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PHASE II WORK PLAN

ENGINEERING INVESTIGATIONS OF INACTIVE HAZARDOUS WASTE DISPOSAL SITES

OLD HALFMOON LANDFILL

DEC I.D. NO. 546013

TOWN OF HALFMOON/SARATOGA COUNTY, NEW YORK

September 1991

Prepared For:

New York State Department of Environmental Conservation

50 Wolf Road

Albany, New York

Prepared By:

Division of Hazardous Waste Remediation

Bureau of Hazardous Site Control

Eastern Investigation Section

✓ + entire report

September 1991

GENERAL:

Based on this work plan, a costing sheet is to be developed and attached by the consultant. This work plan and associated costs will be made part of this cost plus fixed fee contract with a limiting upset figure. Unless otherwise stated in this work plan, the work shall conform to the concepts of Exhibit 1, Generic Work Plan - State Superfund Program - Phase II Investigations and Exhibit 3, Schedule 4 of the contract document.

A copy of this work plan and Exhibits 1 and 3 of the contract must be taken to the field by the consultant during the Phase II field activities. The representative must display, through his action, familiarity with the provisions of the work plan and exhibits. Failure to provide any of the above documents at the New York State Department of Environmental Conservation (NYSDEC) representatives request or for the consultant to show inadequate comprehension of their contents are sufficient grounds for NYSDEC to halt the Phase II field work.

INTRODUCTION:

Site History: This site is a portion of the Old Erie Canal which the Town of Halfmoon decided to fill in to avoid accidental drownings. The Town contracted an Arizona firm, Aetra Corporation, to operate the site. Aetra obtained garbage hauling contracts for the surrounding municipal areas and began dumping operations in 1962. Supposedly only municipal wastes were accepted, but local residents claimed trucks were on the site at night. Aetra was relieved of its duty in May 1967, and the Town transferred operating repsonsibility to Chiarello Landfill and Disposal Inc. at this time. Chiarello was taken over by Capitol Division Disposal Company around July 1967.

Supreme Court Justice M. Sweeney ordered the Capital Division to close and cover the site by the end of 1968. Capital Division never completed this task. The Town was advised by the Glens Falls District Office of the New York State Department of Health to close out the site on January 10, 1969.

Since then leachate has been seen leaving the site at numerous locations along the Mohawk River and methane gas has been generated. According to a memorandum dated February 9, 1976 from Mr. Brian Fear, of the Department of Health, "large sink holes have appeared in the site and large quantities of methane gas are being produced." There is documentation of a methane gas explosion in 1970 in the basement area of a home adjacent to the dump.

According to a DEC Hazardous Waste Disposal Sites report, dated February 1980, the canal was filled four to eight feet above the original grade and leachate is visible at many locations along the site. A USEPA Site Investigation Report submitted on June 4, 1980 reported only minor problems of escaping methane gas and points of ground cracks. A NYSDEC Phase I report (January 1987) has been completed for this site. Preliminary field sampling was conducted by the NYSDEC and the NYSDOH in November 1987, May-July 1988 (NYSDOH) and May 1989.

Site Topography: The Old Halfmoon Landfill is located in the southeastern portion of Saratoga County in the Mohawk Valley. The site is approximately 2.3 miles long and varies in width. The site is a portion of the Old Erie Canal located on the north side of the Mohawk River's flood plain and at points is less that 10 feet from the bank of the Mohawk River. At the western end the area of fill broadens well beyond the confines of the old canal bed and may be greater than twenty (20) feet in depth. See Figure 1.

The site is primarily bounded on the south by the Mohawk River and parallels Tow Path Road. The eastern end of the old dump is Route 9 and the western end is in the vicinity of Clam Steam Road. In most cases, the nearest residences are on the opposite side of Tow Path Road from the fill area. The distance of these homes from the old canal ranges from 100 to 250 feet. There are approximately 50 homes within 1/4 mile of the site. The majority of these homes have private wells and depths ranging from 40 to 200 feet.

Site Hydrogeology: The Old Halfmoon Landfill is located in the flood plain of the Mohawk River. The landfill is a portion of the Erie Canal which was excavated in fine-grained stratified deposits of clay with some silt. The surrounding soils are also of clay nature. The general drainage pattern is southerly from the highlands to the Mohawk River. Drainage and groundwater both move into the canal bed which flows into the Mohawk River. Underlying the clay deposits is a thick sequence of consolidated rocks consisting largely of shale interbedded with thin layers of sandstone. The Mohawk River is classified "A" in this stretch.

Site Contamination: Waste types accepted at the Old Halfmoon Landfill were primarily solid municipal waste. No written documentation of hazardous or chemical wastes has been found. USEPA estimates that the volume of waste disposed of at this site is 176,000 cubic yards. There are allegations of drums of unknown contents being buried at this site.

