THE TRAVERSE GROUP

EASTERN OPERATIONS
3772 Plaza Drive
Ann Arbor, Michigan 48108
(313) 747-9300
FAX: (313) 747-9229

August 1, 1994

Mr. Mark Putra
Mr. Dave Edwards
Wisconsin Department of Natural Resources
Horicon Area Headquarters
1210 N. Palmatory Street
Horicon, Wisconsin 53032

SUBJECT: Johnson Controls - Watertown, Wisconsin
Update on Activities

Dear Mark and Dave:

This letter contains an update on the activities undertaken at the Johnson Controls Watertown, Wisconsin site. Included is information regarding the landfarming operation for the soil removed from the aboveground storage tank (AST) area and the ground water pumping operation being conducted at the southeast corner of the plant. As previously discussed, the ground water pumping operation is the result of a release unrelated to the AST release. Related tables and figures have been included after the text portion of this summary.

AST Release Area

Background

Soil was contaminated at the Johnson Controls Watertown, Wisconsin site by a spill of trichloroethene (TCE) during the filling of an above-ground storage tank (AST). Excavation of the soil occurred on October 19, 1993. The excavation area is shown on Figure 1. The excavated soil was subsequently placed into an above-ground treatment cell for landfarming operation. This is also depicted on Figure 1. Following the excavation, verification samples were collected to confirm that all of the contaminated soil had been removed or to obtain the concentrations of the remaining subsurface soil. The excavation extended down to the water table, approximately seven feet below grade. Figure 2 shows the sampling locations from the excavation.

The Traverse Group screened the soil with a flame ionization detector (FID) to determine

if a correlation exists between the FID reading and the actual concentration on the soil. No correlation was evident. Figure 3 displays the FID/laboratory correlation graph. Ten soil samples from the excavation were tested for leachability of TCE by performing the Synthetic Precipitate Leaching Procedure (SPLP) on them. The data are contained in Table 1. Based on the SPLP results, it can be assumed that the soil leachate concentration will be only about ten percent of the original soil concentration of TCE. Thus, the resulting ground water concentration from water passing through this soil once back in place would be at about ten percent of the soil concentration.

Sampling Plan

The current sampling plan has been based on data from previous sampling events and the ultimate purpose of the sampling program - verification of soil remediation in the landfarm cell. This could eventually lead to reuse of the soil at the site. The soil within the cell is currently sampled at least four (4) locations every month to track the progress of the remediation. Figure 4 shows the locations from which samples have been collected and analyzed. The monthly sample locations are reviewed and recommended based upon the previous months results. A regularly scheduled sample location plan to be communicated to Johnson Controls, Inc. - Watertown (Russ Miller) within 3 weeks of the submittal of the previous month's samples. Total remediation will be achieved when soil concentrations in all sample locations exhibit levels of TCE below the established residual contamination level (RCL) of 50 parts per billion (ppb) for a minimum of 3 months. This is based on the results of the SPLP tests as outlined above, and the State of Wisconsin's Natural Resources Code Number 142, which sets a level for ground water cleanup of TCE at 5 ppb (μg/L).

Results of Periodic Sampling

The results to date of the landfarm cell soil sampling events are summarized in Table 2. All of the original sample locations exhibit a general downward trend of TCE concentrations, confirming that the landfarming effort is currently working. This trend is demonstrated in the attached Figure 5, Landfarm Cell Sampling Results. In addition, all other initially detected constituents have demonstrated non-detect results over the past two sampling events. The landfarm will be sampled again at the beginning of August.

Ground Water Pumping

Ground water pumping was initiated in March 1994 in an attempt to control the migration of the dissolved VOC plume. Currently, ground water from monitor wells MW-4A, MW-4B, and MW-4C is being extracted. Ground water removed from these wells is being treated by mechanical aeration, with subsequent discharge of the water to the sanitary sewer as

approved by the Watertown public owned treatment works. The facility is currently removing, treating, and discharging approximately 500 gallons of water per day, five days a week. Ground water extraction is accomplished using air-driven pumps.

