

11.0 HAZARDOUS MATERIALS

11.1 Introduction

This chapter assesses hazardous materials issues related to historical site use; soil and groundwater that may be disturbed during new construction; asbestos containing materials and lead based paint that may be disturbed during renovation; use of chemicals and petroleum products in the hospital's operations; and disposal of hazardous wastes in the hospital's operations.

11.2 Site History

A site history review of Sanborn maps (1892, 1907, 1951, 1976, 1979, 1980, 1982, 1985, 1987, 1988, 1991, 1992, 1993, 1994, 1995 and 1996) (See Appendix D) showed the following:

1892 – The project site between East 70th Street and East 71st Street was occupied by numerous unidentified one-story buildings and vacant land. The project site between East 71st Street and East 72nd Street was occupied by a Garbage Dump, vacant land, and numerous unidentified one-story buildings. There was no highway separating the project site from the East River.

1907 – The project site between East 70th Street and East 71st Street was occupied by two (2) three-story residential buildings, Central Feed Co., New Amsterdam Gas Co. storage yard, wagon yard, rented stalls, and vacant land. The project site between East 71st Street and East 72nd Street was occupied by a Dirt Dump, vacant land, and numerous lumber sheds and stacks for "Geo Storm and Co. Lumber Yard." Exterior Street separated the site from the East River.

1951 – The project site between East 70th Street and East 71st Street was occupied by Federal Housing Authority Veterans Temporary Housing, Central Feed Co., and vacant land. New York Hospital occupied the remainder of the block. The project site between East 71st Street and East 72nd Street was occupied by Auto Sales and Service and New York Hospital Garage, built in 1914. The FDR Drive (also known as East River Drive or Marie Curie Avenue) separated the site from the East River. A tunnel on the south side of East 71st Street connected to the river under the FDR Drive.

1976-1979 – The project site between East 70th Street and East 71st Street was occupied by West Wing of the Hospital for Special Surgery, built in 1954, and vacant land. The Hospital for Special Surgery and New York Hospital were connected by tunnels. The project site between East 71st Street and East 72nd Street was occupied by the Caspary Research Building, built in 1958 and New York Hospital Garage. A bridge over 71st Street connected the Hospital for Special Surgery to the Caspary Research Building. A tunnel and an overpass on the south side of East 71st Street connected to the river under and over the FDR Drive.

1980-1985 – Other than the 1980 addition to the West Wing of the Hospital for Special Surgery, built in 1980, there are no additional changes from the 1979 map.

1987 – Other than showing vacant land due to the demolition of the New York Hospital Garage, there are no changes from the 1985 map.

1988-1994 – Other than the construction of the Belaire Condos on previously vacant land, there are no additional changes from the 1987 map.

1995 – Other than the construction of an East Wing addition to the Hospital for Special Surgery, built in 1995, in the air space over the FDR Drive and the replacement of the tunnel and overpass on the south side of East 71st Street under and over the FDR Drive with an overpass on the north side of East 71st Street over the FDR Drive, there have been no additional changes to the 1994 map.

1996 – There have been no changes to the project site since 1995.

The historical use of the project site indicates that there may be potential hazardous materials issues related to the Garbage Dump that existed in 1892 in the location of the proposed new River Building and the Auto Sales and Service that existed in 1951 in the location of the existing Caspary Research building.

11.3 Existing Conditions

A review of federal and state environmental databases (see Appendix D) indicates that the Hospital for Special Surgery at 535 East 70th Street is registered (PBS # 2-095702) as having an active 1,600 gallon aboveground storage tank (AST) that is permitted until May 7, 2007. A site inspection by Ethan C. Eldon Associates, Inc. on October 9, 2004 confirmed that the AST is present in the basement of the West Wing, is used for the storage of diesel fuel for the emergency generator, and is in good condition with no evidence of leaks.