A site inspection on February 13, 1985 by Wehran Engineering revealed two problems: ponding on the surface of the landfill and leachate entering the Mohawk River. USEPA site inspections in June 1980 indicated problems of refuse protruding through cover material and methane gas production. These conditions are known to still exist based on site inspections by NYSDEC personnel in the Spring, 1991. Considerable seasonal leachate production which flows directly into the Mohawk River was noted in the western end of the site. Protruding, rusting drums were observed in the western end of the dump as well.

OBJECTIVE:

There has been some groundwater, surface water and sediment sampling in the immediate vicinity of the site. The objectives of the Phase II activities are to collect essential field information to (1) confirm the presence of hazardous waste at the site; (2) adequately assess if contamination has been released from the site; (3) determine whether a significant threat to the environment or public health exists; (4) to prepare final Hazardous Ranking Scores (HRS) if directed by NYSDEC; and (5) make recommendations for possible future actions at the site.

Work Tasks:

The project has been subdivided into specific tasks. Table I briefly summaries each task. Certain tasks will be completed only if specifically directed by NYSDEC. Classification of the site may be possible without performing certain tasks. Efforts required to complete this investigation are described herein:

TASK 1

Records Search/Data Compilation

For the purposes of report preparation and to become familiar with the site, the consultant is to review all existing reports, engineering plans, and data on the site. A review of files at agency offices is to be limited to NYSDEC - Central Office and NYSDOH - Glens Falls Office. NYSDEC will provide to the consultant any information that the NYSDEC may collect themselves during the course of the investigation. NYSDEC will resolve any access problems.

TASK 2

Site Reconnaissance/Air Monitoring:

An initial site visit has been conducted by NYSDEC personnel. Exact location of all buried power lines, underground gas lines, water mains. sewage pipes, and storm water pipes must be obtained by the consultant from the appropriate utility and/or municipal department prior to any excavation and commencement of drilling. All due caution must be exercised by the driller with respect to overhead power lines, telephone lines and/or cables.

A site visit will be conducted by the Consultant't representatives to confirm stated conditions, determine ease of equipment access, and perform air monitoring. This should be no more than a six man-day day effort.

TASK 3

Soil Gas Survey: Not required for this investigation.

Magnetometry Survey: The consultant is to conduct a magnetometry survey over the whole length of the site as a general investigative tool to locate possible buried drums. It is understood that this method is capable of detecting large concentrations of metal, either drums or other large metallic objects. It will not detect single or very few drums or deeply buried drums. The data collected in this subtask will be used to determine possible test trench locations. The consultant is to review the magnetometer survey data and propose possible test trench locations which may contain buried drums to be excavated and sampled.

Test Trenches: This sub-task will first involve conducting an adequate magnetometer survey to locate possible buried drums. The areas(s)

to be excavated will be determined based on data collected during the magnetometer survey and from other sources of information. The area to the west of Beach Road must be focused on due to the presence of exposed drums. A number of apparently empty metal drums which were possibly used to float docks are present in the weeds at the end of Clam Steam Road.

For areas determined to have subsurface anomalies similiar to a large quantity of drums or areas selected from other information, test trenches will be excavated to a maximum depth of twenty feet and with a horizontal area as required in the field. If the water table is encountered, the excavation should cease unless drums are apparent. If excavations are required in either the eastern or middle portions of the site, it is expected that the water table will be encountered within 5 to 10 feet of depth. Excavations in the western end may encounter fill with a depth of up to 20 feet before the water table is encountered. Therefore, an adequately sized backhoe capable of excavating to a maximum depth of 20 feet in mixed municipal refuse must be utilized. For costing purposes, a total of five trenches are to be excavated which can be expected to be completed in no more than three days.

For costing purposes, up to ten (10) drums or waste masses will be sampled if encountered and containing apparent industrial waste. Each sample is to be analyzed for full TCL organics, metals and cyanide, full EP Toxicity analysis, corrosivity (ph), reactivity, and ignitability. This should allow for a hazardous waste determination. There is to be no compositing of samples. Trenches must be backfilled and graded level after sampling. Continuous monitoring for organic vapors, lower explosive limit, and radiation levels is to occur. These are standard monitoring procedures when excavating into waste of unknown composition. There are no reports of radioactive waste disposal at this site. Any excavated drums which are sampled are to be overpacked, clearly marked and staged on-site. The NYSDEC will request that the Town of Halfmoon assume responsibility for these containers. Any exposed drums or waste masses on the surface which may be sampled are to be left intact and as undisturbed as possible. Overpacking of these are not required. A NYSDEC representative will be on-site during this entire sub-task to authorize all proposed waste samples and for oversight responsibilities.

