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POST-REMEDIATION GROUNDWATER MONITORING REPORT

THIRD QUARTER 1997 SAMPLING EVENT

Vibratech, Inc.
Buffalo, New York

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DECEMBER 1997
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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 third quarter of 1997.

2.0 WORK PERFORMED

CRA conducted the third quarter 1997 groundwater sampling event at the Former Vibratech Facility at 532 East Delavan Avenue in Buffalo, New York on September 29, 1997.

Monitoring wells MW-2, MW-6, and MW-7 were sampled in accordance with the Post-Remediation Groundwater Monitoring Plan dated April 1997. A blind duplicate sample was collected at MW-2 and identified as BTF-092997-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 third quarter of 1997:

Chemical	*MW-2*	*MW-2 (Duplicate)*	*MW-6*	*MW-7*
1,1-Dichloroethane	300	340	50	5.0 U
cis-1,2-Dichloroethene	110	120	330	5.0 U
1,1,1-Trichloroethane	400	390	5.0 U	5.0 U
Trichloroethene	34	33	5.9	5.0 U
Vinyl chloride	13	13 U	53	5.0 U

Notes:
U Non-detect at the associated value.

Figure 3.1 presents the results of the second quarter 1997 sampling event. Figure 3.2 presents the results of the third quarter sampling event. Comparison of these figures with the pre-remediation analytical results for groundwater (see Figure 1.2) shows the following:

i) Total VOC concentrations in the historically most contaminated monitoring well (MW-2) have decreased following remediation from 1718 µg/L (Figure 1.2) to 857 µg/L (Figure 3.2).

ii) Total VOC concentrations in well MW-6, located near the margin of the contaminant plume have increased following remediation from 27 µg/L (Figure 1.2) to 433 µg/L (Figure 3.2).

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 is likely 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 concentrations at MW-6 may therefore reflect a temporary increase due to a flushing effect near the excavation.

It is expected that in the future this trend will level off and concentrations will subsequently begin to decrease. The concentration trend in well MW-6 will continue to be monitored and discussed in the project quarterly reports.

