EBIZNEWDOC

EBIZNEWDOC

Write or Copy/Paste Document Title In This Space

Workplan.HW336025.03-23-1984.TemporaryWorkPlansForDrinkingWater

DO NOT PHOTOCOPY. PRINT FROM PDF VERSION ONLY.

EBIZNEWDOC

EBIZNEWDOC

TELEPHONE (212) 940-8800
CABLE ROCOKAY NEWYORK
TELECOPIER (212) 940-8776
(212) 935-0679
TELEX 427571 ROSCOL (ITT)
971520 RCFLC NYK (W. U.)
AUX. NO. 236241 ROSCOL UR (RCA)

ROSENMAN COLIN FREUND LEWIS & COHEN
575 MADISON AVENUE
NEW YORK, N.Y. 10022

WASHINGTON OFFICE
1300 19TH STREET, N. W.
WASHINGTON, D. C. 20036
TELEPHONE (202) 463-7177

CALIFORNIA OFFICE
100 PINE STREET
SUITE 1700
SAN FRANCISCO, CALIFORNIA 94111
TELEPHONE (415) 434-4641

March 23, 1984

WRITER'S DIRECT DIAL NUMBER
(212) 940-8707

BY HAND

George Pavlou, Chief
Hazardous Assessment Section
Environmental Protection Agency, Region II
26 Federal Plaza
New York, New York 10278

Re: Wallkill site

Dear Mr. Pavlou:

General Switch Corporation ("the Company") acknowledges the receipt of your letter and its enclosures dated March 9, 1984, addressed to David Lipsky of Fred C. Hart Associates, the Company's technical consultants on the matter of hazardous wastes in the soils and groundwater on or adjacent to its plant at 20 Industrial Place, Middletown, New York, ("the Plant").

The Company reiterates its previously-stated intention to cooperate with you, your agency, and all appropriate state and local government agencies to identify the source and extent of any hazardous waste which may exist at or adjacent to the Plant, and to take appropriate measures to remedy any hazardous condition.

As a first step, the Company is committed to continuing to provide temporary safe water to any residences which you have determined reasonably require such water now. The Company is already providing water to homes on Highland Avenue, and it is willing similarly to provide temporary water to any others of the 16 homes whose wells, according to data you have provided us, have shown some level of contamination.

The Company is also ready to proceed with plans for a more permanent alternative drinking water supply. In your earlier letter to Walter Stern, president of the Company, you referred to a water supply main on Highland Avenue between Park Avenue and the City of Middletown boundary to the east. At our meeting on February 23, 1984, your agency indicated that it had prepared engineering data on such a

water supply main. We requested copies of that data to enable the Company to respond intelligently to this option, but did not receive your engineering reports until March 20, 1984. We are therefore not in a position to make a detailed response to this new data today. The Company is studying the data and will be ready to discuss details at our meeting with you next week.

As to the hydrogeological investigation of the source and extent of any hazardous wastes in the Wallkill/Middletown area, the Company proposes, contingent upon your approval, to undertake immediately such an investigation, in line with the enclosed study proposal prepared by Fred C. Hart Associates. Dr. Lipsky and the staff at Fred C. Hart Associates have studied the draft drilling plan you sent with your March 9, 1984 letter and have made certain modifications which they feel will better achieve the joint objectives of your agency and the Company. The rationale for the Hart approach is described in Part I of the enclosed proposal.

The proposal suggests an investigation in three phases: The first phase is designed to identify the source of any hazardous waste discharge, and will focus on the shallow hydrogeologic system above the bedrock in the vicinity of the currently defined highly contaminated area. The second phase will concentrate on the same geographic location as Phase I, but will focus on the deeper hydrogeologic system within the bedrock aquifer. Phase III will be designed to define the extent, location, direction and rate of a groundwater contaminated plume migrating away from the contaminate source. This third phase will be accomplished by spreading the investigation out over a larger geographical area, the precise limits of which will be identified by the data collected in the first two phases. After completing these three phases and submitting the reports to you, we will all be in a position to determine precisely what the appropriate response measures should be.

