New York State Department of Environmental Conservation
625 Broadway • Albany, NY 12233

WEST SIDE CORPORATION
OPERABLE UNIT No.2

Offsite Plume Delineation and Investigation Report Addendum #1

Work Assignment No. D00443-10.1

May 2009

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Contents

List of Figures

List of Tables

Appendices

A. Hydrographs - Groundwater Elevation in Intermediate Depth Monitoring Wells: 2nd Monitoring Quarter
B. NOAA Quality Controlled Climatological Data: October to January 2009
C. Data Usability Summary Report (DUSR) Narrative – 2nd Sampling Event

Data CD Contents

1) PDF: Offsite Plume Delineation and Investigation Report Addendum #1
2) Fully Validated Data Package – 2nd Sampling Event
3) Phoenix Laboratory Raw PDB Sample Results

1. Introduction

1.1. INTRODUCTION

This addendum summarizes the water quality data and water level measurements collected during the 2nd quarterly sampling event at the West Side Corporation site, Operable Unit No.2 (OU-2) in Jamaica, Borough of Queens, New York. The purpose of this event was to continue monitoring the migration of PCE in the groundwater from the West Side site. Field investigation activities related to the perchloroethene (PCE) plume delineation are documented in the report titled Offsite Plume Delineation and Investigation Report: West Side Corporation Operable Unit No.2, Malcolm Pirnie Inc., dated February 2009.

The data collected during this sampling event was retrieved from monitoring wells located at Operable Unit No.1 (OU-1) and OU-2 and spans from October 6, 2008 to January 5, 2009. This work was performed under Work Assignment No. D00443-10.1 and follows the 1st monitoring quarter, presented in the February 2009 Offsite Plume Delineation and Investigation Report.

2. Water Level Measurements

2.1. Introduction

Synoptic water level measurements taken from the surveyed top-of-casing, as well as Levelogger® pressure transducer data, were retrieved from existing permanent monitoring wells at OU-1 and OU-2. This data was converted into groundwater elevation to document water level trends and the direction of groundwater movement. Groundwater elevations measured hourly throughout the 2nd monitoring quarter were plotted as hydrographs, found in Appendix A.

Depth-to-water measurements taken from the top of monitoring well casings are presented in Table 2-1.

2.2. Results Summary

Hydrographs showing continuous water level monitoring data indicate that groundwater elevation increased since the 1st monitoring quarter. Meteorological information obtained from NOAA (Appendix B) reports that more precipitation occurred during the 2nd monitoring quarter than the 1st quarter, indicating that a seasonal variation in precipitation is directly related to aquifer recharge. Hydrographs display an increase in water table elevation that in some well locations is approximately 8 inches.

A groundwater elevation map (Figure 2-1) based on water level data from transducers installed in intermediate depth monitoring wells indicates that the direction of regional flow is south to southeast. This observation is consistent with observations made during the 1st monitoring quarter, suggesting that seasonal variation in precipitation during the period of October to January 2008 did not change the direction of regional flow in the aquifer.

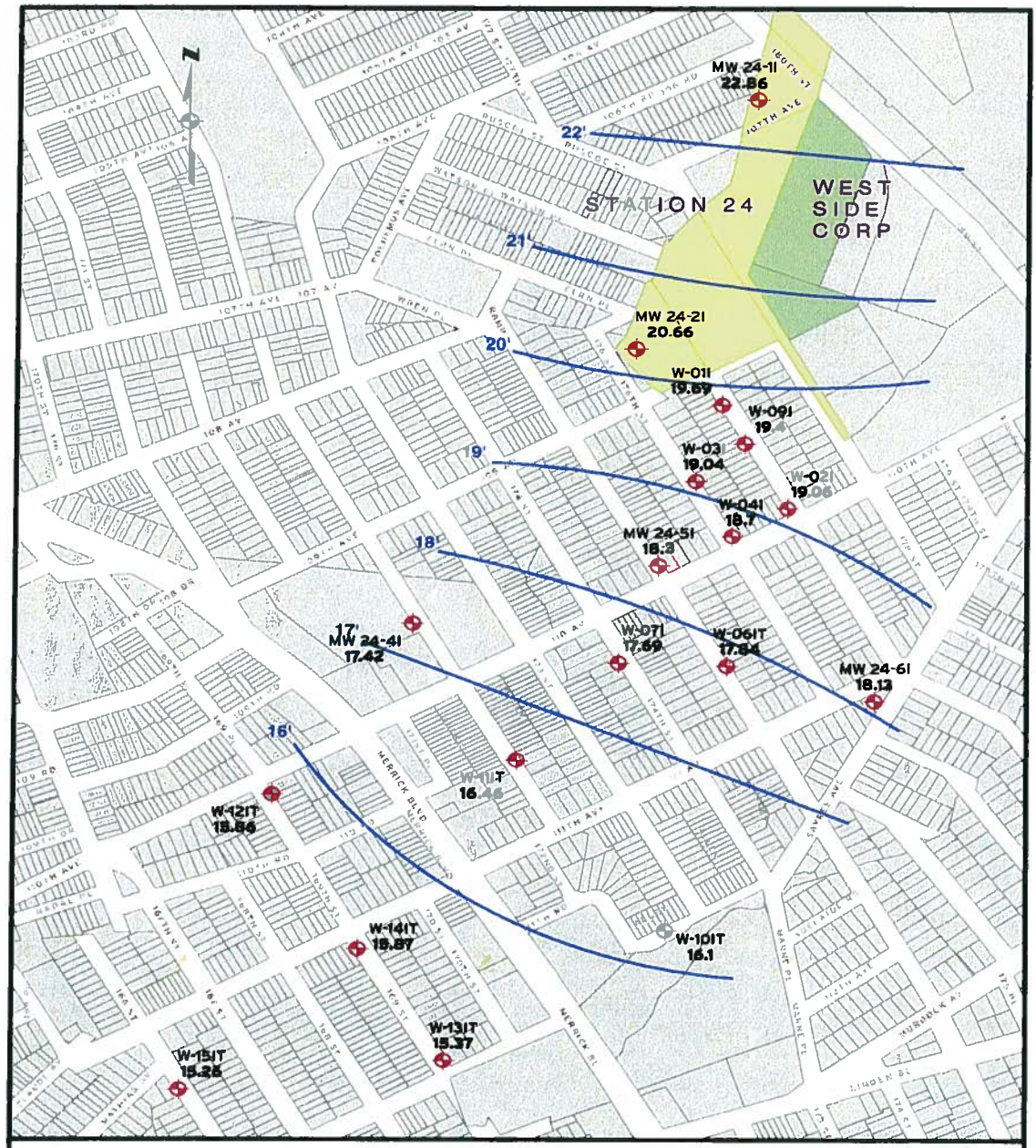
TABLE 2-1

WESTSIDE DTW READINGS- 2nd SAMPLING EVENT

Well Designation	Levellogger Serial Number	Date	DTW (S)	DTW (I)	DTW (D)
MW 24-2	1033544	1/5/09	8.29	8.31	8.33
MW 24-1	1033548	1/5/09	10.04	10.11	9.93
MW 24-4	1033560	1/5/09	12.84	12.77	12.80
MW 24-6	1033576	1/5/09	8.34	8.44	8.47
MW 25-5	1033547	1/5/09	9.97	9.99	10.05
MW-6S		1/7/09	8.02		
MW-6D		1/7/09			7.79
MW-7S		1/8/09	6.74		
MW-7D		1/8/09			6.78
MW-22S		1/7/09	7.13		
MW-55D		1/7/09			7.20
MW-3D		1/7/09			5.73
W-01	1033561	1/5/09	8.01	8.05	8.10
W-02	1033549	1/5/09	8.10	8.17	8.18
W-03	1033550	1/7/09	6.15	6.41	6.78
W-04	1033557	1/6/09	6.98	6.73	6.81
W-06	1033546	1/6/09	9.14	9.35	9.34
MW-07 (DEP Yard)		1/5/09		7.78	
W-07	1033567	1/6/09	9.60	9.67	9.53
W-08	1033555	1/6/09	7.98	8.96	8.11
W-09	1033557	1/5/09	9.53	9.62	9.34
W-10	1033538	1/6/09	9.95	10.01	9.99
W-11	1033629	1/6/09	11.05	11.91	11.94
W-12	1033573	1/7/09	19.18	19.00	19.00
W-13	1033537	1/8/09	6.62	6.51	6.50
W-14	1033575	1/9/09	13.51	13.31	13.34
W-15	1033579	1/8/09	6.15	6.29	6.03

*MW-5S was inaccessible

Figure 2-1: Intermediate Well Groundwater Elevations



3. Water Quality Sampling Results

3.1. INTRODUCTION

Groundwater samples were collected using Passive Diffusion Bag samplers (PDBs) from 66 monitoring wells and analyzed by Phoenix Laboratories for VOCs by SW-846 EPA Method 8260.

3.2. RESULTS SUMMARY

PCE and other compound concentrations were consistent with the laboratory results obtained from the 1st sampling event, indicating that significant migration of PCE has not occurred. Validated laboratory results for PCE, as well as other detected analytes, are summarized in Table 3-1.

3.2.1. DATA VALIDATION

Laboratory deliverable results were compiled in ASP-B format for data validation. The Data Usability Summary Report (DUSR) can be found in Appendix C. The fully validated data package is presented in the Data CD.

3.3. PCE PLUME

Plan-view PCE isoconcentration maps indicate variation in plume configuration with depth. Figure 3-1 indicates that shallow contamination remains between the OU-1 source area and the vicinity of 173rd Street. The highest concentrations were observed between 175th and 176th Street, where wells W-04S and W-08S indicated significant shallow groundwater contamination at 1000 ppb and1300 ppb, respectively. Several other shallow wells indicated PCE concentrations greater than 10 ppb between OU-1 and 173rd Street. Beyond this point, PCE was not detected in the shallow monitoring wells.

Intermediate depth monitoring wells indicate that the PCE contamination continues to occupy the intermediate zone, extending further south and west of shallow contamination from OU-1. PCE concentrations indicate that the leading edge of the plume in the intermediate zone is still located between 169th and 166th Streets. The highest concentrations in the intermediate zone (~ 40-50 ft bgs) were observed from 177th Street to 172nd Street, where several wells indicate PCE concentrations greater than 1000 ppb (see Figure 3-2).

Analysis of groundwater samples from deep monitoring wells indicates that contamination extends still farther to the south-southwest in the deepest interval (Figure

3-3). The detection of PCE in W-15D, at a concentration of 23 ppb, indicates that the leading edge of the plume in the deep zone is located slightly further downgradient than 166th Street.

The highest PCE concentrations in deep wells were seen in wells W-08D and W-07D at 660 ppb and 240 ppb, respectively, indicating that the bulk of PCE contamination in the deep zone is located between 173rd and 175th Streets. In comparison to concentrations observed during the 1st sampling event, these values are generally lower. Deep zone contamination continues to appear bounded by 110th Avenue and Sayres Avenue to the northwest and southeast, respectively.

The direction of plume movement as shown in these figures remains consistent with the southwesterly regional flow direction. Groundwater samples from the monitoring wells were consistent in showing that PCE contamination extends deeper into the aquifer and becomes more widely dispersed with increasing distance from OU-1. Figure 3-4 illustrates this trend, showing a cross-section through the plume. Water quality data obtained from monitoring wells along this cross-section continue to show that shallow and intermediate PCE contamination predominates to the north of 174th Street, while deeper contamination is seen extending at depth to 166th Street.

TABLE 3-1

WESTSIDE OU-1 OU-2: VALIDATED GROUNDWATER QUALITY DATA SUMMARY

2nd Sampling Event: January 5-9, 2009

WELLS	PCE	TCE	MTBE	Vinyl Chloride	1-1-1 trichloro ethane	1-1 dichloro ethane	1-1 dichloro ethene	cis 1-2 dichloro ethene	trans 1-2 dichloro ethene
MW 24-1S	**18**	ND	ND	ND	ND	ND	ND	ND	ND
MW 24-1I	**16**	ND	ND	ND	ND	ND	ND	ND	ND
MW 24-1D	**120**	ND	0.7 J	ND	**5.2**	**5.9**	**5.5**	0.4 J	ND
MW 24-2S	**13**	ND	ND	ND	ND	ND	ND	ND	ND
MW 24-2I	**27**	3.0 J	ND	ND	ND	ND	ND	0.5 J	ND
MW 24-2D	2.4 J	ND	1.8 J	ND	1.0 J	**11**	3.1 J	0.4 J	ND
MW 24-4S	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW 24-4I	2.8 J	ND	ND	ND	ND	ND	ND	ND	ND
MW 24-4D	ND	ND	**12**	ND	ND	3.6 J	ND	ND	ND
MW 24-5S	**33**	3.0 J	ND	ND	ND	ND	ND	1.6 J	ND
MW 24-5I	**1700 D**	**130**	ND	ND	ND	ND	ND	ND	ND
MW 24-5D	**45**	ND	0.8 J	ND	ND	1.4 J	ND	1.2 J	ND
MW 24-6S	ND	ND	0.9 J	ND	ND	ND	ND	ND	ND
MW 24-6I	ND	ND	0.9 J	ND	ND	ND	ND	2.7 J	ND
MW 24-6D	ND	ND	ND	ND	ND	ND	ND	**5.6**	ND
W-01S	**18**	3.4 J	ND	1.0 J	ND	ND	ND	2.7 J	ND
W-01I	**150**	**200 D**	0.6 J	ND	ND	ND	ND	120 J	ND
W-01D	3.0 J	3.0 J	ND	ND	ND	ND	ND	**10**	ND
W-02S	**20**	ND	ND	ND	ND	ND	ND	ND	ND
W-02I	**710 D**	**88**	ND	ND	ND	ND	ND	**45**	ND
W-02D	ND	ND	ND	ND	ND	ND	ND	**55**	ND
W-03S	ND	1.3 J	1.0 J	ND	ND	ND	ND	0.7 J	ND
W-03I	29 J	11 J	ND	ND	ND	ND	ND	**410 D**	1.6 J
W-03D	**7.8**	1.7 J	ND	ND	ND	ND	ND	**50**	ND
W-04S	**1000 D**	**17.0**	ND	ND	ND	ND	ND	**14**	ND
W-04I	**76**	**28**	0.7 J	ND	ND	1.0 J	ND	**110**	ND
W-04D	**190 D**	**71**	0.7 J	ND	ND	1.3 J	ND	**17**	ND
W-06S	**72**	1.5 J	ND	ND	ND	ND	ND	1.4 J	ND
W-06I	**310 D**	**7.1**	ND	ND	ND	ND	ND	**5.9**	ND
W-06D	**130**	**20**	ND	ND	ND	ND	ND	**51**	ND
W-07S	**330 D**	**28**	ND	ND	ND	ND	ND	**25**	ND
W-07I	**960 D**	**28**	ND	1.2 J	ND	ND	ND	**33**	ND
W-07D	240 J	**6.6**	2.6 J	ND	ND	ND	ND	**9.3**	ND
W-08S	**1300 D**	**140**	2.0 J	2.9 J	ND	ND	1.8 J	**540 D**	1.6 J
W-08I	ND	ND	ND	ND	ND	ND	ND	**820**	ND
W-08D	**660 D**	**96**	0.8 J	ND	ND	ND	ND	**260 D**	ND
W-09S	**31**	**12**	ND	1.4 J	ND	ND	ND	**130**	ND
W-09I	**1100 D**	**350 D**	ND	ND	ND	ND	ND	**210 D**	1.7 J
W-09D	**67**	**26**	0.9 J	ND	ND	1.0 J	ND	**44**	ND
W-10S	ND	ND	ND	ND	ND	ND	ND	ND	ND
W-10I	**1500 D**	**51**	3.5 J	ND	ND	ND	2.2 J	**190 D**	ND
W-10D	**43**	1.6 J	ND	ND	ND	ND	ND	**11**	ND
W-11S	ND	ND	ND	ND	ND	ND	ND	ND	ND
W-11I	**250 D**	2.3 J	ND	ND	ND	ND	ND	3.3 J	ND
W-11D	**90**	**20**	0.8 J	ND	ND	ND	1.3 J	**1300 D**	4.0 J