The review of federal and state environmental databases indicates that the Hospital for Special Surgery at 535 East 70th Street is registered (NYD981561301) as a small quantity hazardous waste generator facility. The Hospital for Special Surgery is considered a small quantity generator according to New York State Department of Environmental Conservation regulations based on the fact that it generates less than 100 kilograms per month and stores less than 1,000 kilograms of hazardous waste at any given time. New York State manifest records indicate that the Hospital for Special Surgery has generated spent non-halogenated solvents. Also, the Hospital for Special Surgery received one violation on August 13, 1990 and achieved regulatory compliance on the same date that the violation was issued. Based on the status, the violation is of no environmental concern.

11.4 Phase I ESA

Ethan C. Eldon Associates, Inc. (ECEA) conducted a Phase I Environmental Site Assessment (ESA) in accordance with the American Society for Testing and Materials (ASTM) Standards E 1527-00 for the project site identified in the New York City tax records as Block 1482, Lot 20. This Phase I Environmental Site Assessment report discusses the East and West Wings of the Main Hospital located at 535 East 70th Street. The findings of this Phase I Environmental Site Assessment relating to the general condition of the subject property are summarized as follows:

- 1. The West Wing is a partial 8-story and partial 4-story building with a partial 9th story and basement. The original building was constructed in 1954 and an addition was constructed on it in 1980 to complete the West Wing. The East Wing is a 7-story building with a partial 8th story, constructed in 1995, on a platform within the air space over the FDR Drive. Prior uses of the site included Federal Housing Authority Veterans Temporary Housing, Central Feed Co. and vacant land (1951), residential buildings, Central Feed Co., New Amsterdam Gas Co. store yard, wagon yard, rented stalls and vacant land (1907), and unidentified one-story buildings and vacant land (1892).*
- 2. A 2,000 gallon aboveground storage tank (AST) with operating capacity of 1,600 gallons is located in the West Wing basement. The AST stores diesel fuel for the emergency generator. A 275 gallon AST, which is a day tank fueled by the AST in the West Wing basement, is located in the East Wing second floor. Hospital for Special Surgery is a registered petroleum bulk storage facility (2-095702).*
- 3. Hazardous substances are used in scientific testing procedures in the clinical laboratories in the site building. Water treatment chemicals on an automatic feed system are used in the maintenance of the chilled water system and cooling tower on the roof of the West Wing.*
- 4. Hazardous wastes are generated on site in the clinical laboratories. Hospital for Special Surgery generates most of its hazardous wastes in the Caspary Research Building and only a small amount of its hazardous wastes in the Main Hospital. Hazardous wastes from the entire Hospital for Special Surgery are recorded on the manifest provided. Hazardous wastes are stored in the West Wing first floor by the loading dock and removed under a contract with Terrace Transportation and Radiac Research Corporation, private registered hazardous waste transport and disposal companies. Hospital for Special Surgery is a registered small quantity hazardous waste generator facility (NYD981561301).*

Hospital for Special Surgery has received two RCRA hazardous waste violations. It was reported to ECEA that Hospital for Special Surgery prepared a corrective action plan in response to the RCRA violations and that USEPA Inspector, Abdool H. Jabar, informed Giovanni Abbruzzese, Safety Director at Hospital for Special Surgery, that it was accepted, the case was closed, and no fines were be issued.

Biohazardous wastes are generated on site in the examination rooms and operating rooms. Biohazardous wastes are stored in the West Wing first floor by the loading dock and removed under a contract with Stericycle, a private registered medical waste transport and disposal company.

- 5. Several hazardous materials spills occurred in the vicinity of the site with the potential to impact soil and groundwater beneath the site. Spill no. 8800521 was reported (at East 71st Street and the FDR Drive) on 4/15/1988 when Con Edison reported a line leak and 500 gallons of no. 6 fuel oil spilled affecting soil and groundwater. Spill no. 9412598 was reported (at the same intersection) on 12/20/1994 when contaminated soil from an*

unknown source was found during while digging foundations. However, the responsible parties have been identified. Further, it is not anticipated that soil and groundwater would be disturbed by the proposed new construction for the Phase I project. A determination of soil and groundwater quality beneath the site can only be confirmed by subsurface testing.