The Company has particularly noted the suggestion made by John Bee at the February 23, 1984 meeting that some of the presently contaminated deep wells could begin now to be pumped out into the City of Middletown sewers, to reduce the amount of contamination in the immediate vicinity even

before identifying its total extent. The Company is prepared to discuss the details of this possibility further with your agency and with appropriate state and local agencies subject to your coordination. This expression of concern is, of course, not to be interpreted as any admission that the Company is or has been a source of the hazardous waste found in the area. The Company is simply concerned, as a good corporate citizen and resident, to see that a potentially dangerous condition in its vicinity is alleviated as quickly as possible, and to bear a share of the cost of such alleviation.

The Company expects to meet with you at your earliest convenience to receive your comment on the proposed hydrogeological investigation plan, such that we can commence that work immediately. I will be calling you on Monday to set up such a meeting.

Very truly yours,

Grace Goodman (GS)

Grace Goodman

GG/ks

Enclosure

cc: William K. Sawyer, Esq.
Louis A. Evans, Esq.

Part I

Rationale for Proposed Hydrogeologic Investigation Plan

Town of Wallkill, New York

On March 9, 1984, Fred C. Hart Associates, Inc. (FCHA) received the following information from USEPA, regarding the Town of Wallkill groundwater contamination problem.

1. Summary of well water contamination, Wallkill, New York - February 29, 1984.

2. Wallkill Well Data

3. Summary of water level measurements

4. Washington Heights Wallkill Map-Composite Groundwater Contours.

5. Town of Wallkill Tetrachloroethylene Groundwater Spill-Drilling Plan February 28, 1984.

Based on a review of this data and information received verbally from the EPA and/or their contractors at this site, we have formulated the following understanding of the situation in Wallkill.

As of February, 1984, a total of twenty wells in the vicinity of Wallkill, NY, have been found to contain some

degree of tetrachloroethylene contamination. The highest concentration of this compound has been measured in a private potable water supply well (Parella). Other contaminated wells have been identified northeast, north, northwest and west of the Parella well. The groundwater contamination problem as currently defined is predominantly limited to those wells which are tapping water from the relatively deep bedrock aquifer, as opposed to the more shallow unconsolidated glacial till aquifer.

Accordingly, a certain amount of information pertaining to this bedrock aquifer system has been gathered, while other properties of the aquifer can be inferred. Of significance are the anecdotal results from limited well testing performed by EPA's subcontractors (written data not supplied). These tests indicate that when deep wells in the study area are pumped, the influence of that pumping is quickly felt on other deep wells located within several hundred yards of the pumping well. This finding suggests that this is a direct inter-connection, such as an open fracture or westerly dipping bedding plane in the bedrock aquifer between the affected wells, and that the ability of this aquifer to store and yield water is quite low. This is significant, because it indicates the sensitivity of the bedrock aquifer to pumping wells. For this reason, an accurate determination of groundwater flow direction over a specific time interval may be extremely difficult to obtain, given the presence of a large number of pumping wells over a small area.

Additionally, a limited set of groundwater level data has been used by the EPA to generate a water table surface contour map over the study area. The measurements used for this exercise were obtained under fairly static conditions, when most groundwater pumping in the area was stopped. An a review of this contour map indicates two interesting points pertaining to the hydrogeologic setting in the vicinity of Wallkill: 1) the water table in the vicinity of General Switch is very shallow and lies just below the ground surface, while the depth to groundwater increases in a northwest direction. This indicates that shallow groundwater occurances in this area appear to be uninfluenced by major local topographical features, as groundwater flow is indicated to be towards a topographic high to the northwest; and 2) groundwater flow appears to be from areas of lower contaminant concentrations, to areas of higher concentrations. Both of these interpretations are confusing, and are attributable to residual effects of past pumping or to the nature of the wells which have yielded the water level data. (These are water supply wells drilled to a variety of unconfirmed depths). Another explanation in that groundwater flow in the bedrock aquifer was affected by some wells which were still pumping, and that true static conditions were not obtained. In fact, as suggested previously, flow conditions in the deep aquifer most likely change rapidly in response to a variety of pumping stimuli. For these reasons, attempts to understand past or present groundwater flow patterns

in this shale aquifer would likely produce questionable results. In any case, the distribution of contaminants within the bedrock aquifer system is a result of past pumping conditions and not the present or semi-static flow conditions.

