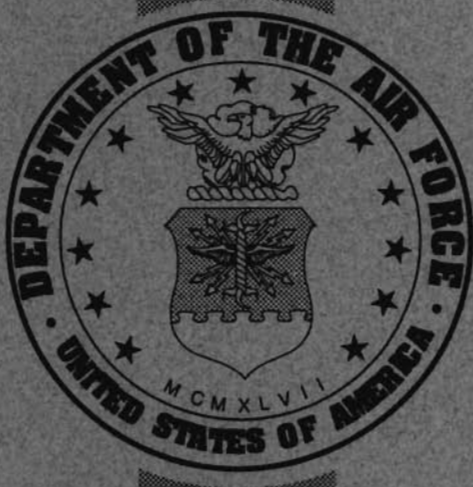

**REMEDIAL INVESTIGATION
FIELD ACTIVITIES AT
SITE SD-041 (BUILDING 2612)**

WORK PLAN

*Plattsburgh Air Force Base
Installation Restoration Program*



**United States Department of The Air Force
Plattsburgh Air Force Base
Plattsburgh, New York**

**Final
August 2001**

Dept. of Environmental Conservation
RECEIVED
AUG 13 2001
Regional Engineer - Region 5
Ray Brook, NY 12977

**FINAL
WORK PLAN
FOR
REMEDIAL INVESTIGATION FIELD ACTIVITIES
AT
SITE SD-041 (BUILDING 2612)
(FORMERLY AREA OF CONCERN 2612)**

PLATTSBURGH AIR FORCE BASE

PLATTSBURGH, NEW YORK

**CONTRACT F41624-00-D-8028
TASK ORDER NO. 0018**

Prepared for:

**AIR FORCE CENTER FOR ENVIRONMENTAL EXCELLENCE
BROOKS AIR FORCE BASE, TEXAS**

Prepared by:

URS GROUP INC.

AUGUST 2001

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PART I – WORK PLAN

1.0 INTRODUCTION

This work plan describes the work elements that will be conducted for Remedial Investigation field activities for site SD-041 (Building 2612) at Plattsburgh Air Force Base. The draft version of this plan was submitted under the title “Area of Concern 2612 Supplemental Evaluation Work Plan”. In consultation with the New York State Department of Environmental Conservation (NYSDEC) and United States Environmental Protection Agency (USEPA), Area of Concern 2612 was upgraded by the Air Force to an Installation Restoration Program Site (SD-041) in May 2001.

The scope of work for the elements described in this plan were developed pursuant to recommendations for additional investigation at this site presented in the *Draft Final Report on the Supplemental Evaluation to the Environmental Baseline Survey* (URS 2001). This report will be referred to hereafter as the Supplemental Evaluation Report. This work plan consists of the following parts:

- **Work Plan** – provides background information about SD-041, describes investigation tasks, and provides rationale for the work elements.
- **Field Sampling Plan** – describes field procedures that will be used for sample collection and handling.
- **Quality Assurance Project Plan** – the *AFCEE Quality Assurance Project Plan* (AFCEE 1998) is incorporated by reference as the primary quality assurance document for the investigation.

The purpose of this investigation is to:

- 1) evaluate the nature and extent of possible sources for chlorinated hydrocarbon and metals contamination in groundwater in the vicinity of building 2612; and

- 2) evaluate the potential impact from past spills at building 2612 on adjacent wetlands.

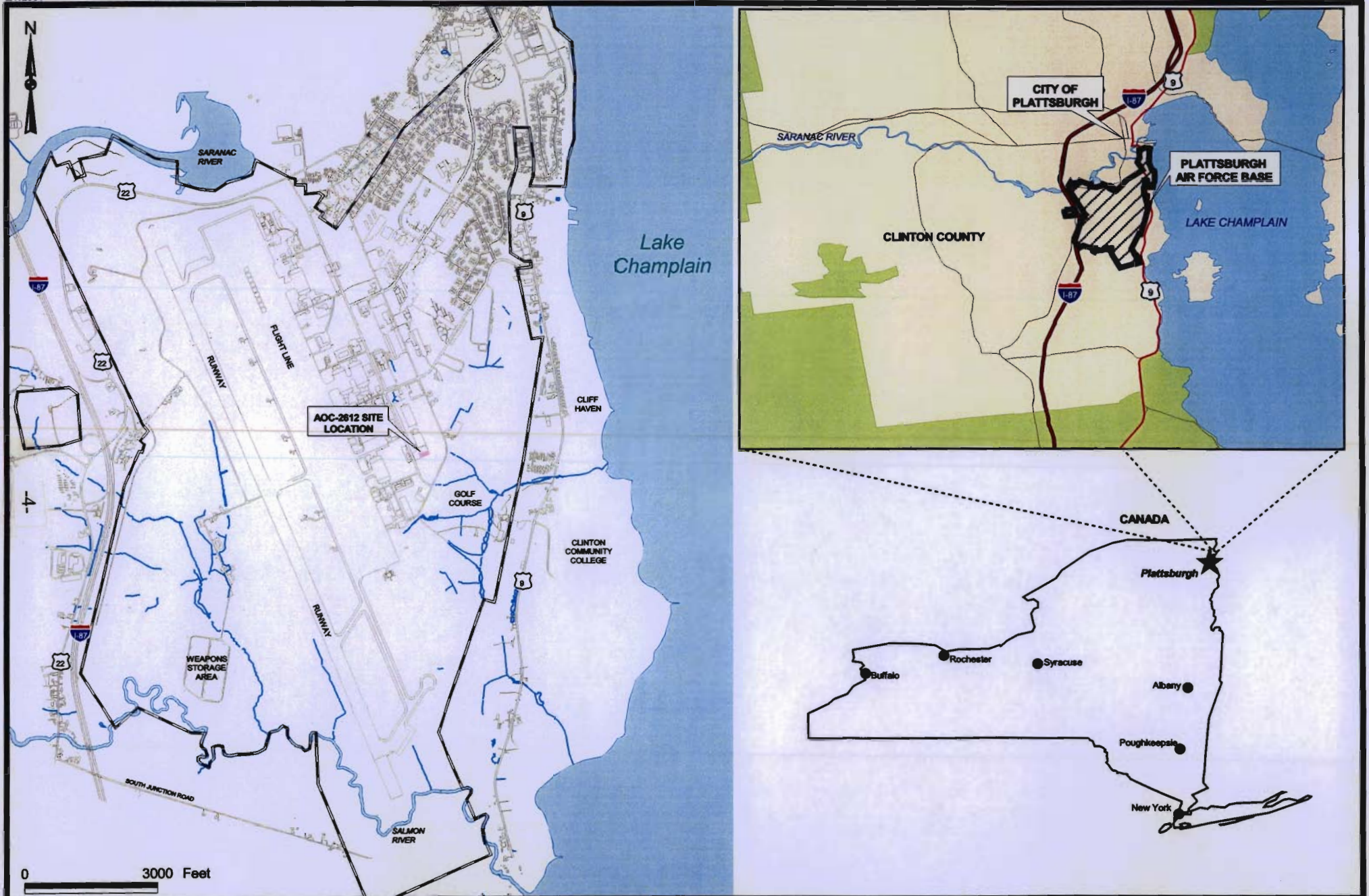
2.0 SITE DESCRIPTION AND HISTORY

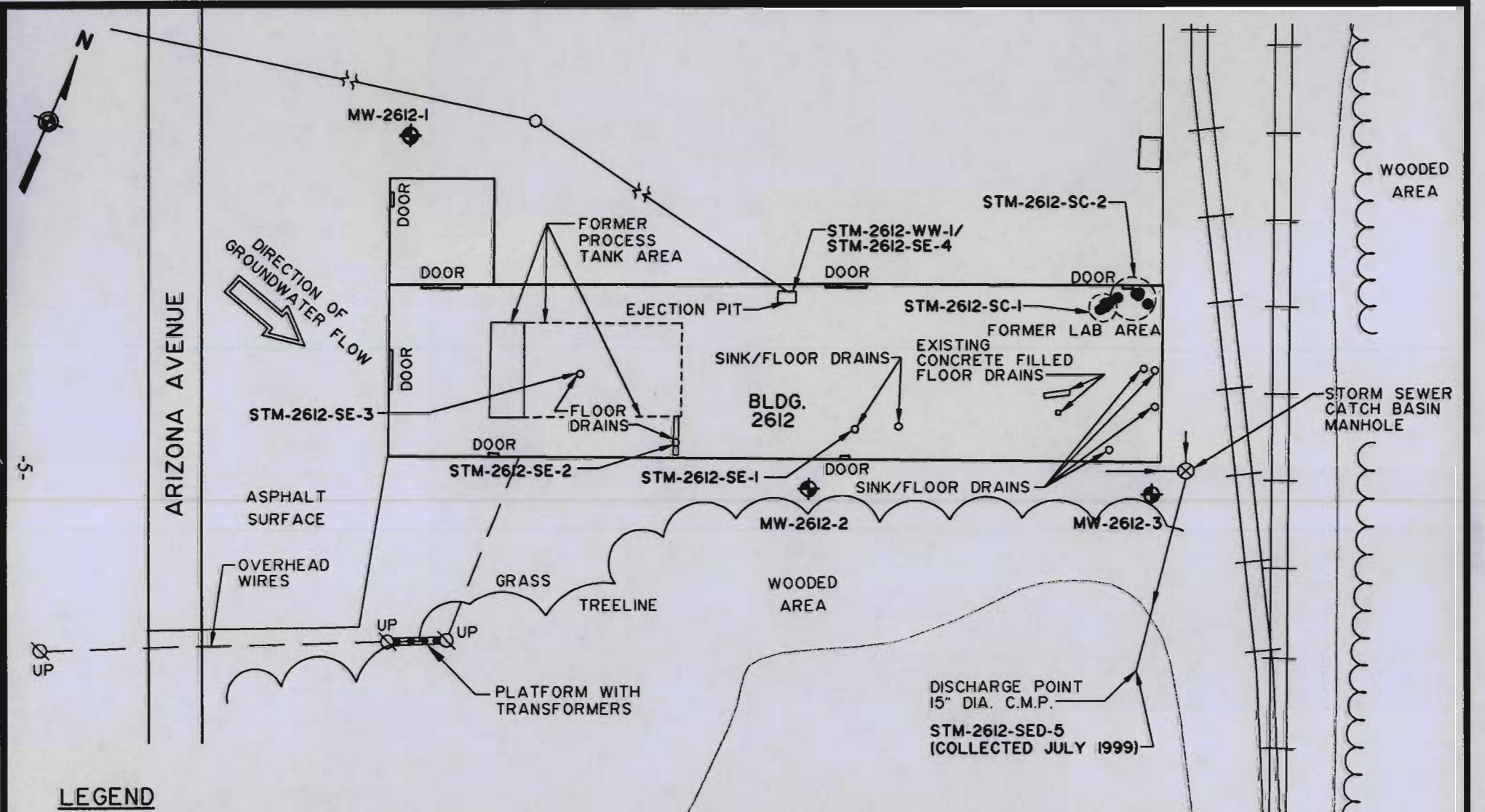
Site SD-041 is located in the central-eastern portion of Plattsburgh Air Force Base (Figure 1). In the early 1960s, building 2612 housed a laboratory, clean room, and process tanks (acid, alkali, vapor degreaser) that supported the Atlas ICBM program. The tanks, clean room, and laboratory were removed from the building prior to 1970. From the 1970s until base closure in 1995, the building was used primarily as a base equipment and supply warehouse. Materials stored at this facility included motor oil, lubricants, miscellaneous solvents, propylene and ethylene glycol, corrosion inhibitor, degreasers, aircraft cleaning compounds, hydraulic fluids, and electrical transformers. It also was used to store caretaker building materials and grounds equipment from 1995 to early 1999 (e.g., tractors, yard equipment, mulch, snow plow parts, street sweeper brushes, and gypsum board). In the spring of 1999, the building was leased to a tenant for use as an equipment storage warehouse; this is the facility's current continuing use.