FIGURES

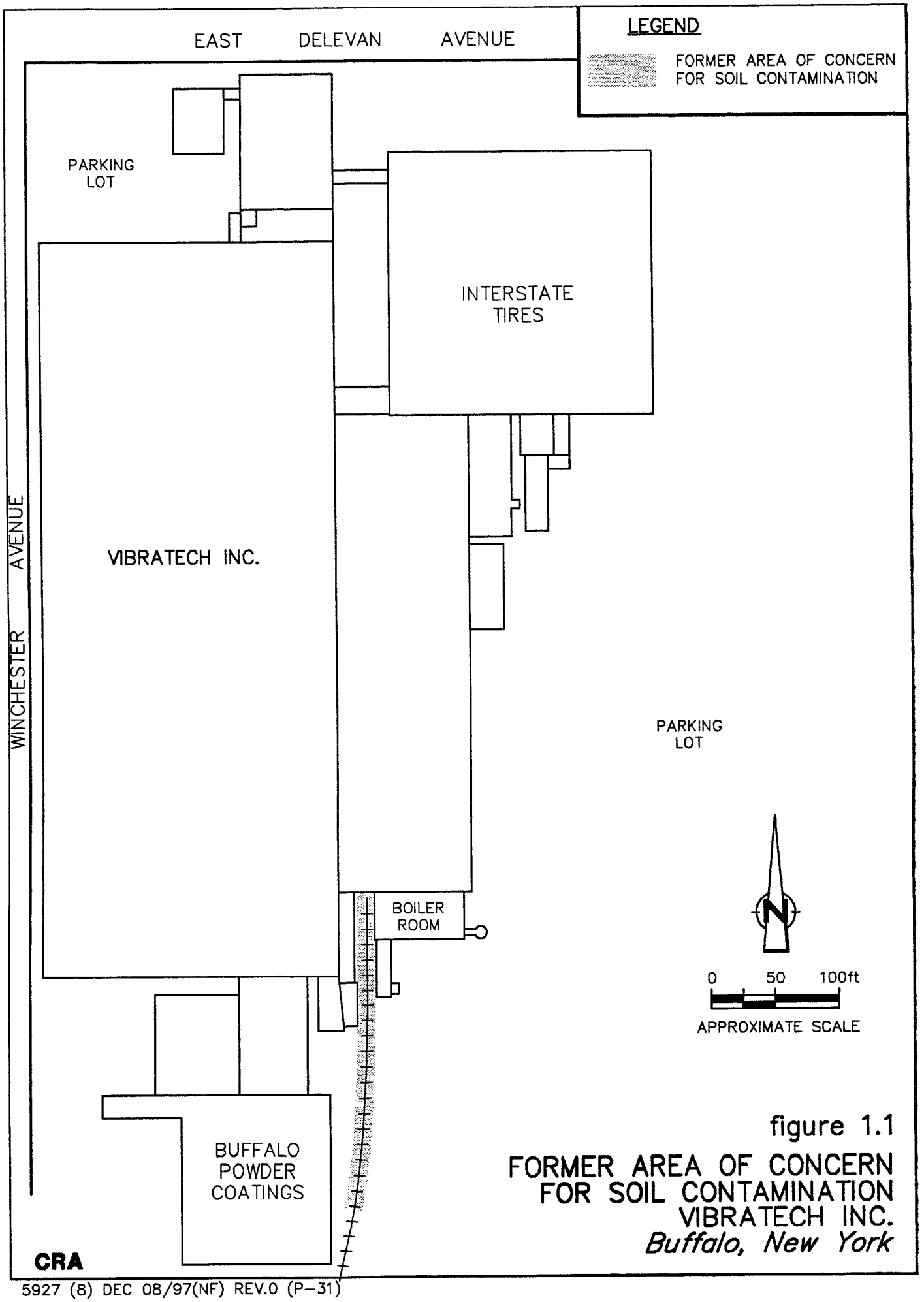

figure 1.1

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

CRA

5927 (8) DEC 08/97(NF) REV.0 (P-31)