Based upon our review of the data collected on the groundwater contamination problem in Wallkill, NY, it has become apparent that the source of this contamination has not yet been clearly defined. We feel the hydrogeologic investigation program proposed by John Bee, while complete, is somewhat unfocussed. In several instances specific proposed geophysical techniques would be excessive. For example, the use of ground penetrating radar and the completion of a seismic survey are not the most technically effective techniques in these circumstances to provide the data for which they have been intended. Instead, better information can more practically be provided by the use of magnetometry and other techniques. With these exceptions, we generally agree with the overall scope of work outlined by John Bee.

The ultimate goal of our program is to generate sufficient data to allow a decision to be made on the most feasible remedial activity needed to correct the contamination problem. Our proposal differs from the EPA's in that we modify slightly the emphasis of the EPA proposed program and the order in which tasks are completed. Rather than approach this study as a single comprehensive plan whose scope has been completely pre-determined, we feel that

an attempt should first be made to define the source(s) of tetrachloroethylene ccntamination in this area, and to understand the mechanism by which this contaminant is released and able to migrate through the environment.

For this reason, we are proposing a three phase approach to studying this problem. Such an approach has been formulated with precisely the same goals in mind as those presented by John Bee's program. In fact, the actual scope of work of our plan may prove to be very similar to that proposed by EPA. However the specifics of where work is performed and what methods are employed may be different as our plan allows for a modification and re-evaluation of approach as new information becomes available. The three work phases we propose, with a brief rationalization for each, are outlined below.

The first work phase is primarily intended to define the source of contamination. This task is considered particularly important, given the fact that most of the known contamination has been found in the deeper wells. Due to the sensitivity of this aquifer to the effects of pumping in the immediate area and in light of the anticipated ineffectiveness of relying upon groundwater flow data to predict the patterns of contaminant migration, it becomes even more important to identify the source of contamination by looking

For this reason, the precise locations for performing this work will be finalized at the completion of phase I.

Based on the results of the first two work phases, the extent of phase III will be determined. At this time, we anticipate that phase III will require that the study area be enlarged to cover a much larger geographical area, and that a more regional approach to the study be adopted. The primary goals for this phase are to define the extent, location, direction and rate of groundwater contaminant plume migration.

A detailed description of the various tasks associated with each of the above work phases is provided Part II.

Should the EPA approve General Switch's proceeding with this program, we will provide within two weeks a site operations plan, including sampling methodologies, quantity assurance plan, health and safety plan, and contingency plan.

Dated: March 23, 1984

FRED C. HART ASSOCIATES, INC. • CONSULTANTS

530 FIFTH AVENUE, NEW YORK, N. Y. 10036 (212) 840-3990

March 23, 1984

Mr. George Pavlou, Chief
Hazard Assessment Section
Office of Emergency and Remedial Response
U.S.E.P.A.
26 Federal Plaza
New York, New York 10278

Re: General Switch

Dear Mr. Pavlou:

Enclosed is a description of our proposed hydrogeologic investigation. This description should be incorporated as an attachment to the material that you should have received today from Marty Bakers office. Thank you for your cooperation.

Sincerely yours,

David Lipsky

Dr. David Lipsky
Group Manager
Public Health Group

Part 2

Detailed Outline of the Proposed Hydrogeologic Investigation Plan

Town of Wallkill, N.Y.

The hydrogeologic investigation plan which we are proposing is comprised of three work phases. Each of these phases will be completed by performing specific tasks, whose goals were previously defined. Presented below is a listing of tasks associated with each work phase, followed by a detailed description of what each task entails.