The Phase I ESA conducted by ECEA concluded the following:

ECEA performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-00 of the East and West Wings located on the property identified in New York City tax records as Block 1482, Lot 20, in the Borough of Manhattan, New York. Any exceptions to or deletions from this practice are described in Section 2 of this report.

This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property with the exception of the following:

Hospital for Special Surgery has received two (2) RCRA hazardous waste violations. It was reported to ECEA that Hospital for Special Surgery prepared a corrective action plan in response to the RCRA violations and that USEPA Inspector, Abdool H. Jabar, informed Giovanni Abbruzzese, Safety Director at Hospital for Special Surgery, that it was accepted, the case closed, and no fines would be issued.

Several hazardous materials spills occurred in the vicinity of the site with the potential to impact soil and groundwater beneath the site. Spill no. 8800521 was reported (at East 71st Street and the FDR Drive) on 4/15/1988 when Con Edison reported a line leak and 500 gallons of no. 6 fuel oil spilled affecting soil and groundwater. Spill no. 9412598 was reported (at the same intersection) on 12/20/1994 when contaminated soil from an unknown source was found during while digging foundations. However, the responsible parties have been identified. Further, it is not anticipated that soil and groundwater would be disturbed by the proposed new construction for the Phase I project. A determination of soil and groundwater quality beneath the site can only be confirmed by subsurface testing.

11.5 Phase II ESA

On August 22, 2007, the New York City Department of Environmental Protection (DEP) issued a comment letter regarding the Phase I prepared by Ethan C. Eldon Associates. The DEP stated that a Phase II Environmental Site Assessment (Phase II) was needed in order to adequately identify and characterize subgrade conditions at the Site prior to onsite soil disturbance related to construction. In the DEIS, HSS committed to preparing an appropriate Workplan for a Phase II investigation and stated that it would use its best efforts to secure approvals from the New York City Department of Transportation and the New York City Department of Parks and Recreation necessary to allow the work to be preformed. A Phase II Workplan and a Phase II Health and Safety Plan dated April 7, 2008 were prepared and submitted to the DEP. These outlined all

proposed drilling protocol, soil and groundwater sampling methodologies, and health and safety measures that would be implemented at the site. The Phase II Workplan and Health and Safety Plan were accepted by the DEP. In addition, all necessary approvals, permits, and stipulations from the Department of Transportation and the Department of Parks and Recreation were met and/or acquired. The Phase II Investigation was conducted on June 29, 2008 in accordance with the standards and methodologies set forth in the Phase II Workplan and Health and Safety Plan.

As outlined in the DEP approved Workplan for the site, four (4) soil borings were advanced at the locations where the proposed column will be excavated and constructed along the South Bound 71st Street FDR service road and along the Esplanade that runs adjacent to the East River and the FDR Drive North, based on the historical usage of the site. In addition to the advancement of the four (4) soil borings, only one (1) groundwater sample was taken (GW-1) in SB-1 since bedrock was encountered in all other soil borings. Two (2) additional attempts were made to take a groundwater samples (in the following order) in SB-2, SB-3, and finally, SB-4. However, after two (2) additional attempts to retrieve groundwater in each boring, refusal was encountered, and based on the scope of work outline in the Phase II Workplan, no additional attempts were made. Therefore, only one (1) groundwater sample was taken in SB-1. Based on the proposed excavation depth, which is well into bedrock, all boreholes were completed to bedrock, refusal, or subsurface obstruction (which was encountered between 5-8 feet) or until groundwater was encountered (approximately 8').

Two (2) soil sample intervals from each boring were visually inspected, retained in plastic sample bags to homogenize the discrete soil sample interval, and screened with field instrumentation for volatile organic vapors using a Photoionization Detector (PID) equipped with an HNu Systems, model PI-101 PID, with a 10.2 eV lamp.