NOTES:

All values listed in parts-per-billion (PPB)

'ND' denotes 'Non-detect' for that parameter

QUALIFIERS:

J - Analyte positively identified, reported value is an approximate concentration

D - Reported value is the result of a diluted analysis

TABLE 3-1

WESTSIDE OU-1 OU-2: VALIDATED GROUNDWATER QUALITY DATA SUMMARY

2nd Sampling Event: January 5-9, 2009

WELLS	PCE	TCE	MTBE	Vinyl Chloride	1-1-1 trichloro ethane	1-1 dichloro ethane	1-1 dichloro ethene	cis 1-2 dichloro ethene	trans 1-2 dichloro ethene
W-12S	ND	ND	ND	ND	ND	ND	ND	ND	ND
W-12I	**8.1**	ND	ND	ND	ND	ND	ND	ND	ND
W-12D	ND	ND	ND	ND	ND	ND	ND	ND	ND
W-13S	ND	ND	ND	ND	ND	ND	ND	ND	ND
W-13I	ND	ND	ND	ND	ND	ND	ND	**6.1**	ND
W-13D	ND	ND	**12**	ND	ND	ND	ND	1.1 J	ND
W-14S	ND	ND	ND	ND	ND	ND	ND	ND	ND
W-14I	**320**	**6.1**	4.2 J	ND	ND	ND	ND	**19**	ND
W-14D	**25**	**5.4**	1.8 J	ND	ND	ND	ND	**13**	ND
W-15S	ND	ND	ND	ND	ND	ND	ND	ND	ND
W-15I	ND	ND	**370**	ND	ND	ND	ND	ND	ND
W-15D	**23**	1.6 J	1.4 J	ND	ND	ND	ND	1.8 J	ND
MW-05S	ND	ND	ND	ND	ND	ND	ND	ND	ND
MW 22S	**12**	**4.3 J**	ND	ND	**5.4**	**8.1**	**6.3**	0.8 J	ND
MW 3D	**5.5**	ND	ND	ND	ND	ND	ND	ND	ND
MW 55D	**43**	**4.6 J**	ND	ND	ND	ND	ND	**13**	ND
MW 6D	**9.1**	ND	ND	ND	ND	ND	ND	ND	ND
MW 7S	3.1 J	1.2 J	ND	ND	ND	ND	ND	1.6 J	ND
MW 7D	**120**	**73**	ND	**35**	ND	ND	ND	**350**	1.8 J
MW-07S	2.7 J	ND	ND	ND	ND	ND	ND	ND	ND
MW-08S	**100**	**10**	ND	0.9 J	ND	ND	ND	**17**	ND

NOTES:

All values listed in parts-per-billion (PPB)

'ND' denotes 'Non-detect' for that parameter

QUALIFIERS:

J - Analyte positively identified, reported value is an approximate concentration

D - Reported value is the result of a diluted analysis

Figure 3-1: Shallow Well PCE Isoconcentration Contours

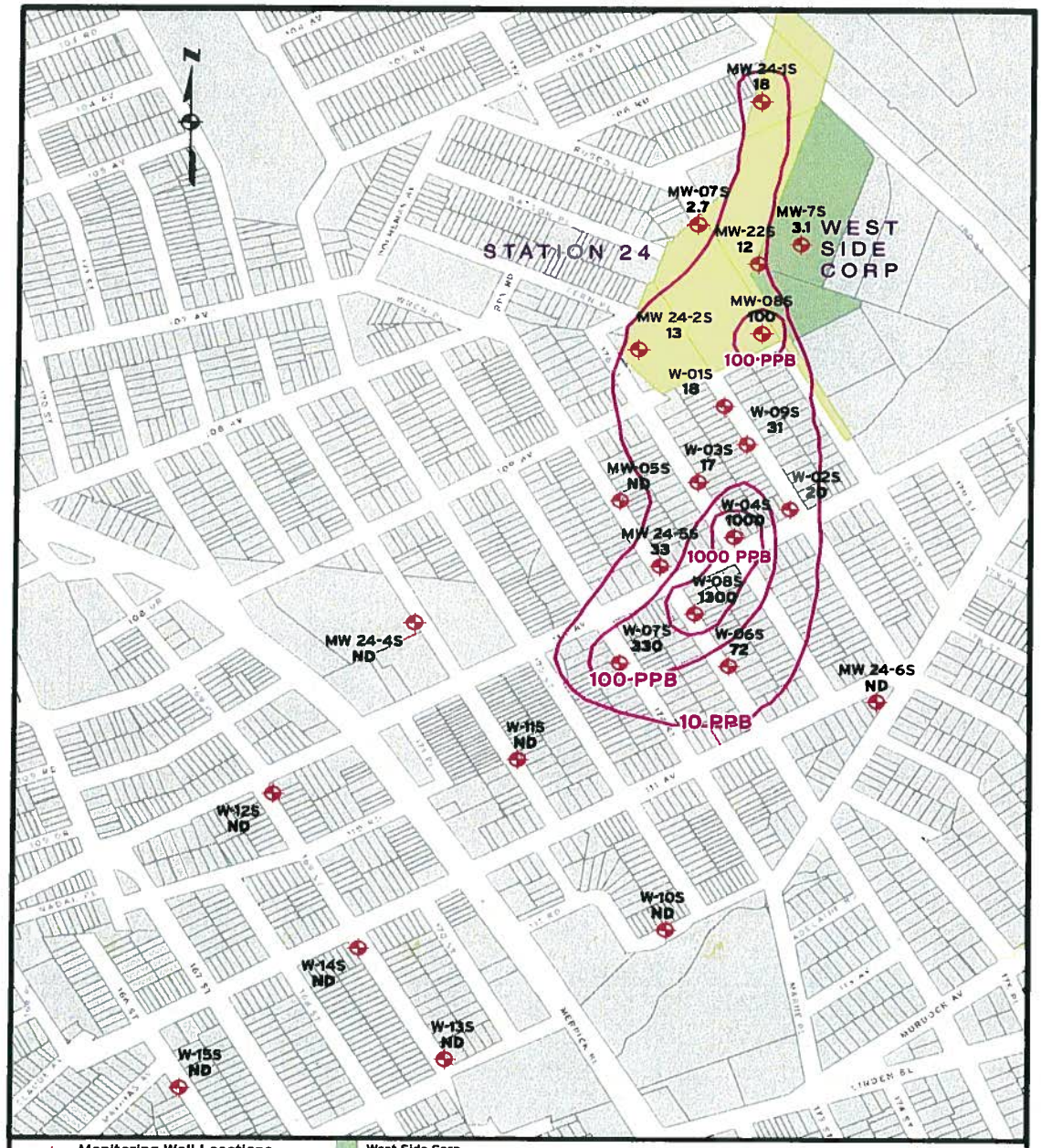


Figure 3-2: Intermediate Well PCE Isoconcentration Contours

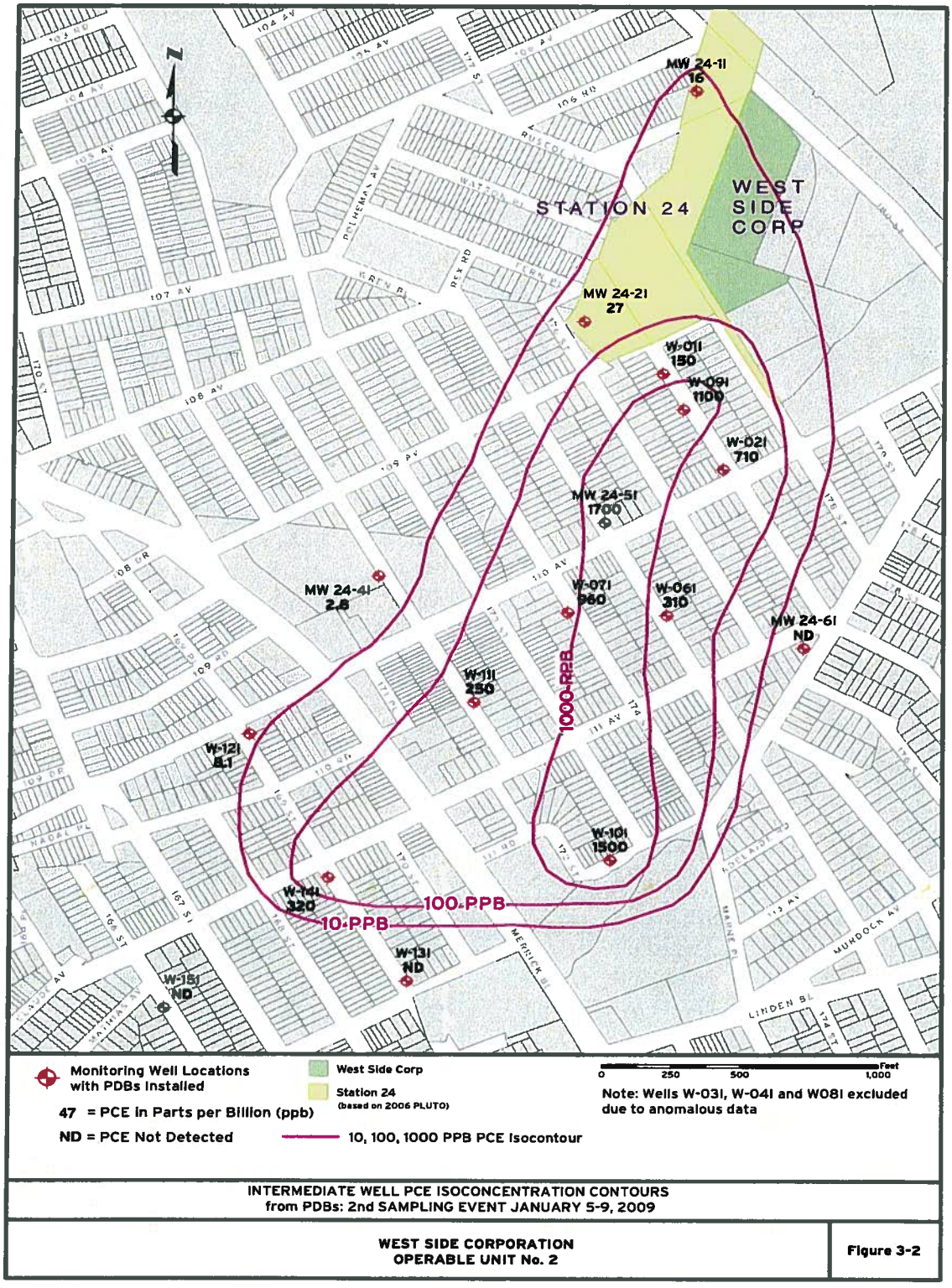
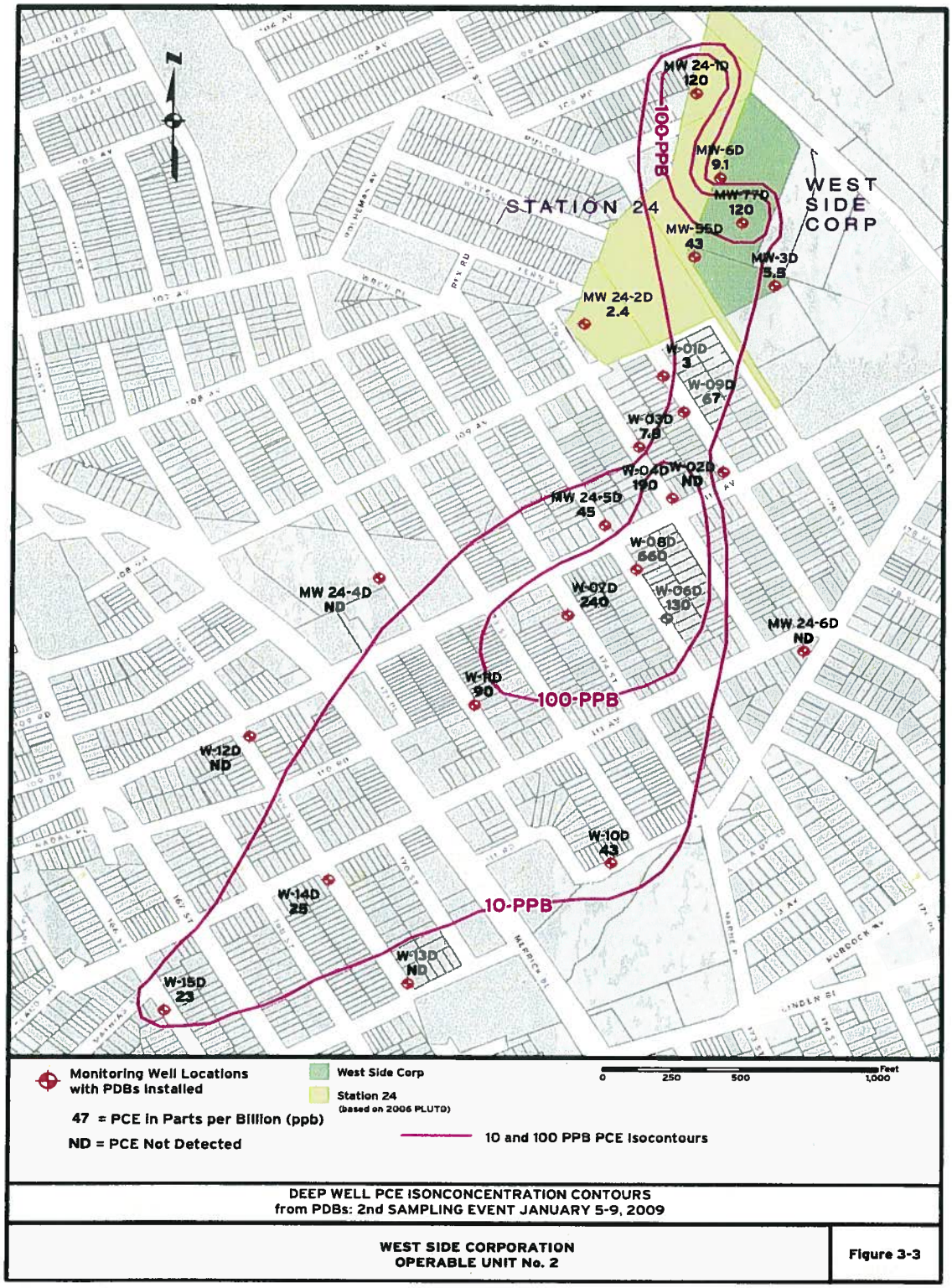


Figure 3-3: Deep Well PCE Isoconcentration Contours



A

OU-1 ONSITE

OU-2 OFFSITE

A'

NORTH

WEST SIDE CORP.

