Arch Chemicals, Inc.

Rochester, New York (Site #828018a)

Groundwater Monitoring Report 57
Fall 2016

February 2017

SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
FALL 2016 MONITORING REPORT

ARCH CHEMICALS
ROCHESTER PLANT SITE
ROCHESTER, NEW YORK

ARCH CHEMICALS, INC.
(A WHOLLY-OWNED SUBSIDIARY OF LONZA)

FEBRUARY 2017

SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
FALL 2016 MONITORING REPORT

ARCH CHEMICALS
ROCHESTER PLANT SITE
ROCHESTER, NEW YORK

Prepared by

AMEC Foster Wheeler Environment & Infrastructure, Inc.
Portland, Maine

for

ARCH CHEMICALS, INC.
(A Wholly-Owned Subsidiary of Lonza)

February 2017

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EXECUTIVE SUMMARY

This monitoring report presents the results of an on-going groundwater and surface water monitoring program being conducted by Arch Chemicals at its Rochester, New York, manufacturing facility. Arch Chemicals is a wholly-owned subsidiary of Lonza, a leading supplier to the global life sciences, healthcare and pharmaceutical industries headquartered in Basel, Switzerland.

During this monitoring event conducted in November 2016, samples from a total of 30 groundwater monitoring or pumping wells and four locations associated with the Dolomite Products Quarry seep and outfall were collected by Matrix Environmental Technologies Inc., of Orchard Park, New York, and analyzed by Paradigm Environmental Services, Inc., of Rochester, New York.

As in prior reports, monitoring results were compared with previous average concentrations at each sampling location. Twelve of the 29 wells sampled for chloropyridines had contaminant concentrations that were above their respective 5-year prior averages. Eight of the 30 wells sampled for volatile organic compounds had concentrations above their 5-year prior averages.

Sampling locations associated with the quarry included the main quarry seep (QS-4), the quarry ditch where the quarry dewatering discharge enters the ditch (QD-1), the quarry ditch as it enters the Erie Barge Canal (QO-2), and the surface water in the canal approximately 100-feet downstream of the quarry ditch (QO-2S1). The total concentration of chloropyridines in quarry seep QS-4 was 33 micrograms per liter (µg/L), which is below its prior 5-year average of 110 µg/L. Chloropyridines were not detected in the ditch sample from location QD-1, the ditch outfall sample at location QO-2, or the canal water at sample location QO2-S1.

On-site monitoring wells were checked for the presence of dense non-aqueous phase liquids (DNAPL) and floating (or light) NAPL (LNAPL), using an interface probe. No DNAPL or LNAPL was observed in any of these wells.

During the period June 2016 through November 2016, the on-site groundwater extraction system pumped approximately 9.7 million gallons of groundwater to the on-site treatment system, containing an estimated 1,900 pounds of chloropyridines and 72 pounds of target volatile organic compounds.

The next regular monitoring event will occur in May 2017 and will include groundwater, surface water, and seep sampling.

1.0 INTRODUCTION

In accordance with the Order on Consent executed between Arch Chemicals, Inc., and the New York State Department of Environmental Conservation (NYSDEC), effective August 21, 2003, Arch is conducting a Remedial Action program at its facility on McKee Road in Rochester, New York. As part of this program, Arch conducts twice-yearly monitoring events consisting of sampling and chemical analysis of groundwater and surface water in the vicinity of the Rochester facility.

The Fall 2016 sampling event included the collection and analysis of groundwater, surface water, and seep samples from a total of 34 off-site and on-site locations. Samples were collected from November 8 through 14, 2016, for analysis of selected chloropyridines and volatile organic compounds (VOCs).

This report presents the results of the Fall 2016 monitoring event.

2.0 SAMPLE COLLECTION AND ANALYSIS

2.1 GROUNDWATER

Groundwater samples were collected from off-site wells, on-site wells and piezometers for analysis of selected chloropyridines (2-chloropyridine, 2,6-dichloropyridine, 3-chloropyridine, 4-chloropyridine, pyridine, and p-fluoroaniline) and target compound list (TCL) VOCs. Samples were collected by personnel from Matrix Environmental Technologies Inc., (Matrix) and transported to the analytical laboratories of Paradigm Environmental Services, Inc. (Paradigm) in Rochester, New York for analysis. Table 1 lists the wells that were sampled and the requested analyses. Well B-5 was sampled for VOCs, but could not be sampled for chloropyridines because the well did not produce a sufficient quantity of water. The off-site and on-site locations of these sampling points are shown in Figures 1 and 2, respectively.

Groundwater sampling data sheets are provided in Appendix A.

Groundwater was collected with the low flow/low stress purging technique from most of the wells using bladder or peristaltic pumps. Samples from active pumping wells were collected from the discharge lines.

Groundwater piezometric elevations were measured on November 7, 2016. Piezometric contour maps were constructed for each water-bearing zone (overburden, bedrock, and deep bedrock) and are presented in Figures 3, 4, and 5.

On-site monitoring wells were checked for the presence of non-aqueous phase liquid (NAPL), using an interface probe. No dense NAPL (DNAPL) or floating (light) NAPL (LNAPL) was observed in any of these wells.

2.2 SURFACE WATER

Surface water and quarry seep samples were collected as part of the on-going monitoring program for the Arch Rochester site. The location of the quarry and its outfall in relation to

the site is shown on Figure 6. Samples of the main quarry seep (QS-4), the quarry ditch where the quarry dewatering discharge enters the ditch (QD-1), the quarry ditch as it enters the Erie Barge Canal (QO-2), and the surface water in the canal approximately 100-feet downstream of the quarry ditch (QO-2S1) were collected by Matrix on November 11, 2016. All quarry-related samples were analyzed for the Arch suite of selected chloropyridines. The quarry locations sampled during the Fall 2016 event are shown on Figure 7.

2.3 ANALYTICAL PROCEDURES

The analytical procedures, data review findings, and validated data for this groundwater monitoring event are discussed in the following paragraphs.

Samples were analyzed for the Arch suite of selected chloropyridines and TCL volatile organic compounds (VOCs) by USEPA SW-846 Methods 8270D and 8260C, respectively. The reporting limits for the chloropyridines and VOCs are approximately 10 micrograms per liter (µg/L) and 2 to 20 µg/L, respectively, for undiluted samples.

2.4 QUALITY CONTROL

All laboratory analytical results were reviewed and qualified following U.S. Environmental Protection Agency Contract Laboratory Program (USEPA CLP), "National Functional Guidelines for Superfund Organic Methods Data Review", June 2008, using professional judgment and guidance from USEPA Region II SOPs No. HW-24 Revision 4, October 2014, and No. HW-35 Revision 2, March 2013. Analytical results were evaluated for the following parameters:

* Collection and Preservation
* Holding Times
Surrogate Recoveries
* Blank Contamination
Duplicates
Laboratory Control Samples
Matrix Spike/Matrix Spike Duplicates
Miscellaneous

* - *all criteria were met for this parameter*

With the qualifications discussed below, results are determined to be usable as reported by the laboratory.

Surrogate Recoveries. Percent recoveries of the VOC surrogates 1,2-dichloroethane-d4 and/or toluene-d8 in a subset of samples were less than the laboratory statistically derived control limits, indicating potential low biases. Positive and non-detected results in affected samples were qualified estimated (J/UJ): PZ102, BR6A, BR6A Duplicate, PZ105, and MW106.

Percent recoveries of the SVOC surrogate 2-fluorobiphenyl in a subset of samples were less than the laboratory statistically derived control limits, indicating potential low biases. Positive and non-detected results in affected samples were qualified estimated (J/UJ): B15, B16, BR9, and BR7A.

Duplicates. Field duplicates were collected for samples BR6A and BR7A. Relative percent differences (RPDs) between sample and field duplicate results for all target analytes in BR7A and BR7A Duplicate were within the control limit.

For sample BR6A and field duplicate BR6A Duplicate, RPDs were greater than the control limit for the following VOC target analytes:

- benzene
- chlorobenzene
- chloroform
- chloromethane
- cis-1,2-dichloroethene
- methylene chloride
- toluene
- trichloroethene
- vinyl chloride

In addition, inconsistent results were reported for carbon disulfide. A positive detection greater than the reporting limit was reported in the field duplicate BR6A Duplicate; however, carbon disulfide was not detected in the parent sample BR6A. The positive and non-detect results for carbon disulfide in BR6A and BR6A Duplicate were qualified estimated (J/UJ). Positive results for benzene, chlorobenzene, chloroform, chloromethane, cis-1,2-dichloroethene, methylene chloride, toluene, trichloroethene, and vinyl chloride were qualified estimated (J) in sample BR6A and field duplicate BR6A Duplicate.

Laboratory Control Samples (LCS). Percent recoveries of pyridine (33 to 38) in all laboratory control samples associated with the sampling event were below nominal control limits of 50-140, indicating potential low biases for pyridine in all samples. The percent recovery of 4-fluoroaniline (34) in the LCS associated with samples of SDG 164972 was less than the 50-140 control limits, indicating potential low biases for 4-fluoroaniline in samples of SDG 164972. Nominal control limits were used in the absence of statistically derived laboratory control limits. 4-Fluoroaniline was not detected in the samples of SDG 164972 and reporting limits were qualified estimated (UJ). Positive and non-detected results for pyridine in all samples were qualified estimated (J/UJ).

Matrix Spike/Matrix Spike Duplicates (MS/MSD). MS/MSD analyses were specified for samples PW15 and BR9. All percent recoveries for the MS/MSD associated with VOC sample BR9 were within control limits. The MS/MSD for SVOC sample PW15 was not analyzed by the laboratory due to dilution of the sample and MS/MSD required because of high concentrations of target analytes.

In the MS/MSD associated with VOC sample PW15, percent recoveries for bromoform (107, 109), carbon tetrachloride (158, 152), and chloroform (127, 124) were greater than laboratory control limits, indicating potential high biases. The positive results for bromoform, carbon tetrachloride, and chloroform in sample PW15 were qualified estimated (J).

In the MS/MSD associated with SVOC sample BR9, MS/MSD percent recoveries for the following target analytes were less than the 50-140 nominal control limits indicating potential low biases:

- 2,6-dichloropyridine (49, 47)

- 2-chloropyridine (12, 1.1)
- 3-chloropyridine (49)
- 4-fluoroaniline (47, 46)
- pyridine (36, 33)

Positive and non-detect results for these analytes in sample BR9 were qualified estimated (J/UJ).

Miscellaneous. Samples from a subset of wells were analyzed at dilutions due to high concentrations of volatile organic and/or semivolatile organic target analytes. Non-detects are reported at elevated reporting limits.

3.0 ANALYTICAL RESULTS

3.1 GROUNDWATER

The validated results from the Fall 2016 groundwater monitoring event are provided in Tables 2 and 3. Table 4 provides a comparison of the Fall 2016 analytical results for selected chloropyridines and VOCs in representative wells to mean concentrations of the prior five years (Fall 2011 through Spring 2016). Long term trends for both selected chloropyridines and VOCs are also presented as time-series plots for representative wells in Appendix B. A summary of the analytical findings is presented below by parameter class.

3.1.1 Chloropyridines

On-Site. Chloropyridines were detected above sample quantitation limits in all 22 of the on-site wells sampled in the Fall 2016 event. Concentrations of chloropyridines (sum of all chloropyridine and pyridine isomer concentrations) ranged from 13 micrograms per liter (µg/L) in well PW-12, to 550,000 µg/L in well BR-8. Ten of the on-site wells exhibited total chloropyridine concentrations that were above their respective means from monitoring events over the previous five years (see Table 4).

Off-Site. Chloropyridines were detected above sample quantitation limits in all seven of the off-site wells that were sampled. Concentrations of total chloropyridines ranged from 92 µg/L in well BR-105D, to 51,000 µg/L in well MW-106. Two of the off-site wells contained total chloropyridine concentrations above their respective five-year prior means (see Table 4).

Concentration Contours. Chloropyridine distribution in groundwater is shown as a set of concentration contours on Figure 8. The contours were developed using data from both overburden and bedrock monitoring wells. The chloropyridine plume extent is generally similar to the prior monitoring event in May 2016. Most of the wells that had exhibited a spike in chloropyridine concentrations in 2014 have declined to levels that are more consistent with historical results. The exception is monitoring well BR-8, which has not yet begun to decline. Well BR-8 is approximately 70 feet from pumping well PW-16, which is also exhibiting elevated concentrations of chloropyridines. This indicates the chloropyridines are being drawn past BR-8 toward the extraction well. In addition, pumping wells PW15 and PW17 are showing increases in chloropyridine compounds, indicating they are also effectively pulling in water from the area of elevated chloropyridines.

3.1.2 Selected VOCs

On-Site. Selected VOCs were detected in 19 of the 23 on-site wells sampled for VOCs in the Fall 2016 event. Total concentrations of selected VOCs (sum of carbon tetrachloride, chlorobenzene, chloroform, methylene chloride, tetrachloroethene, and trichloroethene) ranged from not detected (in wells B-15, BR-5A, BR-126, and MW-127) to 32,000 µg/L (in well PW-15). Six of the on-site wells contained concentrations of total VOCs above their respective five-year prior means (see Table 4).

In addition to the selected VOCs, other notable constituents detected in multiple on-site wells include benzene (in 13 out of 23 wells), 1,2-dichlorobenzene (10 of 23), 1,3-dichlorobenzene (8 of 23), 1,4-dichlorobenzene (8 of 23), toluene (8 of 23), cis-1,2-dichloroethene (7 of 23), carbon disulfide (6 of 23), vinyl chloride (6 of 23), acetone (3 of 23), 1,1-dichloroethane (3 of 23), 1,1,2-trichloro-1,2,2-trifluoroethane (3 of 23), 2-butanone (3 of 23), bromoform (2 of 23), 1,2,3-trichlorobenzene (2 of 23), and 1,2,4-trichlorobenzene (2 of 23).

Off-Site. Selected VOCs were detected in six of the seven off-site wells sampled for VOCs during the Fall 2016 event. Total concentrations of selected VOCs ranged from not detected (in well BR-105D) to 600 µg/L (in well MW-106). Two of these wells were slightly above their 5-year prior means for VOCs (see Table 4).

In addition to the selected VOCs, other notable constituents detected in multiple off-site wells include benzene (in 6 out of 7 wells), 1,2-dichlorobenzene (5 of 7), 1,3-dichlorobenzene (3 of 7), 1,4-dichlorobenzene (3 of 7), and cis-1,2-dichloroethene (2 of 7).

Concentration Contours. The distribution of selected VOCs in groundwater is shown as a set of concentration contours on Figure 9. These contours were developed using both overburden and bedrock groundwater data, and are dashed where approximated using historical data. The VOC plume extent is generally consistent with previous monitoring events. VOCs observed in off-site wells primarily consist of chlorobenzene, which appears to be more closely associated with chloropyridines at this site.

3.2 SURFACE WATER

Results from the Fall 2016 canal and quarry monitoring event are presented in Table 5, and are discussed below.

3.2.1 Quarry

One quarry seep sample (QS-4) was collected in the Fall 2016 monitoring event. The sample contained 33 µg/L total chloropyridines, which is below its prior five-year mean of 110 µg/L.

3.2.2 Quarry Discharge Ditch

Two locations within the quarry discharge ditch were sampled and analyzed for chloropyridines: QD-1, at the point where the quarry's dewatering discharge enters the ditch; and QO-2, at the location where the ditch discharges to the canal. Chloropyridine compounds were not detected in either sample.

3.2.3 Barge Canal

One sample was collected from the Erie Barge Canal location (QO-2S1, approximately 100 feet downstream of QO-2). Chloropyridines were not detected in this sample.

4.0 EXTRACTION SYSTEM PERFORMANCE

Table 6 is a summary of the system flow measurements for the on-site extraction wells from June 2016 through November 2016. The total volume pumped during the six-month period was approximately 9.7 million gallons.

Table 7 provides a calculation of mass removal rates since the previous groundwater monitoring event (i.e., from June 2016 through November 2016). Arch estimates that approximately 72 pounds of target VOCs and 1,900 pounds of chloropyridine compounds were removed by the groundwater extraction system and treated by the plant's activated carbon adsorption units over that time period.

5.0 NEXT MONITORING EVENT

The next regular monitoring event will occur in May 2017 and will include groundwater, surface water, and seep sampling.

Table 8 shows the 2017 monitoring program for the Arch Rochester site. Monitoring well B-5 has been removed from the monitoring program because it does not produce enough water to sample.

Figures

Legend

Property Owned by Lonza

Monitoring Well

NOTES

1. Source - Topographic Quadrangle 7.5-Minute Series

N

0 250 500 1,000 Feet

Prepared by JEB | Checked by NMB

BARGE CANAL

I-390

FIRTH RIXSON

ARCH

BUFFALO RD. BUSINESS CENTER

MW-103/BR-103

MW-108/BR-108

PZ-102

BR-111/BR-111D

BR-106/MW-106

PZ-103

MW-16

AID TO HOSPITALS

BR-126

BR-112A/BR-112D

MW-105/BR-105

MW-104/BR-104

BUFFALO ROAD

MW-114/BR-114

12-6

CUMBERLAND FARMS PETROLEUM TERMINAL

OW-105

NESS-W

NESS-E

BR-113/BR-113D

8-8

7-6

LEXINGTON

11-8

GENERAL RAIL SIGNAL CO.

9-6

RW-1

10-6

DOLOMITE PRODUCTS QUARRY

13-4

Morey

OW-102A

OW-103

BR-122D

PFAUDLER

ERIE BARGE CANAL

BR-117/BR-117D

BR-121D (Abandoned)

BR-118/BR-118D

BR-123D

BR-116/BR-116D

I-390

BR-120D (Abandoned)

BR-119D (Abandoned)

LETTINGTON DRIVE

BR-124D

Figure 1
Off-Site Groundwater Monitoring Well Locations

Arch Chemicals
Rochester, NY

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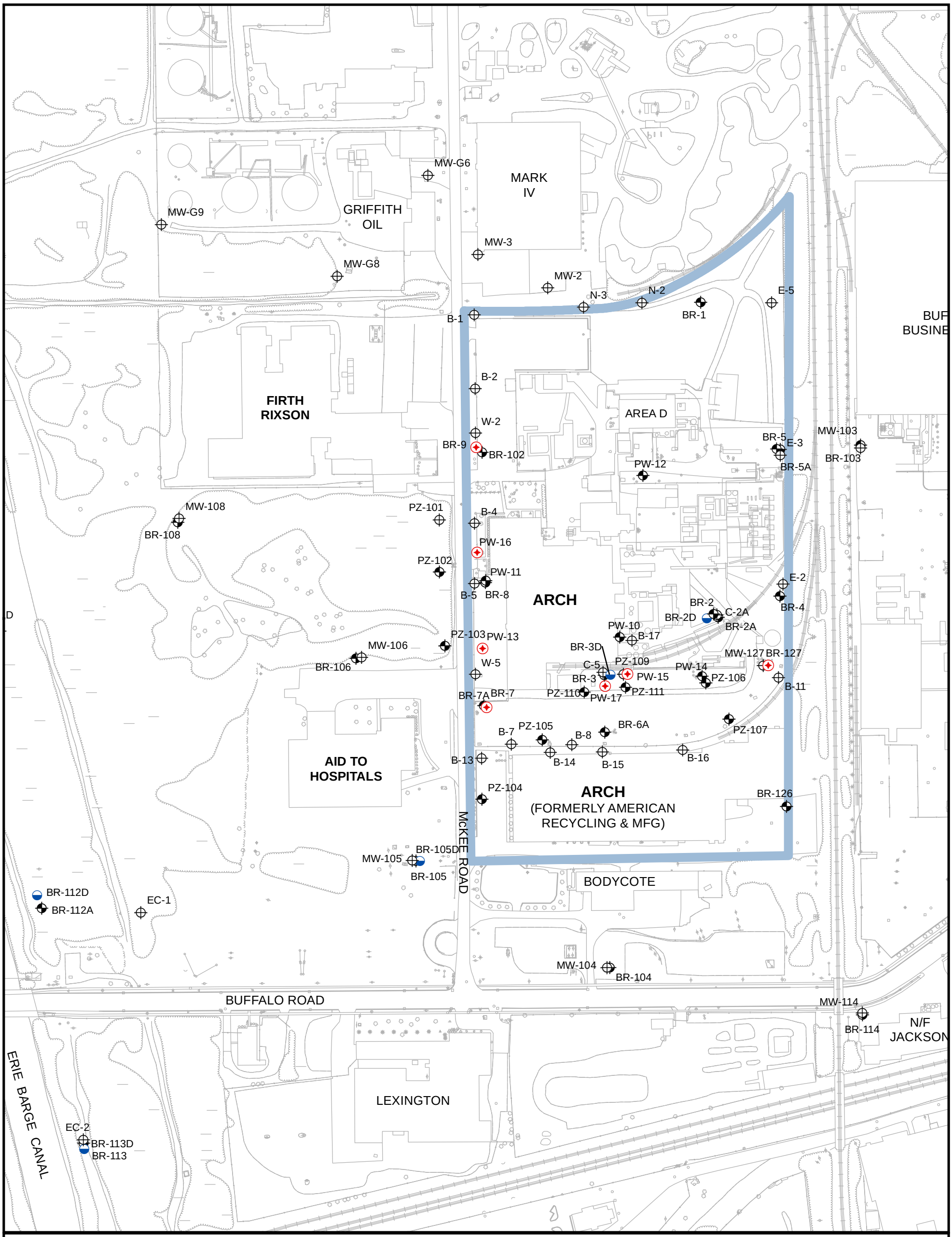

NOTES:

1. Off-Site Well Locations also Included on Figure 1

Legend

- Active Pumping Well
- Overburden Monitoring Well
- Bedrock Monitoring Well
- Deep Bedrock Monitoring Well
- Property Owned by Lonza

N

0 100 200 400 Feet

Prepared/Date: JEB 07/13/16 | Checked/Date: NMB 07/13/16

Figure 2
Onsite Monitoring Well Locations

Arch Chemicals Rochester, NY

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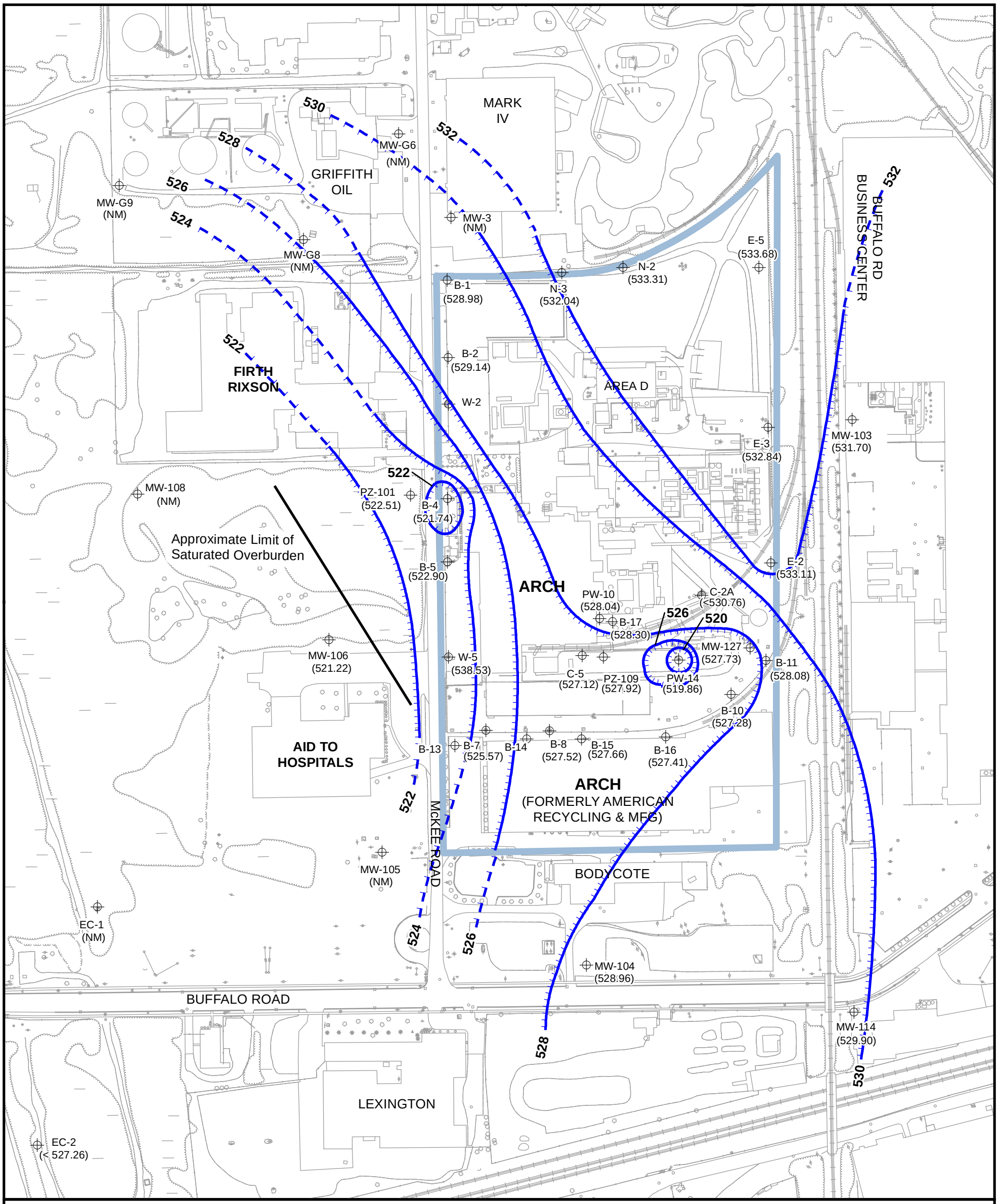

N

Legend

- MW-114 (529.90) — Piezometric Elevation at Well or Piezometer
- Interpreted Groundwater Flow Direction
- **528** — Overburden Piezometric Elevation Contour (MSL)
- Outline of Arch Property Boundary

Figure 3
Fall 2016
Overburden Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

NOTES:

1. Water Levels Measured on November 7, 2016
2. Dashed Contours Reflect Uncertainty

0 100 200 400 Feet

Prepared/Date: JEB 02/02/17 | Checked/Date: NMB 02/02/17

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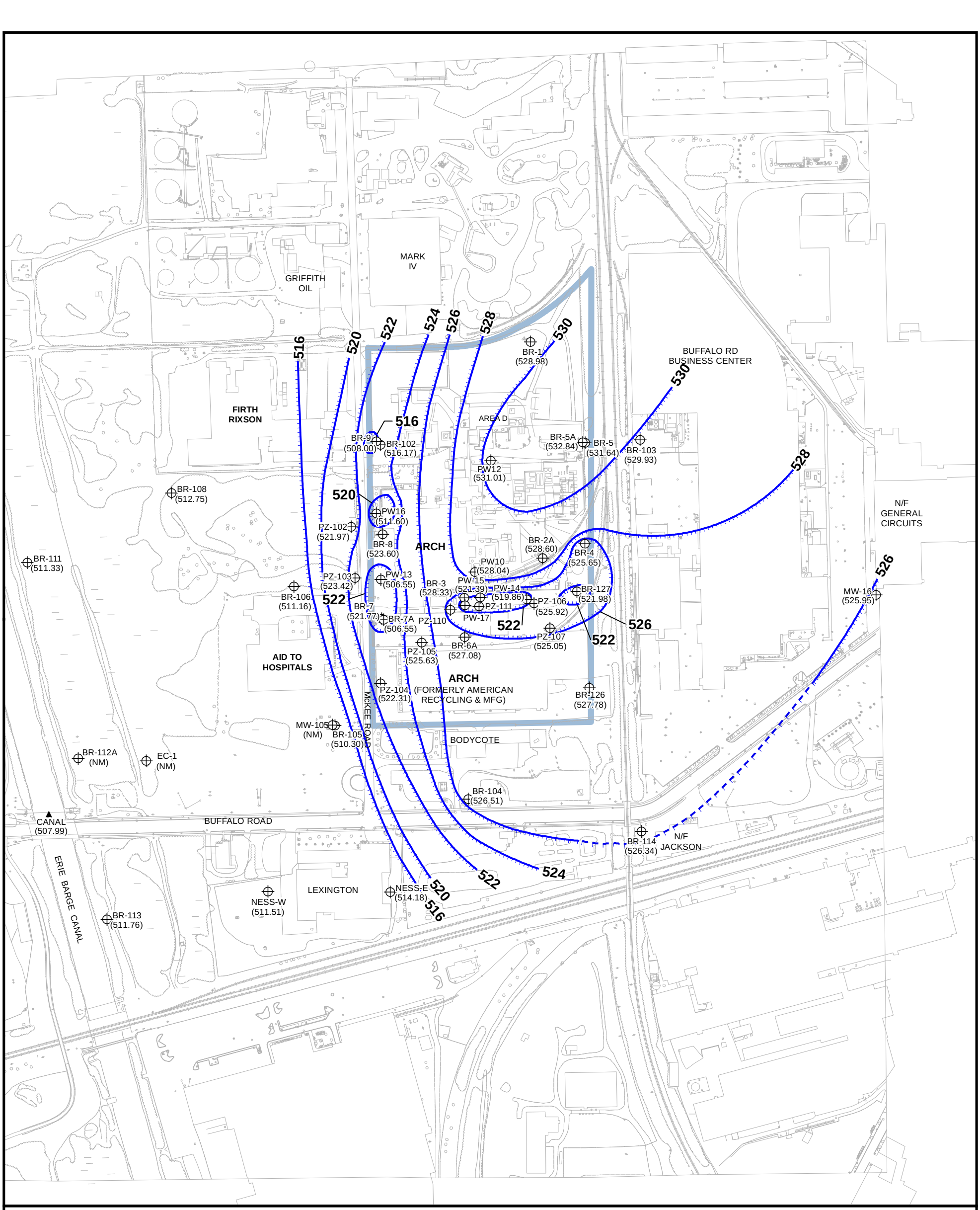

Legend

N

BR-114 (526.34) — Piezometric Elevation at Well or Piezometer (Feet MSL)

▲ Piezometric Elevation at Surface Water Measuring Point

Property Owned by Lonza

Interpreted Groundwater Flow Direction

526 — Bedrock Piezometric Elevation Contour (MSL)

NOTES:

1. Water Levels Measured on November 7, 2016
2. Dashed Contours Reflect Uncertainty
3. The measurement in well BR-3 is considered anomalous and was not used in contouring.

0 150 300 600 Feet

Figure 4
Fall 2016
Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

Prepared/Date: JEB 02/02/17	Checked/Date: NMB 02/02/17

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Legend

- Bedrock Well ('D' Designates Deep Well)
- 500 — Deep Bedrock Elevation Contour (MSL)
- Interpreted Groundwater Flow Direction
- Property Owned by Lonza
- BR-116D (509.68) — Piezometric Elevation at Deep Bedrock Well

NOTES

1. Water Levels Measured on November 7, 2016
2. Dashed Contours Reflect Uncertainty

N

0 250 500 1,000 Feet

Prepared/Date: JEB 02/02/17 | Checked/Date: NMB 02/02/17

ERIE BARGE CANAL

I-390

FIRTH RIXSON

BUFFALO RD. BUSINESS CENTER

ARCH

BR-9

BR-103

BR-108

BR-111D (511.60)

BR-111

AID TO HOSPITALS

BR-106

BR-3D (485.51)

BR-112D (511.58)

BR-112

BR-105

BR-105D (513.23)

BUFFALO ROAD

BR-104

BR-114

CUMBERLAND FARMS PETROLEUM TERMINAL

BR-113

BR-113D (511.55)

LEXINGTON

GENERAL RAIL SIGNAL CO.

