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POST-REMEDIATION GROUNDWATER MONITORING REPORT

FIRST QUARTER 1998 SAMPLING EVENT

Vibratech, Inc.
Buffalo, New York

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CONESTOGA-ROVERS & ASSOCIATES

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1.0 INTRODUCTION

In 1996, Vibratech, Inc. (Vibratech) sold its facility located at 537 East Delavan Avenue in Buffalo, New York (Site). The facility had been used for manufacture of vibration dampers and rotary shock adsorbers for the trucking and railroad industries.

During environmental investigations conducted prior to the sale of the property, an area of soil contamination was discovered along a railroad spur on the south portion of the property. The chemicals of concern are volatile organic compounds (VOCs), specifically: 1,1-dichloroethane; 1,2-dichloroethane; cis-1,2-dichloroethene; trans-1,2-dichloroethene; toluene; 1,1,1-trichloroethane; trichloroethene; vinyl chloride; and total xylenes. The former area of soil contamination is shown on Figure 1.1.

These VOCs were also detected in groundwater. Figure 1.2 shows total VOC concentrations in Site monitoring wells.

In 1995-1996, the contaminated soil was excavated and disposed off-Site or treated on-Site using soil vapor extraction (SVE). This remedial action removed the source of groundwater contamination. Remaining chemical presence in groundwater is expected to naturally attenuate over time.

A post-remediation groundwater monitoring program was developed to continue to monitor VOC presence in groundwater. The program is described in a report written by Conestoga-Rovers & Associates (CRA) entitled "Post-Remediation Groundwater Monitoring Plan", dated April 1997. The plan provides for groundwater sample collection from three downgradient monitoring wells designated MW-2, MW-6, and MW-7. Groundwater samples are analyzed for selected VOCs using SW-846 Method 8620. The frequency of groundwater sampling specified in the Post-Remediation Groundwater Monitoring Plan is as follows:

i) quarterly for the first four quarters (first year);
ii) semi-annually during the second year; and
iii) annually during years three through five.

At the end of five years, the monitoring program will be re-evaluated. An earlier re-evaluation may be conducted but no changes from the above will be implemented without the consent of the New York State Department of Environmental Conservation (NYSDEC).

This report presents the results of the post-remediation sampling event which took place during the first quarter of 1998. This represents the completion of the fourth consecutive quarterly sampling event (item i, above). In accordance with the Post-Remediation Groundwater Monitoring Plan, the program will now move to semi-annual sampling (item ii, above). The next scheduled sampling event will therefore constitute the first semi-annual event and will be conducted during the second half of 1998.

2.0 WORK PERFORMED

CRA conducted the first quarter 1998 groundwater sampling event at the Former Vibratech Facility at 537 East Delavan Avenue in Buffalo, New York on March 9, 1998.

Monitoring wells MW-2, MW-6, and MW-7 were sampled in accordance with the Post-Remediation Groundwater Monitoring Plan dated April 1997. During the sampling event, CRA personnel observed the storage of automobile tires inside the basement of the Former Vibratech Facility and trash and debris dumped along the former railroad spur.

A blind duplicate sample was collected at MW-2 and identified as BTF-030998-MW-9. A matrix spike and matrix spike duplicate was collected at MW-6. Samples were picked up by Columbia Analytical Services (CAS) on the date of sampling. Samples were analyzed using SW-846 Method 8260.

3.0 RESULTS

3.1 DATA QUALITY

CRA performed an assessment and validation of the laboratory's analytical results. The data reported by CRA was determined to be acceptable for use without qualification. Appendix A contains the Analytical Data Quality Assessment and Validation Report.

3.2 ANALYTICAL RESULTS

The following chemicals were detected in samples collected during the fourth quarter of 1997:

Chemical	*MW-2*	*MW-2 (Duplicate)*	*MW-6*	*MW-7*
1,1-Dichloroethane	300	240	41	ND
cis-1,2-Dichloroethene	240	210	44	ND
1,1,1-Trichloroethane	160	140	ND	ND
Trichloroethene	17	14	ND	ND
Vinyl chloride	120J	79J	18	ND

Notes:
J Estimated
ND Non-detect.