MONITORING WELL LOCATIONS

SOUTH

MW-24-1 (SID) | MW 7S MW 77D | MW-08 | 177th ST. W-09 (SID) | W-04 (SID) | 175th ST. W-08 (SID) | W-07 (SID) | 172th ST. W-11 (SID) | MERRICK BOULEVARD | 169th ST. W-14 (SID) | 166th ST. W-15 (SID)

GRADE (GROUND SURFACE ELEVATION)

MSL

18 | 16 | 120 | 3.1 | 120 | 100 | 100 | 67 | 31 | 1100 | 1000 | 1000 | 100 | 10 | 76 | 190 | 1300 | 660 | 330 | 960 | 240 | ND | 250 | 90 | ND | 320 | 25 | ND | 23 | ND

UPPER GLACIAL AQUIFER

GARDINER'S CLAY

LEGEND

B-41 — BOREHOLE

256 — PCE IN ug/L (ppb)

10 — DASHED LINE INDICATES PROJECTED ISOCONTOUR ISOCONCENTRATION CONTOUR

NOTE: DEPTHS OF PDBs AND (PCE) ARE AT WELL SCREEN MIDPOINT.

COLOR KEY

- ≥10 ug/L
- ≥100 ug/L
- ≥1000 ug/L

HORIZONTAL SCALE: 1" = 320'

MALCOLM PIRNIE

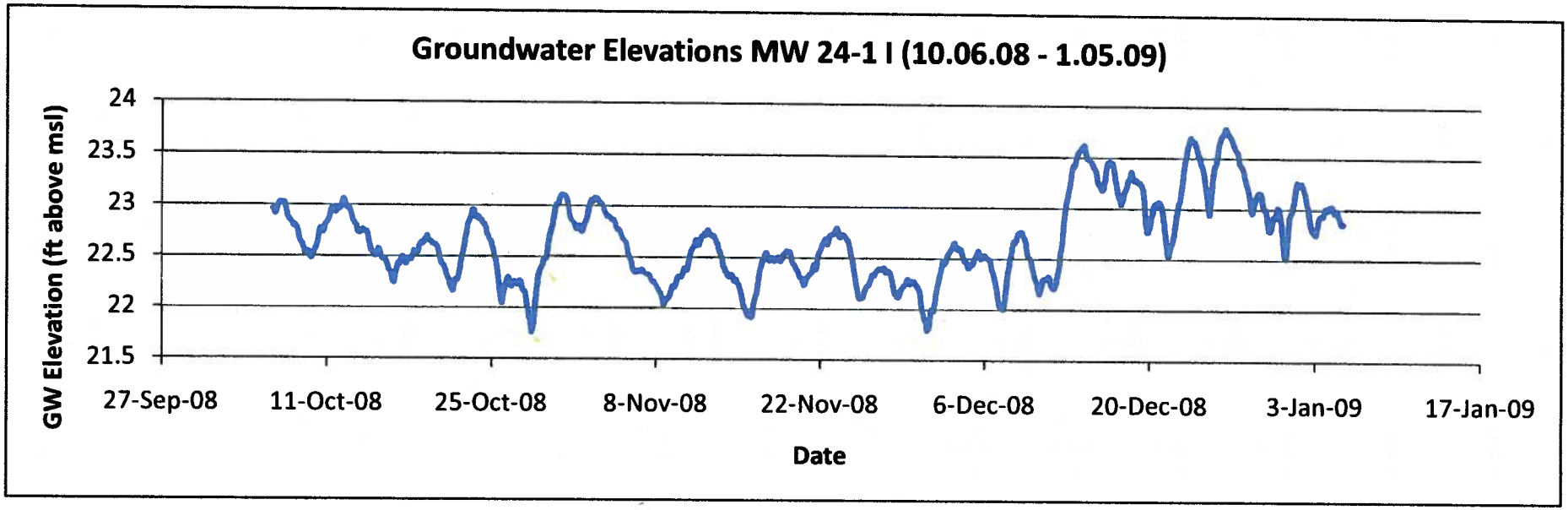
NYSDEC
WESTSIDE CORP. OU-2, JAMAICA, QUEENS
PASSIVE DIFFUSION BAG SAMPLING DATE 01.05.09
PERCHLOROETHENE (PCE) IN GROUNDWATER
CROSS SECTION LOOKING EAST INTO PLUME FROM CENTERLINE A-A'

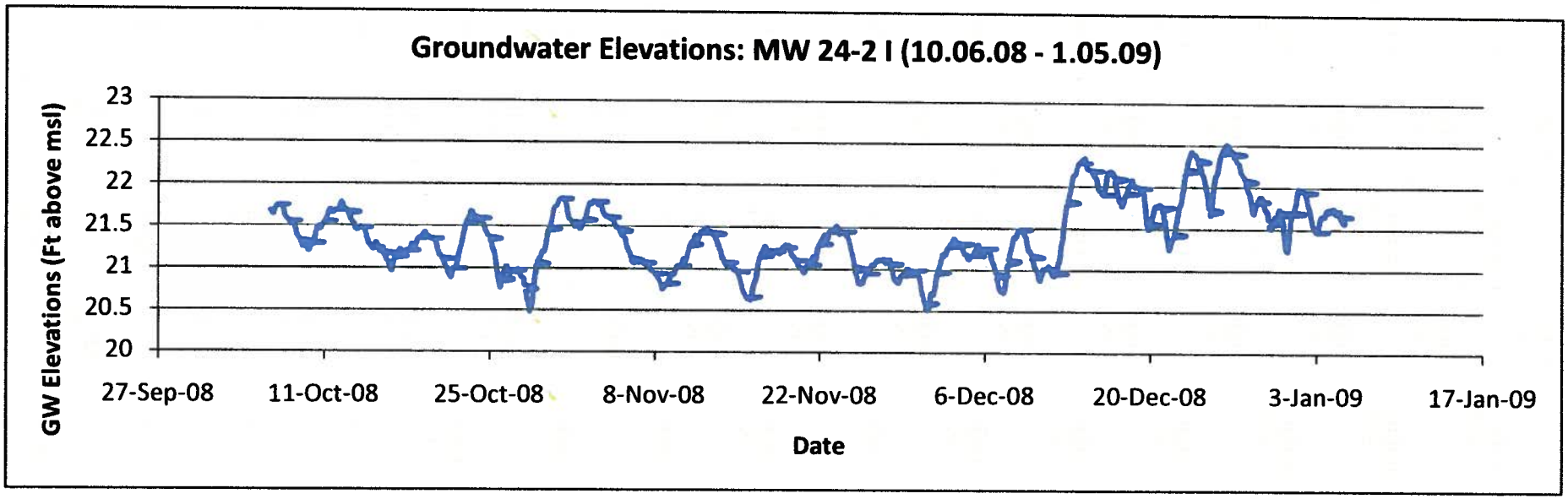
MALCOLM PIRNIE, INC.

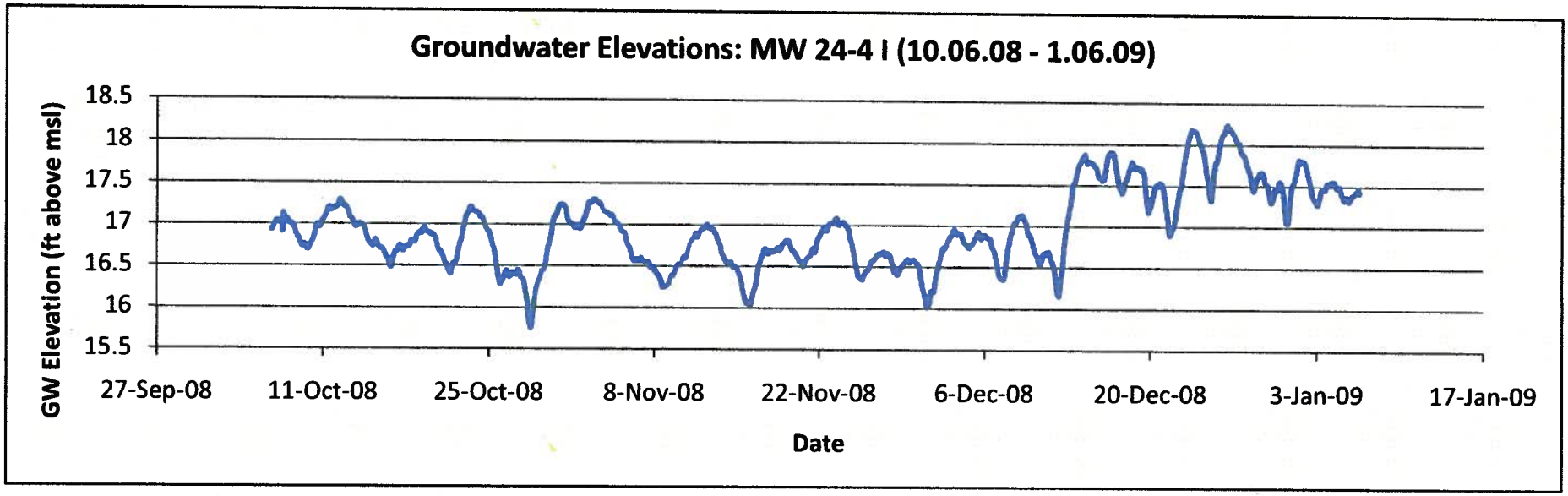
FIGURE 3-4

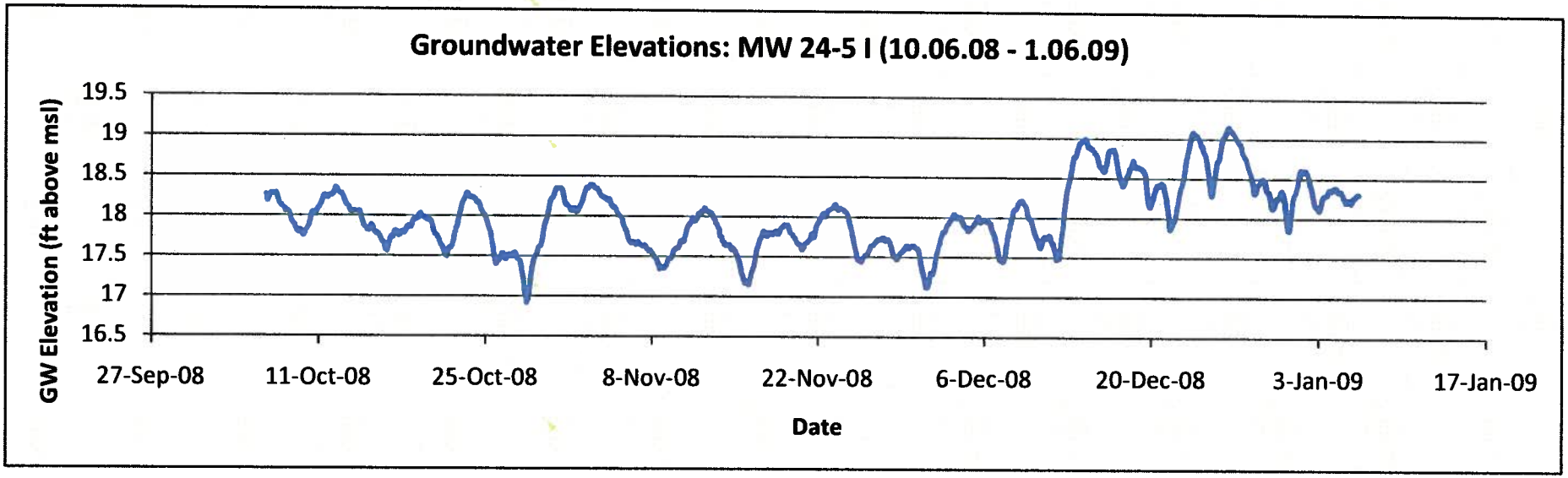
APPENDIX A

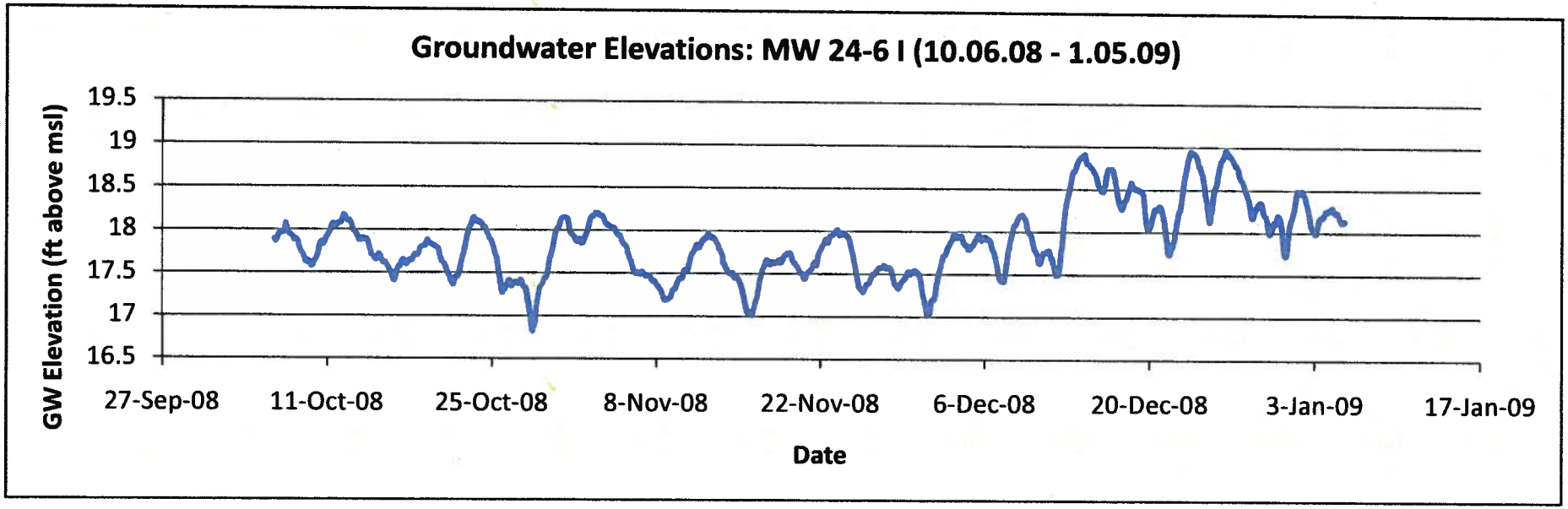
Hydrographs – Groundwater Elevations in Intermediate Depth Monitoring Wells: 2nd Monitoring Quarter