The pumping wells are sampled monthly to track the status of the contaminants in the ground water. The results have been somewhat varied in MW-4A and MW-4B, but appear to indicate a general decreasing trend in concentrations in MW-4C. Pumping operations will continue as they are currently until more data is obtained to enable a more thorough evaluation of the effects of the ground water extraction.

Additional Site Work

Additional investigation activities will be initiated to complete data sets, fill in "data gaps", and to replace the nested well pair in the AST excavation area. This activity is planned for either September or early October of 1994. The data will also be used to conduct a remedial technology evaluation for the unsaturated soils, the saturated soils, and ground water on the site as a whole. The evaluation will consider applicable remediation alternatives for in-situ and ex-situ treatment. A complete work plan for these activities will be supplied to you prior to initiating site work.

If you have any questions or concerns regarding the information in this letter, please do not hesitate to contact me or Russ Miller.

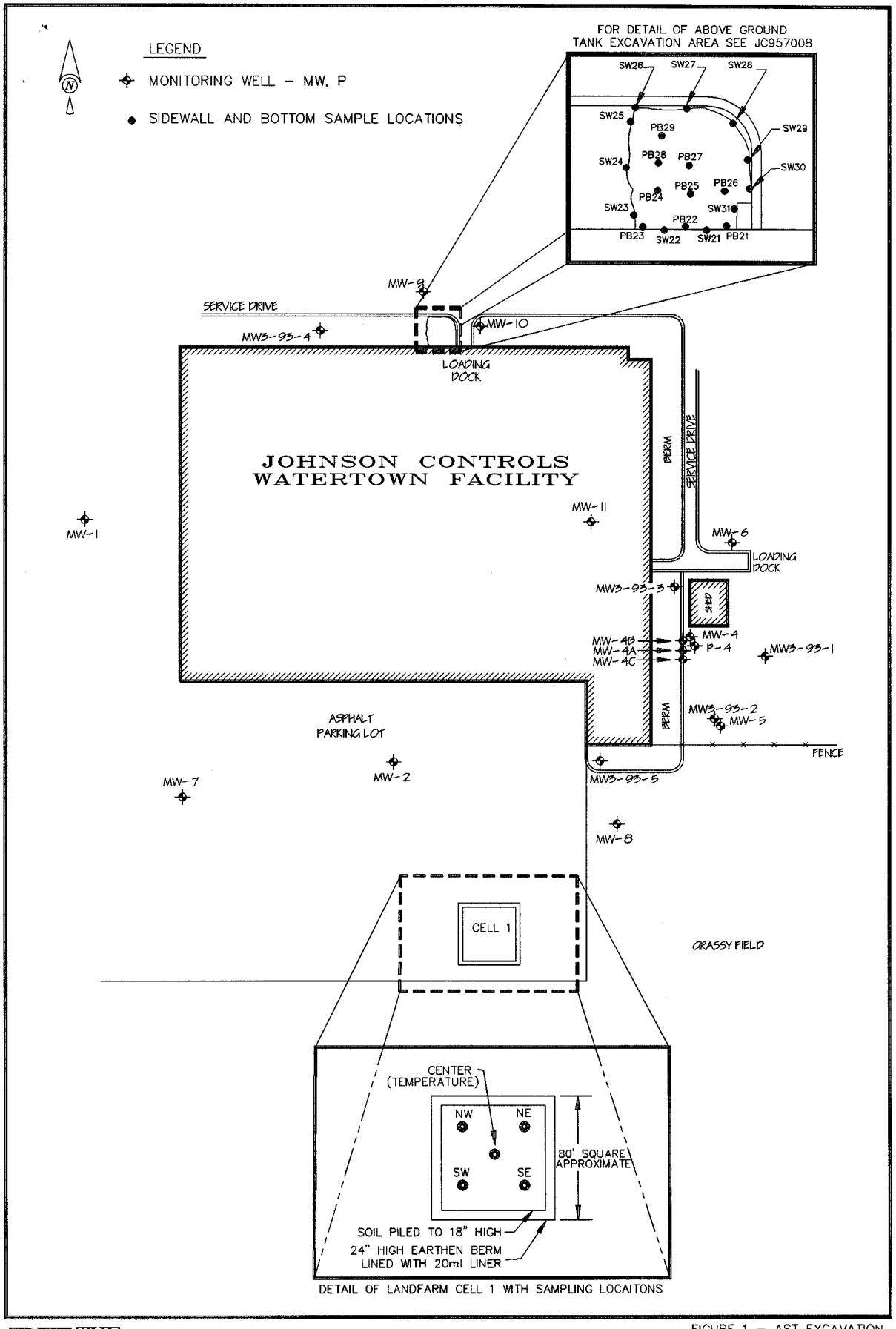
Sincerely,

John J. D'Addona, PE

John J. D'Addona, P.E.
Project Manager

\enclosure

c: Russ Miller, Johnson Controls



THE TRAVERSE GROUP
EASTERN OPERATIONS
3772 Plaza Drive (313) 747-9300
Ann Arbor, Michigan 48108 FAX: (313) 747-9229

60 0 60 120
SCALE: 1" = 120'

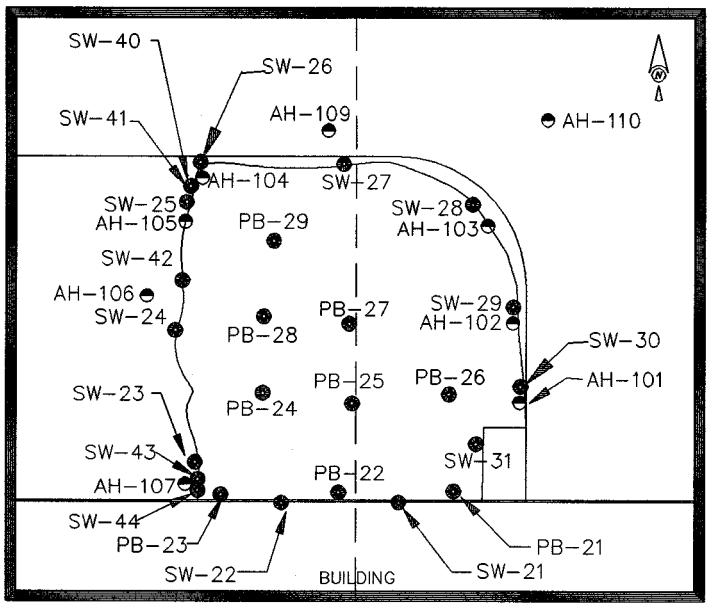
FIGURE 1 – AST EXCAVATION AND LANDFARM LOCATIONS
JOHNSON CONTROLS
WATERTOWN FACILITY
1007 S. 12th ST., WATERTOWN, WI.
10-28-93
JAL JC957001

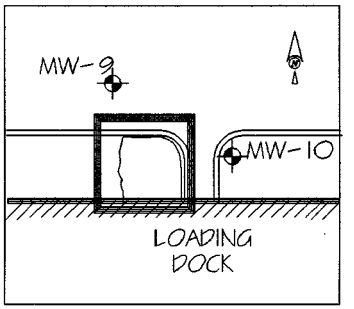
LEGEND

- SIDEWALL OR BOTTOM SAMPLE LOCATION
- AUGER HOLE LOCATION
- MONITOR WELL LOCATION

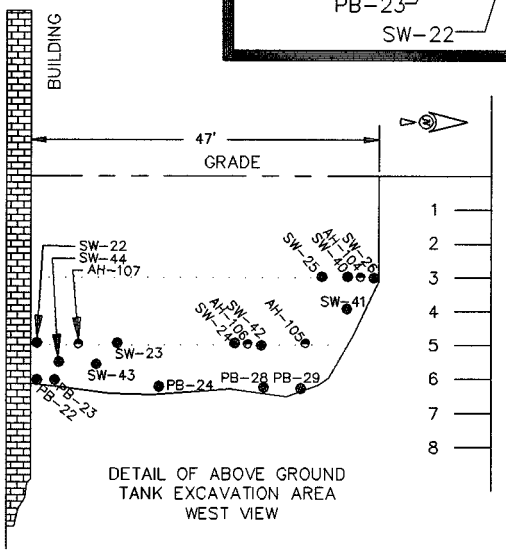
NOTE:
THIS DRAWING IS FOR REFERENCE ONLY AND IS NEITHER COMPLETE NOR TO EXACTING SCALE.

