Van De Mark Chemical Co., Inc.

1 N. TRANSIT ROAD • LOCKPORT, NEW YORK 14094-2399 • 716 - 433-6764

October 17, 1983

Mr. William K. Sawyer, Attorney
Waste & Toxic Substances Branch
Office of Regional Counsel
U.S. Environmental Protection Agency
Region II
26 Federal Plaza
New York, New York 10278

Dear Mr. Sawyer:

RE: Revised Monitoring Program - Van De Mark Landfill Site
Docket No. II RCRA-83-0222

Attached as promised is the revised monitoring program concerning the Van De Mark industrial landfill site. The monitoring program will be implemented on October 24, 1983, subject to the approval of N.Y.S. Department of Environmental Conservation and U.S. EPA II.

Mr. Don Owens, Earth Dimensions, Inc., (soil consultants) of East Aurora, New York, is available to initiate required well installations on October 24, 1983.

Very truly yours

Norman M. Matthews

Norman M. Matthews
Technical Director

mad

XC: J. Devald - Niagara Co. Health Dept.
J. Tygert - N.Y.S. D.E.C.

REVISED MONITORING PROGRAM

VAN DE MARK LANDFILL SITE

Provided per schedule outlined in report entitled

"Response to Request for Information -

Van De Mark Chemical Co., Inc.

Docket No. II RCRA-83-0222"

October 15, 1983

Advanced Environmental Systems Inc.

Conestoga-Rovers & Associates Limited

TABLE OF CONTENTS

		PAGE
1.0	INTRODUCTION	1
2.0	GROUNDWATER MONITORING WELL INFORMATION	2
3.0	GROUNDWATER MONITORING WELL CONSTRUCTION	3
4.0	GROUNDWATER HYDRAULIC MONITORING	5
5.0	GROUNDWATER QUALITY MONITORING	7
	5.1 ANALYTICAL PARAMETERS	7
	5.2 MONITORING WELL PROGRAM	7
	5.3 SAMPLING PROTOCOLS	8
	5.4 ANALYTICAL PROTOCOLS	9
6.0	SCHEDULES	10

LIST OF FIGURES

FIGURE 1	EXISTING & PROPOSED GROUNDWATER MONITORING WELLS	2a
FIGURE 2	PREVIOUS MONITORING WELL INSTALLATION	3a
FIGURE 3	TYPICAL OBSERVATION WELL CONSTRUCTION	3b

1.0 INTRODUCTION

This report presents a revised groundwater monitoring plan for the former Van De Mark landfill site in Lockport, New York. The purpose of the groundwater monitoring plan is to provide the data base needed to develop the final closure plans for the site.

2.0 GROUNDWATER MONITORING WELL INFORMATION

Through previous investigations undertaken by Woodward-Clyde Consultants and Bechtel Associates Professional Corporation for adjacent construction programs and investigations previously undertaken by Van De Mark Chemical Company, a number of monitoring wells were installed throughout the former landfill area. It is proposed that, to the extent practicable, existing wells will be monitored to study the landfill site. To complete the study, it is proposed that three (3) additional downgradient groundwater monitoring wells be installed at the site. The locations of existing wells and the three (3) proposed downgradient groundwater monitoring wells (VDM-9, VDM-10 and VDM-11) are presented in Figure 1.

Each of the above new wells will be installed so as to straddle the contact between the Grimsby-Power Glen bedrock interface as this is the uppermost water bearing zone underlying the landfill.

To understand leaching conditions on the site, a well will be installed into the waste material (see VDM-12 in Figure 1). This will assist in understanding contaminant migration potential.