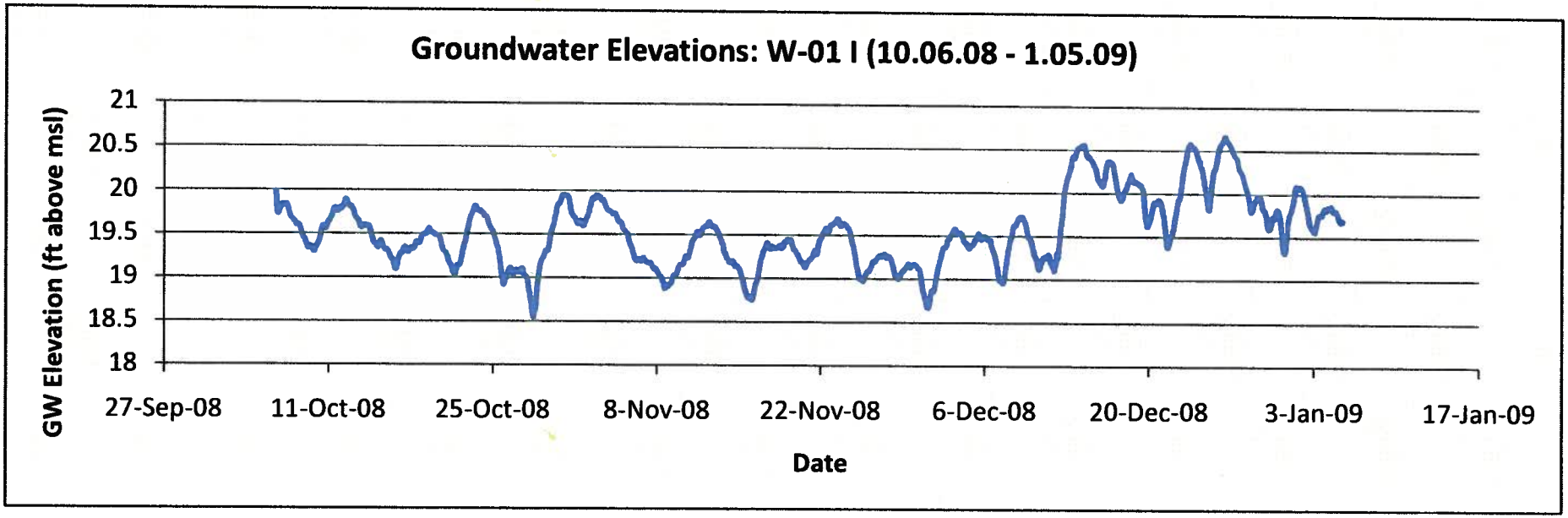

Groundwater Elevations MW 24-1 I (10.06.08 - 1.05.09)
GW Elevation (ft above msl)
24
23.5
23
22.5
22
21.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

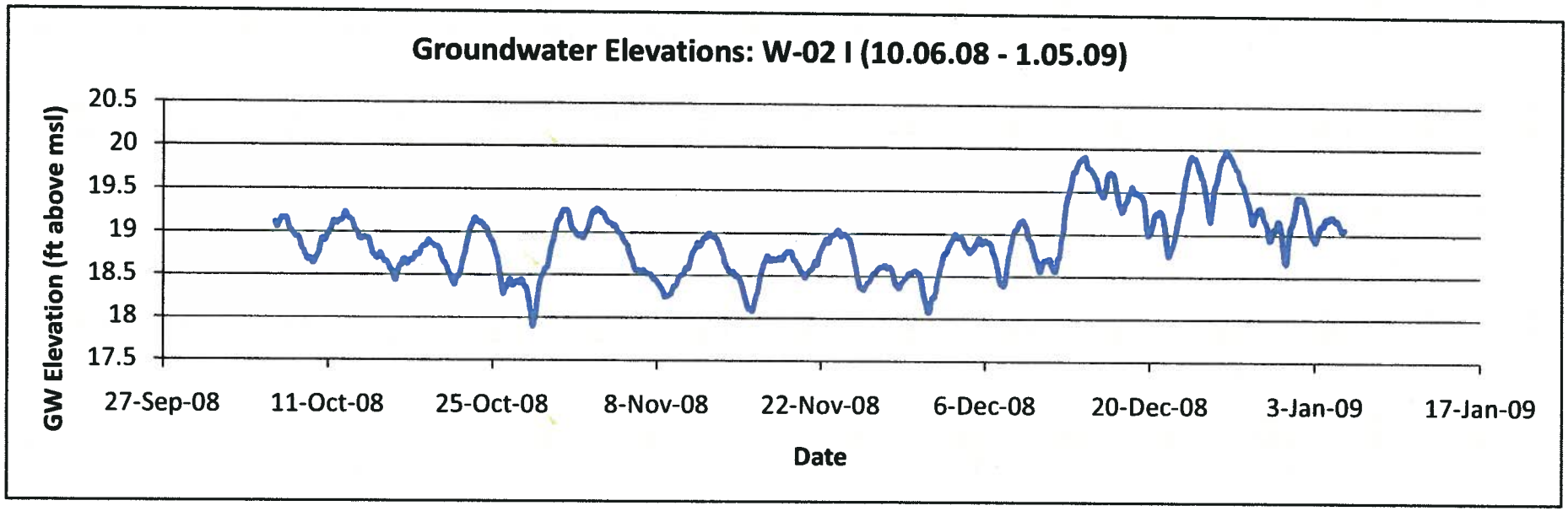

Groundwater Elevations: MW 24-2 I (10.06.08 - 1.05.09)
GW Elevations (Ft above msl)
23
22.5
22
21.5
21
20.5
20
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

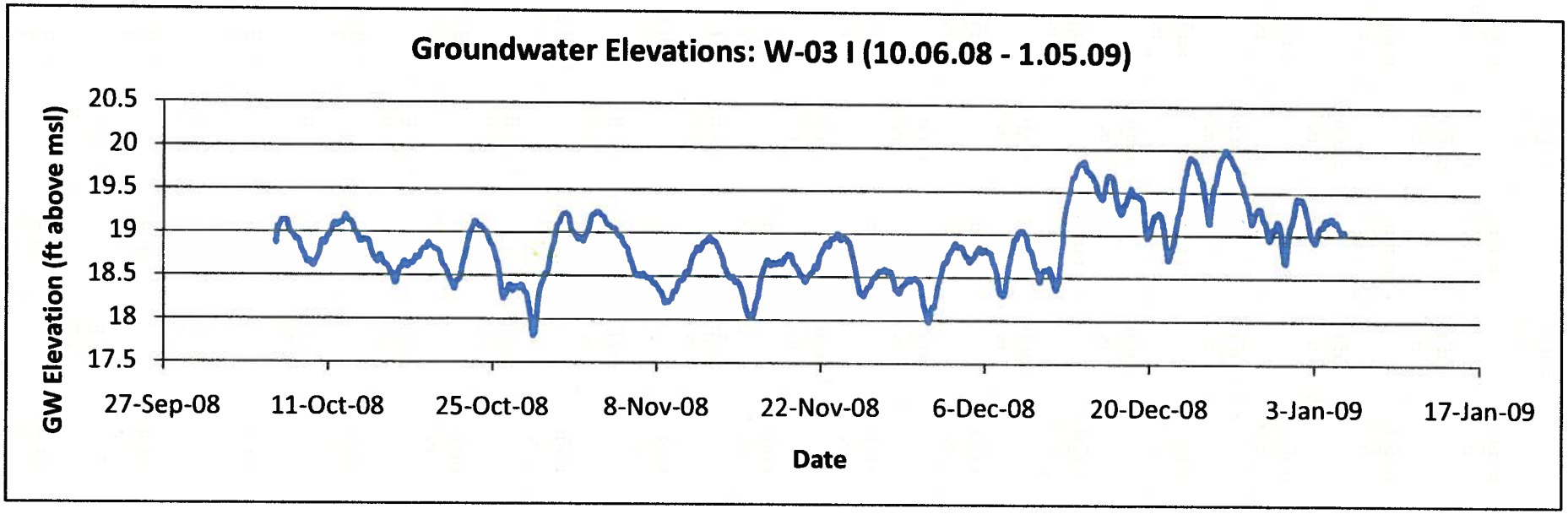

Groundwater Elevations: MW 24-4 I (10.06.08 - 1.06.09)
GW Elevation (ft above msl)
18.5
18
17.5
17
16.5
16
15.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

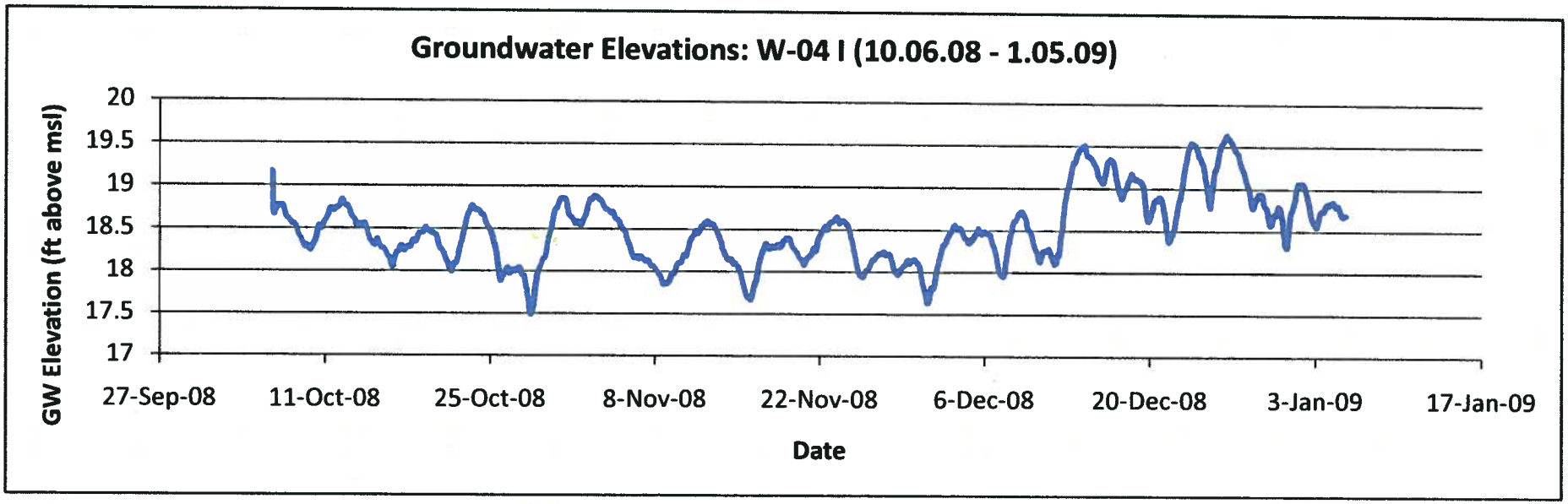

Groundwater Elevations: MW 24-5 I (10.06.08 - 1.06.09)
GW Elevation (ft above msl)
19.5
19
18.5
18
17.5
17
16.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

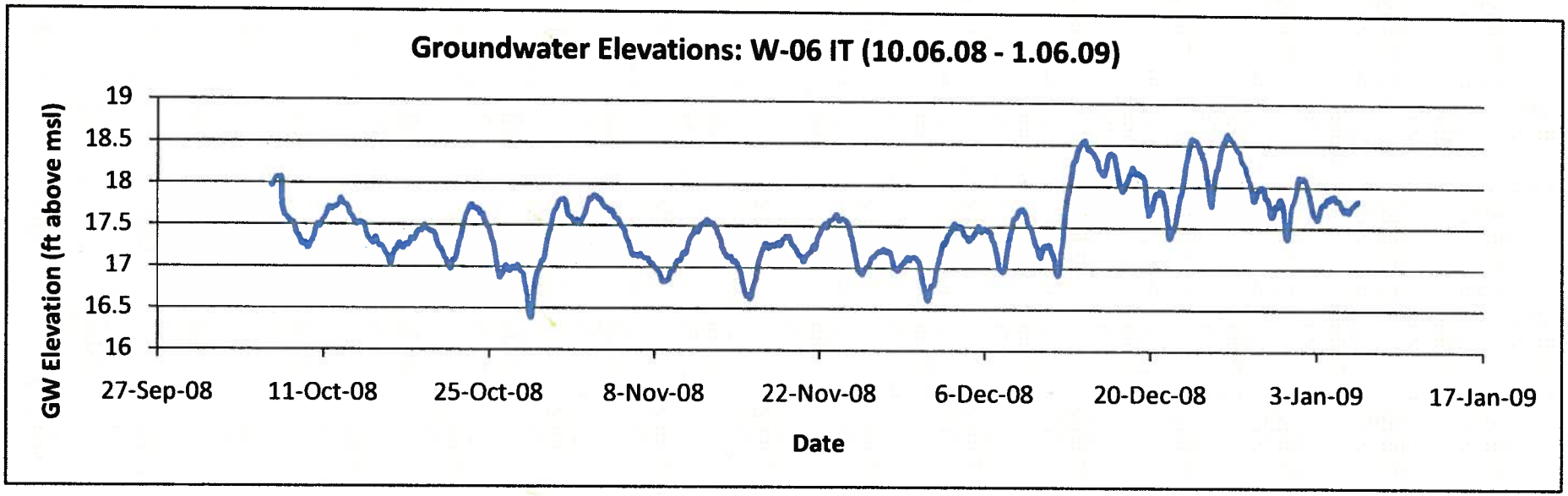

Groundwater Elevations: MW 24-6 I (10.06.08 - 1.05.09)
GW Elevation (ft above msl)
19.5
19
18.5
18
17.5
17
16.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