DOLOMITE PRODUCTS QUARRY

BR-122D (507.23)

PFAUDLER

BR-117D (499.14)

BR-117

BR-118

BR-118D (500.50)

BR-123D (508.21)

BR-116D (509.68)

BR-116

BR-124D (504.62)

LETTINGTON DRIVE

500 502 504 506 508 510 512

Figure 5
Fall 2016
Deep Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

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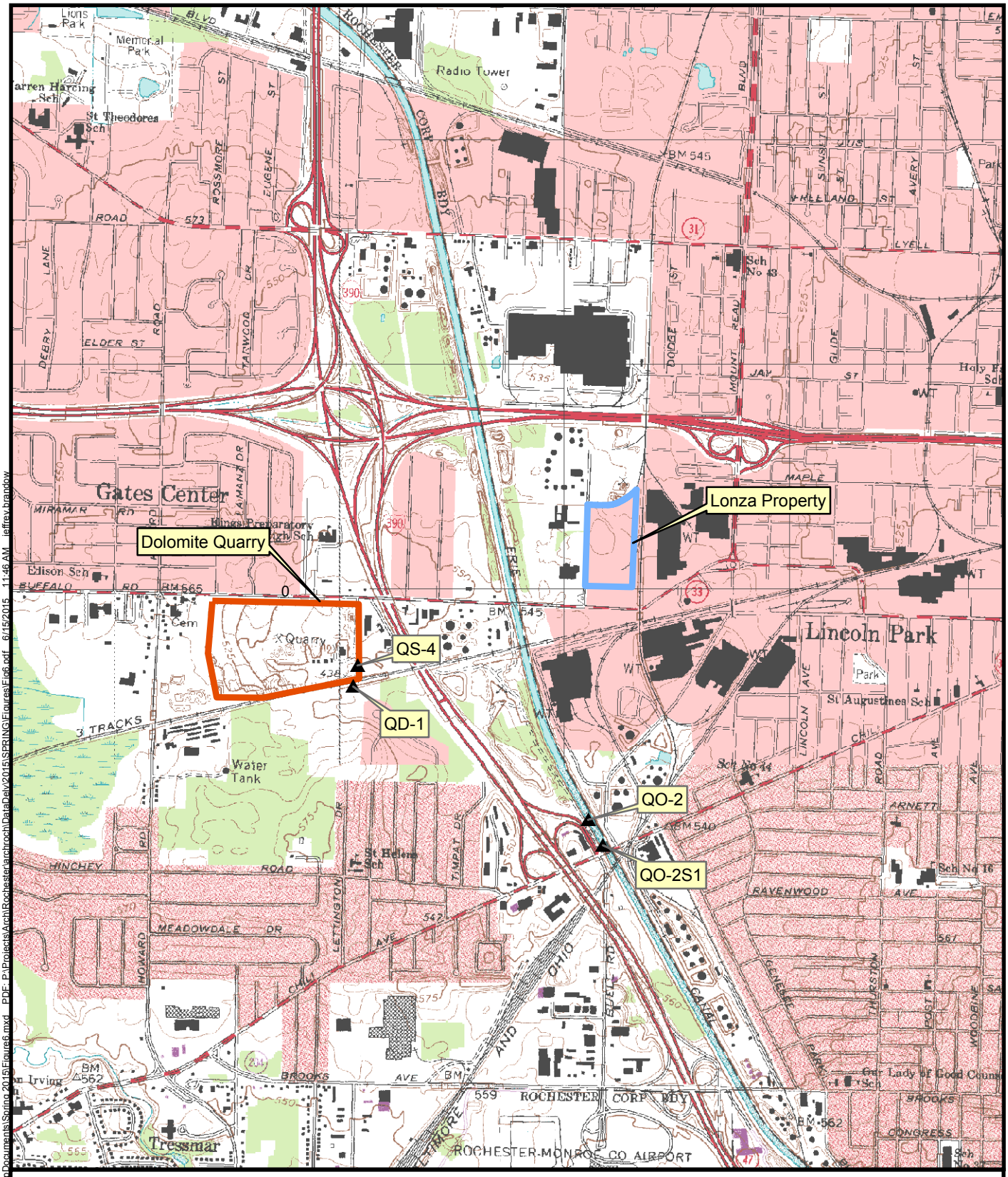

Source:
1:24,000 scale digital topographic map
obtained from New York State GIS
Clearinghouse at: www.nysgis.state.ny.us

Legend

- Lonza Property
- Dolomite Quarry Boundary
- ▲ Surface Water Sample Location

N

0 1,000 2,000 Feet

Prepared by JEB | Checked by NMB

Figure 6
Sample Locations
Erie Barge Canal

Arch Chemicals
Rochester, New York

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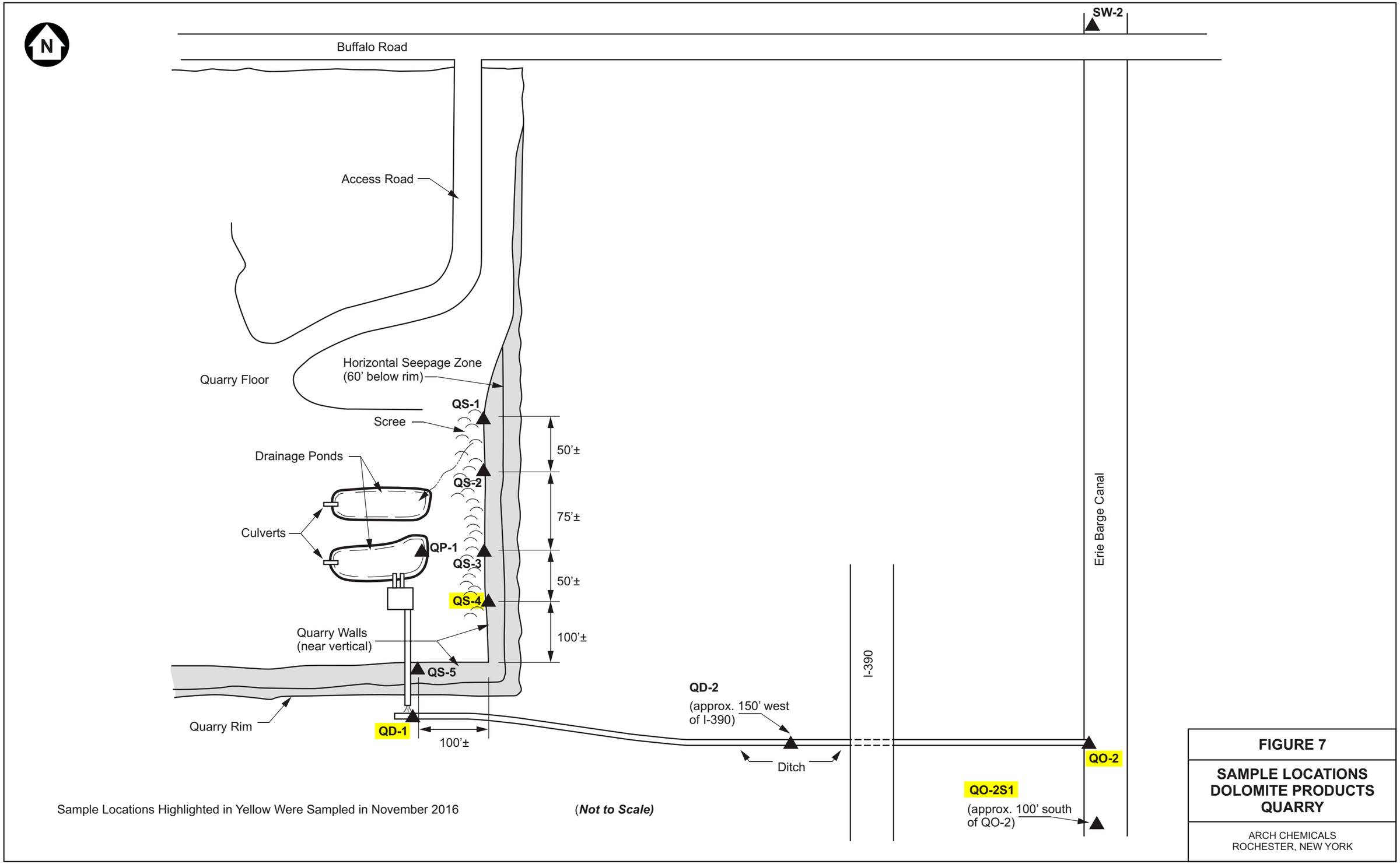


Sample Locations Highlighted in Yellow Were Sampled in November 2016

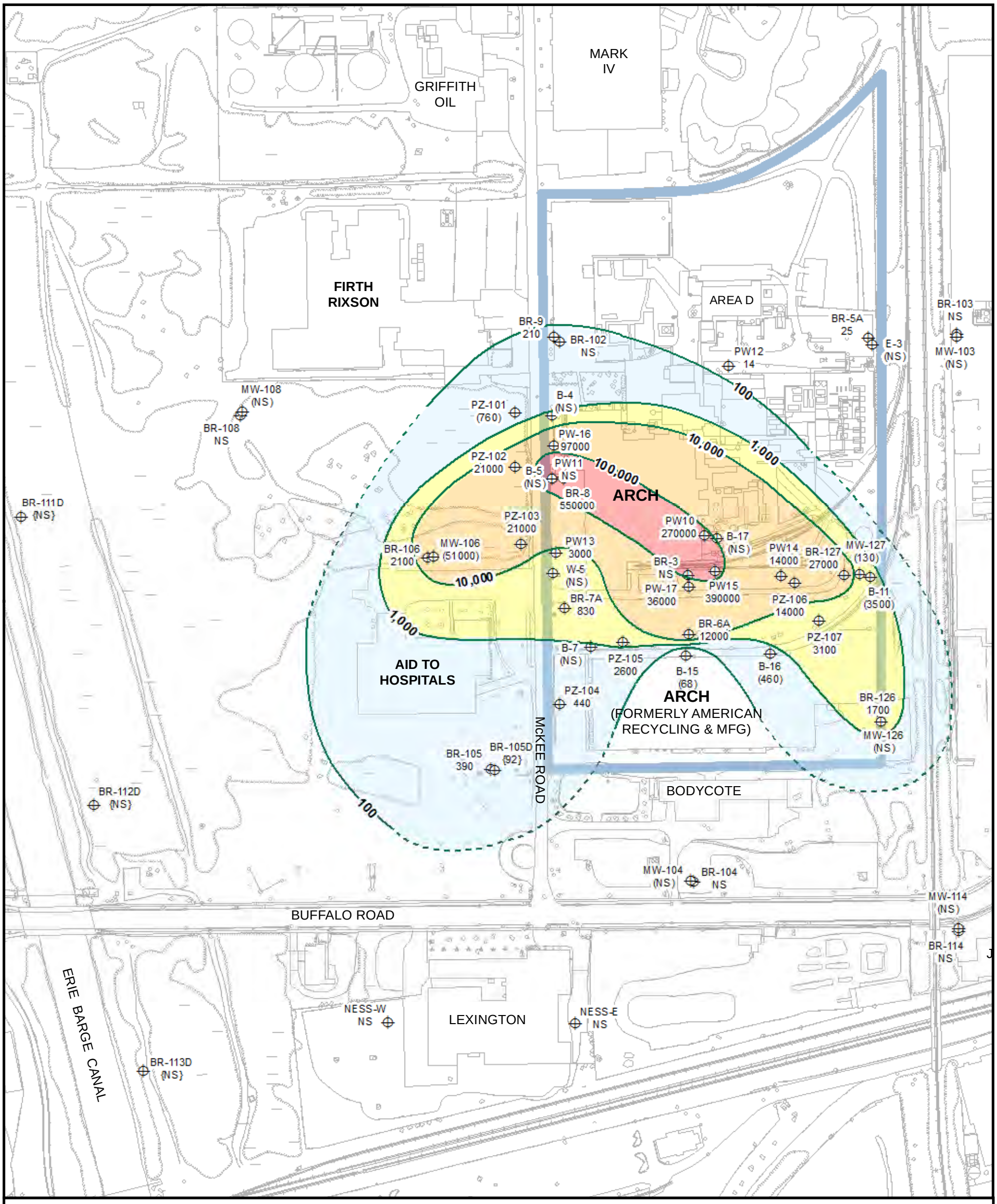
(***Not to Scale***)

FIGURE 7

SAMPLE LOCATIONS
DOLOMITE PRODUCTS
QUARRY

ARCH CHEMICALS
ROCHESTER, NEW YORK

W2004030a.cdr



Legend

- Property Owned by Lonza
- 100 — Chloropyridine Concentration Contour
- BR-105 (700) — Monitoring Location with Concentration

{1000}	Deep Bedrock Well
(1000)	Overburden Well
1000	Bedrock Well
NS	Not Sampled
ND	Not Detected

0 100 200 Feet

N

NOTES:

1. Samples Collected November 8-14, 2016
2. Selected chloropyridines consist of 2,6-dichloropyridine, 2-chloropyridine, 3-chloropyridine, 4-chloropyridine, and P-fluoroaniline.
3. Concentration contours represented for Bedrock Wells and selected Overburden and Deep Bedrock Wells.
4. Dashed concentration contours represent inferences from historical analytical results.
5. Concentrations are in µg/L.

Figure 8
Fall 2016
Selected Chloropyridine Concentration Contours

Arch Chemicals
Rochester, NY

Prepared/Date: JEB 02/02/17 | Checked/Date: NMB 02/02/17

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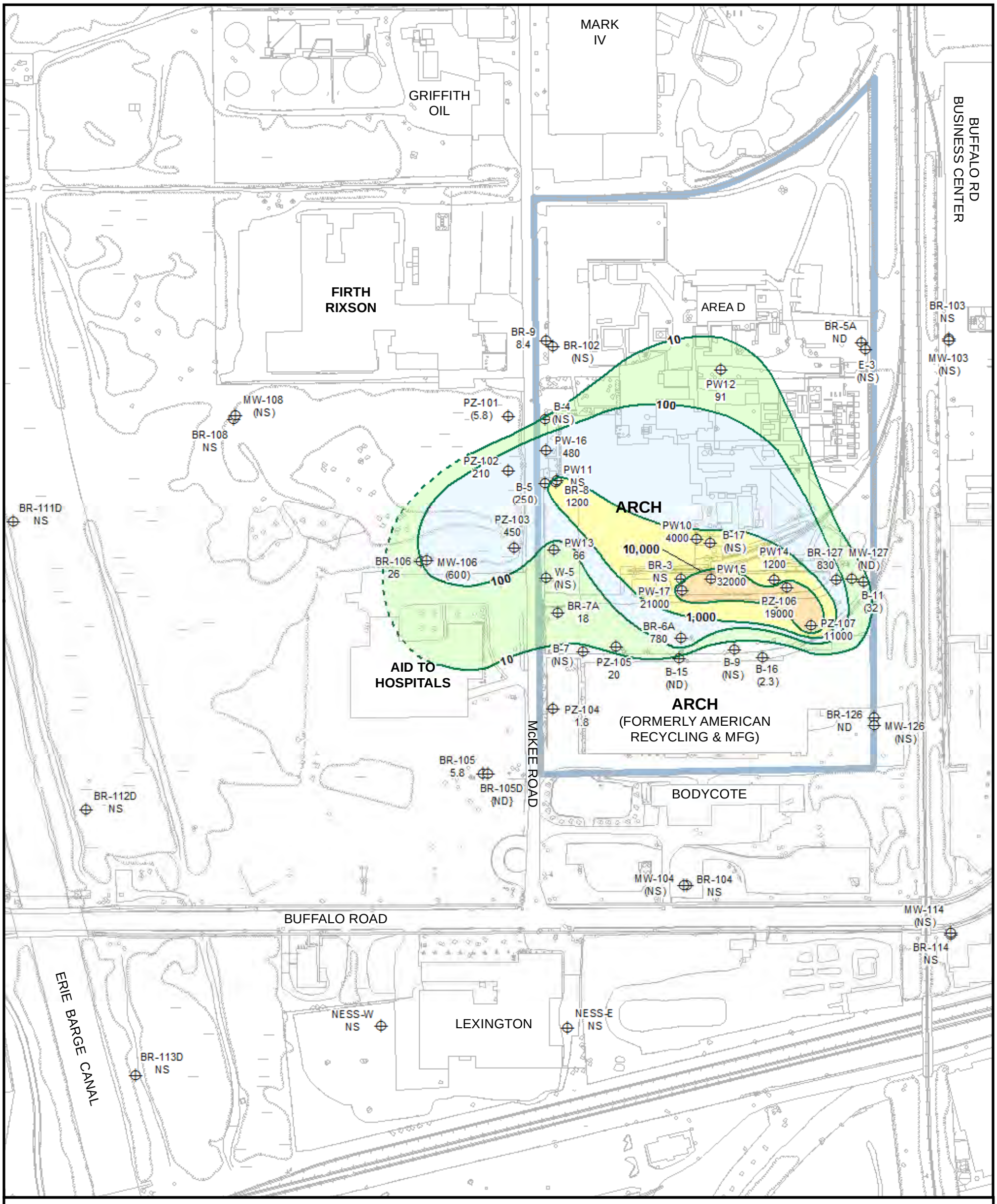

Legend

- Property Owned by Lonza
- 100 — VOC Concentration Contour
- B-17 (2300) — Monitoring Location with Concentration
- {1000} Deep Bedrock Well
- (1000) Overburden Well
- 1000 Bedrock Well
- NS Not Sampled
- ND Not Detected

0 100 200 Feet

N

NOTES:

1. Samples collected in November 8-14, 2016.
2. Selected VOCs consist of carbon tetrachloride, methylene chloride chloroform, chlorobenzene, TCE, and PCE.
3. Concentration contours represented for Bedrock Wells and selected Overburden and Deep Bedrock Wells.
4. Dashed concentration contours represent inferences from historical analytical results.
5. Concentrations are in µg/L.

Figure 9
Fall 2016
Selected Volatile Organic Compound Concentration Contours

Arch Chemicals
Rochester, NY

Prepared/Date: JEB 02/02/17 | Checked/Date: NMB 02/02/17

amec foster wheeler

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Tables

TABLE 1
FALL 2016 GROUNDWATER SAMPLING AND ANALYTICAL PROGRAM

ARCH CHEMICALS, INC
ROCHESTER, NEW YORK

			ANALYSIS	PYRIDINES	VOCs
SITE / AREA	**WELL / POINT**	**DATE**	**QC TYPE**		
AID TO HOSPITALS	BR-106	11/10/2016	Sample	X	X
	MW-106	11/10/2016	Sample	X	X
	PZ-101	11/8/2016	Sample	X	X
	PZ-102	11/8/2016	Sample	X	X
	PZ-103	11/8/2016	Sample	X	X
ARCH ROCHESTER	B-11	11/9/2016	Sample	X	X
	B-15	11/8/2016	Sample	X	X
	B-16	11/8/2016	Sample	X	X
	B-5	11/14/2016	Sample		X
	BR-126	11/8/2016	Sample	X	X
	BR-127	11/10/2016	Sample	X	X
	BR-5A	11/9/2016	Sample	X	X
	BR-6A	11/9/2016	Duplicate	X	X
	BR-6A	11/9/2016	Sample	X	X
	BR-7A	11/14/2016	Duplicate	X	X
	BR-7A	11/14/2016	Sample	X	X
	BR-8	11/14/2016	Sample	X	X
	BR-9	11/8/2016	Sample	X	X
	MW-127	11/10/2016	Sample	X	X
	PW10	11/10/2016	Sample	X	X
	PW12	11/9/2016	Sample	X	X
	PW13	11/8/2016	Sample	X	X
	PW14	11/10/2016	Sample	X	X
	PW15	11/10/2016	Sample	X	X
	PW16	11/14/2016	Sample	X	X
	PW17	11/9/2016	Sample	X	X
	PZ-104	11/11/2016	Sample	X	X
	PZ-105	11/9/2016	Sample	X	X
	PZ-106	11/10/2016	Sample	X	X
	PZ-107	11/9/2016	Sample	X	X
DOLOMITE PRODUCTS, INC.	QD-1	11/11/2016	Sample	X	
	QO-2	11/11/2016	Sample	X	
	QS-4	11/11/2016	Sample	X	
ERIE BARGE CANAL	QO-2S1	11/11/2016	Sample	X	
RG & E RIGHT OF WAY	BR-105	11/11/2016	Sample	X	X
	BR-105D	11/11/2016	Sample	X	X

TABLE 2
FALL 2016 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11		B-15		B-16		BR-105		BR-105D		BR-106		BR-126		BR-127		BR-5A		BR-6A		BR-6A	
SAMPLE DATE:	11/9/2016		11/8/2016		11/8/2016		11/11/2016		11/11/2016		11/10/2016		11/8/2016		11/10/2016		11/9/2016		11/9/2016		11/9/2016	
QC TYPE:	Sample		Sample		Sample		Sample		Sample		Sample		Sample		Sample		Sample		Duplicate		Sample	
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)																						
2,6-Dichloropyridine	301		57.1	J	160	J	115		13.1		254		239		1160	J	24.6		1580		1920	J
2-Chloropyridine	3,160		11	J	299	J	279		72		1,870		1,500		25,900		10	U	9,120		10,400	
3-Chloropyridine	200	U	10	UJ	50	UJ	20	U	6.53	J	100	U	80	U	2000	U	10	U	1000	U	2000	U
4-Chloropyridine	200	U	10	UJ	50	UJ	20	U	10	U	100	U	80	U	2000	U	10	U	1000	U	2000	U
p-Fluoroaniline	200	U	10	UJ	50	UJ	20	UJ	10	UJ	100	U	80	U	2000	U	10	U	1000	U	2000	U
Pyridine	200	UJ	10	UJ	50	UJ	20	UJ	10	UJ	100	UJ	80	UJ	2000	UJ	10	UJ	1000	UJ	2000	UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 2
FALL 2016 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-7A		BR-7A		BR-8		BR-9		MW-106		MW-127		PW10		PW12		PW13		PW14		PW15	
SAMPLE DATE:	11/14/2016		11/14/2016		11/14/2016		11/8/2016		11/10/2016		11/10/2016		11/10/2016		11/9/2016		11/8/2016		11/10/2016		11/10/2016	
QC TYPE:	Duplicate		Sample		Sample		Sample		Sample		Sample		Sample		Sample		Sample		Sample		Sample	
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)																						
2,6-Dichloropyridine	130		124	J	30300	J	19.3	J	5480		77.2		20000	U	6.21	J	2000	U	2000	U	13600	J
2-Chloropyridine	675		701	J	519,000		194	J	46,000		47		230,000		7	J	3,020		13,700		366,000	
3-Chloropyridine	50	U	50	UJ	50000	U	20	UJ	5000	U	40	U	24500		10	U	2000	U	2000	U	20000	U
4-Chloropyridine	50	U	50	UJ	50000	U	20	UJ	5000	U	40	U	20000	U	10	U	2000	U	2000	U	20000	U
p-Fluoroaniline	50	U	50	UJ	50000	U	20	UJ	5000	U	40	U	20000	U	10	U	2000	U	2000	U	20000	U
Pyridine	50	UJ	50	UJ	50000	UJ	20	UJ	5000	UJ	40	UJ	18400	J	10	UJ	2000	UJ	2000	UJ	13800	J

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 2
FALL 2016 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW16		PW17		PZ-101		PZ-102		PZ-103		PZ-104		PZ-105		PZ-106		PZ-107	
SAMPLE DATE:	11/14/2016		11/9/2016		11/8/2016		11/8/2016		11/8/2016		11/11/2016		11/9/2016		11/10/2016		11/9/2016	
QC TYPE:	Sample		Sample		Sample		Sample		Sample		Sample		Sample		Sample		Sample	
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)																		
2,6-Dichloropyridine	8000	U	2190	J	57.4	J	2740		5130		118		397		803	J	386	
2-Chloropyridine	97,300		33,700		704		18,500		16,100		322		2,250		13,600		2,730	
3-Chloropyridine	8000	U	4000	U	100	U	1000	U	1000	U	20	U	200	U	1000	U	200	U
4-Chloropyridine	8000	U	4000	U	100	U	1000	U	1000	U	20	U	200	U	1000	U	200	U
p-Fluoroaniline	8000	U	4000	U	100	U	1000	U	1000	U	20	UJ	200	U	1000	U	200	U
Pyridine	8000	UJ	4000	UJ	100	UJ	1000	UJ	1000	UJ	20	UJ	200	UJ	1000	UJ	200	UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11	B-15	B-16	B-5	BR-105	BR-105D	BR-106	BR-126	BR-127	BR-5A
SAMPLE DATE:	11/9/2016	11/8/2016	11/8/2016	11/14/2016	11/11/2016	11/11/2016	11/10/2016	11/8/2016	11/10/2016	11/9/2016
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
1,1,1-Trichloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,1,2,2-Tetrachloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,1,2-Trichloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,1-Dichloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,1-Dichloroethene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,2,3-Trichlorobenzene	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	25 U	5 U
1,2,4-Trichlorobenzene	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	25 U	5 U
1,2-Dibromo-3-chloropropane	10 U	10 U	10 U	200 U	10 U	10 U	10 U	10 U	50 U	10 U
1,2-Dibromoethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,2-Dichlorobenzene	2 U	2 U	1.1 J	82.4	2.88	2 U	5.99	2 U	6.61 J	2 U
1,2-Dichloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,2-Dichloropropane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
1,3-Dichlorobenzene	2 U	2 U	2 U	45	2 U	2 U	2 U	2 U	6.5 J	2 U
1,4-Dichlorobenzene	2 U	2 U	1.73 J	56.4	2 U	2 U	2 U	2 U	10.9	2 U
1,4-Dioxane	20 U	20 U	20 U	400 U	20 U	20 U	20 U	20 U	100 U	20 U
2-Butanone	18.1	10.5	10 U	200 U	10 U	10 U	10 U	5.17 J	50 U	10 U
2-Hexanone	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	25 U	5 U
4-Methyl-2-pentanone	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	25 U	5 U
Acetic acid, methyl ester	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Acetone	128	151	10 U	101 J	10 U	10 U	10 U	11.3	50 U	10 U
Benzene	0.588 J	1 U	0.521 J	20 U	0.833 J	4.93	2.01	2.59	5.89	1 U
Bromochloromethane	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	25 U	5 U
Bromodichloromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Bromoform	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	25 U	5 U
Bromomethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Carbon disulfide	2 U	2 U	2 U	40 U	2 U	1.98 J	2 U	2 U	84.7	2 U
Carbon tetrachloride	5.9	2 U	2 U	40 U	2 U	2 U	2 U	2 U	35.6	2 U
Chlorobenzene	1.41 J	2 U	2.32	247	5.75	2 U	25.5	2 U	8.48 J	2 U
Chloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Chloroform	24.2	2 U	2 U	40 U	2 U	2 U	2 U	2 U	722	2 U
Chloromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Cis-1,2-Dichloroethene	2 U	2 U	2 U	40 U	2.68	5.54	2 U	2 U	5.09 J	2 U
Cis-1,3-Dichloropropene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Cyclohexane	10 U	10 U	10 U	200 U	10 U	17	10 U	10 U	50 U	10 U
Dibromochloromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Dichlorodifluoromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Ethylbenzene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Isopropylbenzene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11	B-15	B-16	B-5	BR-105	BR-105D	BR-106	BR-126	BR-127	BR-5A
SAMPLE DATE:	11/9/2016	11/8/2016	11/8/2016	11/14/2016	11/11/2016	11/11/2016	11/10/2016	11/8/2016	11/10/2016	11/9/2016
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
Methyl cyclohexane	2 U	2 U	2 U	40 U	2 U	12.7	2 U	2 U	10 U	2 U
Methyl Tertbutyl Ether	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Methylene chloride	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	18.3 J	5 U
Styrene	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 U	25 U	5 U
Tetrachloroethene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	28.9	2 U
Toluene	2 U	2 U	2 U	448	2 U	2 U	2 U	2 U	11.3	2 U
trans-1,2-Dichloroethene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
trans-1,3-Dichloropropene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Trichloroethene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	12	2 U
Trichlorofluoromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Vinyl chloride	2 U	2 U	2 U	40 U	4.17	2 U	2 U	2 U	6.08 J	2 U
Xylene, o	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U
Xylenes (m&p)	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 U	10 U	2 U

Notes:
U = Compound not detected; value
represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-6A	BR-6A	BR-7A	BR-7A	BR-8	BR-9	MW-106	MW-127	PW10	PW12
SAMPLE DATE:	11/9/2016	11/9/2016	11/14/2016	11/14/2016	11/14/2016	11/8/2016	11/10/2016	11/10/2016	11/10/2016	11/9/2016
QC TYPE:	Duplicate	Sample	Duplicate	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
1,1,1-Trichloroethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
1,1,2,2-Tetrachloroethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2 UJ	10 UJ	5.28	5.15	50 U	29	10 UJ	2 U	50 U	20 U
1,1,2-Trichloroethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
1,1-Dichloroethane	2 UJ	10 UJ	2.64	2.75	50 U	4.2	10 UJ	2 U	50 U	20 U
1,1-Dichloroethene	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
1,2,3-Trichlorobenzene	5 UJ	25 UJ	5 U	5 U	125 U	5 U	25 UJ	5 U	121 J	40 J
1,2,4-Trichlorobenzene	5 UJ	25 UJ	5 U	5 U	125 U	5 U	25 UJ	5 U	431	493
1,2-Dibromo-3-chloropropane	10 UJ	50 UJ	10 U	10 U	250 U	10 U	50 UJ	10 U	250 U	100 U
1,2-Dibromoethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
1,2-Dichlorobenzene	2 UJ	10 UJ	8	8.5	288	2.37	172 J	2 U	50 U	23.7
1,2-Dichloroethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
1,2-Dichloropropane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
1,3-Dichlorobenzene	2 UJ	10 UJ	2.15	2.28	137	2 U	6.09 J	2 U	33.8 J	53
1,4-Dichlorobenzene	2 UJ	10 UJ	1.82 J	2.06	321	2 U	12.3 J	2 U	38.8 J	45.3
1,4-Dioxane	20 UJ	100 UJ	20 U	20 U	500 U	20 U	100 UJ	20 U	500 U	200 U
2-Butanone	10 UJ	50 UJ	10 U	10 U	250 U	10 U	50 UJ	10 U	250 U	100 U
2-Hexanone	5 UJ	25 UJ	5 U	5 U	125 U	5 U	25 UJ	5 U	125 U	50 U
4-Methyl-2-pentanone	5 UJ	25 UJ	5 U	5 U	125 U	5 U	25 UJ	5 U	125 U	50 U
Acetic acid, methyl ester	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Acetone	10 UJ	50 UJ	10 U	10 U	250 U	10 U	50 UJ	10 U	250 U	100 U
Benzene	1.88 J	6.38 J	4.13	4.25	24.3 J	43	29.4 J	1 U	18.4 J	10 U
Bromochloromethane	5 UJ	25 UJ	5 U	5 U	125 U	5 U	25 UJ	5 U	125 U	50 U
Bromodichloromethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Bromoform	5 UJ	25 UJ	5 U	5 U	125 U	5 U	25 UJ	5 U	1270	50 U
Bromomethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Carbon disulfide	2.03 J	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	312	20 U
Carbon tetrachloride	2 UJ	10 UJ	1.88 J	1.9 J	50 U	2 U	10 UJ	2 U	1930	20 U
Chlorobenzene	6.1 J	17.1 J	13.8	14.1	1230	4.16	597 J	2 U	89.2	64.4
Chloroethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Chloroform	48.5 J	185 J	1.53 J	1.56 J	50 U	4.16	10 UJ	2 U	1120	20 U
Chloromethane	1.57 J	11.8 J	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Cis-1,2-Dichloroethene	2.93 J	12 J	3.86	3.88	50 U	62.7	10 UJ	2 U	50 U	20 U
Cis-1,3-Dichloropropene	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Cyclohexane	10 UJ	50 UJ	10 U	10 U	250 U	22.6	50 UJ	10 U	250 U	100 U
Dibromochloromethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	64.4	20 U
Dichlorodifluoromethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Ethylbenzene	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Isopropylbenzene	2 UJ	10 UJ	2 U	2 U	50 U	2.72	10 UJ	2 U	50 U	20 U