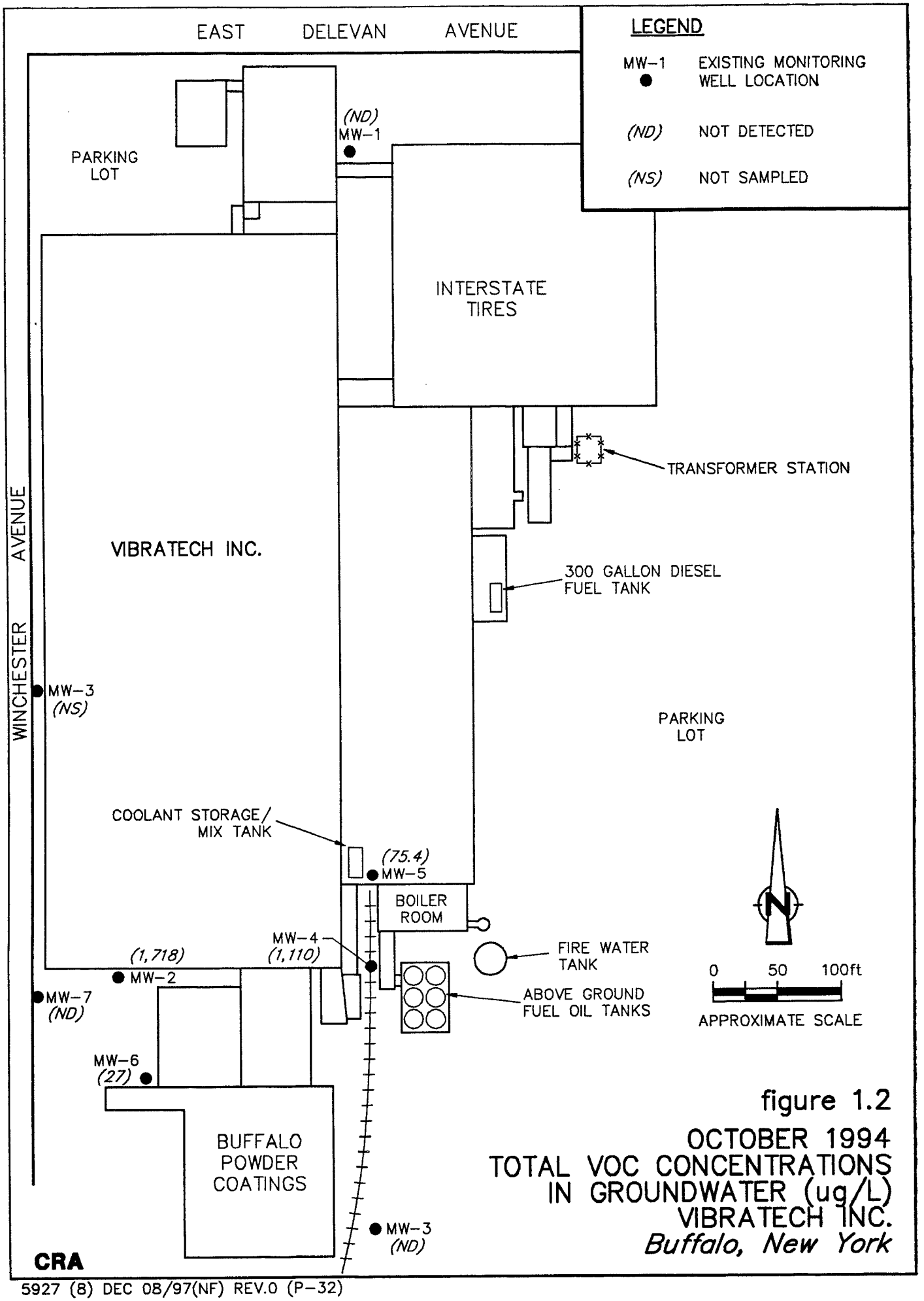

figure 1.2

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

5927 (8) DEC 08/97(NF) REV.0 (P-32)