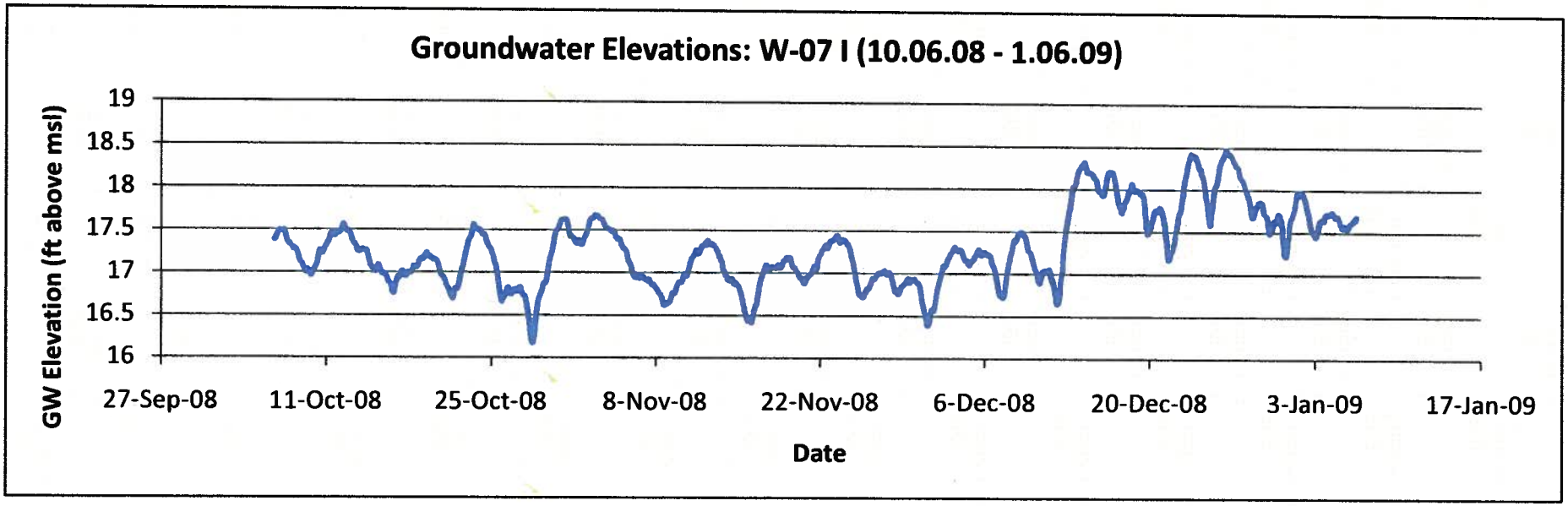

Groundwater Elevations: W-01 I (10.06.08 - 1.05.09)
GW Elevation (ft above msl)
21
20.5
20
19.5
19
18.5
18
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

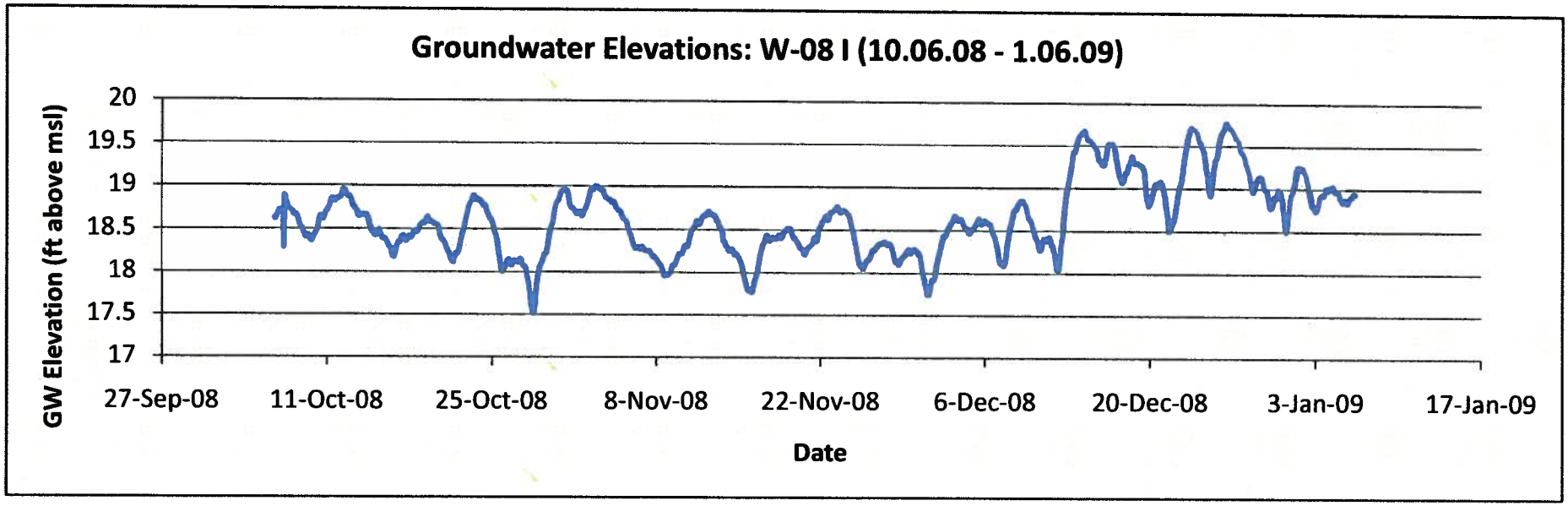

Groundwater Elevations: W-02 I (10.06.08 - 1.05.09)
GW Elevation (ft above msl)
20.5
20
19.5
19
18.5
18
17.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

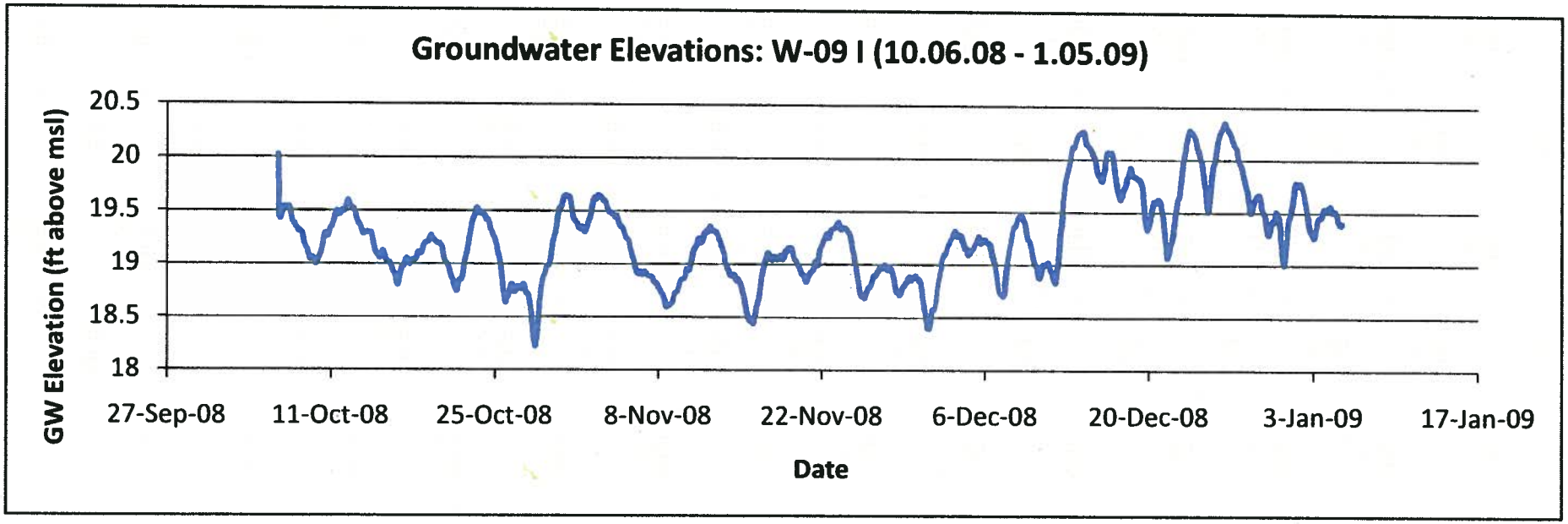

Groundwater Elevations: W-03 I (10.06.08 - 1.05.09)
GW Elevation (ft above msl)
20.5
20
19.5
19
18.5
18
17.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

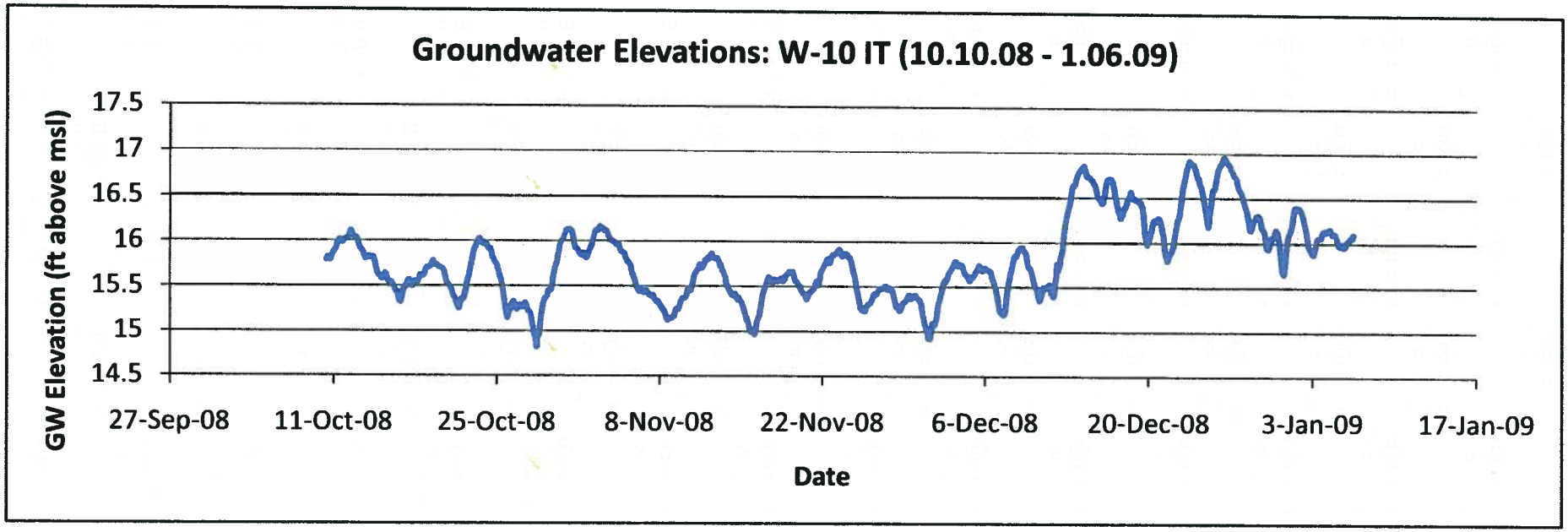

Groundwater Elevations: W-04 I (10.06.08 - 1.05.09)
GW Elevation (ft above msl)
20
19.5
19
18.5
18
17.5
17
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

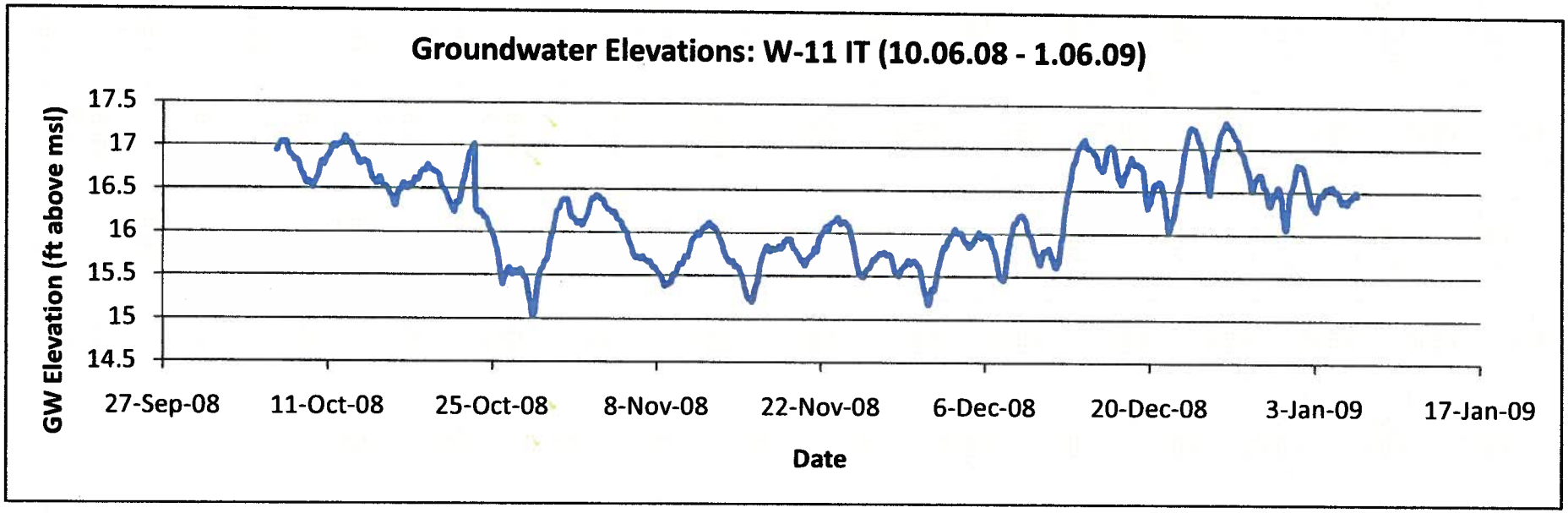

Groundwater Elevations: W-06 IT (10.06.08 - 1.06.09)
GW Elevation (ft above msl)
19
18.5
18
17.5
17
16.5
16
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

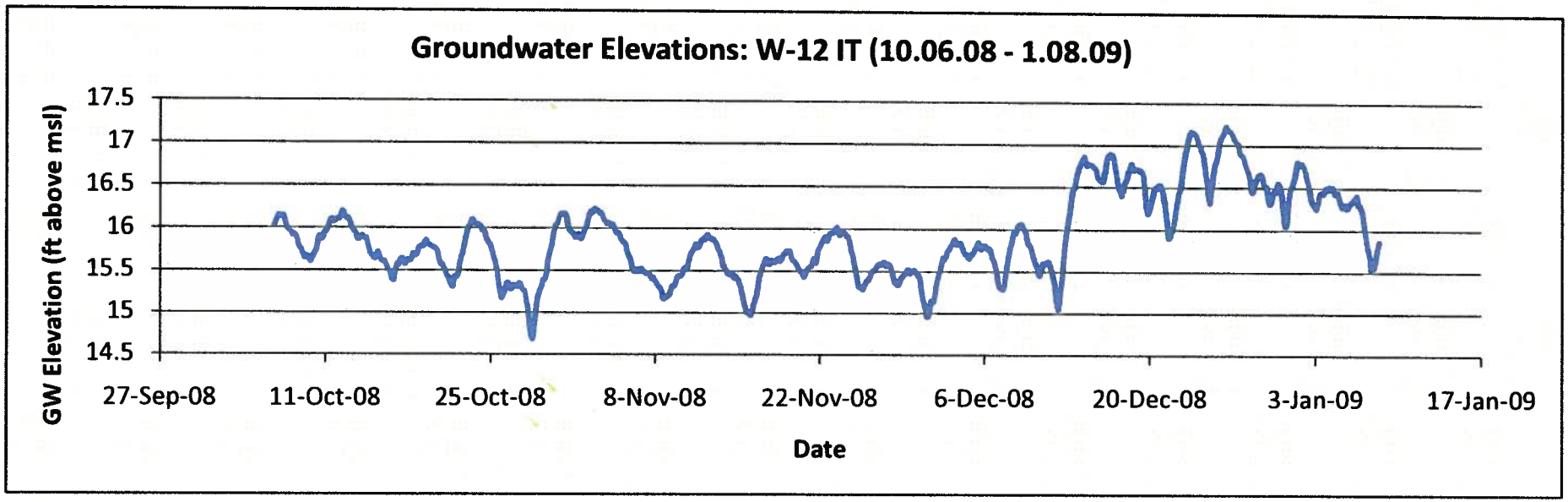

Groundwater Elevations: W-07 I (10.06.08 - 1.06.09)
GW Elevation (ft above msl)
19
18.5
18
17.5
17
16.5
16
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