Record drawings for building 2612 indicate that the floor and sink drains discharge into the storm sewer system on the east end of the building. The storm sewer discharges into a wetland area to the southeast of the building. An ejection pit, that record drawings indicate discharges into the sanitary sewer system somewhere north or northwest of building 2612, is located in the north-central portion of the building. All drains in the building have been plugged with concrete.

Site features and the locations of samples collected in the vicinity of building 2612 are presented on Figure 2.

In the summer of 1998, environmental samples were taken at the site including four sediment samples, one wastewater sample, two concrete chip samples, and three groundwater samples. Contamination was identified in sediments in a concrete ejection pit and in the floor drains inside the building. Results were summarized in an Informal Technical Information Report (ITIR) in November 1998 (URS 1998), and are given in Tables 2-31, 2-32, 2-33, and 2-34 of Appendix A. As a result, the equipment, liquid, and sediment in the ejection pit sump and the sediment in the floor drains were removed and appropriately disposed of by the Air Force in January 1999. The drains were capped with concrete and the ejection pit sump was filled to





LEGEND

- CONCRETE CHIP SAMPLING LOCATION
- MONITORING WELL LOCATION
- UTILITY POLE
- CORRUGATED METAL PIPE

NOTE:

LOCATION OF DRAINAGE PIPE AND ARIZONA AVENUE ARE NOT DRAWN TO SCALE.



SCALE: 1" = 40'

within 0.5 feet of the surrounding floor surface with compacted sand and capped to grade with concrete.

Volatile organic compounds, primarily chlorinated hydrocarbons, and metals also were detected in the groundwater samples collected from three monitoring wells installed at the site. Based upon regulatory agency comments to the November 1998 ITIR, 12 new monitoring wells were installed and 22 groundwater samples were collected from new and previously existing wells in July and August 1999 to evaluate the sources and extent of groundwater contamination. One sediment sample was also taken at the storm sewer discharge pipe. The results were summarized in the Supplemental Evaluation Report (URS 2001) and are given in Table 2-39c of Appendix A.

Chlorinated hydrocarbons were detected in groundwater from wells sampled upgradient from building 2612. However, the concentrations of these compounds were observed to increase in the vicinity of the building. Therefore it was concluded that, although an upgradient source for chlorinated hydrocarbons appears to be contributing to the contamination observed in the vicinity of the building, a source local to the building also appears to be present. In addition, it appears that a slight increase in the concentrations of metals in groundwater may be occurring in the vicinity of the building. However, it was concluded in the Supplemental Evaluation Report (URS 2001) that the level of metals contamination does not significantly impact groundwater resources, since none of the metals were detected above both background and New York State Groundwater standards.

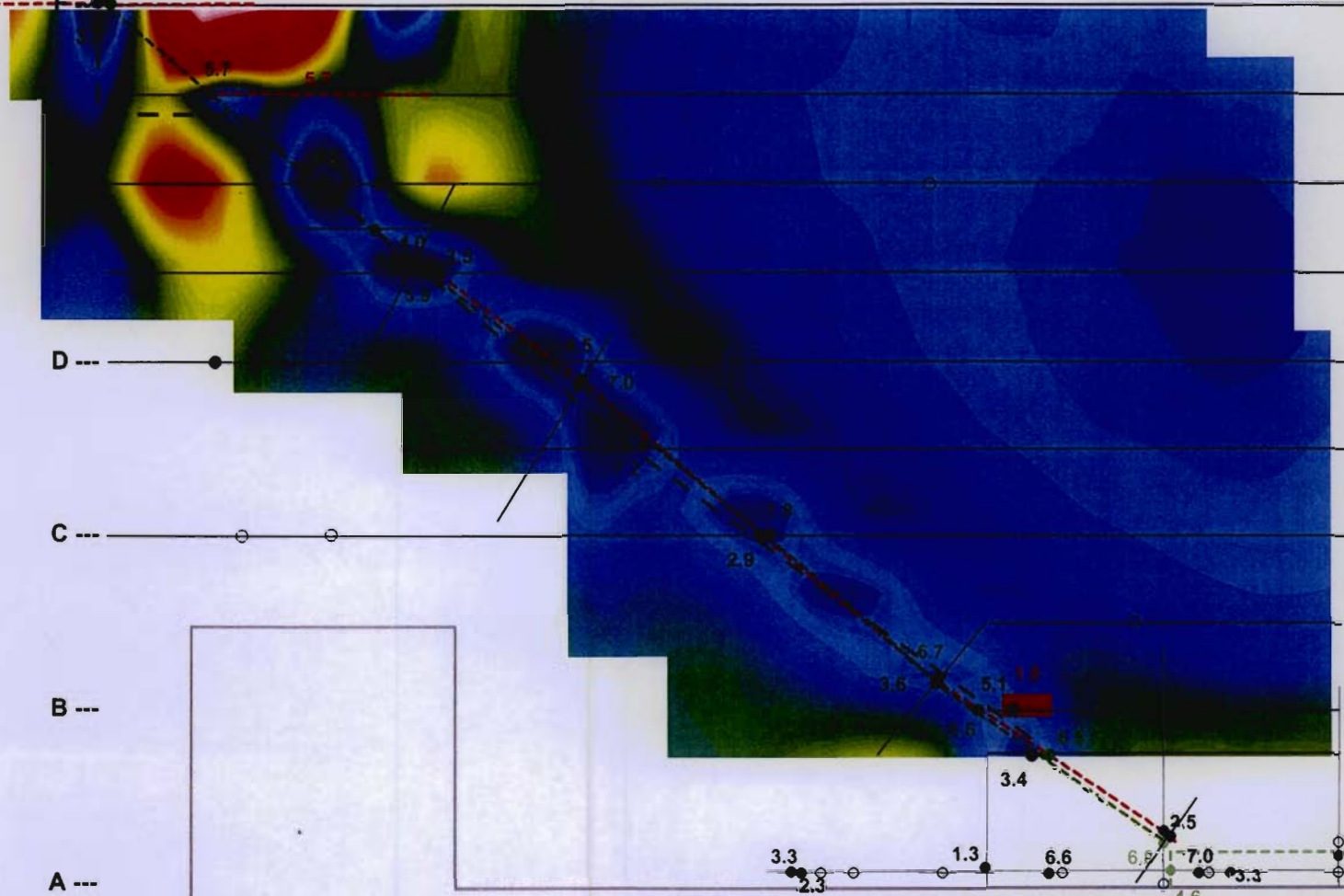
Concentrations of cadmium, iron, mercury, selenium, and zinc exceeded their respective New York State soil cleanup guideline values in the sediment sample collected at the discharge point from the storm sewer that collected runoff from the floor drains and sinks inside building 2612 (Table 2-39b of Appendix A). Elevated concentrations of these metals were also detected in sediment samples from the floor drains. The storm sewer discharges to a wetland area located southeast of the building.

A geophysical survey was conducted on July 10, 2001 on the north, east and south sides on building 2612 to locate drainage lines around the building. A survey grid with 20-foot spacing was established in these areas.

The geophysical survey utilized a ground penetrating radar device with a 400 MHz antenna, an EM-31 terrain conductivity device working in both an in-phase mode and conductivity mode, and an induction pipe locator.