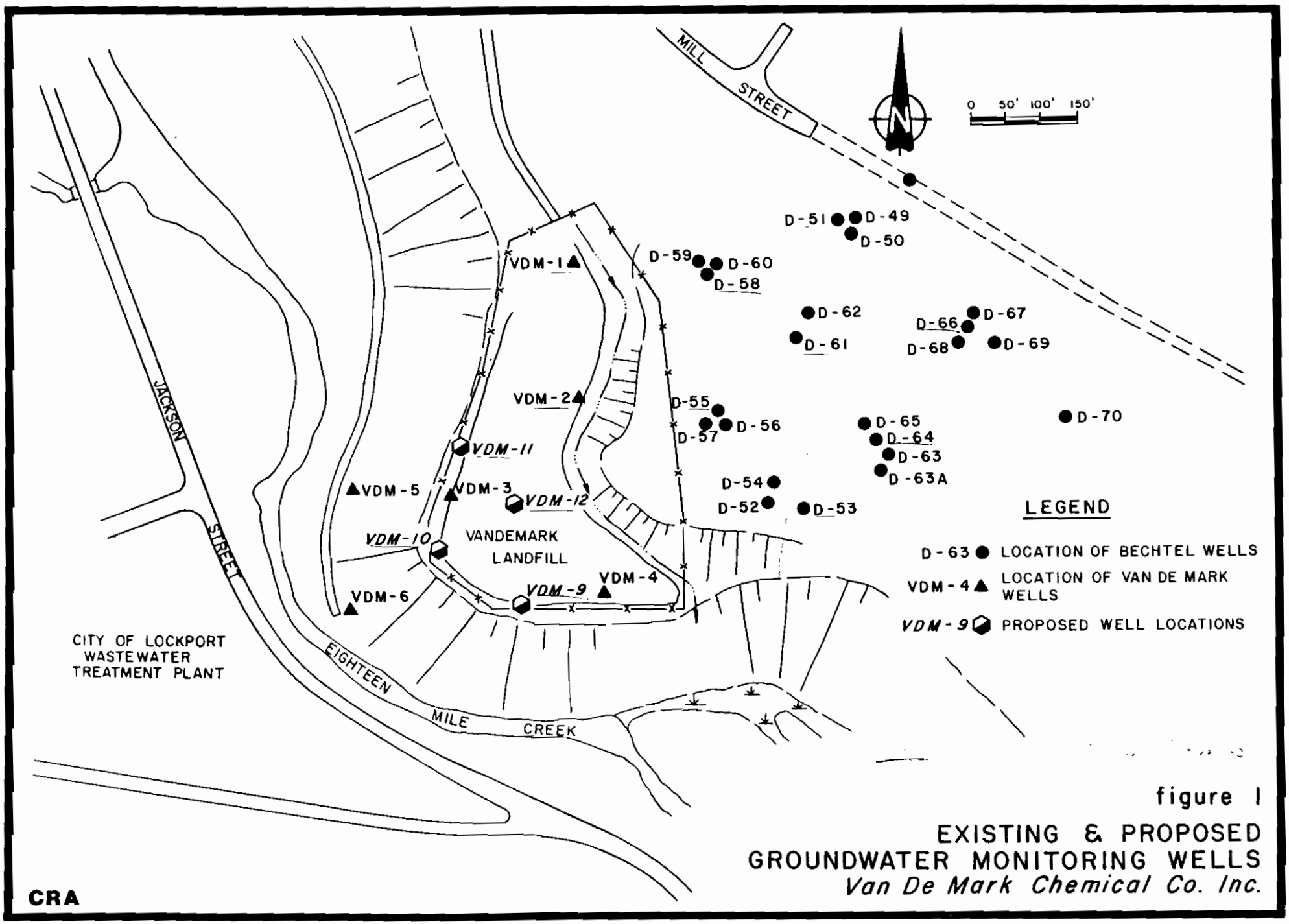


figure 1

EXISTING & PROPOSED
GROUNDWATER MONITORING WELLS
Van De Mark Chemical Co. Inc.

