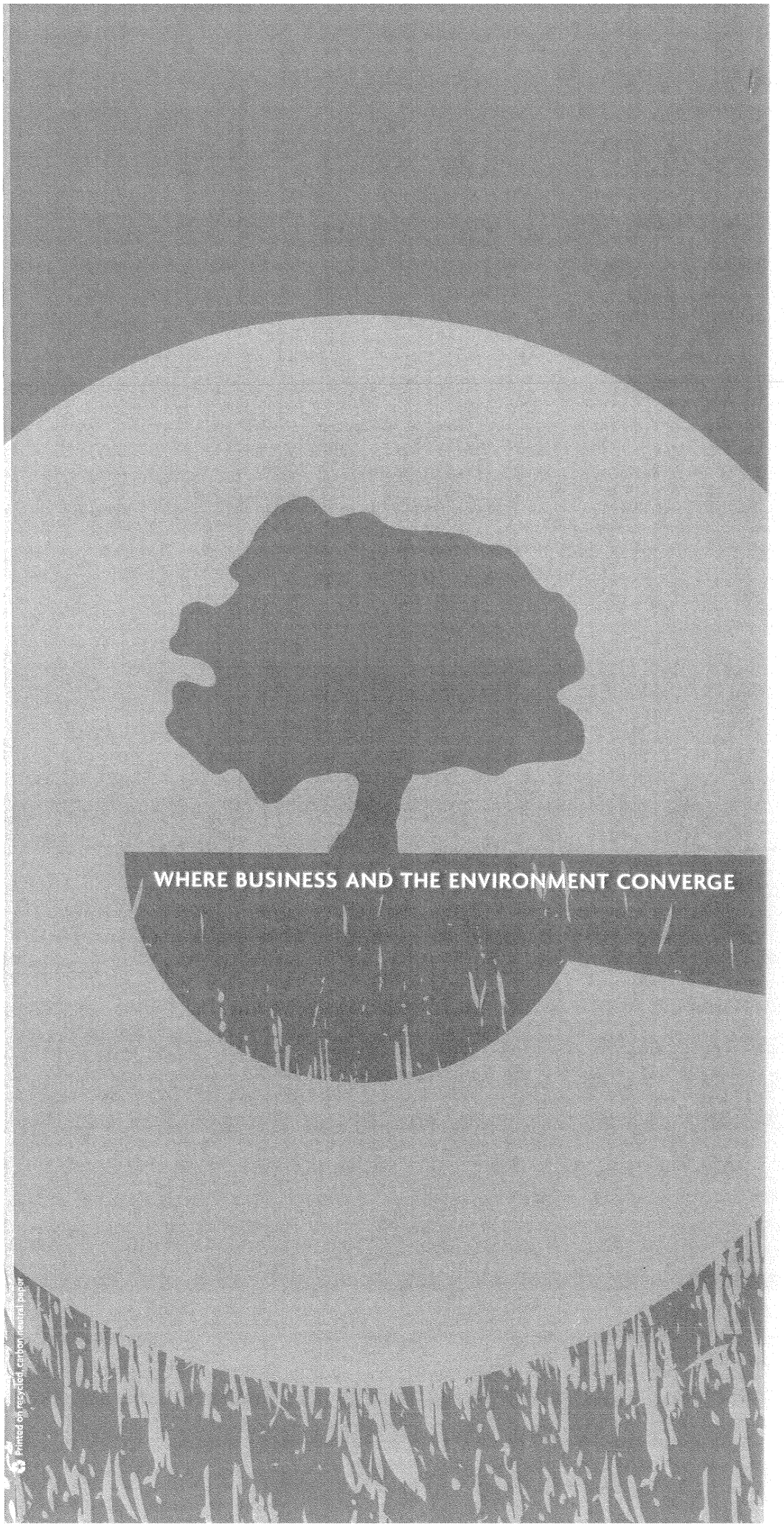
APPENDIX F

CITIZEN PARTICIPATION PLAN (CPP)



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CITIZEN PARTICIPATION PLAN
NORTH HALL, SKIDMORE COLLEGE
MERCURY SPILL SITE

SARATOGA SPRINGS, NEW YORK
SITE ID: 546051

Prepared for:
Skidmore College
815 North Broadway
Saratoga Springs, NY 12866

Project No. 01-208621
Document No. 35181
March, 2008

Prepared By:
ECS
588 Silver Street
Agawam, MA 01001
tel 413.789.3530 fax 413.789.2776
www.ecsconsult.com

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PREFACE

Mercury Impacted Soil Interim Remedial Measure Project

This Citizen Participation Plan (CPP) has been developed for the North Hall, Skidmore College mercury impacted soil Interim Remedial Measure (IRM) project being performed under New York State's Environmental Restoration Projects Program.

1.0 INTRODUCTION

Skidmore College and the New York State Department of Environmental Conservation (NYSDEC), in cooperation with the New York State Department of Health (NYSDOH), are committed to informing and involving the public during the process of developing an Interim Site Investigation (ISI) and Interim Remedial Action Work Plan (IRAWP) for the North Hall, Skidmore College mercury impacted soil remedial abatement measure project herein referred to as the site. The location of the site is a utility line corridor adjacent to the water pump station located west of the Facilities Department building known as North Hall on the Skidmore College campus located at 815 North Broadway in the City of Saratoga Springs and Town of Greenfield, Saratoga County, New York (see Site Location Map presented as Figure 1).

The mechanism used to inform the public of planned cleanup actions is a Citizen Participation Plan (CPP), which has been prepared by Environmental Compliance Services, Inc. of 588 Silver Street, Agawam, MA 01001 on behalf of Skidmore College. Definitions of some common terms used in the ISI and IRAWP process may be found in Appendix A.

The ISI is a detailed study to determine how much contamination there is, how far it extends, and potential threats to public health and the environment at the site. Using information developed during the ISI, the IRAWP presents the steps proposed to contact the actual site cleanup.

The CPP seeks to assure an open process for the interested public. This includes public officials at all levels, citizen interest groups, commercial interests, individuals in the area of the site, and the media. These parties can be a part of the decision-making process for this site, and need to be informed about on-site activities. It also identifies locations where these parties can obtain additional information about the remedial program for this site. Specific opportunities for public and community input into the decision-making process are indicated.

The CPP is a working document. It can be enhanced to accommodate major changes in either public attitude, or in the nature and scope of technical activities at the site. The activities listed below are not intended to be an all-inclusive list, but an outline of possible activities which may be conducted in coordination with the site investigation and remedial process. This CPP includes the following information:

- A description of the site history, indicating possible types of contamination, any past studies, and any previous remedial measures that may have occurred at the site;
- A description of the ISI and IRAWP activities;
- Listing of contacts representing the affected and interested public agencies associated with this project;
- Identification of a local repository for information and reports generated during the course of completing the investigation activities; and
- Description of planned citizen participation activities.

2.0 SITE LOCATION

The Skidmore College campus includes 650 acres with approximately 50 buildings. The college's mailing address is 815 North Broadway, Saratoga Springs, New York. The campus includes parcels in both the City of Saratoga Springs and the Town of Greenfield. The spill site is located within the campus proper, on parcel number 152.00-1-10 in the City of Saratoga Springs. The surface elevation across the campus ranges from approximately 380 feet above mean sea level along the southern property line to approximately 500 feet on a hilltop in the central portion of the campus. The site itself is at an elevation of approximately 440 feet. Figure 1 is a site location map that shows the area occupied by the Skidmore College campus. Figure 2 shows the location of the pump house and spill site. Figure 3 provides details of the spill area[1]. An asphalt parking lot for occupants of North Hall, which is the site of the campus Facilities Department, abuts the site to the east. Landscaped or forested areas abut the site to the north, west and south.

The mercury spill extended approximately 10 to 20 feet east of the southeastern corner of the water pump station. The pump house is an approximately 500 square foot (20 by 25 foot) masonry building that was constructed in 1968. There is no visible indication of discharges other than water (from condensation and occasional maintenance activities) to floor drains in the pump house. The building contains several pumps that are used to lift potable water from a municipal water tank located 800 feet north of the pump house to a distribution tower on a hilltop approximately 1,000 feet to the northwest

The *Surficial Geology of New York – Hudson-Mohawk Sheet* (University of the State of New York, 1987) reports the soil as being "bedrock stipple", indicating that the depth to bedrock is typically in the range of 1 to 3 meters, with the primary soil type being glacial till.

The *Geologic Map of New York – Hudson-Mohawk Sheet* (New York State Museum and Science Service, 1970; reprinted 1995) indicates that the bedrock beneath the site is the Canajoharie Shale of the Lorraine, Trenton and Black River Groups. This is consistent with descriptions provided by facility personnel of bedrock ledge encountered in construction excavations in the vicinity of the site. Facility personnel indicated that bedrock ledge is typically encountered in the vicinity of the site at depths of less than ten feet. The upper portion of the bedrock (to a depth of at least 60 feet) is predominantly dolomite. Bedrock was encountered in all soil borings performed during the site characterization investigation at depths ranging from less than two to approximately seven feet below grade. Observations of the soil exposed in open excavations in the vicinity of the site and of soil cores examined during the site characterization investigation indicate that the soil is primarily sandy glacial till. No groundwater was observed in the excavations or soil cores examined and no visible indications of seasonal high water tables (such as mottling) above the bedrock surface were observed.

The presence of groundwater in the bedrock aquifer was confirmed following the drilling of one bedrock well to 63 feet below ground surface. Fractured bedrock was encountered at a depth of approximately 7 feet below grade, and competent bedrock was encountered at approximately 11 feet below grade. Based on observations made during the installation of the well, artesian groundwater is present in the bedrock aquifer, although the recharge is slow and the yield appears to be limited (less than one gallon per hour). The pieziometric surface appeared to stabilize at a depth of approximately 6-7 feet below grade approximately 48 hours after the completion of well development activities.

---

1 For purposes of this report, the term "site" will be used to refer to the location where mercury was initially discovered in May 2005 (which will be referred to as the "mercury source location" or the "mercury source area") and the area within approximately 25 feet of that location.

A drainage divide bisects the campus from southwest to northeast. The portion of the campus that includes the site drains to the southeast. The nearest permanent surface water in that direction is Loughberry Lake, which is located approximately one-half mile southeast of the site at an elevation of 286 feet above mean sea level. Loughberry Lake is used as a water supply reservoir, but there appears to be no potential for impacts to it based on its distance from the site.

The Skidmore campus and the surrounding area are served by a public water supply. The pump house is used to lift potable water from a municipal water tank located 800 feet north of the pump house to a distribution tower on a hilltop approximately 1,000 feet to the northwest. Since both the municipal water tank and the distribution tower are located approximately 60 feet higher than the spill site and the water piping is pressurized, this system would not be impacted by releases at the spill site. No private water supply wells are known to be present within 1,000 feet of the spill site or in the assumed downgradient area (that is, to the southeast between the spill site and Loughberry Lake).

3.0 SITE HISTORY

The current Skidmore campus was part of a large residential estate prior to acquisition by Skidmore in 1961. The northern portion of the current campus, which includes the mercury spill location, was undeveloped except for a network of trails and carriage roads prior to that time. The pump house was built by Skidmore in 1968. A mercury containing flow meter (estimated to have contained approximately one pound of mercury) was present in the pump house until 1992. No mercury is known to have been present in the pump house since that time.

Mercury has also been used in the boiler house and in small manufactured articles at various locations throughout the campus. Based on its location, the use of mercury in the boiler house could not have resulted in the contamination discovered adjacent to the pump house in May 2005. The use of mercury containing instruments has been phased out over the last ten years, and none are currently known to be present on-site.

No elemental mercury is known to have been used on site for academic purposes. All faculty members interviewed stated that no mercury thermometers or other mercury containing instruments have been used in the laboratories for at least the last ten years.

Based on the location of the spill site (immediately outside the only door to the pump house) and the characteristics of mercury that make it unlikely to migrate (in elemental form) any significant distance laterally through the soil, the mercury was likely spilled inside the pump house. Recent discussions with College staff revealed that when mercury switches were used in the past, it was common practice to have to replace the open-top mercury cups as mercury would sometimes spill out of the switch cup. This could explain where the mercury originated from and how it got dispersed outside the pump-house door. College personnel maintaining the pump house may have inadvertently dispersed mercury spilled from the switch to outside the pump house during general housekeeping activities (i.e. floor sweeping).

The site has not been the subject of previous environmental investigations or releases of petroleum and/or hazardous materials.

4.0 INTERIM SITE INVESTIGATION

4.1 SCOPE OF THE INVESTIGATION

Elemental mercury was discovered in a utility line excavation adjacent to a water pump station on the Skidmore campus on May 2, 2005. The New York State Department of Environmental Conservation (NYDEC) Spill Hotline was notified and spill number 0501301 was assigned. NYDEC subsequently found that the site required investigation to determine whether it should be listed in the *Registry of Inactive Hazardous Waste Sites*. The site was assigned ID# 546051 as a potential registry site.

Immediate response actions were conducted from May 2 to 4, 2005. Skidmore College received a letter dated June 10, 2005 from NYDEC, advising it to halt all work until further notice. The open excavation was temporarily backfilled in July 2005 to eliminate safety hazards, and twenty two drums of excavated soil were properly disposed of. Skidmore and NYDEC subsequently entered into Consent Order #A4-0525-0805 in August 2005.