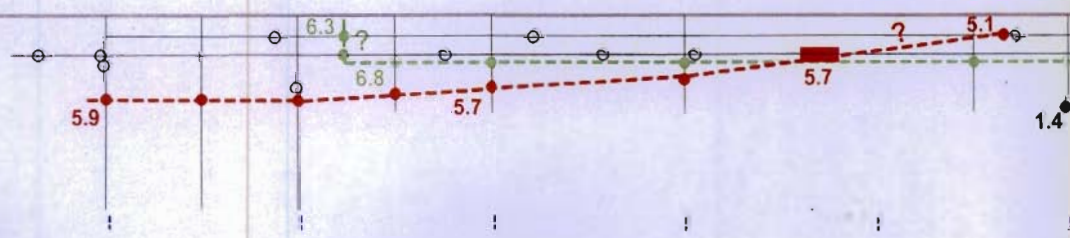
The geophysical survey delineated a conductive (metal) pipeline on the north side of the building trending northwest toward a sanitary sewer manhole. This pipe is buried about 3 to 5 feet below grade. Non-conductive (clay tile) pipelines were located near the building perimeter on the north, south and east sides. These pipes are estimated to be buried about 3 to 7 feet below grade. The results from the geophysical survey are shown in Figure 3.

--- 0+40W
 --- 0+20W
 --- 0+00E
 --- 0+20E
 --- 0+40E
 --- 0+60E
 --- 0+80E
 --- 1+00E

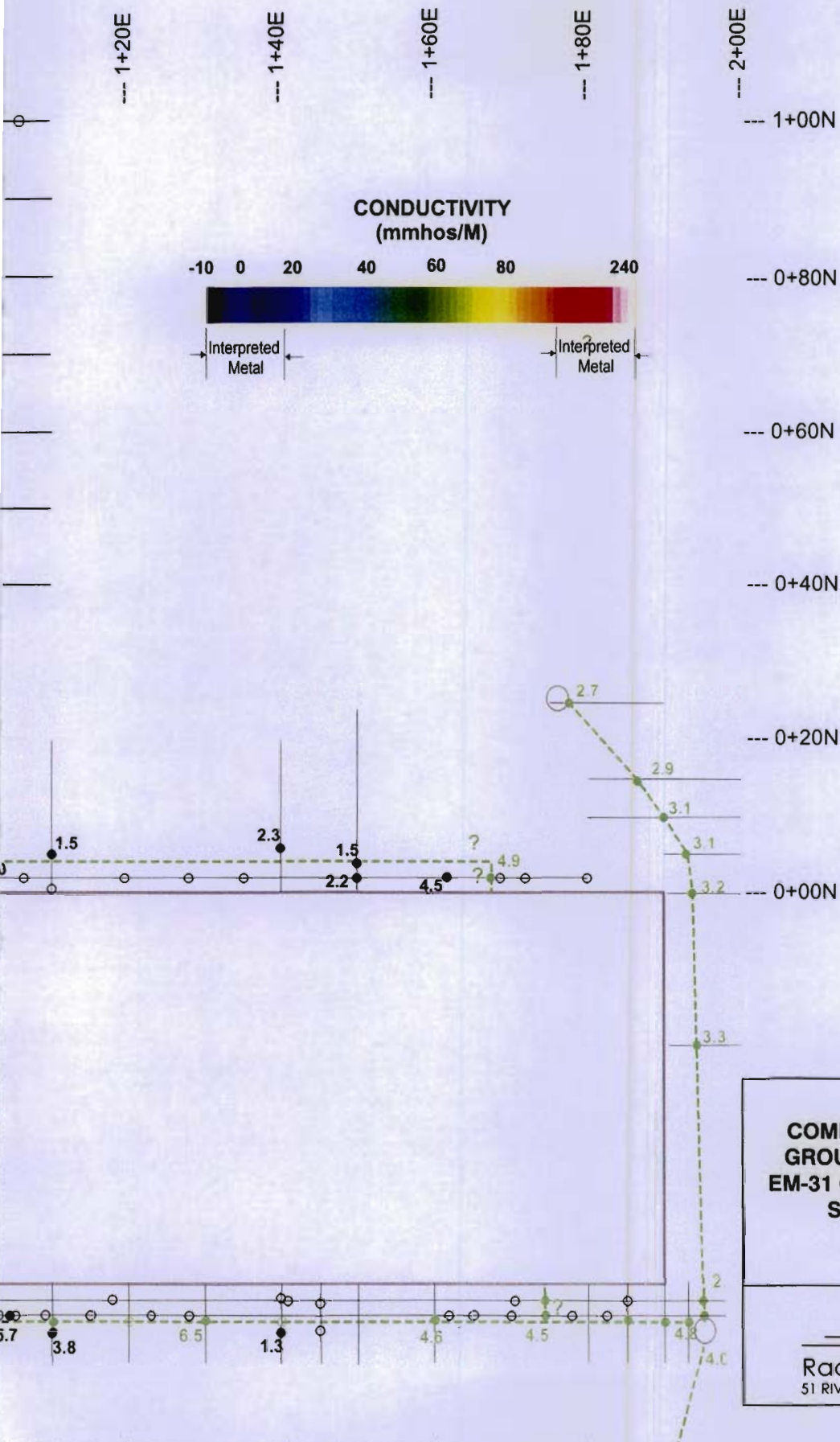


F ---
 D ---
 C ---
 B ---
 A ---

SITE SD-041
BUILDING 2612



AG16806-35858.00-071901-GCM



LEGEND

- Manhole
- GPR Traverse
- 3 Large Reflector (possible UST or large utility) and Depth (ft.)
- Zone of Multiple Utilities
- Probable Utility or Metal Scrap
- Tentative Utility or Metal Scrap

Interpreted Utility Position and Approximate Depth (ft.)

- 3.5 Unknown Utility
- 2.8 Sanitary Sewer

SCALE: 1 INCH = 20 FEET

FIGURE 3
COMBINED GEOPHYSICAL RESULTS
GROUND PENETRATING RADAR AND
EM-31 CONDUCTIVITY MEASUREMENTS
SURVEYED ON JULY 10, 2001
FOR
URS GROUP, INC.

RSI *Geophysics for the 21st Century*
Radar Solutions International™
 51 RIVERVIEW AVENUE, WALTHAM, MA 02453-3819

3.0 SCOPE OF INVESTIGATION

The source for groundwater contamination in the vicinity of SD-041 may be related to a drain line that runs between the ejection pit and the sanitary sewer. This drain line was located during the geophysical survey and marked out. The source may also lie in the vicinity of the pit or near floor drains. To investigate the possible source(s) for groundwater contamination, the following steps will be taken:

- Initially, 6 borings will be advanced using a Geoprobe at possible source locations. These include 2 borings inside building 2612, adjacent to the ejection pit and 3 borings located along the ejection pit drain line on the north side (outside of) building 2612. A single boring will be located between the north edge of the ejection pit and the north wall of building 2612. If the sample cannot be safely located in this area then the boring will be located outside of building 2612, opposite of the ejection pit, as close to the building wall as possible.
- One or two macro-core soil samples (about 4 feet in length) will be collected at each boring location. Based on field screening, 1 soil sample will be selected per boring for laboratory analysis for Target Compound List (TCL) volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) metals.
- Additional soil borings may be advanced inside building 2612 if any of the drain lines extending from the floor and sink drains fail pressure tests that will be conducted following the excavation described below. Up to 6 geoprobe borings will be advanced to, or slightly below, the water table surface at locations agreed to in an onsite meeting with NYSDEC on July 12, 2001. Based on field screening, 1 soil sample will be selected for laboratory analysis per boring. Fifty percent of the samples will be analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, and TAL metals and fifty percent will be analyzed for TCL VOCs and TAL metals only.
- A rubber tired excavator will be used to excavate and remove approximately 170 linear feet of drainpipe locate along the south side of building 2612. Three soil

samples will be collected from the trench at the juncture of drain piping from the building, unless other evidence of contamination such as PID readings or stained soil is more compelling. In this case, one or more of the three samples will be relocated. Samples will be analyzed for TCL VOCs, TCL SVOCs, TCL PCBs, and TAL metals.

- To evaluate the potential impact to the wetland area southeast of building 2612, 10 sediment samples will be collected in the wetland at 5 staked locations and chemically analyzed for TCL VOCs, SVOCs, PCBs, TAL metals, and Total Organic Carbon (TOC). The locations were selected during a site meeting on July 12, 2001 among representatives of the USAF, URS and NYSDEC. One sample at each location will be collected from 0 to 6-inches below the surface and a deeper sample will be collected from 6 to 12-inches below the surface. This data will be used in a screening-level ecological assessment of the biota in the wetland. The wetland sediment sampling results will be compared to sediment screening criteria from the NYSDEC Technical Guidance for Screening Contaminated Sediments, January 1999.
- The size of the wetland area will be measured. The habitat type will be classified and the habitat value will be assessed.

4.0 REPORTING

The results from the data collection and analysis will be compiled into a *Remedial Investigation Report for Site SD-041*. The report will be organized in a manner consistent with current USEPA guidance. This document will contain, at minimum, the following information:

- Description of field activities
- Tables of validated analytical results
- Comparison of analytical data to current regulatory standards
- Discussion of data usability (data validation report)
- Summary of geophysical data
- Summary of field screening and the process of selection of soil samples for laboratory analysis
- Map of drainage lines
- Map of sample collection locations
- Summary of previously collected data
- Screening level ecological risk assessment
- Updated human health risk assessment (HRA) based on the HRA in the Supplemental Evaluation Report (URS 2001)
- Summary and Conclusions
- Recommendations

PART II – FIELD SAMPLING PLAN

5.0 FIELD SAMPLING PLAN

The Field Sampling Plan (FSP) describes the requirements and procedures for the field work to be conducted during this investigation. The effort will be focused on the collection of environmental chemical data. There are two general categories of data: (1) screening data and (2) definitive data. The goals of the project will be met through the generation of definitive data using rigorous analytical methods. This data will be chemical analyte-specific, with the identification and quantitation of the individual analytes confirmed. Therefore, it will not be restricted in its use unless procedural quality problems arise which necessitate qualification. Screening data will also be gathered, but will only be used in the field to focus definitive data generation toward the areas most likely to be contaminated.