CRA

1277-14/10/83

3.0 GROUNDWATER MONITORING WELL CONSTRUCTION

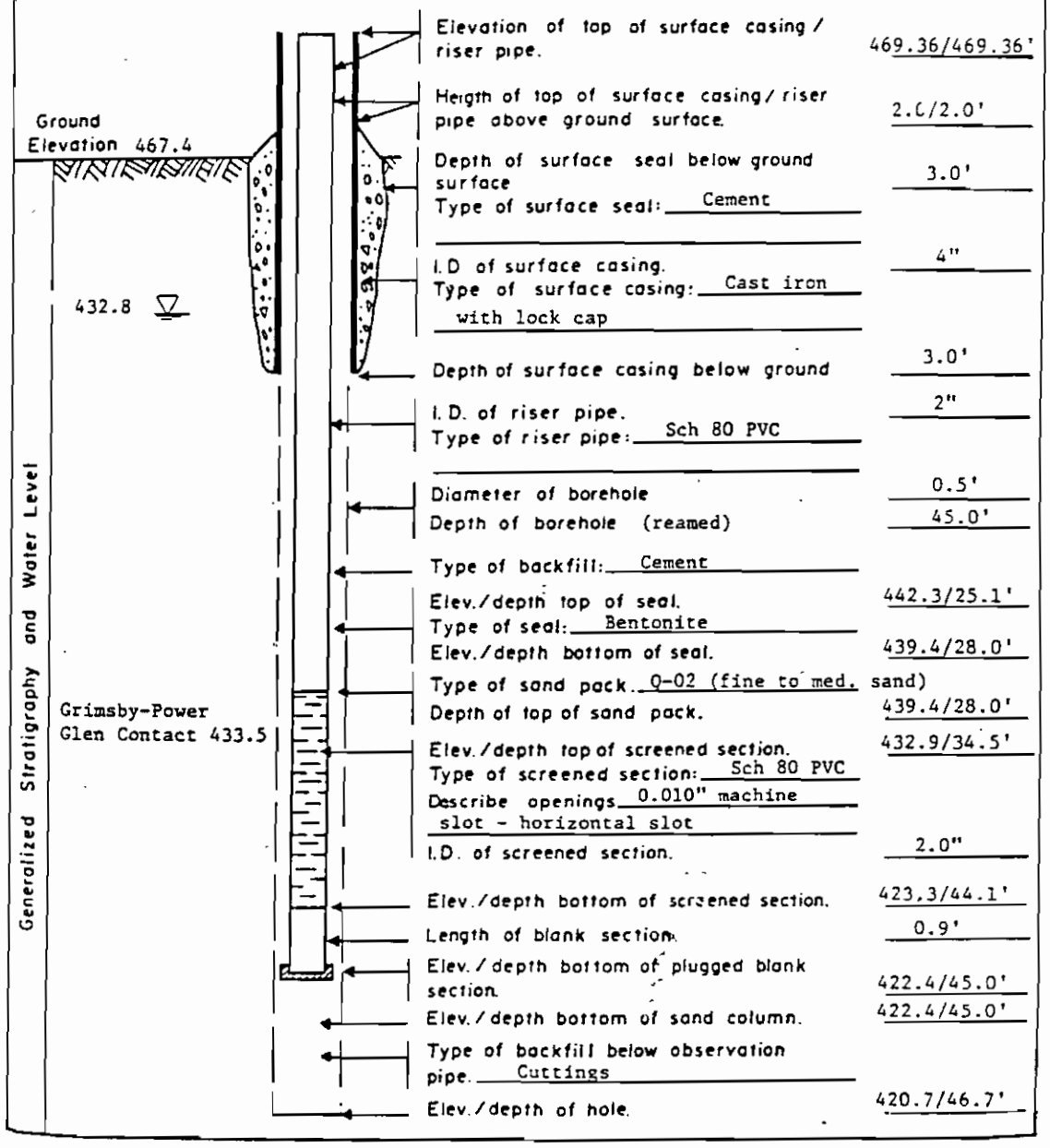
Previous wells installed by Becntel were typically constructed of 2 inch diameter schedule 80 PVC pipe connected to a 10 foot length of slotted screen. A sandpack backfill was installed around the well screen and the remaining annular space was backfilled with grout. Typical well construction details are presented in Figure 2.

The proposed bedrock monitoring wells (VDM-9, VDM-10 and VDM-11) will also be constructed of 2 inch diameter schedule 80 PVC pipe. However, no well screen or sandpack will be required as the cored bedrock will provide the casing. The wells will monitor the groundwater over the 10 foot bedrock interval straddling the Grimsby-Power Glen Contact (5 feet above and 5 feet below). In order to seal the 10 foot bedrock interval to be monitored, the borehole above this section will be enlarged to 4 inch diameter. The interface between the 4 inch and 3 inch (NX) cored hole will provide a seat on which to set an inverted flange section of PVC pipe. The inverted flange will then be sealed in place with bentonite followed by grouted backfilling of the remaining annular space to the ground surface. A typical well installation is presented in Figure 3.

GROUND WATER OBSERVATION WELL REPORT

PROJECT: Somerset Railroad - Van De Mark
LOCATION: N1,160,756 E468,241
Date Completed: 10/19/81 Original Depth: 46.7 (cored)
Inspected By: J. C. Isham Date: 10/19/81
Checked By: Date:

Page 7 of 23
Well No. D-55
Aquifer: Grimsby-Power Glen Contact
Elev. Interval: 420.7-439.4'