A total of eight (8) soil samples were collected and submitted for laboratory analysis of Volatile Organic Compounds (VOCs) by USEPA method 8260, Semivolatile Organic Compounds (SVOCs) by USEPA method 8270, Pesticides by USEPA method 8081, Polychlorinated Biphenyls (PCBs) by USEPA method 8082, and Target Analyte List Metals (TAL Metals). Soil sample results were compared to the Recommended Soil Cleanup Objectives (RSCOs) provided in the New York State Department of Environmental Conservation, Division of Environmental Remediation, Technical and Administrative Guidance Memorandum 4046: Determination of Soil Cleanup Objectives and Cleanup Levels (January 1994). The soil sample results did not detect any concentrations of VOC's, PCBs, or Pesticides. Detectable concentrations of SVOCs and metals were detected above the designated RSCO values. Please refer to Table 11-1.

One (1) groundwater sample was collected and submitted for the following laboratory analysis: Volatile Organic Compounds (VOCs) by USEPA method 8260, Semi-Volatile Organic Compounds (SVOCs) by USEPA method 8270, Pesticides and Polychlorinated Biphenyls (PCBs) by USEPA method 608 and Target Analyte List Metals (TAL Metals). Groundwater sample results were compared to the Class GA Groundwater Standards provided in the New York State Department of Environmental Conservation, Division of Water, Technical and Operational Guidance Series 1.1.1: Water Quality Standards Surface Waters and Groundwater (August 1999). No detectable concentrations of VOCs, SVOCs, PCBs, or Pesticides were

detected in any of the groundwater samples. Detectable concentrations of metals were detected above the recommended DEC groundwater guidance values. See Table 11-2.

11.6 The Future Without the Proposed Project - 2010

Since no excavation activities are planned under the No Build Condition there is no potential to encounter contaminated soil or groundwater.

11.7 The Future With the Proposed Project - 2010

The future with the proposed project involves new construction and the installation of four (4) support columns in the East River Esplanade in the area surrounded by the 71st Street pedestrian bridge and five (5) support columns located parallel with the existing Caspary Building along the west sidewalk of the FDR drive. New York City Department of Environmental Protection's (DEP) review of the Phase I made recommendations for the conduct of a Phase II Environmental Site Assessment in a letter dated August 22, 2007 (see Appendix D), which was conducted on June 29, 2008. The Phase II testing revealed the presence of semi-volatile organic compounds and heavy metals in exceedence of the NYSDEC standards. HSS identified measures necessary to avoid any potential for significant adverse impacts with respect to hazardous materials and public health in a Remedial Action Plan and Construction Health and Safety Plan, submitted to DEP for its review and approval. The Remedial Action Plan (RAP) outlines the following remedies for the contamination:

- The RAP will include the mobilization of excavation equipment to the site, the excavation of impacted soil; air monitoring, the collection of soil samples for field screening and laboratory analysis if deemed necessary; the proper transport and disposal of contaminated soil.
- Excavation for the support columns will be completed to a depth of approximately 35 feet, which is well into bedrock. The soil from the proposed excavation will be loaded into trucks and removed from the site. Should screened soil be stockpiled prior to removal from the site, it will be covered by heavy layers of polyethylene sheeting. The stockpiles will be covered by layers of polyethylene sheeting or appropriate impervious cover that will be secured so as to prevent exposure of the soil to the elements and to allow for the collection of runoff. Any runoff liquid generated during the remedial activities will be containerized, analyzed and properly disposed of. If use of in-place and stockpiled soil is planned, permission will be obtained from NYC DOHMH in accordance with NYCRR 360-1.15. Prior to excavating the site, a full waste characterization for the disposal facilities will be conducted in order for the soil to be accepted at an appropriate disposal facility.
- If any petroleum impacted soils are encountered during the excavation/grading activities, the impacted soils will be removed and properly disposed of in accordance with all federal, state and local regulations.