6.0 FIELD OPERATIONS

6.1 Geoprobe Borings

A vehicle-mounted Geoprobe unit will be used to advance up to 12 small diameter (2-inch) borings at SD-041. Preliminary locations for the borings are shown on Figure 4. The locations of the borings were determined after a review of the geophysical survey results in a site meeting between representatives of the USAF, URS, and NYSDEC on July 12, 2001. Upon completion, all boreholes will be backfilled with bentonite flakes and hydrated with potable water. Soil samples will be collected at each boring location to a depth of 4 to 8 feet below ground surface (depending of the depth to the water table) according to the procedures outlined in Section 7.1.1.

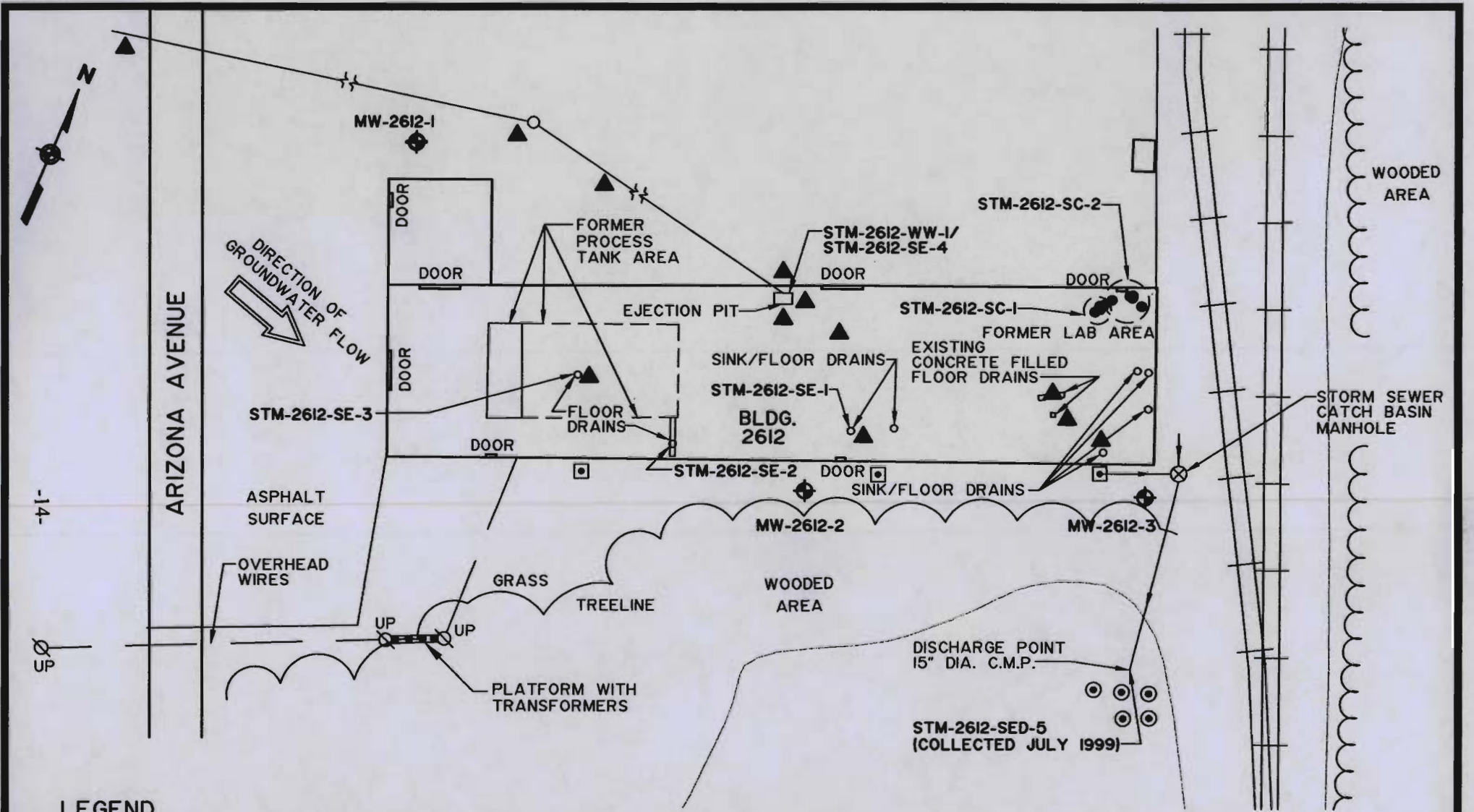
6.2 Test Trenching

A rubber-tired excavator will be used to excavate and remove approximately 170 linear feet of 4-inch diameter vitrified clay drain pipe located along the south wall of building 2612. The pipe is estimated to be buried about 3 to 7 feet below grade.

Soil removed from the excavation will be separated and staged (on polyethylene sheeting) depending upon whether or not it is potentially contaminated. A soil will be considered potentially contaminated if it lies adjacent to or below the piping or if it lies above the piping but emits organic vapors (measured by a PID) of 5 ppm or greater.

Excavated piping will be staged on plastic sheeting before it is decontaminated by high-pressure washing. Following decontamination, the piping will be placed in a dedicated onsite dumpster or roll-off box for later disposal. Wash water will be collected, staged in 55-gallon drums, tested, and disposed of properly.

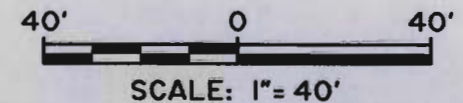
The excavation will remain open following pipe removal pending analytical results from excavation soil samples. The perimeter of the excavation will be secured with fence posts and orange fencing. Caution tape (stating "Caution-Do Not Enter") will be placed along the top of the fencing.



LEGEND

- (⊙) CONCRETE CHIP SAMPLING LOCATION
- (⊕) MONITORING WELL LOCATION
- UP ⊕ UTILITY POLE
- CMP CORRUGATED METAL PIPE
- (▲) GEOPROBE/SOIL SAMPLES
- (⊙) SEDIMENT SAMPLES
- (□) SAMPLES
- (■) TRENCH

NOTE:
 LOCATION OF DRAINAGE PIPE
 AND ARIZONA AVENUE ARE
 NOT DRAWN TO SCALE.



At no time will personnel enter the trench if it is greater than 4 feet deep unless it is properly and safely sloped or adequate shoring is placed in the trench. Any person entering the trench at any depth must be accompanied by another person topside.

During the removal of the piping, its condition will be carefully documented. The location of any cracks, breaks, or adjacent stained soil will be measured from a fixed reference point.

Three soil samples will be taken from the trench at the juncture of the drain piping from the building unless other evidence of contamination such as elevated PID reading or stained soil is observed at other points in the trench. In that case, one or more of the three samples will be relocated. Samples will be collected according to the procedures outlined in Section 7.1.3.

6.3 Pressure Testing

Pressure testing will be performed to test the integrity of drain lines that extend from floor and sink drains inside Building 2612 to an underground drainage line that parallels the southern wall of the building. The type of pressure test that will be performed will depend on the condition of the individual floor or sink drain.

- If a watertight connection can be made, then a hydrostatic test will be performed.
- This will be accomplished by fitting a ten-foot long vertical standpipe to the outside drain.
- The standpipe will be filled with water to a reference point at the top.
- The line will be tested for a sufficient period of time to disclose leaks and defects. (per New York State Uniform Fire Prevention and Building Codes-Testing of Plumbing Systems)
- If a water-tight connection cannot be made, then an air test will be performed according to ASTM C 828-90. The test will be performed with the concrete plug inside the building in-place.
- Air loss (pressure drop) will be monitored for a sufficient period of time to disclose leaks and defects.

- If the pipe in question fails the test, then the test will be repeated with the concrete plug inside the building removed (and refitted with an airtight plug) to ensure that the cause for the failure was not the inside seal.

6.4 Locational Surveying

Following boring and sampling activities, the sample data points will be surveyed for horizontal location. Horizontal coordinates will be determined based on the New York State Plane Coordinate System, Transverse Mercator Projection, East Zone, North American Datum of 1927. All surveying will be conducted under the supervision of a New York State licensed land surveyor.

6.5 Waste Handling

It is not anticipated that a great quantity of waste material will be generated during the investigation. However, any soil cuttings, left over soil samples not transported to the contracted laboratory, or collected rinse water will be segregated based on PID measurements. Waste materials emitting organic vapors measured by the PID to be greater than 5 parts per million (ppm) will be properly disposed of according to state and federal waste disposal requirements. Materials emitting organic vapors less than 5 ppm will be returned to the ground surface in the vicinity of building 2612.

Spent solvents used in the decontamination of sampling equipment (Section 6.5) will be collected and properly disposed of at a permitted waste disposal facility.

6.6 Decontamination of Sampling Equipment

Soil sampling apparatus that comes into direct contact with soil samples includes: sampling spoons or trowels; stainless steel sampling bowls; and acetate liners from the macro-core sampler. Acetate liners will be dedicated and disposed of after a single use. Other sampling implements will be subjected to the multi-step decontamination procedure, described below, between uses.