DETAIL OF ABOVE GROUND TANK EXCAVATION AREA

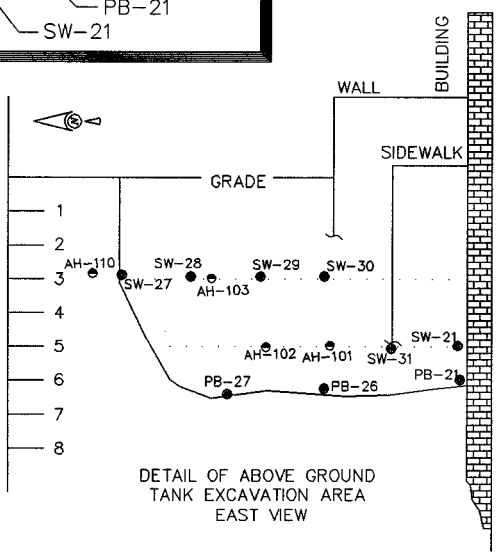




SITE LOCATION



DETAIL OF ABOVE GROUND TANK EXCAVATION AREA WEST VIEW



DETAIL OF ABOVE GROUND TANK EXCAVATION AREA EAST VIEW

THE TRAVERSE GROUP
EASTERN OPERATIONS
3772 Plaza Drive (313) 747-9300
Ann Arbor, Michigan 49684 FAX: (313) 747-9229

FIGURE 2 – DETAIL OF ABOVE GROUND TANK EXCAVATION AREA
JOHNSON CONTROLS
WATERTOWN FACILITY
1007 S. 12th ST., WATERTOWN, WI
04-25-94
JAL JC957008