- If de-watering into NYC storm/sewer drains will occur during the proposed construction project, an NYCDEP Sewer Discharge Permit will be obtained prior to the start of any de-watering activities at the site. For the proposed project, groundwater sampling for NYCDEP Sewer Discharge Criteria will be completed in any areas where de-watering is expected. NYSDEC will be notified of any groundwater contamination. Any further requirements from the NYSDEC will be met.
- Air monitoring will be conducted in accordance with the approved CHASP using dust monitors and a photoionization detector (PID), and will take place in accordance with the New York State Department of Health guidance values. Monitoring for background levels will take place at the start of each work day. The monitors will then be moved to the downwind side of any ongoing work to monitor for excessive levels of dust or flammable gasses. Dust suppression activities will be implemented if conditions indicate that dust may become problematic. The PID will be used to monitor for volatile vapors. The data collected from the air monitoring events will be included in the P.E. certified Closure Report.
- Soil characterization will be conducted on site in order to satisfy disposal facilities' requirements for facility acceptance. Once finding a waste facility the soil will be loaded for transport to the disposal site. In the event that certain contaminated soils are saturated and free draining the use of roll-off containers with built-in sumps will be used to collect the liquid and will be utilized to transport the contaminated soils for treatment or disposal to an appropriately permitted facility.
- The final disposition of contaminated materials will be in accordance with all applicable federal state and local statutes and regulations. An appropriate disposal facility will be selected based on the results of laboratory analysis for disposal parameters, distances to facility and cost of disposal. DEP will be notified in writing (five days prior to the removal of any contaminated materials) with the names of the waste transporters and disposal facilities and their respective licenses and permits for review. A waste facility has not be chosen at this time.
- The excavation equipment will be visibly brushed clean upon completing excavation of the contaminated area and handling of contaminated soils to minimize the wash water generated at the site and requiring off-site disposal.
- Dust suppression activities will be implemented if conditions indicate that dust may become problematic during the grading activities at the site. The area excavated for the support columns will be covered by concrete columns and a paving system or concrete at least six inches in thickness.
- Proper capping with concrete will be performed around the support columns. Thus no uncapped areas will result from the proposed excavation activities of the support columns.
- Upon completion of all DEP requested remedial requirements, a P.E. certified Remedial

Closure Report will be submitted to DEP. This report will demonstrate that all remedial activities have been implemented. The report will include all transportation manifests, soil disposal/recycling certificates, and air monitoring data logs. Once the P.E. Certified Remedial Closure Report is received NYCDEP will issue a Notice of Satisfaction (NS) letter to the New York City Department of Buildings. Upon receipt of the NS, the applicant is free to apply for a Certificate of Occupancy.

Furthermore, operations of the Hospital in the new building would not generate any new hazardous materials. Although the new River Building would include diagnostic imaging (radiology services), state-of-the-art digital technology would be used as opposed to film technology which uses chemicals to process the film. Waste disposal would occur in accordance with all applicable regulations and consistent with the manner in which the current hospital operates.

Based on the above and HSS' commitments to the City, the proposed actions would not result in significant adverse impacts with respect to hazardous materials.