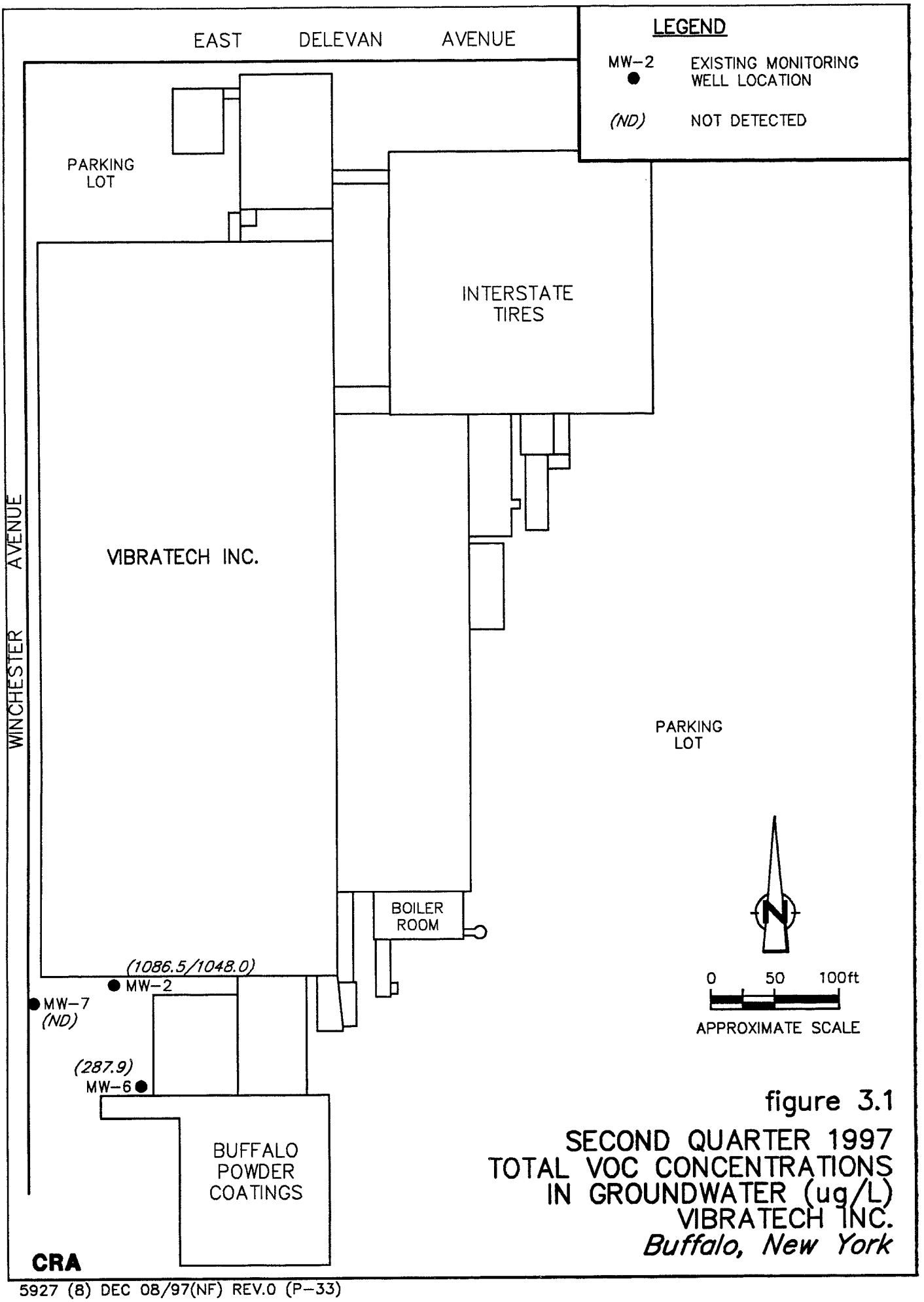

figure 3.1

SECOND QUARTER 1997
TOTAL VOC CONCENTRATIONS
IN GROUNDWATER (ug/L)
VIBRATECH INC.
Buffalo, New York

CRA

5927 (8) DEC 08/97(NF) REV.0 (P-33)