A *Record Review Report* was submitted to the NYDEC on October 11, 2005. A *Site Characterization Work Plan* was initially submitted in November 2005. Revised *Site Characterization Work Plans* were submitted in February 2006 and June 2006. NYDEC approved the *Site Characterization Work Plan* dated June 6, 2006. The site characterization investigation was initiated in June 2006 and was performed in substantial accordance with the work plan. The report was submitted to the NY DEC in March 2007.

The soil characterization investigations required the minor relocation of several borings due to the presence of underground utility lines at the originally proposed locations. Mercury was detected at concentrations above the TAGM 4046 Recommended Soil Cleanup Objective (RSCO; 0.1 mg/kg for mercury) in seven of 37 soil samples collected. The mercury concentrations exceeded 1 mg/kg in three samples (B3/0' at 4.86 mg/kg, B3/2' at 1.88 mg/kg and B6/0' at 116 mg/kg). No visible elemental mercury was observed in any sample. In general, the highest mercury concentration from each boring was encountered in the surface (0 to 6") interval. The area with mercury concentrations greater than the RSCO appears to be approximately 15 feet wide by 25 feet long, extending approximately 2 feet below ground surface. ECS estimates that up to approximately 30 cubic yards of soil may have mercury concentrations greater than 0.1 mg/kg.

The data shows no indication of significant impacts from other contaminants, except for low concentrations of chlordane in several shallow soil samples. The chlordane concentration in one sample (B2/2' at 2.73 mg/kg) exceeds the TAGM 4046 Recommended Soil Cleanup Objective of 0.54 mg/kg. The sporadic occurrence of low concentrations of chlordane most likely resulted from historical pesticide applications, rather than waste disposal activities. Regardless, all locations where chlordane was detected are within the estimated area of mercury contamination, and will be remediated in conjunction with the mercury impacted soil

No groundwater was encountered above the bedrock surface in any boring. One bedrock monitoring well (MW-2) was installed at a location assumed to be downgradient of the mercury source area. No mercury was detected in the groundwater sample from MW-2. The other proposed monitoring well locations were determined to be in or adjacent to areas slated for soil removal and as such it was decided to defer the installation of the remaining monitoring wells (and therefore, the completion of the site characterization) until after the removal of the mercury impacted soil. Therefore, the site characterization report was submitted as an interim report, and the site characterization will be completed after removing the mercury impacted soil from the source area as an interim remedial action. Copies of the ISI report can be reviewed at the repositories listed in Section 5.2 of this CPP.

An Interim Remedial Action Work Plan (IRAW Plan) was prepared and submitted to the NYSDEC for review in November 2007. The state denied the proposed remedial approach of using a vactor truck to recover impacted soil via vacuum extraction. ECS has revised the IRAW Plan accordingly, which now relies on hand excavation to achieve the necessary level of cleanup, which shall occur within a 20 foot by 25 foot area immediately southeast of the pump house, to a maximum depth of 4 feet (total volume estimate of 74 cubic yards). Shallow bedrock (encountered in previous borings between 2 and 7 feet below ground surface) and a utility corridor are present within the excavation area, such that the actual volume of soil to be removed is expected to be less than the total volume noted above (approximately 50 cubic yards).
The state also recommended the following revisions:

- To determine whether the metals detected at the site (besides mercury) represent background concentrations, soil samples should be collected in accordance with the NYSDEC DER-10 Guidance document. Soil samples should also be collected to establish background concentration levels for chlordane, which was detected at elevated concentrations at the site.

- The figures provided are too small and need to be enlarged showing the excavation and proposed post excavation sample locations.

- In addition to the bedrock monitoring well installed at the site, an additional three monitoring wells must be installed in bedrock at the site in accordance with the initial site investigation work plan.

- *Appendix F Citizen Participation Plan:* The contact for NYSDOH should be changed from Gary Litwin to Ian Ushe and should include a full address and phone number.

- The following updates to the Citizen Participation Plan are required:

    - Inclusion of additional Repositories: DEC Warrensburg Office, Skidmore Library, and Saratoga Springs City Hall.

    - Materials: Should include the Order on Consent, SCWP, IRMWP and Fact sheet. The state must be copied on letters to each of the repository contacts.

    - Public Contacts: Contact names must be updated to reflect any changes in the local political leadership with the 2007 elections.

    - Attorney Michael Lesser is the contact for the Division of Environmental Enforcement following the submittal of the Consent Order.

Key steps in the revised remedial plan are summarized below.

1. Site preparation, mobilization and staging of equipment
2. Dig Safe notification and marking of subsurface utility corridor
3. Removal of approximately 50 cubic yards of mercury impacted soil by hand excavation methods
4. Confirmatory soil sample collection and laboratory analysis
5. Backfill of excavation pit
6. Groundwater sample collection and laboratory analysis
7. Preparation of final site characterization and remedial action plan reports

Copies of the IRAW Plan can be reviewed at the repositories listed in Section 5.2 of this CPP.

4.2 PROJECT SCHEDULE

Remedial action activities are expected to begin at the site June 1, 2008. The remedial field activities will take approximately 2 weeks to complete. The remaining soil and groundwater sampling activities will take approximately 2-3 weeks to complete, based on the results of the post-soil excavation confirmatory testing. Laboratory results should be available for review about two weeks later. Final SI and RAWP reports should be made available for public review about one month following data review, with the reports being submitted to the NYSDEC and NYSDOH upon receipt and consideration of all public comments.

5.0 CITIZEN PARTICIPATION ACTIVITIES

It is the expressed intent of Skidmore College and the NYSDEC to provide information to the public in a timely, complete, and accurate manner. Towards this end, Skidmore College has compiled a list of individuals to whom the public can address specific requests for information. These contacts are both local and state public officials and are knowledgeable of the proposed investigative activities. This list of contacts is provided in Table 1, Section 5.1, below.

Document repositories have been established at the following locations:

- Saratoga Springs Public Library
- Saratoga Springs City Hall
- Greenfield Town Hall
- Skidmore College Library
- NYDEC Warrensburg Office

Repository location and hours of operation are identified in Section 5.2 below.

A Fact Sheet detailing the availability of the Order on Consent, SCWP, and IRMWP will be sent out to the residents and other interested parties on the mailing list. The mailing list is presented in the attached Appendix B. This mailing will include information about the document repositories, the name and address of Skidmore College's Representative, NYSDEC Citizen Participation Specialist, NYSDEC Project Manager and NYS Department of Health contact. Parties who express interest in being placed on or removed from the mailing list will be added or removed as requested. The Fact Sheet will also serve as an invitation for the public to provide input on the Interim RAWP via written or oral comments. Additional activities, such as a public meeting and/or Fact Sheet after the remedial actions are completed will be added as appropriate.

Once the CPP and the IRAWP have been accepted by the NYSDEC, the documents along with the Consent Order shall be posted for public review at the above listed repositories. The remedial actions shall be implemented and upon a review of the Final SI report, the NYSDEC shall review the work products and if warranted, following a comment period, a Record of Decision (ROD) will be issued by the NYSDEC stating no further action warranted at the site.

5.1 PUBLIC AGENCY CONTACTS

Skidmore College has identified individuals knowledgeable of the proposed remedial investigation activities. These individuals are identified in Table 1, below.

TABLE 1: PUBLIC AGENCY CONTACTS

City of Saratoga Springs, NY		
Chief Executive Official Mayor Scott Johnson (ext 520) *Commissioner of Accounts & City Clerk* - John Franck (ext 546) *Assistant City Clerk* Sheila Brooks (ext 546) *Commissioner of Public Works* Skip Scirocco (ext 555)	*Address* City Hall 474 Broadway Saratoga Springs, NY 12866 Public Works Dept 5 Lake Ave - City Hall Saratoga Springs, NY 12866	*Phone Number* 518-587-3550 *Phone Number* 518-587-3550
Town of Greenfield, NY		
Greenfield Town Clerk MaryAnn Johnson Environmental Commission Co-Chairs: Kenneth Blom & Jan Hill Town Board Richard Rowland, Supervisor	*Address* Town Hall 7 Wilton Road, Greenfield PO Box 10 Greenfield Center, NY 12833	*Phone Number* 518-893-7432 ext 300
NYS Department of Environmental Conservation		
DEC Project Manager Andy Frank, Env. Engineer (Technical Assistance)	*DEC Project Manager's Address* NYSDEC - Division of Environmental Remediation 232 Golf Course Rd. PO Box 220 Warrensburg, NY 12885	*Phone Number* Phone: (518) 623-1238 Fax: (518) 623-4193 ajfrank@gw.dec.state.ny.us
Regional Engineer Russell Huyck Regional Hazardous Waste Remediation Engineer	*Regional Engineer's Address* NYSDEC Region 5 Route 86 P.O. Box 296 Ray Brook, NY 12977-0296	*Phone Number* (518) 897-1200
New York State Department of Health		
NYSDOH Project Manager (PM) Ian Ushe (Technical Assistance)	*NYSDOH PM's Address* Flanigan Square, 547 River St, Troy, NY 12180-2216	*Phone Number* 1-800-458-1158
Bureau of Superfund and Brownfield Restoration		

Division of Environmental Enforcement Attorney Michael Lesser, Esq.	*NYSDEE Attorney's Address* NYSDEE 625 Broadway Albany, NY 12233-5500	*Phone Number* 518-402-9509
Saratoga Springs County Department of Health		
DOH District Director Anita Gabalski	County DOH Contact's Address 77 Mohegan Street Glen Falls, NY 12801	*Phone Number* 518-793-3893

5.2 DOCUMENT REPOSITORIES

The public is encouraged to review the documents related to the site which are available for public review at the following locations:

NYSDEC Region 5 Sub-Office
232 Golf Course Rd, PO Box 220
Warrensburg, NY 12885

Phone:(518) 623-1238
Hours: M-F, 8:30-4:45

Saratoga Springs Public Library
49 Henry Street
Saratoga Springs, NY 12866
Attn: Dan Hubbs

Phone: (518)-584-7860
Hours: M-Th: 9am-9pm
F: 9am-6pm
Sa: 9am-5pm
Su: 12-5pm

Lucy Scribner Library
Skidmore College
815 North Broadway
Saratoga Springs, NY 12866

Phone: (518) 580-5506
Hours: M-Th: 8:00am-11pm
F: 8:00am-1:00am
Sa: 9:00am-10:00pm
Su: 11:00am-1:00am

Saratoga Springs City Hall
5 Lake Ave City Hall
Saratoga Springs, NY 12866

Phone: (518)-587-3550
Hours: M-F: 9am-5pm

Greenfield Town Hall
7 Wilton Road, Greenfield
PO Box 10
Greenfield Center, NY 12833

Phone: 518-893-7432 (ext 300)
Hours: M-F: 9am-3pm Sat: 9am-noon until May 24

5.3 MAILING LIST

The attached mailing list includes owners of properties located within the immediate vicinity of the site (generally within a block or so). The mailing list of property owners is presented in Appendix B. ECS on behalf of Skidmore College will produce and distribute Fact Sheets providing residents with timely information on project status, including notifications of upcoming activities on-site (e.g., fieldwork) or off-site (e.g., public availability sessions). Included in all Fact Sheets will be the list of individuals to be contacted by the public for additional information (see Table 1, above). In addition to property owners, Fact Sheets will be mailed to the elected officials/ representatives, environmental groups, and media listed below.

ELECTED OFFICIALS/REPRESENTATIVES

US Senator Hillary Clinton, LOB Room 821, One Clinton Square, Albany NY 12207, (518-431-0120)

US Senator Charles Schumer Leo O'Brien Building (LOB) Room 420, Albany NY 12207, (518-431-4070)

20th Congressional District, Kirsten Gillibrand, 487 Broadway Street, Saratoga Springs, NY 12866 (518)581-8247: Saratoga Office

43rd Senate District, Joseph L. Bruno, Leo O'Brien Building (LOB) Room 909, Albany NY 12247, (518-455-3191) and Saratoga Office (518-583-1001)

110th Assembly District, Jim Tedisco, LOB Room 933, Albany NY 12248, 518-455-3751

ENVIRONMENTAL GROUPS

Saratoga County Environmental Management Council
George Hodgson, Director
Saratoga County EMC
50 West High Street
Balston Spa, NY 12020
518-884-4778

Saratoga Plan (Planning for Land and Nature)
112 Spring Street, Room 202
Former #4 School
Saratoga Springs, NY
Alane Chinian, Executive Director
587-5554

NYPIRG
Alex Hanson & Elizabeth Hartman, Project Coordinators
State University College
Campus Center 307
Albany, NY 12222
(518) 442-5658

Skidmore College Student Government
Patrick Oles, Dean of Student Affairs
Skidmore College (Case Center)
815 North Broadway
Saratoga Springs, NY
(518) 580-5760

Skidmore College Day Care
Early Childhood Center (Palamountain Hall)
Karen Brackett
Skidmore College
815 North Broadway, Saratoga Springs, NY
(518) 580-5472

Greenberg Child Care Center
Nancy Wheeler
Skidmore College
815 North Broadway
Saratoga Springs, NY
(518) 580-5696

5.4 MEDIA ANNOUNCEMENTS

Skidmore College and the NYSDEC will make every reasonable effort to ensure that upcoming public meetings are announced in several media, for the purpose of encouraging public participation and comment. Announcements will be initially submitted to visual and sound media for broadcast as "Public Service Announcements" at least 14 calendar days prior to the day of the public meeting.

The media locations listed below shall be used as appropriate for community announcements.