Sediment sampling apparatus that comes into direct contact with sediment samples includes: sampling spoons or trowels; stainless steel sampling bowls; and stainless steel shovels and hand augers. These sampling implements will be subjected to the multi-step decontamination procedure, described below, between uses.

The multi-step decontamination process includes:

- Scrub with solution of potable water and detergent (Alconox)
- Rinse with copious quantity of potable water
- Rinse with ASTM Type II reagent water
- Air dry
- Rinse with pesticide grade hexane
- Rinse with pesticide grade methanol
- Rinse ASTM Type II reagent water
- Rinse with 10% nitric acid solution
- Rinse with ASTM type II reagent water
- Air dry
- Wrap in aluminum foil for transport to sample location

7.0 ENVIRONMENTAL SAMPLING

7.1 Sampling Procedures

Detailed procedures for the collection of definitive environmental samples at SD-041, including up to 12 subsurface soil samples, three soil samples from a test trench, and 10 sediment samples (from the wetland located to the southeast) are outlined below. Most environmental samples will be analyzed for TCL VOCs, SVOCs, PCBs, and TAL metals. In addition the sediment samples will be analyzed for total organic carbon (TOC). A more detailed specification of the analytical methodologies that will be used is presented in Section 8.2.

7.1.1 Subsurface Soil Sampling

Sampling Procedure

A macro-core sampler will be used to collect subsurface soil samples from each boring. Macro-core samplers are open-tube and acetate lined, and measure 2-inches in diameter by 44-inches long. One or two four-foot macro-core samples (4 or 8 foot depth of investigation) will be taken at each location; continuous sampling will be undertaken until the water table surface is encountered, which is expected to lie about 4 to 8 feet below the ground surface.

Screening Procedure

Each four-foot macro-core sample will undergo a double screening procedure. Upon retrieval of each macro-core sample, the acetate liner will be punctured every 6-inches and each puncture monitored for organic vapor emissions using a photoionization detector (PID). Soil surrounding the 6-inch interval exhibiting the highest PID reading will be collected for jar testing. If no PID readings were observed above background, then the interval exhibiting discoloration or staining will be selected based on the discretion of the onsite geologist. The onsite geologist will also have discretion to select two intervals for jar headspace screening should there be more than one interval of interest in a given sample.

At each selected interval, laboratory soil sample containers will be filled according to the requirements of the analysis that may be performed (see Section 7.2.2). These samples will be placed on ice at 4°C for potential shipment to the contracted laboratory later on the day on which the sampling occurs. Then, an additional grab sample will be placed in a jar (about ½ full), the jar will be covered with aluminum foil secured with a rubber band, the soil and jar will be warmed to room temperature (if necessary), and the aluminum foil will be pierced with the PID probe and a measurement taken. The PID reading will be recorded for future reference.

Selection Procedure

Six samples (1 per boring) from borings advanced adjacent to the ejection pit and along the ejection pit drain line on the outside of building 2612 will be selected by the onsite geologist for laboratory analysis based on visual observations and field screening results. If no staining, discoloration or elevated PID readings are found in the 4-foot to 8-foot interval across the area of investigation, the zone located at or below the level of the subject piping will be selected for analysis. Up to six additional soil samples may be taken from borings (again, 1 per boring) inside the building if the drainage line pressure testing indicates leakage has occurred. The selection of the additional samples will also be based on visual observations and field screening results.

7.1.2 Sediment Sampling

A stainless steel hand auger will be used to collect 10 sediment samples from 5 locations at the wetland in the southern portion of SD-041. The samples will be collected at staked locations agreed upon with the NYSDEC representative on July 12, 2001, as approximately shown on Figure 4. One sample will be collected from a depth of 0- to 6-inches below the surface at all grid locations and samples from 6- to 12-inches below the surface will be collected at all of the locations. The shallow sample will first be collected using the hand auger, the hole will then be enlarged with a stainless steel shovel to prevent caving into the deeper sample, and the deeper sample will be collected.

Excavated sediment will be placed in a pre-cleaned stainless-steel mixing bowl. A sample for VOC analysis will be placed directly in the appropriate sample containers before compositing. The remainder of the sample will be composited and placed in the appropriate

containers for shipment to the contracted laboratory. Samples will be placed on ice immediately and cooled to 4°C. Sampling borings or pits will be advanced until the sampling depth is achieved. Following the collection of the subsurface sample, any remaining sediment will be returned to the hole and the cuttings compacted.

7.1.3 Test Trench Sampling

Sampling Procedure

Three soil samples will be collected from the trench at the juncture of the drain piping from the building (as discussed with the NYSDEC representative on July 12, 2001), unless stained soils or soils exhibiting PID readings greater than 5 ppm are uncovered during the excavation. In that case one or more of the samples will be relocated. Soils above the pipe are not likely to be contaminated. Samples will be collected directly from the sides and bottom of the piping using a pre-cleaned stainless-steel mixing bowl and stainless steel spoon.

7.2 Sample Handling

7.2.1 Sample Containers

Sample containers are purchased pre-cleaned and treated according to USEPA specifications for the methods. Containers shall be stored in clean areas to prevent exposure to fuels, solvents, and other contaminants.

7.2.2 Sample Volumes, Container Types, and Preservation Requirements

The VOC fraction of each soil or sediment sample shall be placed in two 2- or 4-ounce glass containers with teflon lined septa caps. The remaining fractions (SVOCs, PCBs, metals, and TOC) of each sample will be placed in two 8-ounce glass containers with teflon lined caps. Samples will be preserved by maintaining and shipping them at a temperature of 4°C.

7.2.3 Sample Identification

The sample identification scheme from previous sampling events will be continued for this event. Sediment samples will be labeled SD-041-SE-6 through SD-041-SE-14. Soil samples will be labeled SD-041-SO-01 through SD-041-SO-10. The depth of sampling will be recorded in the field notebook by sampling personnel for later inclusion in the database.

7.3 Sample Custody

Procedures to ensure the custody and integrity of the samples begin at the time of sampling and continue through transport, sample receipt, preparation, analysis, storage, data generation and reporting, and sample disposal. Records concerning the custody and condition of the samples are maintained in field and laboratory records. A sample is defined as being under a person's custody if any of the following conditions exist: 1) it is in possession; 2) it is in view; or 3) it was in possession upon placement in a designated secure area.

The following minimum information concerning the sample shall be documented on the chain-of-custody form:

- Unique sample identification
- Date and time of sample collection
- Source of sample (including name, location, and sample type)
- Designation of matrix spike/matrix spike duplicate (MS/MSD)
- Preservative used
- Analyses required
- Name of collector(s)
- Custody transfer signatures and dates and times of sample transfer from the field to transporters and to the laboratory or laboratories

All samples will be uniquely identified, labeled, and documented in the field at the time of collection. Samples collected in the field will be transported to the laboratory as expeditiously as possible (usually shipped via overnight carrier on the same day the samples are taken). Samples will be shipped in coolers. Maintenance of a temperature of 4°C for preserving the sample is

necessary; the samples will be packed in ice to keep them cool during collection and transportation. A temperature blank (a VOC sampling vial filled with water) will be included in every cooler and used to determine the internal temperature of the cooler upon receipt of the cooler at the laboratory. A custody seal will be affixed to the outside of the cooler in such a manner that the receiving laboratory can discern tampering. The person relinquishing custody to the shipper will initial the custody seal.

7.4 Field Quality Control Samples

Field quality control samples will be collected at the following frequency:

**TABLE 1
FREQUENCY OF FIELD QC SAMPLE COLLECTION**

Medium	Soil	Sediment
Primary Samples	6-12	10
Field Replicate Samples***	1-2	1
Equipment Blanks*	3	1
Matrix Spike Samples ^	1-2	1
Matrix Spike Duplicate Samples ^	1-2	1
Trip Blanks**	3	1

^ Frequency is 1 per 14 days or 1 per 20 primary samples, whichever is more frequent.

* Frequency is 1 equipment blank per day per sampling type— amounts shown are estimated.

** Frequency is 1 trip blank per cooler in which an aqueous VOC sample is shipped.

*** Frequency is 1 per 10 primary samples.

In addition, method blanks (lab QC) will be analyzed at a minimum rate of 1 per batch (field samples are not necessary).

PART III – QUALITY ASSURANCE PROJECT PLAN

8.0 QUALITY ASSURANCE PROJECT PLAN

8.1 Analytical Methods

The methods that will be used are found in *USEPA Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846) Final Update III, June 1997* and are listed below:

TABLE 2
ANALYTICAL METHODS

Parameter	Method
TCL VOCs	8260B
TCL SVOCs	8270C
TCL PCBs	8082
TAL Metals (except mercury)	6010B
TAL Mercury	7471A
TOC	Lloyd Kahn Method

8.2 Quality Assurance

Quality assurance requirements for field sampling, chain-of-custody, and laboratory analysis and reporting will be performed in accordance with the AFCEE QAPP Version 3.0 (AFCEE 1998), which is the primary quality assurance document for this project. The contracted laboratory may request specific variances to the analysis and reporting requirements of the AFCEE QAPP; however, these variances will be reviewed and approved/disapproved in advance by an AFCEE chemist under the direction of the AFCEE Project COR (Contracting Officer Representative).

8.3 Holding Times

Holding times for this project will be those specified in the NYSDEC Analytical Services Protocol (NYSDEC 2000). NYSDEC ASP holding time criteria are more stringent than the holding time criteria specified in the AFCEE QAPP. The holding times are determined from the validation of the sample receipt (except where noted) and are presented below:

**TABLE 3
HOLDING TIMES**

Matrix	Parameter	Holding Time
Soil/Sediment	TCL VOCs	10 days
	TCL SVOCs	10 days until extraction and 40 days after extraction
	TCL PCBs	10 days until extraction and 40 days after extraction
	TAL Metals (except mercury)	180 days
	TAL Mercury	26 days
	TOC	14 days from collection
Aqueous (Equipment Blank)	TCL VOCs	7 days
	TCL SVOCs	5 days until extraction and 40 days after extraction
	TCL PCBs	5 days until extraction and 40 days after extraction
	TAL Metals (except mercury)	180 days
	TAL Mercury	26 days

Samples are shipped on the date of collection, whenever possible, via overnight courier.

