Arch Chemicals, Inc.

Rochester, New York (Site #828018a)

Groundwater Monitoring Report 60
Spring 2018

August 2018

SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
SPRING 2018 MONITORING REPORT

ARCH CHEMICALS
ROCHESTER PLANT SITE
ROCHESTER, NEW YORK

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

AUGUST 2018

SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
SPRING 2018 MONITORING REPORT

ARCH CHEMICALS
ROCHESTER PLANT SITE
ROCHESTER, NEW YORK

Prepared by

Wood Environment & Infrastructure Solutions, Inc.
Portland, Maine

for

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

August 2018

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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 May 2018, samples from a total of 41 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. Ten of the 41 wells sampled for chloropyridines had contaminant concentrations that were above their respective 5-year prior averages. Five of the 35 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 43 micrograms per liter (µg/L), which is below its prior 5-year average of 93 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 floating (or light) non-aqueous phase liquids (LNAPL) using an interface probe. No LNAPL was observed in any of these wells.

During the period December 2017 through May 2018, the on-site groundwater extraction system pumped approximately 7.7 million gallons of groundwater to the on-site treatment system, containing an estimated 2,400 pounds of chloropyridines and 82 pounds of target volatile organic compounds.

The next regular monitoring event will occur in November 2018 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 Spring 2018 sampling event included the collection and analysis of groundwater, surface water, and seep samples from a total of 45 off-site and on-site locations. Samples were collected from May 9 through 16, 2018, for analysis of selected chloropyridines and volatile organic compounds (VOCs).

This report presents the results of the Spring 2018 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. 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 May 7, 2018. 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 LNAPL using an interface probe. LNAPL was not 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 May 15, 2018. All quarry-related samples were analyzed for the Arch suite of selected chloropyridines. The quarry locations sampled during the Spring 2018 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 one or more VOC surrogates 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): BR127, PZ105, BR6A, PW16, BR-8, PZ-102, BR-106, MW-106, and PW-13.

In addition, one or more VOC surrogates had percent recoveries greater than the laboratory control limits, indicating potential high biases for detected VOCs. Detections of VOCs in samples BR-8 and MW-114 were qualified estimated (J) and may represent potential high biases.

Percent recoveries of the SVOC surrogate 2-fluorobiphenyl in samples PZ-104, PZ-103, B-15, MW-114, BR-123D, QO-2, QO-2S1, and BR-105D were less than the laboratory

statistically derived control limits, indicating potential low biases. Positive and non-detected results in these samples were qualified estimated (J/UJ).

Duplicates. Field duplicates were collected for locations BR-127 and BR-122D. Relative percent differences (RPDs) between sample and field duplicate results for all target analytes in both field duplicate pairs were within the control limit.

Laboratory Control Samples (LCS). Percent recoveries of pyridine (30 to 42) 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. Percent recoveries of 4-fluoroaniline (42 to 49) in the LCSs associated with samples of SDGs 181949, 181995, 182045, 182067, and 182097 were less than the 50-140 control limits, indicating potential low biases for 4-fluoroaniline in samples in these SDGs. Nominal control limits were used in the absence of statistically derived laboratory control limits. 4-Fluoroaniline was not detected in the samples of SDGs 181949, 181995, 182045, 182067, and 182097, and reporting limits were qualified estimated (UJ). Positive and non-detect results for pyridine in all samples were qualified estimated (J/UJ).

Matrix Spike/Matrix Spike Duplicates (MS/MSD). MS/MSD analyses were specified on the chain of custody forms for samples BR9 and PW-13. PZ-102 was also selected by the laboratory for MS/MSD analyses (chloropyridines only). The MS/MSD for SVOC sample BR9 was not evaluated due to dilutions of the sample and MS/MSD that were required because of high concentrations of target analytes. In the MS/MSD associated with SVOC sample PZ-102, percent recoveries of 4-fluoroaniline (47), and pyridine (35, 32) were less than the 50-140 nominal control limits, indicating potential low bias. These analytes were not detected in sample PZ-102 and reporting limits were qualified estimated (UJ). In addition, the relative percent difference (RPD) between recoveries of 2-chloropyridine (72) was greater than the control limit, and the detection of 2-chloropyridine in sample PZ-102 was qualified estimated (J).

In the MS/MSD associated with SVOC sample PW-13, percent recoveries of pyridine (47, 47) were less than the 50-140 nominal control limits, indicating potential low bias. Pyridine was not detected in sample PW-13 and the reporting limit was qualified estimated (UJ). In addition, recoveries of 2-chloropyridine (144, 153) were greater than the control limits, and the detection of 2-chloropyridine in sample PW-13 was qualified estimated (J).

In the MS/MSDs associated with VOC samples BR9 and PW-13, all percent recoveries and RPDs were within laboratory control limits or had no impact on reported sample results. Results for samples BR9 and PW-13 were reported unqualified for MS/MSD results.

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

3.0 ANALYTICAL RESULTS

3.1 GROUNDWATER

The validated results from the Spring 2018 groundwater monitoring event are provided in Tables 2 and 3. Table 4 provides a comparison of the Spring 2018 analytical results for

selected chloropyridines and VOCs in representative wells to mean concentrations of the prior five years (Fall 2012 through Fall 2017). 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 26 of the on-site wells sampled in the Spring 2018 event. Concentrations of chloropyridines (sum of all chloropyridine and pyridine isomer concentrations) ranged from 5 micrograms per liter (µg/L) in well E-3, to 1,100,000 µg/L in well B-17. 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 eight of the 15 off-site wells that were sampled. Concentrations of total chloropyridines ranged from not detected (in wells BR-112D, BR-113D, BR-114, BR-117D, BR-122D, MW114, and PZ-101) to 7,000 µg/L in well PZ-102. None 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 November 2017, with some notable decreases in wells around the perimeter of the plume (i.e., MW-106, BR-105D, BR-126, and PZ-101). Chloropyridine levels remain high in well B-17 and BR-8, although BR-8 appears to have reversed its previously-increasing trend in this and recent sampling events. Concentrations are fluctuating in well BR-106, which suggests an influence from the raising and lowering of the water level in the canal. The concentrations of chloropyridines in PZ-106 and PZ-107 are significantly greater than their respective five-year means. A high concentration of chloropyridines is noted for well PW-15, at 230,000 µg/L, which is slightly greater than the five year mean (200,000 µg/L), and relatively high concentrations of chloropyridines are noted in wells BR-127, PW-13, PW-14, PW-16, and PW-17, which are all active pumping wells. This indicates these wells are effectively pulling in water from areas with elevated chloropyridines.

3.1.2 Selected VOCs

On-Site. Selected VOCs were detected in 22 of the 26 on-site wells sampled for VOCs in the Spring 2018 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-126, BR-5A, and E-3) to 160,000 µg/L in well PZ-107. Five 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 toluene (in 10 out of 26 wells), benzene (11 of 26), 1,2-dichlorobenzene (9 of 26), 1,4-dichlorobenzene (8 of 26), carbon disulfide (10 of 26), 1,3-dichlorobenzene (8 of 26), acetone (8 of 26), vinyl chloride (7 of 26), cis-1,2-dichloroethene (4 of 26), 1,2,3-trichlorobenzene (3 of 26), 1,2,4-trichlorobenzene (4 of 26), 1,1-dichloroethane (3 of 26), m,p-xylene (2 of 26), and bromoform (3 of 26).

Off-Site. Selected VOCs were detected in six of the nine off-site wells sampled for VOCs during the Spring 2018 event. Total concentrations of selected VOCs ranged from not detected (in wells PZ-101, BR-114, and BR-105D) to 200 µg/L (in well PZ-102). None of these wells were 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 9 wells), 1,2-dichlorobenzene (5 of 9), 1,3-dichlorobenzene (2 of 9), 1,4-dichlorobenzene (3 of 9), and cis-1,2-dichloroethene (2 of 9).

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. Notable decreases in VOCs were observed in wells BR-8, BR-127, PW-10, PW-14, and PZ-106. Increases were observed in wells BR-6A, PZ-107, and PW-15. The concentration of target VOCs in PZ-107 is an order of magnitude greater than the five-year mean and slightly greater than the historic maximum. The increase may be attributed to lower overall flow rates in nearby pumping wells PW-16 and BR-127 that were measured over the 1st half of 2018. VOCs observed in off-site wells primarily consist of chlorobenzenes, which appear to be closely associated with chloropyridines at this site.

3.2 SURFACE WATER

Results from the Spring 2018 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 Spring 2018 monitoring event. The sample contained 43 µg/L total chloropyridines, which is below its prior five-year mean of 93 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 December 2017 through May 2018. The total volume pumped during the six-month period

was approximately 7.7 million gallons. Overall, the system pumped reliably throughout the period with system flow rates averaging between 24 and 33 gpm on a monthly basis. PW-17 continues to be a poorly performing well due to very low yield. Well PW-13 displayed its usual pattern of little or no flow during the winter months (when the canal is drawn down), and increased flow beginning in May. Wells PW-16, PW-17 and BR-127 were off-line for maintenance during different periods between January and March. The remaining wells (BR-7A, BR-9, and PW-13) pumped at relatively consistent rates through the entire six-month period.

Table 7 provides a calculation of mass removal rates since the previous groundwater monitoring event (i.e., from December 2017 through May 2018). Arch estimates that approximately 82 pounds of target VOCs and 2,400 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 November 2018 and will include groundwater, surface water, and seep sampling.

Table 8 shows the 2018 monitoring program for the Arch Rochester site.

Figures

Legend

Property Owned by Lonza

Monitoring Well

NOTES

1. Source - Topographic Quadrangle 7.5-Minute Series

N

0 250 500 Feet

wood.

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I-390

ERIE BARGE CANAL

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

8-8

7-6

BR-113/BR-113D

LEXINGTON

11-8

GENERAL RAIL SIGNAL CO.

9-6

RW-1

10-6

13-4

OW-102A

OW-103

Morey

BR-122D

PFAUDLER

HOWARD ROAD

DOLOMITE PRODUCTS QUARRY

BR-117/BR-117D

BR-121D (Abandoned)

BR-118/BR-118D

BR-123D

BR-116/BR-116D

BR-120D (Abandoned)

BR-119D (Abandoned)

LETTINGTON DRIVE

BR-124D

Figure 1
Spring 2018
Off-Site Groundwater Monitoring Well Locations

Arch Chemicals
Rochester, NY

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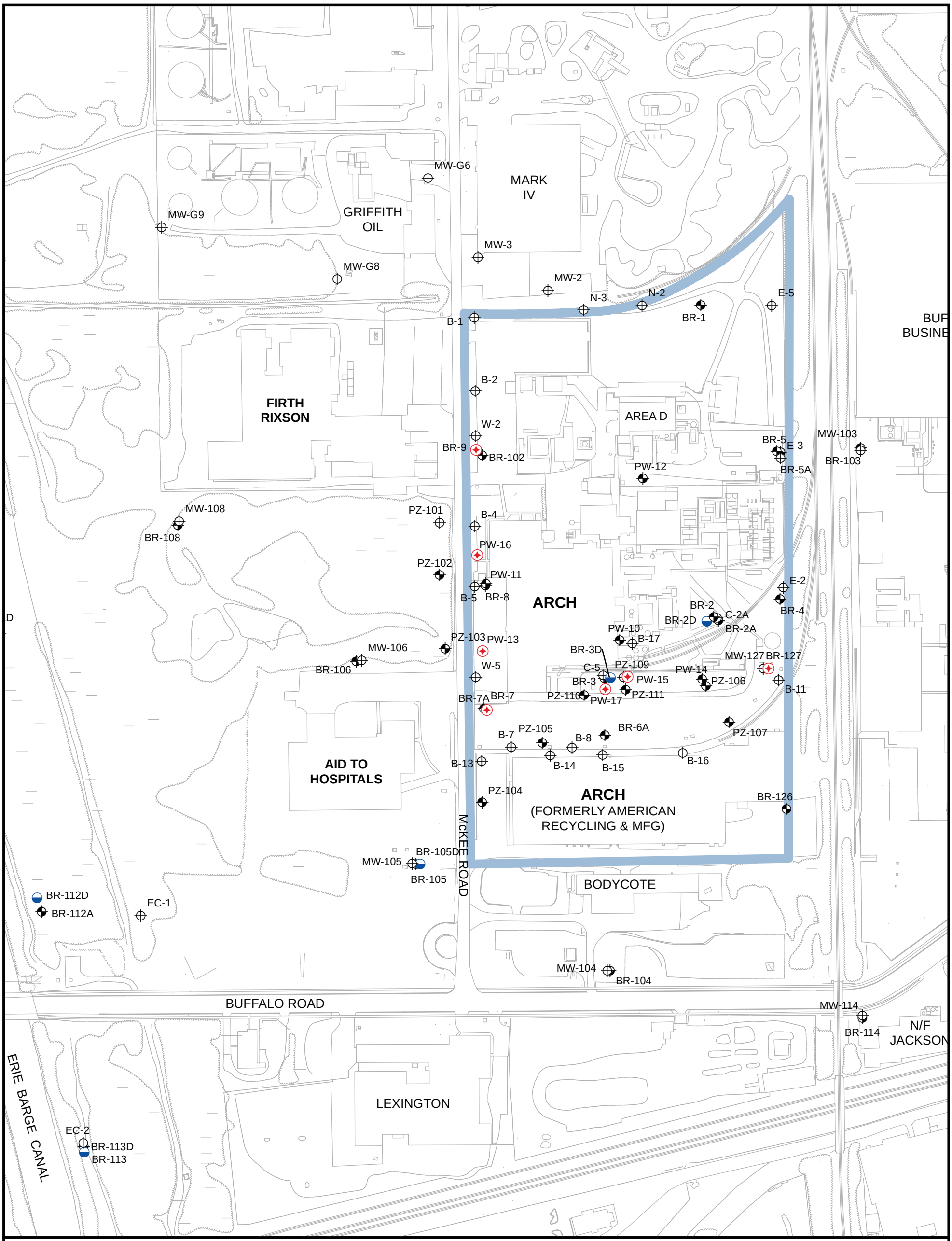

NOTES:

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

0 100 200 Feet

N

wood.

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Figure 2
Onsite Monitoring Well Locations

Arch Chemicals Rochester, NY

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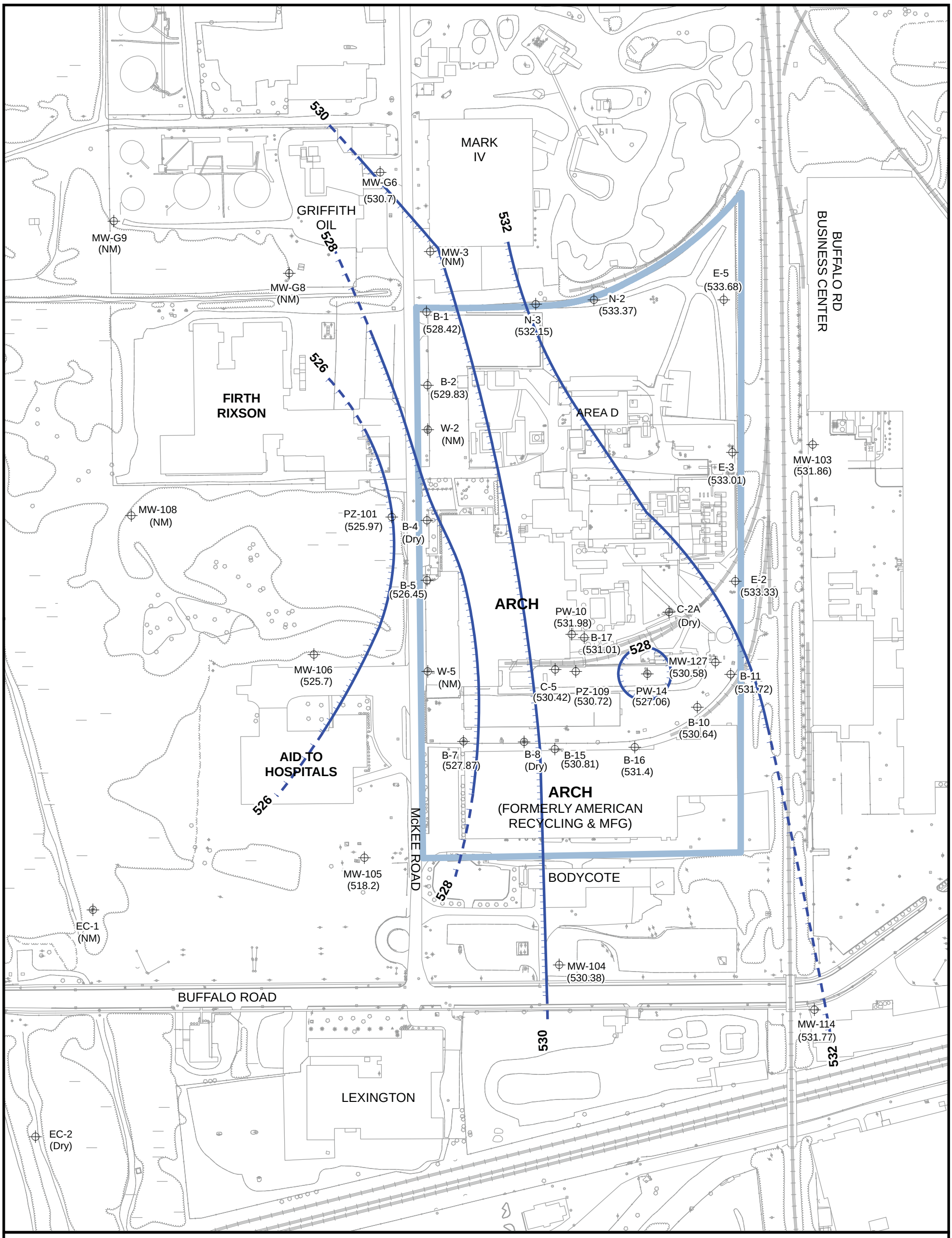

NOTES:
1. Water Levels Measured on May 7, 2018
2. Dashed Contours Reflect Uncertainty
3. NM = Not Measured

0 100 200 Feet

N

Legend

PZ-101 (525.97) — Piezometric Elevation (Feet MSL) at Well or Piezometer

Interpreted Groundwater Flow Direction

528 — Overburden Piezometric Elevation Contour (Feet MSL)

Property Owned by Lonza

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Figure 3
Spring 2018
Overburden Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

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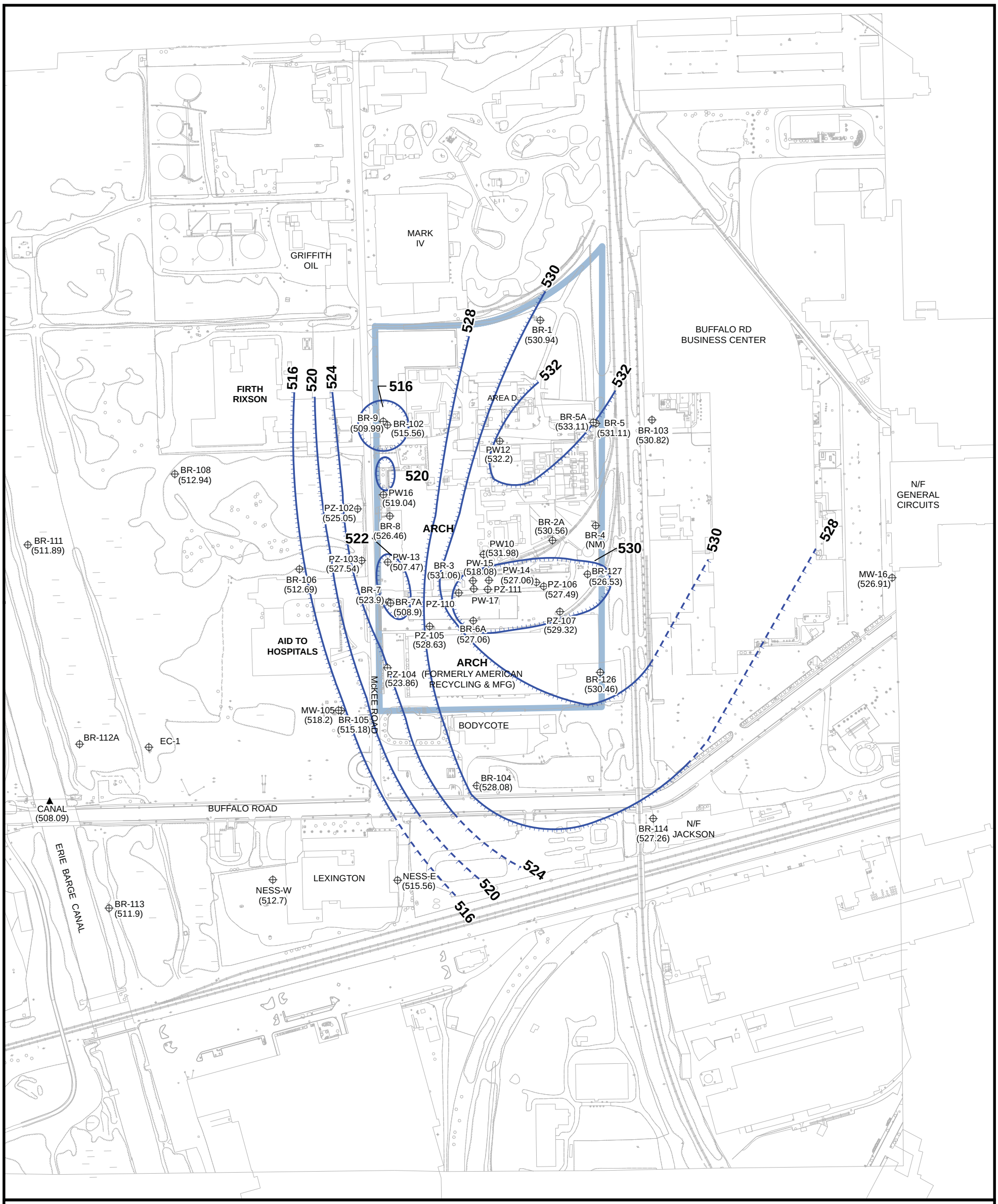

Legend

- BR-114 (531.77) — Piezometric Elevation (Feet MSL) at Well or Piezometer
- ▲ Piezometric Elevation at Surface Water Measuring Point
- Interpreted Groundwater Flow Direction
- **516** — Bedrock Piezometric Elevation Contour (Feet MSL)
- Property Owned by Lonza

NOTES:

1. Water Levels Measured on May 7, 2018
2. Dashed Contours Reflect Uncertainty
3. The measurement in well PZ-103 is considered anomalous and was not used in contouring.