Table 11-1. Soil Sample

| SVOC (ppm) | | | | | | | | | |
|----------------------------|-------------|-------------|--------------|------|------------|-------------|-------------|------------|------------|
| Sample ID | SB-1 | SB-1 | SB-2 | SB-2 | SB-3 | SB-3 | SB-4 | SB-4 | RSCO Value |
| Depth | 0-2' | 4-8' | 0-2' | 5' | 0-2' | 5' | 0-2' | 4-8' | |
| 2-Methyl Naphthalene | ND | ND | 0.54 | ND | ND | ND | ND | ND | 36.4 |
| Acenaphthene | 0.19 | ND | 3.0 | ND | ND | 0.28 | ND | 0.22 | 50.0 |
| Anthracene | 0.76 | ND | 14 | ND | 0.66 | 1.8 | ND | 1.1 | 50.0 |
| Acenaphthylene | ND | ND | 0.34 | ND | ND | ND | ND | ND | 41.0 |
| Benzo(a)anthracene | 1.60 | 1.0 | 51 | ND | 2.7 | 7.00 | 0.6 | 2.1 | 0.224 |
| Benzo(a)pyrene | 1.50 | 0.92 | 36 | ND | 1.6 | 2.7 | 0.7 | 2 | 0.061 |
| Benzo(b)fluoranthene | 1.40 | 0.74 | 42 | ND | 2.2 | 4.4 | 0.62 | 1.8 | 1.1 |
| Benzo(k)fluoranthene | 1.50 | 0.78 | 39 | ND | 2.3 | 2.9 | 0.54 | 1.8 | 1.1 |
| Benzo(g,h,i)perylene | 0.99 | 0.46 | 9.9 | ND | 1.2 | 2 | 0.41 | 1.2 | 50.0 |
| Bis(2-Ethylhexyl)phthalate | 0.39 | ND | 0.27 | 2.00 | 1.20 | 1.20 | ND | ND | 50.0 |
| Carbazole | ND | ND | ND | ND | 0.64 | 1.4 | ND | ND | NE |
| Chrysene | 1.60 | 1.1 | 51 | ND | 2.8 | 7.5 | 0.61 | 2 | 0.4 |
| Dibenzofuran | ND | ND | 2 | ND | ND | 0.47 | ND | ND | 5.2 |
| Dibenzo(a,h)Anthracene | ND | ND | 1.3 | ND | ND | ND | ND | ND | 0.014 |
| Fluorene | 0.28 | ND | 1.6 | ND | ND | ND | ND | 0.28 | 50.0 |
| Flourathene | 2.70 | 1.30 | 86.00 | 0.31 | 8.7 | 19 | 0.88 | 3.2 | 50.0 |
| Indeno(1,2,3-cd)Pyrene | 0.45 | 0.19 | ND | ND | 0.56 | 0.87 | ND | 0.52 | 3.2 |
| Phenanthrene | 2.20 | ND | 52 | ND | 3.3 | 16 | 0.39 | 2.4 | 50.0 |
| Pyrene | 2.80 | 1.80 | 86.00 | 0.32 | 7 | 15 | 0.98 | 3.5 | 50.0 |

| Metals (ppm) | | | | | | | | | |
|------------------|-----------|---------|----------|----------|----------|----------|---------|---------|---------------------|
| Sample Location: | SB-1 | SB-1 | SB-2 | SB-2 | SB-3 | SB-3 | SB-4 | SB-4 | Regulatory Standard |
| Depth | 0-2' | 4-8' | 0-2' | 5' | 0-2' | 5' | 0-2' | 4-8' | |
| Aluminum | 5,000.00 | 7840.00 | 12100.00 | 10600.00 | 12100.00 | 14400.00 | 1370.00 | 4740.00 | SB=33,000 |
| Barium | 42.90 | 76.40 | 148.00 | 86.00 | 118.00 | 117.00 | 10.60 | 33.30 | SB=15-600 |
| Beryllium | 0.452 | 0.705 | 1.49 | 0.904 | 0.997 | 1.07 | 0.359 | 0.554 | |
| Cadmium | ND | 0.640 | 1.60 | 0.91 | 0.89 | 0.90 | ND | ND | |
| Calcium | 35,700.00 | 2410.00 | 26100.00 | 15100.00 | 28300.00 | 24500.00 | 769.00 | 2310.00 | SB=130-35,000 |