REFERENCES

- Air Force Center for Environmental Excellence. 1998. *Quality Assurance Project Plan*, Version 3.0. HQ AFCEE, San Antonio, Texas. March.
- New York State Department of Environmental Conservation. 2000. *Analytical Services Protocol*. Albany, New York. June.
- URS Consultants, Inc. 1998. *Informal Technical Information Report Sampling at Building 2612*. Prepared for the Air Force Center for Environmental Excellence, Brooks Air Force Base, Texas. November. Buffalo, NY.
- URS Consultants, Inc. 2001. *Draft Final Report on the Supplemental Evaluation to the Environmental Baseline Survey*. Buffalo, New York. February. Three Volumes.
- New York State Uniform Fire Prevention and Building Codes. 2001 9NYCRR, Part 907.1(e) Testing of Plumbing Services-Duration of Tests. Albany, New York.

TABLE 2-31
SUMMARY OF JULY 1998 SEDIMENT ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location ID		STM-2612-SE-1	STM-2612-SE-2	STM-2612-SE-2	STM-2612-SE-3	STM-2612-SE-4
Sample ID		STM-2612-SE-1	STM-2612-SE-2FR	STM-2612-SE-2	STM-2612-SE-3	STM-2612-SE-4
Matrix		Sediment	Sediment	Sediment	Sediment	Sediment
Depth Interval (ft.)		0.0-0.6	0.5-0.7	0.5-0.7	0.0-1.3	7.5-8.0
Date Sampled		07/22/98	07/22/98	07/22/98	07/22/98	07/28/98
Parameter	Units		Field Replicate (1)			
Volatile Organic Compounds						
1,2-Dichloroethene (total)	UG/KG				7.61	
Methyl ethyl ketone (2-Butanone)	UG/KG				80.1	23.7
Trichloroethene	UG/KG				4458	
Benzene	UG/KG					6.76
2-Hexanone	UG/KG				28.5	NA
Toluene	UG/KG				336	16.0
Chlorobenzene	UG/KG					10625
Ethylbenzene	UG/KG					2.69
m&p-Xylene	UG/KG				1321	17.6
o-Xylene	UG/KG				646	
Semivolatile Organic Compounds						
1,4-Dichlorobenzene	UG/KG					1591
1,2-Dichlorobenzene	UG/KG					1831
1,2,4-Trichlorobenzene	UG/KG					780
Acenaphthene	UG/KG			34.6		
Fluorene	UG/KG			36.4		
Phenanthrene	UG/KG	54.6	188	263	1218	746
Anthracene	UG/KG			48.4		166
Di-n-butylphthalate	UG/KG	572	78.5			
Fluoranthene	UG/KG	72.2	126	282	1455	867
Pyrene	UG/KG	567	158	237	3674	
Butylbenzylphthalate	UG/KG		225	56.2		161
Benzo(a)anthracene	UG/KG		57.1	126		384
Chrysene	UG/KG		74.9	148	1156	386

Only Detected Results Reported

TABLE 2-31
SUMMARY OF JULY 1998 SEDIMENT ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location ID		STM-2612-SE-1	STM-2612-SE-2	STM-2612-SE-2	STM-2612-SE-3	STM-2612-SE-4
Sample ID		STM-2612-SE-1	STM-2612-SE-2FR	STM-2612-SE-2	STM-2612-SE-3	STM-2612-SE-4
Matrix		Sediment	Sediment	Sediment	Sediment	Sediment
Depth Interval (ft.)		0.0-0.6	0.5-0.7	0.5-0.7	0.0-1.3	7.5-8.0
Date Sampled		07/22/98	07/22/98	07/22/98	07/22/98	07/28/98
Parameter	Units		Field Replicate (1)			
Semivolatile Organic Compounds						
bis(2-Ethylhexyl)phthalate	UG/KG	2239	592	414	22704	7462
Benzo(b)fluoranthene	UG/KG		62.2	144		538
Benzo(k)fluoranthene	UG/KG		67.6	129		
Benzo(a)pyrene	UG/KG		46.2	121		254
Polychlorinated Biphenyls						
Aroclor 1254	UG/KG	1593	85.6	43.7	940	
Aroclor 1260	UG/KG	1201	98.0	41.3	1240	530
Metals						
Aluminum	MG/KG	1716	2155	2092	5453	2572
Antimony	MG/KG	4.51	2.32	1.57	7.64	25.0
Arsenic	MG/KG	2.51	5.59	3.71	48.7	19.1
Barium	MG/KG	17.0	59.9	63.9	154	88.6
Cadmium	MG/KG	10.1	7.61	4.32	19.4	36.2
Calcium	MG/KG	4464	6884	4090	40408	90453
Chromium	MG/KG	35.6	52.6	43.9	240	148
Cobalt	MG/KG	4.38	5.01	3.38	9.34	23.1
Copper	MG/KG	80.4	12.8	10.7	94.4	188
Iron	MG/KG	48614	22047	13970	15710	196087
Lead	MG/KG	116	74.0	40.3	4767	414
Magnesium	MG/KG	1232	1323	1522	4424	4687
Manganese	MG/KG	373	174	134	230	1120
Mercury	MG/KG	0.16	0.08	0.04	0.48	2.94
Nickel	MG/KG	10.7	13.0	8.12	47	65.2
Potassium	MG/KG	1000	814	725	1208	126

Only Detected Results Reported

TABLE 2-31
SUMMARY OF JULY 1998 SEDIMENT ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location ID		STM-2612-SE-1	STM-2612-SE-2	STM-2612-SE-2	STM-2612-SE-3	STM-2612-SE-4
Sample ID		STM-2612-SE-1	STM-2612-SE-2FR	STM-2612-SE-2	STM-2612-SE-3	STM-2612-SE-4
Matrix		Sediment	Sediment	Sediment	Sediment	Sediment
Depth Interval (ft.)		0.0-0.6	0.5-0.7	0.5-0.7	0.0-1.3	7.5-8.0
Date Sampled		07/22/98	07/22/98	07/22/98	07/22/98	07/28/98
Parameter	Units		Field Replicate (1)			
Metals						
Selenium	MG/KG	4.81	2.09		0.76	19.4
Silver	MG/KG					1.57
Sodium	MG/KG	346	941	569	1164	
Vanadium	MG/KG	2.34	5.18		22.3	
Zinc	MG/KG	814	436	223	5386	1780

Only Detected Results Reported.

TABLE 2-32
SUMMARY OF JULY 1998 WASTEWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			STM-2612-WW-1	STM-2612-WW-1
Sample I.D.			STM-2612-WW-1	STM-2612-WW-1FR
Matrix			Water	Water
Date Sampled			07/29/98	07/29/98
Dilution Factor			10.00	10.00
Parameter	Units	Criteria *	Replicate	
TCLP Metals				
Barium	MG/L	100	0.0300	0.0380
Chromium	MG/L	5.0		0.001
RCRA Parameters				
Corrosivity (pH)	S.U.	<2.0 - >12.5	7.6	7.1

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - Maximum Concentration of Contaminants for the Toxicity Characteristics (CFR Part 261, Subpart C, November 1992).

TABLE 2-33
SUMMARY OF JULY 1998 CONCRETE CHIP SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location ID		STM-2612-SC-1	STM-2612-SC-2
Sample ID		STM-2612-SC-1	STM-2612-SC-2
Matrix		Cement	Cement
Depth Interval (ft.)		0.0-0.0	0.0-0.0
Date Sampled		07/16/98	07/16/98
Parameter	Units		
Polychlorinated Biphenyls			
Aroclor 1254	UG/KG	97.46	97.07
Aroclor 1260	UG/KG	106.60	98.08

NOTES:
 Only detected results reported.

TABLE 2-34
SUMMARY OF AUGUST 1998 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-2612-01	MW-2612-01	MW-2612-02	MW-2612-03
Sample I.D.			STM-2612-GW-01	STM-2612-GW-01-FR	STM-2612-GW-02	STM-2612-GW-03
Matrix			Water	Water	Water	Water
Date Sampled			08/11/98	08/11/98	08/11/98	08/11/98
Dilution Factor			1.00	1.00	1.00	1.00
Parameter	Units	Criteria *	Replicate			
Volatiles						
Vinyl Chloride	UG/L	2	4.26	4.25		
1,2-Dichloroethene (total)	UG/L	5	39.60	39.70		30.90
Chloroform	UG/L	7				1.80
Trichloroethene	UG/L	5		0.46	0.54	7.83
Tetrachloroethene	UG/L	5	5.00	5.28	3.35	2.03
Metals						
Aluminum	UG/L		2354.0	8639.0	986.3	78730.0
Antimony	UG/L	3	6.4	9.2		7.8
Arsenic	UG/L	25		4.9		14.8
Barium	UG/L	1000	45.62	92.08	23.29	251.70
Beryllium	UG/L	3		0.29		3.22
Cadmium	UG/L	5				3.65
Calcium	UG/L		48130.0	51620.0	57730.0	16380.0
Cromium	UG/L	50	4.08	12.67	1.62	105.90
Cobalt	UG/L		1.48	4.61	0.54	12.72
Copper	UG/L	200	7.1	10.2		6.2
Iron	UG/L	300	6504.0	14170.0	1619.0	37930.0
Lead	UG/L	25	4.3	5.0		79.4
Magnesium	UG/L	35000	15560.0	18390.0	14050.0	6560.0
Manganese	UG/L	300	214.10	293.70	776.20	348.70
Nickel	UG/L	100	4.20	8.60	2.54	19.34
Potassium	UG/L		3430.0	5950.0	2150.0	7970.0
Silver	UG/L	50		1.90		
Sodium	UG/L	20000	16060.0	17110.0	3205.0	30160.0
Vanadium	UG/L		4.0	14.9		201.9
Zinc	UG/L	2000	39.5	52.0	16.9	393.8

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

Not Analyzed .