0 150 300 Feet

N

wood.

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Figure 4
Spring 2018
Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

Legend

- Bedrock Well ('D' Designates Deep Well)
- **500** Deep Bedrock Elevation Contour (MSL)
- Interpreted Groundwater Flow Direction
- Property Owned by Lonza
- BR-116D (510.19) Piezometric Elevation (Feet MSL) at Deep Bedrock Well

NOTES:

1. Water Levels Measured on May 7, 2018
2. Dashed Contours Reflect Uncertainty
3. Wells BR-105D and BR-3D not used in contouring

0 250 500 Feet

N

wood.

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BR-111D (511.78)

BR-112D (511.78)

BR-113D (511.83)

BR-3D (488.95)

BR-105D (510.25)

BR-122D (507.56)

BR-117D (499.71)

BR-118D (501.24)

BR-123D (508.63)

BR-116D (510.19)

BR-124D (504.76)

512

510

508

506

504

502

Figure 5
Spring 2018
Deep Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

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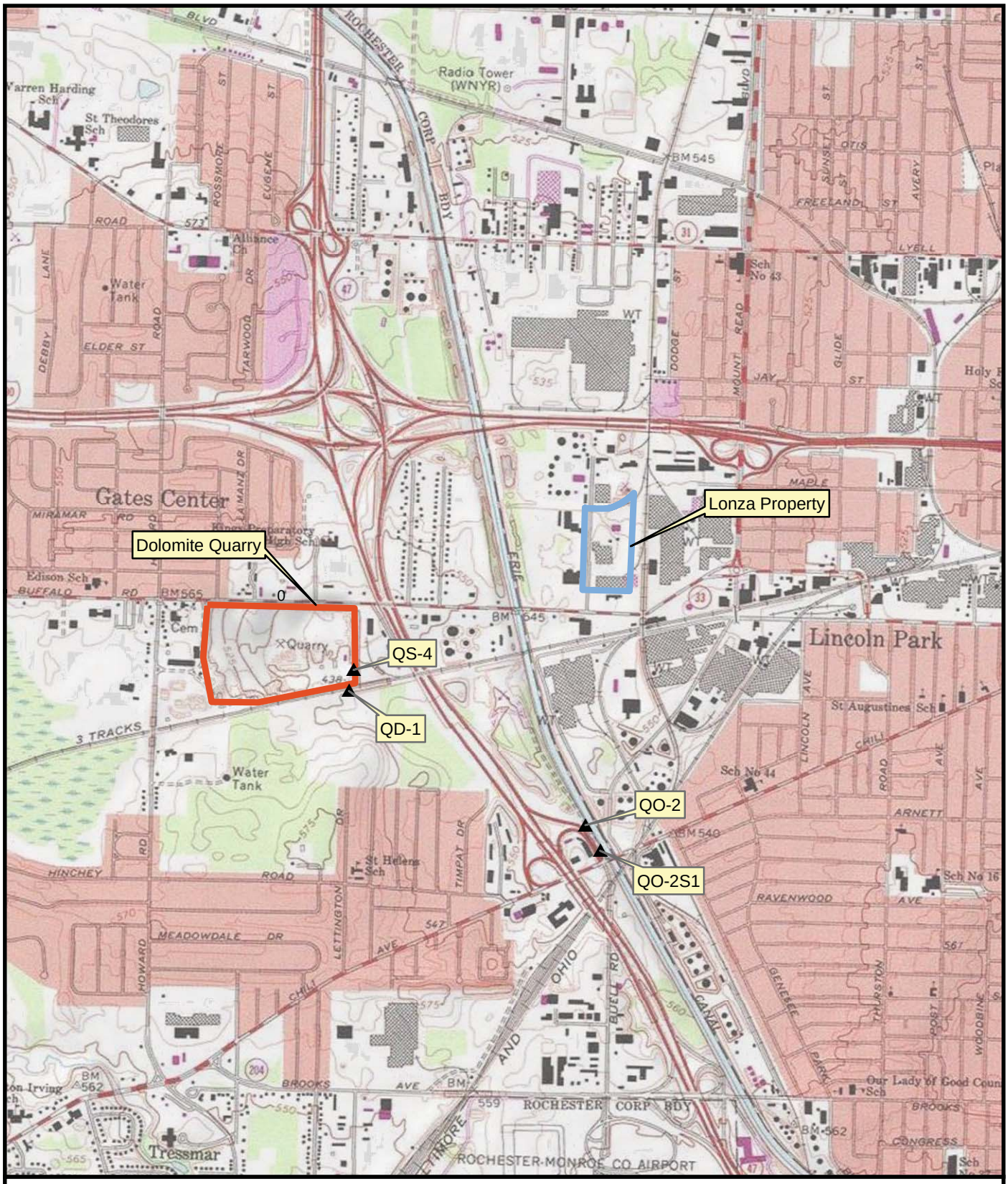

Topographi map: Copyright:© 2013 National Geographic Society, i-cubed

0 1,000 2,000 Feet

N

Legend

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

Figure 6
Sample Locations
Erie Barge Canal

Arch Chemicals
Rochester, NY

wood.

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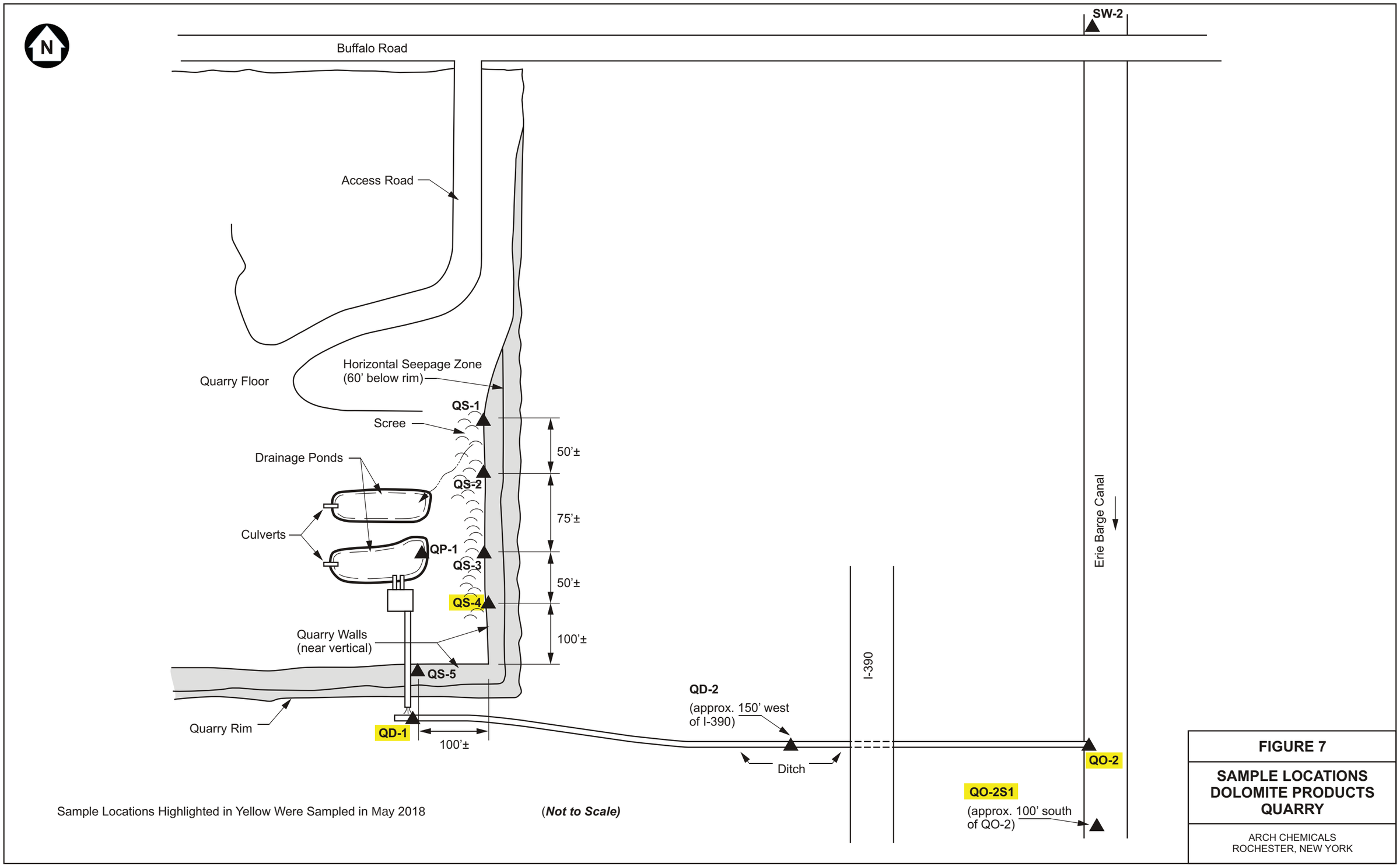

FIGURE 7

SAMPLE LOCATIONS
DOLOMITE PRODUCTS QUARRY

ARCH CHEMICALS
ROCHESTER, NEW YORK

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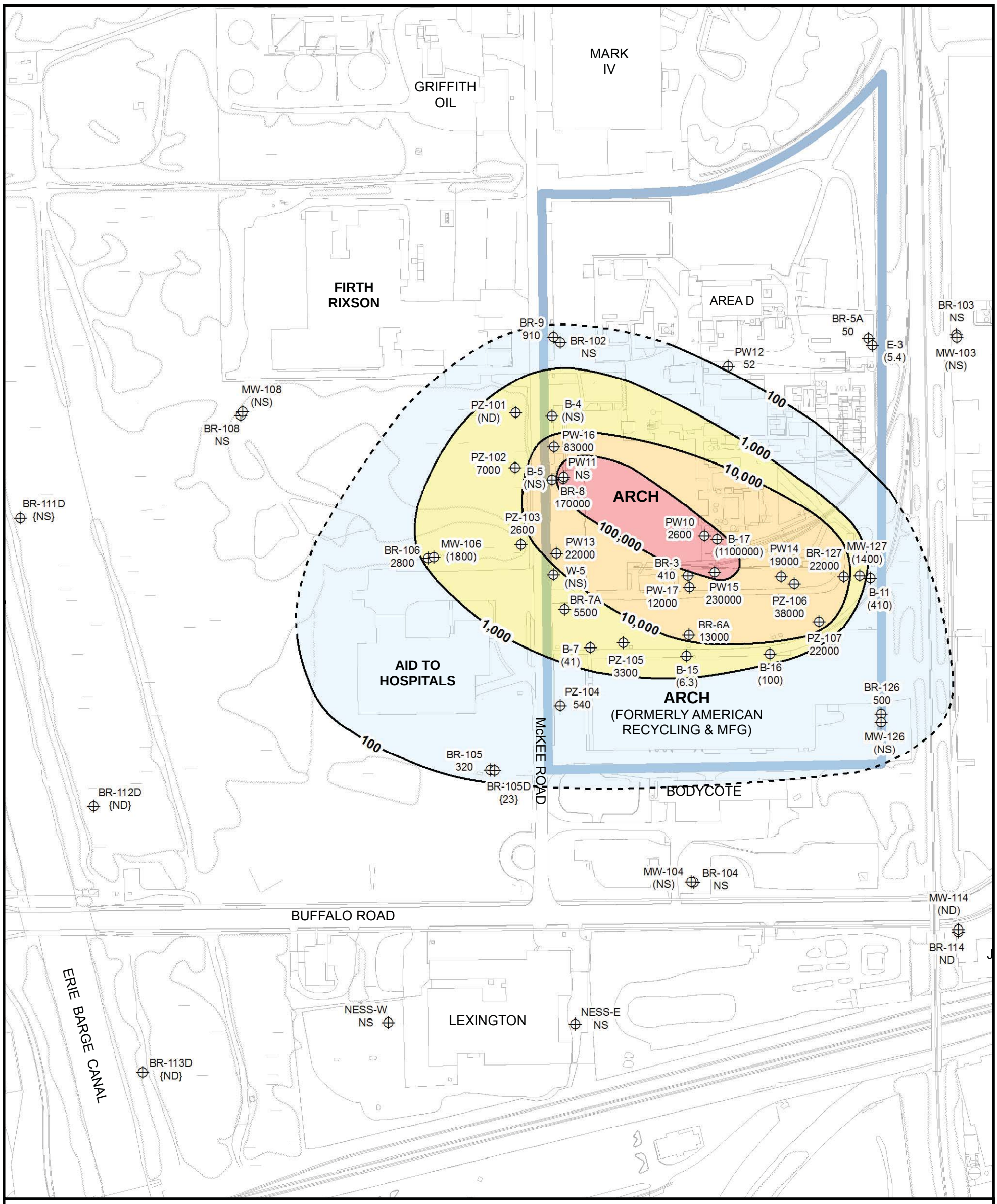

Legend

- Property Owned by Lonza
- **100** — Chloropyridine Concentration Contour
- MW-106 (22000) — 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 May 9-16, 2018
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.

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Figure 8
Spring 2018
Selected Chloropyridine Concentration Contours

Arch Chemicals
Rochester, NY

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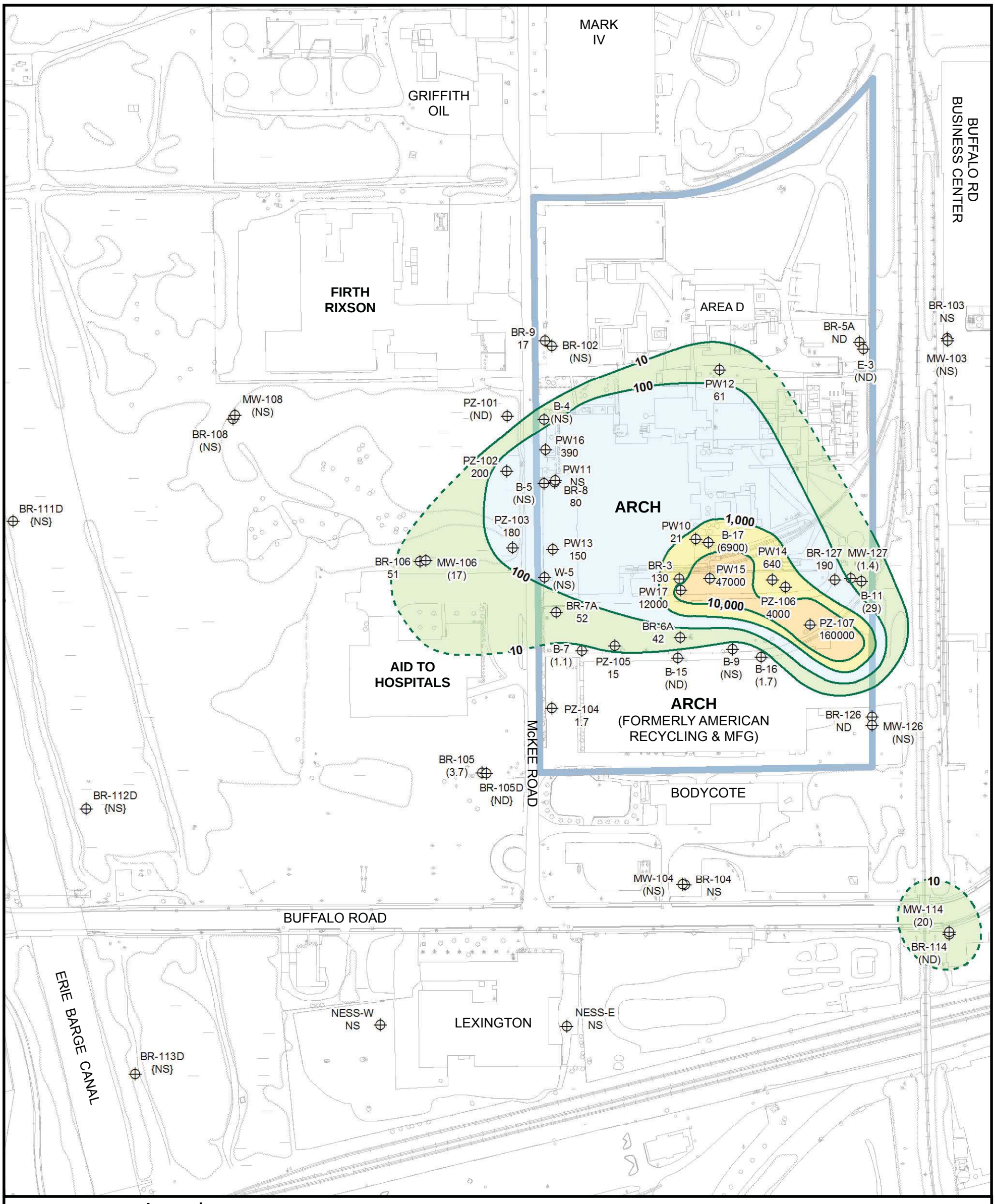


Legend

- Property Owned by Lonza
- 100 — VOC Concentration Contour
- B-17 (6900) — 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

wood.