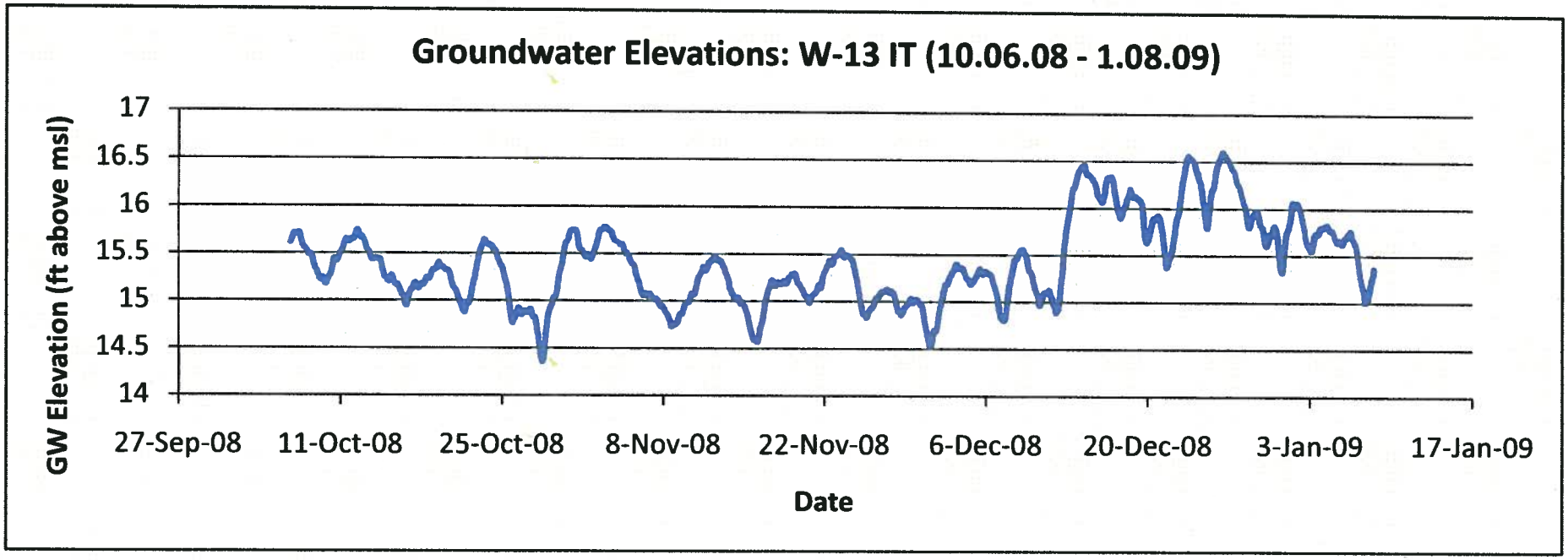

Groundwater Elevations: W-08 I (10.06.08 - 1.06.09)
GW Elevation (ft above msl)
20
19.5
19
18.5
18
17.5
17
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

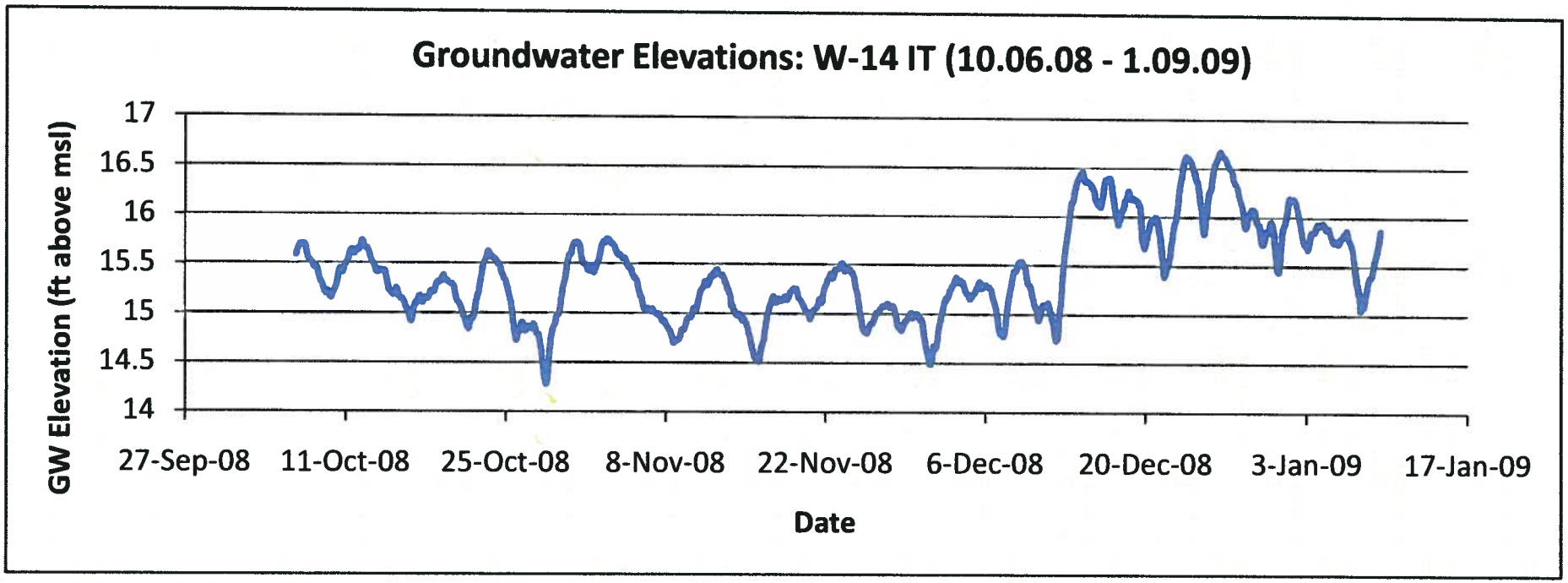

Groundwater Elevations: W-09 I (10.06.08 - 1.05.09)
GW Elevation (ft above msl)
20.5
20
19.5
19
18.5
18
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

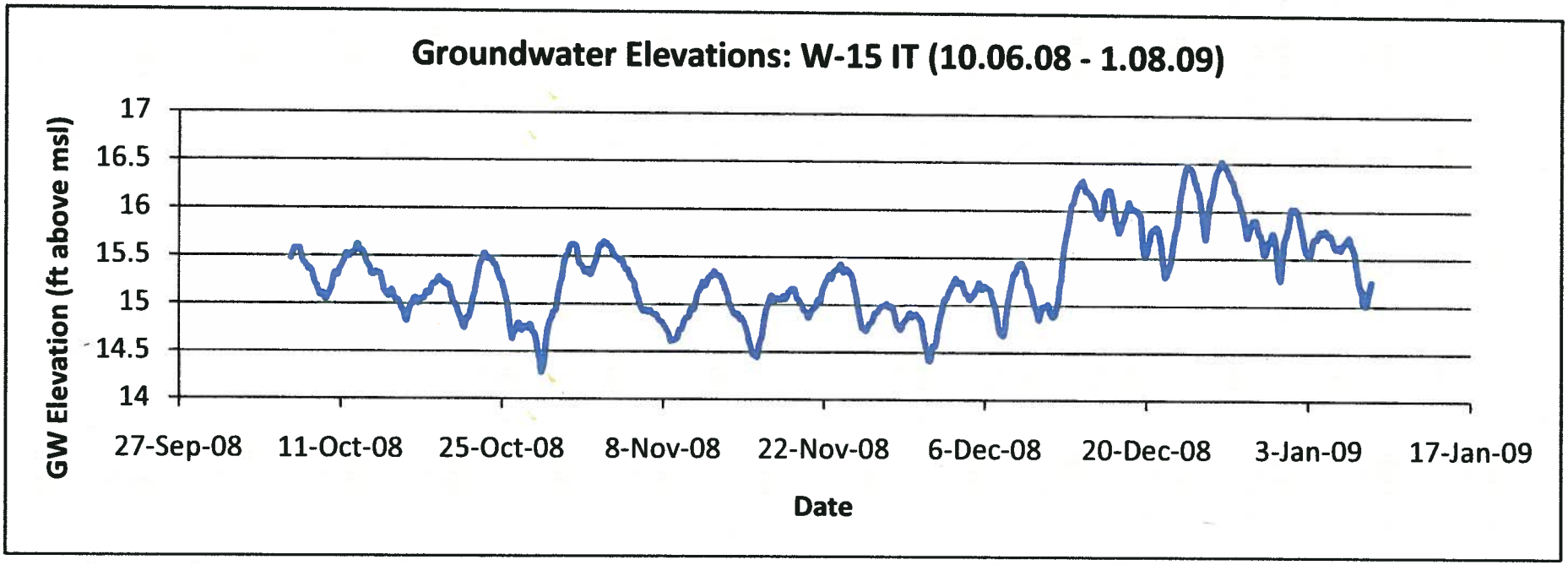

Groundwater Elevations: W-10 IT (10.10.08 - 1.06.09)
GW Elevation (ft above msl)
17.5
17
16.5
16
15.5
15
14.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date


Groundwater Elevations: W-11 IT (10.06.08 - 1.06.09)
GW Elevation (ft above msl)
17.5
17
16.5
16
15.5
15
14.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date


Groundwater Elevations: W-12 IT (10.06.08 - 1.08.09)
GW Elevation (ft above msl)
17.5
17
16.5
16
15.5
15
14.5
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date


Groundwater Elevations: W-13 IT (10.06.08 - 1.08.09)
GW Elevation (ft above msl)
17
16.5
16
15.5
15
14.5
14
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date


Groundwater Elevations: W-14 IT (10.06.08 - 1.09.09)
GW Elevation (ft above msl)
17
16.5
16
15.5
15
14.5
14
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date


Groundwater Elevations: W-15 IT (10.06.08 - 1.08.09)
GW Elevation (ft above msl)
17
16.5
16
15.5
15
14.5
14
27-Sep-08
11-Oct-08
25-Oct-08
8-Nov-08
22-Nov-08
6-Dec-08
20-Dec-08
3-Jan-09
17-Jan-09
Date

APPENDIX B

NOAA Quality Controlled Climatological Data –
Recorded Precipitation at JFK Airport from
October 2008 to January 2009

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

NOAA, National Climatic Data Center

Month: 10/2008

Station Location: JOHN F KENNEDY INTERNATIONAL AIRPORT (94789)
NEW YORK , NY
Lat. 40.655 Lon. -73.796
Elevation(Ground): 11 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees							Date
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC Depth	1800 UTC Water Equiv	2400 LST Snow Fall	2400 LST Water Equiv	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 5-second Dir	max 2-minute Speed	max 2-minute Dir	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	73	59	66	4	57	61	0	1	0551	1738	TSRA RA HZ	0	M	0.0	0.70	29.65	29.65	6.1	22	8.2	30	260	28	260	0
02	65	54	60	-1	42	51	5	0	0552	1736		0	M	0.0	0.01	29.64	29.69	15.5	27	16.0	35	280	25	290	0
03	67	49	58	-3	41	50	7	0	0553	1735		0	M	0.0	0.00	29.91	29.96	12.6	25	14.0	32	260	26	260	0
04	64	46	55	-6	40	49	10	0	0554	1733		0	M	0.0	0.00	30.17	30.21	5.0	26	6.5	17	210	15	220	0
05	66	53	60	0	51	54	5	0	0555	1731	RA BR	0	M	0.0	0.16	30.22	30.25	6.4	03	7.0	24	320	18	320	0
06	66	49	58	-2	40	49	7	0	0556	1730		0	M	0.0	T	30.27	30.32	7.4	01	8.0	25	360	21	360	0
07	65	45	55	-5	35	45	10	0	0558	1728		0	M	0.0	0.00	30.31	30.32	7.1	34	7.4	21	330	16	320	0
08	65	44	55	-4	45	51	10	0	0559	1726	RA	0	M	0.0	T	30.13	30.13	8.1	20	8.9	22	200	20	200	0
09	75	60	68	9	58	61	0	3	0560	1725	RA DZ BR	0	M	0.0	0.10	29.95	29.97	12.1	22	12.3	24	210	18	230	0
10	76	55	66	7	44	54	0	1	0601	1723		0	M	0.0	0.00	30.14	30.20	2.7	31	4.7	16	330	14	320	1
11	73	53	63	5	45	53	2	0	0602	1722		0	M	0.0	0.00	30.37	30.41	2.2	05	6.8	17	040	14	030	1
12	70	52	61	3	50	55	4	0	0603	1720		0	M	0.0	0.00	30.47	30.49	2.7	17	6.8	14	220	12	220	1
13	78	57	68	11	52	58	0	3	0604	1719		0	M	0.0	0.00	30.30	30.31	2.4	31	7.9	17	320	14	090	1
14	68	56	62	5	55	59	3	0	0605	1717		0	M	0.0	0.00	30.19	30.19	8.1	17	9.3	22	170	18	170	1
15	73	59	66	9	51	57	0	1	0606	1716		0	M	0.0	0.00	30.06	30.08	0.9	36	6.7	16	330	14	360	1
16	79*	56	68*	12	55	61	0	3	0607	1714	BR HZ	0	M	0.0	0.00	29.92	29.95	4.8	27	11.6	29	320	24	320	1
17	61	51	56	0	36	46	9	0	0608	1713		0	M	0.0	0.00	30.06	30.08	10.6	36	11.1	25	360	20	020	1
18	59	45	52	-4	31	42	13	0	0609	1711		0	M	0.0	0.00	30.14	30.19	13.7	02	14.0	25	020	21	030	1
19	57	44	51	-4	28	40	14	0	0610	1710		0	M	0.0	0.00	30.27	30.31	14.1	02	14.4	32	050	28	040	1
20	62	39	51	-4	29	42	14	0	0611	1708		0	M	0.0	0.00	30.18	30.18	4.5	31	9.4	21	360	17	350	2
21	64	45	55	0	34	45	10	0	0613	1707	RA	0	M	0.0	T	29.93	29.95	15.4	26	16.5	40	290	33	300	2
22	55	42	49	-5	30	40	16	0	0614	1705		0	M	0.0	0.00	30.16	30.25	16.8	34	18.1	36	360	29	350	2
23	54	39	47	-7	30	39	18	0	0615	1704		0	M	0.0	0.00	30.58	30.60	6.3	01	7.2	18	020	16	020	2
24	56	35*	46	-8	38	44	19	0	0616	1703		0	M	0.0	0.00	30.46	30.47	3.9	16	4.9	16	190	13	190	2
25	66	52	59	6	55	57	6	0	0617	1701	RA BR	0	M	0.0	0.61	30.03	30.01	14.8	13	19.6	46	150	36	150	2
26	63	50	57	4	42	49	8	0	0618	1660		0	M	0.0	0.00	29.83	29.88	8.3	25	10.5	20	230	17	230	2
27	66	47	57	4	42	49	8	0	0619	1658	RA	0	M	0.0	0.00	29.86	29.86	5.8	34	9.5	25	360	23	360	2
28	52	40	46	-7	37	42	19	0	0620	1657	RA SN BR	0	M	T	1.91	29.41	29.43	16.0	30	21.4	41	280	33	270	2
29	47	39	43*	-9	26	36	22	0	0622	1656	RA	0	M	0.0	0.03	29.74	29.81	16.6	28	17.4	40	280	31	270	2
30	50	37	44	-8	21	35	21	0	0623	1655		0	M	0.0	0.00	30.27	30.34	13.0	30	13.6	28	310	22	310	3
31	62	38	50	-2	32	42	15	0	0624	1653		0	M	0.0	0.00	30.37	30.37	10.8	24	11.1	22	230	20	220	3
	64.4	48.1	56.3		41.0	48.9	8.9	0.4	<-----Monthly Averages | Totals----->				M	Ts	3.52s	30.09	30.12	3.9	29	11.0	<Monthly Average				
	0.1	-0.6	-0.2	<----------Departure From Normal---------->									0.49												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	275	11	290	-27
Cooling:	12	-1	1093	145