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-6A	BR-6A	BR-7A	BR-7A	BR-8	BR-9	MW-106	MW-127	PW10	PW12
SAMPLE DATE:	11/9/2016	11/9/2016	11/14/2016	11/14/2016	11/14/2016	11/8/2016	11/10/2016	11/10/2016	11/10/2016	11/9/2016
QC TYPE:	Duplicate	Sample	Duplicate	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
Methyl cyclohexane	2 UJ	10 UJ	2 U	2 U	50 U	9.79	10 UJ	2 U	50 U	20 U
Methyl Tertbutyl Ether	2 UJ	10 UJ	2.52	2.54	50 U	2 U	10 UJ	2 U	50 U	20 U
Methylene chloride	58 J	556 J	5 U	5 U	125 U	5 U	25 UJ	5 U	125 U	50 U
Styrene	5 UJ	25 UJ	5 U	5 U	125 U	5 U	25 UJ	5 U	125 U	50 U
Tetrachloroethene	2 UJ	5.12 J	2 U	2 U	50 U	2 U	10 UJ	2 U	837	26.5
Toluene	23.5 J	75.7 J	2 U	2 U	54.7	2 U	10 UJ	2 U	144	21.2
trans-1,2-Dichloroethene	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
trans-1,3-Dichloropropene	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Trichloroethene	4.27 J	14.4 J	2 U	2 U	50 U	2 U	10 UJ	2 U	26.4 J	20 U
Trichlorofluoromethane	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	20 U
Vinyl chloride	22.3 J	92.4 J	8.4	8.83	50 U	48.4	10 UJ	2 U	50 U	20 U
Xylene, o	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	13.7 J
Xylenes (m&p)	2 UJ	10 UJ	2 U	2 U	50 U	2 U	10 UJ	2 U	50 U	18.7 J

Notes:
U = Compound not detected; value
represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW13	PW14	PW15	PW16	PW17	PZ-101	PZ-102	PZ-103	PZ-104	PZ-105
SAMPLE DATE:	11/8/2016	11/10/2016	11/10/2016	11/14/2016	11/9/2016	11/8/2016	11/8/2016	11/8/2016	11/11/2016	11/9/2016
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
1,1,1-Trichloroethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,1,2,2-Tetrachloroethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,1,2-Trichloro-1,2,2-Trifluoroethane	5.81	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,1,2-Trichloroethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,1-Dichloroethane	2.8 J	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,1-Dichloroethene	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,2,3-Trichlorobenzene	12.5 U	50 U	500 U	25 U	500 U	5 U	10 UJ	25 U	5 U	5 UJ
1,2,4-Trichlorobenzene	12.5 U	50 U	500 U	25 U	500 U	5 U	10 UJ	25 U	5 U	5 UJ
1,2-Dibromo-3-chloropropane	25 U	100 U	1000 U	50 U	1000 U	10 U	20 UJ	50 U	10 U	10 UJ
1,2-Dibromoethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,2-Dichlorobenzene	33.6	20 U	200 U	350	200 U	2 U	61.8 J	230	2 U	1.79 J
1,2-Dichloroethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,2-Dichloropropane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
1,3-Dichlorobenzene	7.23	20 U	200 U	69.1	200 U	2 U	10.5 J	83.4	2 U	2 UJ
1,4-Dichlorobenzene	9	20 U	200 U	107	200 U	2 U	10.2 J	56.9	2 U	2 UJ
1,4-Dioxane	50 U	200 U	2000 U	100 U	2000 U	20 U	40 UJ	100 U	20 U	20 UJ
2-Butanone	25 U	100 U	1000 U	50 U	1000 U	10 U	20 UJ	50 U	10 U	10 UJ
2-Hexanone	12.5 U	50 U	500 U	25 U	500 U	5 U	10 UJ	25 U	5 U	5 UJ
4-Methyl-2-pentanone	12.5 U	50 U	500 U	25 U	500 U	5 U	10 UJ	25 U	5 U	5 UJ
Acetic acid, methyl ester	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Acetone	25 U	100 U	1000 U	50 U	1000 U	10 U	20 UJ	50 U	10 U	10 UJ
Benzene	9.03	10 U	100 U	9.37	100 U	1 U	14.7 J	10.3	0.816 J	4.3 J
Bromochloromethane	12.5 U	50 U	500 U	25 U	500 U	5 U	10 UJ	25 U	5 U	5 UJ
Bromodichloromethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Bromoform	12.5 U	50 U	464 J	25 U	500 U	5 U	10 UJ	25 U	5 U	5 UJ
Bromomethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Carbon disulfide	5 U	21.1	3160	10 U	4350	2 U	4 UJ	10 U	2 U	2 UJ
Carbon tetrachloride	5 U	20 U	17700 J	10 U	1420	2 U	4 UJ	10 U	2 U	2 UJ
Chlorobenzene	66	20 U	140 J	484	200 U	5.76	206 J	454	1.81 J	20.2 J
Chloroethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Chloroform	5 U	1140	11900 J	10 U	14600	2 U	4 UJ	10 U	2 U	2 UJ
Chloromethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Cis-1,2-Dichloroethene	7.88	13.5 J	200 U	10 U	109 J	2 U	4 UJ	10 U	2 U	2 UJ
Cis-1,3-Dichloropropene	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Cyclohexane	25 U	100 U	1000 U	50 U	1000 U	10 U	20 UJ	50 U	10 U	10 UJ
Dibromochloromethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Dichlorodifluoromethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Ethylbenzene	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Isopropylbenzene	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW13	PW14	PW15	PW16	PW17	PZ-101	PZ-102	PZ-103	PZ-104	PZ-105
SAMPLE DATE:	11/8/2016	11/10/2016	11/10/2016	11/14/2016	11/9/2016	11/8/2016	11/8/2016	11/8/2016	11/11/2016	11/9/2016
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
Methyl cyclohexane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Methyl Tertbutyl Ether	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Methylene chloride	12.5 U	52.4	1420	25 U	3120	5 U	10 UJ	25 U	5 U	5 UJ
Styrene	12.5 U	50 U	500 U	25 U	500 U	5 U	10 UJ	25 U	5 U	5 UJ
Tetrachloroethene	5 U	53.2	874	10 U	1780	2 U	4 UJ	10 U	2 U	2 UJ
Toluene	5 U	12.5 J	126 J	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
trans-1,2-Dichloroethene	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
trans-1,3-Dichloropropene	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Trichloroethene	5 U	20 U	200 U	10 U	129 J	2 U	4 UJ	10 U	2 U	2 UJ
Trichlorofluoromethane	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Vinyl chloride	18.4	20 U	200 U	10 U	237	2 U	4 UJ	10 U	2 U	2 UJ
Xylene, o	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ
Xylenes (m&p)	5 U	20 U	200 U	10 U	200 U	2 U	4 UJ	10 U	2 U	2 UJ

Notes:
U = Compound not detected; value
represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-106	PZ-107
SAMPLE DATE:	11/10/2016	11/9/2016
QC TYPE:	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)		
1,1,1-Trichloroethane	200 U	100 U
1,1,2,2-Tetrachloroethane	200 U	100 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	200 U	100 U
1,1,2-Trichloroethane	200 U	100 U
1,1-Dichloroethane	200 U	100 U
1,1-Dichloroethene	200 U	100 U
1,2,3-Trichlorobenzene	500 U	250 U
1,2,4-Trichlorobenzene	500 U	250 U
1,2-Dibromo-3-chloropropane	1000 U	500 U
1,2-Dibromoethane	200 U	100 U
1,2-Dichlorobenzene	200 U	100 U
1,2-Dichloroethane	200 U	100 U
1,2-Dichloropropane	200 U	100 U
1,3-Dichlorobenzene	200 U	100 U
1,4-Dichlorobenzene	200 U	100 U
1,4-Dioxane	2000 U	1000 U
2-Butanone	1000 U	500 U
2-Hexanone	500 U	250 U
4-Methyl-2-pentanone	500 U	250 U
Acetic acid, methyl ester	200 U	100 U
Acetone	1000 U	500 U
Benzene	100 U	50 U
Bromochloromethane	500 U	250 U
Bromodichloromethane	200 U	100 U
Bromoform	500 U	250 U
Bromomethane	200 U	100 U
Carbon disulfide	1110	100 U
Carbon tetrachloride	1010	928
Chlorobenzene	200 U	100 U
Chloroethane	200 U	100 U
Chloroform	17000	7240
Chloromethane	200 U	100 U
Cis-1,2-Dichloroethene	200 U	100 U
Cis-1,3-Dichloropropene	200 U	100 U
Cyclohexane	1000 U	500 U
Dibromochloromethane	200 U	100 U
Dichlorodifluoromethane	200 U	100 U
Ethylbenzene	200 U	100 U
Isopropylbenzene	200 U	100 U

TABLE 3
FALL 2016 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-106	PZ-107
SAMPLE DATE:	11/10/2016	11/9/2016
QC TYPE:	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)		
Methyl cyclohexane	200 U	100 U
Methyl Tertbutyl Ether	200 U	100 U
Methylene chloride	1080	2130
Styrene	500 U	250 U
Tetrachloroethene	340	256
Toluene	200 U	100 U
trans-1,2-Dichloroethene	200 U	100 U
trans-1,3-Dichloropropene	200 U	100 U
Trichloroethene	200 U	100 U
Trichlorofluoromethane	200 U	100 U
Vinyl chloride	200 U	100 U
Xylene, o	200 U	100 U
Xylenes (m&p)	200 U	100 U

Notes:
U = Compound not detected; value
represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 4
COMPARISON OF FALL 2016
CHLOROPYRIDINES AND VOLATILE ORGANICS CONCENTRATIONS
IN GROUNDWATER TO PREVIOUS RESULTS (ug/L)

ARCH ROCHESTER
SEMI-ANNUAL GROUNDWATER MONITORING REPORT

WELL	SELECTED CHLOROPYRIDINES				SELECTED VOCs			
	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV 2016 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV 2016 RESULT
ON-SITE WELLS/LOCATIONS								
B-11	7	4,800	1300	**3,500**	7	570	20	**32**
B-15	5	13,000	120	68	5	1,600	0.12	ND
B-16	10	33,000	790	460	10	4,500	4	2.3
B-17	8	28,000,000	300,000		8	350,000	4,100	
B-4	3	740	21		3	42	7	
B-5	5	360,000	140,000		5	670	210	**250**
B-7	5	9,100	240		5	270	22	
BR-126	9	12,000	1,400	**1,700**	9	240	1.9	ND
BR-127	11	44,000	9,300	**27,000**	11	1,300	79	**830**
BR-3	5	6,500,000	21,000		5	930,000	27,000	
BR-5A	10	1,700	88	25	10	9,400	9.4	ND
BR-6A	11	140,000	19,000	12,000	11	69,000	3,800	780
BR-7A	10	510,000	8,700	830	10	5,600	280	18
BR-8	7	370,000	220,000	**550,000**	7	7,800	830	**1,200**
BR-9	10	1,300	210	210	10	210	12	8
E-3	5	600	19		5	15,000	0.16	
MW-127	11	15,000	1,300	120	11	7,500	56	ND
PW10	11	500,000	170,000	**270,000**	11	120,000	1,200	**4,000**
PW12	10	15,000	290	13	10	120,000	6,500	91
PW13	10	94,000	15,000	3,000	10	1,800	380	66
PW14	11	44,000	3,800	**14,000**	11	160,000	9,100	1,200
PW15	10	380,000	100,000	**390,000**	10	28,000	6,500	**32,000**
PW16	10	80,000	39,000	**97,000**	10	1,200	670	480
PW17	6	63,000	19,000	**36,000**	6	66,000	35,000	21,000
PZ-104	10	9,100	730	440	10	52	3.7	1.8
PZ-105	10	190,000	5,900	2,600	10	9,900	36	20
PZ-106	11	290,000	11,000	**14,000**	11	1,400,000	150,000	19,000
PZ-107	11	31,000	3,900	3,100	11	130,000	12,000	11,000
W-5	2	450,000	ND		2	2,500	8.7	
OFF-SITE WELLS/LOCATIONS								
BR-103	5	400	2.6		5	46	ND	
BR-104	4	3,100	1.9			11		
BR-105	10	24,000	960	390	10	350	9.1	5.8
BR-105D	10	17,000	360	92	10	230	2.9	ND
BR-106	11	34,000	14,000	2,100	11	12,000	170	26
BR-108	5	1,700	12			2		
BR-112D	5	310	23			4.3		
BR-113D	5	490	11			2.8		
BR-114	5	520	8		5	12	0.2	
BR-116	4	12	ND			86		
BR-116D	4	710	13			130		
BR-117D	5	80	2.8			1.9		
BR-118D	5	330	21			6.6		
BR-122D	5	650	28			ND		

TABLE 4
COMPARISON OF FALL 2016
CHLOROPYRIDINES AND VOLATILE ORGANICS CONCENTRATIONS
IN GROUNDWATER TO PREVIOUS RESULTS (ug/L)

ARCH ROCHESTER
SEMI-ANNUAL GROUNDWATER MONITORING REPORT

WELL	SELECTED CHLOROPYRIDINES				SELECTED VOCs			
	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV 2016 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV 2016 RESULT
BR-123D	5	860	40			7		
MW-103	5	97	ND		5	750	ND	
MW-104	4	180	2			5.8		
MW-106	11	130,000	29,000	**51,000**	11	4,000	360	**600**
MW-114	5	18	1		5	27	16	
MW-16	5	360	11			10		
NESS-E	4	5,000	78			710		
NESS-W	4	6,300	ND			94		
PZ-101	10	27,000	74	**760**	10	620	2.3	**5.8**
PZ-102	11	210,000	55,000	21,000	11	11,000	560	210
PZ-103	10	230,000	69,000	21,000	10	46,000	1,100	450
QD-1	10	11	3.1	ND		ND		
QO-2	10	380	4.6	ND		ND		
QO-2S1	10	27	ND	ND		ND		
QS-4	10	13,000	110	33		ND		

Note:
1) Number of samples and mean reflect 5-year sampling period from November 2011 through May 2016. Historic maximum based on all available results from March 1990 through May 2016.
2) Chloropyridines represented by: 2-Chloropyridine, 2,6-Dichloropyridine, 3-Chloropyridine, 4-Chloropyridine, p-Fluoroaniline, and Pyridine.
3) Selected VOCs represented by Carbon Tetrachloride, Chlorobenzene, Chloroform, Methylene Chloride, Tetrachloroethene, and Trichloroethene.
4) **Bold and shade** - November 2016 exceeds 5-year mean.
5) ND = Not detected
BLANK = Not sampled

TABLE 5
FALL 2016 QUARRY SEEP AND OUTFALL WATER SAMPLE RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	QD-1	QD-2	QO-2S1	QS-4
SAMPLE DATE:	11/11/2016	11/11/2016	11/11/2016	11/11/2016
QC TYPE:	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)				
2,6-Dichloropyridine	10 U	10 U	10 U	19.8
2-Chloropyridine	10 U	10 U	10 U	13.2
3-Chloropyridine	10 U	10 U	10 U	10 U
4-Chloropyridine	10 U	10 U	10 U	10 U
p-Fluoroaniline	10 UJ	10 UJ	10 UJ	10 UJ
Pyridine	10 UJ	10 UJ	10 UJ	10 UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
µg/L = micrograms per Liter

TABLE 6
EXTRACTION WELL WEEKLY FLOW MEASUREMENTS - JUNE 2016 THROUGH NOVEMBER 2016

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

Week Ending	BR-7A [Gal./Wk.]	BR-9 [Gal./Wk.]	PW-13 [Gal./Wk.]	PW-15 [Gal./Wk.]	PW-16 [Gal./Wk.]	PW-17 [Gal./Wk.]	BR-127 [Gal./Wk.]	Total [Gal.]
Jun '16								
06/05/16	90,605	78,736	82,759	6,389	40,157	1,706	44,349	344,701
06/12/16	90,133	80,691	82,963	22,156	38,406	1,488	47,584	363,421
06/19/16	115,789	80,074	62,357	4,605	26,831	1,574	36,219	327,449
06/26/16	116,639	82,498	57,544	13,973	57,025	1,464	44,142	373,284
							Total [Gal.]	1,408,855
Jul '16								
07/03/16	111,401	78,869	45,762	15,884	74,193	1,388	49,637	377,133
07/10/16	113,836	84,819	37,099	13,615	78,123	1,432	53,209	382,133
07/17/16	117,378	84,390	36,596	11,734	73,388	1,481	55,632	380,599
07/24/16	116,276	84,475	39,922	5,755	70,868	1,499	54,238	373,032
07/31/16	119,985	87,491	39,332	14,415	75,497	1,279	56,307	394,306
							Total [Gal.]	1,907,203
Aug '16								
08/07/16	114,738	74,654	30,512	4,568	64,551	1,242	41,624	331,889
08/14/16	166,442	85,951	12,691	469	67,995	1,246	64,208	399,002
08/21/16	55,764	89,129	78,053	64	58,098	1,124	39,618	321,850
08/28/16	99,889	87,958	57,623	13,234	58,116	899	56,618	374,338
							Total [Gal.]	1,427,080
Sep '16								
09/04/16	66,018	33,558	12,101	11,986	35,487	871	57,538	217,559
09/11/16	195,953	81,298	83	3,645	88,319	850	67,210	437,358
09/18/16	176,068	81,226	31,185	1,666	67,441	758	49,966	408,311
09/25/16	77,146	75,325	98,289	1,735	32,815	736	47,368	333,414
							Total [Gal.]	1,396,642
Oct '16								
10/02/16	145,567	78,661	69,498	1,272	22,725	708	19,031	337,462
10/09/16	172,063	80,371	43,399	0	71,478	653	20,125	388,089
10/16/16	163,895	83,211	49,853	3,686	67,498	612	12,682	381,437
10/23/16	150,833	76,823	47,432	12,997	63,095	555	28,100	379,835
10/30/16	152,042	79,511	65,314	13,663	68,070	554	78,723	457,877
							Total [Gal.]	1,944,699
Nov '16								
11/06/16	130,953	73,251	54,835	11,620	62,303	569	36,553	370,084
11/13/16	156,576	86,746	62,786	10,044	70,702	525	49,379	436,758
11/20/16	136,426	84,601	62,599	10,243	63,342	492	37,664	395,367
11/27/16	134,263	85,203	55,085	10,094	67,794	515	18,760	371,714
							Total [Gal.]	1,573,923
Total 6 Mo. Removal (Gal.)	3,286,678	2,079,520	1,315,672	219,512	1,564,317	26,221	1,166,482	9,658,402

TABLE 7

MASS REMOVAL SUMMARY
PERIOD: JUNE 2016 THROUGH NOVEMBER 2016

ARCH ROCHESTER
FALL 2016 GROUNDWATER MONITORING REPORT

Well	Total Vol. Pumped (gallons)	Avg. VOC Conc. (ppm)	Avg. PYR. Conc. (ppm)	VOCs Removed (pounds)	PYR. Removed (pounds)
BR-7A	3,287,000	0.02	1	0.7	39
BR-9	2,080,000	0.007	0.13	0.12	2.3
PW-13	1,316,000	0.09	6	0.96	69
PW-15	220,000	30.1	283	55	519
PW-16	1,564,000	0.51	85	6.7	1103
PW-17	26,000	19	22.9	4	5
BR-127	1,166,000	0.42	14.5	4.0	141
Totals:	9,659,000			72	1,879

Notes: VOC and pyridine concentrations used in this table are an average of the analytical results from the Spring 2016 and Fall 2016 sampling events for each well;
Total select VOCs include chlorobenzene, PCE, TCE, methylene chloride, carbon tetrachloride, and chloroform

TABLE 8
2017 SAMPLING SCHEDULE
ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

ARCH ROCHESTER						**2017**					
MONITORING PROGRAM						**SPRING**		**FALL**		**TOTAL**	
	Well	***zone***	***area***	***Frequency/Parameters***	***Purpose***	***Pyridines***	***VOCs***	***Pyridines***	***VOCs***	***Pyridines***	***VOCs***
OFF-SITE	BR-105	BR	AID-HOSP	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
MONITORING	BR-105D	BR deep	AID-HOSP	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	MW-106	OB	AID-HOSP	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	BR-106	BR	AID-HOSP	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	BR-112D	BR deep	NYSDOT	annual monitoring, PYR	trend monitoring	1				1	0
	BR-113D	BR deep	NYSDOT	annual monitoring, PYR	trend monitoring	1				1	0
	MW-114	OB	JACKSON	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	BR-114	BR	JACKSON	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	BR-117D	BR deep	QUARRY	annual monitoring, PYR	trend monitoring	1				1	0
	BR-118D	BR deep	QUARRY	annual monitoring, PYR	trend monitoring	1				1	0
	BR-122D	BR deep	QUARRY	annual monitoring, PYR	trend monitoring	1				1	0
	BR-123D	BR deep	QUARRY	annual monitoring, PYR	trend monitoring	1				1	0
	PZ-101	BR	McKee Rd	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	PZ-102	BR	McKee Rd	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	PZ-103	BR	McKee Rd	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
ON-SITE	PZ-104	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
MONITORING	PZ-105	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	PZ-106	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	PZ-107	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	BR-126	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	BR-127	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	BR-3	BR	ON-SITE	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	BR-8	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	BR-9	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	BR-5A	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	BR-6A	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	BR-7A	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	B-16	OB	ON-SITE	semi-annual monitoring, VOCs & PYR	continue until replaced by trench	1	1	1	1	2	2
	B-17	OB	ON-SITE	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	B-7	OB	ON-SITE	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	B-11	OB	ON-SITE	semi-annual monitoring, VOCs & PYR	continue until replaced by trench	1	1	1	1	2	2
	B-15	OB	ON-SITE	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	E-3	OB	ON-SITE	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	MW-127	OB	ON-SITE	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	PW10	OB/BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	PW12	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	PW13	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	PW14	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	PW15	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	PW16	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
	PW17	pumping well	ON-SITE	semi-annual monitoring, VOCs & PYR	mass removal/trend monitoring	1	1	1	1	2	2
QUARRY/CANAL	QS-4	quarry seep	QUARRY	semi-annual monitoring, PYR	trend monitoring	1		1		2	0
MONITORING	QD-1	quarry ditch	DITCH	semi-annual monitoring, PYR	trend monitoring	1		1		2	0
	QO-2	quarry outfall	DITCH	semi-annual monitoring, PYR	trend monitoring	1		1		2	0
	QO-2S1	canal at outfall	CANAL	semi-annual monitoring, PYR	surface water monitoring	1		1		2	0
TOTAL SAMPLES						45	35	33	29	78	64

Appendix A

Groundwater Field Sampling Data Sheets

FIELD REPORT

REMEDIAL INVESTIGATION SAMPLING
LONZA CHEMICAL
ROCHESTER, NEW YORK

Fall 2016 Event

Matrix Environmental Project #04-029

PREPARED FOR:

Lonza
100 McKee Road
Rochester, NY 14611

PREPARED BY:

MATRIX
ENVIRONMENTAL TECHNOLOGIES INC.
3730 California Road
Orchard Park, New York 14127

Written by: David Kreinheder

Reviewed by: Steven L. Marchetti

Date: January 19, 2017

TABLE OF CONTENTS

1.0 INTRODUCTION

This report describes the sampling of the following points:

- 42 groundwater samples
- Two quarry outfall samples
- One quarry seep sample
- One canal at outfall sample

These activities were in support of the Phase II Remediation Investigation being conducted at the Lonza Chemical facility in Rochester, New York. Static water levels in the groundwater wells were recorded on November 7, 2016 by Matrix Environmental Technologies Inc. (METI) field personnel. The samples were collected from November 8 through November 14, 2016.

2.0 METHODOLOGIES

2.1 Water Level Measurements

Static water levels in all groundwater wells were measured from the top of the well casing/riser with an electronic water level indicator. Well bottoms were sounded with the weighted steel measuring tape. Measurements were recorded to the nearest hundredth of a foot (0.01 feet). The length of the measuring device which contacted the water was cleaned between the wells with a deionized water rinse and paper towel wipe. These data are presented on Sampling Summary Table and Field Observation forms attached.

2.2 Well Purging

Monitoring wells were evacuated prior to sampling employing one of the following methods:

1. Purging three times the standing water volume using pre-cleaned or dedicated 1.25" x 5' stainless steel bailers, 2" x 5' polyvinyl chloride bailers, peristaltic pump or QED low-flow bladder pumps.

2. Evacuated with the low flow/low stress purging technique using either QED low-flow bladder pumps or a variable rate peristaltic pump.

Wells that were purged of three standing volumes were mainly wells located on or very near the Erie Canal and historically purged with this method prior to sampling. The remaining wells were evacuated with a low flow/low stress purging technique. This technique involves the use of a variable flow rate bladder or peristaltic pump. The pumps were employed to purge the monitoring wells at a flow rate such that drawdown of the water column from static conditions is minimal. Field measurements of pH, specific conductance, temperature, ORP, dissolved oxygen and turbidity are monitored

every 3-5 minutes until stabilization of parameters is realized. Once stabilized has occurred, sampling can be conducted. All purges water was collected into 55-gallon drums for disposal at the on-site wastewater treatment facility. Data pertaining to each evacuation are presented on the Sampling Summary Table and Field Observations forms attached.

2.3 Property Utilities

Surface water samples were collected from one location on the Erie Barge Canal, two outfall samples and one seep location. Sample locations were noted on the Field Forms.

3.0 SAMPLING

3.1 Monitoring Wells

All groundwater wells were sampled using precleaned or dedicated 1.25" x 1.25" x 5' stainless steel bailers, peristaltic pumps or bladder (SamplePro) pumps when low flow purging techniques were used. Each bailer was constructed with Teflon, bottom-filling check valve and was assembled without glues or welds. New ¼" poly rope was attached to each bailer. The bailer was slowly lowered into the water column, minimizing agitation and devolatilization. Low density polyethylene (LDPE) tubing was used with both the bladder (QED) and the peristaltic pumps. The bladder pumps were decontaminated between sample locations in accordance with the work plan. Personnel exercised care in all aspects of the sampling to ensure the collection of a representative sample. An additional sample container was collected from each well in order to facilitate the measurement of field analytical parameters. Data pertaining to sampling are presented on the Sampling Summary Table and the Field Observations Forms.

3.2 Canal Sampling

When possible, samples were collected directly from the canal into appropriate sample containers. Otherwise, samples were collected with the use of a unique, laboratory cleaned stainless steel bailer. The bailers were immersed just below the surface and removed. Sample was poured directly into the appropriate container. An additional container was collected to facilitate the measurement of field parameters. Additional data pertaining to these samples is presented in the Sampling Summary Table and Field Observation Forms.

3.3 Seep Sampling

Groundwater samples were collected from seeps at the quarry (QS4) located on Buffalo Road. The samples were collected with the use of a laboratory cleaned stainless steel bucket and was then poured directly into the appropriate containers. An additional container was collected to facilitate the measurement of field parameters. Data pertaining to this sampling is present in the Sampling Summary Table and Field Observation Forms.

4.0 SAMPLE CONTAINERS

Monitoring wells and surface water samples requiring analysis for volatile organic compounds were collected into 40 ml glass vials with Teflon septa. Samples for semi-volatile and pyridine analysis were collected into one liter amber glass bottles with teflo-lined caps. All bottles were purchased new and cleaned (Protocol A, 300 series) from Paradigm Environmental Services. Each container was labeled with the following information:

- Sample Identification (Well/Point I.D.)
- Date
- Project Number
- Sampler's Initials

5.0 FIELD MEASUREMENTS

On-site field measurements were made of each sample's pH, specific conductance and temperature. Measurements were made in accordance with protocols outlined in Methods for Chemical Analysis of Water and Wastes (EPA – 600/4-79-9020). These data were presented on the Sampling Summary Table and Field Observation Forms.

6.0 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC

6.1 Trip Blanks

Trip blanks were collected with each sample shipment requiring volatile organic compound analysis. Each trip blank consisted of two40 ml glass vials with Teflon septa which were filled with deionized water provided by Paradigm Environmental Services. These blanks were transported to the site, stored with field collected samples and submitted to the Paradigm Environmental Services for analysis.

6.2 Equipment Rinse Blank

Equipment rinse blanks were collected.

7.0 CHAIN OF CUSTODY

Chain of custody was initiated at the time of sample collection and maintained through delivery to Paradigm Environmental Services in Rochester, New York. Copies of these documents are included in the analytical report package.