NOTES:

1. Samples Collected May 9-16, 2018
2. Original Select VOCs consist of Carbon tetrachloride, Methylene chloride Chloroform, TCE, PCE, and Chlorobenzene.
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

Prepared/Date: BRP 07/11/18	Checked/Date: NMB 07/11/18

Figure 9
Spring 2018
Selected Volatile Organic Compound Concentration Contours

Arch Chemicals
Rochester, NY

Tables

TABLE 1
SPRING 2018 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	5/14/2018	Sample	X	X
	MW-106	5/14/2018	Sample	X	X
	PZ-101	5/11/2018	Sample	X	X
	PZ-102	5/11/2018	Sample	X	X
	PZ-103	5/11/2018	Sample	X	X
ARCH ROCHESTER	B-11	5/11/2018	Sample	X	X
	B-15	5/14/2018	Sample	X	X
	B-16	5/14/2018	Sample		X
	B-16	5/16/2018	Sample	X	
	B-17	5/9/2018	Sample	X	X
	B-7	5/11/2018	Sample	X	X
	BR-126	5/14/2018	Sample	X	X
	BR-127	5/10/2018	Duplicate	X	X
	BR-127	5/10/2018	Sample	X	X
	BR-3	5/10/2018	Sample	X	X
	BR-5A	5/9/2018	Sample	X	X
	BR-6A	5/10/2018	Sample	X	X
	BR-7A	5/15/2018	Sample	X	X
	BR-8	5/11/2018	Sample	X	X
	BR-9	5/9/2018	Sample	X	X
	E-3	5/9/2018	Sample	X	X
	MW-127	5/10/2018	Sample	X	X
	PW10	5/9/2018	Sample	X	X
	PW12	5/9/2018	Sample	X	X
	PW13	5/14/2018	Sample	X	X
	PW14	5/9/2018	Sample	X	X
	PW15	5/10/2018	Sample	X	X
	PW16	5/11/2018	Sample	X	X
	PW17	5/10/2018	Sample	X	X
	PZ-104	5/11/2018	Sample	X	X
	PZ-105	5/10/2018	Sample	X	X
	PZ-106	5/9/2018	Sample	X	X
	PZ-107	5/10/2018	Sample	X	X
DOLOMITE PRODUCTS, INC.	BR-117D	5/16/2018	Sample	X	
(Samples in canal or property along canal)	BR-118D	5/16/2018	Sample	X	
	QD-1	5/15/2018	Sample	X	
	QO-2	5/15/2018	Sample	X	
	QS-4	5/15/2018	Sample	X	
ERIE BARGE CANAL	BR-112D	5/16/2018	Sample	X	
	BR-113D	5/16/2018	Sample	X	
	BR-122D	5/15/2018	Duplicate	X	
	BR-122D	5/15/2018	Sample	X	
	BR-123D	5/15/2018	Sample	X	
	QO-2S1	5/15/2018	Sample	X	
JACKSON WELDING	BR-114	5/14/2018	Sample	X	X
	MW-114	5/14/2018	Sample	X	X
RG & E RIGHT OF WAY	BR-105	5/16/2018	Sample	X	X
	BR-105D	5/16/2018	Sample	X	X

TABLE 2
SPRING 2018 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11	B-15	B-16	B-17	B-7	BR-105	BR-105D	BR-106	BR-112D	BR-113D	BR-114
SAMPLE DATE:	5/11/2018	5/14/2018	5/16/2018	5/9/2018	5/11/2018	5/16/2018	5/16/2018	5/14/2018	5/16/2018	5/16/2018	5/14/2018
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)											
2,6-Dichloropyridine	249	6.25 J	103	61100	25.3	57.1	7.12 J	423 J	10 U	10 U	10 U
2-Chloropyridine	156	10 UJ	20 U	926000	16	260	15.5 J	2350	10 U	10 U	10 U
3-Chloropyridine	80 U	10 UJ	20 U	50000 U	10 U	20 U	10 UJ	500 U	10 U	10 U	10 U
4-Chloropyridine	80 U	10 UJ	20 U	50000 U	10 U	20 U	10 UJ	500 U	10 U	10 U	10 U
p-Fluoroaniline	80 UJ	10 UJ	20 U	50000 UJ	10 UJ	20 U	10 UJ	500 UJ	10 U	10 U	10 UJ
Pyridine	80 UJ	10 UJ	20 UJ	93300 J	10 UJ	20 UJ	10 UJ	500 UJ	10 UJ	10 UJ	10 UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
R = Result rejected during data validation
µg/L = micrograms per Liter

TABLE 2
SPRING 2018 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-117D	BR-118D	BR-122D	BR-122D	BR-123D	BR-126	BR-127	BR-127	BR-3	BR-5A	BR-6A
SAMPLE DATE:	5/16/2018	5/16/2018	5/15/2018	5/15/2018	5/15/2018	5/14/2018	5/10/2018	5/10/2018	5/10/2018	5/9/2018	5/10/2018
QC TYPE:	Sample	Sample	Sample	Duplicate	Sample	Sample	Sample	Duplicate	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)											
2,6-Dichloropyridine	10 U	10 U	10 U	10 U	10 UJ	113	1120 J	2000 U	46.2	39.2	2580
2-Chloropyridine	10 U	9.97 J	10 U	10 U	30.3 J	390	20600	16800	337	11.1 J	10700
3-Chloropyridine	10 U	10 U	10 U	10 U	10 UJ	80 U	2000 U	2000 U	24.3	20 U	2000 U
4-Chloropyridine	10 U	10 U	10 U	10 U	10 UJ	80 U	2000 U	2000 U	20 U	20 U	2000 U
p-Fluoroaniline	10 U	10 U	10 UJ	10 UJ	10 UJ	80 UJ	2000 UJ	2000 UJ	20 UJ	20 UJ	2000 UJ
Pyridine	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	80 UJ	2000 UJ	2000 UJ	20 UJ	20 UJ	2000 UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
R = Result rejected during data validation
µg/L = micrograms per Liter

TABLE 2
SPRING 2018 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-7A	BR-8	BR-9	E-3	MW-106	MW-114	MW-127	PW10	PW12	PW13	PW14
SAMPLE DATE:	5/15/2018	5/11/2018	5/9/2018	5/9/2018	5/14/2018	5/14/2018	5/10/2018	5/9/2018	5/9/2018	5/14/2018	5/9/2018
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)											
2,6-Dichloropyridine	338 J	50000 U	51.2 J	10 U	227	10 UJ	94.4	633 J	24.9	1020 J	1300 J
2-Chloropyridine	5190	173000	857	5.35 J	1590	10 UJ	1270	1980	27.5	20900 J	16000
3-Chloropyridine	500 U	50000 U	100 U	10 U	133 U	10 UJ	80 U	800 U	10 U	2000 U	1680 J
4-Chloropyridine	500 U	50000 U	100 U	10 U	133 U	10 UJ	80 U	800 U	10 U	2000 U	2000 U
p-Fluoroaniline	500 UJ	50000 UJ	100 UJ	10 UJ	133 U	10 UJ	80 UJ	800 UJ	10 UJ	2000 UJ	2000 UJ
Pyridine	500 UJ	50000 UJ	100 UJ	10 UJ	133 UJ	10 UJ	80 UJ	800 UJ	10 UJ	2000 UJ	2000 UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
R = Result rejected during data validation
µg/L = micrograms per Liter

TABLE 2
SPRING 2018 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW15	PW16	PW17	PZ-101	PZ-102	PZ-103	PZ-104	PZ-105	PZ-106	PZ-107	QD-1
SAMPLE DATE:	5/10/2018	5/11/2018	5/10/2018	5/11/2018	5/11/2018	5/11/2018	5/11/2018	5/10/2018	5/9/2018	5/10/2018	5/15/2018
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)											
2,6-Dichloropyridine	11900 J	10000 U	4000 U	10 U	1070	756 J	99.4 J	493	2140	1930 J	10 U
2-Chloropyridine	217000	82700	11500	10 U	5950 J	1880 J	443 J	2760	36100	20000	10 U
3-Chloropyridine	20000 U	10000 U	4000 U	10 U	400 U	400 UJ	100 UJ	200 U	2000 U	2500 U	10 U
4-Chloropyridine	20000 U	10000 U	4000 U	10 U	400 U	400 UJ	100 UJ	200 U	2000 U	2500 U	10 U
p-Fluoroaniline	20000 UJ	10000 UJ	4000 UJ	10 UJ	400 UJ	400 UJ	100 UJ	200 UJ	2000 UJ	2500 UJ	10 UJ
Pyridine	20000 UJ	10000 UJ	4000 UJ	10 UJ	400 UJ	400 UJ	100 UJ	200 UJ	2000 UJ	2500 UJ	10 UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
R = Result rejected during data validation
µg/L = micrograms per Liter

TABLE 2
SPRING 2018 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	QO-2	QO-2S1	QS-4
SAMPLE DATE:	5/15/2018	5/15/2018	5/15/2018
QC TYPE:	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)			
2,6-Dichloropyridine	10 UJ	10 UJ	12.2
2-Chloropyridine	10 UJ	10 UJ	31
3-Chloropyridine	10 UJ	10 UJ	10 U
4-Chloropyridine	10 UJ	10 UJ	10 U
p-Fluoroaniline	10 UJ	10 UJ	10 UJ
Pyridine	10 UJ	10 UJ	10 UJ

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value
R = Result rejected during data validation
µg/L = micrograms per Liter

TABLE 3
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11	B-15	B-16	B-17	B-7	BR-105	BR-105D	BR-106	BR-114	BR-126
SAMPLE DATE:	5/11/2018	5/14/2018	5/14/2018	5/9/2018	5/11/2018	5/16/2018	5/16/2018	5/14/2018	5/14/2018	5/14/2018
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 UJ	2 U	2 U
1,1,2,2-Tetrachloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 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 UJ	2 U	2 U
1,1,2-Trichloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
1,1-Dichloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
1,1-Dichloroethene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
1,2,3-Trichlorobenzene	5 U	5 U	5 U	62.2 J	5 U	5 U	5 U	5 UJ	5 U	5 U
1,2,4-Trichlorobenzene	5 U	5 U	5 U	293	5 U	5 U	5 U	5 UJ	5 U	5 U
1,2-Dibromo-3-chloropropane	10 U	10 U	10 U	200 U	10 U	10 U	10 U	10 UJ	10 U	10 U
1,2-Dibromoethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
1,2-Dichlorobenzene	2 U	2 U	2 U	40 U	2 U	1.85 J	2 U	12.9 J	2 U	2 U
1,2-Dichloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
1,2-Dichloropropane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
1,3-Dichlorobenzene	2 U	2 U	2 U	57.3	2 U	2 U	2 U	2 UJ	2 U	2 U
1,4-Dichlorobenzene	2 U	2 U	2 U	93	2 U	2 U	2 U	1.21 J	2 U	2 U
1,4-Dioxane	20 U	20 U	20 U	400 U	20 U	20 U	20 U	20 UJ	20 U	20 U
2-Butanone	10 U	10 U	10 U	200 U	10 U	10 U	10 U	10 UJ	10 U	10 U
2-Hexanone	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 UJ	5 U	5 U
4-Methyl-2-pentanone	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Acetic acid, methyl ester	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Acetone	8.75 J	10 U	10 U	200 U	5.35 J	10 U	7.44 J	10 UJ	10 U	10 U
Benzene	1 U	1 U	1 U	22.6	1 U	0.757 J	4.82	3.59 J	1 U	1.08
Bromochloromethane	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Bromodichloromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Bromoform	5 U	5 U	5 U	117	5 U	5 U	5 U	5 UJ	5 U	5 U
Bromomethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Carbon disulfide	6.96	2 U	2 U	112	2 U	2 U	2.15	2 UJ	2 U	2 U
Carbon tetrachloride	14	2 U	2 U	2380	2 U	2 U	2 U	2 UJ	2 U	2 U
Chlorobenzene	2 U	2 U	2 U	301	1.13 J	3.66	2 U	50.8 J	2 U	2 U

TABLE 3
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11	B-15	B-16	B-17	B-7	BR-105	BR-105D	BR-106	BR-114	BR-126
SAMPLE DATE:	5/11/2018	5/14/2018	5/14/2018	5/9/2018	5/11/2018	5/16/2018	5/16/2018	5/14/2018	5/14/2018	5/14/2018
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
Chloroethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Chloroform	12	2 U	1.72 J	2280	2 U	2 U	2 U	2 UJ	2 U	2 U
Chloromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Cis-1,2-Dichloroethene	2 U	2 U	2 U	40 U	2 U	5.32	5.11	2 UJ	2 U	2 U
Cis-1,3-Dichloropropene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Cyclohexane	10 U	10 U	10 U	200 U	10 U	10 U	9.23 J	10 UJ	10 U	10 U
Dibromochloromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Dichlorodifluoromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Ethylbenzene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Isopropylbenzene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Methyl cyclohexane	2 U	2 U	2 U	40 U	2 U	2 U	3.5	2 UJ	2 U	2 U
Methyl Tertbutyl Ether	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Methylene chloride	5 U	5 U	5 U	70.1 J	5 U	5 U	5 U	5 UJ	5 U	5 U
Styrene	5 U	5 U	5 U	100 U	5 U	5 U	5 U	5 UJ	5 U	5 U
Tetrachloroethene	2.67	2 U	2 U	1820	2 U	2 U	2 U	2 UJ	2 U	2 U
Toluene	2 U	2 U	2 U	184	2 U	2 U	2 U	2 UJ	2 U	2 U
trans-1,2-Dichloroethene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
trans-1,3-Dichloropropene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Trichloroethene	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Trichlorofluoromethane	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Vinyl chloride	2 U	2 U	2 U	40 U	2 U	5.22	2 U	2 UJ	2 U	2 U
Xylene, o	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U
Xylenes (m&p)	2 U	2 U	2 U	40 U	2 U	2 U	2 U	2 UJ	2 U	2 U

Notes:

U = Compound not detected; value
represents sample quantitation limit.

J = Estimated value

µg/L = micrograms per Liter

TABLE 3
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-127	BR-127	BR-3	BR-5A	BR-6A	BR-7A	BR-8	BR-9	E-3	MW-106
SAMPLE DATE:	5/10/2018	5/10/2018	5/10/2018	5/9/2018	5/10/2018	5/15/2018	5/11/2018	5/9/2018	5/9/2018	5/14/2018
QC TYPE:	Duplicate	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
1,1,1-Trichloroethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	1.02 J	2 U	2 UJ
1,1,2,2-Tetrachloroethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
1,1,2-Trichloro-1,2,2-Trifluoroethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	28.4	2 U	2 UJ
1,1,2-Trichloroethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
1,1-Dichloroethane	10 U	2 UJ	10 U	2 U	4 UJ	3.1	2 UJ	5.16	2 U	2 UJ
1,1-Dichloroethene	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
1,2,3-Trichlorobenzene	25 U	5 UJ	25 U	5 U	10 UJ	5 U	5 UJ	5 U	5 U	5 UJ
1,2,4-Trichlorobenzene	25 U	5 UJ	25 U	5 U	10 UJ	5 U	5 UJ	5 U	4.76 J	5 UJ
1,2-Dibromo-3-chloropropane	50 U	10 UJ	50 U	10 U	20 UJ	10 U	10 UJ	10 U	10 U	10 UJ
1,2-Dibromoethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
1,2-Dichlorobenzene	10 U	4.57 J	10 U	2 U	4 UJ	14.8	20.8 J	12.5	2 U	2.11 J
1,2-Dichloroethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
1,2-Dichloropropane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
1,3-Dichlorobenzene	10 U	4.57 J	10 U	2 U	4 UJ	4.09	11.2 J	2.69	2 U	2 UJ
1,4-Dichlorobenzene	6.47 J	7.44 J	10 U	2 U	4 UJ	3.87	10.6 J	3.25	2 U	2 UJ
1,4-Dioxane	100 U	20 UJ	100 U	20 U	40 UJ	20 U	20 UJ	20 U	20 U	20 UJ
2-Butanone	50 U	10 UJ	50 U	10 U	20 UJ	10 U	10 UJ	10 U	10 U	10 UJ
2-Hexanone	25 U	5 UJ	25 U	5 U	10 UJ	5 U	5 UJ	5 U	5 U	5 UJ
4-Methyl-2-pentanone	25 U	5 UJ	25 U	5 U	10 UJ	5 U	5 UJ	5 U	5 U	5 UJ
Acetic acid, methyl ester	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Acetone	50 U	11.2 J	50 U	10 U	20 UJ	5.76 J	10.4 J	10 U	13.1	10 UJ
Benzene	2.7 J	2.67 J	5 U	1 U	3.31 J	5.4	1.55 J	40.7	1 U	0.995 J
Bromochloromethane	25 U	5 UJ	25 U	5 U	10 UJ	5 U	5 UJ	5 U	5 U	5 UJ
Bromodichloromethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Bromoform	25 U	5 UJ	25 U	5 U	10 UJ	5 U	5 UJ	5 U	5 U	5 UJ
Bromomethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Carbon disulfide	19.5	21.1 J	10 U	2 U	2.67 J	2 U	18.6 J	2 U	2 U	2 UJ
Carbon tetrachloride	15.2	18.8 J	10 U	2 U	4 UJ	2.9	2 UJ	2 U	2 U	2 UJ
Chlorobenzene	5.27 J	6.03 J	10 U	2 U	13.6 J	29.8	79.8 J	16.9	2 U	16.9 J

TABLE 3
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-127	BR-127	BR-3	BR-5A	BR-6A	BR-7A	BR-8	BR-9	E-3	MW-106
SAMPLE DATE:	5/10/2018	5/10/2018	5/10/2018	5/9/2018	5/10/2018	5/15/2018	5/11/2018	5/9/2018	5/9/2018	5/14/2018
QC TYPE:	Duplicate	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
Chloroethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Chloroform	135	143 J	103	2 U	28.8 J	15.7	2 UJ	2 U	2 U	2 UJ
Chloromethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Cis-1,2-Dichloroethene	10 U	3.38 J	10 U	2 U	4 UJ	1.35 J	2 UJ	58.3	2 U	2 UJ
Cis-1,3-Dichloropropene	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Cyclohexane	50 U	10 UJ	50 U	10 U	20 UJ	10 U	10 UJ	14.8	10 U	10 UJ
Dibromochloromethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Dichlorodifluoromethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Ethylbenzene	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Isopropylbenzene	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	1.31 J	2 U	2 UJ
Methyl cyclohexane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	3.25	2 U	2 UJ
Methyl Tertbutyl Ether	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Methylene chloride	25 U	12 J	18.1 J	5 U	10 UJ	3.85 J	5 UJ	5 U	5 U	5 UJ
Styrene	25 U	5 UJ	25 U	5 U	10 UJ	5 U	5 UJ	5 U	5 U	5 UJ
Tetrachloroethene	5.87 J	6.94 J	11.5	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Toluene	10 U	2.73 J	10.3	2 U	52.1 J	1.8 J	4.36 J	3.33	2 U	2 UJ
trans-1,2-Dichloroethene	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
trans-1,3-Dichloropropene	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Trichloroethene	5.62 J	7.88 J	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Trichlorofluoromethane	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Vinyl chloride	10 U	4.33 J	10 U	2 U	75.8 J	2.83	1.83 J	54.3	2 U	2 UJ
Xylene, o	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 U	2 U	2 UJ
Xylenes (m&p)	10 U	2 UJ	10 U	2 U	4 UJ	2 U	2 UJ	2 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
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	MW-114	MW-127	PW10	PW12	PW13	PW14	PW15	PW16	PW17	PZ-101
SAMPLE DATE:	5/14/2018	5/10/2018	5/9/2018	5/9/2018	5/14/2018	5/9/2018	5/10/2018	5/11/2018	5/10/2018	5/11/2018
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	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,1,2,2-Tetrachloroethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,1,2-Trichloroethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,1-Dichloroethane	2 U	2 U	2 U	4 U	2 J	20 U	400 U	10 UJ	100 U	2 U
1,1-Dichloroethene	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,2,3-Trichlorobenzene	5 U	5 U	15.1	28.8	5 UJ	50 U	1000 U	25 UJ	250 U	5 U
1,2,4-Trichlorobenzene	5 U	5 U	38.7	297	5 UJ	50 U	1000 U	25 UJ	250 U	5 U
1,2-Dibromo-3-chloropropane	10 U	10 U	10 U	20 U	10 UJ	100 U	2000 U	50 UJ	500 U	10 U
1,2-Dibromoethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,2-Dichlorobenzene	2 U	2 U	1.23 J	16.4	70.6 J	20 U	400 U	274 J	100 U	2 U
1,2-Dichloroethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,2-Dichloropropane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
1,3-Dichlorobenzene	2 U	2 U	2 U	42.8	15.9 J	20 U	400 U	58.4 J	100 U	2 U
1,4-Dichlorobenzene	2 U	2 U	2 U	30.7	18.3 J	20 U	400 U	68.9 J	100 U	2 U
1,4-Dioxane	20 U	20 U	20 U	40 U	20 UJ	200 U	4000 U	100 UJ	1000 U	20 U
2-Butanone	10 U	10 U	10 U	20 U	10 UJ	100 U	2000 U	50 UJ	500 U	10 U
2-Hexanone	5 U	5 U	5 U	10 U	5 UJ	50 U	1000 U	25 UJ	250 U	5 U
4-Methyl-2-pentanone	5 U	5 U	5 U	10 U	5 UJ	50 U	1000 U	25 UJ	250 U	5 U
Acetic acid, methyl ester	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Acetone	10 U	10 U	10 U	20 U	10 UJ	154	2000 U	50 UJ	500 U	10 U
Benzene	1 U	1 U	1 U	1.83 J	7.78 J	10 U	200 U	7.1 J	50 U	1 U
Bromochloromethane	5 U	5 U	5 U	10 U	5 UJ	50 U	1000 U	25 UJ	250 U	5 U
Bromodichloromethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Bromoform	5 U	5 U	5 U	10 U	5 UJ	50 U	941 J	25 UJ	250 U	5 U
Bromomethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Carbon disulfide	2 U	2 U	2 U	4 U	2.02 J	22.1	5000	10 UJ	3540	2 U
Carbon tetrachloride	2 U	2 U	4.84	4 U	2 UJ	20.9	18600	10 UJ	2240	2 U
Chlorobenzene	2 U	2 U	2 U	50.5	149 J	20 U	400 U	392 J	100 U	2 U