TABLE 2-39b
SUMMARY OF JULY 1999 SEDIMENT SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			STM-2612-SE-5	STM-2612-SE-5
Sample I.D.			STM2612SED5	STM2612SED5FR
Percent Solids			76.3	76.3
Date Sampled			07/19/99	07/19/99
Dilution Factor			1.00	1.00
Parameter	Units	Criteria *		Replicate
Volatiles				
Trichloroethene	UG/KG	700	2.20	2.08
Semivolatiles				
Acenaphthene	UG/KG	50000	127.26	158.58
Anthracene	UG/KG	50000	239.84	486.24
Benzo(a)anthracene	UG/KG	224	591.09	1349.93
Benzo(a)pyrene	UG/KG	61	677.59	1336.83
Benzo(b)fluoranthene	UG/KG	1100	728.70	1441.68
Benzo(k)fluoranthene	UG/KG	1100	720.84	1288.34
Benzo(g,h,i)perylene	UG/KG	50000	364.35	427.26
bis(2-Ethylhexyl)phthalate	UG/KG	50000	188.73	241.15
Chrysene	UG/KG	400	790.30	1402.36
Dibenz(a,h)anthracene	UG/KG	14	153.34	200.52
Fluoranthene	UG/KG	50000	1454.78	3656.62
Fluorene	UG/KG	50000	94.63	146.79
Indeno(1,2,3-cd)pyrene	UG/KG	3200	519.00	393.18
Phenanthrene	UG/KG	50000	800.79	1481.00
Pyrene	UG/KG	50000	643.51	1572.74
Carbazole	UG/KG		167.76	213.63
Metals				
Aluminum	MG/KG	8510 SB	1620.71	2188.73
Antimony	MG/KG	12.6 SB	1.87	3.01
Arsenic	MG/KG	7.5	3.59	3.29
Barium	MG/KG	300	25.95	74.55
Beryllium	MG/KG	0.74 SB	0.17	
Cadmium	MG/KG	1.3 SB	0.950	2.244
Calcium	MG/KG	30200 SB	4025.0	5283.4
Chromium	MG/KG	19.5 SB	15.09	18.44
Copper	MG/KG	44.1 SB	14.39	14.88
Iron	MG/KG	36700 SB	21615.99	53229.36
Lead	MG/KG	400 **	34.72	35.91
Magnesium	MG/KG	3340 SB	914.3	1090.1

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1994. Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046). Jan 24.

**SEPA. 1994. OSWER Directive #9355.4-12, Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. 14 July.

SB - Site Background as determined in "Background Surface Soil & Groundwater Survey for Plattsburgh Air Force Base", URS Consultants Inc. January 1996.

ND - Not Detected .

TABLE 2-39b
SUMMARY OF JULY 1999 SEDIMENT SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.		STM-2612-SE-5	STM-2612-SE-6
Sample I.D.		STM2612SED5	STM2612SED5FR
Percent Solids		76.3	76.3
Date Sampled		07/19/99	07/19/99
Dilution Factor		1.00	1.00
Parameter	Units	Criteria *	Replicate
Metals			
Manganese	MG/KG	474 SB	254.59 449.55
Mercury	MG/KG	0.1	0.21 0.22
Nickel	MG/KG	13	4.64 2.12
Potassium	MG/KG	929 SB	197.6 265.5
Selenium	MG/KG	2	4.97 11.30
Sodium	MG/KG	520 SB	46.01
Vanadium	MG/KG	150	21.25 55.16
Zinc	MG/KG	63.4 SB	456.76 660.81
Total Organic Carbon (TOC)		MG/KG	16251.64 19528.18

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1994. Division of Technical and Administrative Guidance Memorandum (TAGM): Determination of Soil Cleanup Objectives and Cleanup Levels (HWR-94-4046). Jan 24.

SB - Site Background as determined in "Background Surface Soil & Groundwater Survey for Plattsburgh Air Force Base". URS Consultants Inc. January 1996.

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			49PLTW22	MW-02-048	MW-02-057	MW-02-089	MW-17-001
Sample I.D.			49PLTW22	MW02048	MW02057	MW02089	MW17001
Matrix			Water	Water	Water	Water	Water
Date Sampled			07/20/99	07/14/99	07/14/99	07/14/99	07/14/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *					
Volatiles							
Vinyl Chloride	UG/L	2					
Methylene Chloride	UG/L	5				0.26	
Acetone	UG/L	50	3.28			2.52	
1,1-Dichloroethene	UG/L	5					
1,1-Dichloroethane	UG/L	5		0.23			
1,2-Dichloroethene (total)	UG/L	5	1.00	9.90	0.66	0.57	0.37
Chloroform	UG/L	7		0.28			
1,2-Dichloroethane	UG/L	0.6					
Trichloroethene	UG/L	5	9.42	386.00	10.80		1.40
Tetrachloroethene	UG/L	5		0.55			
Toluene	UG/L	5	0.23			1.30	
Styrene	UG/L	5				0.28	
Metals							
Aluminum	UG/L		NA	NA	NA	NA	NA
Antimony	UG/L	3	NA	NA	NA	NA	NA
Arsenic	UG/L	25	NA	NA	NA	NA	NA
Barium	UG/L	1000	NA	NA	NA	NA	NA
Beryllium	UG/L	3	NA	NA	NA	NA	NA
Cadmium	UG/L	5	NA	NA	NA	NA	NA
Calcium	UG/L		NA	NA	NA	NA	NA
Chromium	UG/L	50	NA	NA	NA	NA	NA
Cobalt	UG/L		NA	NA	NA	NA	NA
Copper	UG/L	200	NA	NA	NA	NA	NA
Iron	UG/L	300	NA	NA	NA	NA	NA
Lead	UG/L	25	NA	NA	NA	NA	NA
Magnesium	UG/L	35000	NA	NA	NA	NA	NA
Manganese	UG/L	300	NA	NA	NA	NA	NA
Nickel	UG/L	100	NA	NA	NA	NA	NA
Potassium	UG/L		NA	NA	NA	NA	NA
Selenium	UG/L	10	NA	NA	NA	NA	NA
Silver	UG/L	50	NA	NA	NA	NA	NA

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

- Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			49PLTW22	MW-02-048	MW-02-057	MW-02-089	MW-17-001
Sample I.D.			49PLTW22	MW02048	MW02057	MW02089	MW17001
Matrix			Water	Water	Water	Water	Water
Date Sampled			07/20/99	07/14/99	07/14/99	07/14/99	07/14/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *					
Metals							
Sodium	UG/L	20000	NA	NA	NA	NA	NA
Vanadium	UG/L		NA	NA	NA	NA	NA
Zinc	UG/L	2000	NA	NA	NA	NA	NA

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

○ Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-17-004	MW-17-005	MW-2612-01	MW-2612-01	MW-2612-02
Sample I.D.			MW17004	MW17005	MW-2612-01	MW-2612-01FR	MW-2612-02
Matrix			Water	Water	Water	Water	Water
Date Sampled			07/14/99	07/14/99	07/14/99	07/14/99	07/14/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *				Replicate	
Volatiles							
Vinyl Chloride	UG/L	2			0.85	0.70	4.17
Methylene Chloride	UG/L	5					
Acetone	UG/L	50					
1,1-Dichloroethene	UG/L	5					
1,1-Dichloroethane	UG/L	5					
1,2-Dichloroethene (total)	UG/L	5	0.40	4.26	21.90	21.80	8.47
Chloroform	UG/L	7					
1,2-Dichloroethane	UG/L	0.6					
Trichloroethene	UG/L	5	1.10	3.27	0.44	0.44	0.80
Tetrachloroethene	UG/L	5	3.47		2.43	2.27	
Toluene	UG/L	5					
Styrene	UG/L	5					
Metals							
Aluminum	UG/L		NA	NA	780.6	571.5	267.7
Antimony	UG/L	3	NA	NA		3.2	
Arsenic	UG/L	25	NA	NA		9.1	9.1
Barium	UG/L	1000	NA	NA	42.40	37.29	31.30
Beryllium	UG/L	3	NA	NA	0.14	0.15	
Cadmium	UG/L	5	NA	NA	1.13	0.89	1.10
Calcium	UG/L		NA	NA	52620.0	48825.0	62928.0
Chromium	UG/L	50	NA	NA	4.48	16.43	
Cobalt	UG/L		NA	NA	2.48	2.31	1.35
Copper	UG/L	200	NA	NA	6.4	4.5	3.7
Iron	UG/L	300	NA	NA	6812.6	5646.3	8315.5
Lead	UG/L	25	NA	NA	4.8	3.5	3.4
Magnesium	UG/L	35000	NA	NA	16094.0	14588.0	12592.0
Manganese	UG/L	300	NA	NA	187.74	174.83	849.36
Nickel	UG/L	100	NA	NA	5.67	14.36	
Potassium	UG/L		NA	NA	2955.7	2553.0	3744.5
Selenium	UG/L	10	NA	NA			
Silver	UG/L	50	NA	NA			