Greatest 24-hr Precipitation: 1.91 Date: 28
Greatest 24-hr Snowfall: Ts Date: M
Greatest Snow Depth: 28 Date: M

Sea Level	Pressure	Date	Time (LST)
Maximum	30.66	23	0933
Minimum	29.19	28	1200

Number of Days with ------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 1
Min Temp <=32: 0
Min Temp <=0 : 0
Heavy Fog : 0
Precipitation >=.01 inch: 8s
Precipitation >=.10 inch:
Snowfall >=1.0 inch : 0

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER3

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(may be updated)

NOAA, National Climatic Data Center

Month: 11/2008

Station Location: JOHN F KENNEDY INTERNATIONAL AIRPORT (94789)
NEW YORK , NY
Lat. 40.655 Lon. -73.796
Elevation(Ground): 11 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees						
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC Depth	1800 UTC Water Equiv	2400 LST Snow Fall	2400 LST Water Equiv	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 5-second Dir	max 2-minute Speed	max 2-minute Dir
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
01	67*	47	57	6	38	47	8	0	0625	1652		0	M	0.0	0.00	30.20	30.24	5.1	28	9.0	18	310	16	250
02	50	39	45	-6	26	37	20	0	0626	1651		0	M	0.0	0.00	30.45	30.51	9.6	03	10.2	28	040	22	030
03	58	41	50	-1	43	47	15	0	0627	1650		0	M	0.0	T	30.47	30.49	2.3	11	4.5	12	150	10	060
04	63	47	55	4	47	51	10	0	0629	1649	RA BR	0	M	0.0	0.00	30.35	30.36	3.1	06	4.8	12	360	10	010
05	65	55	60	10	52	55	5	0	0630	1648	RA BR	0	M	0.0	0.20	30.13	30.12	13.5	03	13.6	33	040	26	030
06	65	60	63*	13	56	58	2	0	0631	1646	DZ BR	0	M	0.0	0.01	29.88	29.91	18.3	04	18.4	35	030	26	040
07	64	59	62	12	55	58	3	0	0632	1645	DZ BR HZ	0	M	0.0	T	29.85	29.87	2.4	02	6.6	16	030	13	360
08	59	53	56	7	53	55	9	0	0633	1644	RA DZ BR	0	M	0.0	0.60	29.68	29.69	8.6	18	10.5	21	180	17	180
09	58	48	53	4	33	44	12	0	0634	1643		0	M	0.0	0.00	29.72	29.78	11.8	27	12.3	28	260	22	260
10	53	43	48	-1	26	39	17	0	0636	1642		0	M	0.0	0.00	29.96	30.02	14.7	27	15.0	29	290	24	270
11	52	39	46	-2	25	37	19	0	0637	1641		0	M	0.0	0.00	30.23	30.28	10.7	30	11.3	22	330	18	320
12	49	38	44	-4	31	39	21	0	0638	1640		0	M	0.0	0.00	30.35	30.38	0.9	15	4.2	13	170	10	180
13	58	44	51	3	47	50	14	0	0639	1640	RA DZ BR	0	M	0.0	0.34	30.17	30.15	8.4	12	9.8	32	140	26	130
14	61	57	59	12	55	56	6	0	0640	1639	RA DZ FG+ FG BR HZ	0	M	0.0	0.01	29.91	29.92	4.4	18	5.0	18	170	15	190
15	64	57	61	14	57	58	4	0	0642	1638	RA DZ FG+ BR	0	M	0.0	0.63	29.62	29.61	15.5	16	16.4	41	210	31	180
16	59	41	50	3	31	41	15	0	0643	1637	RA	0	M	T	0.17	29.57	29.65	21.1	27	21.6	40	290	33	260
17	47	38	43	-3	23	35	22	0	0644	1636		0	M	0.0	0.00	29.98	30.01	12.7	27	13.7	30	260	24	260
18	42	30	36	-10	17	30	29	0	0645	1635	SN	0	M	T	T	30.01	30.04	16.0	36	16.2	32	360	29	360
19	37	27	32	-14	8	25	33	0	0646	1635		0	M	0.0	0.00	30.05	30.06	14.9	33	15.4	38	360	31	360
20	40	30	35	-10	17	29	30	0	0647	1634		0	M	0.0	0.00	29.88	29.89	8.8	29	9.5	22	280	18	280
21	39	26	33	-12	13	27	32	0	0648	1633		0	M	0.0	0.00	30.01	30.07	11.4	33	12.4	31	300	26	310
22	34	24*	29*	-16	6	22	36	0	0650	1633		0	M	0.0	0.00	30.29	30.33	18.3	31	18.6	37	310	31	310
23	38	25	32	-12	13	26	33	0	0651	1632		0	M	0.0	0.00	30.39	30.41	11.1	28	11.7	24	290	20	290
24	52	30	41	-3	30	38	24	0	0652	1632	RA	0	M	0.0	0.10	30.24	30.22	11.8	18	13.0	30	190	25	190
25	49	36	43	-1	36	41	22	0	0653	1631	RA BR	0	M	0.0	0.58	29.75	29.76	10.7	24	13.3	29	180	24	200
26	48	37	43	0	28	36	22	0	0654	1631		0	M	0.0	0.00	29.87	29.92	14.7	25	15.0	26	260	22	260
27	45	32	39	-4	24	33	26	0	0655	1630		0	M	0.0	0.00	29.98	30.01	8.5	27	10.0	24	270	20	270
28	51	34	43	0	28	38	22	0	0656	1630		0	M	0.0	0.00	29.80	29.83	8.9	25	12.9	32	280	28	280
29	48	34	41	-1	22	34	24	0	0657	1630		0	M	0.0	0.00	29.91	29.95	8.5	29	9.6	18	290	16	310
30	46	33	40	-2	34	37	25	0	0658	1629	RA BR	0	M	0.0	0.70	29.78	29.76	11.8	05	12.0	30	060	23	060
	52.0	40.1	46.1		32.5	40.8	18.7	0.0	<-----Monthly Averages | Totals----->			M	M	3.34	30.01	30.04	4.3	29	11.9	<Monthly Average			
	-1.8	0.3	-0.7	<----------Departure From Normal---------->								-0.14												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	560	28	850	1
Cooling:	0	-1	1093	144

Greatest 24-hr Precipitation: 0.80s Date: 15-16
Greatest 24-hr Snowfall: M Date: M
Greatest Snow Depth: M Date: M

Sea Level Pressure	Date	Time (LST)
Maximum 30.58	02	1916
Minimum 29.39	16	0250

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 0
Thunderstorms : 0
Min Temp <=32: 8
Min Temp <=0 : 0
Heavy Fog : 2
Precipitation >=.01 inch: 10
Precipitation >=.10 inch:
Snowfall >=1.0 inch : 0

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version
VER

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(may be updated)

NOAA, National Climatic Data Center

Month: 12/2008

Station Location: JOHN F KENNEDY INTERNATIONAL AIRPORT (94789)
NEW YORK , NY
Lat. 40.655 Lon. -73.796
Elevation(Ground): 11 ft. above sea level

Date	Temperature (Fahrenheit) Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Degree Days Base 65 Degrees Heating	Cooling	Sun Sunrise LST	Sunset LST	Significant Weather	Snow/Ice on Ground(In) 1200 UTC Depth	1800 UTC Water Equiv	Precipitation (In) 2400 LST Snow Fall	2400 LST Water Equiv	Pressure(inches of Hg) Avg. Station	Avg. Sea Level	Wind: Speed=mph Dir=tens of degrees Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 5-second Dir	max 2-minute Speed	max 2-minute Dir	Date
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	55	43	49	7	41	46	16	0	0659	1629	RA FG+ BR	0	M	0.0	0.08	29.49	29.58	15.7	21	18.0	35	260	30	230	01
02	46	37	42	1	26	36	23	0	0700	1629		0	M	0.0	0.00	30.00	30.06	13.4	25	14.2	28	230	23	230	02
03	42	33	38	-3	23	32	27	0	0701	1628		0	M	0.0	0.00	30.22	30.25	10.4	24	11.6	21	210	18	210	03
04	50	40	45	4	33	40	20	0	0702	1628	RA	0	M	0.0	0.03	30.09	30.11	10.4	23	12.7	25	200	23	210	04
05	43	30	37	-3	18	30	28	0	0703	1628		0	M	0.0	T	30.16	30.20	8.7	32	9.8	23	330	20	330	05
06	37	24	31	-9	18	28	34	0	0704	1628	RA SN BR	0	M	0.6	0.15	30.09	30.09	4.2	23	5.0	16	230	15	220	06
07	38	21	30	-10	17	28	35	0	0705	1628	SN	T	M	T	0.01	29.75	29.81	18.7	29	19.6	41	290	35	300	07
08	30	19	25	-14	3	20	40	0	0706	1628		0	M	0.0	0.00	30.31	30.38	8.9	30	10.5	35	300	29	310	08
09	53	30	42	3	34	40	23	0	0707	1628		0	M	0.0	0.01	30.34	30.33	16.1	18	16.3	35	180	30	180	09
10	58	44	51	12	48	50	14	0	0708	1628	RA BR	0	M	0.0	0.18	29.96	29.98	11.4	18	17.9	37	180	31	180	10
11	44	40	42	4	36	39	23	0	0709	1628	RA DZ BR	0	M	0.0	2.06	29.92	29.91	13.7	03	14.2	25	030	23	030	11
12	57	33	45	7	32	39	20	0	0709	1628	RA BR	0	M	0.0	1.17	29.55	29.64	13.3	30	17.0	38	320	31	320	12
13	34	26	30	-8	11	25	35	0	0710	1629		0	M	0.0	0.00	30.24	30.32	13.1	32	14.1	166s	320	26	320	13
14	48	25	37	-1	28	35	28	0	0711	1629		0	M	0.0	0.00	30.47	30.50	11.8	20	12.4	28	180	23	190	14
15	58	46	52	15	45	49	13	0	0712	1629	RA BR	0	M	0.0	0.02	30.29	30.30	16.3	18	16.5	35	180	29	180	15
16	57	31	44	7	30	35	21	0	0712	1629	RA SN PL BR	0	M	0.8	0.28	30.39	30.42	9.1	35	11.6	32	290	28	310	16
17	44	33	39	2	33	36	26	0	0713	1630	RA DZ BR	T	M	0.0	0.25	30.11	30.12	4.9	31	9.4	23	230	21	230	17
18	45	31	38	2	27	34	27	0	0714	1630		0	M	0.0	0.00	30.26	30.30	4.4	27	5.9	15	320	13	310	18
19	41	32	37	1	27	31	28	0	0714	1630	RA FZDZ SN PL FG BR	0	M	2.8	0.63	30.05	30.05	10.7	04	11.6	25	070	21	030	19
20	32	24	28	-8	19	24	37	0	0715	1631	SN SG BR	2	M	0.2s	T	30.02	30.06	14.4	01	14.6	66s	010	23	030	20
21	42	28	35	-1	25	31	30	0	0715	1631	RA SN BR HZ	3	M	0.5	0.62	29.68	29.67	7.8	31	17.0	48	270	41	270	21
22	28	14*	21*	-14	3	17	44	0	0716	1632		2	M	0.0	0.00	29.93	30.05	22.5	28	22.7	49	270	39	270	22
23	32	20	26	-9	11	22	39	0	0716	1632		1	M	0.0	0.00	30.57	30.61	8.8	24	10.3	21	200	20	200	23
24	50	32	41	6	35	38	24	0	0717	1633	RA BR	1	M	0.0	0.39	30.27	30.21	13.0	20	13.9	30	180	25	180	24
25	57	32	45	10	24	36	20	0	0717	1633	RA	0	M	0.0	0.06	30.09	30.21	16.0	30	17.9	51	260	38	250	25
26	43	28	36	1	25	32	29	0	0717	1634	RA	0	M	0.0	0.01	30.52	30.54	4.1	07	6.2	17	090	14	100	26
27	47	41	44	10	41	43	21	0	0718	1635	RA DZ FG+ BR	0	M	0.0	0.01	30.30	30.30	4.1	20	4.4	17	210	15	210	27
28	64*	46	55*	21	42	48	10	0	0718	1635	DZ FG+ HZ	0	M	0.0	T	29.95	29.96	10.5	22	14.1	40	270	33	270	28
29	49	37	43	9	23	35	22	0	0718	1636		0	M	0.0	0.00	29.94	29.94	11.5	28	13.5	26	300	22	310	29
30	45	31	38	4	14	32	27	0	0719	1637		0	M	0.0	0.00	29.78	29.83	15.9	29	17.3	40	300	35	290	30
31	36	19	28	-5	15	24	37	0	0719	1638	RA SN PL	0	M	0.2	0.01	29.67	29.70	15.8	34	20.0	47	330	39	320	31
	45.3	31.3	38.3		26.0	34.0	26.5	0.0	<-----Monthly Averages | Totals----->			M	5.1	5.97s	30.09	30.10	5.8	27	13.6	<Monthly Average				
	1.3	0.8	1.1		<----------Departure From Normal---------->							2.66												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	821	-26	1671	-25
Cooling:	0	0	1093	144

Greatest 24-hr Precipitation: 3.12s Date: 11-12
Greatest 24-hr Snowfall: 0.3 Date: 19-20
Greatest Snow Depth: 3s Date: 21-19

Sea Level Pressure		Date	Time (LST)
Maximum	30.69	23	1032
Minimum	29.32	12	0532

Number of Days with ------->
Max Temp >=90: 0
Max Temp <=32: 4
Thunderstorms : 0
Min Temp <=32: 19
Min Temp <=0 : 0
Heavy Fog : 3
Precipitation >=.01 inch: 18
Precipitation >=.10 inch:
Snowfall >=1.0 inch : 2