TABLE 3
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	MW-114	MW-127	PW10	PW12	PW13	PW14	PW15	PW16	PW17	PZ-101
SAMPLE DATE:	5/14/2018	5/10/2018	5/9/2018	5/9/2018	5/14/2018	5/9/2018	5/10/2018	5/11/2018	5/10/2018	5/11/2018
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)										
Chloroethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Chloroform	16.1 J	1.39 J	4.5	4 U	1.06 J	606	25200	10 UJ	7020	2 U
Chloromethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Cis-1,2-Dichloroethene	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	64 J	2 U
Cis-1,3-Dichloropropene	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Cyclohexane	10 U	10 U	10 U	20 U	10 UJ	100 U	2000 U	50 UJ	500 U	10 U
Dibromochloromethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Dichlorodifluoromethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Ethylbenzene	2 U	2 U	2 U	4.19	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Isopropylbenzene	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Methyl cyclohexane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Methyl Tertbutyl Ether	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Methylene chloride	5 U	5 U	5 U	10 U	5 UJ	50 U	2520	25 UJ	2240	5 U
Styrene	5 U	5 U	5 U	10 U	5 UJ	50 U	1000 U	25 UJ	250 U	5 U
Tetrachloroethene	1.15 J	2 U	8.49	10.6	2 UJ	13.2 J	730	10 UJ	970	2 U
Toluene	2 U	2 U	2 U	23.8	6.59 J	20 U	400 U	138 J	100 U	2 U
trans-1,2-Dichloroethene	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
trans-1,3-Dichloropropene	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Trichloroethene	2.56 J	2 U	2.87	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Trichlorofluoromethane	2 U	2 U	2 U	4 U	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Vinyl chloride	2 U	2 U	2 U	4 U	1.75 J	20 U	400 U	10 UJ	92.1 J	2 U
Xylene, o	2 U	2 U	2 U	7.86	2 UJ	20 U	400 U	10 UJ	100 U	2 U
Xylenes (m&p)	2 U	2 U	1.35 J	16.5	2 UJ	20 U	400 U	10 UJ	100 U	2 U

Notes:

U = Compound not detected; value represents sample quantitation limit.

J = Estimated value

µg/L = micrograms per Liter

TABLE 3
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-102	PZ-103	PZ-104	PZ-105	PZ-106	PZ-107
SAMPLE DATE:	5/11/2018	5/11/2018	5/11/2018	5/10/2018	5/9/2018	5/10/2018
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)						
1,1,1-Trichloroethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,1,2,2-Tetrachloroethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,1,2-Trichloroethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,1-Dichloroethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,1-Dichloroethene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,2,3-Trichlorobenzene	10 UJ	25 U	5 U	5 UJ	250 U	2500 U
1,2,4-Trichlorobenzene	10 UJ	25 U	5 U	5 UJ	250 U	2500 U
1,2-Dibromo-3-chloropropane	20 UJ	50 U	10 U	10 UJ	500 U	5000 U
1,2-Dibromoethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,2-Dichlorobenzene	72.2 J	92.9	2 U	1.09 J	100 U	1000 U
1,2-Dichloroethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,2-Dichloropropane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
1,3-Dichlorobenzene	12 J	15.7	2 U	2 UJ	100 U	1000 U
1,4-Dichlorobenzene	11.9 J	18.1	2 U	2 UJ	100 U	1000 U
1,4-Dioxane	40 UJ	100 U	20 U	20 UJ	1000 U	10000 U
2-Butanone	20 UJ	50 U	10 U	10 UJ	500 U	5000 U
2-Hexanone	10 UJ	25 U	5 U	5 UJ	250 U	2500 U
4-Methyl-2-pentanone	10 UJ	25 U	5 U	5 UJ	250 U	2500 U
Acetic acid, methyl ester	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Acetone	20 UJ	50 U	10 U	35.5 J	500 U	5000 U
Benzene	13.7 J	5.24	1 U	2.89 J	50 U	500 U
Bromochloromethane	10 UJ	25 U	5 U	5 UJ	250 U	2500 U
Bromodichloromethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Bromoform	10 UJ	25 U	5 U	5 UJ	159 J	2500 U
Bromomethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Carbon disulfide	4 UJ	10 U	2 U	2 UJ	100 U	15100
Carbon tetrachloride	4 UJ	10 U	2 U	2 UJ	294	38000
Chlorobenzene	198 J	177	1.66 J	15.2 J	100 U	1000 U

TABLE 3
SPRING 2018 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-102	PZ-103	PZ-104	PZ-105	PZ-106	PZ-107
SAMPLE DATE:	5/11/2018	5/11/2018	5/11/2018	5/10/2018	5/9/2018	5/10/2018
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)						
Chloroethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Chloroform	4 UJ	10 U	2 U	2 UJ	3470	93900
Chloromethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Cis-1,2-Dichloroethene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Cis-1,3-Dichloropropene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Cyclohexane	20 UJ	50 U	10 U	10 UJ	500 U	5000 U
Dibromochloromethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Dichlorodifluoromethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Ethylbenzene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Isopropylbenzene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Methyl cyclohexane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Methyl Tertbutyl Ether	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Methylene chloride	10 UJ	25 U	5 U	5 UJ	156 J	23300
Styrene	10 UJ	25 U	5 U	5 UJ	250 U	2500 U
Tetrachloroethene	4 UJ	10 U	2 U	2 UJ	76.7 J	1660
Toluene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
trans-1,2-Dichloroethene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
trans-1,3-Dichloropropene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Trichloroethene	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Trichlorofluoromethane	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Vinyl chloride	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Xylene, o	4 UJ	10 U	2 U	2 UJ	100 U	1000 U
Xylenes (m&p)	4 UJ	10 U	2 U	2 UJ	100 U	1000 U

Notes:

U = Compound not detected; value represents sample quantitation limit.

J = Estimated value

µg/L = micrograms per Liter

TABLE 4
COMPARISON OF SPRING 2018
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	MAY 2018 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	MAY 2018 RESULT
ON-SITE WELLS/LOCATIONS								
B-11	7	4,800	1900	410	7	570	18	**29**
B-15	10	13,000	93	6.3	10	1,600	0.087	ND
B-16	10	33,000	670	100	10	4,500	5.1	1.7
B-17	8	28,000,000	370,000	**1,100,000**	8	350,000	3,800	**6,900**
B-4	3	740	21		3	42	6.7	
B-5	6	360,000	140,000		8	670	210	
B-7	5	9,100	180	41	5	270	6.6	1.1
BR-126	9	12,000	1,200	500	9	240	ND	ND
BR-127	11	44,000	16,000	**22,000**	11	1,300	220	190
BR-3	5	6,500,000	16,000	410	5	930,000	11,000	130
BR-5A	10	1,700	62	50	10	9,400	4.7	ND
BR-6A	11	140,000	17,000	13,000	11	69,000	4,500	42
BR-7A	10	510,000	8,200	5,500	10	5,600	130	52
BR-8	10	550,000	290,000	170,000	10	7,800	870	80
BR-9	10	1,300	220	**910**	10	210	12	**17**
E-3	5	600	17	5.4	5	15,000	0.16	ND
MW-127	11	15,000	1,300	**1,400**	11	7,500	56	1.4
PW10	11	500,000	180,000	2,600	11	120,000	1,200	21
PW12	10	15,000	220	52	10	120,000	650	61
PW13	10	94,000	21,000	**22,000**	10	1,800	230	150
PW14	11	44,000	11,000	**19,000**	11	160,000	3,700	640
PW15	10	440,000	200,000	**230,000**	10	57,000	16,000	**47,000**
PW16	10	120,000	66,000	**83,000**	10	1,200	530	390
PW17	10	75,000	30,000	12,000	10	66,000	34,000	12,000
PZ-104	10	9,100	610	540	10	52	2.3	1.7
PZ-105	10	190,000	4,900	3,300	10	9,900	31	15
PZ-106	11	290,000	10,000	**38,000**	11	1,400,000	78,000	4,000
PZ-107	11	31,000	4,800	**22,000**	11	130,000	17,000	**160,000**
W-5	2	450,000	ND		2	2,500	8.7	
OFF-SITE WELLS/LOCATIONS								
BR-103	3	400	2.5		3	46	ND	
BR-104	2	3,100	2.9			11		
BR-105	10	24,000	850	320	10	350	8.8	3.7
BR-105D	10	17,000	280	23	10	230	1.7	ND
BR-106	11	46,000	18,000	2,800	11	12,000	210	51
BR-108	3	1,700	2.6			2		
BR-112D	5	310	22	ND		4.3		
BR-113D	5	490	5.1	ND		2.8		
BR-114	5	520	5.4	ND	5	12	0.2	ND
BR-116	2	12	ND			86		
BR-116D	2	710	14			130		
BR-117D	5	80	1.8	ND		1.9		
BR-118D	5	330	19	10		6.6		
BR-122D	5	650	18	ND		ND		

TABLE 4
COMPARISON OF SPRING 2018
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	MAY 2018 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	MAY 2018 RESULT
BR-123D	5	860	47	30		7		
MW-103	3	97	ND		3	750	ND	
MW-104	2	180	3			5.8		
MW-106	11	130,000	32,000	1,800	11	4,000	370	17
MW-114	5	18	1.4	ND	5	27	21	20
MW-16	2	360	15			10		
NESS-E	2	5,000	25			710		
NESS-W	2	6,300	ND			94		
PZ-101	10	27,000	150	ND	10	620	2.2	ND
PZ-102	11	210,000	57,000	7,000	11	11,000	490	200
PZ-103	10	230,000	67,000	2,600	10	46,000	750	180
QD-1	10	11	1.7	ND		ND		
QO-2	9	380	3.3	ND		ND		
QO-2S1	10	27	ND	ND		ND		
QS-4	10	13,000	93	43		ND		

Note:
1) Number of samples and mean reflect 5-year sampling period from May 2013 through November 2017. Historic maximum based on all available results from March 1990 through November 2017.
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** - May 2018 exceeds 5-year mean.
5) ND = Not detected
BLANK = Not sampled

TABLE 5
SPRING 2018 QUARRY SEEP AND OUTFALL WATER SAMPLE RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	QS-4	QO-2	QO-2S1	QD-1
SAMPLE DATE:	5/15/2018	5/15/2018	5/15/2018	5/15/2018
QC TYPE:	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)				
2,6-Dichloropyridine	12.2	10 UJ	10 UJ	10 U
2-Chloropyridine	31	10 UJ	10 UJ	10 U
3-Chloropyridine	10 U	10 UJ	10 UJ	10 U
4-Chloropyridine	10 U	10 UJ	10 UJ	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 - DECEMBER 2017 THROUGH MAY 2018

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.]
Dec '17								
12/03/17	91,357	44,059	14,384	24,178	76,838	155	92,223	343,194
12/10/17	87,683	51,311	60,155	4,925	84,969	194	77,812	367,049
12/17/17	87,674	53,128	61,498	11,018	87,559	226	71,740	372,843
12/24/17	90,588	44,782	14,532	10,621	71,943	147	71,567	304,180
12/31/17	92,407	39,478	14,202	10,736	18,848	48	13,896	189,615
								1,576,881
Jan '18								
01/07/18	90,821	35,325	13,314	10,881	67,702	0	0	218,043
01/14/18	96,205	35,545	14,093	12,073	69,686	14	1	227,617
01/21/18	114,729	37,447	13,691	11,115	69,093	2	6	246,083
01/28/18	110,963	48,824	11,223	10,359	70,848	3	17,703	269,923
							Total [Gal.]	961,666
Feb '18								
02/04/18	141,499	42,738	15,183	12,267	58,308	0	59,647	329,642
02/11/18	133,417	40,606	14,205	11,196	51,999	1	58,158	309,582
02/18/18	139,982	39,046	14,385	11,193	49,703	0	58,955	313,264
02/25/18	140,307	43,431	18,865	10,909	17,894	1	63,142	294,549
							Total [Gal.]	1,247,037
Mar '18								
03/04/18	144,807	50,223	20,755	11,419	2,718	0	54,714	284,636
03/11/18	139,912	51,952	24,964	11,310	0	0	53,398	281,536
03/18/18	137,461	61,003	25,883	11,163	0	0	54,361	289,871
03/25/18	136,606	61,016	22,980	11,105	0	0	51,915	283,622
							Total [Gal.]	1,139,665
Apr '18								
04/01/18	138,658	56,345	20,479	11,629	37,756	0	55,050	319,917
04/08/18	103,744	43,966	13,747	11,133	78,187	602	50,135	301,514
04/15/18	5,000	63,493	31,545	11,442	67,075	961	57,592	237,108
04/22/18	99,274	55,558	19,526	11,856	54,858	919	54,368	296,359
04/29/18	143,007	47,510	14,927	11,915	50,613	872	52,259	321,103
							Total [Gal.]	1,476,001
May '18								
05/06/18	117,924	25,951	46,139	11,393	61,982	996	46,548	310,933
05/13/18	120,686	51,585	64,400	11,481	52,303	1,283	45,644	347,382
05/20/18	108,877	41,589	55,120	11,139	49,834	1,416	50,423	318,398
05/27/18	120,846	46,252	56,690	11,382	49,570	1,499	54,722	340,961
							Total [Gal.]	1,317,674
Total 6 Mo. Removal (Gal.)	2,934,434	1,212,163	696,885	299,838	1,300,286	9,339	1,265,979	7,718,924

TABLE 7

MASS REMOVAL SUMMARY
PERIOD: DECEMBER 2017 THROUGH MAY 2018

ARCH ROCHESTER
SPRING 2018 GROUNDWATER MONITORING REPORT

Well	Total Vol. Pumped (gallons)	Avg. VOC Conc. (ppm)	Avg. PYR. Conc. (ppm)	VOCs Removed (pounds)	PYR. Removed (pounds)
BR-7A	2,934,000	0.034	3.2	0.8	78
BR-9	1,212,000	0.012	0.51	0.12	5.1
PW-13	696,900	0.11	17	0.63	99
PW-15	299,800	29	335	71	837
PW-16	1,300,000	0.37	102	4.0	1099
PW-17	9,300	14	25	1	2
BR-127	1,266,000	0.36	27	3.8	279
Totals:	7,718,000			82	2,399

Notes: VOC and pyridine concentrations used in this table are an average of the analytical results from the Fall 2017 and Spring 2018 sampling events for each well;
Total select VOCs include chlorobenzene, PCE, TCE, methylene chloride, carbon tetrachloride, and chloroform

TABLE 8
2018 SAMPLING SCHEDULE
ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

ARCH ROCHESTER						**2018**					
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

Spring 2018 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: June 21, 2018

TABLE OF CONTENTS

1.0 INTRODUCTION

This report describes the sampling of the following points:

- 41 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 May 7, 2018 by Matrix Environmental Technologies Inc. (METI) field personnel. The samples were collected from May 9 through May 16, 2018. One well, B16, was resampled on May 16, 2018 because the original sample was contaminated at the laboratory.