Environmental Sampling and Analysis

Air: Air monitoring (to include a site reconnaissance for confirmation of site conditions noted in work plan), consisting of a perimeter survey with a photoionization detection (PID), e.g., HNu instrument and a flame ionization detector (FID), e.g., OVA shall occur upon arrival at the site. A survey within the boundary of the site shall follow the perimeter survey. This air monitoring is separate from monitoring that is part of the health and safety plan. If a source of air contamination is identified, the air will be sampled using appropriate equipment to determine the nature and concentration of the contaminant. Upwind air samples will also be analyzed at the same time. Wind direction must be continuously monitored and documented during any sampling and analysis of air samples. The intent of the air sampling is to determine whether or not there is an air release from the site and not to do a health assessment. The possible presence of methane gas must be evaluated.

Surficial Sampling (surface water, sediment, and leachate): This sub-task is crucial to determining any necessary future investigative or remedial measures required for the site. The objective of this surficial sampling program is to conduct sufficient initial sampling to analytically document a possible impact from the dump onto the Mohawk River. The areas to be focused on are the western and middle sections which have the highest obvious seasonal leachate production which flows directly into the Mohawk River. It is not intended for this initial sampling program to completely define the degree of impairment from this non-point source but rather determine whether particular indicator parameters are present which could bioaccumulate.

Surface Water: Twelve (12) surface water samples will be collected from locations identified on Figure 2. The samples will be analyzed for TCL metals and organics using NYSDEC 1989 ASP. The polychlorinated biphenlys analysis method must have a detection limit at or close to the class A waterbody standard (0.01 ppb). Surface water samples SW-1 thru SW-6 are to be collected from the river directly at or slightly downstream of leachate discharges at approximately the middle of the water column. A control water sample (SW-9) is to be collected at approximately mid-channel upstream of the dump just east of I-87 twin bridges. Three surface water samples (SW-10 thru SW-12) are to be collected on a transect out from the SW-2 location at an approximate 200 foot horizontal spacing. The function of these samples are to attempt to determine the extent of the leachate plume. Two additional samples (SW-9 and SW-8) are located near the riverbank on the eastern end of the site.

Sediment: Twelve (12) sediment samples will be collected from the same locations as the surface water samples. They will be analyzed for TCL metals and organics using NYSDEC 1989 ASP.

Leachate: Up to eight (8) leachate samples will be collected from up to eight (8) seeps if available under the direction of the NYSDEC representative or the consultant field representative. They will be analyzed for TCL metals and organics using NYSDEC 1989 ASP. Tentative locations have been indicated on Figure 2.

All samples taken for chemical analyses shall be delivered to the laboratory within 24 hours of the sampling day. Express courier service shall be used to transport the samples, unless the laboratory is close enough to the site for the consultant to make direct delivery.

Table 3 summarizes the analysis to be performed at the Old Halfmoon Landfill site. Type of sample, number of samples and analysis methods are included.

Where dilution of any Phase II sample is to be done by the chemical analytical laboratory prior to analysis, NYSDEC is to be advised immediately. The concern is that a component of low concentration, but of significant environmental impact, could become so diluted that its presence in the final extract will not be detected.

Mohawk River. It is not the intention of the NYSDEC to monitor groundwater quality over the entire 2.3 mile length of the site in this investigation.

A HNu (or OVA) a MSA (LEL, O_2, TOX), and a dosimeter must be used during all boring activity. A magnetometer must be used to screen for buried metallic objects at each boring location.

Well MW-1 will be installed at a presumed upgradient location, to the northwest of the landfill. This well should provide representative samples of the groundwater flowing into the area.

Four monitoring wells will be required to monitor downgradient flow directions and water quality. These wells will be installed at the approximate locations shown in Figure 2. These locations should provide an opportunity for interception of any contaminant plume.

All monitoring wells will be installed so as to sample from the saturated zone of the overburden. The monitoring well screens must be placed at the top of the water table. If sufficient water is not present, then the bedrock aquifer will be monitored. For costing purposes, assume a maximum of 30 feet of boring per well. All monitoring wells will be constructed as specified in Figure 4 (or Figure 5 if bedrock well). Ten (10) foot PVC well screens (0.010" slot) should be utilized.

Stainless steel bolt-on centralizers (1 per well) with stainless steel bolts must be used at the base of each screen. This should aid in obtainig plumb alignment for the wells and that the sandpack is of uniform thickness. A minimum three inch 3" open borehole is required if the bedrock aquifer is monitored. Supportive casing used in advancing the borehole must be removed, once the wells have been constructed.

The following is the required procedure for forming the monitoring well seal, if it is to be located in the unsaturated zone and is not visible from the ground surface (approx. 5 ft.).

1. A pure bentonite/water slurry should be introduced first if the seal is to be located in the unsaturated zone. This slurry must be introduced with a side delivery tremie pipe.