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER2

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(may be updated)

NOAA, National Climatic Data Center

Month: 01/2009

Station Location: JOHN F KENNEDY INTERNATIONAL AIRPORT (94789)
NEW YORK , NY
Lat. 40.655 Lon. -73.796
Elevation(Ground): 11 ft. above sea level

Date	Temperature (Fahrenheit)						Degree Days Base 65 Degrees		Sun		Significant Weather	Snow/Ice on Ground(In)		Precipitation (In)		Pressure(inches of Hg)		Wind: Speed=mph Dir=tens of degrees							Date
	Max.	Min.	Avg.	Dep From Normal	Avg. Dew pt.	Avg Wet Bulb	Heating	Cooling	Sunrise LST	Sunset LST		1200 UTC Depth	1800 UTC Water Equiv	2400 LST Snow Fall	2400 LST Water Equiv	Avg. Station	Avg. Sea Level	Resultant Speed	Res Dir	Avg. Speed	max 5-second Speed	max 5-second Dir	max 2-minute Speed	max 2-minute Dir	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
01	28	16	22	-11	1	17	43	0	0719	1639		T	M	0.0	0.00	30.15	30.21	18.0	31	18.5	41	320	36	320	01
02	37	23	30	-3	19	28	35	0	0719	1639	SN	M	M	M	T	29.88	29.93	12.2	23	12.8	30	200	26	200	02
03	41	30	36	3	14	28	29	0	0719	1640		M	M	M	0.00	29.96	29.98	16.1	29	16.5	35	320	28	310	03
04	44	26	35	2	12	27	30	0	0719	1641		M	M	M	0.00	30.04	30.07	10.4	28	11.6	28	280	23	290	04
05	45*	37	41*	8	25	35	24	0	0719	1642	RA	M	M	M	0.01	29.94	29.96	7.7	29	10.2	22	320	18	320	05
06	39	32	36	4	10	27	29	0	0719	1643	RA FZRA FZDZ SN PL	0	M	T	0.03	29.97	30.01	6.4	03	7.9	17	060	14	050	06
07	40	33	37	5	33	35	28	0	0719	1644	RA BR	0	M	0.0	1.52	29.36	29.36	5.1	01	12.1	36	240	31	250	07
08	41	30	36	4	20	31	29	0	0719	1645		M	M	M	T	29.46	29.49	23.0	26	23.9	49s	260	39	250	08
09	36	27	32	0	10	24	33	0	0719	1646		M	M	M	0.00	30.00	30.01	18.3	30	18.5	33	290	29	290	09
10	32	24	28	-3	15	24	37	0	0718	1647	RA FZRA SN BR HZ	M	M	M	0.04	30.15	30.20	5.5	02	8.4	21	050	17	060	10
11	35	25	30	-1	22	27	35	0	0718	1648	RA FZDZ	T	M	T	0.09	29.86	29.89	8.0	34	9.0	28	320	24	320	11
12	34	21	28	-3	14	24	37	0	0718	1649		M	M	M	0.00	30.16	30.18	7.3	31	7.6	24	310	20	310	12
13	40	25	33	2	25	31	32	0	0718	1650		0	M	0.0	0.00	30.02	30.05	6.0	20	8.1	24	170	20	170	13
14	37	18	28	-3	1	19	37	0	0717	1651		M	M	M	0.00	30.02	30.06	13.7	30	14.8	39	320	32	320	14
15	24	14	19	-12	7	16	46	0	0717	1652	SN	M	M	M	0.01	30.19	30.23	10.3	36	12.3	24	300	21	020	15
16	19	11	15	-16	-3	11	50	0	0716	1654		M	M	M	0.00	30.48	30.50	14.2	29	14.4	24	310	21	290	16
17	23	7*	15*	-16	-1	12	50	0	0716	1655		M	M	M	0.00	30.46	30.49	5.5	25	7.6	18	230	16	220	17
18	33	23	28	-3	22	27	37	0	0716	1656	SN BR HZ	1	M	1.8	0.20	29.92	29.96	2.6	07	5.2	13	070	10	050	18
19	32	20	26	-5	24	27	39	0	0715	1657	SN BR HZ	2	M	0.8s	0.05	29.65	29.68	1.4	29	4.5	17	290	15	290	19
20	29	21	25	-6	12	21	40	0	0714	1658		2	M	0.0	0.00	29.67	29.70	12.5	34	12.9	26	360	22	350	20
21	27	17	22	-9	6	18	43	0	0714	1659		2	M	0.0	0.00	29.86	29.92	13.5	29	15.0	25	260	22	270	21
22	37	21	29	-3	15	24	36	0	0713	1700		1	M	0.0	0.00	29.98	30.01	12.9	25	13.3	26	260	23	250	22
23	42	25	34	2	24	31	31	0	0713	1702		1	M	0.0	0.00	29.94	29.94	7.6	18	8.4	26	180	22	170	23
24	44	17	31	-1	11	26	34	0	0712	1703		T	M	0.0	0.00	29.94	30.03	17.5	31	18.8	36	310	31	310	24
25	29	15	22	-10	0	17	43	0	0711	1704		0	M	0.0	0.00	30.30	30.33	8.3	28	10.9	24	320	22	320	25
26	29	20	25	-7	5	20	40	0	0710	1705		0	M	0.0	0.00	30.38	30.41	5.8	27	9.4	16	260	15	260	26
27	31	27	29	-3	4	22	36	0	0710	1706	SN	0	M	0.0	0.00	30.42	30.45	4.0	36	6.6	18	310	16	360	27
28	42	25	34	2	29	33	31	0	0709	1708	RA DZ SN FG+ FG BR	2	M	2.3	0.88	29.93	29.89	0.9	08	13.6	39	250	28	260	28
29	37	28	33	1	14	26	32	0	0708	1709		0	M	0.0	0.00	29.88	29.93	13.4	28	14.3	36	270	29	300	29
30	36	25	31	-1	19	27	34	0	0707	1710	SN	0	M	T	T	29.90	29.92	10.5	25	11.3	30	270	24	270	30
31	30	22	26	-6	5	21	39	0	0706	1711		0	M	0.0	0.00	29.95	29.99	15.4	28	16.2	30	280	25	300	31
	34.6	22.7	28.7		13.4	24.4	36.1	0.0	<-----Monthly Averages | Totals----->				M	6.4s	2.83	29.98	30.02	7.7	29	12.1	<Monthly Average				
	-4.2	-2.0	-3.1	<----------Departure From Normal---------->									-0.79												

Degree Days

	Monthly Total	Monthly Departure	Season to Date Total	Season to Date Departure
Heating:	1119	104	2790	79
Cooling:	0	0	0	0

Greatest 24-hr Precipitation: 1.54s Date: 06-07
Greatest 24-hr Snowfall: 0.2 Date: 28
Greatest Snow Depth: 2s Date: 28-21

	Sea Level Pressure	Date	Time (LST)
Maximum	30.60	17	1012
Minimum	29.10	07	1443

Number of Days with -------->
Max Temp >=90: 0
Max Temp <=32: 12
Thunderstorms : 0
Min Temp <=32: 29
Min Temp <=0 : 0
Heavy Fog : 1
Precipitation >=.01 inch: 9
Precipitation >=.10 inch:
Snowfall >=1.0 inch : 3

*** EXTREME FOR THE MONTH - LAST OCCURRENCE IF MORE THAN ONE.**

Data Version: VER2

APPENDIX C

Data Usability Summary Report (DUSR) Narrative
2nd Sampling Event

Data Validation Services

120 Cobble Creek Road P.O. Box 208
North Creek, NY 12853

Phone 518-251-4429
Facsimile 518-251-4428

April 13, 2009

Cory Snyder
Malcolm Pirnie, Inc.
27-01 Queens Plaza North Suite 800
Long Island City, NY 11101

RE: Westside Corp OU-2 site
Data Usability Summary Report (DUSR)
Phoenix Environmental Laboratories, Inc. SDG Nos. GAR25619, GAR26193 GAR26631, GAR26951, and GAR27221

Dear Mr. Snyder:

Review has been completed for the data packages generated by Phoenix Environmental Laboratories that pertain to samples collected 1/05/09 through 1/09/09 at the Westside Corp OU-2 site. Sixty-five aqueous samples and two field duplicates were processed for TCL volatiles by USEPA method 8260B. Field and trip blanks were also analyzed.

The data packages submitted contained full deliverables for validation, but this usability report is primarily generated from review of the summary form information, with full review of sample raw data, and limited review of associated QC raw data. The reported summary forms and sample raw data have been reviewed for application of validation qualifiers, with guidance from the USEPA Region 2 validation SOPs, with consideration of the requirements of the project QAPP, and with professional judgment. The following items were reviewed:

* Laboratory Narrative Discussion
* Case Narratives
* Custody Documentation
* Holding Times
* Surrogate and Internal Standard Recoveries
* Matrix Spike Recoveries/Duplicate Correlations
* Field Duplicate Correlations
* Preparation/Calibration Blanks
* Laboratory Control Samples (LCSs)
* Instrumental Tunes
* Calibration Standards
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for this level of review.

In summary, results for the samples are usable as reported, or usable with minor qualification due to sample matrix or to processing outliers.

Copies of the sample identifications and laboratory case narratives are attached to this text, and should be reviewed in conjunction with this report. Also included with this report are validation qualifier definitions and red-ink qualified sample results forms.

The following text discusses quality issues of concern.

Chain-of-Custody

Eight samples that were received 1/07/09 were not entered onto the associated custody until sample receipt. Therefore, no collection time was available. The samples were processed the day they were received, and holding times were met.

Custodies were not properly completed. There is no year on the collection date entries, and times of sample collection were not provided. There are also release time entries missing on custodies for samples reported in GAR25619.

The interim release signature/date/time entries were not present on the custodies. The laboratory receipt entries on the custody for samples reported in GAR26631 and GAR26951 do not include the year.

Some of the down arrows for required analysis, matrix, date, and/or bottle type were not entered, or were entered into an incorrect column.

Strikeovers and writeovers should have been dated and initialed.

The laboratory corrected a mistaken custody identification, using the bottle identification for processing and reporting.

The laboratory processed MW-24-1I under the name of MW-24-L1.

The samples collected 1/09/09 and reported in SDG GAR27221 were received by the laboratory four days after collection (1/13/09), although the relinquish date shows 1/09/09. The temperature at receipt was acceptable at 6°C, and the holding times were met, so no qualification is indicated. However, a memorandum to the file should be made noting the condition and custody of those samples during the extended timeframe before receipt.

TCL Volatiles by EPA 8260B

The detections of cis-1,2-dichloroethene in W011 D, methyl tertiary butyl ether (MTBE) in W 13I, tetrachloroethene in W03 S, and cis-1,2-dichloroethene, and trichloroethene, and tetrachloroethene in W09 I are considered potential contamination. These samples followed samples that showed concentrations of those specific analytes that exceed instrument calibration range in undiluted analyses

(therefore flagged as "E" by the laboratory). It is not possible to know the actual constituency of the affected samples below the reported concentrations of the affected analytes, as all or none of the detected values may be a result of carryover. It can be said the samples do not contain the affected compounds at concentrations above the reported values, so the data are useful in that way. The values can be considered as potential false positives or falsely elevated concentrations. During this validation, the affected samples have been determined, and the affected analyte results have been edited to reflect non-detection at the originally reported concentrations. In W09 I, the resulting reporting limits are significantly high than those of the method. The edited results are further qualified with a "C" qualifier to alert the end-user of the data as to the status of that results.

The results for analytes initially reported with the "E" laboratory flag are derived from the dilution analyses of those samples.

The following detections are edited to reflect non-detection due to presence in associated method, field, and trip blanks:

- all acetone and methylene chloride detections
- naphthalene in W7D

Because only one field blank was collected, the low level acetone and naphthalene contamination therein is associated with all project samples.

The results for trichloroethene and tetrachloroethene in W03-I, and for tetrachloroethene in W07D (2), have been qualified as estimated because of the inconsistencies between initial and dilution analyses of the sample. The initial over-calibration range result was used for the latter.

The results for tetrahydrofuran in W011 I and trichloroethene in MW-24-1D are edited to reflect non-detection due to very poor mass spectral quality.

The result for MTBE in W12D is edited to reflect non-detection because the two largest mass fragments do not maximize together.

Calibration standard responses are within guidelines, with the following exceptions, results for which are qualified as estimated ("UJ") in the indicated samples:

- bromoform, trans-1,4-dichloro-2-butene, and 1,2-dibromo-3-chloropropane (24%RSD and 25%RSD) in all samples reported in GAR25619, GAR26631, GAR26193, and in all samples reported in GAR26951 except W13 DUP
- acetone and 2-butanone (22%D to 45%D) in GAR25619, in twelve samples reported in GAR26193, and in seven samples reported in GAR26951.
- 2-hexanone (24%D) in thirteen samples reported in GAR25619
- dichlorodifluoromethane (21%D) in twelve samples reported in GAR26193
- trans-1,4-dichloro-2-butene (31%RSD) in W13 DUP and in the samples reported in GAR27221

Due to low recoveries exhibited by acetone (58% and 68%, below 70%) in the associated duplicate LCSs, results for that compound in twelve samples reported in GAR26193 are qualified as estimated, with a possible low bias.

Due to low recoveries exhibited by carbon disulfide (56% and 56%, below 70%) in the associated duplicate LCSs, results for that compound in the samples reported in GAR27721 are qualified as estimated, with a possible low bias

Matrix spikes were performed in duplicate on W01 S, W01 I, W07, W0-10D, W07 S(2),W-12D, W13 DUP, and W-14S. The results for acetone and methyl ethyl ketone in those parent samples are qualified as estimated, with a low bias, due to outlying recoveries (41% to 68%) in both matrix spikes of those samples. Additionally, the result for cis-1,2-dichloroethene in W01 I is also qualified as estimated due to an outlying recovery and elevated duplicate correlation (146%, 58%RPD) in the spikes of that parent sample. The result for 2-hexanone in W-14S is also qualified as estimated due to low recoveries (56% and 64%) in the spikes of that parent sample.

Single matrix spikes were run on W7-D and 24-4S, with only one outlying ketone recovery for each.

Field duplicate correlations of W13 I and 24 S I are within validation guidelines.

Required holding times were met. Surrogate and internal standard responses are within required limits.

Standard spectra were not provided for comparison with the sample detection spectra. The sample spectra were evaluated for accuracy during this validation procedure.

The mass spectra for detected compounds are not provided for the dilution analyses. The spectra for those detections were reviewed from the initial analyses, and found to be acceptable. The dilution spectra can be requested from the laboratory if desired.

Dilution analyses were utilized to bring responses of target analytes into established calibration range.

Manual integrations performed by the laboratory should be dated and initialed on the raw data.

Please do not hesitate to contact me if you have comments or questions regarding this report.

Very truly yours,

Judy Harry

Att