TABLES

Table 1
Sampling Summary Table
Lonza, Rochester, NY

Sample Location		Zone	Sample Date	Sample Time	Water Level (ft)	Bottom of Well (ft)	pH (STD Units)	Spec. Cond. (mS/cm)	Temp ©	Turb (NTU)	ORP (mv)	DO (ppm)
B-11	On-Site	OB	11/9/2016	11:45	10.24	NM	7.00	4.29	10.42	100	55	9.05
B-15	On-Site	OB	11/8/2016	12:53	10.55	NM	7.07	0.70	16.05	8.5	26	2.99
B-16	Off-Site	OB	11/8/2016	13:38	9.78	NM	7.09	2.74	15.50	1.9	-43	0.93
B-5	On-Site	OB	11/14/2016	9:06	17.10	NM	Not Enough Water to Run Parameters					
BR-105	Off-Site	BR	11/11/2016	9:28	23.33	NM	6.98	3.26	11.44	10.7	3	1.78
BR-105D	Off-Site	BR deep	11/11/2016	9:55	26.63	NM	6.90	37.00	11.97	66.1	-296	1.75
BR-106	Off-Site	BR	11/10/2016	13:45	24.45	NM	6.98	4.67	14.84	5.6	-288	0.87
BR-126	Off-Site	BR	11/8/2016	14:20	10.19	NM	7.54	0.96	17.20	11.2	-163	0.67
BR-127	On-Site	BR	11/10/2016	9:25	9.14	NM	8.39	4.59	7.93	10.1	-148	3.96
BR-5A	On-Site	pumping well	11/9/2016	9:53	3.77	NM	7.96	2.19	10.33	10.1	108	11.78
BR-6A	On-Site	BR	11/9/2016	14:30	14.88	NM	10.08	5.83	14.61	12.7	-443	3.28
BR-7A	On-Site	pumping well	11/14/2016	10:20	25.00	NM	7.43	2.61	14.26	15.9	-106	9.01
BR-8	On-Site	BR	11/14/2016	9:36	16.15	NM	7.65	7.42	9.97	13.8	-142	0.72
BR-9	On-Site	pumping well	11/8/2016	14:50	34.31	NM	7.23	3.51	16.50	6.2	-80	3.41
MW-106	Off-Site	OB	11/10/2016	12:57	14.67	NM	7.03	5.63	13.92	9.2	-204	0.56
MW-127	On-Site	OB	11/10/2016	9:17	9.57	NM	Not Enough Water to Run Parameters					
PW-10	On-Site	pumping well	11/10/2016	8:40	11.18	NM	9.62	96.1	12.87	3.3	-156	0.54
PW-12	On-Site	BR	11/9/2016	8:57	6.91	NM	7.88	0.23	14.34	5.6	12	0.74
PW-13	On-Site	pumping well	11/8/2016	11:15	29.63	NM	7.12	3.78	15.52	6.6	-140	2.75
PW-14	On-Site	pumping well	11/10/2016	10:40	18.62	NM	9.26	4.62	14.41	22.5	-162	5.86
PW-15	On-Site	pumping well	11/10/2016	10:54	16.68	NM	9.80	15.50	14.63	3.8	-219	1.79
PW-16	On-Site	pumping well	11/14/2016	8:20	31.15	NM	7.68	8.78	12.88	58	-101	9.73
PW-17	On-Site	pumping well	11/9/2016	15:45	30.70	NM	7.77	5.78	14.16	70.8	-158	3.29
PZ-101	Off-Site	BR	11/8/2016	8:55	21.49	NM	6.59	5.90	11.78	34.8	30	4.92
PZ-102	Off-Site	BR	11/8/2016	9:22	19.30	NM	7.09	7.70	12.43	3.0	-204	0.96
PZ-103	Off-Site	BR	11/8/2016	10:20	17.56	NM	7.23	5.66	14.12	2.8	-198	0.78
PZ-104	Off-Site	BR	11/11/2016	8:38	14.69	NM	7.07	3.73	12.52	85.5	-126	0.91
PZ-105	On-Site	BR	11/9/2016	15:25	14.82	NM	7.77	1.49	14.10	61	-267	3.14
PZ-106	On-Site	BR	11/10/2016	10:20	12.95	NM	7.56	3.54	11.76	72.8	-248	0.64
PZ-107	On-Site	BR	11/9/2016	13:35	14.22	NM	6.84	2.27	12.18	1.3	-93	0.67
QD-1	Quarry/Canal	quarry ditch	11/11/2016	11:15	NM	NA	8.22	1.83	9.63	6.3	-68	9.72
QO-2	Quarry/Canal	quarry outfall	11/11/2016	12:20	NM	NA	8.36	1.76	9.54	12.6	-45	9.71
QO-2S1	Quarry/Canal	canal at outfall	11/11/2016	12:30	NM	NA	8.23	0.60	9.73	4.3	-25	7.47
QS-4	Quarry/Canal	quarry seep	11/11/2016	10:18	NM	NA	8.44	2.31	8.18	4.7	-159	9.41

Table 2
Groundwater Elevation Report
Lonza, Rochester, NY

Sample Location		Zone	Date	Depth to water	Casing Elevation	GW Elevation	Time	Comments
B-1	On-Site	OB	11/7/2016	8.77	537.75	528.98	8:20	
B-10	On-Site	OB	11/7/2016	11.52	538.80	527.28	14:48	
B-11	On-Site	OB	11/7/2016	7.92	536.00	528.08	9:47	
B-15	On-Site	OB	11/7/2016	7.63	535.29	527.66	11:18	
B-16	Off-Site	OB	11/7/2016	8.80	536.21	527.41	11:19	
B-17	On-Site	OB	11/7/2016	10.44	538.74	528.30	9:36	
B-2	On-Site	OB	11/7/2016	9.88	539.02	529.14	14:30	
B-4	On-Site	OB	11/7/2016	21.13	542.87	521.74	10:10	
B-5	On-Site	OB	11/7/2016	17.31	540.21	522.90	10:14	
B-7	On-Site	OB	11/7/2016	15.54	541.11	525.57	11:11	
B-8	On-Site	OB	11/7/2016	11.36	538.88	Dry	10:04	
BR-1	On-Site	BR	11/7/2016	6.73	537.28	530.55	9:23	
BR-102	On-Site	BR	11/7/2016	23.26	539.43	516.17	8:20	
BR-103	Off-Site	BR	11/7/2016	3.26	533.19	529.93	12:53	
BR-104	Off-Site	BR	11/7/2016	11.05	537.56	526.51	12:42	
BR-105	Off-Site	BR	11/7/2016	26.68	536.90	510.22	8:05	
BR-105D	Off-Site	BR deep	11/7/2016	23.26	536.49	513.23	8:07	
BR-106	Off-Site	BR	11/7/2016	24.58	535.74	511.16	11:41	
BR-108	Off-Site	BR	11/7/2016	27.83	540.58	512.75	11:50	
BR-111	Off-Site	BR	11/7/2016	29.09	540.42	511.33	11:53	
BR-111D	Off-Site	BR	11/7/2016	28.74	540.34	511.60	11:53	
BR-112D	Off-Site	BR deep	11/7/2016	36.33	547.91	511.58	11:58	
BR-113	Off-Site	BR	11/7/2016	31.26	543.02	511.76	14:18	
BR-113D	Off-Site	BR deep	11/7/2016	31.38	542.93	511.55	14:16	
BR-114	Off-Site	BR	11/7/2016	13.43	539.77	526.34	13:02	
BR-116	Off-Site	BR	11/7/2016	29.89	545.38	515.49	13:06	
BR-116D	Off-Site	BR deep	11/7/2016	35.54	545.22	509.68	13:08	
BR-117	Off-Site	BR	11/7/2016	35.09	547.61	512.52	13:59	
BR-117D	Off-Site	BR deep	11/7/2016	48.02	547.16	499.14	13:57	
BR-118	Off-Site	BR	11/7/2016	24.68	547.79	523.11	14:03	
BR-118D	Off-Site	BR deep	11/7/2016	47.43	547.93	500.50	14:01	
BR-122D	Off-Site	BR deep	11/7/2016	45.11	552.34	507.23	13:20	
BR-123D	Off-Site	BR deep	11/7/2016	45.41	553.62	508.21	13:23	
BR-124D	Off-Site	BR deep	11/7/2016	32.83	537.45	504.62	15:50	
BR-126	Off-Site	BR	11/7/2016	10.12	537.90	527.78	11:29	
BR-127	On-Site	BR	11/7/2016	14.07	536.05	521.98	9:44	
BR-2	On-Site	BR	11/7/2016	11.60	538.97	527.37	9:30	
BR-2A	On-Site	BR	11/7/2016	11.76	540.36	528.60	9:31	
BR-2D	On-Site	BR deep	11/7/2016	11.66	537.26	525.60	9:29	
BR-3	On-Site	BR	11/7/2016	9.87	538.20	528.33	9:57	
BR-3D	On-Site	BR deep	11/7/2016	52.16	537.67	485.51	9:54	
BR-4	On-Site	BR	11/7/2016	13.38	539.03	525.65	9:37	
BR-5	On-Site	BR	11/7/2016	4.66	536.30	531.64	9:18	
BR-5A	On-Site	pumping well	11/7/2016	3.51	536.35	532.84	9:17	
BR-6A	On-Site	BR	11/7/2016	13.82	540.90	527.08	10:03	
BR-7	On-Site	BR	11/7/2016	17.33	539.10	521.77	11:10	
BR-7A	On-Site	pumping well	11/7/2016	32.57	539.12	506.55	11:08	
BR-8	On-Site	BR	11/7/2016	16.12	539.72	523.60	10:13	
BR-9	On-Site	pumping well	11/7/2016	34.17	542.17	508.00	8:18	
C-2A	On-Site	OB	11/7/2016	Dry	539.66	Dry		
C-5	On-Site	OB	11/7/2016	12.51	539.63	527.12	9:55	
CANAL	Off-Site	SW	11/7/2016	36.80	544.79	507.99	13:27	
E-2	On-Site	OB	11/7/2016	5.21	538.32	NM	9:38	
E-3	On-Site	OB	11/7/2016	3.75	536.59	532.84	9:18	
E-5	On-Site	OB	11/7/2016	5.63	539.31	533.68	9:21	
EC-2	Off-Site	BR	11/7/2016	Dry	542.00	Dry	14:20	
MW-103	Off-Site	OB	11/7/2016	1.55	533.25	531.70	12:51	
MW-104	Off-Site	OB	11/7/2016	8.58	537.54	528.96	12:44	
MW-105	Off-Site	OB	11/7/2016	NM	536.91	NM		Could Not Locate Well
MW-106	Off-Site	OB	11/7/2016	14.22	535.44	521.22	11:39	
MW-114	Off-Site	OB	11/7/2016	9.79	539.69	529.90	13:00	
MW-127	On-Site	OB	11/7/2016	9.14	536.87	527.73	9:46	
MW-16	Off-Site	BR	11/7/2016	10.89	536.79	525.90	12:48	
MW-3	Off-Site	OB	11/7/2016	NM	535.89	NM		Inaccessible
MW-G6	Off-Site	OB	11/7/2016	NM	534.65	NM		Could Not Locate Well

Table 2
Groundwater Elevation Report
Lonza, Rochester, NY

Sample Location		Zone	Date	Depth to water	Casing Elevation	GW Elevation	Time	Comments
MW-G8	Off-Site	OB	11/7/2016	NM	534.25	NM		Inaccessible
MW-G9	Off-Site	OB	11/7/2016	NM	536.60	NM		Inaccessible
N-2	On-Site	OB	11/7/2016	4.02	537.33	533.31	9:25	
N-3	On-Site	OB	11/7/2016	5.24	537.38	532.14	8:22	
NESS-E	Off-Site	BR deep	11/7/2016	26.13	540.31	514.18	12:33	
NESS-W	Off-Site	BR deep	11/7/2016	31.53	543.04	511.51	12:30	
PW-10	On-Site	pumping well	11/7/2016	10.72	538.76	528.04	9:34	
PW-12	On-Site	BR	11/7/2016	6.48	537.49	531.01	9:15	
PW-13	On-Site	pumping well	11/7/2016	29.58	536.13	506.55	11:06	
PW-14	On-Site	pumping well	11/7/2016	17.17	537.03	519.86	10:03	
PW-15	On-Site	pumping well	11/7/2016	16.93	538.32	521.39	9:52	
PW-16	On-Site	pumping well	11/7/2016	27.72	539.32	511.60	10:12	
PW-17	On-Site	pumping well	11/7/2016	30.42	NA	NA	9:58	
PZ-101	Off-Site	BR	11/7/2016	20.94	542.95	522.01	8:11	
PZ-102	Off-Site	BR	11/7/2016	18.92	540.89	521.97	11:02	
PZ-103	Off-Site	BR	11/7/2016	16.78	540.20	523.42	11:04	
PZ-104	Off-Site	BR	11/7/2016	14.54	536.85	522.31	11:16	
PZ-105	On-Site	BR	11/7/2016	11.30	536.93	525.63	10:06	
PZ-106	On-Site	BR	11/7/2016	11.32	537.24	525.92	10:02	
PZ-107	On-Site	BR	11/7/2016	13.34	538.39	525.05	9:49	
PZ-109	On-Site	BR	11/7/2016	10.67	538.59	527.92	9:50	
PZ-110	On-Site	BR	11/7/2016	12.39	NA	NA	9:59	
PZ-111	On-Site	BR	11/7/2016	10.79	NA	NA	10:01	
W-5	On-Site	OB	11/7/2016	NM	538.53	NM		Inaccessible

APPENDIX A
FIELD OBSERVATION FORMS

Table 2
Groundwater Elevation Report
Lonza, Rochester, NY

11-7-16

Sample Location		Zone	Date	Depth to water	Casing Elevation	GW Elevation	Time	Comments
MW-G6	Off-Site	OB		—	534.65	534.65		NS-1
MW-G8	Off-Site	OB		—	534.25	534.25		NS-1
MW-G9	Off-Site	OB		—	536.60	536.60		NS-1
N-2	On-Site	OB	4.02	—	537.33	537.33	9:25	[illegible]
N-3	On-Site	OB		5.34	537.38	537.38	8:32	
NESS-E	Off-Site	BR deep		26.18	540.31	540.31	12:33	
NESS-W	Off-Site	BR deep		31.53	543.04	543.04	13:30	
PW-10	On-Site	pumping well		10.72	538.76	538.76	9:34	
PW-12	On-Site	BR		6.48	537.49	537.49	8:15	
PW-13	On-Site	pumping well		32.58	536.13	536.13	11:06	
PW-14	On-Site	pumping well		17.17	537.03	537.03	10:03	
PW-15	On-Site	pumping well		16.93	538.32	538.32	9:53	
PW-16	On-Site	pumping well		27.12	539.32	539.32	10:[illegible]2 12	
PW-17	On-Site	pumping well		30.42	NA	#VALUE!	9:58	
PZ-101	Off-Site	BR		20.44	542.95	542.95	8:11	
PZ-102	Off-Site	BR		18.92	540.89	540.89	11:02	
PZ-103	Off-Site	BR		16.78	540.20	540.20	11:04	
PZ-104	Off-Site	BR		14.54	536.85	536.85	~~10:06~~ 11:16	
PZ-105	On-Site	BR		11.30	536.93	536.93	10:06	
PZ-106	On-Site	BR		11.32	537.24	537.24	~~11:32~~ 10:02	
PZ-107	On-Site	BR	13.34	~~11.55~~	538.39	538.39	9:49	
PZ-109	On-Site	BR		10.67	538.59	538.59	9:56	
PZ-110	On-Site	BR		12.39	NA	#VALUE!	9:59	
PZ-111	On-Site	BR		10.79	NA	#VALUE!	10:01	
W-5	On-Site	OB		—	538.53	538.53		NS-1

[illegible]

11-7-16

Table 2
Groundwater Elevation Report
Lonza, Rochester, NY

Sample Location		Zone	Date	Depth to water	Casing Elevation	GW Elevation	Time	Comments
B-1	On-Site	OB		8.77	537.75	537.75	8:20	
B-10	On-Site	OB		11.62	538.80	538.80		14:48
B-11	On-Site	OB		7.92	536.00	< 521.83	9:47	
B-15	On-Site	OB		7.63	535.29	535.29	11:10	
B-16	Off-Site	OB	8.80	10.44	536.21	536.21	11:19	
B-17	On-Site	OB		10.44	538.74	538.74	9:36	
B-2	On-Site	OB		9.88	539.02	539.02		14:30
B-4	On-Site	OB		21.13	542.87	542.87	10:10	
B-5	On-Site	OB		17.31	540.21	540.21	10:14	
B-7	On-Site	OB		15.54	541.11	541.11	11:11	
B-8	On-Site	OB		11.36	538.88	538.88	10:04	
BR-1	On-Site	BR		6.73	537.28	537.28	9:33	
BR-102	On-Site	BR		23.26	539.43	539.43	8:20	
BR-103	Off-Site	BR		8.26	533.19	533.19	~~12:40~~	12:53
BR-104	Off-Site	BR		11.05	537.56	537.56	13:42	
BR-105	Off-Site	BR		26.60	536.90	536.90	8:05	26.68
BR-105D	Off-Site	BR deep		23.26	536.49	536.49	8:07	23.26
BR-106	Off-Site	BR		34.58	535.74	535.74	11:41	
BR-108	Off-Site	BR		27.85	540.58	540.58	11:50	
BR-111	Off-Site	BR		26.09	540.42	540.42	11:53	
BR-111D	Off-Site	BR		28.74	540.34	540.34	11:52	
BR-112D	Off-Site	BR deep		36.33	547.91	547.91	11:50	
BR-113	Off-Site	BR		31.26	543.02	543.02	14:18	
BR-113D	Off-Site	BR deep		31.38	542.93	542.93	14:16	
BR-114	Off-Site	BR		13.43	539.77	539.77		13:02
BR-116	Off-Site	BR		29.89	545.38	545.38		13:06
BR-116D	Off-Site	BR deep		35.54	545.22	545.22		13:08
BR-117	Off-Site	BR		35.09	547.61	547.61	13:59	
BR-117D	Off-Site	BR deep		48.07	547.16	547.16	13:57	
BR-118	Off-Site	BR		34.68	547.79	547.79	14:03	
BR-118D	Off-Site	BR deep		47.43	547.93	547.93	14:01	
BR-122D	Off-Site	BR deep		45.11	552.34	552.34		13:20
BR-123D	Off-Site	BR deep		45.41	553.62	553.62		13:23
BR-124D	Off-Site	BR deep		32.83	537.45	537.45	15:50	
BR-126	Off-Site	BR		10.12	537.90	537.90	11:39	well under debris
BR-127	On-Site	BR		14.07	534.80	534.80	9:44	
BR-2	On-Site	BR		11.60	538.97	538.97	9:30	
BR-2A	On-Site	BR		11.76	540.36	540.36	9:31	
BR-2D	On-Site	BR deep		11.66	537.26	537.26	9:29	
BR-3	On-Site	BR		9.87	538.20	538.20	9:57	debris in well
BR-3D	On-Site	BR deep		52.16	537.67	537.67	9:54	
BR-4	On-Site	BR		13.38	539.03	539.03	9:37	
BR-5	On-Site	BR		4.66	536.30	536.30	9:18	
BR-5A	On-Site	pumping well		3.51	536.35	536.35	9:17	
BR-6A	On-Site	BR		13.83	540.90	540.90	10:03	
BR-7	On-Site	BR	17.33	~~32.51~~	539.10	539.10	~~18:18~~	
BR-7A	On-Site	pumping well		32.52	539.12	539.12	11:08	
BR-8	On-Site	BR		16.12	539.72	539.72	10:13	
BR-9	On-Site	pumping well		34.07	542.17	542.17	8:18	
C-2A	On-Site	OB		DRY	539.66	539.66		
C-5	On-Site	OB		12.51	539.63	539.63	9:55	
CANAL	Off-Site	SW		36.80	544.79	544.79		13:27
E-2	On-Site	OB		5.21	538.32	538.32	9:38	
E-3	On-Site	OB		3.75	536.59	536.59	9:18	
E-5	On-Site	OB		5.63	539.31	539.31	9:21	
EC-2	Off-Site	BR		DRY	542.00	542.00		14:20
MW-103	Off-Site	OB	/	1.55	533.25	533.25	12:55	
MW-104	Off-Site	OB		8.58	537.54	537.54	13:44	
MW-105	Off-Site	OB			536.91	536.91	—	Can't Find
MW-106	Off-Site	OB		14.32	535.44	535.44	11:39	
MW-114	Off-Site	OB		4.79	539.69	539.69		13:00
MW-127	On-Site	OB		9.14	536.87	536.87	9:46	
MW-16	Off-Site	BR		10.89	536.79	536.79	12:48	
MW-3	Off-Site	OB		NS-1	535.89	535.89	—	

35.54 ~~21.92~~ ~~9.44~~ 11.66 ~~28.74~~

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ101

Field Personnel: DK + RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-8-16 8:30

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-8-16 ~~2044~~ 8:46

Date/Time Completed: 10:45

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches) 2"

Initial Water Level (ft): 20.91

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N

Total Volume Purged (gal): ____

Purged to Dryness: (Y) / N

Purge Observations: Slight Brown tint

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hlz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
8:50	21.49	125mL/min		11.46	6.94	5.90mS/cm	31.8	-31	10	
8:55	21.49	67.5		11.78	6.59	5.90	34.8	30	4.92	
9:00	DRY									

50°F Sunny

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PZ102

Field Personnel: DK/RG 11-8-16 Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 9:15 Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-8 9:18 Date/Time Completed: 9:50

Surf. Meas. Point: ( ) Pro Casing (✓) Riser Riser Diameter (inches) 2"

Initial Water Level (ft): 18.87 Elevation G/W MSL: ____

Well Total Depth (ft): ____ Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ Dedicated: (Y) / N

Total Volume Purged (gal): 2.25< Purged to Dryness: Y / (N)

Purge Observations: Clear Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
9:22	19.29	250mL/min		11.98	7.43	5.77 mS/cm	4.2	-60	5.80	
9:27	19.30	125		12.33	7.25	5.77	2.8	-96	1.62	
9:32	19.30			12.30	7.22	6.10	2.8	-118	1.15	
9:37	19.30			12.35	7.31	7.32	3.0	-202	1.02	
9:42	19.30			12.43	7.09	7.70	3.0	-206	0.96	
→ SAMPLE										

50°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PZ103

Field Personnel: DK+RG Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-8-16 9:57 Condition of seal: (✓) Good ( ) Cracked %

( ) None ( ) Buried

(✓) Unlocked ( ) Good

Prot. Casing/Riser Height: Condition of Prot. Casing/Riser: ( ) loose ( ) flush mount

( ) Damaged

if prot casing; depth to riser below:

Gas Meter Calibration/Reading: % Gas % LEL:

Vol. Organic Matter (Calibration/Reading): Volatiles (ppm):

PURGE INFORMATION

Date/Time Initiated: 11-8 10:00 Date/Time Completed: 10:37

Surf. Meas. Point: ( ) Pro Casing (✓) Riser Riser Diameter (inches) 2"

Initial Water Level (ft): 16.69 Elevation G/W MSL:

Well Total Depth (ft): Method of Well Purge Peristaltic

One (1) Riser Vol (gal): Dedicated: Y / N

Total Volume Purged (gal): 1.8L Purged to Dryness: Y / N

Purge Observations: Clear Start Finish

PURGE DATA (if applicable)

mS/cm

Time	Water Level	Purge Rate (~~gpm/btz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
10:05	17.47	250 mL/min		13.77	7.39	5.56	2.9	-160	6.96	
10:10	17.57	125		13.94	7.22	5.62	2.10	-188	1.35	
10:15	17.57	125		14.04	7.22	5.65	1.9	-196	0.90	
10:20	17.56			14.12	7.23	5.66	2.8	-198	0.78	
→ SAMPLE										

52°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PZ-102 PW-B

SAMPLING INFORMATION

Date/Time 11-8-16 11:10 Water Level at Sampling (ft) 29.63

Method of Sampling pumping well Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (umhos/cm)	Turb. (NTU)	ORP	DO	Other
11:15	15.52	7.12	3.78 ms/cm	6.6	-140	2.75	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 57°F Scat clouds

Sample characteristics: Clear

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11-8-16 by: ~~KT~~ KT RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: B15

Field Personnel: DK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-8-16 12:20

Condition of seal: ( ) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-8-16 12:25

Date/Time Completed: 13:02

Surf. Meas. Point: ( ) Prot. Casing (✓) Riser

Riser Diameter (inches) 2" pvc

Initial Water Level (ft): 7.63

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N new flexitube

Total Volume Purged (gal): 2.1L

Purged to Dryness: Y / (N)

Purge Observations: slight brown tint

Start ____ Finish ____

PURGE DATA (if applicable)

nstem

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
12:33	8.56	250ml/min		16.56	7.19	0.766	17.7	-3	6.27	
12:38	9.20	125		16.02	7.12	0.733	8.4	-11	3.99	
12:43	9.87			16.02	7.09	0.709	6.7	25	3.47	
12:48	10.28			16.07	7.08	0.706	7.2	24	3.23	
12:53	10.55			16.05	7.07	0.704	8.5	26	2.99	
L7	SAMPLE									

59°F, Overcast

FIELD OBSERVATIONS

Facility: Conoco | Sample Point ID: B16

Field Personnel: DK+RG | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-8-16 13:15 | Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ | Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ | % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ | Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-8-16 13:20 | Date/Time Completed: 13:48

Surf. Meas. Point: ( ) Pro Casing (✓) Riser | Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 8.81 | Elevation G/W MSL: ____

Well Total Depth (ft): ____ | Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ | Dedicated: (✓) / N New Masterflex tubing

Total Volume Purged (gal): Clear, 2L | Purged to Dryness: Y / (✓)

Purge Observations: Clear | Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
13:23	9.61	250 mL/min		15.83	7.11	2.61 mS/cm	5.0	72	5.25	
13:28	9.77	125		15.68	7.11	2.68	4.8	32	1.76	
13:33	9.78			15.57	7.09	2.72	2.7	-17	1.07	
13:38	9.78			15.50	7.09	2.74	1.9	-43	0.93	
	→ SAMPLE									

60°F, overcast

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR126

Field Personnel: DKT RE

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-8 13:55

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-8-16 13:57

Date/Time Completed: 14:27

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches) 4" Steel

Initial Water Level (ft): 10.08

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge ____

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N new Masterflex

Total Volume Purged (gal): 1.85 L

Purged to Dryness: Y (N)

Purge Observations: Black particles

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/hte)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
14:00	10.19	125 mL/min		16.92	7.57	1.09 ms/cm	31.4	-156	3.59	
14:05	10.19			16.98	7.57	0.966	22.6	-162	1.14	
14:10	10.19			17.05	7.54	0.961	17.1	-161	0.89	
14:15	10.19			17.15	7.53	0.959	13.3	-163	0.74	
14:20	10.19			17.20	7.54	0.957	11.2	-163	0.67	
→ SAMPLE										

58°F, Windy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BRG

SAMPLING INFORMATION

Date/Time 11-8-16 14:42 ~~14:50~~ Water Level at Sampling (ft) 34.31

Method of Sampling Pumping well Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
14:50	16.50	7.23	3.51 mS/cm	6.2	80	3.41	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 58°F, Cloudy

Sample characteristics: Clear

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11-8-16 by: DK+RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: E3

Field Personnel: NK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-9-16 10:25

Condition of seal: ( ) Good ( ) Cracked ____ %

(/) ~~None~~ ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (/) ~~Good~~

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-9 10:34

Date/Time Completed: 11:10

Surf. Meas. Point: ( ) Pro Casing (/) Riser

Riser Diameter (inches) 2" Steel

Initial Water Level (ft): 3.82

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (/) / N

Total Volume Purged (gal): 1.25L

Purged to Dryness: Y / (/)

Purge Observations: Cloudy / Brown

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
10:40	4.15	~~250~~ 125 mL/min		9.45	7.89	2.96 mS/cm	233	-168	5.05	
10:45	4.12	125		9.43	7.94	2.92	262	-153	1.13	
10:50	4.14	67.5		9.37	7.99	2.91	175	-152	0.90	
10:55	4.14			9.35	7.92	2.91	187	-173	0.82	
11:00	4.14			9.30	7.92	2.94	132	-184	0.72	
→	SAMPLE									

47°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ107

Field Personnel: DK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-9-16 12:50

Condition of seal: (✓) Good ( ) Cracked %

( ) None ( ) Buried

Prot. Casing/Riser Height:

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged

if prot casing; depth to riser below:

Gas Meter Calibration/Reading: % Gas % LEL:

Vol. Organic Matter (Calibration/Reading): Volatiles (ppm):

PURGE INFORMATION

Date/Time Initiated: 11-9-16 13:08

Date/Time Completed: 13:42

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 13.71

Elevation G/W MSL:

Well Total Depth (ft):

Method of Well Purge Peristaltic

One (1) Riser Vol (gal):

Dedicated: ~~Y~~ / (N) - Had to get new tube, stiff + flaky

Total Volume Purged (gal): 3L

Purged to Dryness: Y (N)

Purge Observations: Clear, slight sulfur odor

Start Finish

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/htz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
13:15	14.41	250 mL/min		12.39	6.96	1.9 ms/cm	13.2	-69	4.46	
13:20	14.26	125		11.48	6.89	1.97	2.5	-75	1.27	
13:25	14.24			11.68	6.84	2.28	1.9	-82	0.86	
13:30	14.22			11.99	6.83	2.29	1.7	-88	0.70	
13:35	14.22			12.18	6.84	2.27	1.3	-93	0.67	
↳	SAMPLE									

47°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: B11

Field Personnel: DKT RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-9-16 11:20

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-9-16 11:30

Date/Time Completed: 11:55

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 8.34

Elevation G/W MSL: ____

Well Total Depth (ft): 11.65

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) N New Masterflex tube

Total Volume Purged (gal): ____

Purged to Dryness: (Y) / N

Purge Observations: cloudy brown

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/htz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
11:45	~~##~~ 10.34	250mL/min		10.42	7.00	4.29	100	55	9.05	
↳	Going dry,	sample								

47°F, Cloudy

~~can't get probe~~ past tubing

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: PW12

Field Personnel: DK+RG | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-9-16 8:20 | Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ | Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ | % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ | Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-9 8:37 | Date/Time Completed: 9:05

Surf. Meas. Point: ( ) Pro Casing (✓) Riser | Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 6.60 | Elevation G/W MSL: ____

Well Total Depth (ft): ____ | Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ | Dedicated: (✓) N

Total Volume Purged (gal): 3.5L | Purged to Dryness: Y / N

Purge Observations: Clear | Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos~~/cm)	Turb. (NTU)	ORP	DO	Other
8:42	6.77	250ml/min		13.79	8.14	0.241mS/cm	173	11	6.21	
8:47	6.86	250		14.33	8.04	0.239	15.7	19	1.65	
8:52	6.90	125		14.30	7.93	0.232	7.0	17	0.92	
8:57	6.91			14.34	7.88	0.231	5.6	12	0.74	
↳	SAMPLE									

98°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR 5A

Field Personnel: DKT DRG Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-9-16 9:20 Condition of seal: (✓) ~~Good~~ ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ Condition of Prot. Casing/Riser: ( ) unlocked (✓) ~~Good~~ ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-9 9:27 Date/Time Completed: 10:04

Surf. Meas. Point: ( ) Pro Casing (✓) ~~Riser~~ Riser Diameter (inches) 6"

Initial Water Level (ft): 3.56 Elevation G/W MSL: ____

Well Total Depth (ft): ____ Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ Dedicated: Y / N

Total Volume Purged (gal): 2L Purged to Dryness: Y / ~~N~~

Purge Observations: clear, slight Brown tint. Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/hr.)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
9:33	~~3.63~~	250mL/min		11.16	7.99	2.15ms/cm	10.3	95	13.41	
9:38	3.71	125		10.91	8.00	2.14	10.7	99	11.60	
9:43	3.74			10.66	7.99	2.18	10.4	103	11.64	
9:53	3.77			10.33	7.96	2.19	10.1	108	11.78	
↳	SAMPLE									

48°F, Windy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ105

Field Personnel: DK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-9-16 14:58

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-9-16 15:00

Date/Time Completed: 15:35

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 11.10

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N New Masterflex

Total Volume Purged (gal): ____

Purged to Dryness: Y / (N)

Purge Observations: Cloudy, Black

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
15:05	12.50	250 mL/min		13.47	7.37	1.25 mS/cm	378	-160	3.15	
15:10	12.53	125		13.47	7.36	1.21	279	-161	1.19	
15:15	13.83			13.04	7.59	1.29	~~+350~~ 270	-188	1.69	
15:20	14.05			14.07	7.83	1.52	89	-256	0.83	
15:25	14.82			14.10	7.77	1.49	61.3	-267	3.14	
↳	SAMPLE									

48°F, Sun + clouds

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BRGA

Field Personnel: DK4 RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-9-16 13:53

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-9-16 14:01

Date/Time Completed: 13:51

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches): ~~X~~ 4" Steel

Initial Water Level (ft): 13.31

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge: Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: Y / (N) New complete