2. One quarter inch diameter bentonite pellets should then be introduced in a volume at least equal to the slurry. Sufficient time should be allowed for the pellets to hydrate per manufacturer's directions. If the manufacturer's specification is unavailable, then adequate potable water must be introduced to allow for proper hydration.

3. After sufficient time has elapsed, a measurement must be made to determine that the seal is at least two feet in thickness.

4. The annular space can then be grouted to the surface.

Borings will be advanced through the overburden or bedrock by rotary (4 1/4" I.D. hollow stem augers are satisfactory in the overburden), or cable tool rigs. Split spoon sampling should be done at five (5) foot

During this contact, the NYSDEC chemist will discuss alternatives with the laboratory's chemist on how best to conduct the analysis. NYSDEC chemist is Mr. John Rankin, telephone (518) 457-3252.

Although a method or extra work may be agreed upon by both chemists, clearance for any extra cost must be obtained by the consultant from the NYSDEC contract manager. Such cost will be paid from the contingency amount in the contract, and clearance must be confirmed by NYSDEC in writing.

The consultant shall provide an estimate of the cost for sub-contracting the task of reviewing the CLP QA/QC documents by an independent laboratory not involved with the Phase II investigations under this contract.

Task 3 Report

At the conclusion of Task 3, the consultant is to prepare a report presenting their findings to date. The consultant must compare environmental sampling data to relevant standards or guidelines. The consultant must present a description of the environmental surroundings of the old dump and the Mohawk River. This should include a description of the Mohawk River near shore area (vegetation present, extent of obvious leachate plume, drainage patterns, obvious biota present, etc.) and channel. A sectionalized site map must be included (approx. 1"=250' scale). Based on the results of the initial environmental sampling, the consultant should discuss the need to conduct further sampling and for which particular indicator parameters. This supplemental sampling would likely include macro invertebrate sampling. Based on the waste sample results and other sources of information, the presence of hazardous waste must be discussed as well. A recommendation to classify or delist the site should be made.

TASK 4 (The consultant will proceed with Task 4 only if directed to do so by the NYSDEC)

Biota Sampling: If directed by the NYSDEC, the consultant will collect supplemental samples to document possible impact on biota from the landfill leachate dicharging into the Mohawk River. This will likely include macro invertebrate sampling for selected indicator compounds. The specifics of this task can not be determined at this time.

Test Boring and Well Installations: If directed by NYSDEC, shallow groundater monitoring wells will be installed to provide data pertinent to both water chemistry and characterization of the stratigraphy and groundwater regime at the site. Finalized well locations will depend on (1) the utility search in order to avoid underground obstacles, (2) accessibility and (3) previous sampling results. This decision will be made jointly by the consultant and NYSDEC representatives.

The purpose of the monitoring wells is to simply document that wastes in selected areas of the site are possibly impacting shallow groundwater quality. Shallow groundwater locally is likely discharging directly to the

intervals in the unsaturated zone of the overburden and continuously in the saturated zone of the overburden. Three (3) - five foot core samples are required once bedrock is encountered. This sampling should be done in accordance with the NYSDEC-Division of Hazardous Waste Remediation Phase II Well Construction Guidelines. Soil samples will be classified in the field by a field geologist, engineer or adequately experienced technical staff. A grain size analyses or Atterberg limits tests will be performed at every significant change in subsurface lithology, as well as one such analysis in the screened interval. For costing purposes, it will be assumed that a total of fifteen (15) grain size analysis or Atterberg limits tests will be performed. All work will be done in accordance with the Generic Work Plan, Exhibit 1, and Guidelines for Exploratory Boring, Exhibit 3 of this contract (Schedule 4).

Permeability testing, (a slug test), will be done for each well. Groundwater elevation readings will be taken in each well before and immediately after development. Each well will be developed as soon as its recovery is completed, but no sooner than 24 hours. Each well will be developed to the point that the turbidity of the recovered well water is 50 Nephelometric Turbidity units (NTu) or less. A nephelometer will be brought to the field for purpose of making this measurement. A signed statement will be provided to the Department that the turbidity was less than 50 NTu for each well immediately after development if a Department representative is not present when the measurements are taken. If the above criteria is not met within two (2) hours, well development must cease, and the NYSDEC representative contacted to determine how to proceed. For costing purposes, allow four (4) hours for well developmet per well.

Survey: To allow for accurate water level measurements, each of the well elevations will be determined relative to a USGS datum. If a USGS datum is not within 200 feet of the site, the elevation measurements will be made relative to a site specific datum. Elevation measurements will be made to the top of casing to the nearest 0.01 foot and the ground surface adjacent to the well to the nearest 0.1 foot. Preliminary measurements will also be made when necessary to assist in placement of downgradient wells. All surficial sampling points, significant site features, property lines and owner(s) must be shown on the final site map but are not required to be located by a licensed surveyor.