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

- Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-17-004	MW-17-005	MW-2612-01	MW-2612-01	MW-2612-02
Sample I.D.			MW17004	MW17005	MW-2612-01	MW-2612-01FR	MW-2612-02
Matrix			Water	Water	Water	Water	Water
Date Sampled			07/14/99	07/14/99	07/14/99	07/14/99	07/14/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *				Replicate	
Metals							
Sodium	UG/L	20000	NA	NA	19542.0	15392.0	23807.0
Vanadium	UG/L		NA	NA	5.1	4.6	1.8
Zinc	UG/L	2000	NA	NA	26.2	24.5	43.7

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

- Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-2612-03	MW-2612-04	MW-2612-05	MW-2612-06	MW-2612-07
Sample I.D.			MW-2612-03	MW261204	MW261205	MW261206	MW261207
Matrix			Water	Water	Water	Water	Water
Date Sampled			07/14/99	07/20/99	08/04/99	08/04/99	08/04/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *					
Volatiles							
Vinyl Chloride	UG/L	2	3.04	0.40			
Methylene Chloride	UG/L	5					
Acetone	UG/L	50		5.77			
1,1-Dichloroethene	UG/L	5					
1,1-Dichloroethane	UG/L	5					
1,2-Dichloroethene (total)	UG/L	5	3.15	1.70	0.97	0.55	2.44
Chloroform	UG/L	7		4.65			
1,2-Dichloroethane	UG/L	0.6					
Trichloroethene	UG/L	5	1.40		4.32	0.78	20.70
Tetrachloroethene	UG/L	5	1.20				
Toluene	UG/L	5		0.71			
Styrene	UG/L	5					
Metals							
Aluminum	UG/L		439.2	588.5	465.3	NA	NA
Antimony	UG/L	3	6.2	3.1		NA	NA
Arsenic	UG/L	25				NA	NA
Barium	UG/L	1000	56.51	77.55	23.72	NA	NA
Beryllium	UG/L	3		0.06	0.08	NA	NA
Cadmium	UG/L	5	3.14	0.48	1.32	NA	NA
Calcium	UG/L		112480.0	78559.0	44555.0	NA	NA
Chromium	UG/L	50	28.80	18.91	1.28	NA	NA
Cobalt	UG/L		2.83	2.28	0.81	NA	NA
Copper	UG/L	200			6.1	NA	NA
Iron	UG/L	300	26496.0	4526.1	12941.0	NA	NA
Lead	UG/L	25	4.6	3.9		NA	NA
Magnesium	UG/L	35000	19405.0	18911.0	8952.0	NA	NA
Manganese	UG/L	300	1447.30	1091.70	957.16	NA	NA
Nickel	UG/L	100	24.59	16.77	1.28	NA	NA
Potassium	UG/L		5973.3	5371.9	2336.5	NA	NA
Selenium	UG/L	10	11.2			NA	NA
Silver	UG/L	50				NA	NA

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria.

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

. Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-2612-03	MW-2612-04	MW-2612-05	MW-2612-06	MW-2612-07
Sample I.D.			MW-2612-03	MW261204	MW261205	MW261206	MW261207
Matrix			Water	Water	Water	Water	Water
Date Sampled			07/14/99	07/20/99	08/04/99	08/04/99	08/04/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *					
Metals							
Sodium	UG/L	20000	8127.5	15395.0	4449.5	NA	NA
Vanadium	UG/L		8.1	3.9	5.0	NA	NA
Zinc	UG/L	2000	14.6	26.5	68.0	NA	NA

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

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○ Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-2612-07	MW-2612-08	MW-2612-09	MW-2612-10	MW-2612-11
Sample I.D.			MW261207FR	MW261208	MW261209	MW261210	MW-2612-11
Matrix			Water	Water	Water	Water	Water
Date Sampled			08/04/99	08/04/99	08/04/99	07/20/99	07/14/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *	Replicate				
Volatiles							
Vinyl Chloride	UG/L	2				2.66	0.68
Methylene Chloride	UG/L	5					
Acetone	UG/L	50					1.80
1,1-Dichloroethene	UG/L	5					0.29
1,1-Dichloroethane	UG/L	5					
1,2-Dichloroethene (total)	UG/L	5	2.46	2.34	13.00	44.40	95.00
Chloroform	UG/L	7					1.50
1,2-Dichloroethane	UG/L	0.6				1.50	1.10
Trichloroethene	UG/L	5	21.10	16.70	0.99	0.86	0.50
Tetrachloroethene	UG/L	5					
Toluene	UG/L	5					
Styrene	UG/L	5					
Metals							
Mercury	UG/L		NA	NA	4092.7	178.3	669.8
Antimony	UG/L	3	NA	NA		2.9	3.0
Arsenic	UG/L	25	NA	NA			
Barium	UG/L	1000	NA	NA	55.27	50.26	45.86
Beryllium	UG/L	3	NA	NA	0.25		
Cadmium	UG/L	5	NA	NA	1.22	2.11	0.29
Calcium	UG/L		NA	NA	57456.0	55077.0	58997.0
Chromium	UG/L	50	NA	NA	6.09	11.57	1.55
Cobalt	UG/L		NA	NA	2.30	1.76	1.24
Copper	UG/L	200	NA	NA	11.9	4.0	2.5
Iron	UG/L	300	NA	NA	11682.0	18046.0	3670.6
Lead	UG/L	25	NA	NA	3.3		3.8
Magnesium	UG/L	35000	NA	NA	15888.0	12395.0	17506.0
Manganese	UG/L	300	NA	NA	375.54	632.14	663.25
Nickel	UG/L	100	NA	NA	3.42	8.61	2.03
Potassium	UG/L		NA	NA	4101.6	4566.7	4905.3
Selenium	UG/L	10	NA	NA			
Silver	UG/L	50	NA	NA			

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria.

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

NA - Not Analyzed.

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-2612-07	MW-2612-08	MW-2612-09	MW-2612-10	MW-2612-11
Sample I.D.			MW261207FR	MW261208	MW261209	MW261210	MW-2612-11
Matrix			Water	Water	Water	Water	Water
Date Sampled			08/04/99	08/04/99	08/04/99	07/20/99	07/14/99
Dilution Factor			1.00	1.00	1.00	1.00	1.00
Parameter	Units	Criteria *	Replicate				
Metals							
Sodium	UG/L	20000	NA	NA	5848.9	15716.0	47850.0
Vanadium	UG/L		NA	NA	12.7	5.3	1.5
Zinc	UG/L	2000	NA	NA	47.2	18.2	47.5

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

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○ Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-2612-12	MW-2612-13	MW-2612-14	MW-2612-15
Sample I.D.			MW261212	MW261213	MW261214	MW261215
Matrix			Water	Water	Water	Water
Date Sampled			07/20/99	08/04/99	08/04/99	08/04/99
Dilution Factor			1.00	1.00	1.00	1.00
Parameter	Units	Criteria *				
Volatiles						
Vinyl Chloride	UG/L	2				
Methylene Chloride	UG/L	5				
Acetone	UG/L	50			2.06	
1,1-Dichloroethene	UG/L	5				
1,1-Dichloroethane	UG/L	5				
1,2-Dichloroethene (total)	UG/L	5	11.40	14.60	6.24	5.21
Chloroform	UG/L	7	1.50	5.50	2.35	1.10
1,2-Dichloroethane	UG/L	0.6				
Trichloroethene	UG/L	5	0.71	6.83	2.91	2.20
Tetrachloroethene	UG/L	5				
Toluene	UG/L	5		0.23		
Styrene	UG/L	5				
Metals						
Mercury	UG/L		437.2	NA	NA	NA
Antimony	UG/L	3	4.7	NA	NA	NA
Arsenic	UG/L	25		NA	NA	NA
Barium	UG/L	1000	47.73	NA	NA	NA
Beryllium	UG/L	3		NA	NA	NA
Cadmium	UG/L	5		NA	NA	NA
Calcium	UG/L		40619.0	NA	NA	NA
Chromium	UG/L	50		NA	NA	NA
Cobalt	UG/L			NA	NA	NA
Copper	UG/L	200	4.9	NA	NA	NA
Iron	UG/L	300	1321.3	NA	NA	NA
Lead	UG/L	25	4.3	NA	NA	NA
Magnesium	UG/L	35000	11677.0	NA	NA	NA
Manganese	UG/L	300	361.37	NA	NA	NA
Nickel	UG/L	100		NA	NA	NA
Potassium	UG/L		3153.5	NA	NA	NA
Selenium	UG/L	10		NA	NA	NA
Silver	UG/L	50	38.40	NA	NA	NA

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria.

* - New York State Department of Environmental Conservation, 1998, Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations, June.

. Not Analyzed .

TABLE 2-39c
SUMMARY OF JULY-AUGUST 1999 GROUNDWATER SAMPLE ANALYTICAL RESULTS
PLATTSBURGH AFB - STM/STW-2612

Location I.D.			MW-2612-12	MW-2612-13	MW-2612-14	MW-2612-15
Sample I.D.			MW261212	MW261213	MW261214	MW261215
Matrix			Water	Water	Water	Water
Date Sampled			07/20/99	08/04/99	08/04/99	08/04/99
Dilution Factor			1.00	1.00	1.00	1.00
Parameter	Units	Criteria *				
Metals						
Sodium	UG/L	20000	48935.0	NA	NA	NA
Vanadium	UG/L			NA	NA	NA
Zinc	UG/L	2000	29.2	NA	NA	NA

NOTES:

Only detected results reported.

○ - Concentration exceeds criteria .

* - New York State Department of Environmental Conservation. 1998. Division of Water Technical and Operational Guidance Series (1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations. June.

○ - Not Analyzed .