RADIO

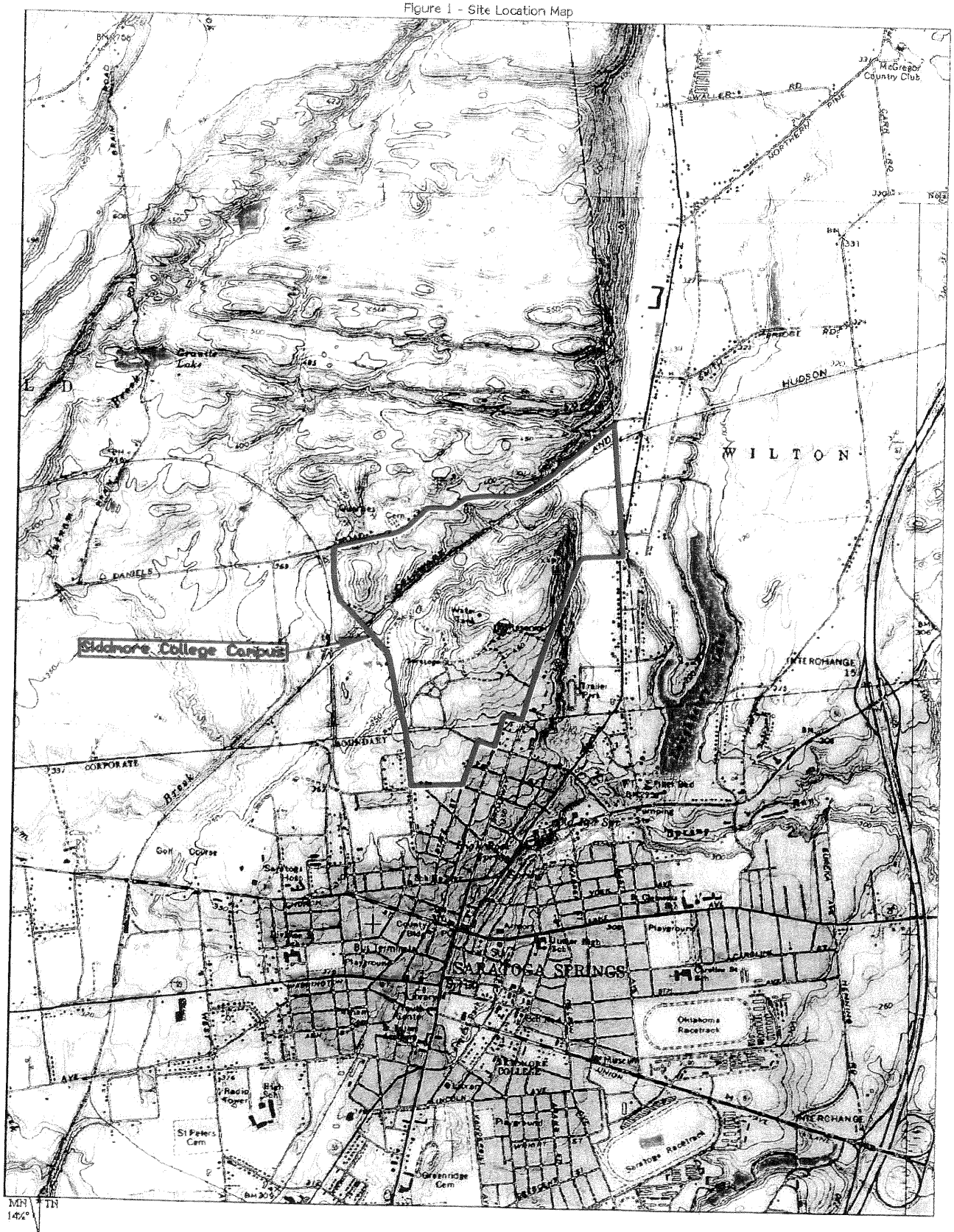
WSPN
815 N Broadway
Saratoga Springs, NY 12866
518 - 580 - 5787

NEWSPAPER

The Saratogian
Local news, sports and living.
20 Lake Ave. Saratoga Springs NY USA 12866
518-584-4242

FIGURES

Figure 1 - Site Location Map



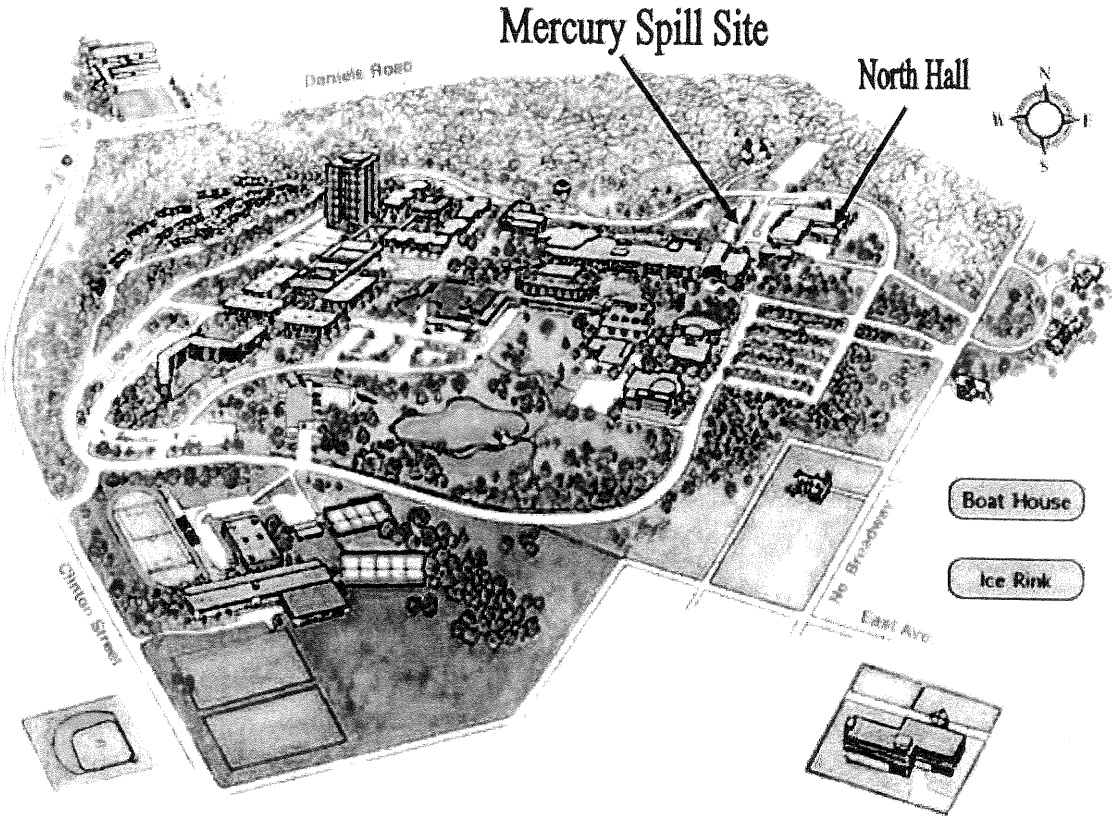


Figure 2. Map of Skidmore College Showing Mercury Spill Location

APPENDIX A

GLOSSARY AND ACRONYMS

GLOSSARY

This glossary defines terms associated with New York's citizen participation program, and important elements of the Brownfield program. Words in **bold** in the definitions are defined elsewhere in the glossary.

Administrative Record — Part of a site's **Record of Decision** which lists and defines documents used in the development of NYSDEC's decision about selection of a remedial action.

Availability Session — A scheduled gathering of program staff and members of the public in a casual setting, without a formal presentation or agenda but usually focusing on a specific aspect of a site's remedial process.

Citizen Participation — A program of planning and activities to encourage communication among people affected by or interested in Brownfield sites and the government agencies responsible for investigating and remediating them.

Citizen Participation Plan — A document which must be developed at a site's **Site Investigation** stage. A CP Plan describes the citizen participation activities that will be conducted during a site's remedial process.

Citizen Participation Specialist — A staff member from an NYSDEC central office or regional office who has specialized training and experience to assist a **project manager** and other staff to plan, conduct and evaluate a site-specific citizen participation program.

Comment Period — A time period for the public to review and comment about various documents and DER actions. For example, a 45-day comment period is provided when DER issues a **Proposed Remedial Action Plan (PRAP)**.

Contact List — Names, addresses and/or telephone numbers of individuals, groups, organizations, government officials and media affected by or interested in a particular Brownfield site. The size of a contact list and the categories included are influenced by population density, degree of interest in a site, the stage of the remedial process and other factors. It is an important tool needed to conduct outreach activities.

Division of Environmental Remediation — A major program unit within the New York State Department of Environmental Conservation created to manage the hazardous waste site remedial program, the Brownfield program, and the Voluntary Cleanup program. Staff include: engineers, geologists, chemists, attorneys, citizen participation specialists, environmental program specialists and support staff.

Document Repository

A file of documents pertaining to a site's remedial and citizen participation programs which is made available for public review. The file generally is maintained in a public building near the Brownfield site to provide access at times and a location convenient to the public.

Fact Sheet

A written discussion about part or all of a site's remedial process prepared and provided by DER to the public. A fact sheet may focus on: a particular element of the site's remedial program; opportunities for public involvement; availability of a report or other information, or announcement of a **public meeting** or **comment period**. A fact sheet may be mailed to all or part of a site's **contact list**, distributed at meetings, placed in a **document repository** and/or sent on an "as requested" basis.**Interim Remedial**
Measure (IRM)

A discrete action which can be conducted at a site relatively quickly to reduce the risk to people's health and the environment from a well-defined contamination problem. An IRM can involve removing contaminated soil and drums, providing alternative water supplies or securing a site to prevent access.

New York State Department of Health

Agency within the executive branch of New York State government which: performs health-related inspections at suspected contaminated sites; conducts health assessments to determine potential risk from environmental exposure; reviews Exposure Assessments prepared during the **Site Investigation/Remedial Alternatives Report**; conducts health-related community outreach around sites; and reviews remedial actions to assure that public health concerns are adequately addressed.

Operable Unit

A discrete part of an entire site that produces a release, threat of release, or pathway of exposure. An Operable Unit can receive specific investigation, and a particular remedy may be proposed. A **Record of Decision** is prepared for each Operable Unit.

Operation and Maintenance

A period in which remedial action may be conducted following construction at a site (for example, operation of a "pump and treat" system), or which is performed after a remedial action to assure its continued effectiveness and protection of people's health and the environment. Activities can include site inspections, well monitoring and other sampling.

Project Manager

An NYSDEC staff member within the **Division of Environmental Remediation** (usually an engineer, geologist or hydro geologist) responsible for the day-to-day administration of remedial activities at, and ultimate disposition of, an Environmental Restoration site. The Project Manager works with legal, health, **citizen participation** and other staff to accomplish site-related goals and objectives. **Proposed Remedial Action Plan (PRAP)**

An analysis by DER of each alternative considered for the remediation of an Environmental Restoration site and a rationale for selection of the alternative it recommends. The PRAP is created based on information developed during the **Site Investigation/Remedial Alternatives Report**. The PRAP is reviewed by the public and other state agencies.

Public Meeting

A scheduled gathering of **Division of Environmental Remediation** staff with the affected/interested public to give and receive information, ask questions and discuss concerns about a site's remedial program. Staff from other NYSDEC divisions, legal and health staff, and staff from consultants and a responsible party often also attend. A public meeting, unlike an **availability session**, generally features a formal presentation and a detailed agenda.

Record of Decision (ROD)

A document which provides definitive record of the cleanup alternative that will be used to remediate an Environmental Restoration site. The ROD is based on information and analyses developed during the **Site Investigation/Remedial Alternatives Report** and public comment.

Remedial Construction

The physical development, assembly and implementation of the remedial alternative selected to remediate a site. Construction follows the **Remedial Design** stage of a site's remedial program.

Remedial Design

The process following finalization of a **Record of Decision** in which plans and specifications are developed for the **Remedial Construction** of the alternative selected to remediate a site.

Site Investigation/ Remedial Alternatives Report (SI/RAR)

The SI fully defines and characterizes the type and extent of contamination at the site. The RAR, which may be conducted during or after the SI, uses information developed during the SI to develop alternative remedial actions to eliminate or reduce the threat of contamination to public health and the environment. **Responsiveness Summary**

A written summary of major oral and written comments received by DER during a **comment period** about key elements of a site's remedial program, such as a **Proposed Remedial Action Plan**, and DER's response to those comments.

APPENDIX B

MAILING LIST

Abutters to Skidmore College Campus Property

The Skidmore College Campus is located in the Town of Greenfield, NY and the City of Saratoga Springs, NY. The portion of the campus located in Greenfield is bordered to the west by Clinton Street, to the north by Daniels Road and to the east by Glen Mitchell Road, Pepper Lane and Brower Avenue.

The properties presented below immediately abut the campus to the northwest, north and/or northeast. This information was provided by the Town of Greenfield Tax Assessors Office. Properties located across the above listed roads from the Skidmore College Campus property are not included in this mailing list.

SBL# 153.-1-8
Saratoga Springs School (Maple Ave School)
3 Blue Streak Blvd
Saratoga Springs NY 12866

Maple Avenue Middle School
515 Maple Avenue
Saratoga Springs, NY 12866
518-587-4551

SBL# 152.-1-10.11
Darren Tracey
235 Daniels Rd.
Saratoga Springs NY 12866
518-587-9374

SBL# 152.-18
Michelle Meisburger
165 Daniels Rd
Saratoga Springs NY 12866
518-583-7884

SBL# 153.13-1-1
Raymond Faiola
15 Brower Ave (Lane)
Saratoga Springs NY 12866
518-584-6614

SBL# 152.-2-16
Delaware & Hudson RR Right of Way

The southern portion of the Skidmore College Campus is located in the City of Saratoga Springs, NY. The southern portion of the campus property is bordered by several streets including, Clement Avenue, State Street, Third Street, Woodlawn Avenue, Fourth Street, and North Broadway.