Figure 3.1 presents the results of the first quarter 1998 sampling event. Figure 3.2 presents total VOC concentration versus time graphs for monitoring wells MW-2, MW-6, and MW-7. These graphs show the following:

i) Total VOC concentrations in the historically most contaminated monitoring well (MW-2) have steadily decreased from 1,718 µg/L (prior to remediation) to 837 µg/L/683 µg/L (First Quarter 1998).

ii) Total VOC concentrations in well MW-6, located near the margin of the contaminant plume, had increased following remediation from 27 µg/L to 433 µg/L (Third Quarter 1997). Since Third Quarter 1997 the VOC concentrations have declined. Total VOC concentrations fell to 159.7 µg/L during the Fourth Quarter 1997 and declined further to 103 µg/L during First Quarter 1998.

iii) VOCs have never been detected in well MW-7, located on the downgradient side of the Winchester Avenue sewer.

The apparent increasing trend in VOC concentrations at MW-6 during the months following remediation may have been attributable to a slight change in the local groundwater flow conditions caused by the excavation activities. Precipitation will infiltrate the backfilled soil after excavation much more readily than the undisturbed soil prior to the excavation. The concentration trend in second and third quarter results for MW-6 may therefore reflect a temporary increase due to a flushing effect near the excavation. The Fourth Quarter 1997 and First Quarter 1998 results show a marked decrease in concentration, suggesting concentrations are now declining. The concentration trends will continue to be monitored and discussed in subsequent monitoring reports.