Groundwater Sampling: Groundwater from the four (4) wells identified in Table 2 will be analyzed for Target Compound List (TCL) metals and organics, using the NYSDEC Contract Laboratory Protocols (CLP). Dedicated tubes, hoses, and line will be provided for development and sampling of each well. Bailers will be decontaminated as required in the QA/QC plan.

TASK 5

Final Report Preparation

Report preparation will involve analysis of the data, as well as preparation of the text. Included in this task are the compilation and organization of the data, editing of boring logs, reduction of hydrologic data, preparation of graphical representations, analysis, calculations, and

preparing a HRS score for the site. The report shall follow the format detailed in the Generic Phase II Work Plan. Four copies of the draft

report shall be submitted. After review by NYSDEC, any corrections are to be made by the consultant and 14 copies of the final report are to be submitted. Draft and final reports must bear the stamp of a professional engineer in accordance with Article 49 of the contract.

ADDITIONAL TASKS LISTED IN TABLE 1

COST ESTIMATE

The estimated manhours required for the Phase II project are presented in Table 4 and the estimated project costs by tasks are presented in Table 5 (completed by NYSDEC consultant).

HEALTH AND SAFETY PLAN

The site-specific Health and Safety Plan will be submitted by the consultant as a separate document. At this time, we anticipate Level D health and safety gear will be required.

If, during the investigation, it is determined that the level of protection should be upgraded, the consultant shall be ready to employ the appropriate equipment and NYSDEC shall be immediately notified.

QUALITY ASSURANCE PLAN

The QA requirements for the Phase II investigation must be addressed. Sample control forms attached to the amendment (of the contract) as Exhibit 1 must be supplied to the analytical laboratory for completion and inclusion with the data package. The Quality Assurance Plan will be submitted as a separate document.

Table 1
Phase II Work Plan - Task Description
Old Halfmoon Landfill Site

Task	Tasks	Description of Task
1	Conduct Records Search/Data Compilation	Update Phase I as necessary
2	Site Reconnaissance/Air Monitoring	Confirmation visit and document possible air release
3A	Soil Gas Survey	Not required for this investigation.
3B	Test Trenches	Magnetometer survey over entire site to locate possible buried drums. Test trench excavation and waste sampling from drums if encountered. Continuous monitoring.
3C	Perform Environmental Sampling and Analysis	See text and tables 2 and 3.
	CLP QA/QC documentation	To be reviewed by an independent subcontracting laboratory.
3D	Task 3 Report	See text.
4A	Conduct Boring/Install Monitoring Wells	Complete five boring and install five monitoring wells.
	Soil samples from borings	Soil samples collected at 5-ft. intervals, during drilling and at changes in subsurface lithologies. Perform grain size analysis, Atterberg limits and permeability tests as specified in the test.

4B	Survey	By licensed surveyor in accordance with Section C.10 of Exhibit 3, Schedule 4 of contract.
4C	Groundwater Sampling	See text and Tables 2 and 3
4D	Biota Sampling	To be determined based on Task 3 results.
5	Report Preparation	Prepare final report containing pertinent previous report information and data, additional field data, final HRS and HRS documentation records if requested by NYSDEC, and site assessments with recommendations for any future action at site, and in accordance with Article 49.
6	Project Management	Project coordination, administration and reporting.

Table 2
Phase II Work Plan - Sampling Summaries
Old Halfmoon Landfill

Designation	Location Rationale	Aquifer/layer Screened	Approx. Boring Depth (ft.)	Length of Screen(ft)*
Groundwater				
GW-1	Upgradient	Overburden	30 max.	10
GW-2	Downgradient	"	30 max.	10
GW-3	"	"	30 max.	10
GW-4	"	"	30 max.	10
GW-5	"	"	30 max.	10

* minimum 3" open borehole if bedrock aquifer is to be monitored exclusively.

Surface Water and Sediment				
SW-1 thru SW-12	Mohawk River - See Figure 3			
SD-1 thru SD-12	Mohawk River - See Figure 3			
Leachate				
L-1 thru L-8	Where available			
Waste (Borings)				
W-1 and W-10	As encountered			
Air				

Use of appropriate equipment to determine the presence of volatile organics and their potential release from the site.

NOTE: Locations, aquifer screened, approximate boring depth listed are based on existing data. These criteria may change based on the results of the geophysical surveys, soil gas survey and/or field conditions.

Table 3

NYSDEC - Chemical Analyses - Old Halfmoon Landfill Site

Type of Sample	Type of Analyses[1]* TCL[2] Metals	TCL[3] Volatiles	TCL[4] Semi-Volatiles	TCL[5] Pesticides/ PCBs	Matrix Spike/ Duplicate[6]
Groundwater[7]	6	6	6	6	1/1
Surface Water	12	12	12	12	1/1
Sediment	12	12	12	12	1/1
Leachate[8]	8	8	8	8	1/1
Waste[8]	10	10	10	10	---
Trip Blank	---	1	---	---	---
Field Blank	1	1	1	1	---

(1) Complete identification per NYSDEC Generic Work Plan, Section 3(b)(ii)(B). Field pH, conductivity and temperature measurements will be conducted on all water samples.