The properties listed below immediately abut the campus to the south. This information was obtained from Tax Maps provided by the City of Saratoga Springs Tax Assessors Office and Tax Assessor Office records. Properties located in Saratoga Springs across the above listed roads from the Skidmore College Campus property are not included in this mailing list.

SBL# 152.-1-1
Administrative Offices
Enlarged City Schools
Saratoga Springs School District
3 Blue Streak Blvd.
Saratoga Springs, NY 12866
518-583-4700

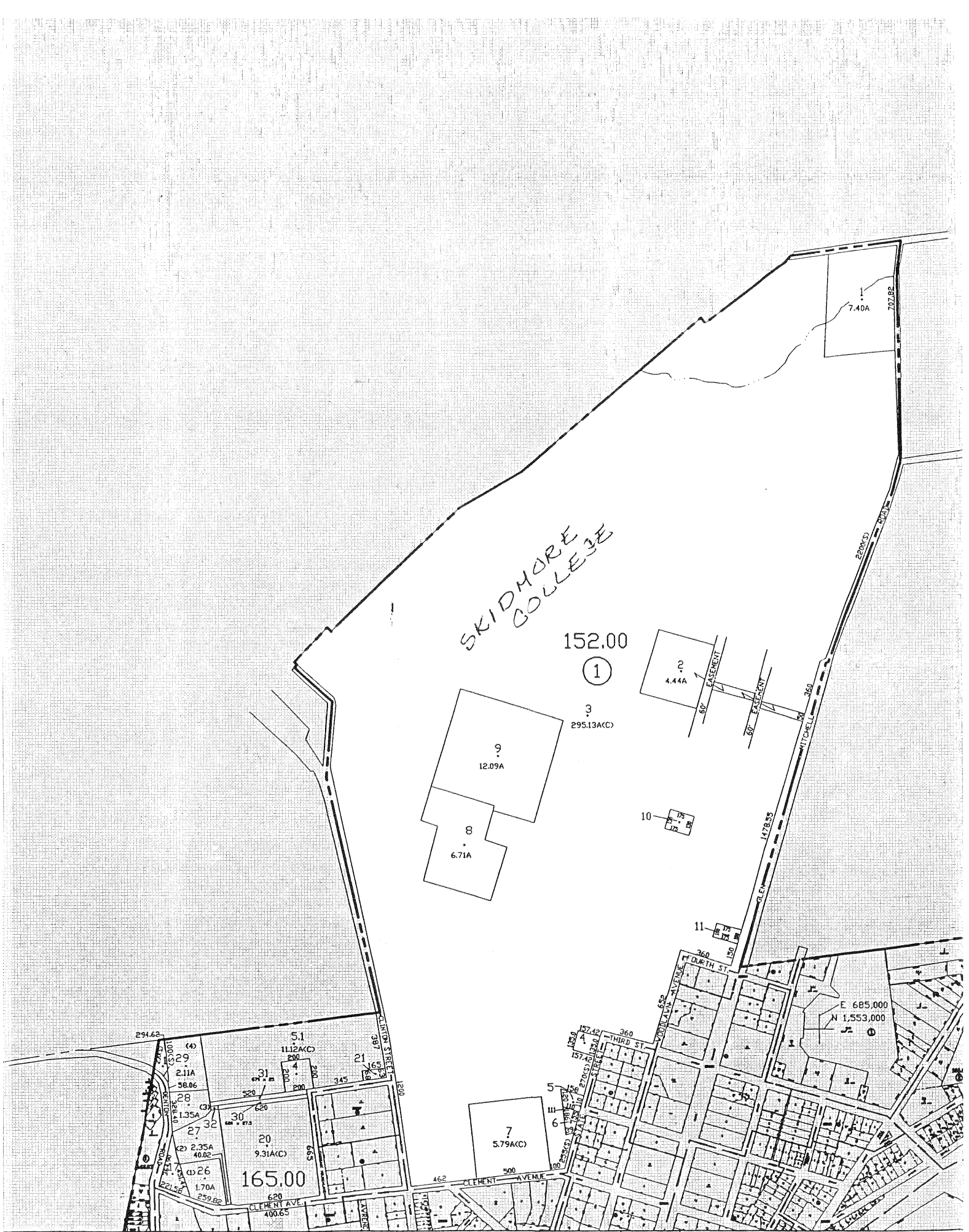
SBL# 152.-1.4
145 State Street
Skidmore College
Saratoga Springs, NY 12866

SBL# 152.-1.5
139 State Street
Benjamin and Marcie Serotta
Saratoga Springs, NY 12866
518-581-9711

SBL# 152.-1.6
137 State Street
Matthew and Joan Smith
Saratoga Springs, NY 12866
518-584-3629

SBL# 152.-1.7
Clement Avenue
Athletic Field
City of Saratoga Springs
Saratoga Springs, NY 12866
City offices: 518-587-3550

SBL# 152.-1.11
Glen Mitchell Road
Vacant Commercial property
Skidmore College
Saratoga Springs, NY 12866



LEGEND

LINE		COUNTY LINE		SPECIAL DISTRICT LINE —CODE CODE—SYMBOL—	GREAT LOT Nº ⑨
LOT LINE		TOWN LINE		COMMON OWNER	CALCULATED ACREAGE 7.5A (C)
		CITY OR VILLAGE LINE			DEED ACREAGE

153.00

TAX MAP

CITY OF SARATOGA SPRI

SARATOGA COUNTY, NEW YORK

LEGEND

TY LINE		SPECIAL DISTRICT LINE	CODE SYMBOL	GREAT LOT Nº	9
LINE		COMMON OWNER		CALCULATED ACREAGE	7.5A (C)
OR VILLAGE LINE		TAX MAP BLOCK Nº	3	DEED ACREAGE	17.5A
K LIMIT		TAX MAP PARCEL Nº	76.00-1-11	SCALED DIMENSION	225(S)
T LOT LINE		FILED PLAN LOT Nº	(14)	DEED DIMENSION	173.2
83 TIC LINES	+			COORDINATE LOCATOR	

SHEET INDEX

138.00	139.00	
151.00		153.00
164.00		

TAX MAP 152.00

TOWN OF GREENFIELD

SARATOGA COUNTY, NEW YORK

400 0 400
GRAPHIC SCALE 1" = 400'

TAXABLE STATUS DATE

MAP DATE MARCH 1, 2006

APPENDIX C

ORDER ON CONSENT

NEW YORK STATE DEPARTMENT OF
ENVIRONMENTAL CONSERVATION

In the Matter of the Development and Implementation of a Remedial Program for an Inactive Hazardous Waste Disposal Site under Article 27, Title 13 of the Environmental Conservation Law by: Skidmore College, Respondent.	**ORDER** **ON CONSENT** Index # A4-0525-0805

WHEREAS,

1. A. The New York State Department of Environmental Conservation ("Department") is responsible for inactive hazardous waste disposal site remedial programs pursuant to Article 27, Title 13 of the Environmental Conservation Law ("ECL") and may issue orders consistent with the authority granted to the Commissioner by such statute.

B. The Department is responsible for carrying out the policy of the State of New York to conserve, improve and protect its natural resources and environment and control water, land, and air pollution consistent with the authority granted to the Department and the Commissioner by Article 1, Title 3 of the ECL.

C. This Order is issued pursuant to the Department's authority under, *inter alia,* ECL Article 27, Title 13 and ECL 3-0301.

2. Skidmore College ("Respondent") operates a college in Saratoga Springs, New York with a business address of 815 North Broadway, Saratoga Springs, NY 12866.

3. Elemental mercury was observed pooling during trenching activities at the campus. The area is an approximately 0.1 acre portion of the college campus off the southeast corner of the pump house and adjacent to a parking lot for the Facilities Services Building (hereinafter the "Site"). A map showing the location of the Site is attached as Exhibit "A" In addition, a limited number of samples indicate the possibility that other wastes such as silver and cadmium may be in the area.

4. The Site is not currently listed in the *Registry of Inactive Hazardous Waste Disposal Sites in New York State* but has been designated as a potential *Registry* site.

5. Respondent consents to the issuance of this Order without (i) an admission or finding of liability, fault, wrongdoing, or violation of any law, regulation, permit, order, requirement, or standard of care of any kind whatsoever; (ii) an acknowledgment that there has been a release or threatened release of hazardous waste at or from the Site; or (iii) an acknowledgment that a release or threatened release of hazardous waste at or from the Site constitutes a significant threat to the public health or environment.

6. Solely with regard to the matters set forth below, Respondent hereby waives any right to a hearing as may provided by law, consents to the issuance and entry of this Order, and agrees to be bound by its terms. Respondent consents to and agrees not to contest the authority or jurisdiction of the Department to issue or enforce this Order, and agrees not to contest the validity of this Order or its terms or the validity of data submitted to the Department by Respondent pursuant to this Order.

NOW, having considered this matter and being duly advised, **IT IS ORDERED THAT**:

I. Initial Submittal

Within thirty (30) Days after the effective date of this Order, Respondent shall submit to the Department a Records Search Report in accordance with the requirements of Exhibit "F" attached hereto. The Records Search Report can be limited if the Department notifies Respondent that prior submissions satisfy specific items required for the Records Search Report. Such Records Search Report shall be submitted in a format acceptable to the Department.

II. Development, Performance, and Reporting of Work Plans

A. Work Plans

All activities at the Site that comprise any element of an Inactive Hazardous Waste Disposal Site Remedial Program shall be conducted pursuant to one or more Department-approved work plans ("Work Plan" or "Work Plans") and this Order. The Work Plan(s) under this Order shall address both on-Site and off-Site conditions and shall be developed and implemented in accordance with 6 NYCRR Part 375, "DER-10, Technical Guidance for Site Investigation and Remediation," and/or Exhibits G, H, I, J, and K . All Department-approved Work Plans shall be incorporated into and become enforceable parts of this Order and shall be attached as Exhibit "B." Upon approval of a Work Plan by the Department, Respondent shall implement such Work Plan in accordance with the schedule contained in such Work Plan. Nothing in this Subparagraph shall mandate that any particular Work Plan be submitted.

Each Work Plan submitted shall use one of the following captions on the cover page:

1. "Site Characterization Work Plan" ("SC Work Plan"): a Work Plan whose objective is to identify the presence of any hazardous waste disposed of at the Site. Such Work Plan shall be developed in accordance with Exhibit "G";

2. "Remedial Investigation/Feasibility Study Work Plan" ("RI/FS Work Plan"): a Work Plan whose objective is to perform a Remedial Investigation and a Feasibility Study. Such Work Plan shall be developed and implemented in accordance with Exhibit "H";

3. "IRM Work Plan": a Work Plan whose objective is to provide for an Interim Remedial Measure. Such Work Plan shall be developed in accordance with Exhibit "I";

4. "Remedial Design/Remedial Action Work Plan" ("RD/RA Work Plan"): a Work Plan whose objective is to provide for the development and implementation of final plans and specifications for implementing the remedial alternative set forth in the ROD. Such Work Plan shall be developed in accordance with Exhibit "J"; or

5. "OM&M Work Plan": a Work Plan whose objective is to provide for all activities required to maintain and monitor the effectiveness of the Remedial Action or an IRM. Such Work Plan shall be developed in accordance with Exhibit "K."

B. Submission/Implementation of Work Plans

1. (a) The Site Characterization Work Plan shall be submitted to the Department within sixty (60) Days after the effective date of this Order.

(b) The Department may request that Respondent submit additional or supplemental Work Plans for the Site. Within thirty (30) Days after the Department's written request, Respondent shall advise the Department in writing whether it will submit and implement the requested additional or supplemental Work Plan or whether it elects to terminate this Order pursuant to Paragraph XIII. If Respondent elects to submit and implement such Work Plan, Respondent shall submit the requested Work Plan within sixty (60) Days after such election. If Respondent elects to terminate this Order or fails to make a timely election, this Order shall terminate pursuant to Paragraph XIII.

(c) Respondent may, at Respondent's option, propose one or more additional or supplemental Work Plans (including one or more IRM Work Plans) at any time, which the Department shall review for appropriateness and technical sufficiency.

(d) Any request made by the Department under Subparagraph II.B.1.(b) shall be subject to dispute resolution pursuant to Paragraph XII.

2. A Professional Engineer must stamp and sign all Work Plans other than a Work Plan for an RI/FS or an SC.

3. During all field activities, Respondent shall have on-Site a representative who is qualified to supervise the activities undertaken. Such representative may be an employee or a consultant retained by Respondent to perform such supervision.

C. Modifications to Work Plans

The Department shall notify Respondent in writing if the Department determines that any element of a Department-approved Work Plan needs to be modified in order to achieve the objectives of the Work Plan as set forth in Subparagraph II.A or to ensure that the Remedial Program otherwise protects human health and the environment. Upon receipt of such notification, Respondent shall, subject to Respondent's right to invoke dispute resolution pursuant to Paragraph XII or to terminate pursuant to Paragraph XIII, submit a Work Plan for such requested work to the Department within sixty (60) Days after the date of the Department's written notice pursuant to this Subparagraph.