Total Volume Purged (gal): 2.75 L

Purged to Dryness: Y / N

Purge Observations: Brown tint, tiny particles

Start ____ Finish ____

fittings, old was brittle & hit by weed eater

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/btz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~ mS/cm	Turb. (NTU)	ORP	DO	Other
14:10	13.67	250 mL/min		13.56	10.10	5.99	38.3	-203	14.87	
14:15	14.02	125		14.21	9.82	6.02	21.2	~~369~~	9.62	
14:20	14.32			14.23	9.88	5.90	16.2	-411	4.72	
14:25	14.58			14.51	9.97	5.91	13.4	-422	3.74	
14:30	14.88			14.61	10.08	5.83	12.7	-443	3.28	
↳	SAMPLE w/ Duplicate									

48°F, Scattered clouds

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW17

SAMPLING INFORMATION

Date/Time 11-9-16 15:38 Water Level at Sampling (ft) 30.70

Method of Sampling pumping well, bailer Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
15:45	14.6	7.77	5.78 mS/cm	7.8	-158	3.24	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 48°F Sun/cloud

Sample characteristics: Cloudy, Black, odor

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11-9-16 by: DK+RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: MW10E

Field Personnel: DK+PB | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-10-16 12:20 | Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ | Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ | % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ | Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-10 ~~44~~ 12:32 | Date/Time Completed: ~~X~~ 13:09

Surf. Meas. Point: ( ) Pro Casing (✓) Riser | Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 14.06 | Elevation G/W MSL: ____

Well Total Depth (ft): ____ | Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ | Dedicated: (Y) / N

Total Volume Purged (gal): 2.75L | Purged to Dryness: Y / (N)

Purge Observations: clear, sulfur odor | Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
12:37	14.48	250mL/min		13.89	6.96	5.49mS/cm	3.8	-145	3.50	
12:42	14.58	125		13.91	6.91	5.48	3.4	-133	0.93	
12:47	14.62			13.79	6.90	5.48	8.0	-146	0.68	
12:52	14.65			14.09	6.98	5.54	10.5	-189	0.60	
12:57	14.67			13.92	7.03	5.63	9.2	-204	0.56	
→	SAMPLE									

49°F, Sunny & Windy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW15

SAMPLING INFORMATION

Date/Time 11-10-16 10:48 Water Level at Sampling (ft) 16.68

Method of Sampling Pumping Well Dedicated: (Y) N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (umhos/cm)	Turb. (NTU)	ORP	DO	Other
10:54	14.63	9.80	15.5mS/cm	3.8	-219	1.79	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 43°F, Sunny

Sample characteristics: Clear, light brown tint

Comments and Observations:

MS/MSD

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11/4/16 by: DK + PB Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW14

SAMPLING INFORMATION

Date/Time 11-10-16 10:35 Water Level at Sampling (ft) 18.62

Method of Sampling Pumping well Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
10:40	14.41	9.26	4.62 mS/cm	22.5	-162.5	8.86	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 42°F, Sunny

Sample characteristics: Amber Color

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11-10 by: DK + RB Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ106

Field Personnel: DKC + PB

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-10-16 9:50

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-10 9:55

Date/Time Completed: 10:32

Surf. Meas. Point: (✓) Pro Casing ( ) Riser

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 11.09

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) N New Masterflex

Total Volume Purged (gal): ____

Purged to Dryness: Y (N)

Purge Observations: Cloudy, Black

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/btz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (umhos/cm) mS/cm	Turb. (NTU)	ORP	DO	Other
10:00	11.74	250 mL/min		9.95	7.61	4.13	259	-236	3.26	
10:05	12.49	250		10.73	7.63	4.02	208	-245	0.92	
10:10	12.75	250		11.16	7.61	3.89	220	-249	0.74	
10:15	12.89			11.41	7.59	3.74	268	-251	0.67	
10:20	12.95			11.76	7.56	3.54	728	-248	0.64	
→ SAMPLE										

42°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR27

SAMPLING INFORMATION

Date/Time 11-10-16 9:20 Water Level at Sampling (ft) 9.14

Method of Sampling Pumping Well Dedicated: (Y) N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
9:25	7.43	8.39	4.59	10.1	-148	3.96	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 42°F Sunny

Sample characteristics: Clear, Brown tint, irregular black particles

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11/10 by: DK+PR Company: Antea

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: MW127

Field Personnel: DK + PB

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11/04/16 9:00

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11/4/0 9:06

Date/Time Completed: 9:17

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 9.57

Elevation G/W MSL: ____

Well Total Depth (ft): 10.29

Method of Well Purge ____

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N New Masterflex

Total Volume Purged (gal): ____

Purged to Dryness: (Y) / N

Purge Observations:

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (gpm/htz)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (umhos/cm)	Turb. (NTU)	ORP	DO	Other
	Not enough water to run parameters									
	and obtain a sample									

40° Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: ~~BK~~ PW10

Field Personnel: DK + DB

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-10-16 8:02

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-10 8:16

Date/Time Completed: 8:52

Surf. Meas. Point: ( ) Pro Casing (✓) ~~Riser~~

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 10.67

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (✓) / N

Total Volume Purged (gal): 3L

Purged to Dryness: Y / (✓)

Purge Observations: Brown/Yellow, chemical odor, white particles

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
8:20	10.94	250 mL/min		5.92	9.65	100 mS/cm	40.6	-99	2.69	
8:25	11.13			12.81	9.60	96.6	15.7	-99	0.73	
8:30	11.15	125		12.94	9.61	96.3	8.1	-99	0.61	
8:35	11.17	1		12.85	9.61	96.5	5.5	-99	0.56	
8:40	11.18			12.87	9.62	96.1	3.3	-156	0.54	
↳	SAMPLE									

40°F Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR106

Field Personnel: DCT + PB

Sample Matrix:

MONITORING WELL INSPECTION

Date/Time: 11-10 46 13:10

Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height:

Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged

if prot casing; depth to riser below:

Gas Meter Calibration/Reading: % Gas

% LEL:

Vol. Organic Matter (Calibration/Reading):

Volatiles (ppm):

PURGE INFORMATION

Date/Time Initiated: 11-10 13:13

Date/Time Completed: 14:06

Surf. Meas. Point: ( ) Pro Casing (✓) Riser

Riser Diameter (inches) 6" steel

Initial Water Level (ft): 24.45

Elevation G/W MSL:

Well Total Depth (ft):

Method of Well Purge Peristaltic

One (1) Riser Vol (gal):

Dedicated: (Y) / N

Total Volume Purged (gal): 1.25L

Purged to Dryness: Y (N)

Purge Observations: Cloudy, black, clear after purging for parameters slight sulfur odor

Start Finish

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
13:25	24.45	125 mL/min		13.56	7.04	4.76 mS/cm	48.3	-245	5.82	
13:30	24.45	67.5		13.53	7.02	4.74	23.2	-268	1.00	
13:35	24.45			13.79	7.00	4.76	11.3	-281	0.77	
13:40	24.45			14.43	6.99	4.72	6.9	-285	0.71	
13:45	24.45			14.88	6.98	4.67	5.6	-288	0.87	
→	SAMPLE									

50°F, Sunny, Windy

FIELD OBSERVATIONS

Facility: Lorig Sample Point ID: PZ104

Field Personnel: DK/PB Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11/1/16 8:00 Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11/1 8:14 Date/Time Completed: 8:55

Surf. Meas. Point: ( ) Pro Casing (✓) Riser Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 14.60 Elevation G/W MSL: ____

Well Total Depth (ft): ____ Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ Dedicated: (Y) / N

Total Volume Purged (gal): 1.75L Purged to Dryness: Y (N)

Purge Observations: Cloudy Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/htz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (umhos/cm)	Turb. (NTU)	ORP	DO	Other
8:18	14.68	125mL/min		11.12	7.19	3.84 mS/cm	310	-136	10.46	
8:23	14.69			12.08	7.10	3.78	192	-114	1.53	
8:28	14.69			12.33	7.09	3.76	129	-113	1.16	
8:33	14.69			12.39	7.08	3.74	90.1	-123	0.98	
8:38	14.69			12.52	7.07	3.73	85.5	-126	0.91	
	→ SAMPLE									

42°F, Sun + Clouds

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR105

Field Personnel: DKT PB Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-11-16 9:00 Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-11 9:04 Date/Time Completed: 9:41

Surf. Meas. Point: ( ) Pro Casing (✓) Riser Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 23.33 Elevation G/W MSL: ____

Well Total Depth (ft): ____ Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ Dedicated: (Y) / N

Total Volume Purged (gal): 2.25L Purged to Dryness: Y / (N)

Purge Observations: Clear Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos~~/cm)	Turb. (NTU)	ORP	DO	Other
9:08	23.33	250mL/min		10.99	7.15	3.35mS/cm	68.5	-2	7.61	
9:13	23.33	125		11.37	7.01	3.31	29.5	3	2.32	
9:18		125		11.39	7.09	3.27	30.6	2	1.94	
9:23				11.41	6.99	3.26	17.7	3	1.79	
9:28				11.44	6.98	3.26	10.7	3	1.78	
SAMPLE										

42°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR105D

SAMPLING INFORMATION

Date/Time 11-11-16 9:43 Water Level at Sampling (ft) 26.63

Method of Sampling Bailer Dedicated: (Y) / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
9:55	11.97	6.90	37 ms/cm	66.1	-296	1.75	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 42°F Windy, cloudy

Sample characteristics: Cloudy, Sulfur odor

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: _____ by: _____ Company: _____

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: RS-4

SAMPLING INFORMATION

Date/Time 11-11-16 Water Level at Sampling (ft) —

Method of Sampling Grab water dripping down casing Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
10:18	8.18	8.44	2.31 mS/cm	4.7	459	9.41	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 41°F, Windy

Sample characteristics: Clear

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11/16 by: DK + BB Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: QD-1

SAMPLING INFORMATION

Date/Time 11-1-16 11:00 Water Level at Sampling (ft)

Method of Sampling Bucket from water flow Dedicated: Y / (N)

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
11:15	9.63	8.22	1.83 mS/cm	6.3	-68	9.72	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 41°F, Sunny

Sample characteristics: Clear

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11-1-16 by: DKT PTS Company: Matrix

FIELD OBSERVATIONS

Facility: Lima Sample Point ID: QC-2

SAMPLING INFORMATION

Date/Time 11-1-16 12:00 Water Level at Sampling (ft) —

Method of Sampling Bucket From waterflow Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
12:20	9.54	8.36	1.76 mS/cm	12.6	-45	9.71	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 42°F Cloudy

Sample characteristics: Clear

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11-1-16 by: DK + PB Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: QO-251

SAMPLING INFORMATION

Date/Time 1/4/96 12:25 Water Level at Sampling (ft) —

Method of Sampling Bucket from Erie Canal Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
12:30	9.73	8.23	0.547 mS/cm	4.3	-25	7.47	

INSTRUMENT CALIBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 42°F Cloudy

Sample characteristics: Clear, water

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 1/4/96 by: DK + PB Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW16

SAMPLING INFORMATION

Date/Time 11-14-16 8:00 Water Level at Sampling (ft) 31.15

Method of Sampling Pumping well Dedicated: (Y) / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity ~~(umhos/cm)~~	Turb. (NTU)	ORP	DO	Other
8:20	12.88	7.68	8.78 mS/cm	58	-101	9.73	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 42°F, Sunny

Sample characteristics: Chemical odor, cloudy, Black + white particles

Comments and Observations:

I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11/4/16 by: DK + PB Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: B5

Field Personnel: DK+RB | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-14-16 8:40 | Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ | Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ | % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ | Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-14-16 8:54 | Date/Time Completed: 9:06

Surf. Meas. Point: ( ) Pro Casing (✓) Riser | Riser Diameter (inches) 1.5 & 1" PVC

Initial Water Level (ft): 17.10 | Elevation G/W MSL: ____

Well Total Depth (ft): 18.17 | Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ | Dedicated: (Y) / N New Masterflex

Total Volume Purged (gal): ____ | Purged to Dryness: (Y) / N

Purge Observations: Cloudy / Gray, Chemical odor | Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (gpm/htz)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (umhos/cm)	Turb. (NTU)	ORP	DO	Other
Went DRY, not enough water for parameters										
on Amber. Filled 2 40 mL VOAs										

42°F, Sun, light Breeze

FIELD OBSERVATIONS

Facility: Conoco Sample Point ID: BRP

Field Personnel: DK + PB Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 11-14-16 9:08 Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

Prot. Casing/Riser Height: ____ Condition of Prot. Casing/Riser: ( ) unlocked (✓) Good ( ) loose ( ) flush mount ( ) Damaged ____

if prot casing; depth to riser below: ____

Gas Meter Calibration/Reading: % Gas ____ % LEL: ____

Vol. Organic Matter (Calibration/Reading): ____ Volatiles (ppm): ____

PURGE INFORMATION

Date/Time Initiated: 11-14 9:11 Date/Time Completed: 9:55

Surf. Meas. Point: ( ) Pro Casing (✓) Riser Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 16.06 Elevation G/W MSL: ____

Well Total Depth (ft): ____ Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____ Dedicated: (Y) / N

Total Volume Purged (gal): 1.95L Purged to Dryness: Y / (N)

Purge Observations: Tint (yellowish), tiny black particles, chemical odor Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
9:16	16.16	250mL/min		8.32	7.71	7.54 mS/cm	18.4	-121	5.56	
9:21	16.12	125mL/min		9.20	7.67	7.50	16.8	-134	1.38	
9:26	16.12			9.55	7.66	7.49	15.9	-136	1.03	
9:31	16.15			9.82	7.66	7.43	14.8	-140	0.82	
9:36	16.15			9.97	7.65	7.42	13.8	-142	0.72	
→ SAMPLE										

42°F, Sun + breeze

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR7A

SAMPLING INFORMATION

Date/Time 11-14-16 10:08 Water Level at Sampling (ft) 25'?, Probe covered w/Black & orange cradle, too much infrastructure in well for accurate reading

Method of Sampling Pumping well Dedicated: Y / N

Multi-phased/layered: Y / N if yes: ( ) Light ( ) Heavy

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (~~umhos/cm~~)	Turb. (NTU)	ORP	DO	Other
10:20	14.26	7.43	2.61mS/cm	15.9	-106	9.01	

INSTRUMENT CALIFBRATION/CHECK DATA

Meter ID#	Cal Std 7.0 SU	Cal Std 4.0 SU	Cal Std. 10.0 SU	Check Std 7.0 SU (+/- 10%)	Cal.Std. 1413 umhos/cm	Check Std 1413 umhos/cm (+/- 10%)	Cal Std. 10 NTU	Check Std 10 NTU (+/- 10%)
Solution ID#								

GENERAL INFORMATION

Weather conditions at time of sampling: 44°F, Sunny

Sample characteristics: Clear, slight sediment

Comments and Observations:

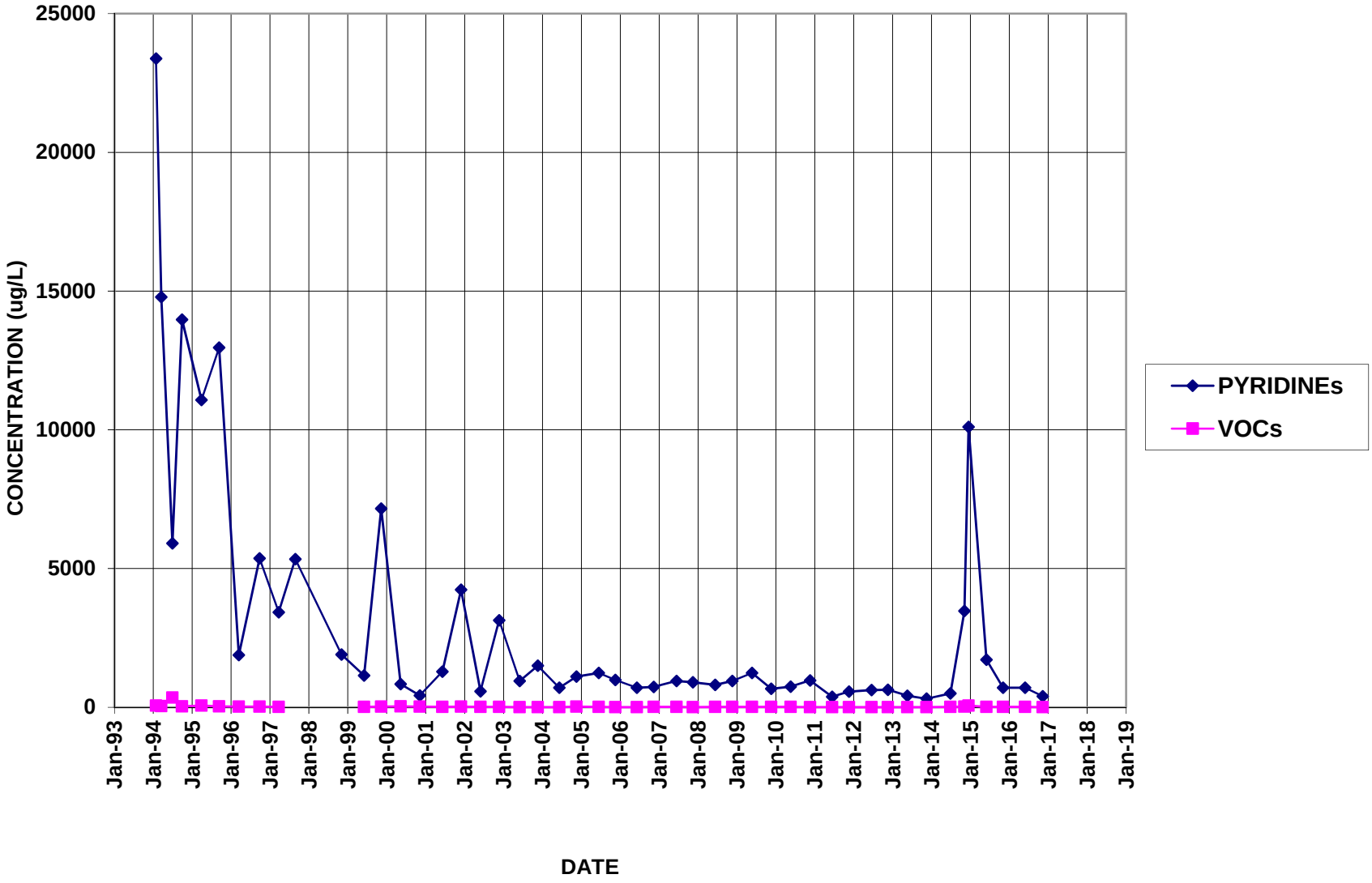
I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 11-14-16 by: DK + PB Company: Matrix