Phase I

This phase is designed to focus on the shallow aquifer system in the vicinity of highest known containment concentrations, and will be comprised of the following components:

- a thorough background search and review.
- an impacto probe and OVA survey.
- both a magnetometry and a metal detection survey.
- the digging of ten test pits.
- the drilling of eight soil/test borings.
- the completion of both grain size analyses and permeability testing on samples obtained from the test pits and the test borings.
- the installation of eight shallow qroundwater monitoring wells.
- laboratory chemical analyses on both soil samples collected from the test pits, and groundwater samples collected from the monitor wells and potable wells.

- the pumping of currently contaminated resident wells, to measure the affects pumping has on contaminant concentrations.

Background Search

A background investigation will be conducted to:

- gather as much information as possible on the local geology in Wallkill, N.Y., the chemical nature of tetrachlorethylene, and the types of uses for this chemical in the general study area.

- thoroughly review all available data to date, which pertains to the groundwater contamination problem in Wallkill. A review of this kind will assist us in finalizing the approach to our field investigation prior to commencing with any actual field work.

Impacto probe and OVA survey

This task will be performed to help identify the areal extent of extremely shallow tetrachlorethylene contamination in the soils surrounding the most highly contaminated wells. Due to the high concentrations of tetrachlorethylene which have previously been detected, we feel the Organic Vapor Analizer (OVA) will be an extremely effective tool for identifying the presence of this compound in the surficial soils.

By using an impacto probe to punch small diameter, shallow holes into the soil surface, any tetrachlorethylene which may be present at that loca-

tion will be able to volitalize into the ambient air within the hole. If this occurs, the OVA can then be used to detect this gas at concentrations approximately greater than one part per million (ppm).

Because we are primarily looking for one specific compound, the OVA can be used to set up a standard for tetrachlorethylene, and in this way be able to make a fairly positive identification if this compound is located.

Magnetometry and Metal Detection

Both a maegnetometry and a metal detection survey will be conducted as part of this work phase. These techniques will provide information indicating the presence of buried metal objects, such as drums. In addition to being cost effective, these two systems used in conjunction with one another are quite successful at identifying both shallow and deep buried metal objects.

Together with the OVA survey, these two tasks should greatly assist us in choosing the precise locations for test pits and soil borings.

Test Pits

A total of ten test pits are currently planned to be dug in area identified by the two previously mentioned indirect investigative techniques. Test pits are planned because they offer the opportunity to visually inspect

what is present in the subsurface. In addition, this technique allows easy collection of soil samples for permeability testing.

Soil Borings

A total of eight soil borings are currently planned for drilling as part of phase I. Each boring will extend to the bedrock surface, a total anticipated depth of fifty feet. These borings will provide information pertaining to the thickness and nature of glacial till soils overlying the bedrock. They will also allow a determination to be made on the vertical distribution of tetrachlorethylene through the soil column. This will be accomplished by screening the contents of all split spoon samples with the OVA. It is anticipated that split spoon samples will be collected at five - foot intervals in advance of drilling. The actual procedure employed to drill the borings will be similar to that outlined by John Bee, and will be accomplished by the use of a hollow-stem auger. The precise location for each boring will be field determined, utilizing information gathered prior to the commencement of the boring program. Proposed soil boring locations for Phase I work are provided on the attached figure.

Grain Size and Permeability Testing

Both grain size analyses and permeability testing will be performed on soil samples obtained from the test pits and/or soil borings. The results of these tests will be used to determine hydraulic properties of the glacial

till soils overlying the bedrock, and to assess the mechanism for contaminant migration through these soils.

Shallow Groundwater Monitoring Wells

At the completion of the soil boring program, a shallow groundwater monitoring well will be placed into each of the eight boreholes. The primary purpose for installing these wells is to provide additional groundwater sampling locations in the glacial till aquifer. These wells will also provide groundwater level data to help us understand the hydrogeologic conditions present in this shallow system. All of these wells will be completed in a similar fashion to those proposed by EPA and outlined in John Bee's report.

Laboratory Chemical Analyses

Chemical analyses will be conducted at an independant laboratory on representative soil samples obtained during the test pit operation. Additional analyses will also be performed on water samples collected from the eight shallow groundwater monitoring wells and twenty potable wells. A complete review of all this data will offer a better explanation of the distribution of contaminants than is currently available, and will greatly assist in making specific decisions pertaining to the needs of the remaining two phases.