D. Submission of Final Reports and Annual Reports

1. In accordance with the schedule contained in a Work Plan, Respondent shall submit a final report that includes the caption of that Work Plan on the cover page and a certification that all requirements of the Work Plan have been complied with and all activities have been performed in full accordance with such Work Plan. Such certification shall be by the person with primary responsibility for the day to day performance of the activities under this Order and, except for RI and SC final reports, shall be by a Professional Engineer.

2. Any final report that includes construction activities shall include "as built" drawings showing any changes made to the remedial design or the IRM.

3. In the event that any ROD or Work Plan for the Site requires operation, maintenance, and monitoring (OM&M), including reliance upon institutional or engineering controls, Respondent shall submit an annual report by the 1st Day of the month following the anniversary of the start of the OM&M. Such annual report shall be signed by a Professional Engineer or by such other expert as the Department may find acceptable and shall contain a certification under penalty of perjury that any institutional and/or engineering controls required by this Order are unchanged from the previous certification and that nothing has occurred that would impair the effectiveness of such control or constitute a violation of or failure to comply with the approved OM& M Plan. Respondent may petition the Department for a determination that the institutional and/or engineering controls may be terminated. Such petition must be supported by a statement by a Professional Engineer that such controls are no longer necessary for the protection of public health and the environment. The Department shall not unreasonably withhold its approval of such petition.

E. Review of Submittals other than Progress Reports and Health and Safety Plans

1. The Department shall make a good faith effort to review and respond in writing to each submittal Respondent makes pursuant to this Order within sixty (60) Days. The Department's response shall include an approval or disapproval of the submittal, in whole or in part. All Department-approved submittals shall be incorporated into and become an enforceable part of this Order.

2. If the Department disapproves a submittal, it shall specify the reasons for its disapproval. Within thirty (30) Days after the date of the Department's written notice that Respondent's submittal has been disapproved, Respondent shall elect, in writing, to either (i) modify the submittal to address the Department's comments, (ii) invoke dispute resolution pursuant to Paragraph XII, or (iii) in the event the rejected submittal is a Work Plan submitted prior to the Department's approval of the RD/RA Work Plan, terminate this Order pursuant to Paragraph XIII. If Respondent elects to modify the submittal, Respondent shall, within sixty (60) Days after such election, make a revised submittal that addresses all of the Department's stated reasons for disapproving the first submittal. In the event that Respondent's revised submittal is disapproved, the Department shall set forth its reasons for such disapproval in writing and Respondent shall be in violation of this Order unless it invokes dispute resolution pursuant to Paragraph XII and its position prevails. Failure to make an election or failure to comply with the election is a violation of this Order.

3. Within thirty (30) Days after the Department's approval of a final report, Respondent shall submit such final report, as well as all data gathered and drawings and submittals made pursuant to such Work Plan, in an electronic format acceptable to the Department. If any document cannot be converted into electronic format, Respondent shall submit such document in an alternative format acceptable to the Department.

F. Department's Issuance of a ROD

Respondent shall cooperate with the Department and provide reasonable assistance, consistent with the Citizen Participation Plan, in soliciting public comment on the proposed remedial action plan ("PRAP"), if any. After the close of the public comment period, the Department shall select a final remedial alternative for the Site in a ROD which shall be attached to this Order as Exhibit "L." Nothing in this Order shall be construed to abridge the rights of Respondent, as provided by law, to judicially challenge the Department's ROD.

G. Release and Covenant Not to Sue

Upon (i) the Department's approval of either the RD/RA Work Plan final report or an IRM Work Plan final report evidencing that no further remedial action (other than OM&M activities) is required to meet the goals of the Remedial Program, and (ii) the Department's acceptance of any environmental easement required pursuant to Paragraph X, then, except for the provisions of

Paragraphs VI and VIII, and except for the future OM&M of the Site and any Natural Resource Damage claims, such acceptance shall constitute a release and covenant not to sue for each and every claim, demand, remedy, or action whatsoever against Respondent, its directors, officers, employees, agents, servants, successors, and assigns (except successors and assigns who were responsible under law for the development and implementation of a Remedial Program at the Site prior to the effective date of this Order), and their respective secured creditors, which the Department has or may have pursuant to Article 27, Title 13 of the ECL or pursuant to any other provision of State or Federal statutory or common law involving or relating to investigative or remedial activities relative to or arising from the disposal of hazardous wastes (or other contaminants remediated by Respondent to the Department's satisfaction pursuant to the ROD or Work Plans) at the Site; provided, however, that the Department specifically reserves all of its rights concerning, and any such release and covenant not to sue shall not extend to any further investigation or remediation the Department deems necessary due to newly discovered environmental conditions on-Site or off-Site which are related to the disposal of hazardous wastes at the Site and which indicate that the Remedial Program is not protective of public health and/or the environment. The Department shall notify Respondent in writing of such environmental conditions or information and its basis for determining that the Remedial Program is not protective of public health and/or the environment.

This release and covenant not to sue shall be null and void, *ab initio*, in the event of fraud relating to the execution or implementation of this Order or in the event of Respondent's failure to materially comply with any provision of this Order subsequent to issuance of a release and covenant not to sue. The Department's determination that Respondent has committed fraud or has materially failed to comply with this Order shall be subject to dispute resolution pursuant to Paragraph XII.

Nothing herein shall be construed as barring, diminishing, adjudicating, or in any way affecting any legal or equitable rights or claims, actions, suits, causes of action, or demands whatsoever that (i) Respondent may have against anyone other than the Department, and (ii) the Department may have against anyone other than Respondent, its directors, officers, employees, agents, and servants, and those successors and assigns of Respondent that were not responsible under law for the development and implementation of a Remedial Program at the Site prior to the effective date of this Order, and their respective secured creditors.

III. Progress Reports

Respondent shall submit written progress reports to the parties identified in Subparagraph XI.A.1 by the 10th Day of each month commencing with the month subsequent to the approval of the first Work Plan and ending with the Termination Date, unless a different frequency is set forth in a Work Plan. Such reports shall, at a minimum, include: all actions taken pursuant to this Order during the reporting period and those anticipated for the upcoming reporting period; all approved modifications to work plans and/or schedules; all results of sampling and tests and all other data received or generated by or on behalf of Respondent in connection with the Site, during the reporting period, including quality assurance/quality control information; and information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future

schedule, efforts made to mitigate such delays, and information regarding activities undertaken in support of the Citizen Participation Plan during the reporting period and those anticipated for the upcoming reporting period.

IV. Penalties

A. 1. Respondent's failure to comply with any term of this Order constitutes a violation of this Order, the ECL, and 6 NYCRR Part 375. Nothing herein abridges Respondent's right to contest any allegation that it has failed to comply with this Order.

2. Payment of any penalties shall not in any way alter Respondent's obligations under this Order.

B. 1. Respondent shall not suffer any penalty or be subject to any proceeding or action in the event it cannot comply with any requirement of this Order as a result of any event arising from causes beyond the reasonable control of Respondent, of any entity controlled by Respondent, and of Respondent's contractors, that delays or prevents the performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation ("Force Majeure Event"). The requirement that Respondent exercise best efforts to fulfill the obligation includes using best efforts to anticipate the potential Force Majeure Event, best efforts to address any such event as it is occurring, and best efforts following the Force Majeure Event to minimize delay to the greatest extent possible. "Force Majeure" does not include Respondent's economic inability to comply with any obligation, the failure of Respondent to make complete and timely application for any required approval or permit, and non-attainment of the goals, standards, and requirements of this Order.

2. Respondent shall notify the Department in writing within seven (7) Days after it obtains knowledge of any Force Majeure Event. Respondent shall include in such notice the measures taken and to be taken to prevent or minimize any delays and shall request an appropriate extension or modification of this Order. Failure to give such notice within such seven (7) Day period constitutes a waiver of any claim that a delay is not subject to penalties. Respondent shall be deemed to know of any circumstance which it, any entity controlled by it, or its contractors knew or should have known.

3. Respondent shall have the burden of proving by a preponderance of the evidence that (i) the delay or anticipated delay has been or will be caused by a Force Majeure Event; (ii) the duration of the delay or the extension sought warranted under the circumstances; (iii) best efforts were exercised to avoid and mitigate the effects of the delay; and (iv) Respondent complied with the requirements of Subparagraph IV.B.2 regarding timely notification.

4. If the Department agrees that the delay or anticipated delay is attributable to a Force Majeure Event, the time for performance of the obligations that are affected by the Force

Majeure Event shall be extended for such time as is reasonably necessary to complete those obligations.

5. If the Department rejects Respondent 's assertion that an event provides a defense to non-compliance with this Order pursuant to Subparagraph IV.B, Respondent shall be in violation of this Order unless it invokes dispute resolution pursuant to Paragraph XII and Respondent's position prevails.

V. Entry upon Site

A. Respondent hereby consents, upon reasonable notice under the circumstances presented, to entry upon the Site (or areas in the vicinity of the Site which may be under the control of Respondent) by any duly designated officer or employee of the Department or any State agency having jurisdiction with respect to matters addressed pursuant to this Order, and by any agent, consultant, contractor, or other person so authorized by the Commissioner, all of whom shall abide by the health and safety rules in effect for the Site, for inspecting, sampling, copying records related to the contamination at the Site, testing, and any other activities necessary to ensure Respondent's compliance with this Order. Upon request, Respondent shall (i) provide the Department with suitable office space at the Site, including access to a telephone, to the extent available, and (ii) permit the Department full access to all non-privileged records relating to matters addressed by this Order. Raw data is not considered privileged and that portion of any privileged document containing raw data must be provided to the Department. In the event Respondent is unable to obtain any authorization from third-party property owners necessary to perform its obligations under this Order, the Department may, consistent with its legal authority, assist in obtaining such authorizations.

B. The Department shall have the right to take its own samples and scientific measurements and the Department and Respondent shall each have the right to obtain split samples, duplicate samples, or both, of all substances and materials sampled. The Department shall make the results of any such sampling and scientific measurements available to Respondent.

VI. Payment of State Costs

A. Within forty-five (45) Days after the effective date of this Order, Respondent shall pay to the Department the sum of $ Intentionally Left Blank which shall represent reimbursement for State Costs as set forth on the cost summary attached as Exhibit "C." Respondent acknowledges that all past State Costs are not itemized on the cost summary and that additional charges may be billed at a later date for State Costs incurred prior to the effective date of this Order.

B. Within forty-five (45) Days after receipt of an itemized invoice from the Department, Respondent shall pay to the Department a sum of money which shall represent reimbursement for State Costs, other than those identified in Subparagraph VI.A, for work performed at or in connection with the Site through and including the Termination Date.

C. Personal service costs shall be documented by reports of Direct Personal Service, which shall identify the employee name, title, biweekly salary, and time spent (in hours) on the project during the billing period, as identified by an assigned time and activity code. Approved agency fringe benefit and indirect cost rates shall be applied. Non-personal service costs shall be summarized by category of expense (*e.g.*, supplies, materials, travel, contractual) and shall be documented by expenditure reports. The Department shall not be required to provide any other documentation of costs, provided however, that the Department's records shall be available consistent with, and in accordance with, Article 6 of the Public Officers Law.

D. Such invoice shall be sent to Respondent at the following address:

Donald Allen, Academic Building Facilities Manager
Skidmore College
815 North Broadway
Saratoga Springs, NY 12866

E. Each such payment shall be made payable to the Department of Environmental Conservation and shall be sent to:

Bureau of Program Management
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7010.

F. Each party shall provide written notification to the other within ninety (90) Days of any change in the foregoing addresses.

G. Respondent may contest, in writing, invoiced costs under Subparagraph VI.B if it believes that (i) the cost documentation contains clerical, mathematical, or accounting errors; (ii) the costs are not related to the State's activities with respect to the Remedial Program for the Site; or (iii) the Department is not otherwise legally entitled to such costs. If Respondent objects to an invoiced cost, Respondent shall pay all costs not objected to within the time frame set forth in Subparagraph VI.B and shall, within thirty (30) Days after its receipt of an invoice, identify, in writing, all costs objected to and the basis of the objection. This objection shall be filed with the BPM Director. The BPM Director or the BPM Director's designee shall have the authority to relieve Respondent of the obligation to pay invalid costs. Within forty-five (45) Days after the date of the Department's determination of the objection, Respondent shall either pay to the Department the amount which the BPM Director or the BPM Director's designee determines Respondent is obligated to pay or commence an action or proceeding seeking appropriate judicial relief.

H. If any negotiable instrument submitted to the Department pursuant to this Order is not honored when presented for payment, Respondent shall be in violation of this Order, provided

that (i) the Department gives Respondent written notice of same, and (ii) the Department does not receive a certified check or bank check in the amount of the uncollected funds within fourteen (14) Days after the date of the Department's written notification.

VII. Reservation of Rights

A. Except as provided in Subparagraph II.G, nothing contained in this Order shall be construed as barring, diminishing, adjudicating, or in any way affecting any of the Department's rights or authorities, including, but not limited to, the right to require performance of further investigations and/or response action(s), to recover natural resource damages, and/or to exercise any summary abatement powers with respect to any person, including Respondent.

B. Except as otherwise provided in this Order, Respondent specifically reserves all rights and defenses under applicable law respecting any Departmental assertion of remedial liability and/or natural resource damages against Respondent, and further reserves all rights respecting the enforcement of this Order, including the rights to notice, to be heard, to appeal, and to any other due process. The existence of this Order or Respondent's compliance with it shall not be construed as an admission of liability, fault, wrongdoing, or breach of standard of care by Respondent, and shall not give rise to any presumption of law or finding of fact, or create any rights, or grant any cause of action, which shall inure to the benefit of any third party. Further, Respondent reserves such rights as it may have to seek and obtain contribution, indemnification, and/or any other form of recovery from its insurers and from other potentially responsible parties or their insurers for past or future response and/or cleanup costs or such other costs or damages arising from the contamination at the Site as may be provided by law.