Appendix B

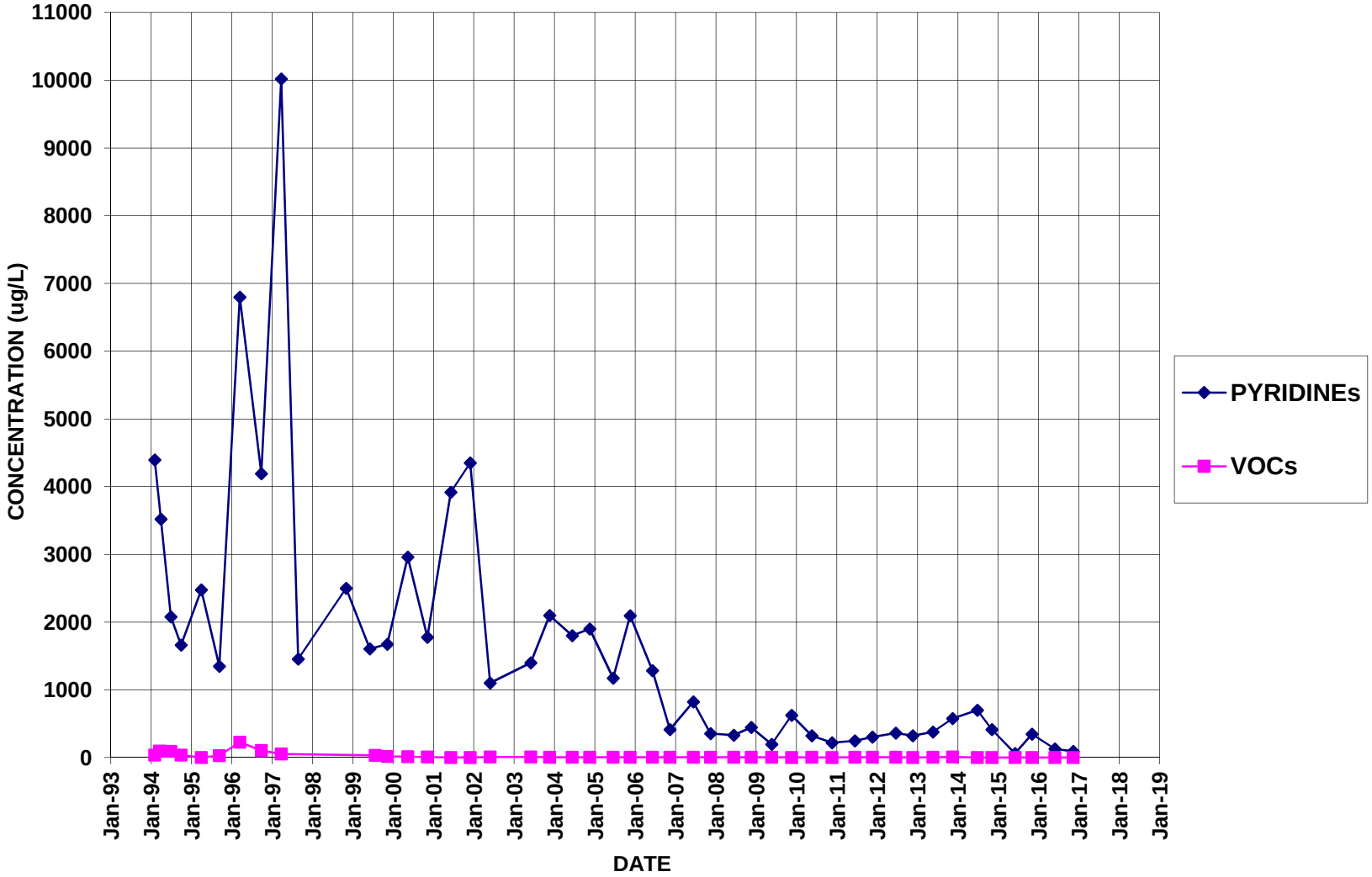
Well Trend Data

BR-105



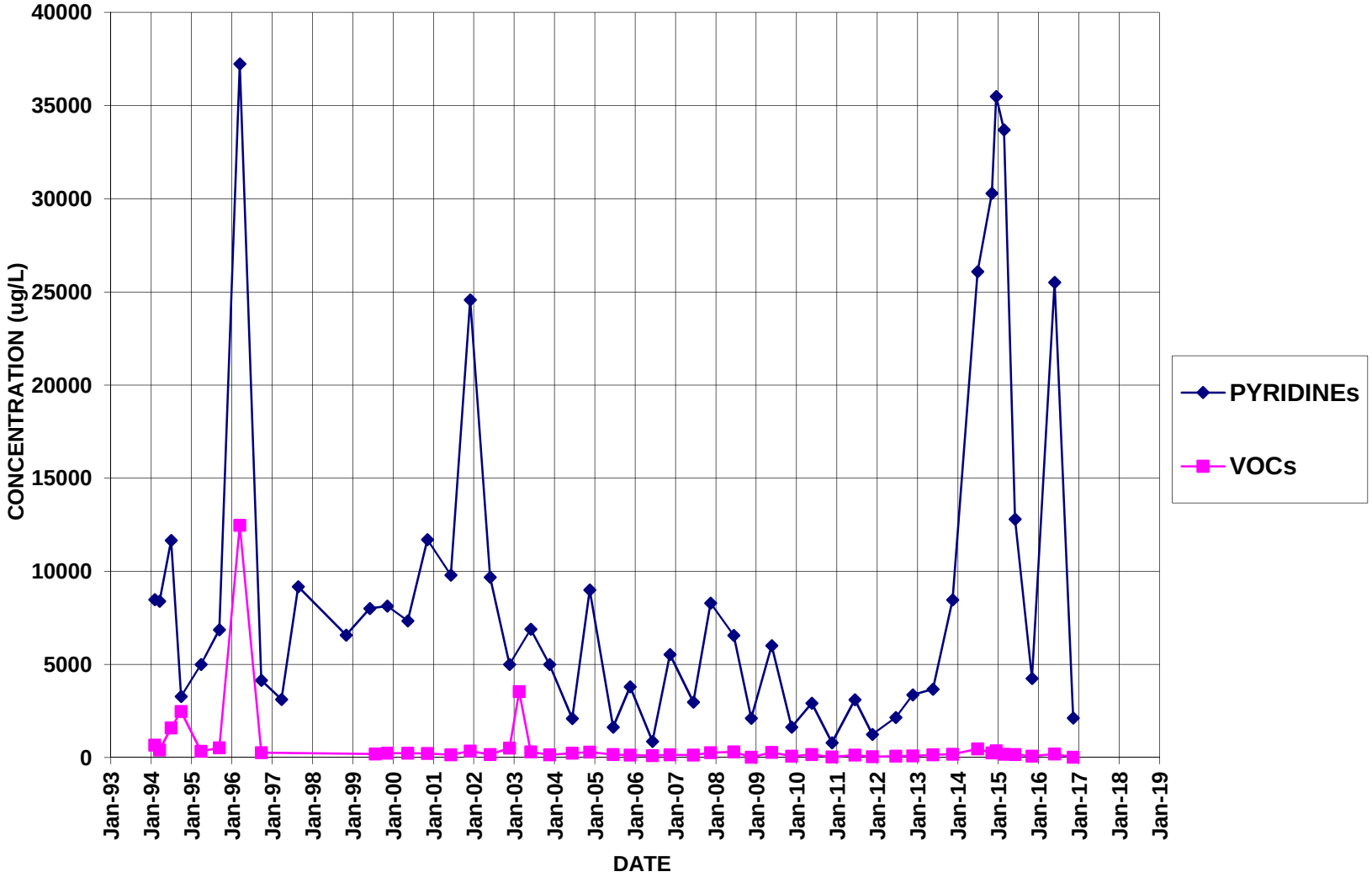
Prepared by: nmb
Reviewed by: jeb

BR-105D



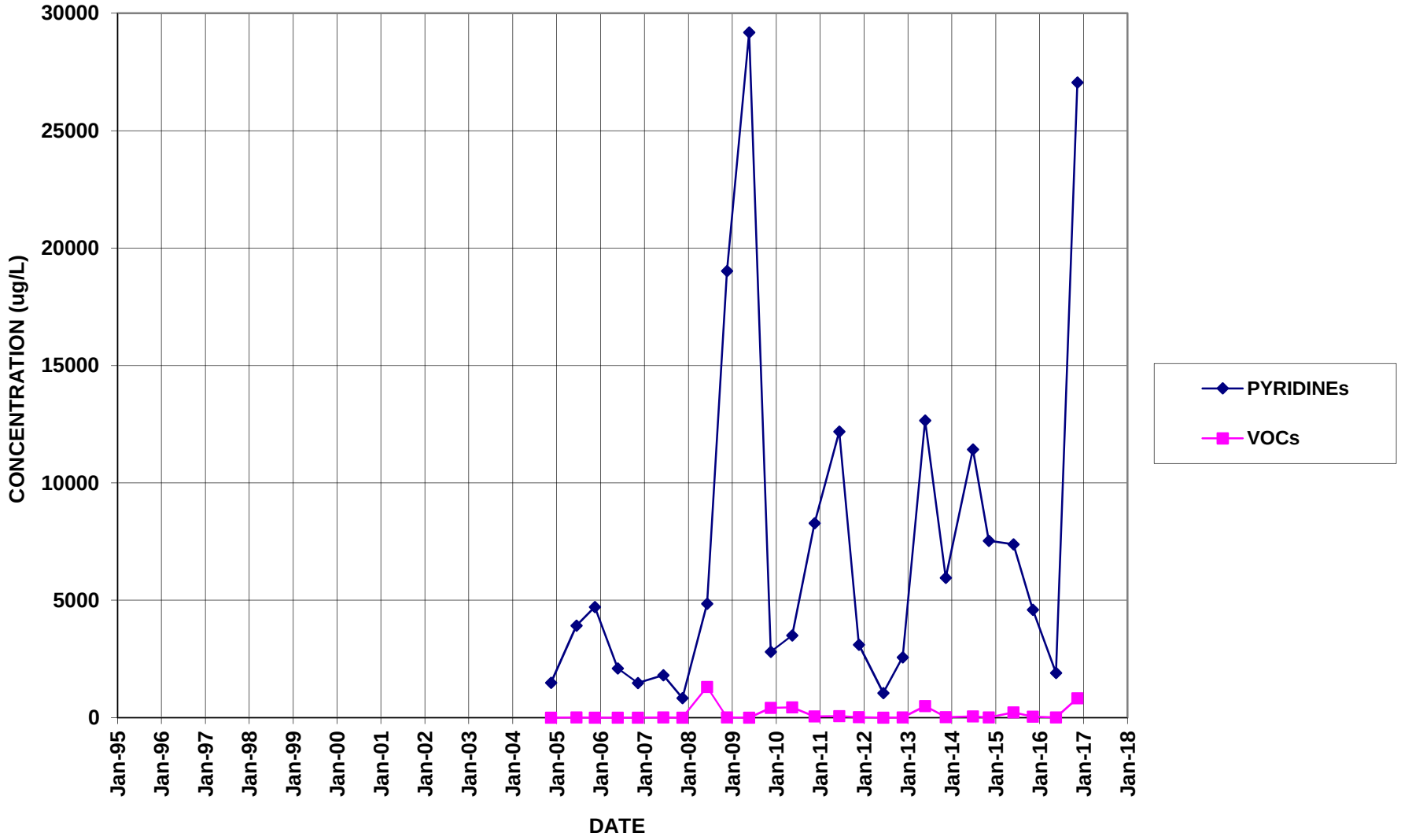
Prepared by: nmb
Reviewed by: jeb

BR-106



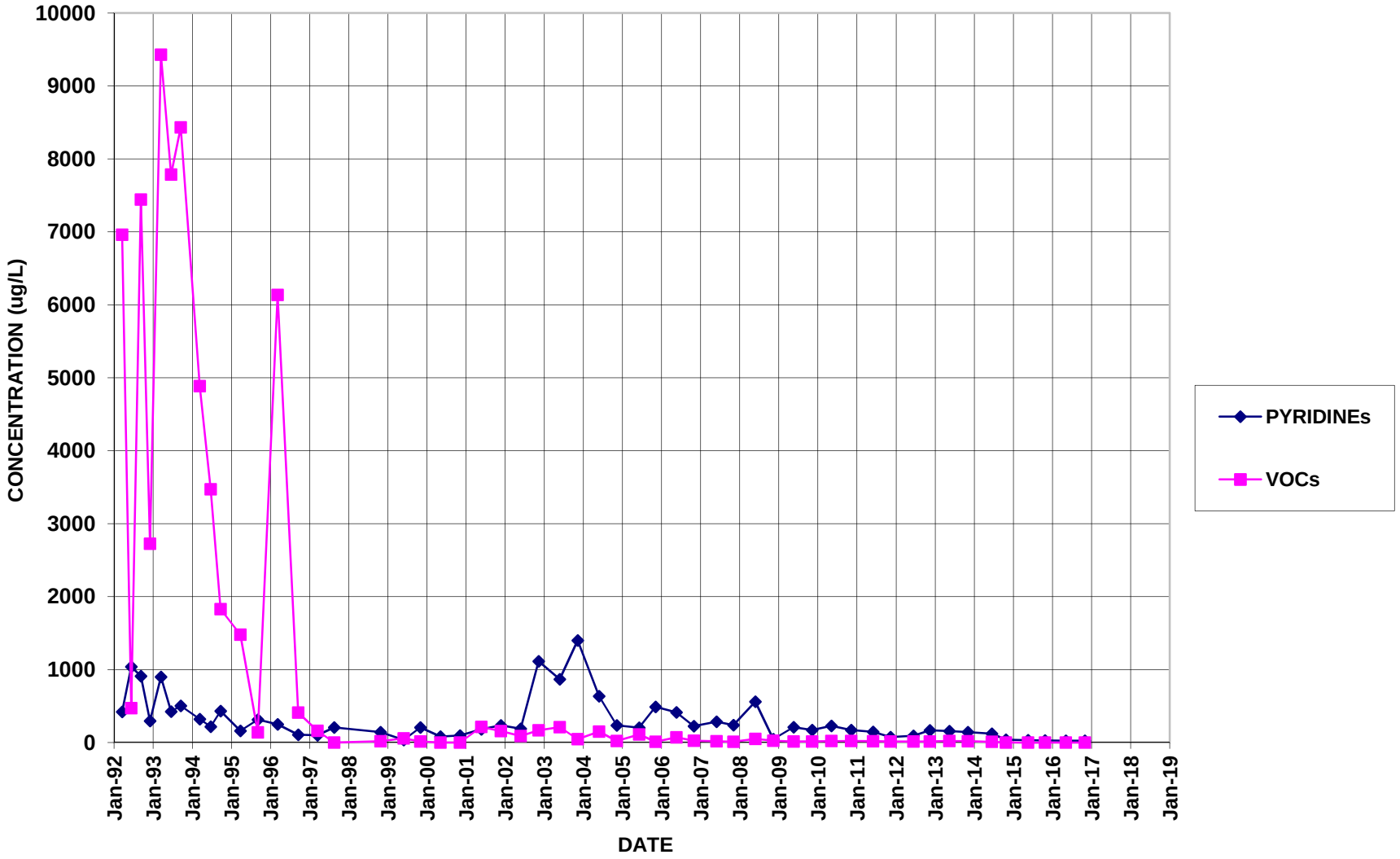
Prepared by: nmb
Reviewed by: jeb

BR-127



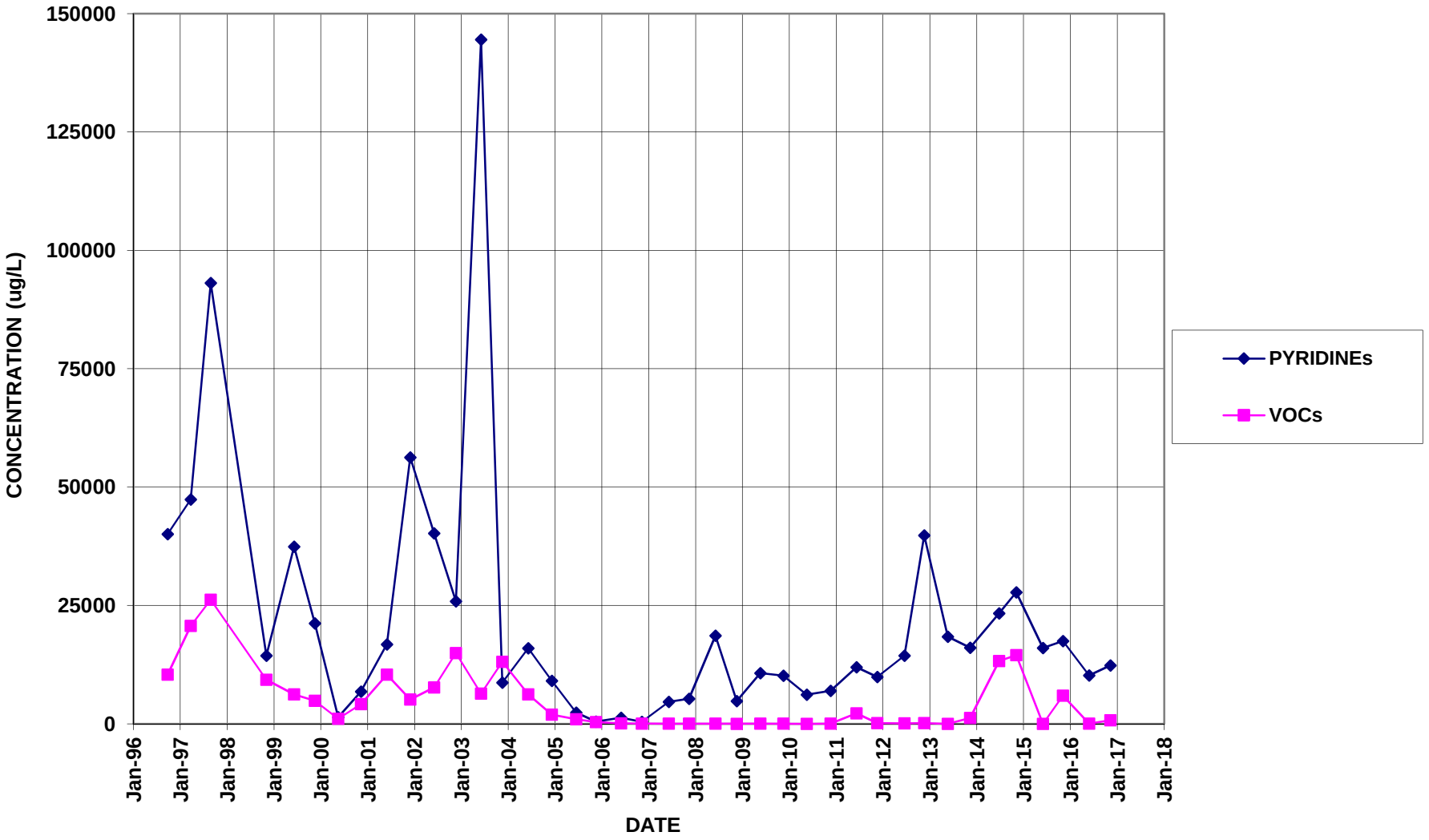
Prepared by: nmb
Reviewed by: jeb

BR-5A

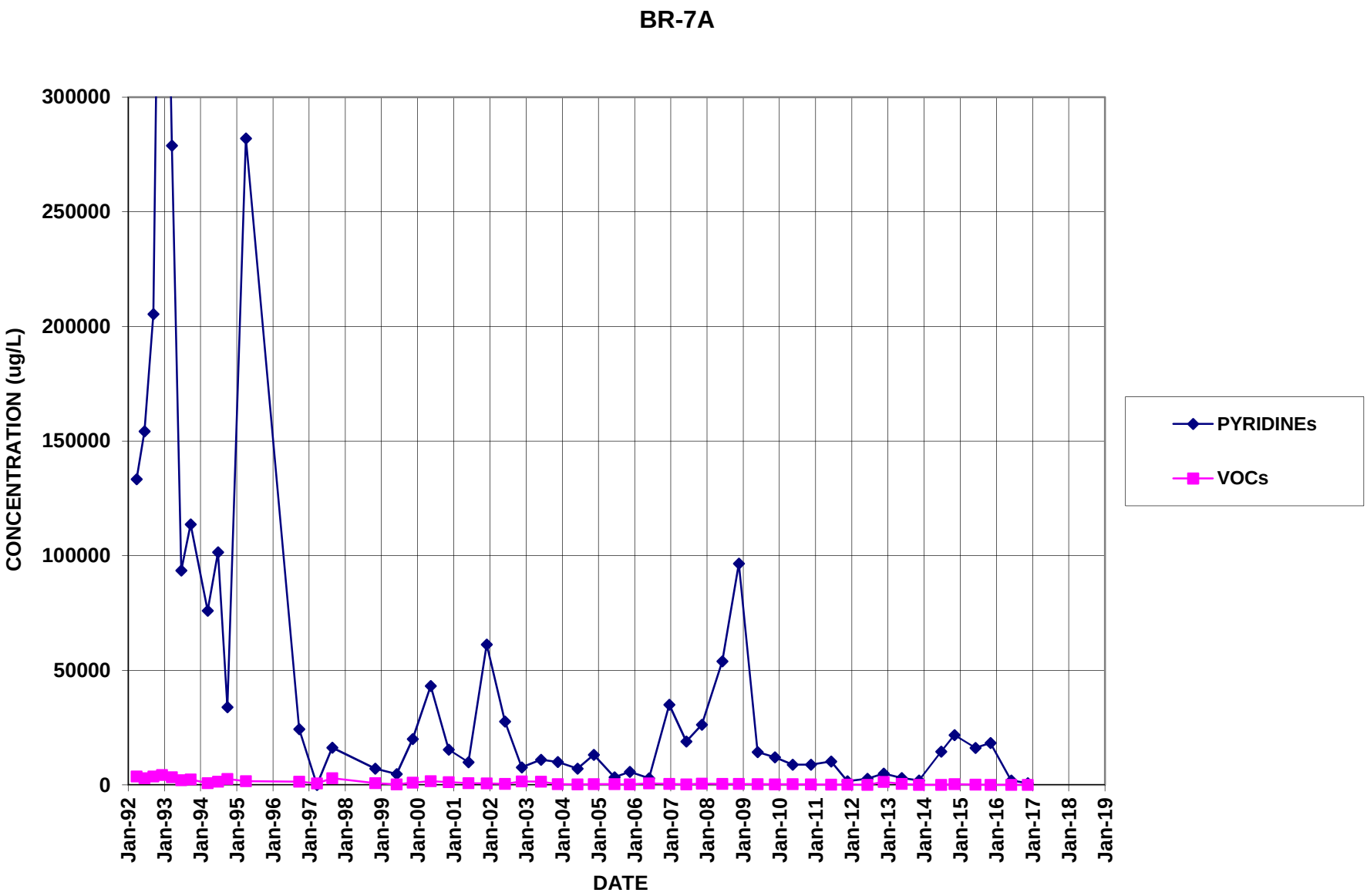


Prepared by: nmb
Reviewed by: jeb

BR-6A

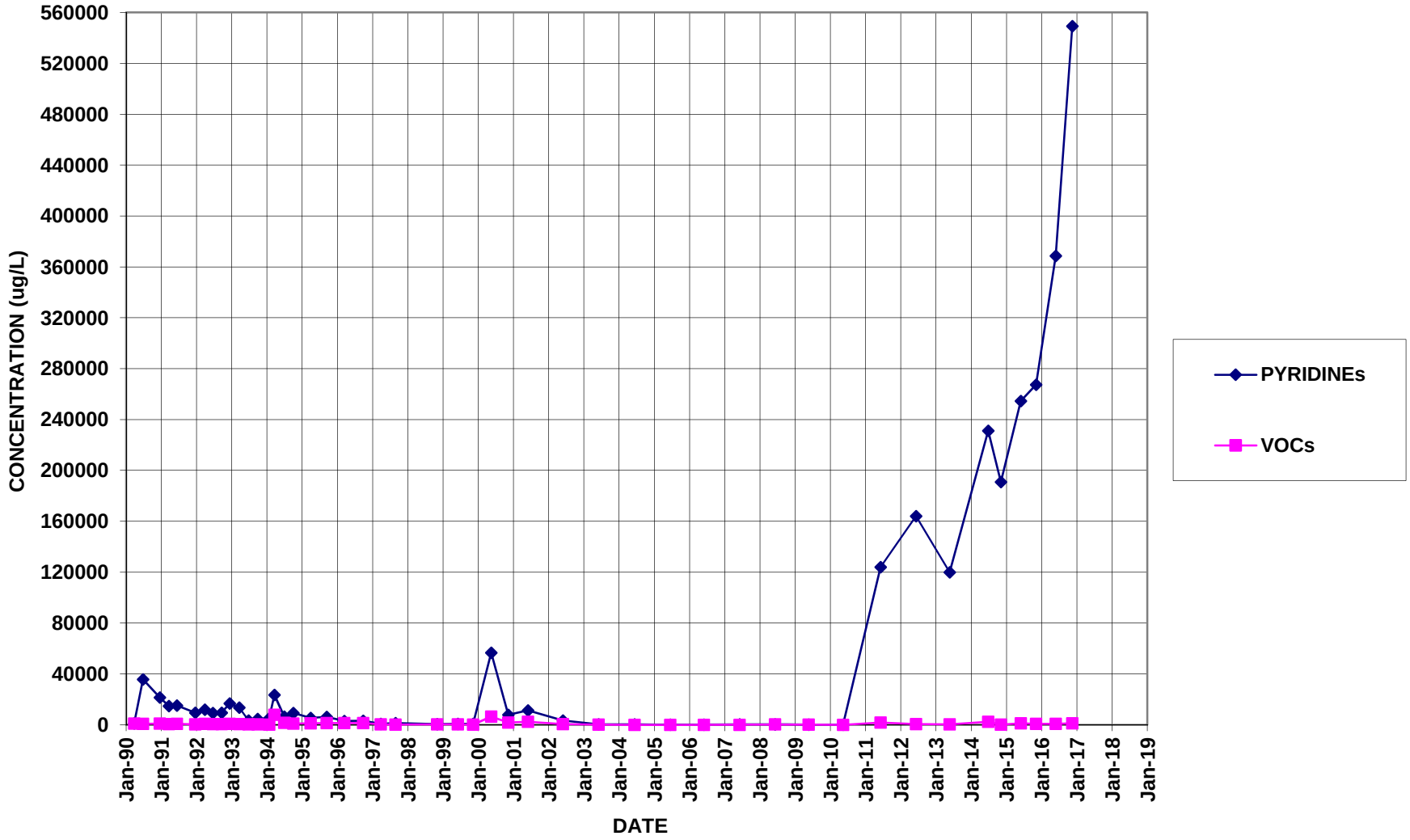


Prepared by: nmb
Reviewed by: jeb