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 precleaned 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	5/11/2018	8:52	10.11	NM	7.20	1.58	8.36	53.9	7	3.69
B-15	On-Site	OB	5/14/2018	10:28	5.36	NM	7.42	0.37	18.46	0.0	54	2.72
B-16	Off-Site	OB	5/16/2018	14:21	6.36	NM	7.44	1.16	18.23	0.0	1	2.99
B-17	On-Site	OB	5/9/2018	12:17	7.73	NM	9.50	5.57	18.57	0.0	-161	0.95
B-7	On-Site	OB	5/11/2018	10:55	16.70	NM	7.17	1.05	12.82	13.0	21	1.89
BR-105	Off-Site	BR	5/16/2018	9:33	21.91	NM	7.47	1.75	13.14	0.0	-265	1.35
BR-105D	Off-Site	BR deep	5/16/2018	8:41	27.19	NM	7.14	25.90	12.38	3.9	-362	3.45
BR-106	Off-Site	BR	5/14/2018	13:30	22.91	NM	7.06	2.57	21.59	0.0	-81	0.77
BR-112D	Off-Site	BR deep	5/16/2018	10:18	36.08	NM	7.80	1.38	11.89	7.0	-293	6.71
BR-113D	Off-Site	BR deep	5/16/2018	13:00	31.11	NM	7.49	2.12	13.64	0.0	-354	0.97
BR-114	Off-Site	BR	5/14/2018	11:15	12.82	NM	8.12	0.45	21.50	0.0	4	1.85
BR-117D	Off-Site	BR deep	5/16/2018	11:10	47.77	NM	8.83	0.55	11.78	20.2	-190	1.38
BR-118D	Off-Site	BR deep	5/16/2018	11:58	47.20	NM	9.94	0.87	11.67	12.8	-229	2.41
BR-122D	Off-Site	BR deep	5/15/2018	9:15	44.96	NM	7.38	1.11	13.35	0.0	-199	4.12
BR-123D	Off-Site	BR deep	5/15/2018	10:07	44.21	NM	7.72	1.38	11.87	18.8	-161	2.37
BR-126	Off-Site	BR	5/14/2018	9:03	7.80	NM	7.24	0.71	14.88	0.0	-101	1.42
BR-127	On-Site	BR	5/10/2018	10:20	9.05	NM	8.05	3.83	14.98	0.0	-160	2.55
BR-3	On-Site	BR	5/10/2018	9:05	7.94	NM	9.85	5.91	14.28	2.8	-120	1.46
BR-5A	On-Site	pumping well	5/9/2018	10:52	3.47	NM	7.02	2.84	20.43	94.6	87	3.73
BR-6A	On-Site	BR	5/10/2018	14:47	15.11	NM	8.24	3.80	17.49	56.8	-293	0.73
BR-7A	On-Site	pumping well	5/15/2018	12:55	30.76	NM	7.69	1.63	14.46	0.0	-131	10.41
BR-8	On-Site	BR	5/11/2018	10:02	13.26	NM	9.16	4.59	9.95	74.4	-177	1.33
BR-9	On-Site	pumping well	5/9/2018	15:00	31.83	NM	7.35	1.87	17.79	7.4	-78	1.48
E-3	On-Site	OB	5/9/2018	10:12	4.16	NM	7.75	1.30	18.55	99.4	-198	0.96
MW-106	Off-Site	OB	5/14/2018	14:10	10.91	NM	7.16	0.89	18.83	118.0	-89	1.01
MW-114	Off-Site	OB	5/14/2018	11:47	10.43	NM	7.88	0.41	22.27	0.0	59	5.23
MW-127	On-Site	OB	5/10/2018	13:15	7.20	NM	7.77	2.12	18.32	14.2	-83	1.14
PW-10	On-Site	pumping well	5/9/2018	11:40	7.80	NM	8.24	2.82	21.86	0.0	-56	1.50
PW-12	On-Site	BR	5/9/2018	9:36	5.55	NM	8.50	0.30	14.13	0.0	-17	1.54
PW-13	On-Site	pumping well	5/14/2018	14:40	27.51	NM	7.47	2.57	17.51	0.0	-206	4.14
PW-14	On-Site	pumping well	5/9/2018	14:25	14.69	NM	8.40	5.12	22.61	0.0	-210	0.76
PW-15	On-Site	pumping well	5/10/2018	9:25	23.35	NM	9.87	5.93	13.90	5.1	-164	7.41
PW-16	On-Site	pumping well	5/11/2018	9:25	19.88	NM	7.86	4.19	11.84	10.9	-131	10.41
PW-17	On-Site	pumping well	5/10/2018	9:50	30.76	NM	7.43	2.41	14.31	43.1	-137	3.11
PZ-101	Off-Site	BR	5/11/2018	13:15	17.41	NM	7.29	2.13	13.87	0.0	36	6.36
PZ-102	Off-Site	BR	5/11/2018	14:10	16.03	NM	7.15	2.80	13.25	0.0	-90	2.10
PZ-103	Off-Site	BR	5/11/2018	14:55	13.80	NM	6.87	2.03	13.58	0.0	-75	1.14
PZ-104	Off-Site	BR	5/11/2018	11:40	13.22	NM	7.31	1.88	13.14	0.0	-107	1.04

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)
PZ-105	On-Site	BR	5/10/2018	11:07	12.94	NM	7.62	0.95	18.58	34.9	-35	1.06
PZ-106	On-Site	BR	5/9/2018	13:42	12.51	NM	8.27	2.58	23.59	0.0	-13	1.62
PZ-107	On-Site	BR	5/10/2018	13:55	9.53	NM	6.48	4.72	18.81	0.0	-119	0.89
QD-1	Quarry/Canal	quarry ditch	5/15/2018	11:20	NM	NA	8.28	1.34	14.20	65.0	-37	12.00
QO-2	Quarry/Canal	quarry outfall	5/15/2018	13:15	NM	NA	8.48	1.38	14.13	22.1	-55	13.20
QO-2S1	Quarry/Canal	canal at outfall	5/15/2018	13:25	NM	NA	8.87	0.50	16.98	9.6	-55	13.40
QS-4	Quarry/Canal	quarry seep	5/15/2018	11:50	NM	NA	8.43	1.16	13.00	0.0	-10	14.10

** Water level at time of sampling

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	5/7/2018	9.33	537.75	528.42	10:43	
B-10	On-Site	OB	5/7/2018	8.16	538.80	530.64	9:34	
B-11	On-Site	OB	5/7/2018	4.28	536.00	531.72	9:35	
B-15	On-Site	OB	5/7/2018	4.48	535.29	530.81	15:14	
B-16	Off-Site	OB	5/7/2018	4.81	536.21	531.40	15:16	
B-17	On-Site	OB	5/7/2018	7.73	538.74	531.01	9:17	
B-2	On-Site	OB	5/7/2018	9.19	539.02	529.83	10:40	
B-4	On-Site	OB	5/7/2018	Dry	542.87	Dry		
B-5	On-Site	OB	5/7/2018	13.76	540.21	526.45	9:51	
B-7	On-Site	OB	5/7/2018	13.24	541.11	527.87	11:06	
B-8	On-Site	OB	5/7/2018	Dry	538.88	Dry	9:31	
BR-1	On-Site	BR	5/7/2018	6.34	537.28	530.94	9:08	
BR-102	On-Site	BR	5/7/2018	23.87	539.43	515.56	10:55	
BR-103	Off-Site	BR	5/7/2018	2.37	533.19	530.82	14:08	
BR-104	Off-Site	BR	5/7/2018	9.48	537.56	528.08	13:51	
BR-105	Off-Site	BR	5/7/2018	21.72	536.90	515.18	15:02	
BR-105D	Off-Site	BR deep	5/7/2018	26.24	536.49	510.25	15:00	
BR-106	Off-Site	BR	5/7/2018	23.05	535.74	512.69	11:13	
BR-108	Off-Site	BR	5/7/2018	27.64	540.58	512.94	11:20	
BR-111	Off-Site	BR	5/7/2018	28.53	540.42	511.89	11:44	
BR-111D	Off-Site	BR	5/7/2018	28.56	540.34	511.78	11:43	
BR-112D	Off-Site	BR deep	5/7/2018	36.13	547.91	511.78	11:41	
BR-113	Off-Site	BR	5/7/2018	31.12	543.02	511.90	13:15	
BR-113D	Off-Site	BR deep	5/7/2018	31.10	542.93	511.83	13:17	
BR-114	Off-Site	BR	5/7/2018	12.51	539.77	527.26	14:01	
BR-116	Off-Site	BR	5/7/2018	26.96	545.38	518.42	14:21	Need's new road box.
BR-116D	Off-Site	BR deep	5/7/2018	35.03	545.22	510.19	14:20	
BR-117	Off-Site	BR	5/7/2018	33.86	547.61	513.75	12:27	
BR-117D	Off-Site	BR deep	5/7/2018	47.45	547.16	499.71	12:25	
BR-118	Off-Site	BR	5/7/2018	23.25	547.79	524.54	12:30	
BR-118D	Off-Site	BR deep	5/7/2018	46.69	547.93	501.24	12:32	
BR-122D	Off-Site	BR deep	5/7/2018	44.78	552.34	507.56	12:41	
BR-123D	Off-Site	BR deep	5/7/2018	44.99	553.62	508.63	12:45	
BR-124D	Off-Site	BR deep	5/7/2018	32.69	537.45	504.76	14:25	
BR-126	Off-Site	BR	5/7/2018	7.44	537.90	530.46	15:08	
BR-127	On-Site	BR	5/7/2018	9.52	536.05	526.53	9:37	
BR-2	On-Site	BR	5/7/2018	8.84	538.97	530.13	9:15	
BR-2A	On-Site	BR	5/7/2018	9.80	540.36	530.56	9:16	
BR-2D	On-Site	BR deep	5/7/2018	9.08	537.26	528.18	9:14	
BR-3	On-Site	BR	5/7/2018	7.14	538.20	531.06	9:25	
BR-3D	On-Site	BR deep	5/7/2018	48.72	537.67	488.95	9:22	
BR-4	On-Site	BR	5/7/2018	NM	539.03	NM	9:12	Debris in well
BR-5	On-Site	BR	5/7/2018	5.19	536.30	531.11	9:01	
BR-5A	On-Site	pumping well	5/7/2018	3.24	536.35	533.11	9:03	
BR-6A	On-Site	BR	5/7/2018	13.84	540.90	527.06	9:29	
BR-7	On-Site	BR	5/7/2018	15.20	539.10	523.90	11:04	
BR-7A	On-Site	pumping well	5/7/2018	30.22	539.12	508.90	11:05	
BR-8	On-Site	BR	5/7/2018	13.26	539.72	526.46	9:50	
BR-9	On-Site	pumping well	5/7/2018	32.18	542.17	509.99	10:35	
C-2A	On-Site	OB	5/7/2018	Dry	539.66	Dry		
C-5	On-Site	OB	5/7/2018	9.21	539.63	530.42	9:23	
CANAL	Off-Site	SW	5/7/2018	36.70	544.79	508.09	13:33	
E-2	On-Site	OB	5/7/2018	4.99	538.32	533.33	9:13	
E-3	On-Site	OB	5/7/2018	3.58	536.59	533.01	9:00	
E-5	On-Site	OB	5/7/2018	5.63	539.31	533.68	9:05	
EC-2	Off-Site	BR	5/7/2018	Dry	542.00	Dry	13:18	
MW-103	Off-Site	OB	5/7/2018	1.39	533.25	531.86	14:06	
MW-104	Off-Site	OB	5/7/2018	7.16	537.54	530.38	13:52	
MW-105	Off-Site	OB	5/7/2018	18.71	536.91	518.20	15:03	
MW-106	Off-Site	OB	5/7/2018	9.74	535.44	525.70	11:12	
MW-114	Off-Site	OB	5/7/2018	7.92	539.69	531.77	14:00	
MW-127	On-Site	OB	5/7/2018	6.29	536.87	530.58	9:36	
MW-16	Off-Site	BR	5/7/2018	9.88	536.79	526.91	14:10	
MW-3	Off-Site	OB	5/7/2018	NM	535.89	NM		Inaccessible
MW-G6	Off-Site	OB	5/7/2018	3.95	534.65	530.70	10:53	
MW-G8	Off-Site	OB	5/7/2018	NM	534.25	NM		Inaccessible
MW-G9	Off-Site	OB	5/7/2018	NM	536.60	NM		Inaccessible
N-2	On-Site	OB	5/7/2018	3.96	537.33	533.37	9:10	

Table 2
Groundwater Elevation Report
Lonza, Rochester, NY

Sample Location		Zone	Date	Depth to water	Casing Elevation	GW Elevation	Time	Comments
N-3	On-Site	OB	5/7/2018	5.23	537.38	532.15	10:44	
NESS-E	Off-Site	BR deep	5/7/2018	24.75	540.31	515.56	13:45	
NESS-W	Off-Site	BR deep	5/7/2018	30.34	543.04	512.70	13:39	
PW-10	On-Site	pumping well	5/7/2018	6.78	538.76	531.98	9:18	
PW-12	On-Site	BR	5/7/2018	5.29	537.49	532.20	8:55	
PW-13	On-Site	pumping well	5/7/2018	28.66	536.13	507.47	11:01	
PW-14	On-Site	pumping well	5/7/2018	9.97	537.03	527.06	9:39	
PW-15	On-Site	pumping well	5/7/2018	20.24	538.32	518.08	9:20	
PW-16	On-Site	pumping well	5/7/2018	20.28	539.32	519.04	9:43	
PW-17	On-Site	pumping well	5/7/2018	30.91	NA	NA	9:26	
PZ-101	Off-Site	BR	5/7/2018	16.98	542.95	525.97	10:56	
PZ-102	Off-Site	BR	5/7/2018	15.84	540.89	525.05	10:57	
PZ-103	Off-Site	BR	5/7/2018	12.66	540.20	527.54	10:59	
PZ-104	Off-Site	BR	5/7/2018	12.99	536.85	523.86	15:11	
PZ-105	On-Site	BR	5/7/2018	8.30	536.93	528.63	9:30	
PZ-106	On-Site	BR	5/7/2018	9.75	537.24	527.49	9:38	
PZ-107	On-Site	BR	5/7/2018	9.07	538.39	529.32	9:33	
PZ-109	On-Site	BR	5/7/2018	7.87	538.59	530.72	9:21	
PZ-110	On-Site	BR	5/7/2018	13.20	NA	NA	9:27	
PZ-111	On-Site	BR	5/7/2018	NM	NA	NM		Could Not Locate Well
W-5	On-Site	OB	5/7/2018	NM	538.53	NM		Inaccessible

APPENDIX A
FIELD OBSERVATION FORMS

5-7-18

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				9.33	10:43	
B-10	On-Site	OB				8.16	9:34	
B-11	On-Site	OB				4.28	9:32	Dry (at 14.42)
B-15	On-Site	OB				4.48	15:34	
B-16	Off-Site	OB				4.81	15:16	
B-17	On-Site	OB				7.73	9:17	
B-2	On-Site	OB				9.19	10:40	
B-4	On-Site	OB				DRY		
B-5	On-Site	OB				13.76	9:51	
B-7	On-Site	OB				13.24	11:16	
B-8	On-Site	OB				DRY	9:31	
BR-1	On-Site	BR				6.34	9:08	
BR-102	On-Site	BR				23.87	10:55	
BR-103	Off-Site	BR				5.37	14:08	
BR-104	Off-Site	BR				9.48	13:5	
BR-105	Off-Site	BR				21.72	15:02	
BR-105D	Off-Site	BR deep				26.34	15:00	
BR-106	Off-Site	BR				23.05	11:13	
BR-108	Off-Site	BR				27.69	11:30	
BR-111	Off-Site	BR				28.53	11:44	
BR-111D	Off-Site	BR				29.56	11:43	
BR-112D	Off-Site	BR deep				36.13	10:41	
BR-113	Off-Site	BR				34.12	13:15	
BR-113D	Off-Site	BR deep				31.12	13:17	
BR-114	Off-Site	BR				12.51	14:01	
BR-116	Off-Site	BR				26.96	14:24	Need new manhole
BR-116D	Off-Site	BR deep				35.03	14:30	
BR-117	Off-Site	BR				33.86	13:57	
BR-117D	Off-Site	BR deep				47.45	13:05	
BR-118	Off-Site	BR				23.35	12:30	
BR-118D	Off-Site	BR deep				46.69	12:35	
BR-122D	Off-Site	BR deep				44.78	12:41	
BR-123D	Off-Site	BR deep				44.99	12:45	
BR-124D	Off-Site	BR deep				32.69	14:35	
BR-126	Off-Site	BR				7.44	15:08	
BR-127	On-Site	BR				9.52	9:37	well under debris
BR-2	On-Site	BR				8.84	9:15	
BR-2A	On-Site	BR				9.80	9:16	
BR-2D	On-Site	BR deep				9.08	9:14	
BR-3	On-Site	BR				7.14	9:25	
BR-3D	On-Site	BR deep				48.72	9:10	debris in well
BR-4	On-Site	BR				NS	9:17	details
BR-5	On-Site	BR				5.14	9:01	
BR-5A	On-Site	pumping well				3.24	9:03	
BR-6A	On-Site	BR				13.84	9:29	
BR-7	On-Site	BR				15.22	11:04	
BR-7A	On-Site	pumping well				30.22	11:08	
BR-8	On-Site	BR				13.26	9:50	
BR-9	On-Site	pumping well				32.18	10:35	
C-2A	On-Site	OB				DRY		
C-5	On-Site	OB				9.21	9:22	
CANAL	Off-Site	SW				36.7	13:33	
E-2	On-Site	OB				4.94	9:13	
E-3	On-Site	OB				3.58	9:003	
E-5	On-Site	OB				5.63	9:05	
EC-2	Off-Site	BR				DRY	12:178	
MW-103	Off-Site	OB				1.39	14:06	
MW-104	Off-Site	OB				7.16	13:52	
MW-105	Off-Site	OB				18.71 DRY	15:05	DTB 18.83
MW-106	Off-Site	OB				9.74	11:17	
MW-114	Off-Site	OB				7.92	14:00	
MW-127	On-Site	OB				6.29	9:36	
MW-16	Off-Site	BR				9.88	14:10	
MW-3	Off-Site	OB				NS		

31.12 ~~28.56~~

5-7-18

Table 2
Groundwater Elevation Report
Lonza, Rochester, NY

Sample Location		Zone	Date	Depth to water	Casing Elevation	GW Elevation	Time	Comments
MW-G6	Off-Site	OB				3.95	10:53	
MW-G8	Off-Site	OB				NS-1		
MW-G9	Off-Site	OB				NS-1		
N-2	On-Site	OB				3.96	9:19	
N-3	On-Site	OB				5.23	10:44	
NESS-E	Off-Site	BR deep				24.75	13:45	
NESS-W	Off-Site	BR deep				30.34	13:39	
PW-10	On-Site	pumping well				6.78	9:16	
PW-12	On-Site	BR				5.29	9:55	Nicol
PW-13	On-Site	pumping well				28.66		
PW-14	On-Site	pumping well				4.97	9:39	
PW-15	On-Site	pumping well				20.54	9:20	
PW-16	On-Site	pumping well				20.28	9:43	
PW-17	On-Site	pumping well				30.91	9:24	
PZ-101	Off-Site	BR				16.98	10:56	
PZ-102	Off-Site	BR				15.84	10:51	
PZ-103	Off-Site	BR				17.66	10:59	
PZ-104	Off-Site	BR				12.99	15:11	
PZ-105	On-Site	BR				8.30	9:30	
PZ-106	On-Site	BR				9.75	9:28	
PZ-107	On-Site	BR				9.07	9:33	
PZ-109	On-Site	BR				7.27	9:21	
PZ-110	On-Site	BR				13.20	9:24	
PZ-111	On-Site	BR				NS-1		
W-5	On-Site	OB				NS-1		

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PW12

Field Personnel: DK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-18 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: PW12 9:12

Date/Time Completed: 9:40

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 5.44

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): 3L

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
9:16	5.56	250		14.20	8.24	0.300	0.0	81	1	
9:21	5.55	125		13.84	8.32	0.304	0.059		2.43	
9:26	5.55	125		13.98	8.44	0.305	0.0	4	1.79	
9:31	5.55			14.11	8.46	0.306	0.0	8	1.67	
9:36	5.55			14.13	8.50	0.303	0.0	7	1.54	
GW	SAMPLE									

60°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: E3

Field Personnel: OKTRG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-18 9:43

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: 5-~~9~~9-18 9:47

Date/Time Completed: 10:20

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

Riser Diameter (inches) 2 1/5 Steel

Initial Water Level (ft): 3.60

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge ____

One (1) Riser Vol (gal): ____

Dedicated: (Y) N new Flexi tube

Total Volume Purged (gal): 2L

Purged to Dryness: Y / (N)

Purge Observations: orange color, cloudy

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/htz)~~ mL/min	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
9:51	4.01	250		16.2	8.46	0.315	143	77	4.51	
9:56	4.06	125		16.9	7.64	0.641	116	-60	1.41	
10:01	4.09	67.5		17.4	7.54	0.766	112	-179	1.23	
10:07	4.14			18.2	7.67	1.18	102	-194	1.07	
10:12	4.16			18.5	7.75	1.30	99.4	-198	0.96	
↳	SAMPLE									

64°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR5A

Field Personnel: DK + DRG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-18 1024

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: 5-9 10:30

Date/Time Completed: 11:01

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 3.29

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N — New complete tubing

Total Volume Purged (gal): 2L

Purged to Dryness: Y (N)

Purge Observations: Orange/Yellow tint

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (gpm/mL)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
~~10:36~~ 10:37	3.40	250 mL/min		21.68	7.10	2.64	114	48	10.62	
10:42	3.43	125		20.10	6.99	2.78	78.5	65	4.12	
10:47	3.45	67.5		20.18	3.80	2.82	97.2	83	3.64	
10:52	3.47			20.43	7.02	2.84	94.6	87	3.73	
↳	SAMPLE									

66°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PW10

Field Personnel: DK + RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-18 11:11

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: 5-9 11:15

Date/Time Completed: 11:50

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 7.10

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)