VIII. Indemnification

Respondent shall indemnify and hold the Department, the State of New York, and their representatives and employees harmless for all third-party claims, suits, actions, damages, and costs of every name and description arising out of or resulting from the fulfillment or attempted fulfillment of this Order by Respondent and/or any of Respondent's directors, officers, employees, servants, agents, successors, and assigns except for liability arising from (i) vehicular accidents occurring during travel to or from the Site; or (ii) willful, wanton, or malicious acts or omissions, and acts or omissions constituting gross negligence or criminal behavior by the Department, the State of New York, and/or their representatives and employees during the course of any activities conducted pursuant to this Order. The Department shall provide Respondent with written notice no less than thirty (30) Days prior to commencing a lawsuit seeking indemnification pursuant to this Paragraph.

IX. Public Notice

A. Within thirty (30) Days after the effective date of this Order, Respondent shall cause to be filed a Department-approved Notice of Order, which Notice shall be substantially similar to the Notice of Order attached to this Order as Exhibit "D," with the recording officer of the county

wherein the Site is to give all parties who may acquire any interest in the Site notice of this Order. Within sixty (60) Days of such filing, Respondent shall also provide the Department with a copy of such instrument certified by the recording officer to be a true and faithful copy.

B. If Respondent proposes to convey the whole or any part of Respondent's ownership interest in the Site, or becomes aware of such conveyance, Respondent shall, not fewer than forty-five (45) Days before the date of conveyance, or within forty-five (45) Days after becoming aware of such conveyance, notify the Department in writing of the identity of the transferee and of the nature and proposed or actual date of the conveyance, and shall notify the transferee in writing, with a copy to the Department, of the applicability of this Order. However, such obligation shall not extend to a conveyance by means of a corporate reorganization or merger or the granting of any rights under any mortgage, deed, trust, assignment, judgment, lien, pledge, security agreement, lease, or any other right accruing to a person not affiliated with Respondent to secure the repayment of money or the performance of a duty or obligation.

X. Environmental Easement

A. 1. If a Department-approved Work Plan or the ROD for the Site, if any, relies upon one or more institutional and/or engineering controls, Respondent (or the owner of the Site) shall execute an environmental easement pursuant to ECL Article 71, Title 36 which shall be substantially similar to Exhibit "E." Respondent shall cause such instrument to be recorded with the recording officer of the county wherein the Site is located within thirty (30) Days of the Department's approval of such instrument. Respondent shall provide the Department with a copy of such instrument certified by the recording officer to be a true and faithful copy within sixty (60) Days after such recording.

B. If the ROD provides for "no action" other than implementation of one or more institutional controls, Respondent shall cause an environmental easement to be recorded under the provisions of Subparagraph X.A.1. If Respondent does not cause such environmental easement to be recorded, Respondent cannot obtain a release and covenant not to sue pursuant to Subparagraph. II.G.

XI. Communications

A. All written communications required by this Order shall be transmitted by United States Postal Service, by private courier service, or hand delivered as follows:

1. Communication from Respondent shall be sent to:

Russell Huyck, Regional Hazardous Waste Remediation Engineer
NYSDEC Region 5
Route 86, PO Box 296
Ray Brook, NY 12977-0296

Note: four copies (one unbound) of work plans are required to be sent.

with copies to:

Gary Litwin
Bureau of Environmental Exposure Investigation
New York State Department of Health
Flanigan Square
547 River Street
Troy, New York 12180-2216

Chittibabu Vasudevan
Remedial Bureau A
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233-7015

Larry Eckhaus, Esq.
Bureau of Superfund and Brownfield Restoration
Division of Environmental Enforcement
NYSDEC
625 Broadway
Albany, NY 12233-5500

2. Communication to be made from the Department to Respondent shall be sent to:

Michael West, VP Finance
Barrett Center
Skidmore College
815 North Broadway
Saratoga Springs, NY 12866

Donald Allen
Academic Building Facilities Manager
Skidmore College
815 North Broadway
Saratoga Springs, NY 12866

B. The Department and Respondent reserve the right to designate additional or different addressees for communication upon written notice to the other.

C. Each party shall notify the other within ninety (90) Days after any change in the addresses in this Paragraph XI or in Paragraph VI.

XII. Dispute Resolution

A. If Respondent disagrees with the Department's notice under (i) Subparagraph II.B requesting additional or supplemental Work Plans; (ii) Subparagraph II.C requesting modification of a Department-approved Work Plan; (iii) Subparagraph II.E disapproving a submittal, a proposed Work Plan, or a final report; (iv) Subparagraph II. G. finding that Respondent materially failed to comply with the Order; (v) Subparagraph IV.B rejecting Respondent's assertion of a Force Majeure Event; or (vi) Subparagraph XIV.H.2.iii requesting modification of a time frame, Respondent may, within thirty (30) Days of its receipt of such notice, make a written request for informal negotiations with the Department in an effort to resolve the dispute. A copy of such request shall be sent by Respondent to the appropriate Remedial Bureau Chief in the Department's Central Office. The Department and Respondent shall consult together in good faith and exercise best efforts to resolve any differences or disputes without resort to the procedures described in Subparagraph XII.B. The period for informal negotiations shall not exceed thirty (30) Days from the date of the Department's initial response to the Respondent's request for informal negotiations. If the parties cannot resolve a dispute by informal negotiations during this period, the Department's position shall be considered binding unless Respondent notifies the Department in writing within thirty (30) Days after the conclusion of the thirty (30) Day period for informal negotiations that it invokes the dispute resolution provisions provided under Subparagraph XII.B.

B. 1. Respondent shall file with the OH&M a request for formal dispute resolution and a written statement of the issues in dispute, the relevant facts upon which the dispute is based, factual data, analysis, or opinion supporting its position, and all supporting documentation upon which Respondent relies (hereinafter called the "Statement of Position"). A copy of such request and written statement shall be provided contemporaneously to the Director and to the parties listed under Subparagraph XI.A.1.

2. The Department shall serve its Statement of Position no later than twenty (20) Days after receipt of Respondent's Statement of Position.

3. Respondent shall have the burden of proving by substantial evidence that the Department's position does not have a rational basis and should not prevail. The OH&M can conduct meetings, in person or via telephone conferences, and request additional information from either party if such activities will facilitate a resolution of the issues.

4. The OH&M shall prepare and submit a report and recommendation to the Director. The Director shall issue a final decision in a timely manner. The final decision shall constitute a final agency action and Respondent shall have the right to seek judicial review of the decision pursuant to Article 78 of the CPLR provided that Respondent notifies the Department within thirty (30) Days after receipt of a copy of the final decision of its intent to commence an

Article 78 proceeding and commences such proceeding within sixty (60) Days after receipt of a copy of the Director's final decision. Respondent shall be in violation of this Order if it fails to comply with the final decision resolving this dispute within forty-five (45) Days after the date of such final decision, or such other time period as may be provided in the final decision, unless it seeks judicial review of such decision within the sixty (60) Day period provided. In the event that Respondent seeks judicial review, Respondent shall be in violation of this Order if it fails to comply with the final Court Order or any settlement within thirty (30) Days after the effective date of such Order or settlement, unless otherwise directed by the Court. For purposes of this Subparagraph, a Court Order or settlement shall not be final until the time to perfect an appeal of same has expired.

5. The invocation of dispute resolution shall not extend, postpone, or modify Respondent's obligations under this Order with respect to any item not in dispute unless or until the Department agrees or a Court orders otherwise. Except as otherwise provided in this Order, the invocation of the procedures set forth in this Paragraph XII shall constitute an election of remedies and such election shall constitute a waiver of any and all other administrative remedies which may otherwise be available to Respondent regarding the issue in dispute.

6. The Department shall keep an administrative record of any proceedings under this Paragraph XII that shall be available consistent with Article 6 of the Public Officers Law.

7. Nothing in this Paragraph XII shall be construed as an agreement by the parties to resolve disputes through administrative proceedings pursuant to the State Administrative Procedure Act, the ECL, or 6 NYCRR Part 622 or Part 375.

8. Nothing contained in this Order shall be construed to authorize Respondent to invoke dispute resolution with respect to the remedy selected by the Department in the ROD or any element of such remedy, nor to impair any right of Respondent to seek judicial review of the Department's selection of any remedy.

XIII. Termination of Order

A. This Order will terminate upon the earlier of the following events:

1. Respondent's election to terminate pursuant to Subparagraphs II.B.1.b, II.C or II.E.3 so long as such election is made prior to the Department's approval of the RD/RA Work Plan. In the event of termination in accordance with this Subparagraph XIII.A.1, this Order shall terminate effective the 5th Day after the Department's receipt of the written notification terminating this Order or the 5 th Day after the time for Respondent to make its election has expired, whichever is earlier, provided, however, that if there are one or more Work Plan(s) for which a final report has not been approved at the time of Respondent's notification of its election to terminate this Order pursuant to Subparagraphs II.B.1.b or II.E.3 or its failure to timely make such an election pursuant to Subparagraphs II.B.1.b or II.E.3, Respondent shall promptly complete the activities required by such previously approved Work Plan(s)consistent with the schedules contained therein. Thereafter,

this Order shall terminate effective the 5 th Day after the Department's approval of the final report for all previously approved Work Plans; or

2. the Department's written determination that Respondent has completed all phases of the Remedial Program (including OM&M), in which event the termination shall be effective on the 5 th Day after the date of the Department's approval of the final report relating to the final phase of the Remedial Program.

B. Notwithstanding the foregoing, the provisions contained in Paragraphs VI and VIII shall survive the termination of this Order and any violation of such surviving Paragraphs shall be a violation of this Order, the ECL, and 6 NYCRR Part 375, subjecting Respondent to penalties as provided under Paragraph IV so long as such obligations accrued on or prior to the Termination Date.

C. If the Order is terminated pursuant to Subparagraph XIII.A.1, neither this Order nor its termination shall affect any liability of Respondent for remediation of the Site and/or for payment of State Costs, including implementation of removal and remedial actions, interest, enforcement, and any and all other response costs as defined under CERCLA, nor shall it affect any defenses to such liability that may be asserted by Respondent. Respondent shall also ensure that it does not leave the Site in a condition, from the perspective of human health and environmental protection, worse than that which existed before any activities under this Order were commenced. Further, the Department's efforts in obtaining and overseeing compliance with this Order shall constitute "reasonable efforts" under law to obtain a voluntary commitment from Respondent for any further activities to be undertaken as part of a Remedial Program for the Site.

XIV. Miscellaneous

A. Respondent shall retain professional consultants, contractors, laboratories, quality assurance/quality control personnel, and third party data validators ("Respondent's Contractors") acceptable to the Department to perform its obligations under this Order If the Department has not previously approved Respondent's Contractors for the work required by this Order, Respondent shall submit the Contractors' qualifications to the Department a minimum of thirty (30) Days before the start of any activities for which each such Contractor will be responsible. The Department's approval of each such Contractor shall be obtained prior to the start of work by that Contractor. The responsibility for the performance of all Contractors retained by Respondent shall rest solely with Respondent. Subject to the requirements of this Subparagraph, Respondent retains the right to select or change firms or individuals in its sole discretion.

B. Respondent shall allow the Department to attend and shall notify the Department at least seven (7) Days in advance of any field activities as well as any pre-bid meetings, job progress meetings, the substantial completion meeting and inspection, and the final inspection and meeting; nothing in this Order shall be construed to require Respondent to allow the Department to attend portions of meetings where privileged matters are discussed.

C. Respondent shall use "best efforts" to obtain all Site access, permits, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations necessary to perform Respondent's obligations under this Order.

1. The Department may exempt Respondent from the requirement to obtain any state or local permit or other authorization for any activity on the Site needed to implement this Order that the Department determines is conducted in a manner which satisfies all substantive technical requirements applicable to like activity conducted pursuant to a permit.

2. If, despite Respondent's best efforts, any necessary Site access, easements, rights-of-way, rights-of-entry, approvals, institutional controls, or authorizations required to perform this Order are not obtained within forty-five (45) Days after the effective date of this Order, or within forty-five (45) Days after the date the Department notifies Respondent in writing that additional access beyond that previously secured is necessary, Respondent shall promptly notify the Department, and shall include in that notification a summary of the steps Respondent has taken to obtain access. The Department may, as it deems appropriate and within its authority, assist Respondent in obtaining access. If any interest in property is needed to implement an institutional control required by a Work Plan and such interest cannot be obtained, the Department may require Respondent to modify the Work Plan pursuant to Subparagraph II.C of this Order to reflect changes necessitated by the lack of access and/or approvals.

D. Respondent and Respondent's successors and assigns shall be bound by this Order. Any change in ownership or corporate status of Respondent shall in no way alter Respondent's responsibilities under this Order.

E. Respondent shall provide a copy of this Order to each contractor hired to perform work required by this Order and shall condition all contracts entered into pursuant to this Order upon performance in conformity with the terms of this Order. Respondent or its contractor(s) shall provide written notice of this Order to all subcontractors hired to perform any portion of the work required by this Order. Respondent shall nonetheless be responsible for ensuring that Respondent's contractors and subcontractors perform the work in satisfaction of the requirements of this Order.

F. The paragraph headings set forth in this Order are included for convenience of reference only and shall be disregarded in the construction and interpretation of any provisions of this Order.