(2) TCL Metals - Preparation and analysis of the 15 Task 1 and 9 Task 2 inorganic compounds using the specified CLP methods. Includes cyanide analysis.

(3) TCL Volatiles - Preparation and analysis using the CLP specified GC/MS method for TCL purgeable organics plus a library search for and the quantification of any additional non-TCL compounds (the CLP requires the library search only for the 10 non-TCL compounds of largest apparent concentration).

(4) TCL Semi-Volatiles - Preparation and Analysis using the CLP specified GC/MS method for TCL Extractable Base/Neutral and Acid Organic compounds plus a library search for and the quantification of any additional non-TCL compounds (the CLP requires the library search only for the 20 non-TCL compounds of largest apparent concentration).

(5) TCL Pesticides/PCBs - Preparation and pre-extraction of the TCL organochloride pesticides and polychlorinated biphenyls using the CLP specified GC-ECD method. The surface water samples PCB analysis method

must have a detection limit at or close to the class A waterbody standard (0.01 ppb).

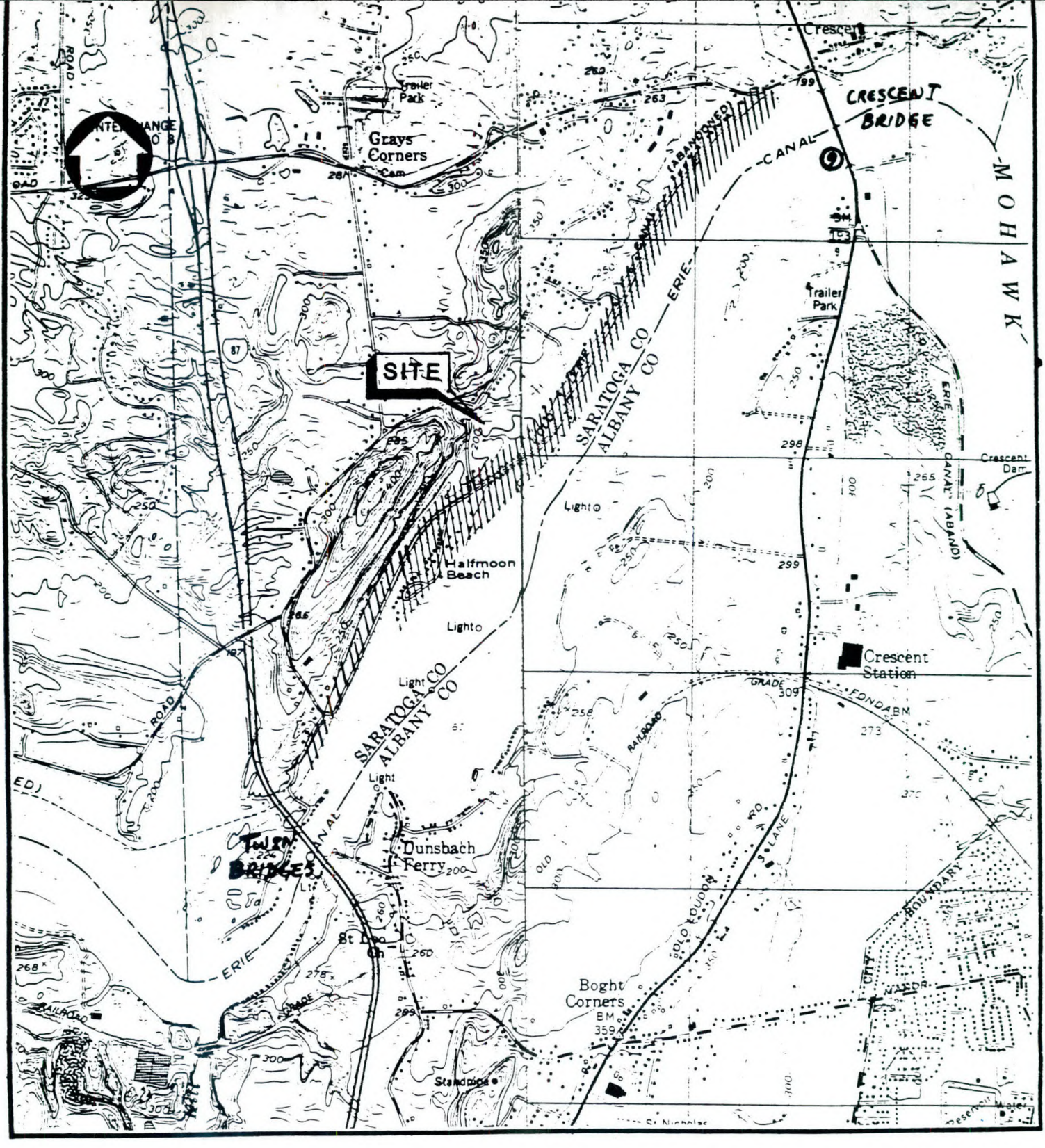
(6) Superfund and Contract Laboratory Protocol, November 1987, requires at least one spiked sample analysis and one duplicate sample analysis from each group of samples of a similar matrix type for each case of samples or for each 20 samples received, whichever is more frequent.