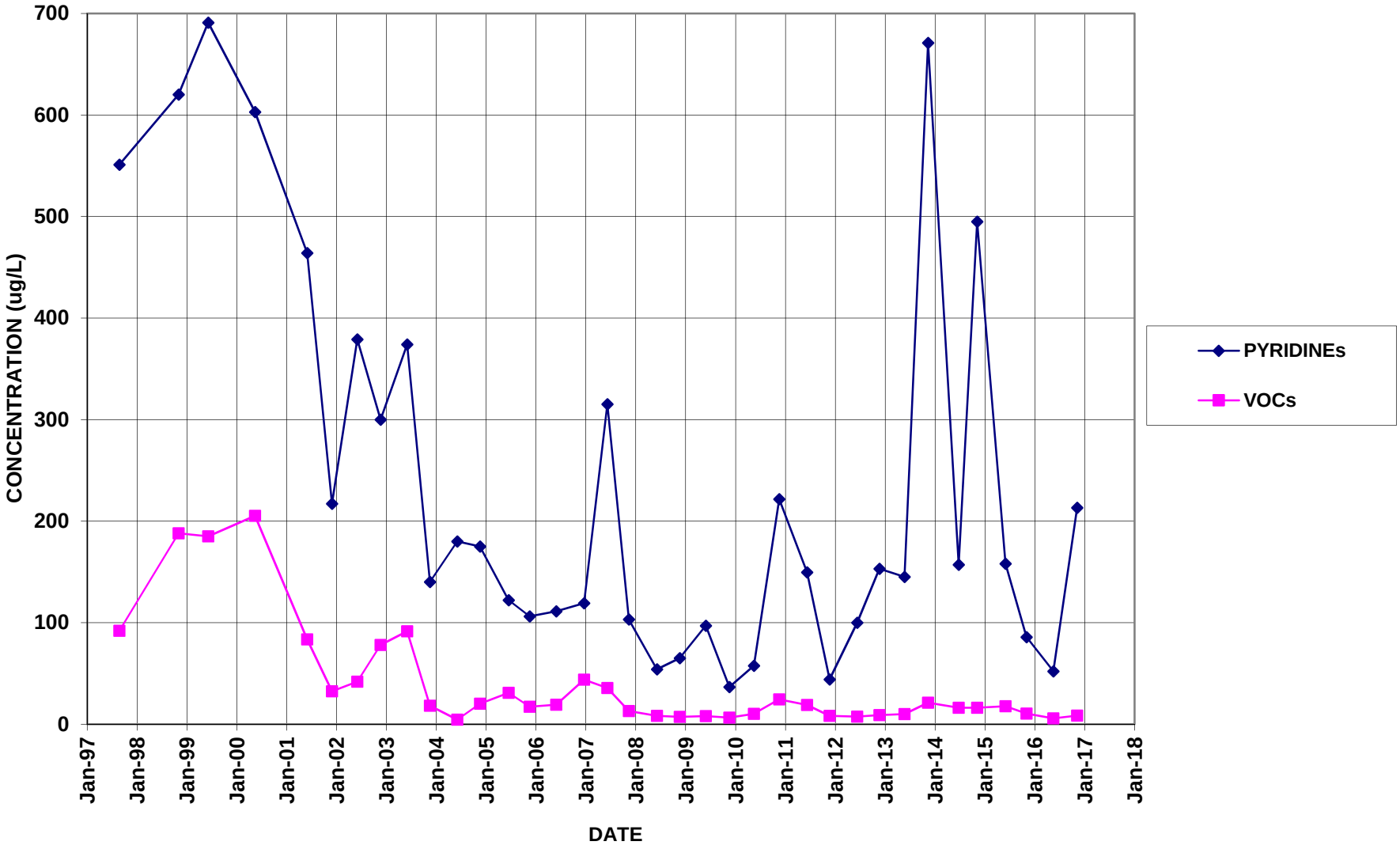
Prepared by: nmb
Reviewed by: jeb

BR-8

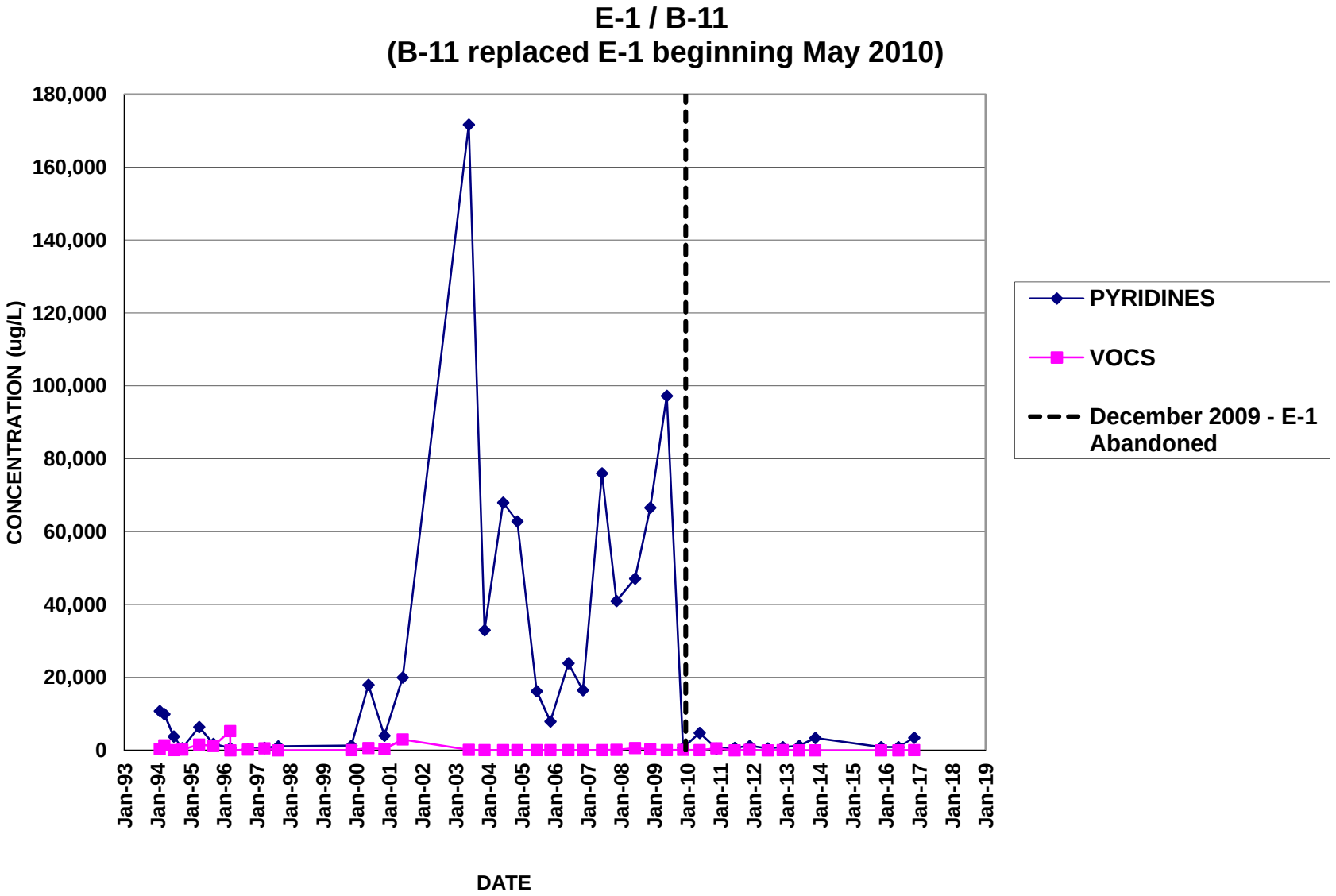


Prepared by: nmb
Reviewed by: jeb

BR-9

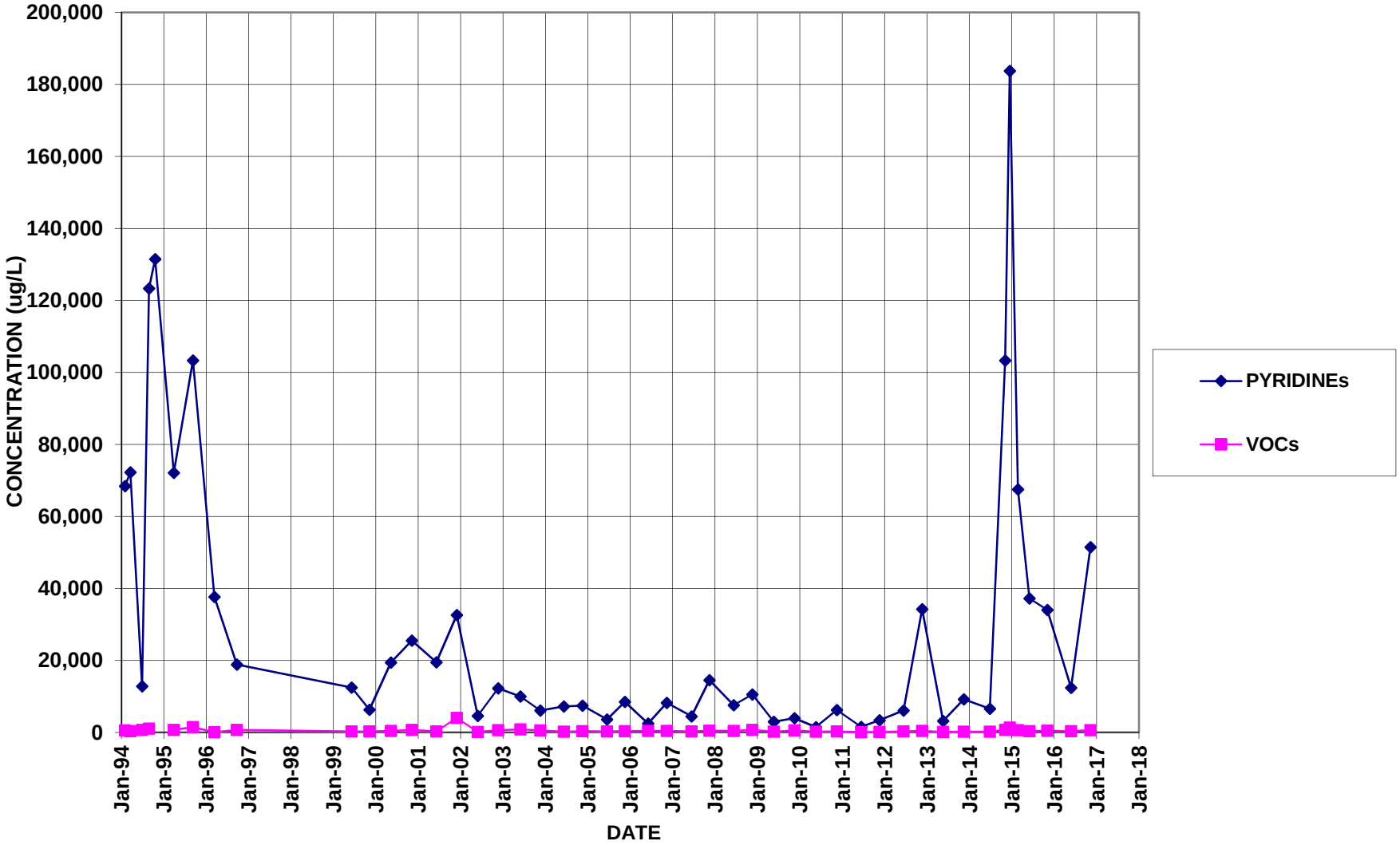


Prepared by: nmb
Reviewed by: jeb



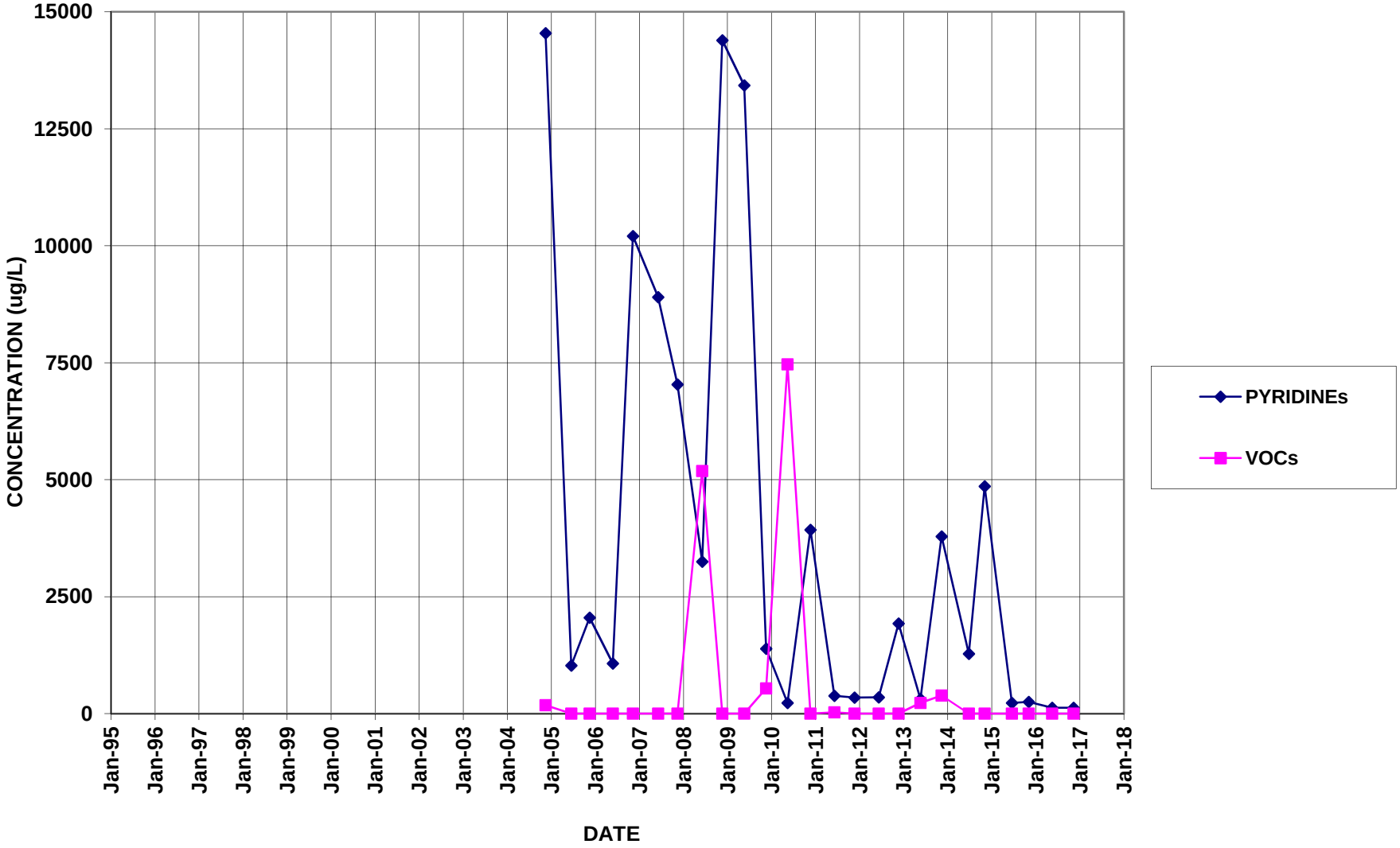
Prepared by: nmb
Reviewed by: jeb

MW-106



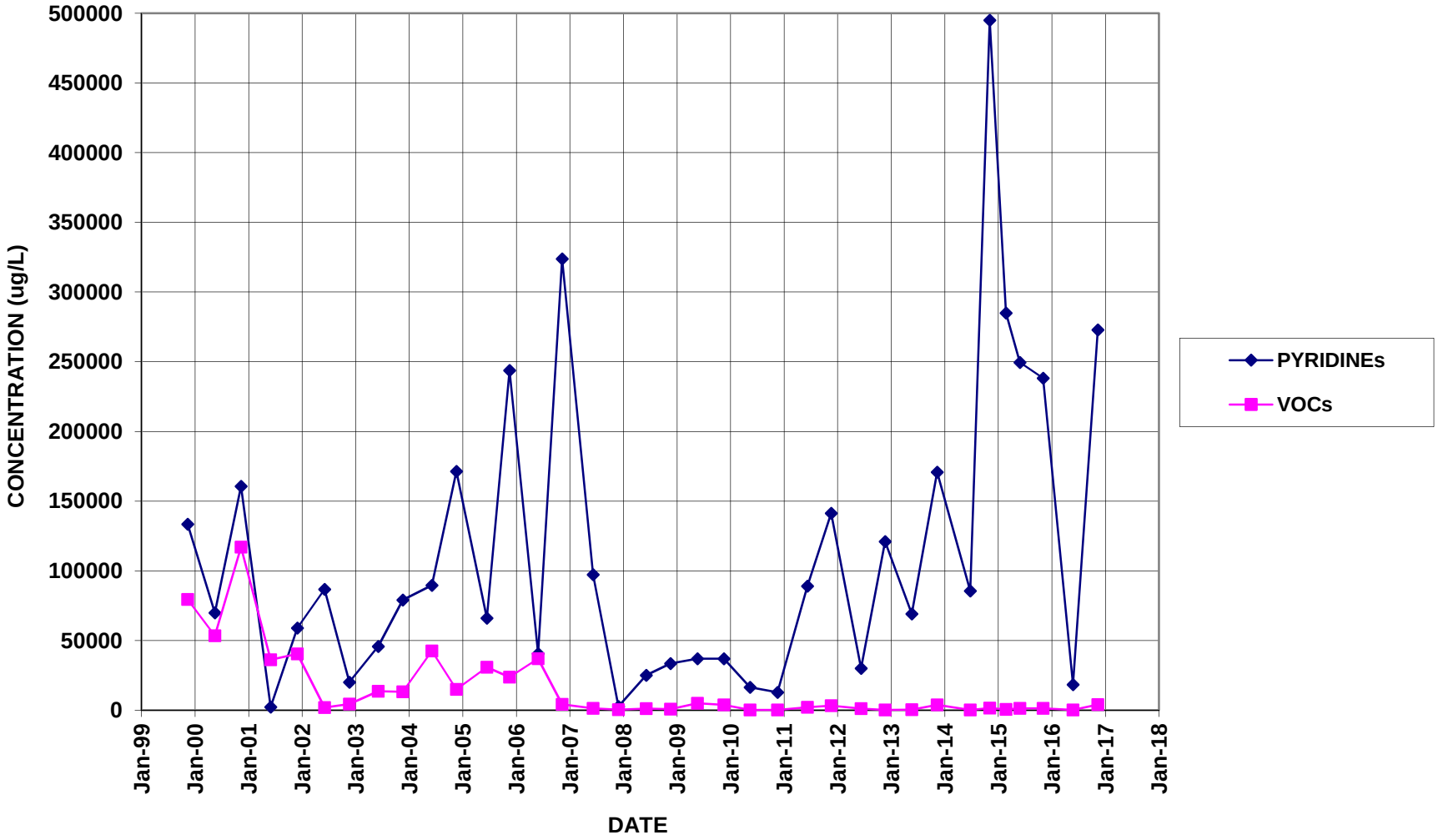
Prepared by: nmb
Reviewed by: jeb

MW-127



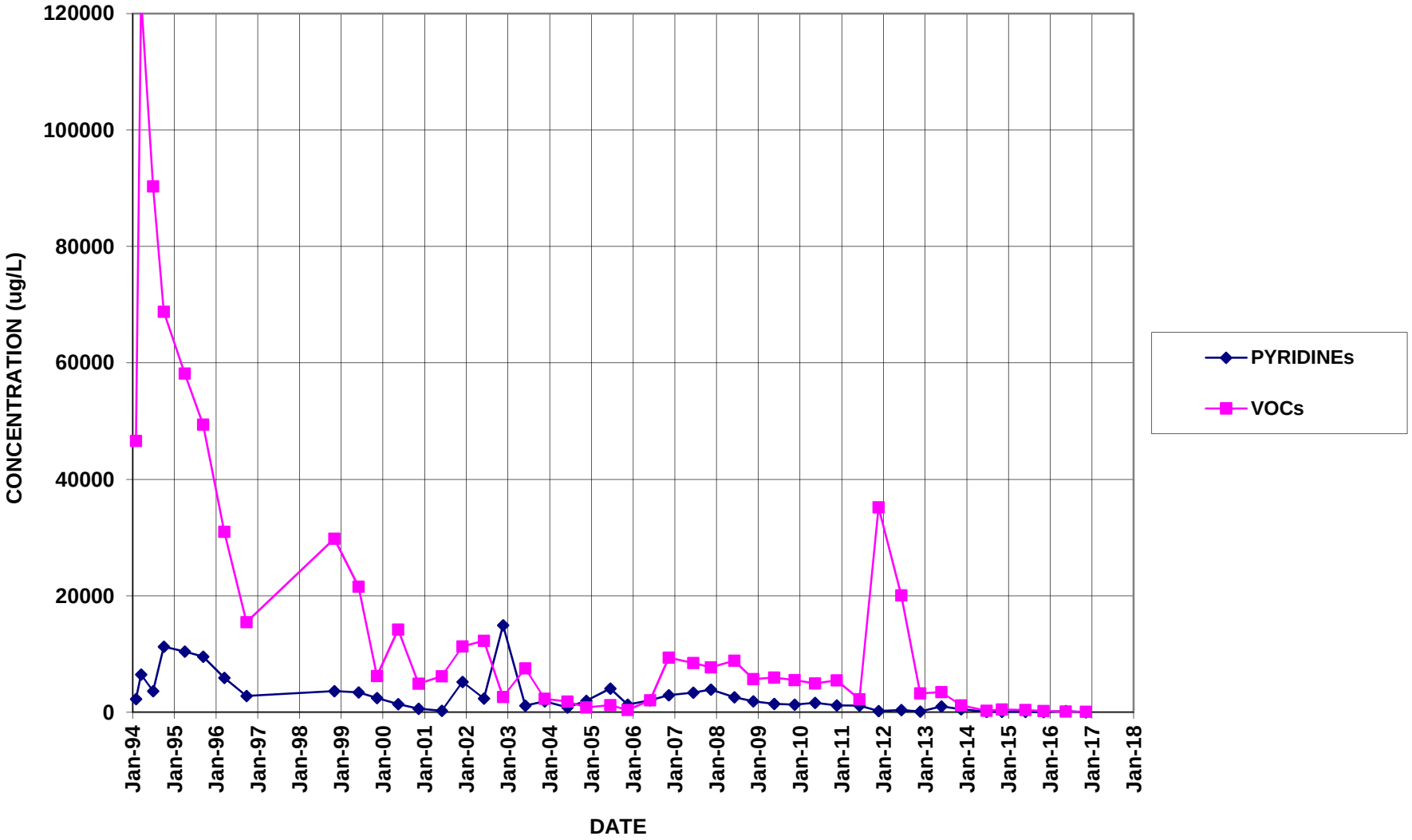
Prepared by: nmb
Reviewed by: jeb

PW10



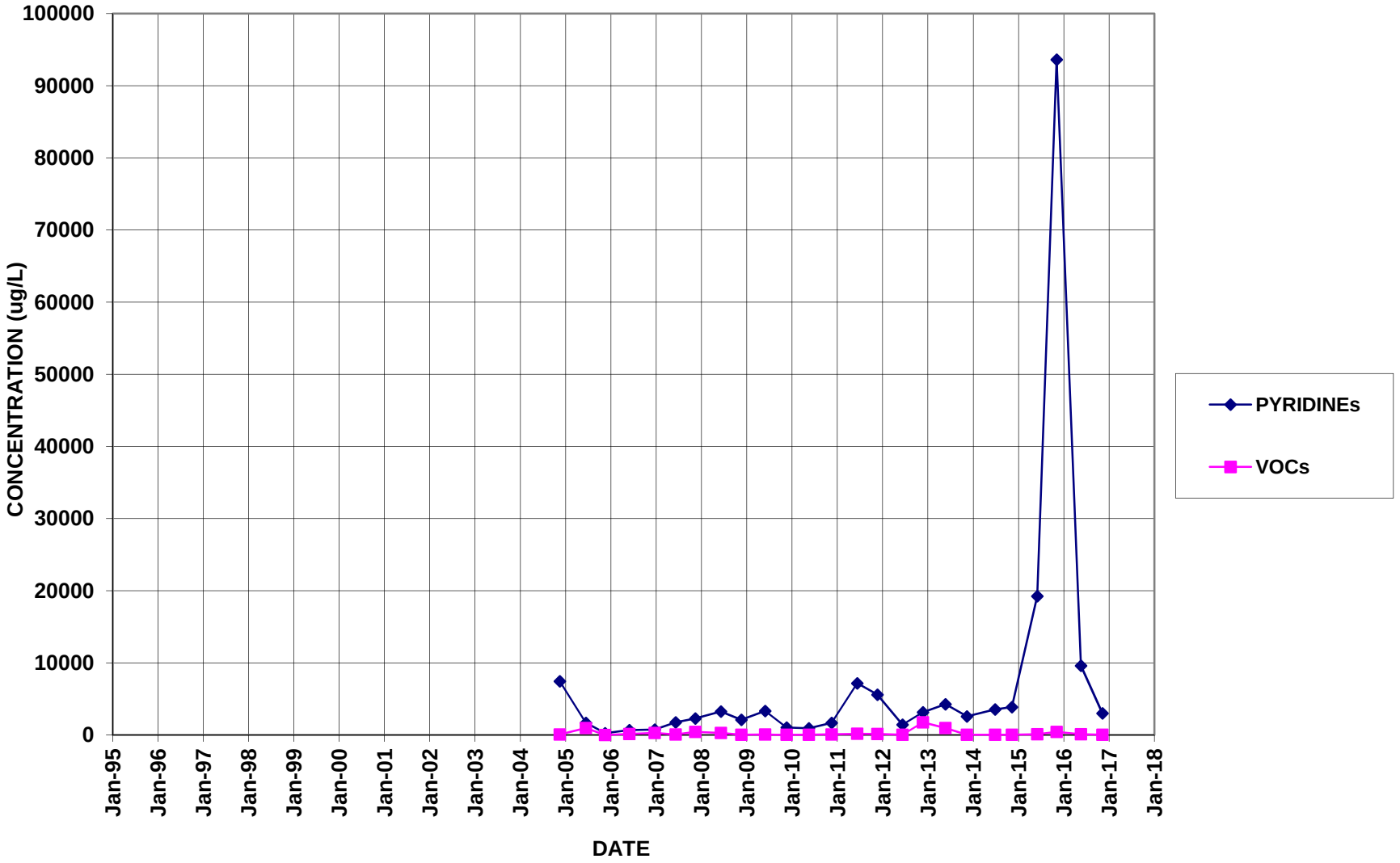
Prepared by: nmb
Reviewed by: jeb

PW12 (Formerly BR-101)