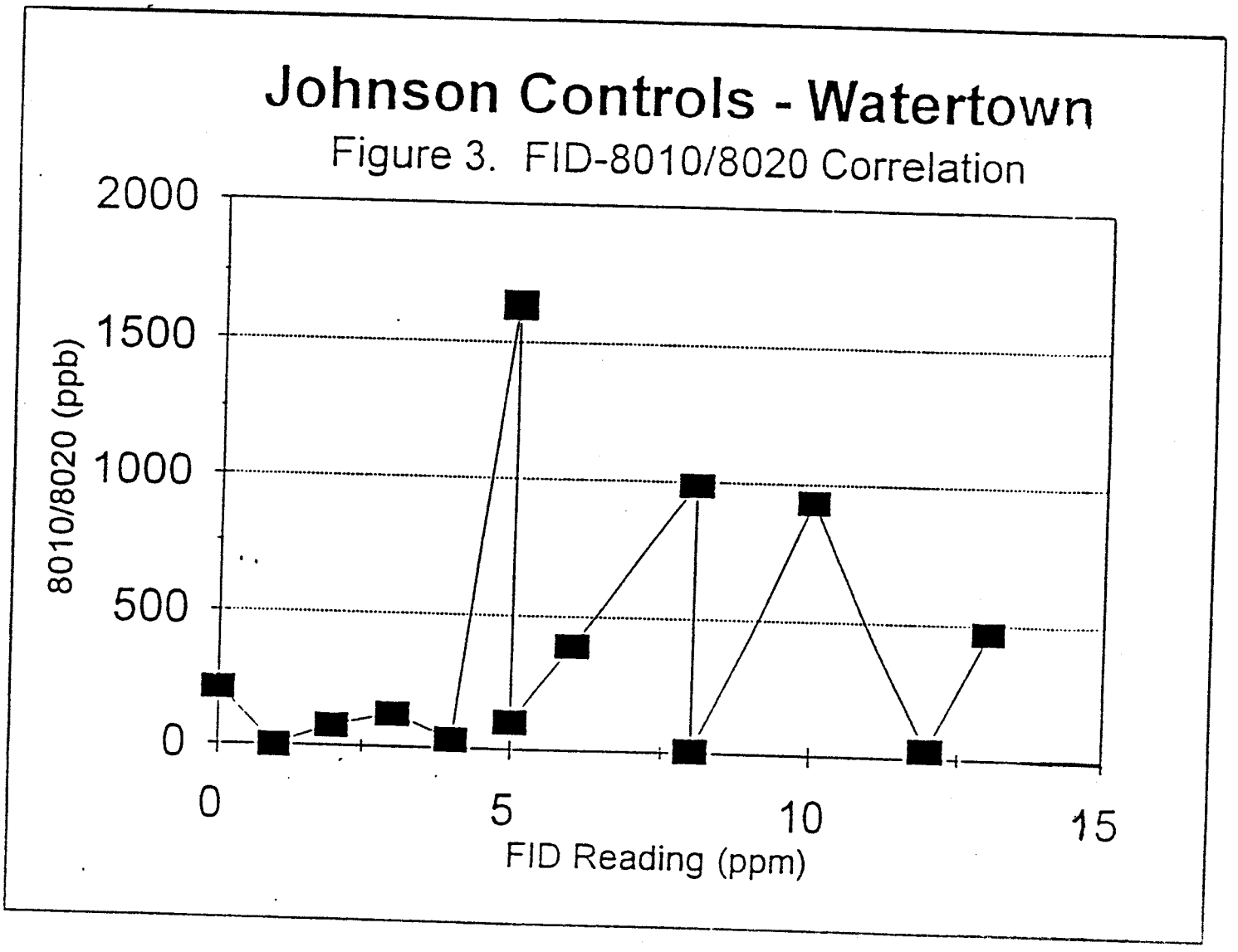

Johnson Controls - Watertown
Figure 3. FID-8010/8020 Correlation
2000
1500
1000
500
0
8010/8020 (ppb)
0
5
10
15
FID Reading (ppm)