G. 1. The terms of this Order constitute the entire agreement between the Department and Respondent concerning implementation of the activities required by this Order. No term, condition, understanding, or agreement purporting to modify or vary any term of this Order shall be binding unless made in writing and subscribed by the party to be bound. No informal advice, guidance, suggestion, or comment by the Department shall be construed as relieving Respondent of Respondent's obligation to obtain such formal approvals as may be required by this Order. In the event of a conflict between the terms of this Order and any Work Plan submitted

terms of this Order shall control over the terms of the Work Plan(s)

Except as set forth herein, if Respondent desires that any provision of than a provision of a Work Plan or a time frame, Respondent shall make o the Commissioner with copies to the parties listed in Subparagraph or the Commissioner's designee shall timely respond.

Changes to a Work Plan shall be accomplished as set forth in rder.

Changes to a time frame set forth in this Order shall be sought by a tment's project attorney and project manager, which request shall be ıg. The Department's decision relative to the request for a time frame spute resolution pursuant to Paragraph XII.

ltiple parties sign this Order, the term "Respondent" shall be read in the meaning to this Order. Further, the obligations of such Respondents ınd several and the insolvency of or failure by any Respondent to under this Order shall not affect the obligations of the remaining

spondent is a partnership, the obligations of all general partners, o act as general partners, to finance and perform obligations under this ed to the Department under this Order are joint and several. In the ıe failure of any of the general partners to implement the requirements eneral partners shall implement all such requirements.

hstanding the foregoing Subparagraphs XIV.H. 1 and 2, if multiple espondents but not all of the signing parties elect, pursuant to ent a Work Plan, then all Respondents are jointly and severally liable nder this Order through the completion of the activities in such Work sented to; thereafter, only those Respondents electing to perform and severally liable under this Order for the obligations and activities lan(s). The parties electing not to implement the additional Work ıns under this Order relative to the activities set forth in such Work ents electing to implement such additional Work Plan(s) shall be ınd covenant not to sue provided under Subparagraph II.G.

authorized under 42 U.S.C. Section 9613, New York General d any other applicable law, Respondent shall be deemed to have ıte for purposes of contribution protection provided by CERCLA ıddressed" pursuant to and in accordance with this Order. "Matters

addressed" in this Order shall mean all response actions taken by Respondent to implement this Order for the Site and all response costs incurred and to be incurred by any person or party in connection with the work performed under this Order, which costs have been paid by Respondent, including reimbursement of State Costs pursuant to this Order. Furthermore, to the extent authorized under 42 U.S.C. Section 9613(f)(3)(B), by entering into this administrative settlement of liability, if any, for some or all of the response action and/or for some or all of the costs of such action, Respondent is entitled to seek contribution from any person except those who are entitled to contribution protection under 42 U.S.C. Section 9613(f)(2).

J. Unless otherwise expressly provided herein, terms used in this Order which are defined in ECL Article 27, Title 13, ECL Article 71, Title 36, or in regulations promulgated under such statute shall have the meaning assigned to them under said statute or regulations. Whenever terms listed in the Glossary attached hereto are used in this Order or in the attached Exhibits, the definitions set forth in the Glossary shall apply. In the event of a conflict, the definition set forth in the Glossary shall control.

K. Respondent's obligations under this Order represent payment for or reimbursement of response costs, and shall not be deemed to constitute any type of fine or penalty.

L. This Order may be executed for the convenience of the parties hereto, individually or in combination, in one or more counterparts, each of which for all purposes shall be deemed to have the status of an executed original and all of which shall together constitute one and the same.

M. The effective date of this Order is the 10th Day after the date the Commissioner or the Commissioner's designee signs this Order.

DATED: Albany, New York
_____, 2005

DENISE M. SHEEHAN, ACTING COMMISSIONER, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

By: _____
Dale A. Desnoyers, Director
Division of Environmental Remediation

CONSENT BY RESPONDENT

Respondent, Skidmore College, hereby consents to the issuing and entering of this Order on Consent, waives Respondent's right to a hearing herein as provided by law, and agrees to be bound by this Order on Consent.

By:_____

Title:_____

Date:_____

STATE OF NEW YORK)
) s.s.:
COUNTY OF)

On the _____ day of _____, in the year_____, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Signature and Office of individual
taking acknowledgment

EXHIBIT "A"

Map of Site

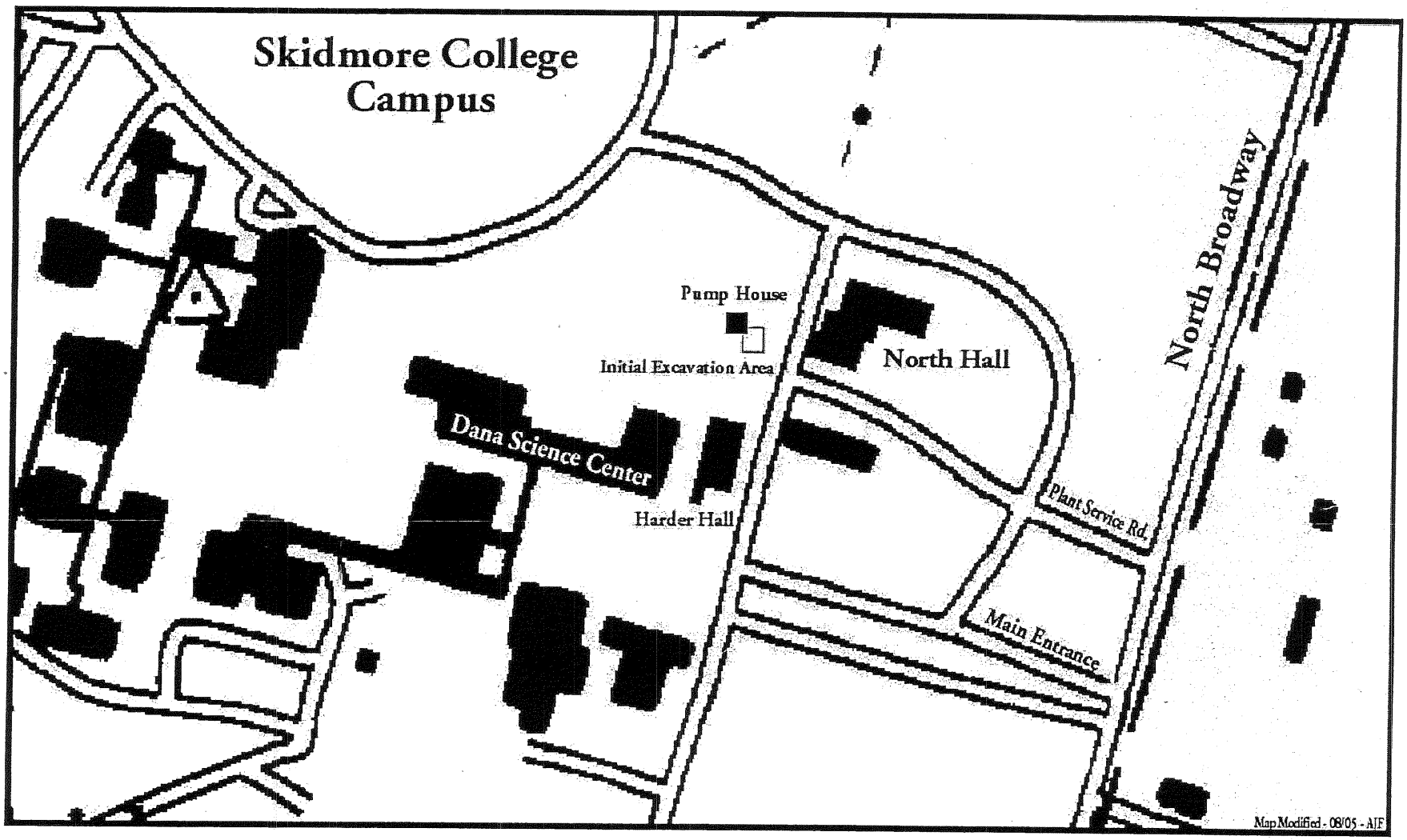

Skidmore College
Campus
Pump House
Initial Excavation Area
North Hall
North Broadway
Dana Science Center
Harder Hall
Plant Service Rd.
Main Entrance
Map Modified - 08/05 - AJF

EXHIBIT "B"

Department-Approved Work Plan(s)

EXHIBIT "C"

Cost Summary

Intentionally Left Blank

EXHIBIT "D"

NOTICE OF ORDER

_____ ("Respondent") is subject to an Order On Consent (Index # _____) (the "Order") issued by the Commissioner of the New York State Department of Environmental Conservation (the "Department"under Article 27, Title 13, and Article 71, Title 27 of the Environmental Conservation Law of the State of New York ("ECL") for a site located at _____, New York (the "Site").

The Site has been designated by the Department as an inactive hazardous waste disposal site, as that term is defined at ECL Section 27-1301.2, and has been listed in the Registry of Inactive Hazardous Waste Disposal Sites in New York State as Site # _____. The Department has classified the Site as a Class "____" site pursuant to ECL Section 27-1305.4.b. This classification means that the Department has determined that the Site **[presents a significant threat to the public health or environment]**. The Site is more particularly described in the legal description that is attached hereto as Schedule "A." **[This paragraph can be changed to set forth the status of the site]**

The purpose of the Order is to provide for the development and implementation of an inactive hazardous waste disposal site remedial program for the Site. The effective date of the Order was _____. A copy of the Order, as well as any and all Department-approved Work Plans under this Order can be reviewed at the Department's_____ offices located at _____ by contacting _____.

This Notice of Order is being filed with the _____recording officer in accordance with Paragraph IX of the Order to give all parties who may acquire any interest in the Site notice of this Order.

WHEREFORE, the undersigned has signed this Notice of Order in compliance with the terms of the Order.

_____
Respondent

By:_____

Title:_____

Date:_____

STATE OF NEW YORK

) ss.:

COUNTY OF_____

On the _____ day of _____ in the year _____ before me, the undersigned, a notary public in and for said State, personally appeared _____ _____ personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individuals) or the person upon behalf of which the individual(s) acted, executed this instrument.

_____
Notary Public

Appendix "A"

(to Exhibit "D")

Map of the Property

EXHIBIT "E"

ENVIRONMENTAL EASEMENT

ENVIRONMENTAL EASEMENT

THIS INDENTURE made this ____day of _____, 200__, between ***Owner(s)*** _____ residing at (or having an office at) _____(the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("brownfield sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of environmental easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and of ensuring the potential restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that environmental easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a brownfield site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and;

WHEREAS, Grantor, is the owner of real property located in the City/Town/Village of _____, _____County, New York known and designated on the tax map of the _____ of _____ as tax map parcel number_____, section ___block ___ lot____ , being the same as that property conveyed to Grantor by deed on _____, and recorded in the Land Records of the _____ County Clerk at page ____, liber _____ of Deeds, comprised of approximately ____ acres, and hereinafter more fully described in Schedule A attached hereto and made a part hereof (the " Controlled Property"); and;

Attach an adequate legal description of the property subject to the easement, or reference a recorded map. If the easement is on only a part of a parcel of land which is not

subdivided into encumbered and unencumbered portions, a legal description needs to be created by a survey bearing the seal and signature of a licensed land surveyor with reference to a metes and bounds description.

WHEREAS, the Commissioner does hereby acknowledge that the Department accepts this Environmental Easement in order to ensure the protection of human health and the environment and to achieve the requirements for remediation established at this Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36;and

NOW THEREFORE, in consideration of the covenants and mutual promises contained herein and the terms and conditions of **Brownfield Cleanup Agreement Number**_____ /State **Assistance Contract Number**_____ **/Order on Consent Number**_____, Grantor grants, conveys and releases to Grantee a permanent Environmental Easement pursuant to Article 71, Title 36 of the ECL in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. Purposes. Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the potential restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. Institutional and Engineering Controls. The following controls apply to the use of the Controlled Property, run with the land are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees, and any person using the Controlled Property:

A. The Controlled Property may be used for

residential
commercial
industrial
use as long as the following long-term engineering controls are employed:

B. The Controlled Property may not be used for a higher level of use such as **unrestricted/ residential / commercial** use and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an environmental easement held by the New York State Department of Environmental Conservation pursuant of Title 36 to Article 71 of the Environmental Conservation Law.

C. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

D. Grantor covenants and agrees that it shall annually, or such time as NYSDEC may allow, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury that the controls employed at the Controlled Property are unchanged from the previous certification or that any changes to the controls employed at the Controlled Property were approved by the NYSDEC, and that nothing has occurred that would impair the ability of such control to protect the public health and environment or constitute a violation or failure to comply with any Site Management Plan for such controls and giving access to such Controlled Property to evaluate continued maintenance of such controls.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Controlled Property, including:

1. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

2. The right to give, sell, assign, or otherwise transfer the underlying fee interest to the Controlled Property by operation of law, by deed, or by indenture, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This environmental easement is enforceable in law or equity in perpetuity by Grantor, Grantee or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this environmental easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person intentionally violates this environmental easement, the Grantee may revoke the Certificate of Completion provided under ECL Article 27, Title 14, or the Satisfactory Completion of Project provided under ECL Article 56, Title 5 with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach. Grantor shall then have a reasonable amount of time from receipt of such notice to cure. At the expiration of said second period, Grantee may commence any proceedings and take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement in accordance with applicable law to require compliance with the terms of this Environmental Easement.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar its enforcement rights in the event of a subsequent breach of or noncompliance with any of the terms of this Environmental easement.