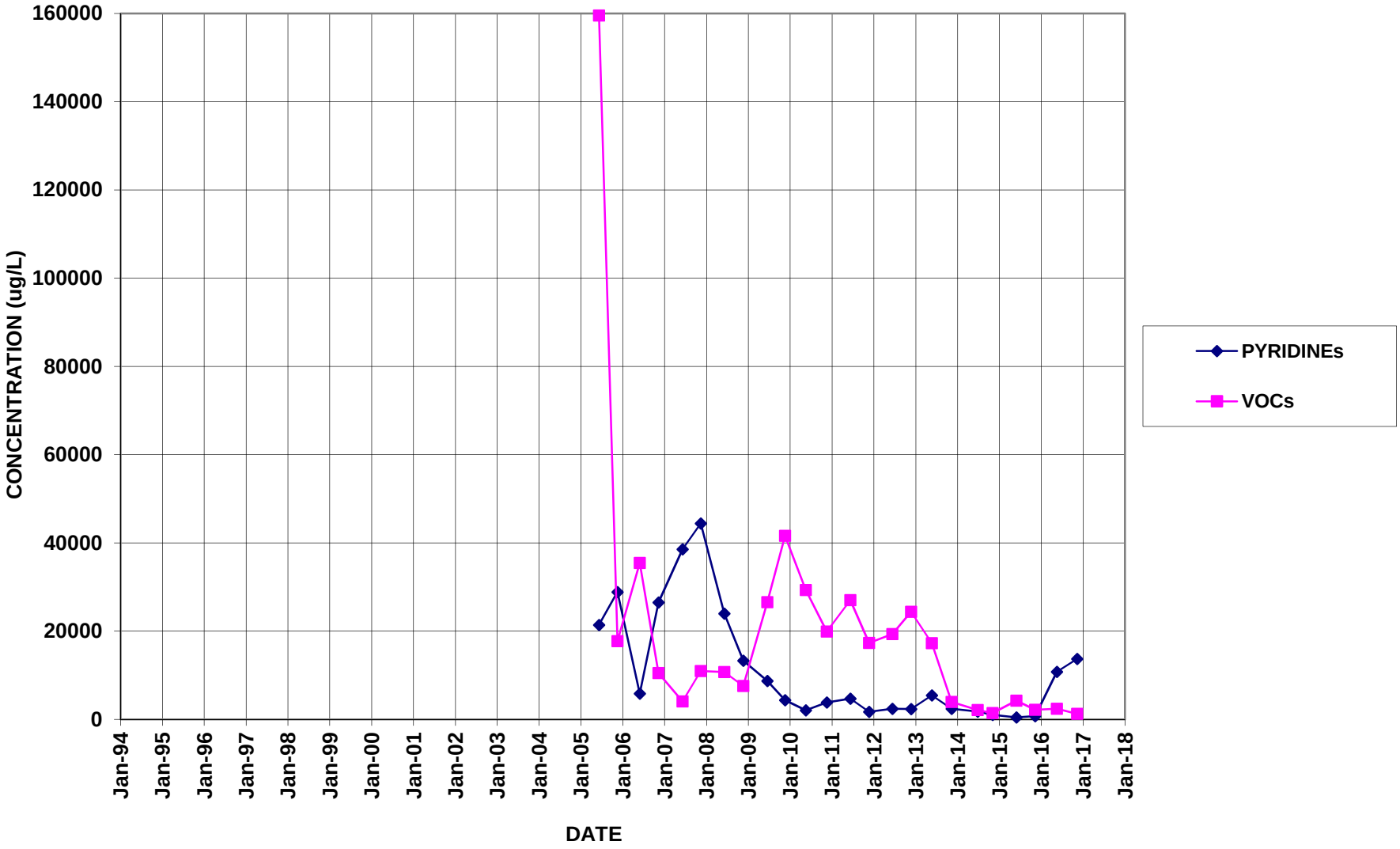
Prepared by: nmb
Reviewed by: jeb

PW13



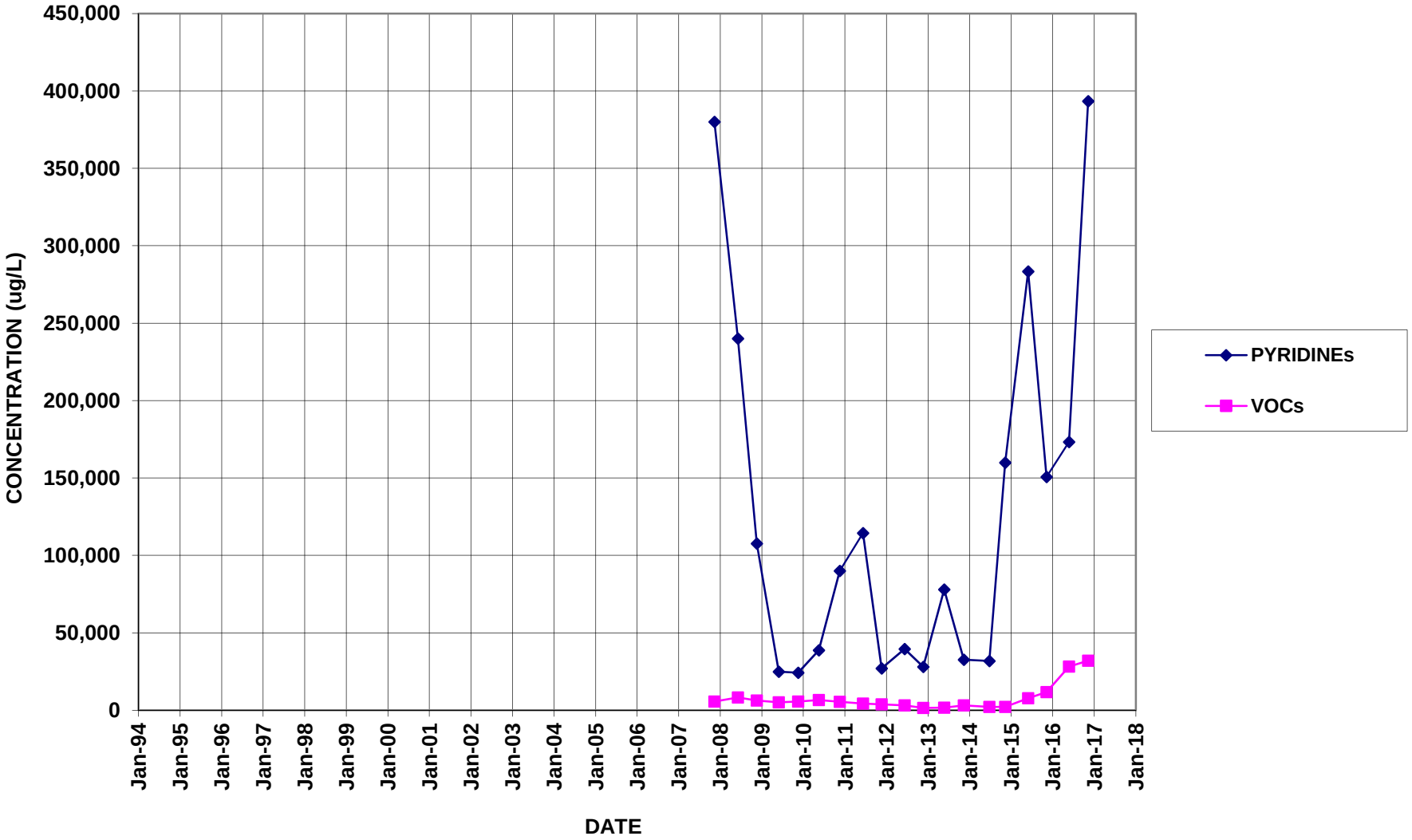
Prepared by: nmb
Reviewed by: jeb

PW14



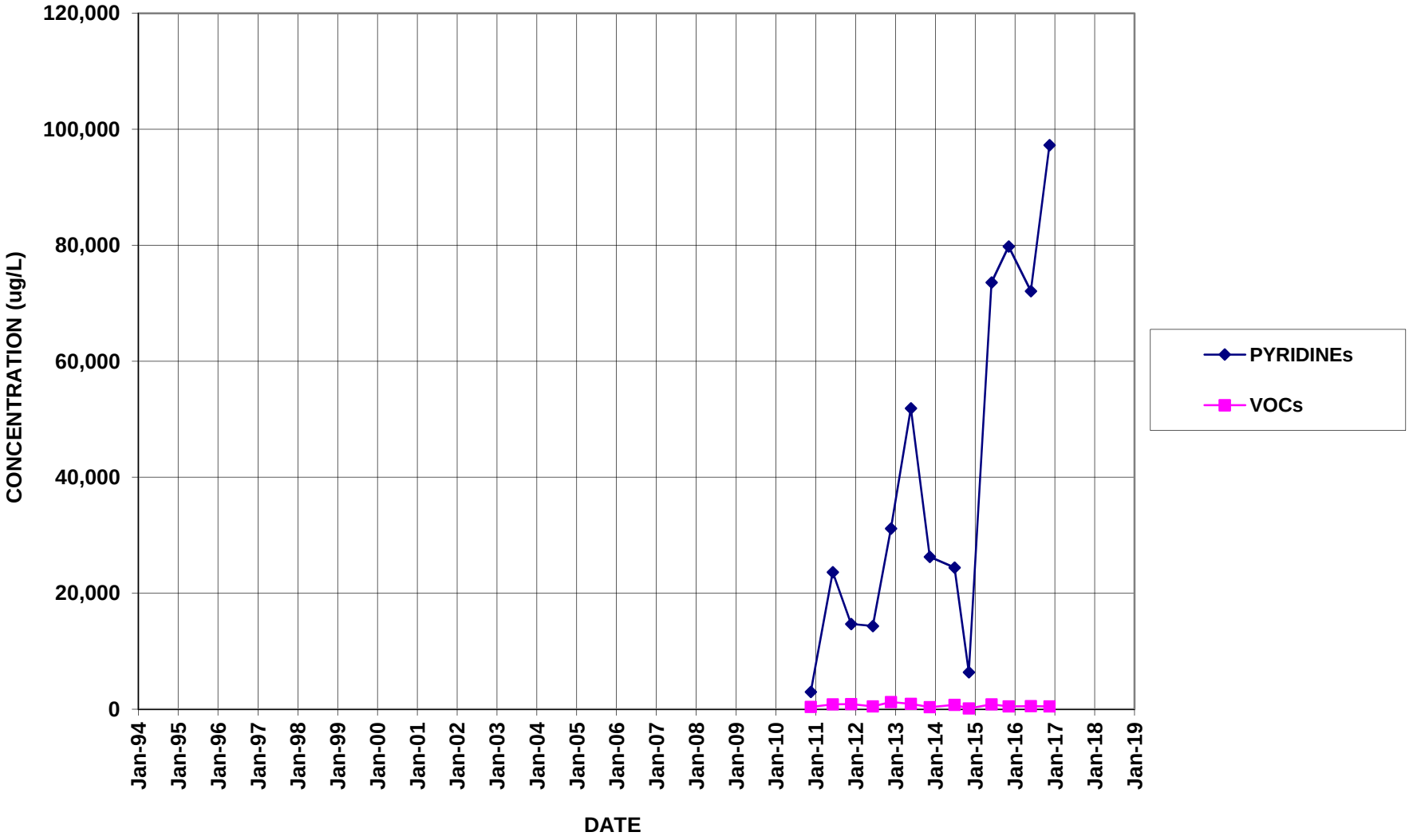
Prepared by: nmb
Reviewed by: jeb

PW15



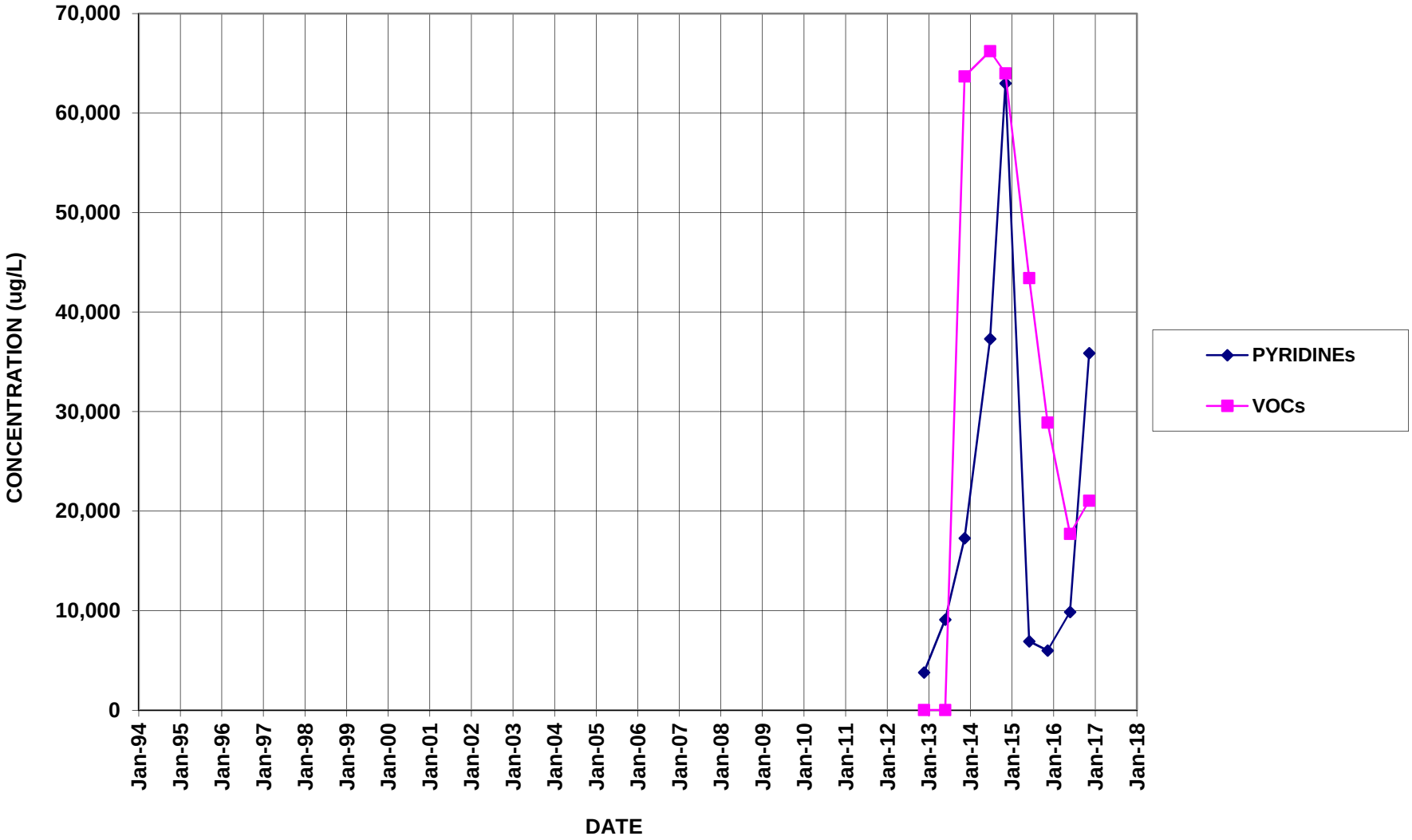
Prepared by: nmb
Reviewed by: jeb

PW16



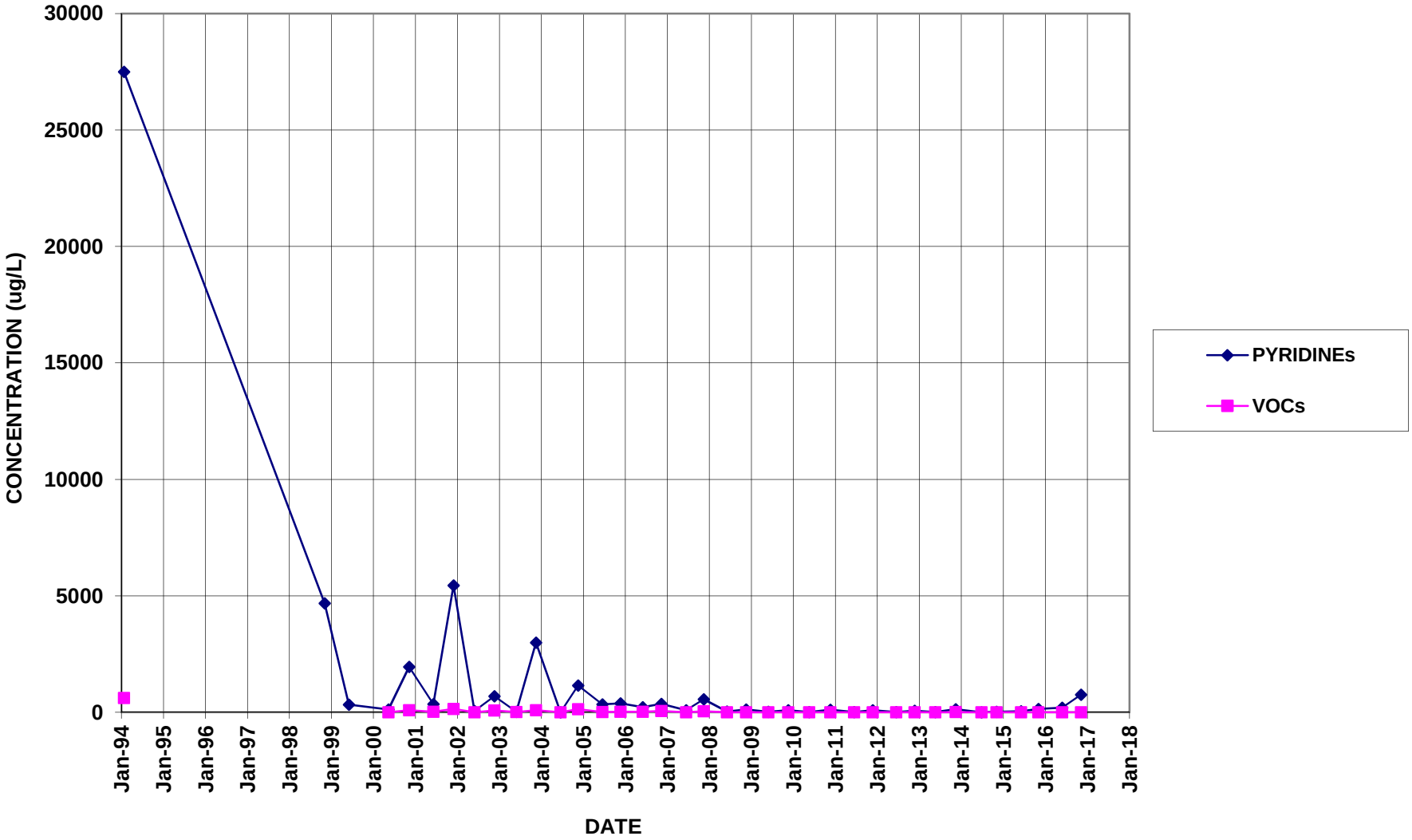
Prepared by: nmb
Reviewed by: jeb

PW17



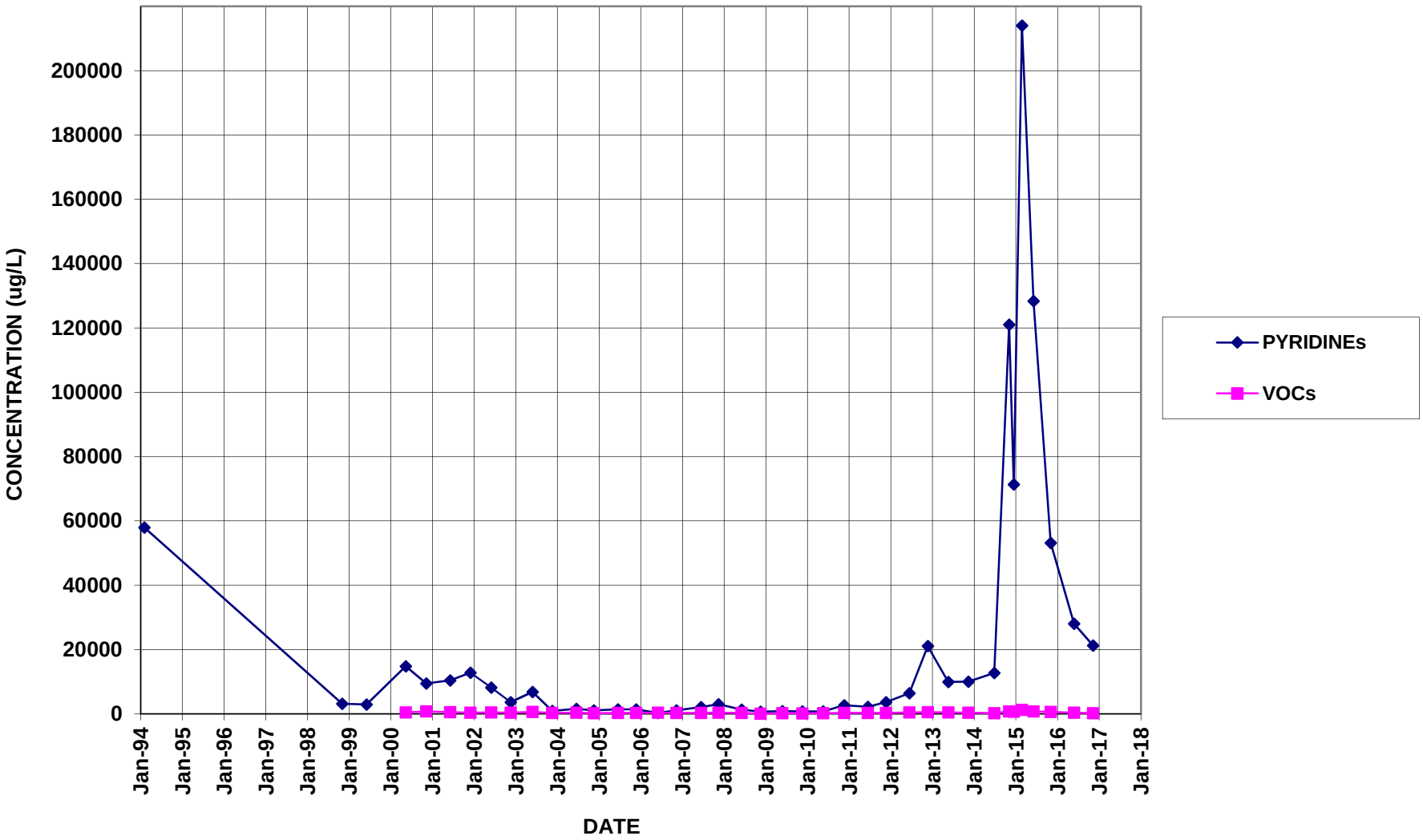
Prepared by: nmb
Reviewed by: jeb

PZ-101



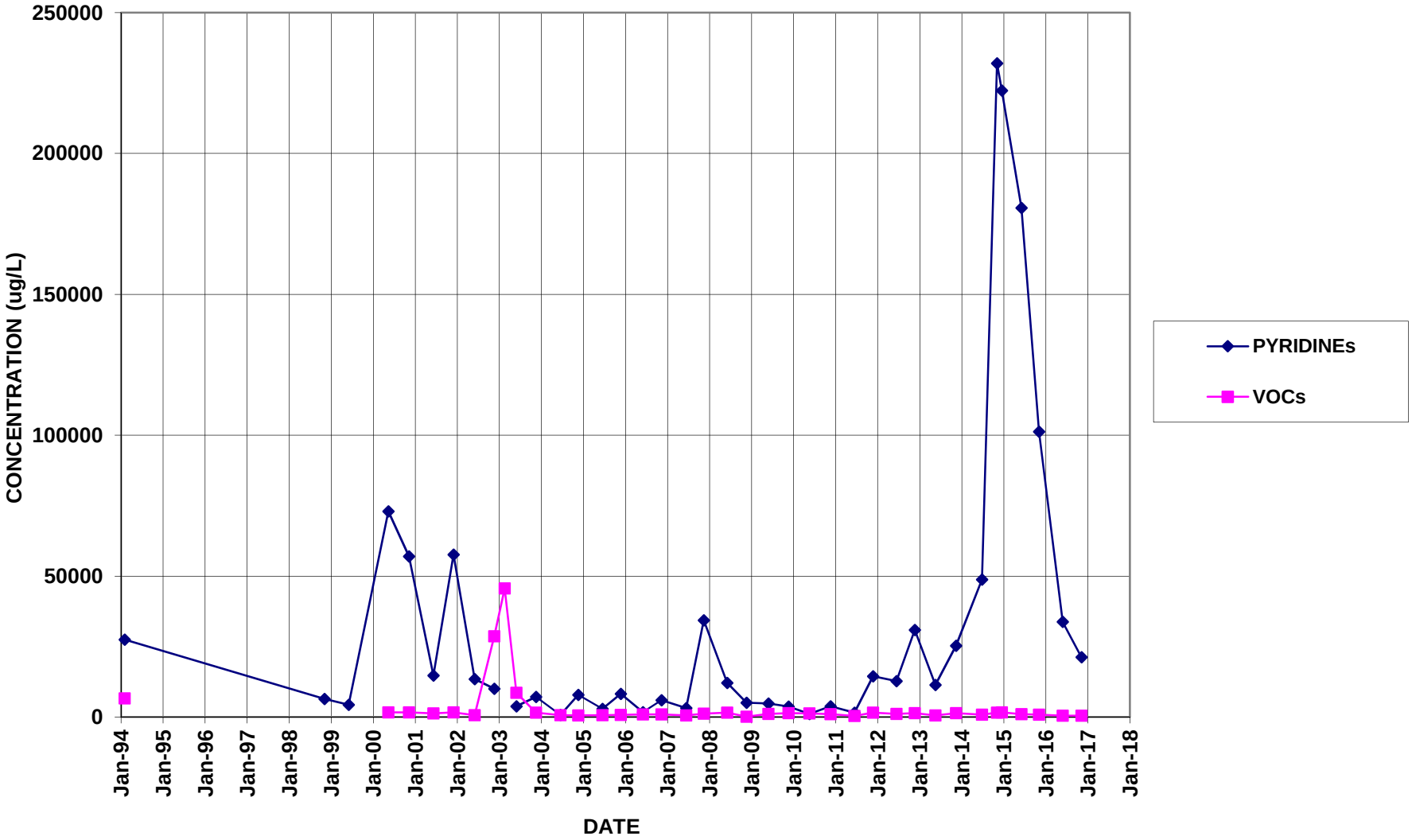
Prepared by: nmb
Reviewed by: jeb

PZ-102



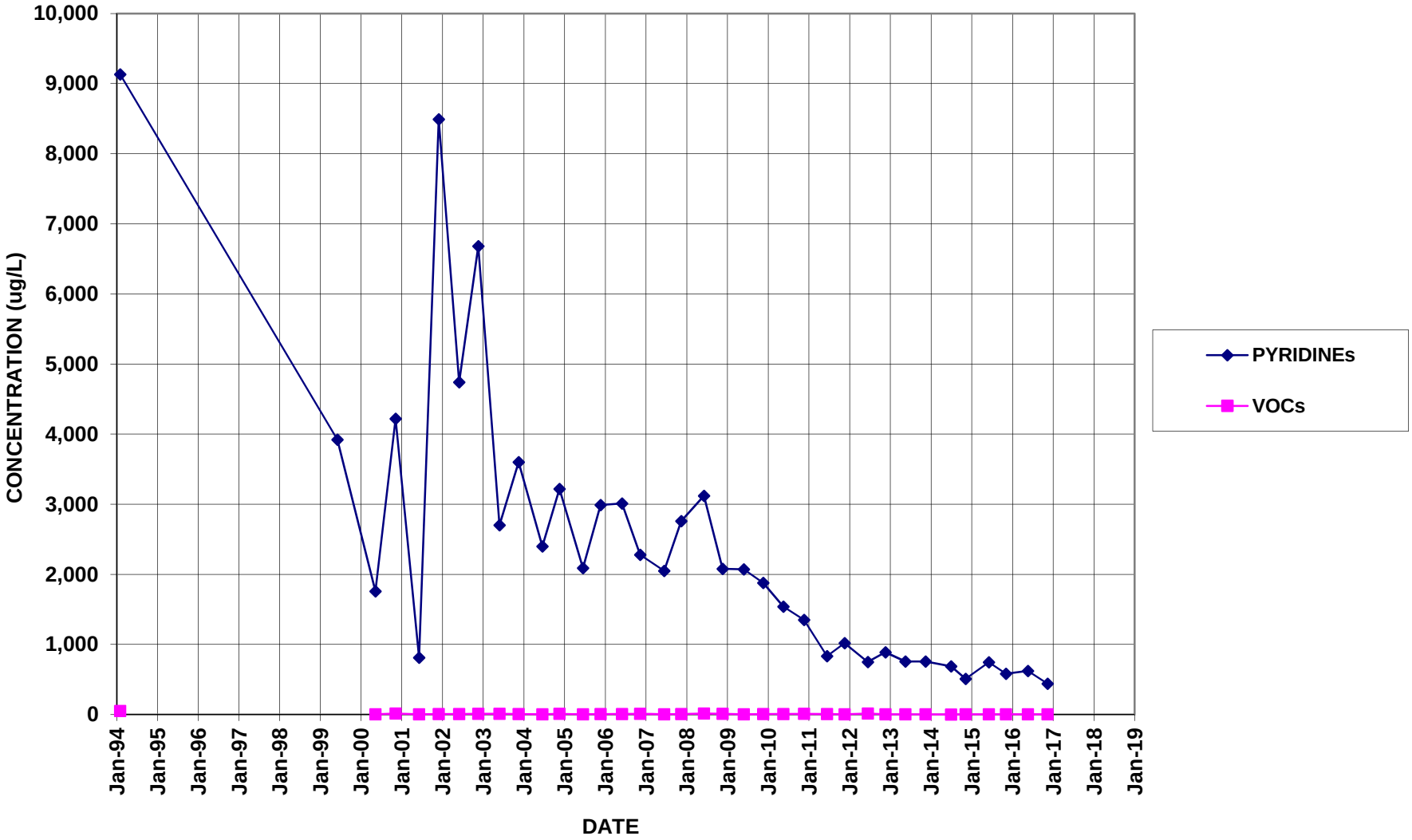
Prepared by: nmb
Reviewed by: jeb

PZ-103



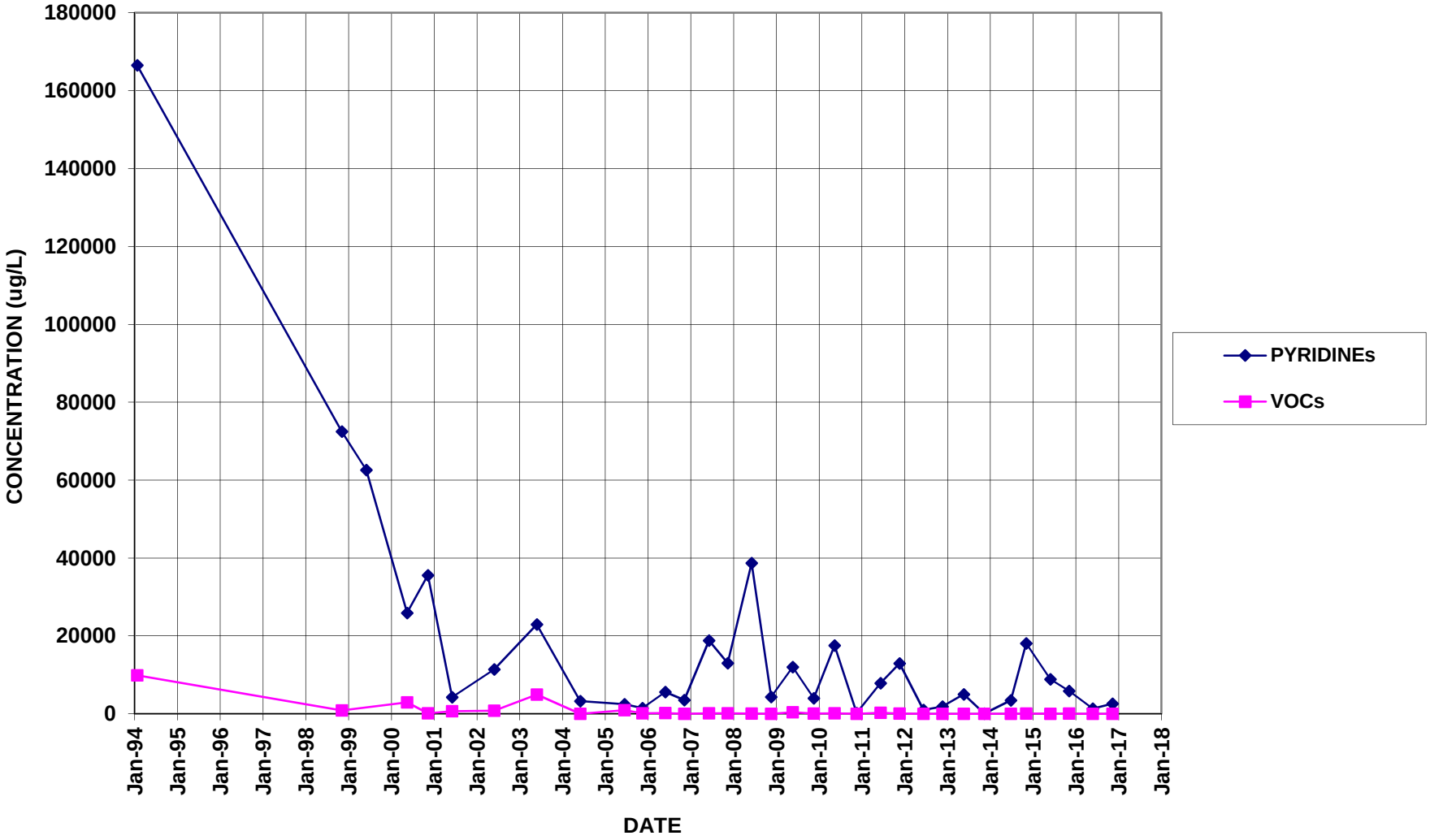
Prepared by: nmb
Reviewed by: jeb

PZ-104



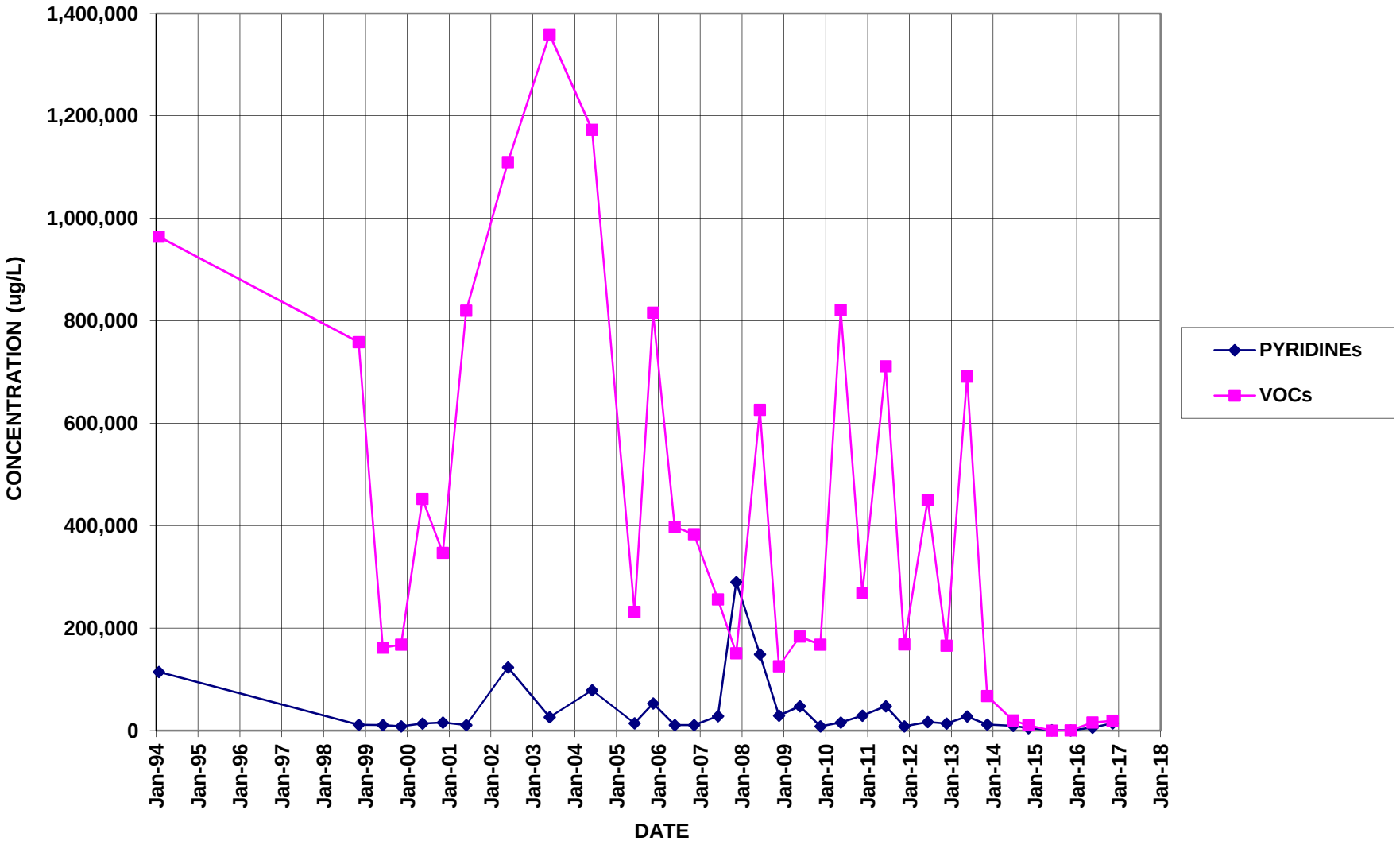
Prepared by: nmb
Reviewed by: jeb

PZ-105



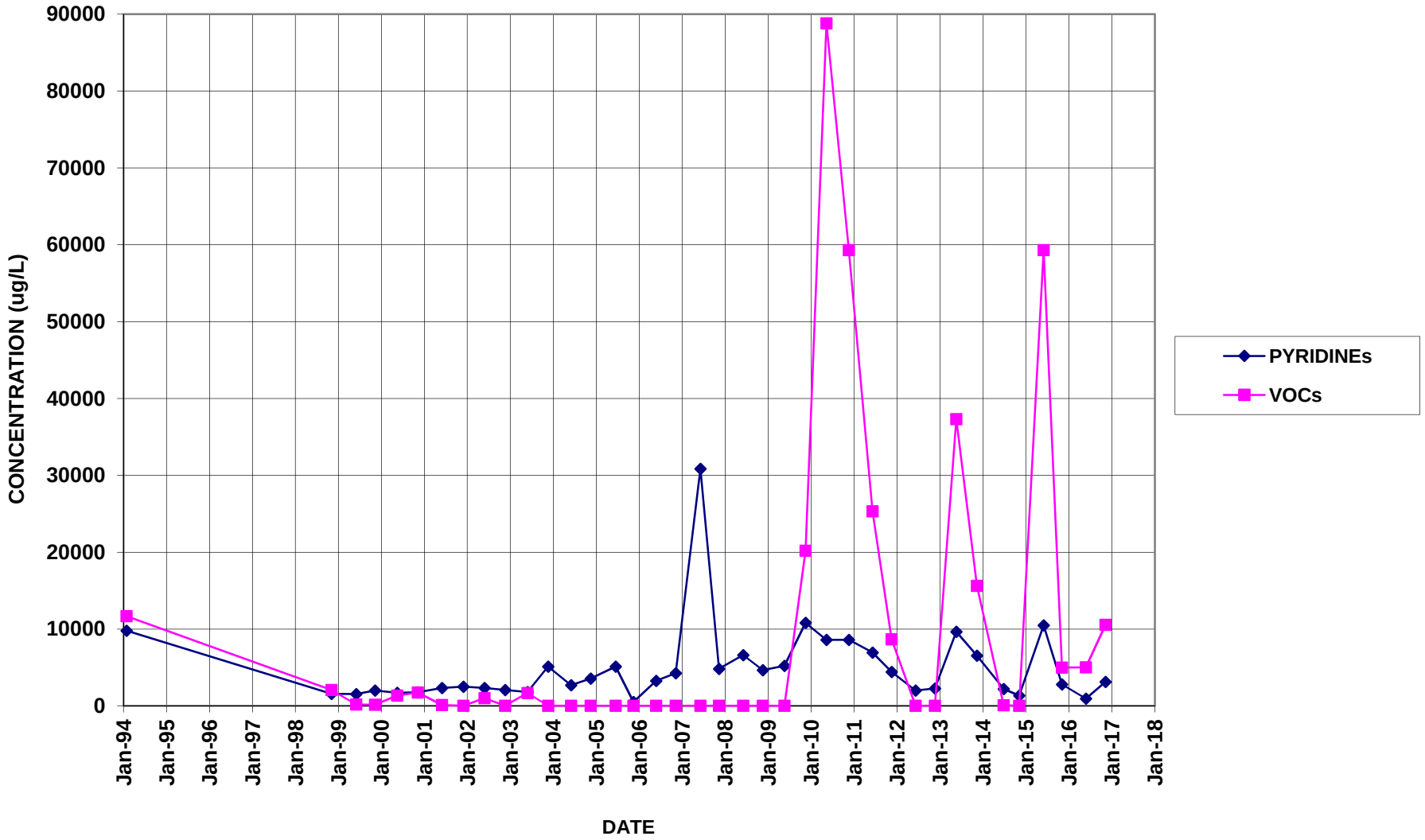
Prepared by: nmb
Reviewed by: jeb

PZ-106

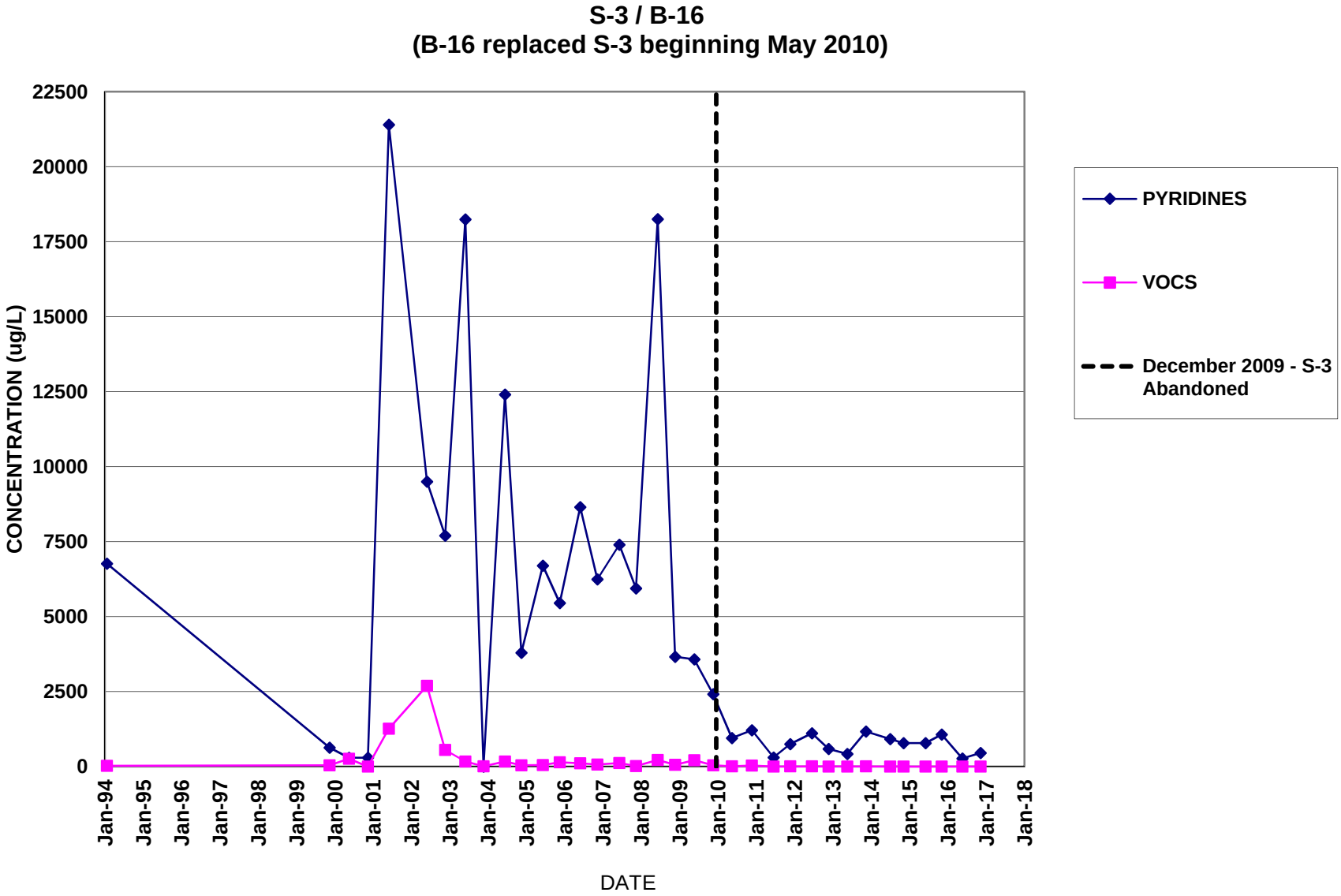


Prepared by: nmb
Reviewed by: jeb

PZ-107

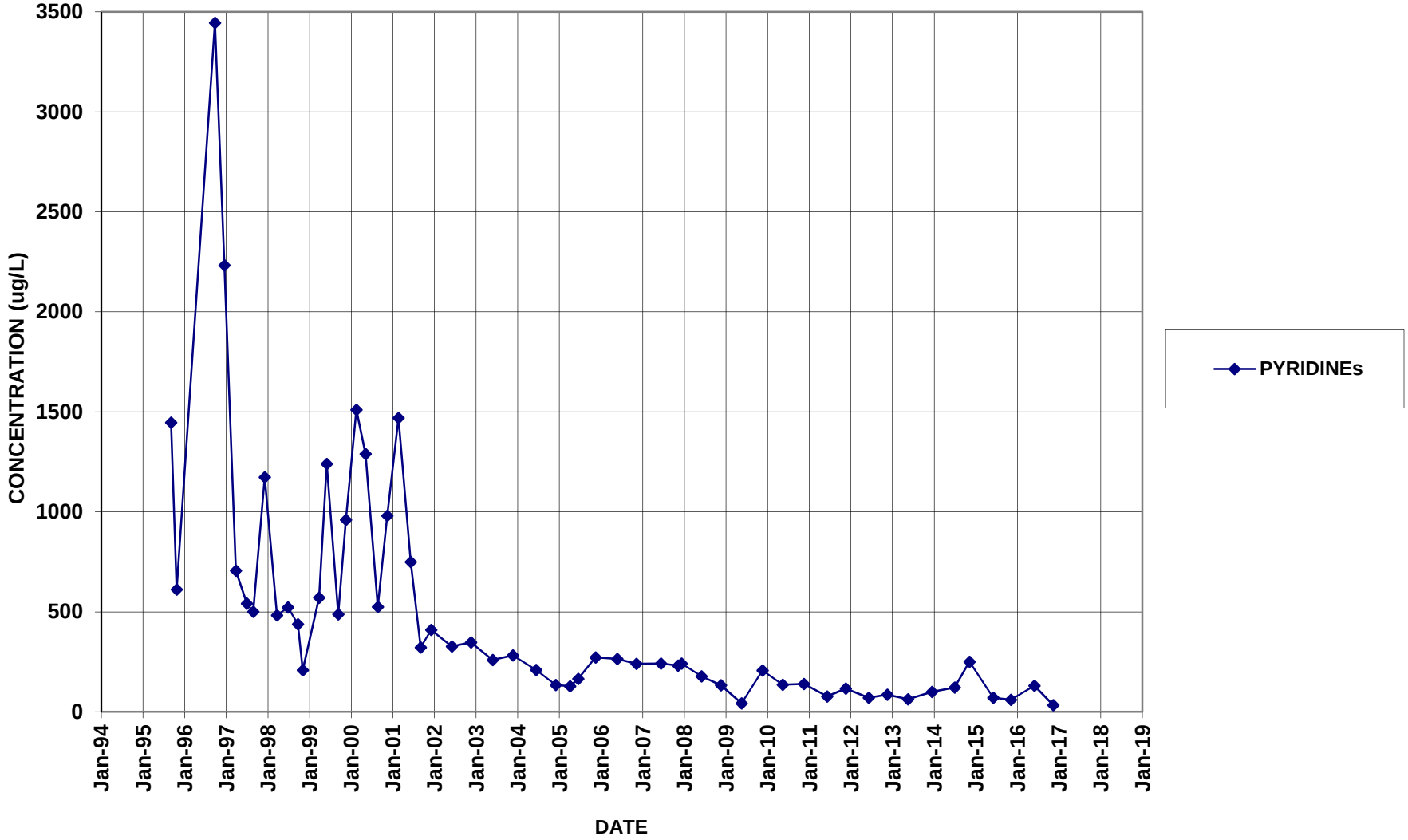


Prepared by: nmb
Reviewed by: jeb



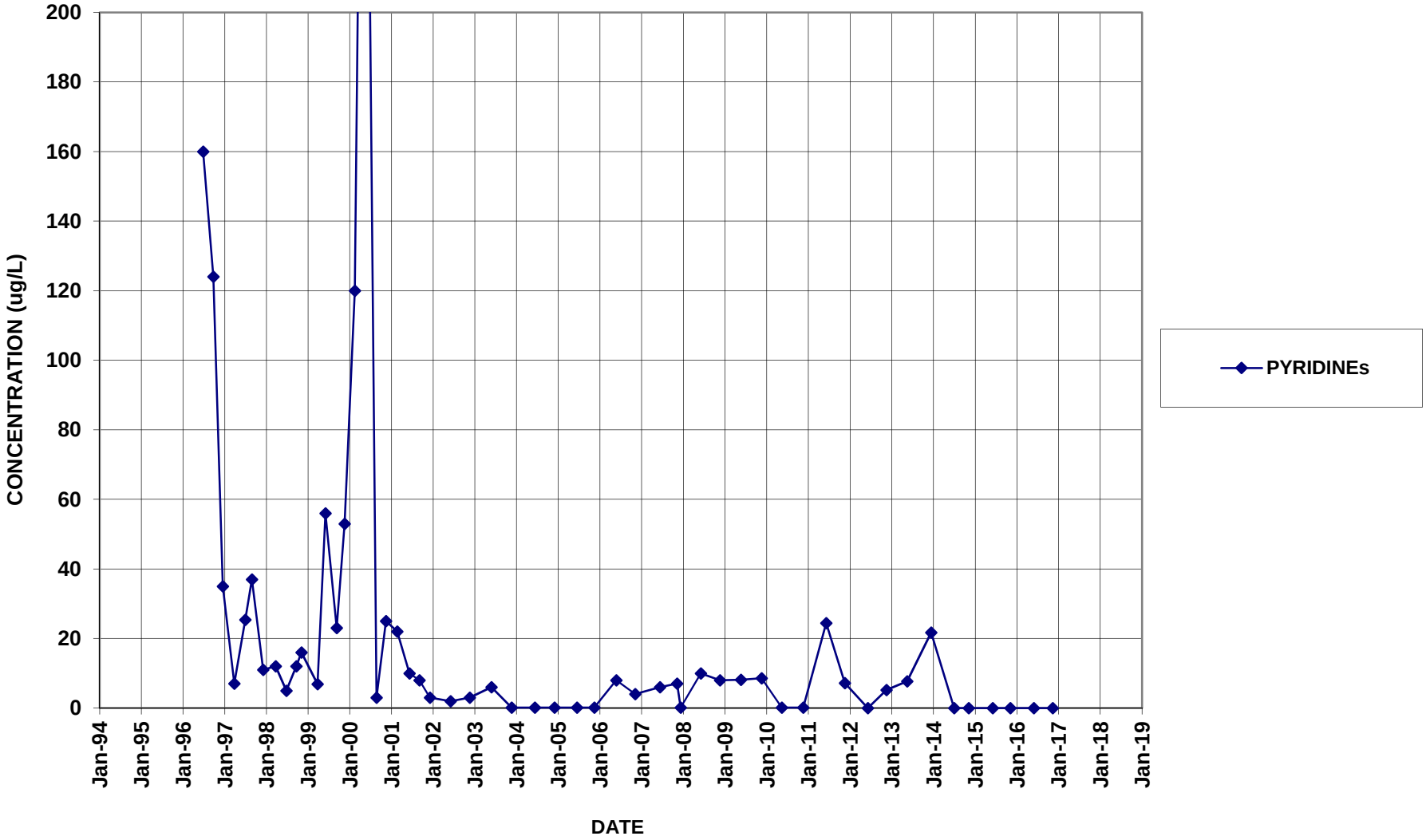
Prepared by: nmb
Reviewed by: jeb

QS-4 (QUARRY SEEP)



Prepared by: nmb
Reviewed by: jeb

QO-2 (QUARRY OUTFALL)



Prepared by: nmb
Reviewed by: jeb