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
11:20	7.31	125 mL/min		24.21	7.65	2.76	0.0	-7	6.76	
11:25	7.55			22.56	8.11	2.77	0.0	-51	1.80	
11:30	7.60	67.5		22.29	8.21	2.79	0.0	-53	1.64	
11:35	7.71			22.07	8.23	2.81	0.0	-55	1.74	
11:40	7.80			21.86	8.24	2.82	0.0	-56	1.50	
→ SAMPLE										

67°F, Sunny

FIELD OBSERVATIONS

Facility: Lo129 Sample Point ID: B17

Field Personnel: DK+DRG Sample Matrix: _____

MONITORING WELL INSPECTION

Date/Time: 5-9-18 11:54 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: 11:58 Date/Time Completed: 12:26

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

Initial Water Level (ft): 7.70 Elevation G/W MSL: _____

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

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

Total Volume Purged (gal): 1.7L Purged to Dryness: Y / N

Purge Observations: Clear, Brown tint Start _____ Finish _____

PURGE DATA (if applicable) Chemical odor

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
12:02	7.72	250		22.26	9.14	4.94	0.0	-98	6.46	
12:07	7.73	125		20.26	9.12	5.18	0.0	-104	1.28	
12:12	7.73	67.5		19.44	9.13	5.40	0.0	-109	1.19	
12:17	7.73			18.57	9.50	5.57	0.0	-161	0.95	
	→ SAMPLE									

68°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: PZ106

Field Personnel: DK+DRB | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-18 13:40 | 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: 5-9 13:21 | Date/Time Completed: 13:56

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

Initial Water Level (ft): 9.77 | Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 1.76 | Purged to Dryness: Y (N)

Purge Observations: Clear, slight yellow tint | Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (gpm/hr)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:27	10.72	250 mL/min		23.3	8.30	2.33	0.0	-17	5.78	
13:32	11.60	125		23.01	8.20	2.06	0.0	-12	2.09	
13:37	12.03	67.5		23.02	8.24	2.58	0.0	-13	1.66	
13:42	12.51			23.59	8.27	2.58	0.0	-13	1.62	
	→ SAMPLE									

68°F, Cloudy

FIELD OBSERVATIONS

Facility: Conza

Sample Point ID: PW 14

Field Personnel: DKTRS

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-18 13:58

Condition of seal: ( ) Good ( ) Cracked Duct tape

( ) None ( ) Buried

Prot. Casing/Riser Height:

Condition of Prot. Casing/Riser: ( ) unlocked (X) ~~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: 5-9 14:01

Date/Time Completed: 14:33

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

Riser Diameter (inches)

Initial Water Level (ft): 10.28

Elevation G/W MSL:

Well Total Depth (ft):

Method of Well Purge Peristaltic

One (1) Riser Vol (gal):

Dedicated: (X) / N

Total Volume Purged (gal): 2.1L

Purged to Dryness: Y (X) ~~N~~

Purge Observations: clear, yellow tint

Start Finish

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/mL~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
14:05	10.35	125mL/min		26.57	8.43	4.43	0.0	-58	6.61	
14:10	10.45			25.01	8.47	5.04	0.0	-164	0.87	
14:15	10.55			22.84	8.43	5.27	0.0	-193	0.79	
14:20	14.62			22.67	8.41	5.13	0.0	-202	0.74	
14:25	14.69	67.5		22.61	8.40	5.12	0.0	-210	0.72	
→	SAMPLE									

68°F cloudy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BRG

SAMPLING INFORMATION

Date/Time 5-9-18 14:55 Water Level at Sampling (ft) 31.83

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
15:00	17.79	7.35	1.87 mS/cm	279	-78	1.98	

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: 70F, Breezy + sunny

Sample characteristics: Gray, cloudy, particles

Comments and Observations: MS/MSD

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

Date: 5-9-18 by: DK + RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR3

Field Personnel: DK

Sample Matrix:

MONITORING WELL INSPECTION

Date/Time: 5-10-18 8:25

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: 5-10 8:40

Date/Time Completed: 9:12

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

Riser Diameter (inches) 4" steel

Initial Water Level (ft): 7.03

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: light brown color

Start Finish

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
8:45	7.31	125mL/min		14.26	9.46	5.87	19.4	-41	9.92	
8:50	7.49	67.5		13.88	9.74	5.91	15.9	-86	2.40	
8:55	7.72			13.95	9.82	5.92	6.4	-108	1.59	
9:00	7.84	<67.5		14.14	9.83	5.91	5.8	-115	1.43	
9:05	7.94			14.28	9.85	5.91	2.8	-120	1.46	
↳	SAMPLE									

62°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW 15

SAMPLING INFORMATION

Date/Time 5-10-18 9:16 Water Level at Sampling (ft) 23.35

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
9:25	13.90	9.87	5.93 mS/cm	5.1	+69	7.91	

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: 62°F cloudy

Sample characteristics: Brown tint, slight chemical odor

Comments and Observations:

Done

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

Date: 5-10-18 by: DK Company: Matrix

FIELD OBSERVATIONS

Facility: Lou 20 Sample Point ID: PW17

SAMPLING INFORMATION

Date/Time 5-10-18 9:35 Water Level at Sampling (ft) 30.76

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
9:50	14.31	7.43	2.14 mS/cm	43.1	-137	3.11	

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: 62°F Cloudy

Sample characteristics: Slightly cloudy, gray tint

Comments and Observations:

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

Date: 5-10-18 by: DK Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR127

SAMPLING INFORMATION

Date/Time 5-10-18 10:00 Water Level at Sampling (ft) 9.05

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	14.98	8.05	3.83 mS/cm	0.0	160	2.55	

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: 63°F cloudy

Sample characteristics: clear, a few particles

Comments and Observations:

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

Date: 5/10/18 by: DK Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ105

Field Personnel: DK

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-18 10:30

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: 10:42

Date/Time Completed: 11:22

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

Riser Diameter (inches) 2"

Initial Water Level (ft): 10.06

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N New Flexi tube

Total Volume Purged (gal): 1.5 L

Purged to Dryness: Y (N)

Purge Observations: Slightly cloudy

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/hr)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:47	11.08	125 mL/min		18.61	7.56	1.05	58.9	-6	9.41	
10:52	11.65	67.5		18.07	7.56	0.989	53	-23	1.64	
10:57	12.11			18.40	7.56	0.962	42.7	-31	1.30	
11:02	12.67			18.56	7.60	0.951	37.1	-33	1.13	
11:07	12.94			18.58	7.62	0.949	34.9	-35	1.06	
	→ SAMPLE									

62°F, Cloudy

Rain at 10:58

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: MW127

Field Personnel: DK

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-18 12:35

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: 5-10 12:50

Date/Time Completed: 13:23

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 6.33

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): 1.8L

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
12:55	7.01	125mL/min		18.55	7.85	2.03	32	-21	7.10	
13:00	7.12	67.5		17.85	7.73	2.06	30	-60	2.45	
13:05	7.14	~~167.5~~		18.23	7.76	2.10	23.9	-81	1.66	
13:10	7.18			18.38	7.77	2.11	14.6	-83	1.39	
13:15	7.20			18.32	7.77	2.12	14.2	-83	1.19	
↳	SAMPLE									

64°F, Sun, breezy

FIELD OBSERVATIONS

Facility: Leroy Sample Point ID: PZ107

Field Personnel: DK Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-18 13:29 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: 5-10-18 13:34 Date/Time Completed: 14:07

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

Initial Water Level (ft): 8.88 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): 1.25 L Purged to Dryness: Y / (N)

Purge Observations: Clear, some small black particles, slight yellow tint Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/htz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:40	9.47	67.5 ~~125 mL/min~~		20.01	6.52	4.08	0.0	-91	3.81	
13:45	9.50	67.5		19.66	6.48	4.45	0.0	-105	1.35	
13:50	9.50			19.66	6.47	4.57	0.0	-109	1.07	
13:55	9.53			18.81	6.48	4.73	0.0	-119	0.89	
→ SAMPLE										

65°F, Sun, clouds, wind

FIELD OBSERVATIONS

Facility: Lowe's Sample Point ID: BR6A

Field Personnel: DK Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-18 14:00 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: 5-7 14:20 Date/Time Completed: 14:58

Surf. Meas. Point: ( ) Pro Casing (✓) Riser Riser Diameter (inches) 4" Steel

Initial Water Level (ft): 13.85 Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.3L Purged to Dryness: Y / (N)

Purge Observations: Cloudy, dark brown Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (gpm/Atz)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
14:27	13.66	250		20.10	7.74	3.79	69.9	-219	4.81	
14:32	14.41	125		17.70	8.01	3.82	63.1	-251	1.62	
14:37	14.68			17.39	8.19	3.81	64.5	-278	0.97	
14:42	14.88			17.55	8.21	3.80	55.8	-286	0.80	
14:47	15.11			17.49	8.24	3.80	56.8	-293	0.73	
↳	SAMPLE									

65°, Sunny, breezy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: B-11

Field Personnel: 5-1-18 DK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-1-18 8:15

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: 5-1-18 ~~5:49~~ 8:30

Date/Time Completed: 9:03

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 5.49

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): 1.3 L

Purged to Dryness: (Y) / N

Purge Observations: Cloudy

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
8:37	7.05	125 mL/min		8.15	7.17	1.65	15.5	78	7.46	
8:42	7.59	67.5		8.26	7.16	1.65	17.4	41	3.20	
8:47	8.86			8.15	7.17	1.63	105	25	2.48	
8:52	10.11			8.36	7.20	1.58	~~53.9~~	7	3.69	
↳	SAMPLE									

45°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW16

SAMPLING INFORMATION

Date/Time 5-11-18 9:15 Water Level at Sampling (ft) 19.88

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
9:25	11.84	7.86	4.19 mS/cm	10.9	-131	10.41	

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: 46 °F

Sample characteristics: Dark tint particles, cloudy

Comments and Observations: some sulfur like odor

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

Date: 5-11-18 by: DK + DRG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR8

Field Personnel: DK + DRG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-1-18 9:31

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: 5-1-18 ~~13:15~~ 9:37

Date/Time Completed: 10:14

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

Riser Diameter (inches) 6" steel

Initial Water Level (ft): 13.15

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: Y / N All new tubing

Total Volume Purged (gal): 1.8L

Purged to Dryness: Y / (N)

Purge Observations: Cloudy, tan color

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
9:42	13.20	125mL/min		9.98	9.05	4.33	92.3	-134	11.45	
9:47	13.24	67.5		9.91	9.13	4.59	87	-158	2.56	
9:52	13.26	<67.5		9.93	9.15	4.59	80.5	-169	1.69	
9:57	13.26			9.91	9.15	4.59	75.7	-175	1.37	
10:02				9.95	9.16	4.59	74.4	-177	1.33	
↳ SAMPLE										

48°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: B7

Field Personnel: MKtRG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5/1/18 10:21

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: 5-1-18 10:26

Date/Time Completed: 11:10

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 13.45

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge ____

One (1) Riser Vol (gal): ____

Dedicated: (Y) N New Flexible tube

Total Volume Purged (gal): 2L

Purged to Dryness: Y (N) but low well yield

Purge Observations: Yellow Iron tint, cloudy

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
10:35	15.19	250mL/min		12.01	7.49	1.12mS/cm	38.3	-43	1.4	
10:40	15.74	167.5		12.26	7.19	1.09	32.6	-1	3.04	
10:45	16.13			12.47	7.18	1.08	20	11	1.94	
10:50	16.48			12.59	7.18	1.06	17	17	1.91	
10:55	16.70			12.82	7.17	1.05	13	21	1.89	
	↳ SAMPLE									

50°F, Sunny

FIELD OBSERVATIONS

Facility: LONZA

Sample Point ID: DZ104

Field Personnel: DK+RB

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-11-18 11:16

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: 5-11 11:19

Date/Time Completed: 11:54

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 13.15

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge ____

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N

Total Volume Purged (gal): 1.7L

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
11:25	13.24	125 mL/min		14.69	7.33	1.72	0.00	~~87~~ ~~6.78~~	6.78	
11:30	13.24	~~167.5~~		13.84	7.30	1.85	0.10	-99	1.70	
11:35	13.23			13.46	7.30	1.87	0.00	-104	1.24	
11:40	13.22			13.14	7.31	1.88	0.00	-107	1.04	
	↳ SAMPLE									

50°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ101

Field Personnel: DK + RG

Sample Matrix: _____

MONITORING WELL INSPECTION

Date/Time: 5-11-18 12:44

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: 5-11-18 12:50

Date/Time Completed: 13:42

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

Riser Diameter (inches) 2 PVC

Initial Water Level (ft): 16.97

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): 3/4 Liter

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:00	17.28	67.5 mL/min		13.94	7.34	2.09	0.0	11	14.21	
13:05	17.35	↓ 67.5		13.85	7.33	2.10	0.0	21	6.92	
13:10	17.38			13.85	7.31	2.11	0.0	28	6.70	
13:15	17.41			13.87	7.29	2.13	0.0	36	6.36	
	→ SAMPLE									

54°F, cloudy

FIELD OBSERVATIONS

Facility: Lot 29 Sample Point ID: PZ102

Field Personnel: _____ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-11-18 13:47 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: 5-11-18 13:50 Date/Time Completed: 14:23

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

Initial Water Level (ft): 15.82 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): 1.7L Purged to Dryness: Y / (N)

Purge Observations: clear, slight chemical odor Start _____ Finish _____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:55	16.06	250mL/min		13.53	7.28	3.08	0.0	51	10.81	
14:00	16.04	67.5		12.85	7.19	2.95	0.0	-69	2.58	
14:05	16.03			13.07	7.16	2.85	0.0	-82	2.22	
14:10	16.03			13.25	7.15	2.80	0.0	-90	2.10	
↳	SAMPLE									

54°F, cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ103

Field Personnel: DK + DRG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5/1/18 14:27

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: 5/1/18 ~~14:27~~ 1434

Date/Time Completed: 15:05

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 12.83

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) N new Flexi tube

Total Volume Purged (gal): 1.9L

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
14:40	13.53	250mL/min		14.28	7.05	2.08	0.0	-74	7.67	
14:45	13.72	125		13.89	6.88	2.03	0.0	-70	1.92	
14:50	13.80			13.61	6.87	2.03	0.0	-73	1.17	
14:55	13.89			13.58	6.87	2.03	0.0	-75	1.14	
	→ SAMPLE									

58°F, Sun + clouds

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR126

Field Personnel: DK + DRO

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-18 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: 5-14-18 ~~7:74~~ 8:44

Date/Time Completed: 9:14

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

Riser Diameter (inches): 4" Steel

Initial Water Level (ft): 7.74

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: 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
8:48	7.82	~~250 mL/min~~		14.20	7.23	0.693 mS/cm	0.10	-95	7.82	
8:53	7.80	67.5		14.49	7.20	0.705	0.0	-99	2.20	
8:58	7.80	<67.5		14.83	7.24	0.707	0.0	-101	1.48	
9:03	7.80			14.88	7.24	0.707	0.0	-101	1.42	
→	SAMPLE									

62°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: B16

Field Personnel: MC + DRO

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-18 9:23

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: 5-14 9:26

Date/Time Completed: 9157

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 5.19

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): 1.73 L

Purged to Dryness: Y / (N)

Purge Observations: Clear

Start ____ Finish ____

PURGE DATA (if applicable) mL/min

Time	Water Level	Purge Rate ~~(gpm/btz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
9:30	5.96	125		16.50	7.30	1.03	0.0	3	8.39	
9:35	6.26	67.5		16.52	7.25	1.0	0.0	29	3.42	
9:40	6.36	<67.5		16.64	7.27	0.937	0.0	40	3.93	
9:45	6.39			16.87	7.29	0.852	0.0	41	4.47	
	→ SAMPLE									

9

69°F Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: B15

Field Personnel: DK + RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-18 10:00

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: 5-14-18 10:04

Date/Time Completed: 10:38

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 4.82

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) N All new tubing

Total Volume Purged (gal): 2L

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:08	5.11	250 mL/min		20.01	7.58	0.354	0.0	68	8.86	
10:13	5.16	67.5		19.04	7.47	0.366	0.0	78	3.61	
10:18	5.25	67.5		18.56	7.42	0.371	0.0	69	3.07	
10:23	5.31			18.47	7.42	0.374	0.0	62	2.88	
10:28	5.36			18.46	7.42	0.371	0.0	54	2.72	
↳	SAMPLE									

65°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR104

Field Personnel: DK + DRS

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-18 10:44

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: 5-14-18 10:49

Date/Time Completed: 11:24

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 12.79

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, slight to no cloudiness

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(gpm/htz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:55	12.82	250mL/min		22.19	8.21	0.432	4.10	14	6.21	
11:00	12.82	67.5		21.50	8.12	0.451	1.6	15	2.28	
11:05	12.82			21.02	8.11	0.457	0.0	14	2.09	
11:10	12.82			21.34	8.11	0.460	1.4	8	1.94	
11:15	12.82			21.50	8.12	0.452	0.0	4	1.85	
↳	SAMPLE									

65°F Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: MW114

Field Personnel: OK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-18 11:24

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: 5-14-18 11:28

Date/Time Completed: 12:00

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 8.26

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: Clean

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
11:32	9.07	125 mL/min		22.98	8.09	0.381	0.0	59	8.57	
11:37	9.59			22.51	7.88	0.397	0.0	68	5.27	
11:42	10.13	675		22.01	7.88	0.406	0.0	60	5.37	
11:47	10.45			22.27	7.88	0.410	0.0	59	5.27	
→ SAMPLE										

67F, Clouds Sun

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR106

Field Personnel: DK + DRG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-18 13:00

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: 5-14-18 13:02

Date/Time Completed: ~~1350~~ 13:39

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 22.91

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): 1.9L

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:10	22.91	125 mL/min		25.57	7.10	2.28	0.0	-63	5.03	
13:15	22.91	67.5		23.17	7.05	2.46	0.10	-70	1.08	
13:20	↓	<67.5		22.85	7.06	2.49	0.0	-74	0.88	
13:25				22.09	7.06	2.54	0.0	-77	0.80	
13:30	↓			21.59	7.06	2.57	0.0	-81	0.74	
↳	SAMPLE									

71°F Sun + Clouds

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: MW106

Field Personnel: DK & RG Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-18 13:41 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: 5-14 13:44 Date/Time Completed: 14:17

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

Initial Water Level (ft): 9.89 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: Rust colored, cloudy Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:50	10.73	125 mL/min		21.33	7.33	0.815	794	-85	9.41	
13:55	10.80			20.47	7.25	0.821	284	-85	3.27	
14:00	10.87	67.5		19.20	7.18	0.823	134	-84	1.18	
14:05	10.89			18.85	7.17	0.858	52	-86	1.06	
14:10	10.91			18.83	7.16	0.886	118	-89	1.01	
↳	SAMPLE									

74°F, cloudy

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW13

SAMPLING INFORMATION

Date/Time 5-14-18 14:27 Water Level at Sampling (ft) 27.51

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
14:40	17.51	7.47	2.57 mS/cm	0.0	-206	4.14	

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: 74°F, Cloudy

Sample characteristics: Clear, sulfur odor

Comments and Observations: MS/MSD

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

Date: 5-14-18 by: DK + RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: BR122D

Field Personnel: DK+RG | Sample Matrix: Gw

MONITORING WELL INSPECTION

Date/Time: 5-15-18 63°F 8:35 | 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: 5-15 8:48 | Date/Time Completed: 9:25

Surf. Meas. Point: (✓) Pro Casing ( ) Riser | Riser Diameter (inches) 4" Steel

Initial Water Level (ft): 44.95 | Elevation G/W MSL: ____

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

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

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

Purge Observations: Black tint, sulfurodon | 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
8:55	44.95	250 mL/min		12.59	7.48	1.13 mS/cm	0.0	-163	1.25	
9:00	44.95	250		12.85	7.34	1.15	0.0	-175	5.89	
9:05	44.96			13.04	7.36	1.12	0.0	-185	5.11	
9:10	44.96			13.22	7.36	1.11	0.0	-183	4.54	
9:15	44.96			13.35	7.38	1.11	0.0	-199	4.12	
	↳ SAMPLE									

took a duplicate sample

Cloudy, rain around

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR123D

Field Personnel: DK+RE

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-15-18 9:40

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

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

Condition of Prot. Casing/Riser: ( ) unlocked (X) 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: 5-15-18 9:50 (9:56)