Existing Well Pumping

The final task of phase I is to conduct time-series pumping tests on several of the most currently contaminated wells. This is accomplished by pumping these wells over time and measuring the change in contaminant concentration as pumping progresses. The OVA will be used for this screening, as it very well suited for such a purpose. The reason for performing these tests is to provide an indication on how effective pumping these wells might be towards remediating the groundwater contamination problem. Additionally, the effects this pumping has on water levels in the shallow monitor wells will be measured. In this way, the degree of hydraulic interaction between the shallow glacial aquifer and the deeper shale aquifer can be determined.

At the completion of phase I, a report detailing the findings of the Phase I investigation will be prepared. Included in that report will be a detailed approach for phase II.

Phase II

Phase II is intended to focus the investigation on the deep shale aquifer underlying shallow areas identified to be contaminated, and consists of the following tasks:

- the drilling of one rock core boring

- the installation of five deep wells
- the completion of a limited pumping test to determine the degree of interconnection between these and existing wells.
- the sampling of the groundwater from these five wells.

Rock Cores

One rock core will be drilled at a location to be chosen at the completion of phase I. This location will be limited to the same geographic location as in phase I. The purpose for completing this task is to provide detailed information on the fracture characteristics of the shale below the study area. This information will be useful in gaining as understanding on how contaminants might migrate through this geologic material.

Deep Monitor Wells

It is intended that these five wells will be constructed to a similar depth and in a similar fashion as outlined in EPA's proposal. The primary purpose for these wells is the same as the shallow wells; to provide groundwater sampling locations and groundwater level data.

Limited Pumping Test

A limited pumping test will be performed, with the primary goal to determine the degree of interconnection between the newly installed deep wells and the existing potable wells. This will also assist in assessing the horizontal and vertical extent of contamination within fractured zones surrounding the wells known to be contaminated.

Groundwater Sampling

Each of the five deep wells will be sampled to determine the degree of tetrachloroethylene contamination in the groundwater in that area.

Phase III

Phase III is designed to spread the investigation out over a larger geographical area. It may consist of any or all of the tasks outlined in phase I and II, but will most probably be comprised of installing deep bedrock wells at the more distant well locations identified in John Bee's proposal. The reason for conducting this phase is to determine the extent, location, direction and rate of migration of the groundwater contaminant plume over a more regional area.