Elevation of top of surface casing / riser pipe.	469.36/469.36'
Heigth of top of surface casing/ riser pipe above ground surface.	2.0/2.0'
Depth of surface seal below ground surface	3.0'
Type of surface seal: Cement	
I.D of surface casing.	4"
Type of surface casing: Cast iron with lock cap	
Depth of surface casing below ground	3.0'
I.D. of riser pipe.	2"
Type of riser pipe: Sch 80 PVC	
Diameter of borehole	0.5'
Depth of borehole (reamed)	45.0'
Type of backfill: Cement	
Elev./depth top of seal.	442.3/25.1'
Type of seal: Bentonite	
Elev./depth bottom of seal.	439.4/28.0'
Type of sand pack. 0-02 (fine to med. sand)	
Depth of top of sand pack.	439.4/28.0'
Elev./depth top of screened section.	432.9/34.5'
Type of screened section: Sch 80 PVC	
Describe openings 0.010" machine slot - horizontal slot	
I.D. of screened section.	2.0"
Elev./depth bottom of screened section.	423.3/44.1'
Length of blank section.	0.9'
Elev./depth bottom of plugged blank section.	422.4/45.0'
Elev./depth bottom of sand column.	422.4/45.0'
Type of backfill below observation pipe. Cuttings	
Elev./depth of hole.	420.7/46.7'

figure 2

PREVIOUS MONITORING WELL INSTALLATION
Van De Mark Chemical Co. Inc.

CRA

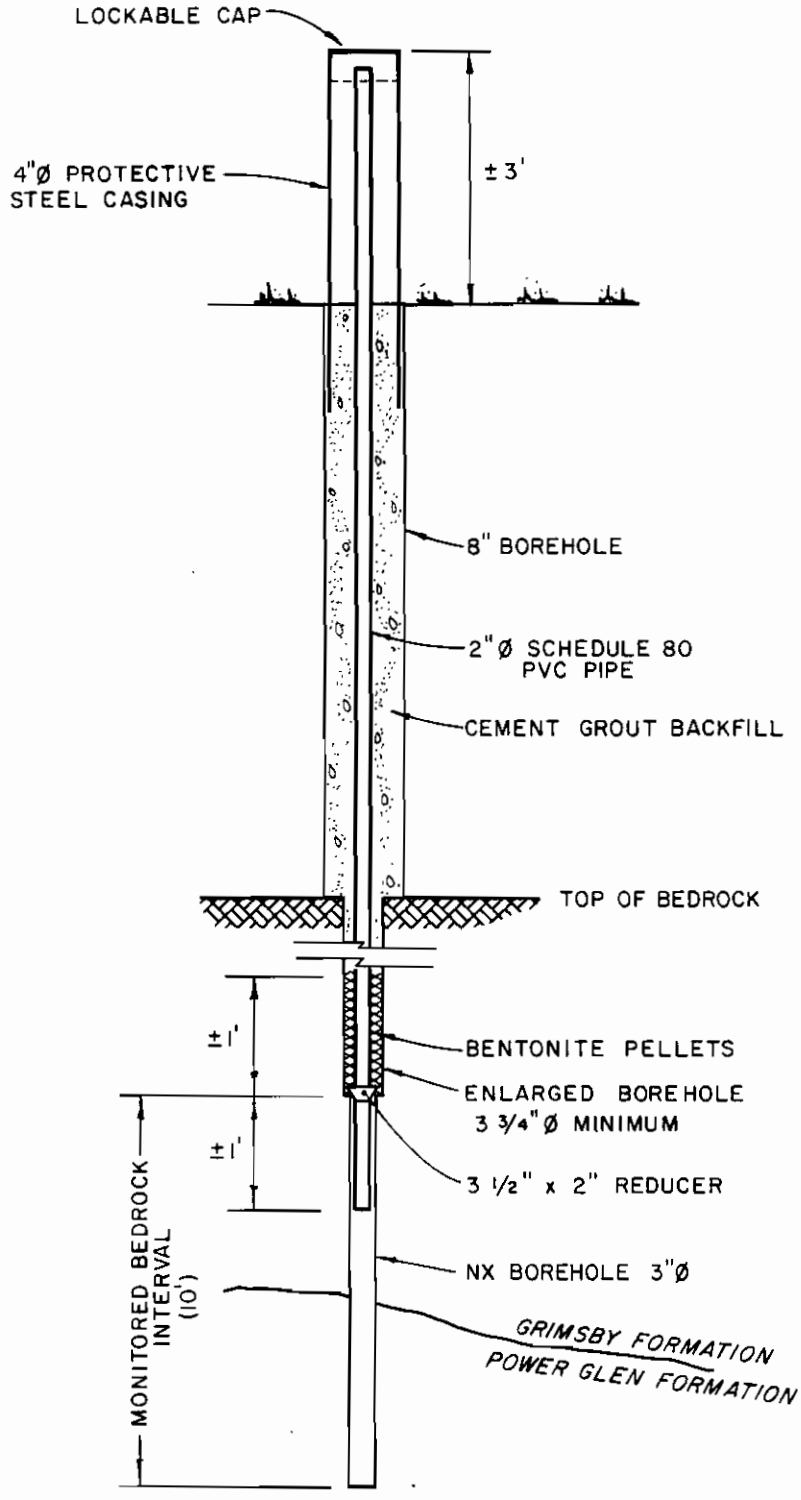


figure 3

TYPICAL OBSERVATION WELL CONSTRUCTION

Van De Mark Chemical Company

CRA

1277 - 14/10/83

The on-site well (VDM-12) will be constructed of 2 inch diameter black steel pipe and fitted with a 5 foot stainless steel well screen. A measured sandpack will be installed around the screen. The remaining annular space will be backfilled with a bentonite plug and cement grout. The on-site well will be installed to a depth equivalent to the base of the deposited wastes.