Date/Time Completed: 10:14

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

Riser Diameter (inches): 4" SS steel

Initial Water Level (ft): 44.19

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge: Bladder

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N new tubing

Total Volume Purged (gal): ____

Purged to Dryness: Y (N)

Purge Observations: Black tint

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (gpm/btz)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (umhos/cm)	Turb. (NTU)	ORP	DO	Other
9:52	44.21	250mL/min		11.73	7.96	1.40 ms/cm	22.7	-154	5.14	
9:57	44.21			11.79	7.87	1.39	20.1	-157	3.21	
10:02	44.21			11.85	7.71	1.38	19.5	-160	2.41	
10:07	44.21			11.87	7.72	1.38	18.8	-161	2.37	
↓		SAMPLE								

65°F, Muggy, cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: QD-1

Field Personnel: DK + RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-15-18 9:10

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: ____

Date/Time Completed: ____

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

Riser Diameter (inches) ____

Initial Water Level (ft): ____

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Bailer from dirty

One (1) Riser Vol (gal): ____

Dedicated: Y / N

Total Volume Purged (gal): ____

Purged to Dryness: Y / N

Purge Observations: Cloudy, gray

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
11:20				14.20	8.28	1.34 mS/cm	65	-37	12	

64°F, Light rain

FIELD OBSERVATIONS

Facility: Loaza Sample Point ID: QS-4

SAMPLING INFORMATION

Date/Time 5-15-18 11:40 Water Level at Sampling (ft)

Method of Sampling water pouring out of walls 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
11:50	13.00	8.43	1.16mS/cm	0.0	-10	14.0	

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: 63°F, cloudy

Sample characteristics: Clear, no odor

Comments and Observations:

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

Date: 5-15-18 by: DKT ORC Company: Matrix

FIELD OBSERVATIONS

Facility: Conoco Sample Point ID: BR7A

SAMPLING INFORMATION

Date/Time 5-15-18 12:50 Water Level at Sampling (ft) 30.76

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
1215	14.46	7.69	1.63mS/cm	0.0	-131	10.91	

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: 62°F, Rain

Sample characteristics: Clear

Comments and Observations:

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

Date: 5-15-18 by: DK + DRG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: QO-2

SAMPLING INFORMATION

Date/Time 5-15-18 13:10 Water Level at Sampling (ft) —

Method of Sampling Bucket from outfall 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
13:15	14.13	8.48	1.38 mS/cm	22.1	55	13.2	

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: 62°F, Rain

Sample characteristics: Cloudy

Comments and Observations:

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

Date: 5-15-18 by: DK + RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lomita Sample Point ID: QO-251

SAMPLING INFORMATION

Date/Time 5-15-18 13:18 Water Level at Sampling (ft)

Method of Sampling Bucket from 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
13:25	16.98	8.89	0.50 mS/cm	9.6	-55	13.40	

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: 62°F, Rain

Sample characteristics: Clear

Comments and Observations:

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

Date: 5-15-18 by: DK + DRG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR105D

Field Personnel: DK+RG

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-16-18 8:10

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: 5-16 8:30

Date/Time Completed: 9:00

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

Riser Diameter (inches) ~~2"~~ 6.25 PVC

Initial Water Level (ft): 26.22

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge ____

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N

Total Volume Purged (gal): 1.1L

Purged to Dryness: Y / (N)

Purge Observations: Blacktint, Sulfurodor

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
8:26	26.87	125mL/min		12.19	7.25	23.5mS/cm	1.8	-303	10.21	
8:31	27.08	<67.5		12.23	7.16	23	9.2	-340	2.98	
8:36	27.13			12.30	7.15	23.3	2.9	-353	4.87	
8:41	27.19			12.38	7.14	25.9	3.9	-362	3.45	
↳	SAMPLE									

55°F, Overcast

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR105

SAMPLING INFORMATION

9:05

Date/Time 5-16-18 Water Level at ~~Sampling~~ (ft) 21.91

Method of Sampling Peristaltic Dedicated: (Y) / N

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

SAMPLING DATA pumping start 9:08 DTW Flow

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other	
9:13	13.09 24.9	8.15	2.09	15.7	-232	7.41	21.91	125
9:18	12.84	7.80	1.88	2.4	-241	2.35	21.91	67.5
9:23	12.83	7.65	1.80	0.0	-251	1.53	21.91	67.5
9:28	13.05	7.53	1.75	0.0	-260	1.73	21.91	<67.5
9:33	13.14	7.49	1.75	0.0	-265	1.35	21.91	

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: 58 Clear, No odor

Comments and Observations: 1.8L

6" steel

9:44 Finish

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

Date: 5-16-18 by: DK + DRG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR1BD

SAMPLING INFORMATION

Date/Time 5-16-18 9:55 Water Level ~~at Sampling~~ (ft) 36.08

Method of Sampling Bailer, ~~Bladder pump~~ 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
10:18	11.89	7.80	1.38	7.0	-293	6.71	

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: 58°F cloudy

Sample characteristics: Sl H2S odor, mostly clear, often particles

Comments and Observations: * 2" PVC well inside a 4' steel casing inside a 6" protop, no lid * Obstruction in well prevents pump from going down, have to use bailer to sample

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

Date: 5-16-18 by: DK+RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR117D

SAMPLING INFORMATION

Date/Time 5-16-18 10:44 Water Level at Sampling (ft) 47.76

Method of Sampling Bladder Pump Dedicated: (Y) / N

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

SAMPLING DATA

Start pump 10:50

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other DTW	Other Flow
10:55	11.94	8.85	0.553	28.0	-180	6.95	47.75	250 mL/min
11:00	11.99	8.84	0.549	25.2	-181	4.92	47.76	125
11:05	11.79	8.83	0.544	23.1	-187	2.57	47.77	67.5
11:10	11.78	8.83	0.549	20.21	-190	1.38	47.77	67.5

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: 59°F, Sun + Clouds

Sample characteristics: Slightly Cloudy turning Clear

Comments and Observations: 4" SCH 40 PVC

Sample @ 11:20

2L

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

Date: 5-16-18 by: DK + DRG Company:

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR-118D

SAMPLING INFORMATION

Date/Time 5-16-19 11:25 Water Level at Sampling (ft) 47.04

Method of Sampling Bladder Pump Dedicated: (Y) / N

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

SAMPLING DATA

pumping start at 11:28

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other DTW	Other Flow
11:38	11.62	10.04	0.521	28.5	-204	7.35	47.18	250
11:43	11.77	9.99	0.871	16.2	-210	5.31	47.19	125
11:48	11.75	9.94	0.873	14.1	-219	2.89	47.20	67.5
11:53	11.68	9.95	0.874	13.2	-227	2.57	47.20	67.5
11:58	11.67	9.94	0.874	12.8	-229	2.41	47.20	67.5

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: 60°F Sun + Clouds

Sample characteristics: Cleared up

Comments and Observations: Sample @ 12:07

2.3L

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

Date: 5-16-19 by: DK + RG Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR13D

SAMPLING INFORMATION

Date/Time: 5-16-18 12:25 Water Level at Sampling (ft): 31.07

Method of Sampling: Bladder Pump Dedicated: (Y) / N

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

SAMPLING DATA Start pumping at 12:35

Time	Temp (C)	pH (SU)	Conductivity (umhos/cm)	Turb. (NTU)	ORP	DO	Other:	Flow
12:40	15.53	7.82	2.04	0.0	-302	5.37	31.06	250
12:45	15.11	7.71	2.07	0.0	-312	2.18	31.06	250
12:50	15.42	7.55	2.09	0.0	-334	1.49	31.13	125
12:55	14.16	7.55	2.10	0.0	-348	1.21	31.10	125
13:00	13.09	7.99	2.12	0.0	-354	0.97	31.11	125

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: 65°F, Sunny

Sample characteristics: Clear

Comments and Observations: 3.1L, Slight sulfur odor

13:07

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

Date: 5-16-18 by: Matrix Company: OK + DRG

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: B-16 Again

Lab screwed up previous sample

SAMPLING INFORMATION

Date/Time: 5-16-18 14:00

Water Level at Sampling (ft):

Method of Sampling: Peristaltic

Dedicated: (Y) / N

Multi-phased/layered: Y / N

if yes: ( ) Light ( ) Heavy

SAMPLING DATA

14:09 Start

DTW 5.17

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other DTW	Other Flow
14:06	21.46	7.68	1.25	0.0	-18	13.35	5.74	125mL/min
14:11	19.29	7.44	1.27	0.0	3	3.16	6.13	67.5
14:16	18.51	7.45	1.18	0.0	0	3.00	6.28	67.5
14:21	18.23	7.44	1.16	0.0	1	2.99	6.36	"

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: 68°F, Sunny

Sample characteristics: Inlet

Comments and Observations: Clear 1.75L

SAMPLE 14:28

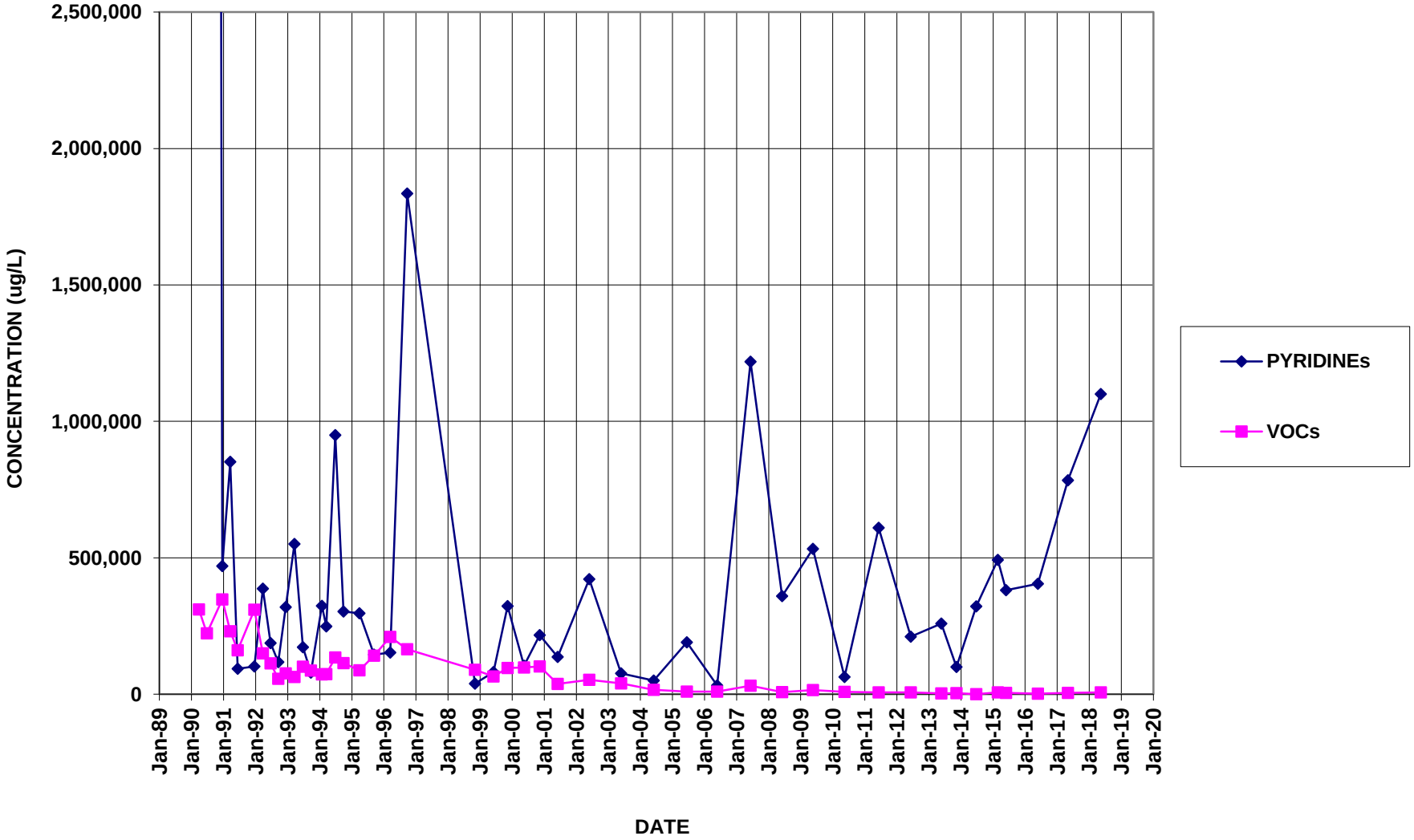
I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 5-16-18 by: DK + RG Company: Matrix