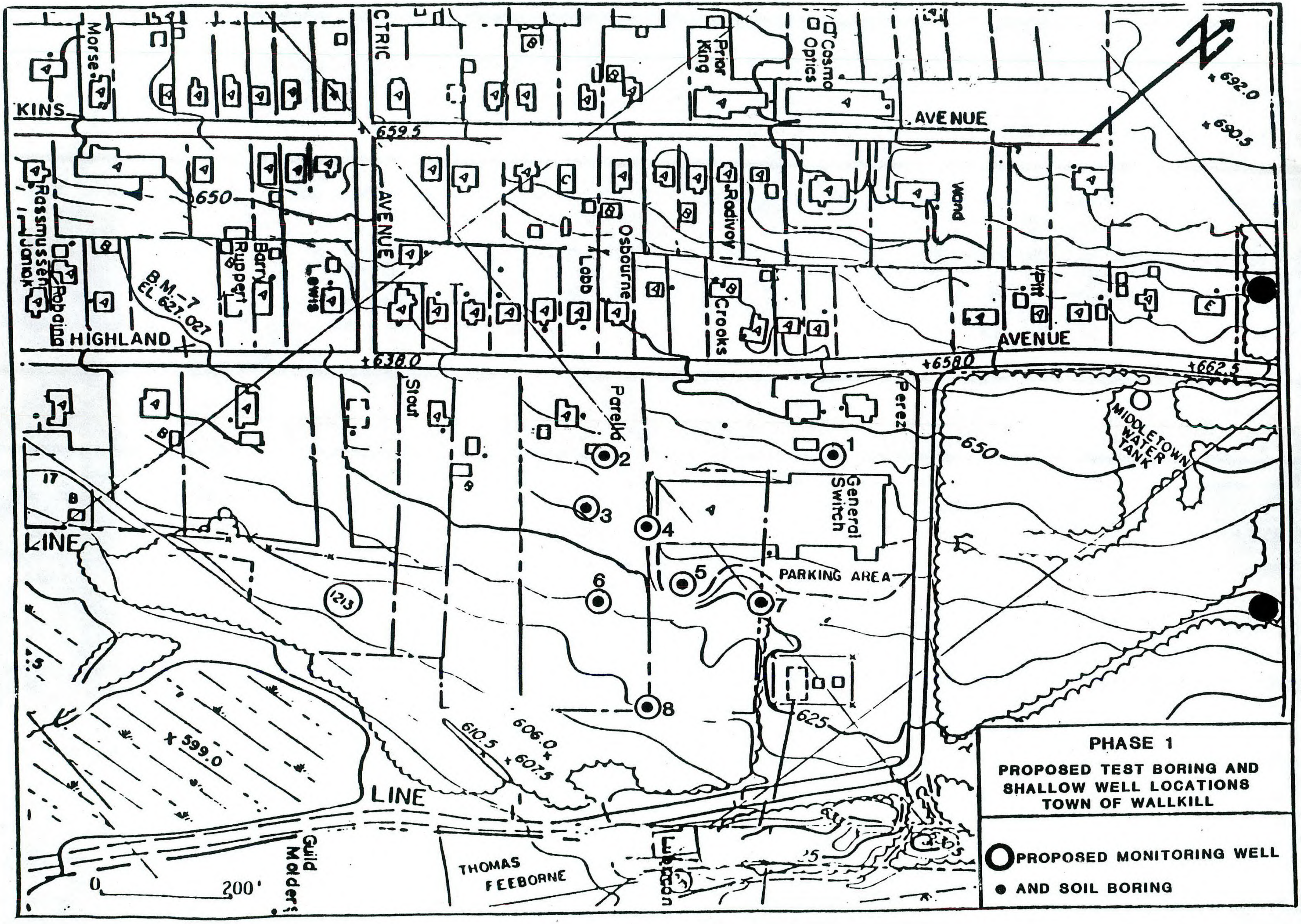
Schedule of Activities

A detailed site operations plan, quality assurance plan, Health and Safety Plan and Contingency plan will be submitted to EPA within two weeks of a request to proceed with the hydrogeologic investigation.

The schedule for Phase I activities is provided below. It is estimated that Phase II and III activities will require an additional ten weeks for completion. The actual schedule will depend upon the results of the Phase I program, the finalized scopes of work for Phase II and III, and the time required for necessary EPA approvals to complete these activities.

The projected schedule of activities for the proposed hydrogeologic investigations as provided below:

	Week
EPA approval to implement proposed hydrogeologic	0
Submission of detailed site operations plan, quality assurance Plan, health and safety plan and contingency plan	2
EPA approval of site operations plan	3
Start of Phase I field work	3
Completion of Phase I field work	6
Data Analysis and Phase I Report	10


PHASE 1
PROPOSED TEST BORING AND SHALLOW WELL LOCATIONS TOWN OF WALLKILL
PROPOSED MONITORING WELL AND SOIL BORING
KINS
AVENUE
HIGHLAND
AVENUE
LINE
LINE
Morse
CTRIC
Prior King
Cosmo Optics
Rassmussen
Janiak
Robaina
Barry
Ruppert
Lewis
Osbourne
Lobb
Radivoy
Crooks
Pitt
Wand
Stout
Parello
Perez
General Switch
PARKING AREA
MIDDLETOWN WATER TANK
B.M.-7 EL 627.027
659.5
650
+638.0
+658.0
+662.5
692.0
690.5
650
625
599.0
610.5
606.0
607.5
1213
1
2
3
4
5
6
7
8
THOMAS FEEBORNE
Guild Molders
0
200'