FIGURES

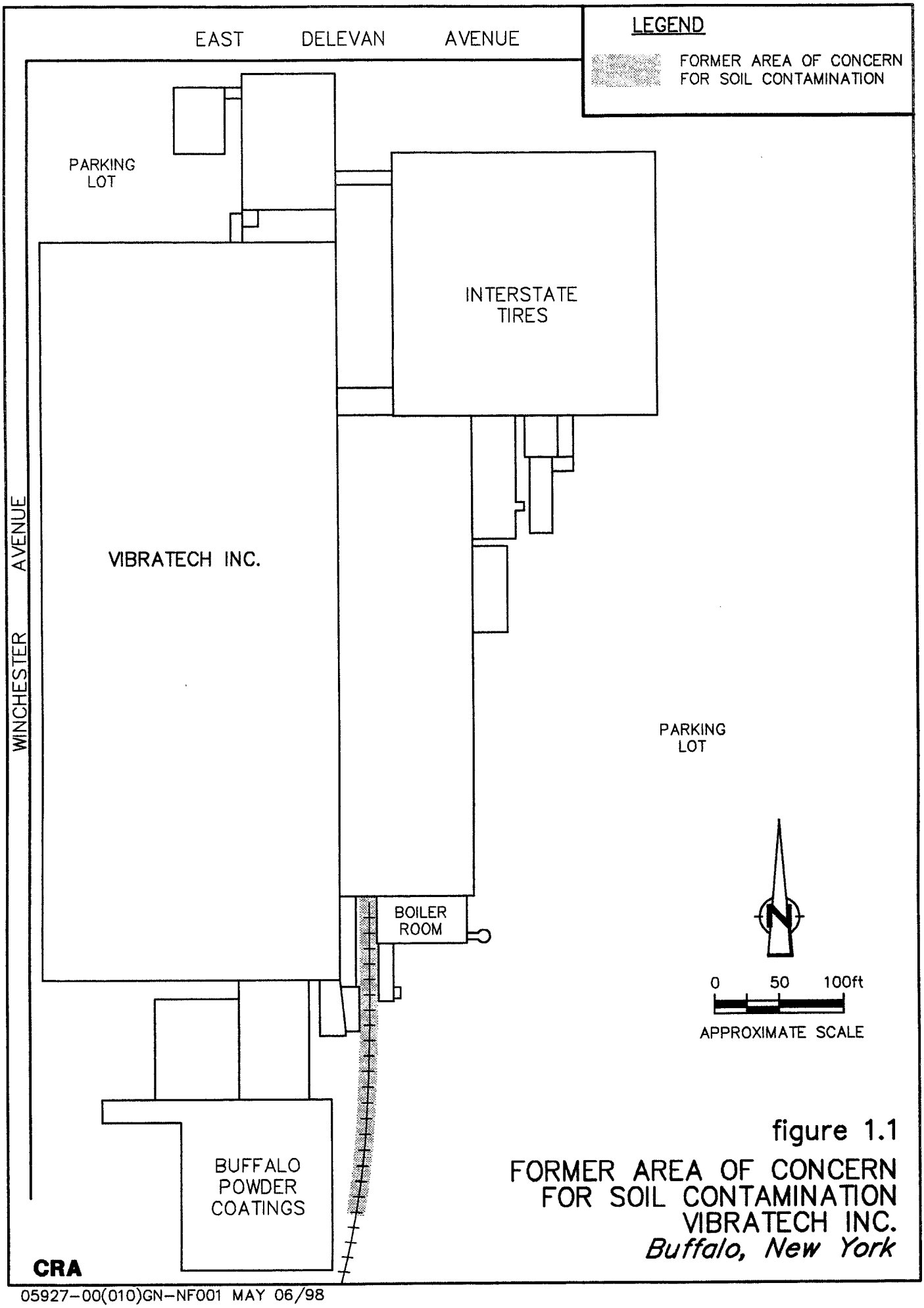

figure 1.1

FORMER AREA OF CONCERN
FOR SOIL CONTAMINATION
VIBRATECH INC.
Buffalo, New York

05927-00(010)GN-NF001 MAY 06/98

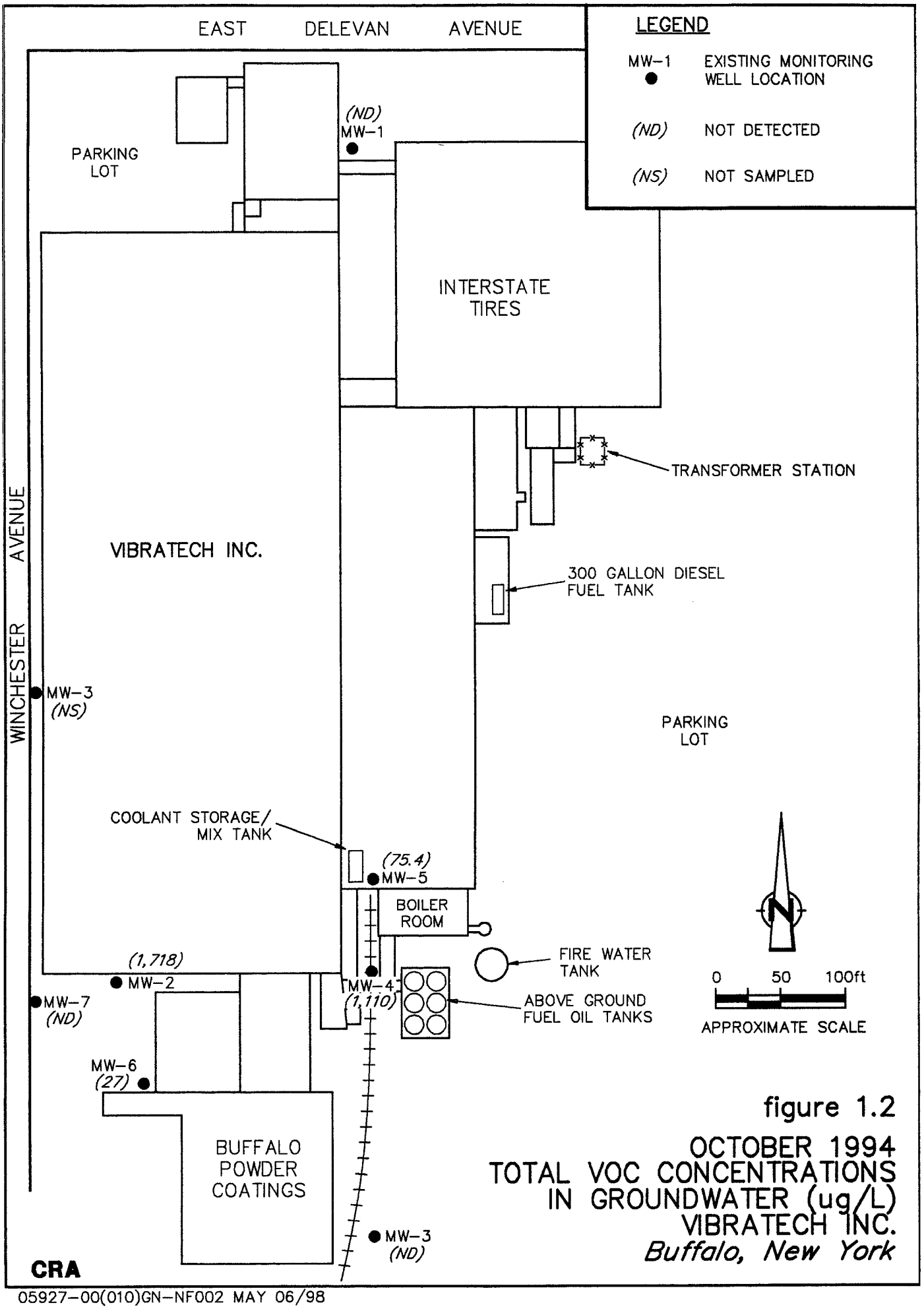

figure 1.2

OCTOBER 1994
TOTAL VOC CONCENTRATIONS
IN GROUNDWATER (ug/L)
VIBRATECH INC.
Buffalo, New York

CRA

05927-00(010)GN-NF002 MAY 06/98

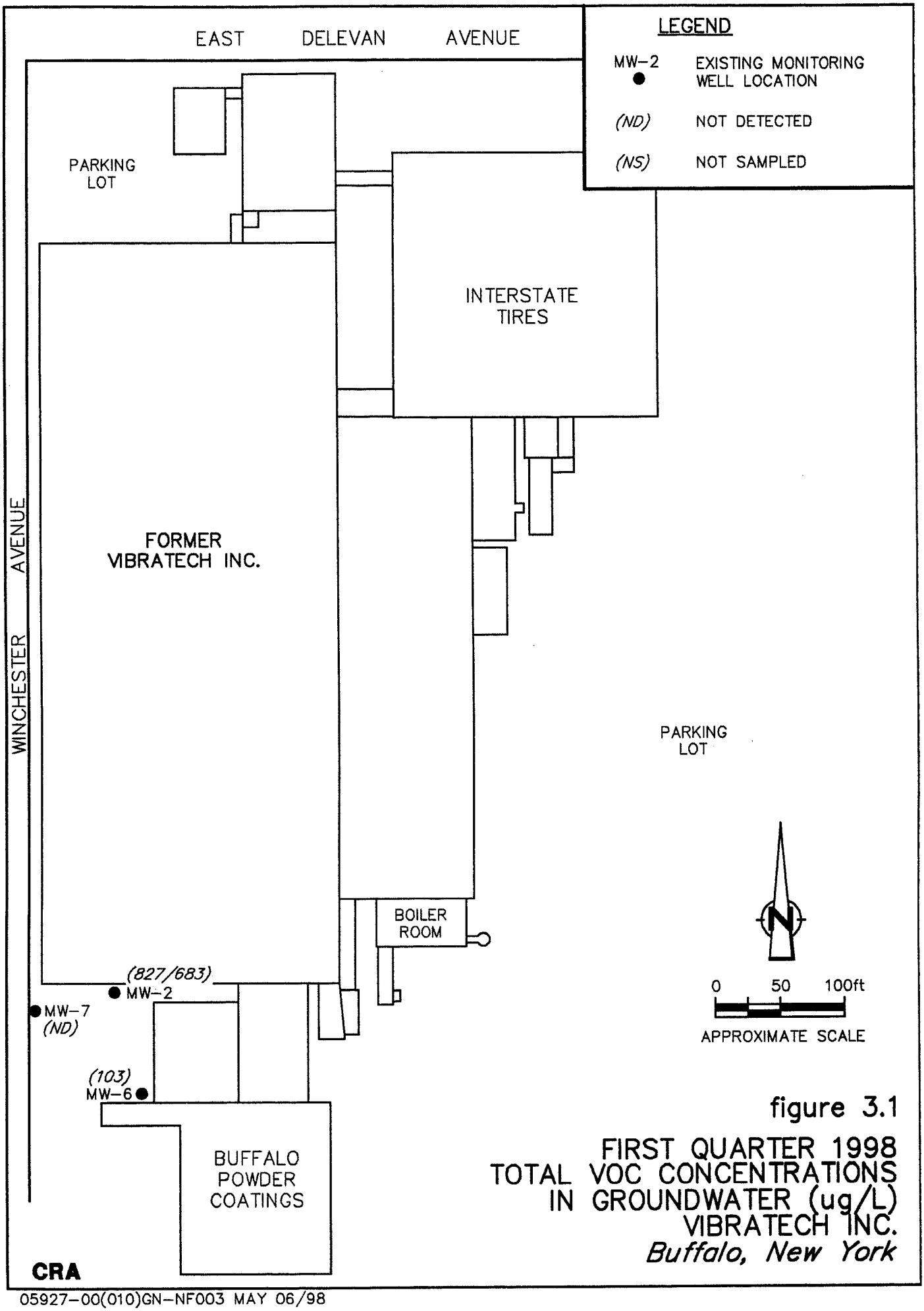

figure 3.1

FIRST QUARTER 1998
TOTAL VOC CONCENTRATIONS
IN GROUNDWATER (ug/L)
VIBRATECH INC.
Buffalo, New York

CRA

05927-00(010)GN-NF003 MAY 06/98

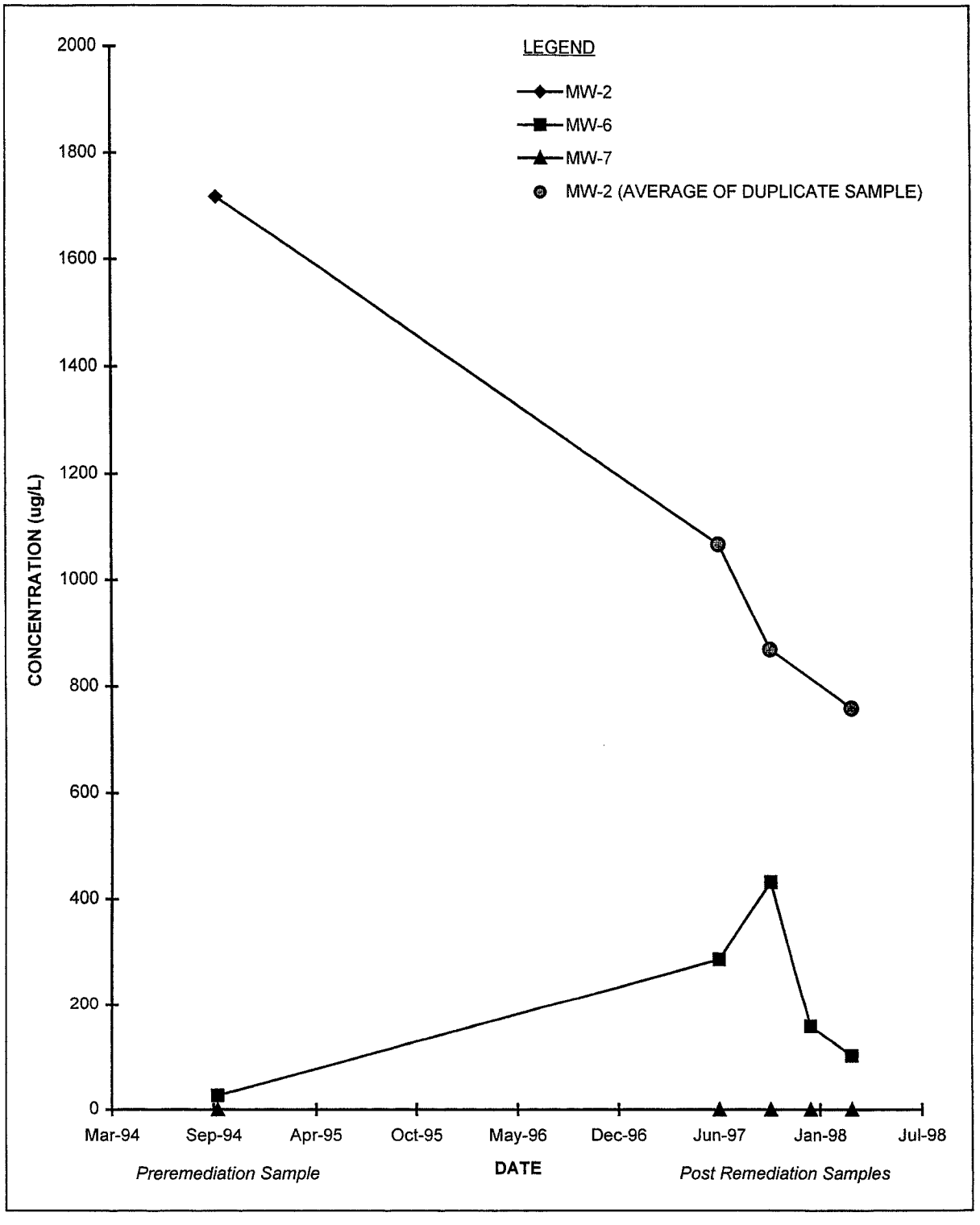