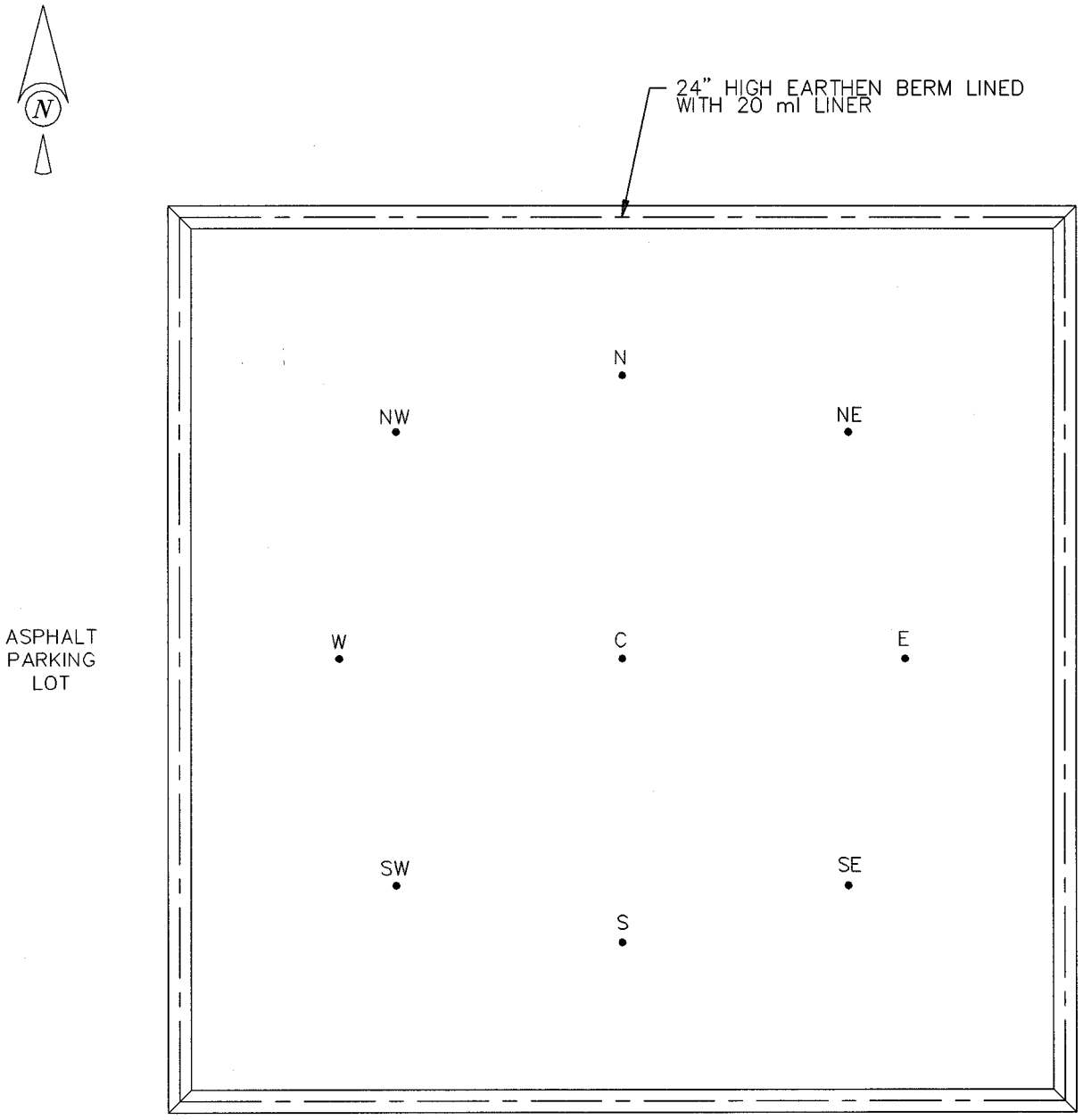
TABLE 1

ABOVE GROUND TANK AREA
TCE SOIL SAMPLE RESULTS

JOHNSON CONTROLS, WATERTOWN

Sample Location	Depth*	8010 (μg/kg)	SPLP (μg/kg)
SW-29	3	930	160
SW-30	3	30	3
AH-101	5	360	24
AH-102	5	27	nd
AH-103	3	770	94
AH-104	3	350**	21
AH-105	5	230	29
AH-106	5	110	nd
AH-107	5	nd	20
AH-109	3	nd	nd
AH-110	3	nd	nd

na	Samples not analyzed for that parameter
nd	Non-detect (below method detection limits)
SPLP	Synthetic Precipitate Leaching Procedure
*	Feet below grade
**	AH-104 also had PCE and SPLP concentrations were not above detection limits.



LEGEND

• SOIL SAMPLE LOCATION

NOTE:

DRAWING IS FOR REFERENCE ONLY AND IS NEITHER COMPLETE NOR TO EXACTING SCALE.

THE TRAVERSE GROUP
EASTERN OPERATIONS
3772 Plaza Drive (313) 747-9300
Ann Arbor, Michigan 49684 FAX: (313) 747-9229

7.5 0 7.5 15
SCALE: 1"=15'

FIGURE 4
LANDFARM CELL
JOHNSON CONTROLS, INC.
WATERTOWN FACILITY
WATERTOWN, WISCONSIN
07/11/94
JP JC957009

TABLE 2. LANDFARM CELL SOIL SAMPLE DATA JOHNSON CONTROLS, INC. - WATERTOWN, WI									
LOCATION	OCTOBER 18, 1993			MAY 4, 1994			JUNE 1, 1994		
	TCE	1,1 DCE	PCE	TCE	1,1 DCE	PCE	TCE	1,1 DCE	PCE
NW	460	ND	10	42	ND	ND	11	ND	ND
N	NS	NS	NS	NS	NS	NS	ND	ND	ND
NE	380	ND	10	120	ND	ND	30	ND	ND
E	NS	NS	NS	NS	NS	NS	ND	ND	ND
SE	120	ND	ND	400	ND	ND	16	ND	ND
S	NS	NS	NS	NS	NS	NS	38	ND	ND
SW	1300	220	ND	240	ND	ND	390	ND	ND
W	NS	NS	NS	NS	NS	NS	120	ND	ND
C	NS	NS	NS	NS	NS	NS	ND	ND	ND

All data presented in units of parts per billion (ppb), i.e. ug/kg for soil.

TCE = trichloroethylene
1,1 DCE = 1,1 dichloroethene
PCE = tetrachloroethylene

ND = concentration is below method detection limit (MDL)
NS = not sampled on dates in question

Method Detection Limits
TCE = 10 ppb
1,1 DCE = 5 ppb
PCE = 5 ppb

Only volatile organic compounds (VOCs) detected are presented in this table, all other VOCs were found to be non-detect.