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| Metals (ppm) | | | | | | | | | |
|------------------|----------------|--------------|----------------|--------------|----------------|----------------|---------|--------------|---------------------|
| Sample Location: | SB-1 | SB-1 | SB-2 | SB-2 | SB-3 | SB-3 | SB-4 | SB-4 | Regulatory Standard |
| Depth | 0-2' | 4-8' | 0-2' | 5' | 0-2' | 5' | 0-2' | 4-8' | |
| Chromium | 10.30 | 23.40 | 28.40 | 17.00 | 25.10 | 28.00 | 5.36 | 10.80 | SB=1-40 |
| Cobalt | ND | 6.54 | 12.60 | 13.50 | 16.80 | 11.60 | ND | ND | SB=2.5-60 |
| Copper | 18.90 | 23.20 | 33.40 | 24.40 | 29.70 | 24.90 | ND | 20.20 | SB=1.5-50 |
| Iron | 8520.00 | 15500.00 | 39500.00 | 15300.00 | 20600.00 | 22800.00 | 7920.00 | 10900.00 | SB=2,000-550,000 |
| Lead | 86.00 | 55.20 | 106.00 | 80.30 | 72.90 | 23.50 | 11.10 | 72.90 | SB=200-500 |
| Magnesium | 6480.00 | 4920.00 | 6610.00 | 4270.00 | 6120.00 | 6550.00 | 491.00 | 1720.00 | SB=100-5,000 |
| Manganese | 164.00 | 171.00 | 325.00 | 271.00 | 226.00 | 209.00 | 76.80 | 176.00 | SB=50-5,000 |
| Mercury | 0.0716 | 0.0882 | 0.137 | 0.549 | ND | ND | ND | 0.170 | SB=-0.1 |
| Nickel | 9.21 | 15.70 | 31.10 | 22.60 | 27.80 | 23.70 | 4.07 | 10.10 | SB=0.5-25 |
| Potassium | 1090.00 | 3830.00 | 6100.00 | 2010.00 | 6740.00 | 8780.00 | 331.00 | 1110.00 | SB=8,500-43,000 |
| Silver | ND | ND | 0.785 | ND | 0.549 | 0.486 | ND | ND | |
| sodium | 693.00 | 1200.00 | 544.00 | 286.00 | 483.00 | 502.00 | 133.00 | 760.00 | SB= 6000-8000 |
| Thallium | 16.90 | ND | 15.70 | 7.47 | 15.80 | 13.50 | ND | ND | SB=NE |
| Vanadium | 20.50 | 37.20 | 57.10 | 35.40 | 47.30 | 52.40 | 10.40 | 21.30 | SB=1-300 |
| Zinc | 65.60 | 68.00 | 89.60 | 66.60 | 81.20 | 68.60 | 9.56 | 35.10 | SB=9-50 |

Table 11-2. Groundwater Sample

| TAL Metals (ppb) | | | |
|------------------|------------------|--------------------|------------------|
| Sample Location: | GW-1 | GW-1 | |
| | Unfiltered | Filtered | Regulatory Limit |
| Alluminium | 26,600.0 | 1,750.0 | 33,000 |
| Arsenic | ND | 27.0 | 25 |
| Barium | 235.0 | 37.7 | Not Applicable |
| Cadmium | 2.5 | ND | 5 |
| Calcium | 242,000.0 | 245,000.0 | Not Applicable |
| Chromium | 214.0 | 11.7 | 50 |
| Copper | 182.0 | 8.94 | 200 |
| Iron | 35,000.0 | 205.0 | 300* |
| Lead | 476.0 | ND | 25 |
| Magnesium | 33,700.0 | 874,000.0 | Not Applicable |
| Manganese | 849.0 | 165.0 | 300* |
| Mercury | 1.3 | ND | 0.7 |
| Nickel | 110.0 | ND | 100 |
| Potassium | 355,000.0 | 372,000.0 | Not Applicable |
| Selenium | 110.0 | 112.0 | 10 |
| Sodium | 277,000.0 | 6,790,000.0 | 20,000 |
| Thallium | 294.0 | 301.0 | Not Applicable |
| Zinc | 424.0 | 62.1 | Not Applicable |

Notes:

ppb= parts per billion= micrograms per liter (mg/l)

ND= Not Detected

VOC in the 8260 scan with non-detectable concentrations for all samples are not listed.

SVOC in the 8270 scan with non-detectable concentrations for all samples are not listed.

Pesticides and PCBs in the 608 scan with non-detectable concentrations for all samples are not listed.

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Regulatory Limit= Concentrations were compared to NYSDEC TOGS 1.1.1 class GA groundwater quality standards.

* The regulatory limit for the sum of Iron and Manganese is 500 ppb.

Concentrations exceeding the regulatory standard are identified with boldface type.