figure 3.2
TOTAL VOC CONCENTRATION IN GROUNDWATER VS.TIME
VIBRATECH INC.
Buffalo, New York

CRA

05927-00(010)GN-NF004

APPENDIX A

ANALYTICAL DATA QUALITY ASSESSMENT AND VALIDATION

CRA
2055 Niagara Falls Boulevard
Suite #3
Niagara Falls, New York 14304
(716) 297-6150

MEMO

TO: Kelly McIntosh REFERENCE NO. 5927

FROM: Karen Bevilacqua/js/16 DATE: April 21, 1998

C.C.: Bryan Foulke

RE: Analytical Data Quality Assessment and Validation
Groundwater Sampling
Vibratech Site, Buffalo, New York
March 1998

The following details an assessment and validation of analytical results reported by Columbia Analytical Services, Inc. (CAS) for environmental samples collected in March 1998 from the Vibratech Site (Site). The samples collected were submitted for Site-specific volatile organic compounds (VOCs) as follows:

Parameter	*Matrix*	*Investigative Samples*	*Field Duplicates*	*MS/MSD*	*Trip Blanks*	*Total*
VOCs	Water	3	1	1/1	1	7

Notes:
MS/MSD - Matrix Spike/Matrix Spike Duplicate.

Samples were analyzed by Method 8260, referenced from "Test Methods for Evaluating Solid Waste", SW-846, 3rd Edition, 1986.

For sample identification and location, a sample collection summary is presented in Table 1. A summary of the analytical results is presented in Table 2. Evaluation of the data was based on information obtained from finished data sheets, blank data, and recovery data from matrix, blank, and surrogate spikes. Quality Assurance/Quality Control (QA/QC) criteria by which these data have been assessed are referenced from the SW-846 method of analysis and the "National Functional Guidelines for Organic Data Review" (February 1994), both prepared by the United States Environmental Protection Agency (USEPA).