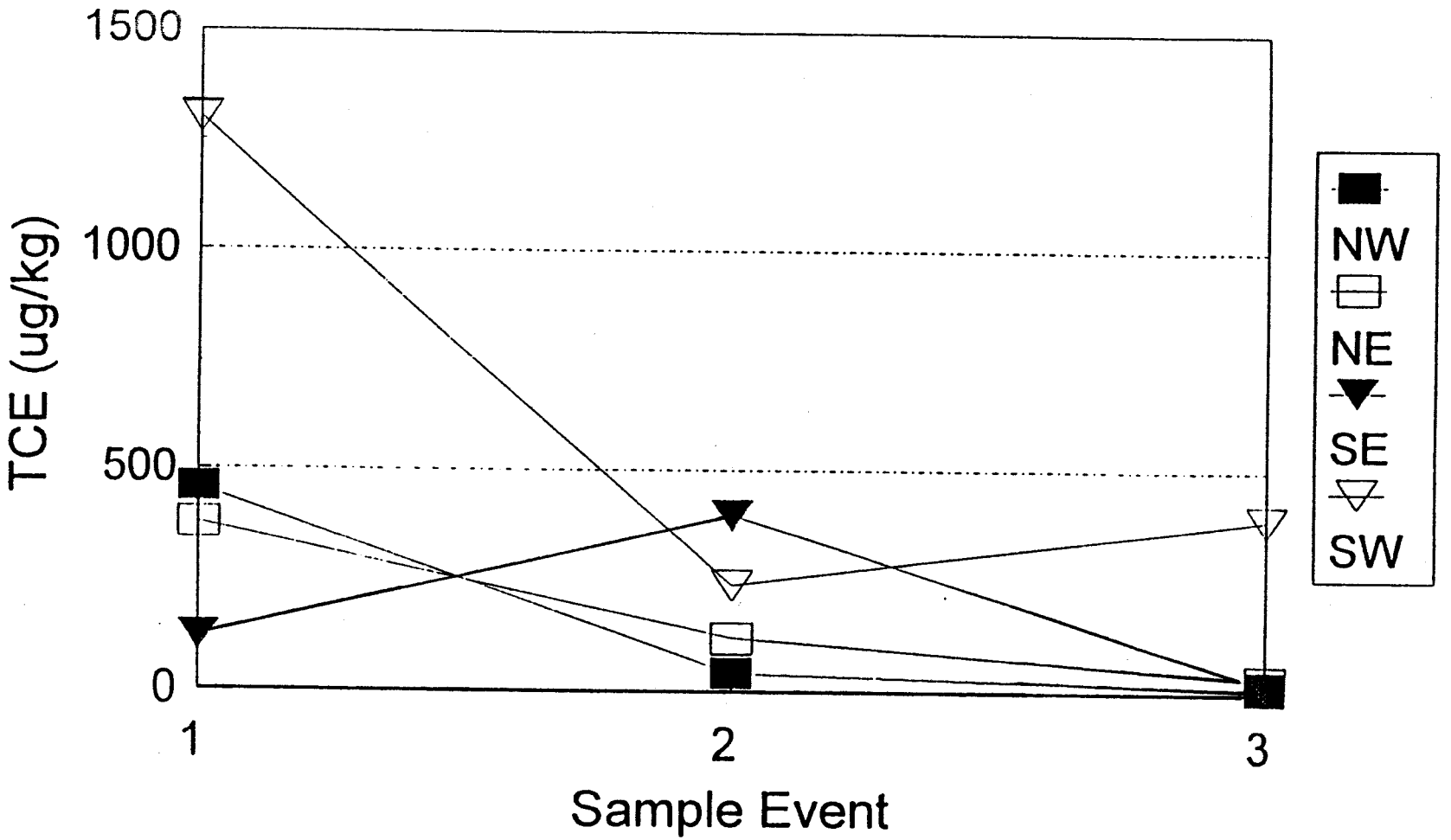



FIGURE 5
LANDFARM CELL SAMPLING RESULTS