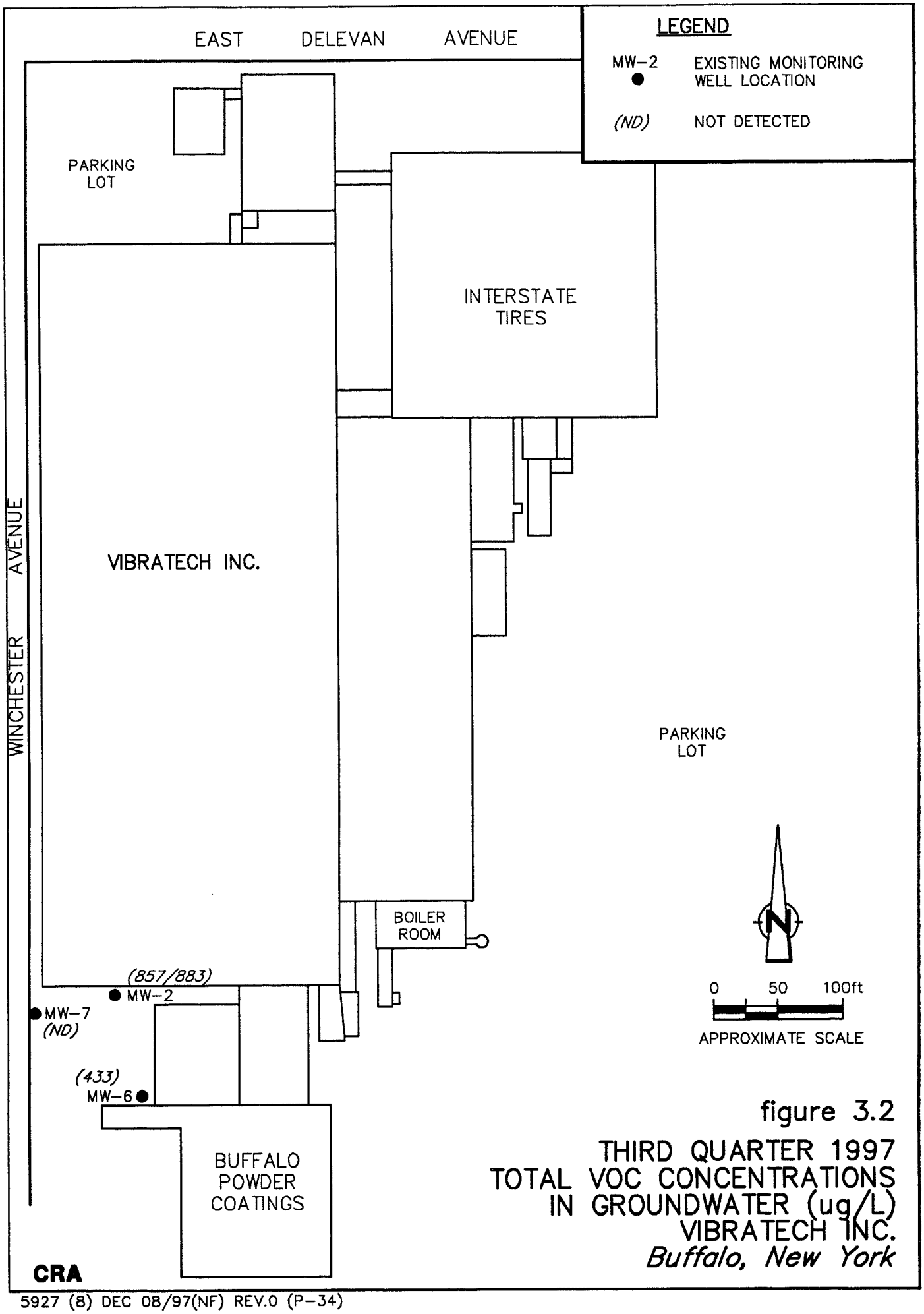

figure 3.2

THIRD QUARTER 1997
TOTAL VOC CONCENTRATIONS
IN GROUNDWATER (ug/L)
VIBRATECH INC.
Buffalo, New York

CRA

5927 (8) DEC 08/97(NF) REV.0 (P-34)

APPENDIX A

ANALYTICAL DATA QUALITY ASSESSMENT AND VALIDATION

MEMO

TO: Kelly McIntosh REFERENCE NO: 5927

FROM: Paul McMahon/ms/12 DATE: October 30, 1997

RE: Analytical Data Quality Assessment and Validation
Groundwater Sampling
Vibratech Site, Buffalo, New York
September 1997

C.C.: Bryan Foulke

The following details an assessment and validation of analytical results reported by Columbia Analytical Services, Inc. (CAS) for environmental samples collected in September 1997 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-bromoflurobenzene, 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-092997-MW6. All percent recoveries (%R) and relative percent differences (RPDs) were within the control limits, indicating that good analytical accuracy and precision were achieved.

FIELD QA/QC RESULTS

One trip blank was submitted to the laboratory for VOC analysis on September 29, 1997. 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, demonstrating good sampling and analytical precision.

CONCLUSION

The data reported by CAS are acceptable for use without qualification.

TABLE 1

SAMPLE COLLECTION SUMMARY
VIBRATECH, INC.
BUFFALO, NEW YORK
SEPTEMBER 1997

Sample Identification	*Sample Location*	*Sample Matrix*	*Collection Date*	*Collection Time*	*Sample Analyses**	*Comments*
BTF-092997-MW2	MW2	Water	09/29/97	1500	Site-Specific Volatiles	
BTF-092997-MW9	MW2	Water	09/29/97	1530	Site-Specific Volatiles	Field Duplicate of MW2
BTF-092997-MW6	MW6	Water	09/29/97	1510	Site-Specific Volatiles	MS/MSD
BTF-092997-MW7	MW7	Water	09/29/97	1520	Site-Specific Volatiles	

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
SEPTEMBER 1997

	Sample ID:	*BTF-092997-MW2*	*BTF-092997-MW9*	*BTF-092997-MW6*	*BTF-092997-MW7*
	Collection Date:	*09/29/97*	*09/29/97*	*09/29/97*	*09/29/97*
			(Dup of BTF-092997-MW2)		
Parameters	*Units*				
Volatiles					
1,1-Dichloroethane	µg/L	300	340	50	5.0 U
1,2-Dichloroethane	µg/L	13 U	13 U	13 U	5.0 U
cis-1,2-Dichloroethene	µg/L	110	120	330	5.0 U
trans-1,2-Dichloroethene	µg/L	13 U	13 U	13 U	5.0 U
Toluene	µg/L	13 U	13 U	13 U	5.0 U
1,1,1-Trichloroethane	µg/L	400	390	13 U	5.0 U
Trichloroethene	µg/L	34	33	13 U	5.0 U
Vinyl chloride	µg/L	13	13 U	53	5.0 U
o-Xylene	µg/L	13 U	13 U	13 U	5.0 U
m&p-Xylene	µg/L	13 U	13 U	13 U	5.0 U

Notes:
Dup Field Duplicate.
U Non detect at the associated value.