A 4 inch diameter steel casing will be installed over each well for protection.

4.0 GROUNDWATER HYDRAULIC MONITORING

Following installation of the proposed wells, a well development program will be undertaken in which groundwater will be purged from the wells using pressurized air. The development will continue for a one hour duration or until the field supervisor deems that sufficient water removal has occurred, whichever is greater. Following well development, weekly groundwater measurements will be taken in all the Grimsby-Power Glen Contact wells until stabilized water level conditions are observed in three (3) consecutive weekly readings.

A suitable groundwater hydraulic monitoring program for the site closure will be developed based on the results of this monitoring program. The purpose of the ongoing program is simply to identify groundwater flow gradients which may impact future direction of leachate flow (if any).

It is to be noted that evidence of significant contamination in the Grimsby-Power Glen wells would require consideration of monitoring programs being developed for deeper flow regimes beneath the site. It is to be noted that detailed studies undertaken to date limit leachate flow to this upper flow regime.

The following wells are to be included in the groundwater hydraulic monitoring program:

Existing Wells	Proposed Wells
D-51	VDM-9
D-53	VDM-10
D-55	VDM-11
D-58	VDM-12
D-61	
D-64	
D-66	
VDM-1	
VDM-2	

5.0 GROUNDWATER QUALITY MONITORING

5.1 ANALYTICAL PARAMTERS

Based on the waste materials deposited in the landfill (drummed silicon tetrachloride and chlorodisiloxane), the anticipated leachate produced would be typically acidic and high in chlorides. This would result in iron leaching, which has been observed, both from the geologic environment and metal containers. As a result, groundwater samples will be analyzed for the following paramters: chlorides, pH, iron.

To investigate if the above parameters are representative of site conditions, it is proposed that a water sample from VDM-12 be analyzed for the Priority Pollutants.

5.2 MONITORING WELL PROGRAM

In order to determine the impact, if any, of leachate production, the following groundwater monitoring wells will be included in the monitoring program:

1) On-site conditions will be monitored at well VDM-12.

2) Background conditions will be monitored at well D-55.

3) Downgradient conditions will be monitored at wells VDM-9, VDM-10 and VDM-11.

The groundwater quality monitoring program will be limited to the on-site well and the wells screened over the Grimsby-Power Glen Contact.

5.3 SAMPLING PROTOCOLS

Following stabilization of water levels in the installed wells, each well to be sampled will be prebailed a total of five (5) well volumes or until dry. Samples will then be collected for analysis. The prebailing and sampling will be completed using a stainless steel bailer and cable. The equipment will be precleaned with acetone, hexane, acetone, and distilled water rinses prior to each use.

Two rounds of samples will be collected for verification purposes. The sampling periods will be separated by 2 weeks.

5.4 ANALYTICAL PROTOCOLS

The protocols for analyses will be as follows:

1) Chloride - Method 325.3 Titrametric - Mercuric Nitrate

2) Iron - Method 236.2 Atomic Absorption - Furnace Technique

3) pH - Standard Methods, 15th Edition, Method 423

4) Priority Pollutants - U.S. EPA 600/4-79-020, March 1979

6.0 SCHEDULES

The schedule for the groundwater monitoring program is as follows:

October 17, 1983: Submit revised monitoring program to EPA/State.

Week of
October 24, 1983: Implementation of monitoring program by installation of proposed wells and development of new wells.

October 31 -
November 13, 1983: Water level measurements (or longer if required).

Week of
November 13, 1983: Collect first round water samples for analysis. Second sampling to follow two weeks later.

December 1983: Evaluate and incorporate groundwater information into final closure plan.

January 9, 1984: Submit Final Closure Plan to EPA/State for approval. Reporting requirements for ongoing monitoring program to be included.

All of Which is Respectfully Submitted,

ADVANCED ENVIRONMENTAL SYSTEMS INC.

W. Joseph McDougall

W. Joseph McDougall, Ph.D.

CONESTOGA-ROVERS & ASSOCIATES LIMITED

Frank A. Rovers, P. Eng.