(7) The reason for one (1) additional groundwater sample is that a duplicate groundwater sample must be obtained from a monitoring well chosen at random (or some other medium if wells are not available). That duplicate sample must not be identified as a duplicate to the laboratory, but must be assigned an identifier similar to other groundwater samples. The Bureau requires the blind analysis of a duplicate sample for each site by the laboratory to confirm the integrity of all sampling and analytical activities.

(8) Samples will also be analyzed for full EP Toxicity, Corrosivity (pH) Reactivity and Ignitability to determine if they are a characteristic hazardous waste.

(9) If only collecting soil sample(s) from boring(s), do not collect MS and MSD.

--- Designates that no samples are to be analyzed.



SCALE: 1" = 2000'

TOPOGRAPHY TAKEN FROM

1954

TROY NORTH, N.Y.
NISKAYUNA, N.Y.

U.S.G.S. QUADRANGLES



MAP LOCATION

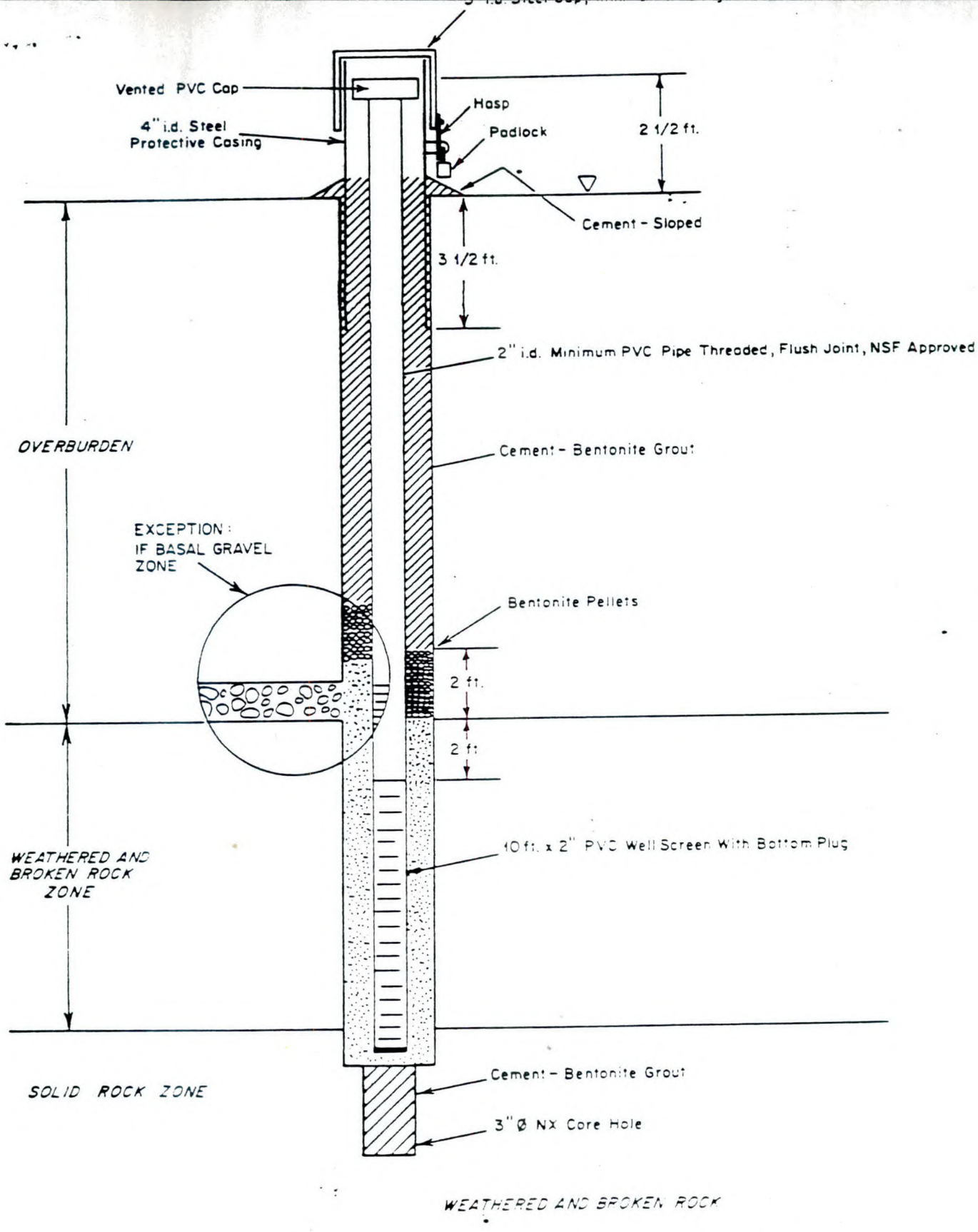
FIGURE 1

SITE LOCATION MAP

OLD HALFMOON LANDFILL

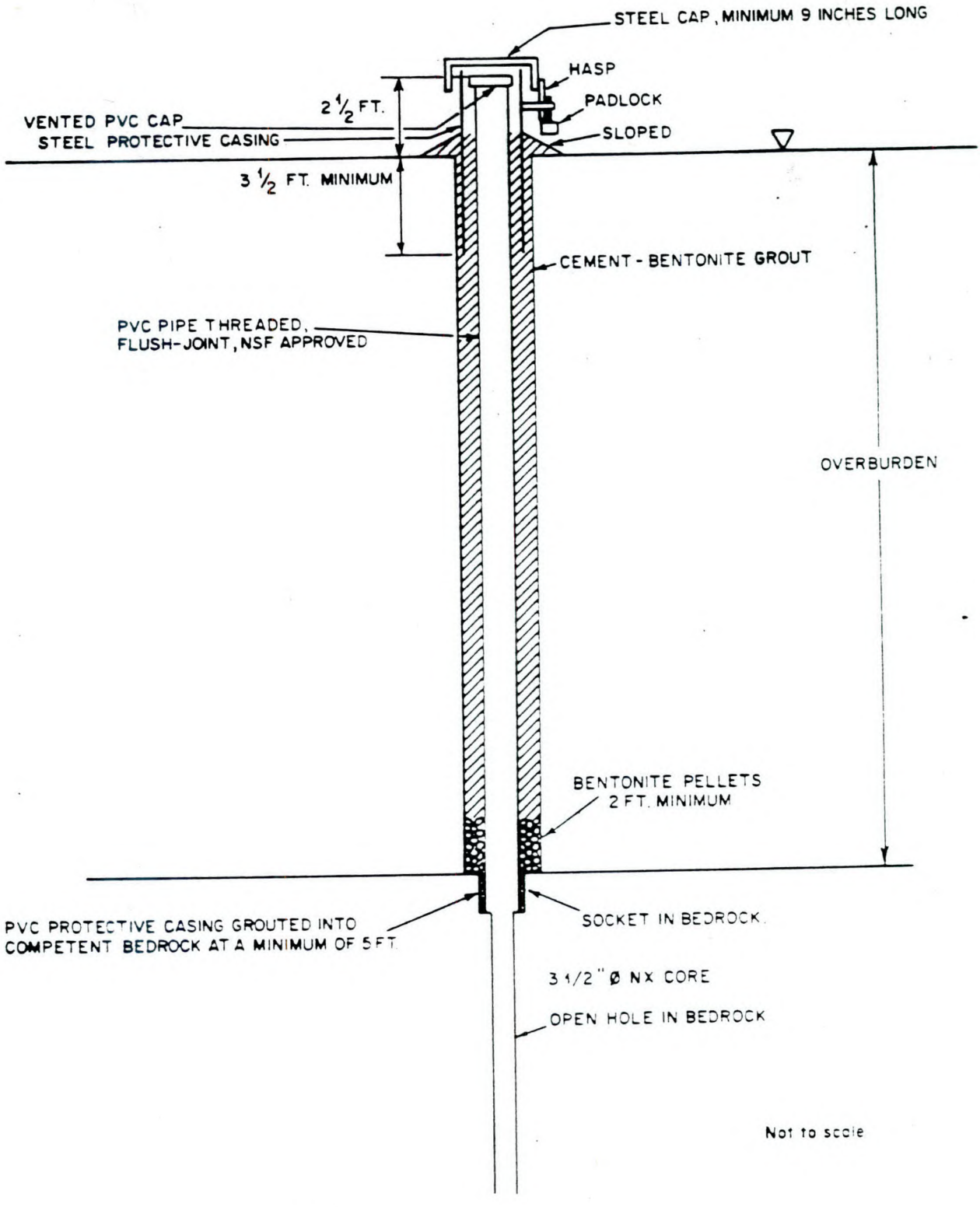
LAT. 42° 48' 21" N LONG. 73° 45' 13" W

01424330



OVERBURDEN / BEDROCK INTERFACE WELL

FIGURE 4



BEDROCK WELL
FIGURE 5