6. Notice. Whenever notice to the State (other than the annual certification) or approval from the State is required, the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing its County tax map number or the Liber and Page or computerized system tracking/ identification number and address correspondence to:

Division of Environmental Enforcement
Office of General Counsel
New York State Department of Environmental Conservation
625 Broadway

Albany New York 12233-5500

Such correspondence shall be delivered by hand, or by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. Recordation. Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. Amendment. This environmental easement may be amended only by an amendment executed by the Commissioner of the New York State Department of Environmental Conservation and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. Extinguishment. This environmental easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. Joint Obligation. If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

IN WITNESS WHEREOF, Grantor has caused this instrument to be signed in its name.

Grantor's Name

By:_____

Title:_____

Date:_____

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation

By: _____
Denise M. Sheehan, Acting Commissioner

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the _____ day of _____, in the year 200_, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF)

On the _____ day of _____, in the year 200_, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

EXHIBIT "F"

RECORDS SEARCH REPORT

1. Detail all environmental data and information within Respondent's or Respondent's agents' or consultants' possession or control regarding environmental conditions at or emanating from the Site.

2. A comprehensive list of all existing relevant reports with titles, authors, and subject matter, as well as a description of the results of all previous investigations of the Site and of areas immediately surrounding the Site which are or might be affected by contamination at the Site, including all available topographic and property surveys, engineering studies, and aerial photographs.

3. A concise summary of information held by Respondent and Respondent's attorneys and consultants with respect to:

(i) a history and description of the Site, including the nature of operations;

(ii) the types, quantities, physical state, locations, methods, and dates of disposal or release of hazardous waste at or emanating from the Site;

(iii) a description of current Site security (i.e. fencing, posting, etc.); and

(iv) the names and addresses of all persons responsible for disposal of hazardous waste, including the dates of such disposal and any proof linking each such person responsible with the hazardous wastes identified.

EXHIBIT "G"

SC WORK PLAN REQUIREMENTS

The SC Work Plan shall include but not be limited to:

1. A chronological description of the anticipated SC activities together with a schedule for the performance of these activities.

2. A Sampling and Analysis Plan that shall include:

(i) A quality assurance project plan that describes the quality assurance and quality control protocols necessary to achieve the initial data quality objectives. This plan shall designate a data validation expert and must describe such individual's qualifications and experience;

(ii) A field sampling plan that defines sampling and data gathering methods in a manner consistent with the "Field Methods Compendium," OSWER Directive 9285.2-11 (draft June 1993), as supplemented by the Department; and

(iii) A health and safety plan to protect persons at and in the vicinity of the Site during the performance of the SC which shall be prepared in accordance with 29 CFR 1910 and all other applicable standards by a certified health and safety professional. Respondent shall add supplemental items to this plan necessary to ensure the health and safety of all persons at or in the vicinity of the Site during the performance of any work pursuant to this Order.

3. The Work Plan shall incorporate all elements of an SC as set forth in Department technical and administrative guidance documents including, but not limited to, investigations of surface and subsurface soils, surface waters, ground water, and air.

4. The SC must be sufficiently comprehensive to allow the Department to determine whether a consequential amount of hazardous waste has been disposed at the Site and, if so, whether the contamination presents a significant threat to public health and/or the environment.

EXHIBIT "H"

RI/FS WORK PLAN REQUIREMENTS

The Investigation Work Plan shall include but not be limited to:

1. A chronological description of the anticipated RI/FS activities together with a schedule for the performance of these activities.

2. A Sampling and Analysis Plan that shall include:

(i) A quality assurance project plan that describes the quality assurance and quality control protocols necessary to achieve the initial data quality objectives. This plan shall designate a data validation expert and must describe such individual's qualifications and experience;

(ii) A field sampling plan that defines sampling and data gathering methods in a manner consistent with the "Field Methods Compendium," OSWER Directive 9285.2-11 (draft June 1993), as supplemented by the Department;

(iii) A health and safety plan to protect persons at and in the vicinity of the Site during the performance of the RI/FS which shall be prepared in accordance with 29 CFR 1910 and all other applicable standards by a certified health and safety professional. Respondent shall add supplemental items to this plan necessary to ensure the health and safety of all persons at or in the vicinity of the Site during the performance of any work pursuant to this Order; and

(iv) A citizen participation plan that is, at a minimum, consistent with the Department's publication "Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook," dated June 1998, any subsequent revisions thereto, and 6 NYCRR Part 375.

3. The Work Plan shall incorporate all elements of an RI/FS as set forth in CERCLA, as amended, the NCP, the USEPA guidance document entitled "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA," dated October 1988, and any subsequent revisions thereto in effect at the time the RI/FS Work Plan is submitted, and appropriate USEPA and Department technical and administrative guidance documents.

4. The Work Plan shall provide for an FS evaluating on-Site and off-Site remedial actions to restore the Site to pre-disposal conditions, to the extent feasible and authorized by law. At a minimum, alternatives shall evaluate the elimination or mitigation of all significant

threats to the public health and to the environment presented by hazardous waste disposed at the Site through the proper application of scientific and engineering principals.

EXHIBIT "I"

IRM WORK PLAN REQUIREMENTS

The IRM Work Plan shall include, at a minimum, the following:

1. a summary of the data supporting the extent of the proposed IRM;

2. a chronological description of the anticipated IRM activities;

3. a schedule for performance of the IRM activities;

4. detailed documents and/or specifications prepared, signed, and sealed by a Professional Engineer providing sufficient detail to implement the Department-approved IRM, including, as appropriate, a description of soil and sediment erosion control, storm water management and monitoring, and dust, odor, and organic vapor control and monitoring procedures to be implemented during remedial activities, and a detailed description of confirmation sampling and site restoration plans;

5. a health and safety plan, including a community air monitoring plan;

6. a contingency plan, including a description of procedures for dismantling and removing remedial structures and equipment from the Site, if applicable;

7. a citizen participation plan, if required, that incorporates appropriate activities outlined in the Department's publication "Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook," dated June 1998, any subsequent revisions thereto, and 6 NYCRR Part 375;

8. an OM&M Plan, if the performance of the Department-approved IRM results in a treatment system which is expected to operate for greater than 18 months. If the system will not operate for greater than 18 months, or if only monitoring is required, only a monitoring plan will be needed; and

9. a description of institutional controls to be implemented as well as written approval from the owner of the affected property if the remedy selected requires implementation of an institutional control at an off-Site location or if the person responsible for the remedy is not the Site owner.

EXHIBIT "J"

REMEDIATION WORK PLAN REQUIREMENTS

The Remediation ("RD/RA") Work Plan shall include the following:

1. A detailed description of the remedial objectives and the means by which each element of the selected remedial alternative will be implemented to achieve those objectives, including, but not limited to:

(i) the construction and operation of any structures;

(ii) the collection, destruction, treatment, and/or disposal of hazardous wastes and substances and their constituents and degradation products, and of any soil or other materials contaminated thereby;

(iii) the collection, destruction, treatment, and/or disposal of contaminated groundwater, leachate, and air;

(iv) physical security and posting of the Site;

(v) quality control and quality assurance procedures and protocols to be applied during implementation of the Remedial Construction; and

(vi) monitoring which integrates needs which are present on-Site and off-Site during implementation of the Department-selected remedial alternative.

2. A schedule for submission of "Biddable Quality" documents for the Remedial Design including, but not limited to, documents and specifications prepared, signed, and sealed by a Professional Engineer. These plans shall satisfy all applicable local, state, and federal laws, rules, and regulations;

3. A time schedule to implement the Remedial Design;

4. The parameters, conditions, procedures, and protocols to determine the effectiveness of the Remedial Design, including a schedule for periodic sampling of all media of concern, including groundwater monitoring wells on-Site and off-Site;

5. A description of operation, maintenance, and monitoring activities to be undertaken after the Department has approved construction of the Remedial Design, including the number of years during which such activities will be performed (where appropriate) and a specific description of the criteria to be used to decide when operation of such activities may be discontinued.

6. A contingency plan to be implemented if any element of the Remedial Design fails to achieve any of its objectives or otherwise fails to protect human health or the environment;

7. A health and safety plan for the protection of persons at and in the vicinity of the Site during and after construction. This plan shall be prepared in accordance with 29 CFR 1910 by a certified health and safety professional; and

8. A citizen participation plan which incorporates appropriate activities outlined in the Department's publication "Citizen Participation in New York's Hazardous Waste Site Remediation Program: A Guidebook," dated June 1998, any subsequent revisions thereto, and 6 NYCRR Part 375.

EXHIBIT "K"

OM&M WORK PLAN REQUIREMENTS

The OM&M Work Plan shall provide for:

1. Operation and maintenance of engineering controls and/or treatment systems;

2. Maintenance of institutional controls, where applicable;

3. Yearly certification by a Professional Engineer of the continued effectiveness of any institutional and/or engineering controls, where applicable. The certification must identify the required controls and evaluate whether the controls should remain in place and effective for the protection of public health and/or the environment;

4. A monitoring plan which describes the measures for monitoring the performance and effectiveness of the remedy at the Site;

5. A contingency plan which describes procedures which may be required to protect and/or maintain the operation of the remedy in the event of an emergency, such as a fire, spill, tank or drum overflow or rupture, severe weather, or vandalism;

6. A health and safety plan and a list of records and references;

7. Monitoring and reporting of the performance and effectiveness of the remedy, both short and long-term, by:

   (i) Assessing compliance with actual or equivalent discharge permit limits;

   (ii) Assessing achievement of the remedial performance criteria; and,

   (iii) Sampling and analysis of appropriate media.

8. A determination that the remedy is complete by demonstrating that the remedial action objectives have been achieved.

EXHIBIT "L"

RECORD OF DECISION

Glossary of Terms

The following terms shall have the following meanings:

"BPM Director": the Director of the Bureau of Program Management within the Division of Environmental Remediation.

"CERCLA": the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq.

"Day": a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday or State holiday, the period shall run until the close of business of the next working day.

"Department": the New York State Department of Environmental Conservation.

"Director": the Division Director, Division of Environmental Remediation.

"ECL": the Environmental Conservation Law, Chapter 43-B of the Consolidated Laws of New York, as amended.

"Feasibility study": a study undertaken to develop and evaluate options for remedial action. The feasibility study emphasizes data analysis and is generally performed concurrently and in an interactive fashion with the remedial investigation, using data gathered during the remedial investigation. The term also refers to a report that describes the results of the study. (See 6 NYCRR Part 375)

"Force Majeure Event": an event which is brought on as a result of fire, lightning, earthquake, flood, adverse weather conditions, strike, shortages of labor and materials, war, riot, obstruction or interference by adjoining landowners, or any other fact or circumstance beyond Respondent's reasonable control.

"Inactive Hazardous Waste Disposal Site Remedial Program" or "Remedial Program": activities undertaken to eliminate, remove, abate, control, or monitor existing health hazards, existing environmental hazards, potential health hazards, and/or potential environmental hazards in connection with the Site and all activities to manage wastes and contaminated materials at or removed from the Site. (See ECL 27-1301(3) and 6 NYCRR Part 375)

"Interim Remedial Measure" or "IRM": a discrete set of activities, including removal activities, to address both emergency and non-emergency Site conditions, which can be undertaken without extensive investigation or evaluation, to prevent, mitigate, or remedy environmental damage or the consequences of environmental damage attributable to the Site. (See 6 NYCRR Part 375)

"National Contingency Plan" or "NCP": the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. 9605, and codified at 40 C.F.R. Part 300, and any amendments thereto.

"NL": the Navigation Law, Chapter 37 of the Consolidated Laws of New York, as amended.

"OH&M": the Office of Hearings and Mediation Services.

"OM&M": post-construction operation, maintenance, and monitoring; the last phase of a remedial program, which continues until the remedial action objectives for the Site are met.

"Order": this Order and all exhibits attached hereto.

"Professional Engineer": an individual registered as a professional engineer in accordance with Article 145 of the New York State Education Law. If such individual is a member of a firm, that firm must be authorized to offer professional engineering services in the State of New York in accordance with Article 145 of the New York State Education Law.

"Record of Decision" or "ROD": the document reflecting the Department's selection of a remedy relative to the Site or any Operable Unit thereof. The ROD shall be attached to and made enforceable under this Order as Exhibit "L."

"Remedial Action": those activities, except for OM&M, to be undertaken under this Order to implement the ROD.

"Remedial Investigation" or "RI": a process undertaken to determine the nature and extent of contamination. The remedial investigation emphasizes data collection and site characterization and generally is performed concurrently with the feasibility study. It includes sampling and monitoring, as necessary, and includes the gathering of sufficient information to determine the necessity for and the proposed extent of the program and to support the evaluation of proposed alternatives. (See 6 NYCRR Part 375)

"Site Characterization"or "SC": a process undertaken to allow the Department to determine whether a consequential amount of hazardous waste has been disposed at a Site and, if so, whether the contamination presents a significant threat to public health and/or the environment.

"Spill Fund": the New York State Environmental Protection and Spill Compensation Fund as established by Article 12, Part Three of the NL.

"State Costs": all the State's response expenses related to this Site, including, but not limited to, direct labor, fringe benefits, indirect costs, travel, analytical costs, and contractor costs incurred by the State of New York for negotiating, implementing, overseeing, administering, or enforcing this Order, and any other response costs as defined under CERCLA. Approved agency fringe benefit and indirect cost rates will be applied.

"Termination Date": the date that this Order is terminated pursuant to Paragraph XIII.

"USEPA": the United States Environmental Protection Agency.