ANALYTICAL ASSESSMENT AND VALIDATION

All samples were properly transported and stored at 4°C (±2°C). The samples were preserved with hydrochloric acid to a pH of less than two. All analyses were performed within the SW-846 recommended holding time of 14 days.

The surrogate compounds 4-bromofluorobenzene, toluene-d_8, and dibromofluoromethane were added to all samples, blanks, and QC samples. All recoveries were acceptable, indicating good analytical efficiency.

Laboratory method blank analyses yielded non-detect results for all compounds of interest, indicating that laboratory contamination was not a factor for this investigation.

Internal standard analyses were performed per the method. All percent recoveries and retention times were acceptable, indicating good analytical performance.

One MS/MSD analysis was performed on sample BTF-030998-MW6. All percent recoveries and relative percent differences (RPDs) were within the control limits, indicating that good analytical accuracy and precision were achieved.

A blank spike containing all compounds of interest was analyzed. All percent recoveries were within the control limits, indicating good analytical accuracy.

FIELD QA/QC RESULTS

One trip blank was submitted to the laboratory for VOC analysis on March 9, 1998. The analysis of the trip blank yielded non-detect results for all compounds of interest, indicating that contamination from shipment and storage activities was not a factor for this investigation.

One field duplicate sample was collected and submitted "blind" to the laboratory for analysis. The results showed acceptable agreement with the original sample, except for vinyl chloride. These data were qualified as estimated due to the variability in results.

CONCLUSION

The data reported by CAS are acceptable with the specified qualifications noted.

TABLE 1

SAMPLE COLLECTION SUMMARY
VIBRATECH, INC.
BUFFALO, NEW YORK
MARCH 1998

Sample Identification	*Sample Location*	*Sample Matrix*	*Collection Date*	*Collection Time*	*Sample Analyses**	*Comments*
BTF-030998-MW2	MW2	Water	03/09/98	1005	Site-Specific Volatiles	
BTF-030998-MW6	MW6	Water	03/09/98	1000	Site-Specific Volatiles	MS/MSD
BTF-030998-MW7	MW7	Water	03/09/98	1020	Site-Specific Volatiles	
BTF-030998-MW9	MW9	Water	03/09/98	1015	Site-Specific Volatiles	Field duplicate of MW2

Notes:

* Site-Specific Volatiles: 1,1-dichloroethane, 1,2-dichloroethane, cis-1,2-dichloroethene, trans-1,2-dichloroethene, toluene, 1,1,1-trichloroethane, trichloroethene, vinyl chloride, o-xylene, m&p xylene.

MS Matrix Spike.

MSD Matrix Spike Duplicate.

TABLE 2

ANALYTICAL RESULTS SUMMARY
VIBRATECH, INC.
BUFFALO, NEW YORK
MARCH 1998

	Sample ID:	*BTF-030998-MW2*	*BTF-030998-MW9 (Field Duplicate)*	*BTF-030998-MW6*	*BTF-030998-MW7*
	Collection Date:	*03/09/98*	*03/09/98*	*03/09/98*	*03/09/98*
Parameters	*Units*				
Volatiles					
1,1-Dichloroethane	µg/L	300	240	41	5.0 U
1,2-Dichloroethane	µg/L	10 U	10 U	5.0 U	5.0 U
cis-1,2-Dichloroethene	µg/L	240	210	44	5.0 U
trans-1,2-Dichloroethene	µg/L	10 U	10 U	5.0 U	5.0 U
Toluene	µg/L	10 U	10 U	5.0 U	5.0 U
1,1,1-Trichloroethane	µg/L	160	140	5.0 U	5.0 U
Trichloroethene	µg/L	17	14	5.0 U	5.0 U
Vinyl chloride	µg/L	120 J	79 J	18	5.0 U
o-Xylene	µg/L	10 U	10 U	5.0 U	5.0 U
m&p-Xylene	µg/L	10 U	10 U	5.0 U	5.0 U

Notes:
J Estimated.
U Non detect at the associated value.