Appendix B

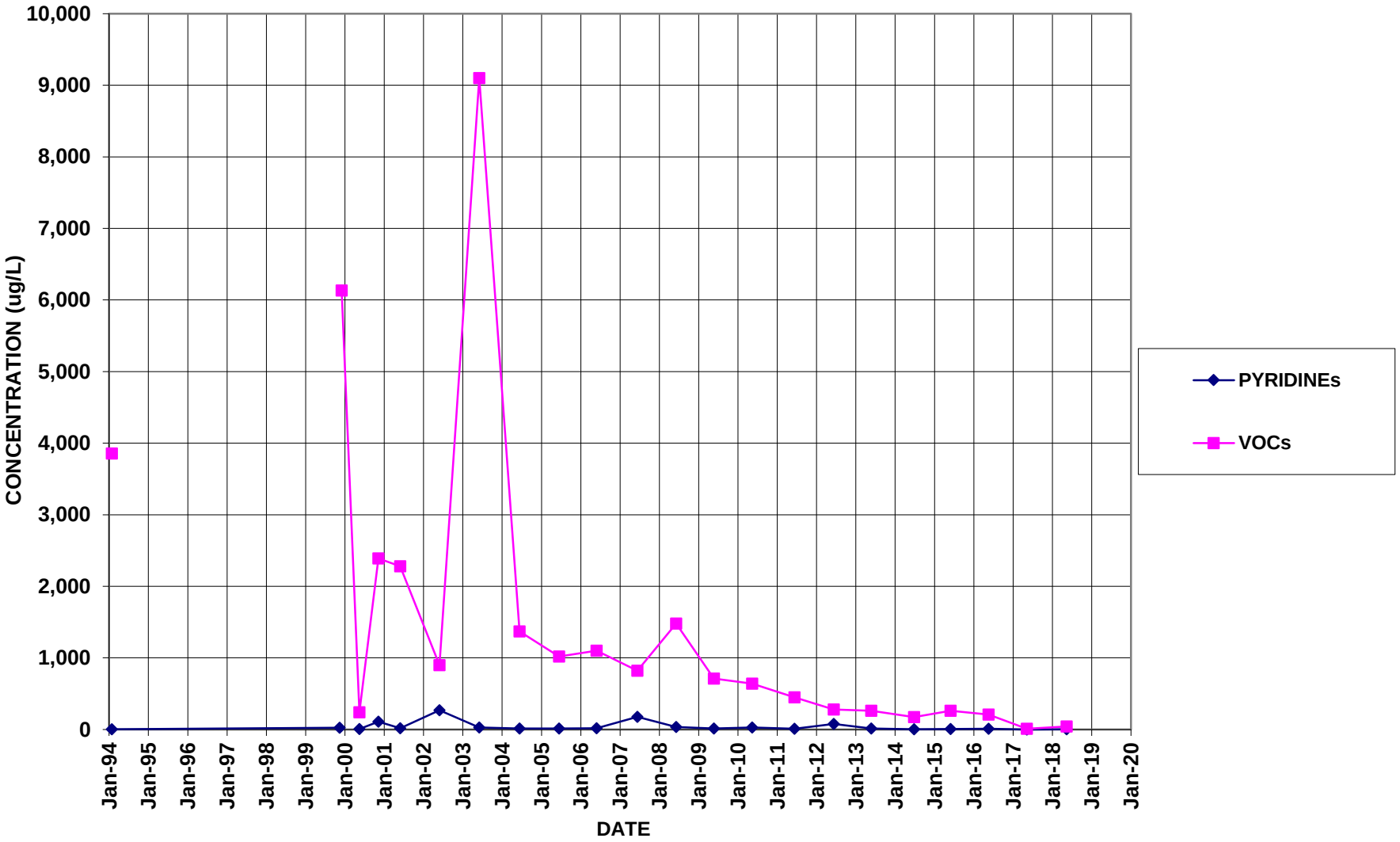
Well Trend Data

B-17

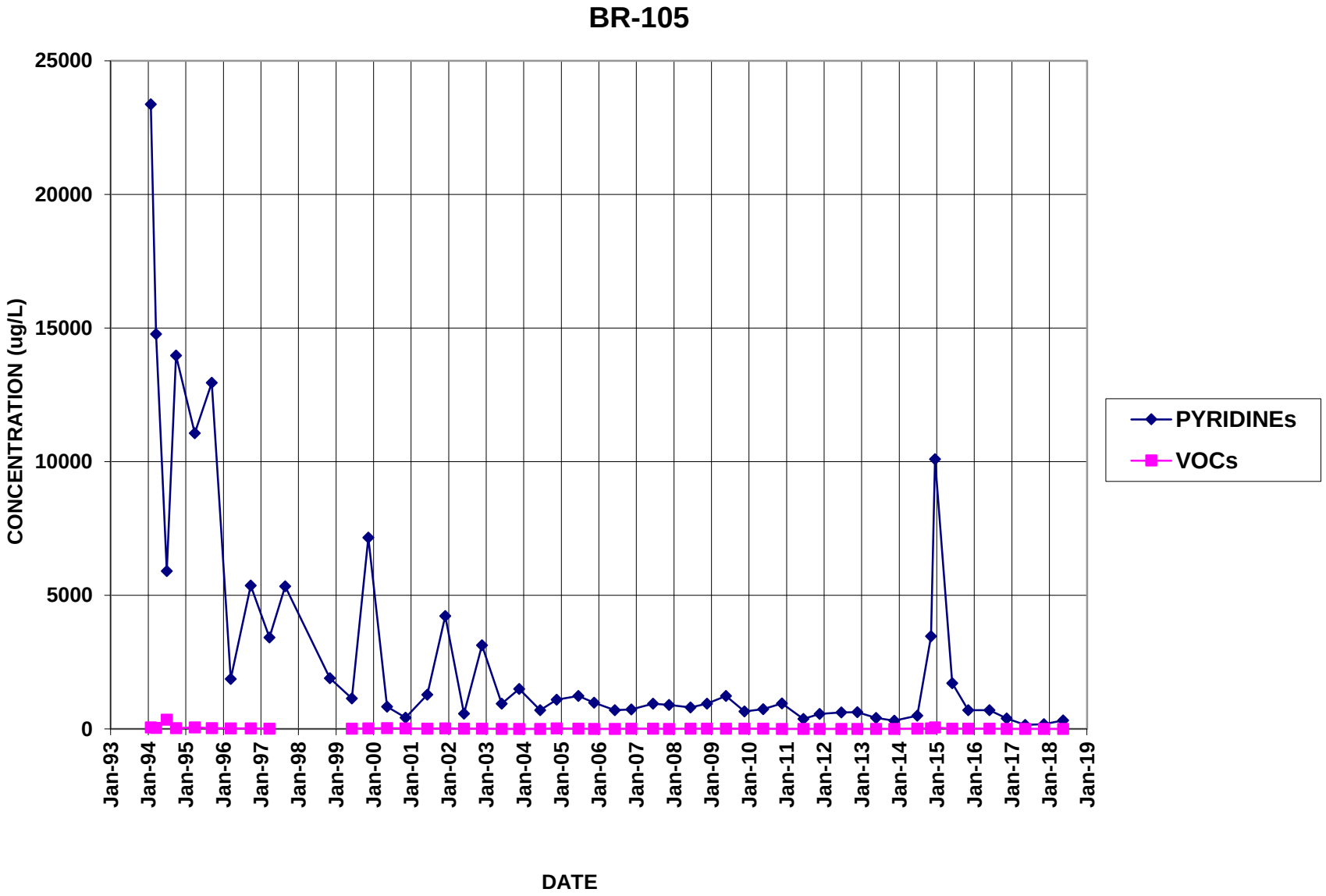


Prepared by: jar
Reviewed by: nmb

B-7

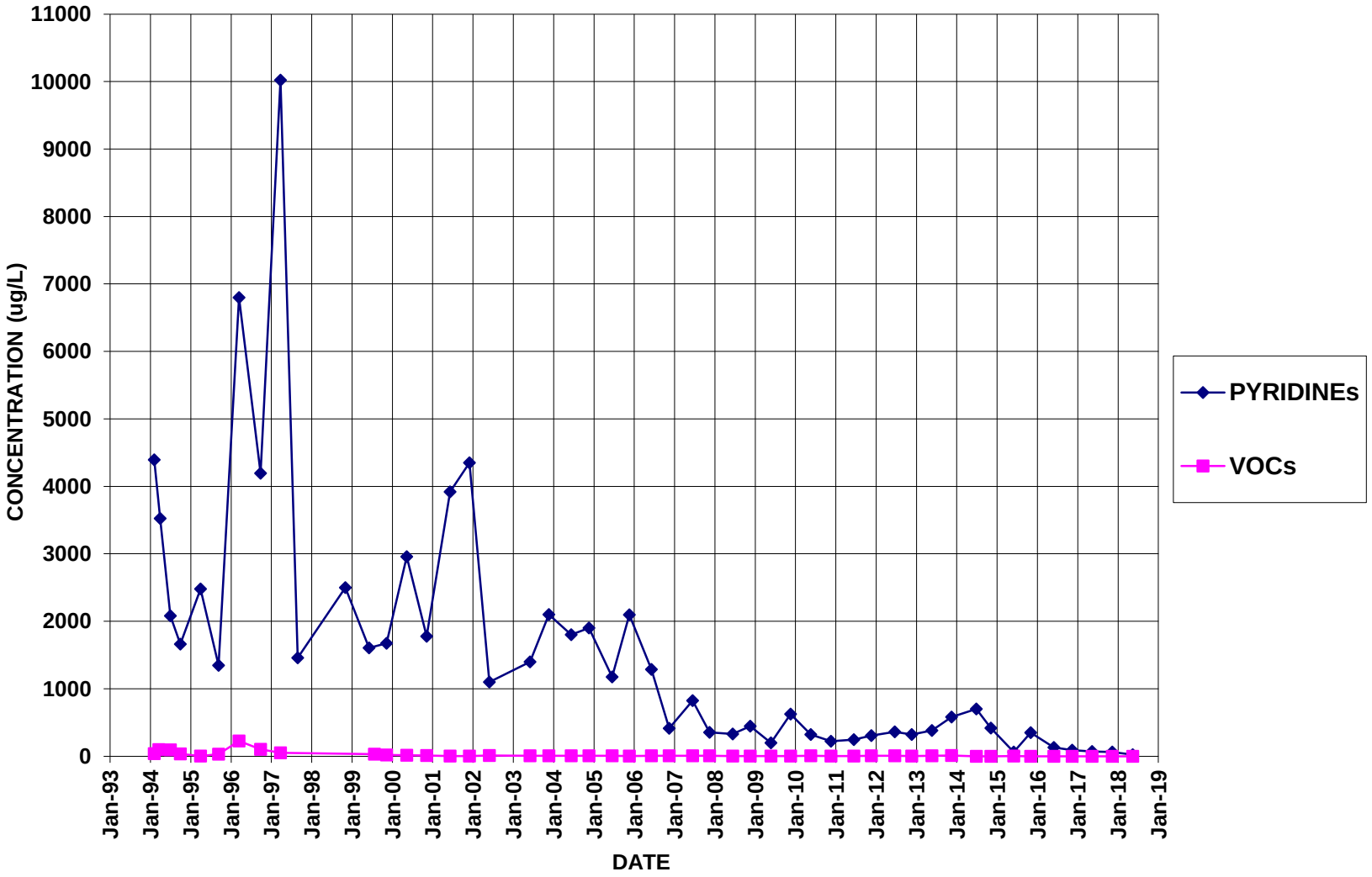


Prepared by: jar
Reviewed by: nmb



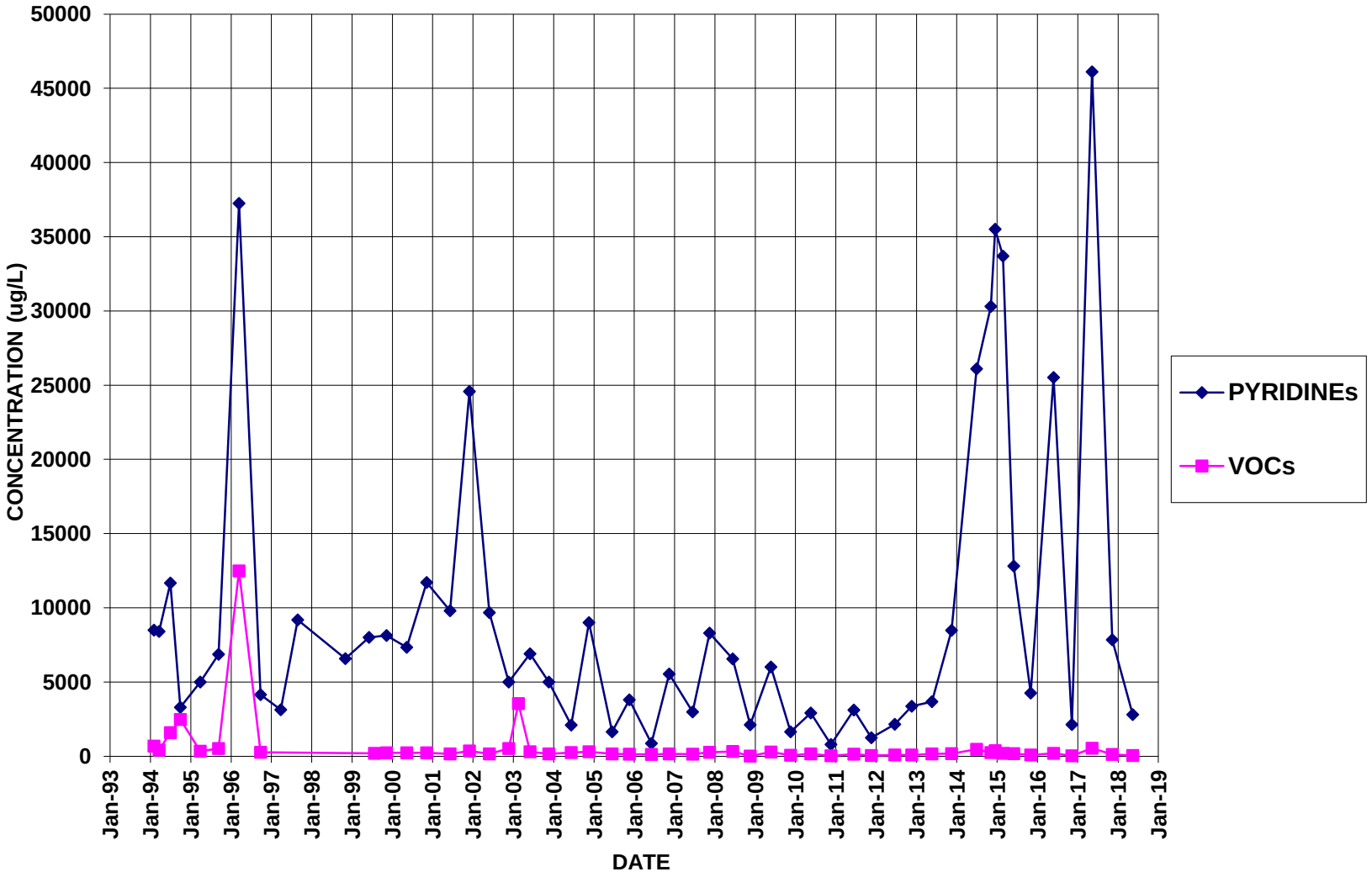
Prepared by: jar
Reviewed by: nmb

BR-105D



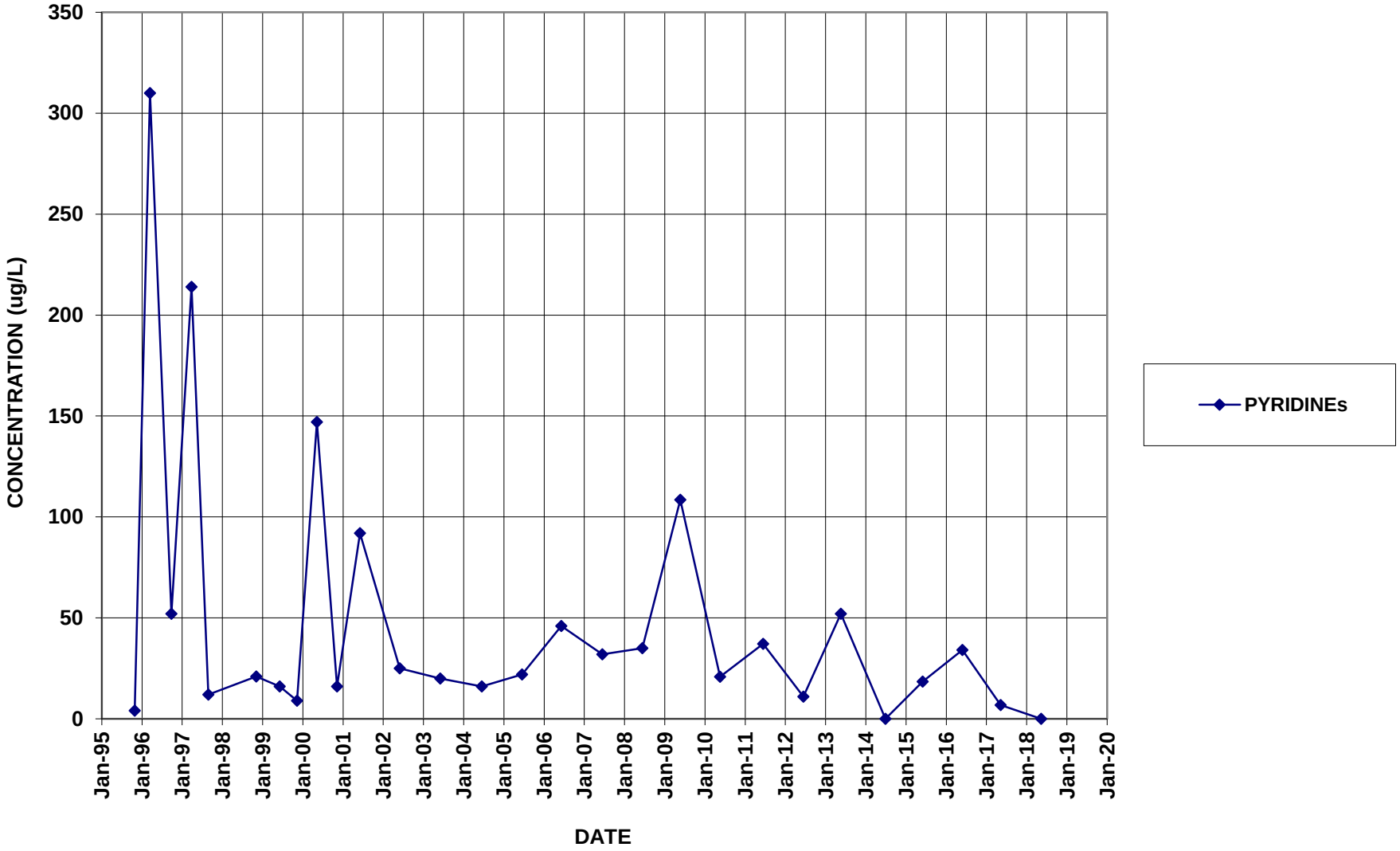
Prepared by: jar
Reviewed by: nmb

BR-106



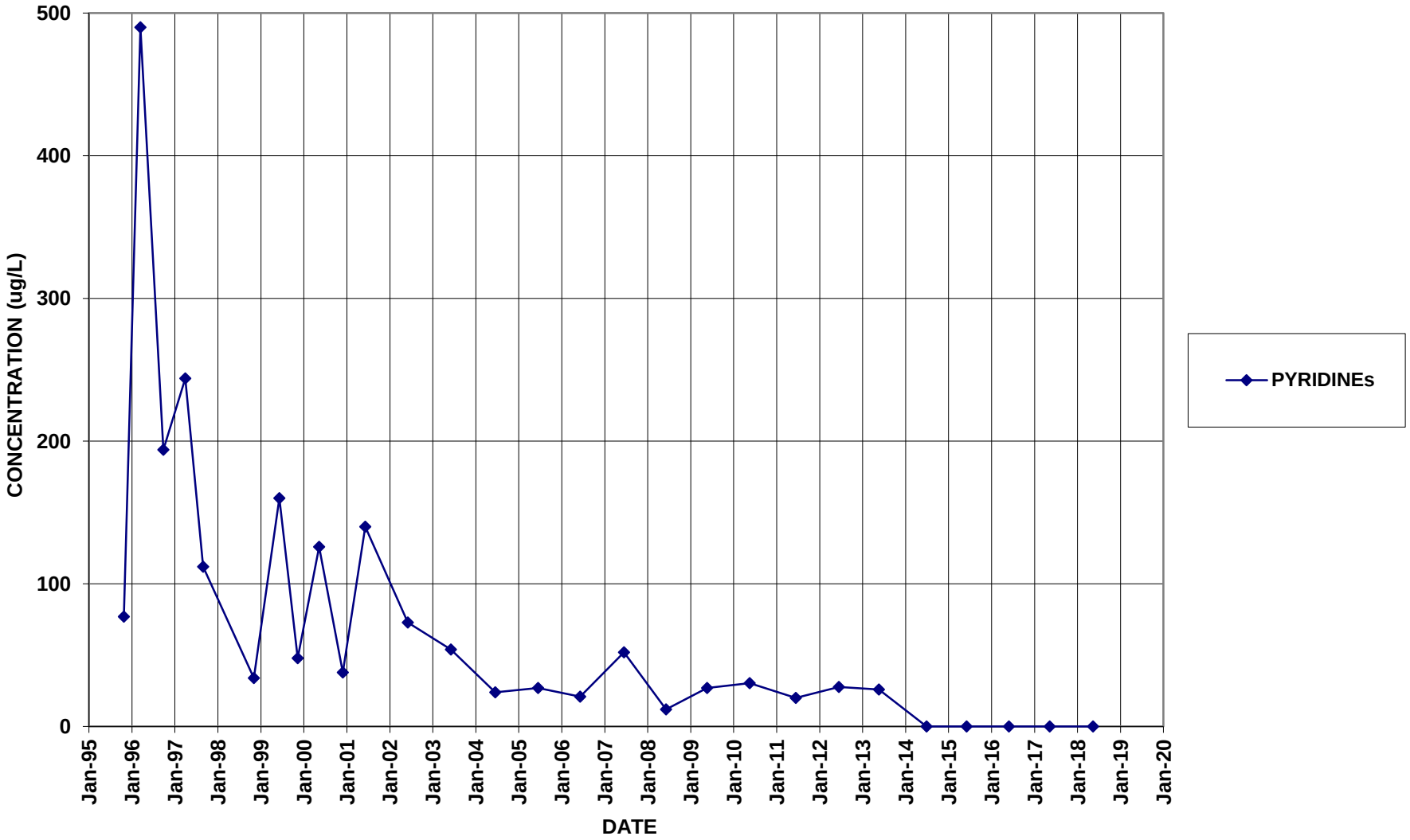
Prepared by: jar
Reviewed by: nmb

BR-112D



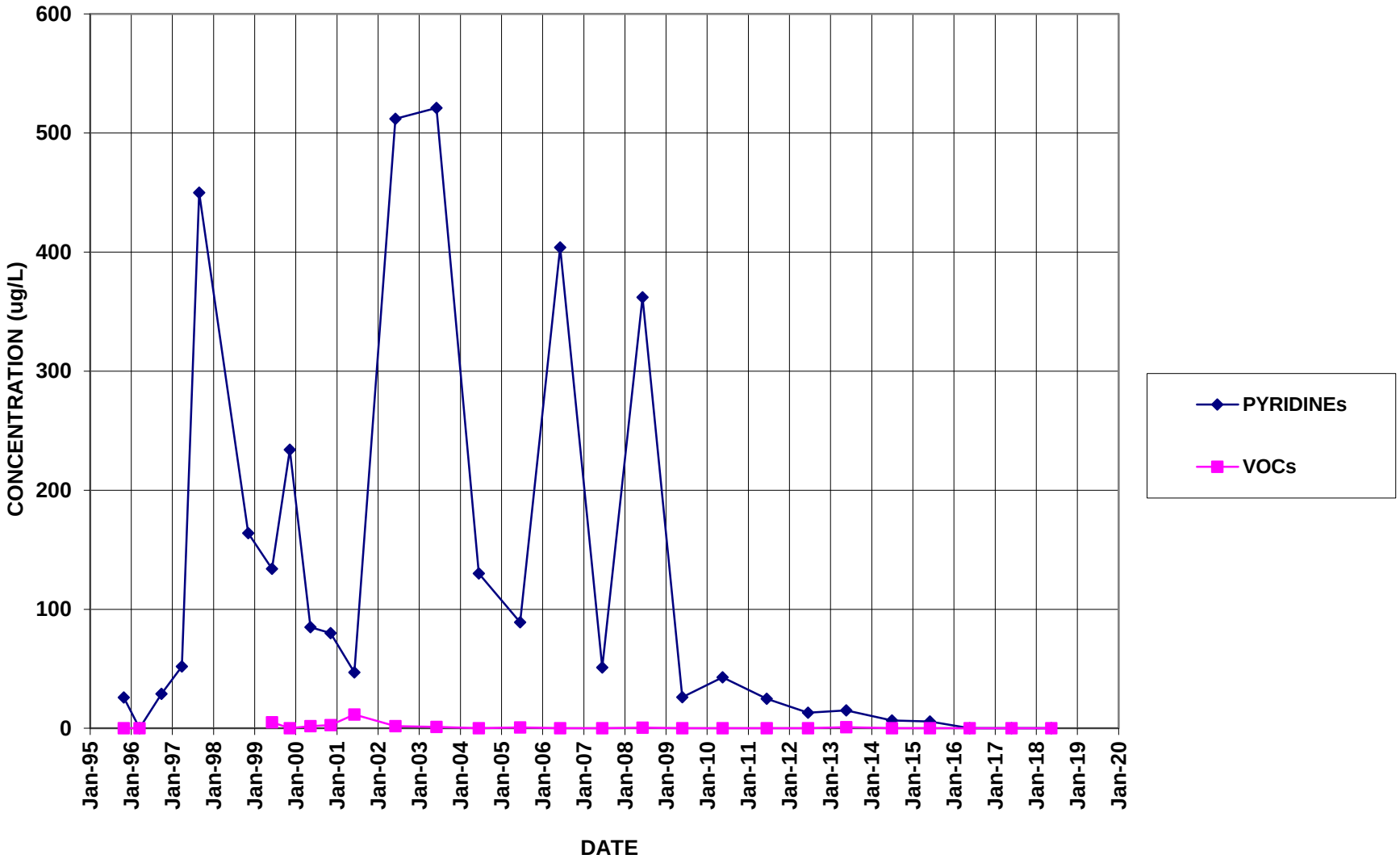
Prepared by: jar
Reviewed by: nmb

BR-113D



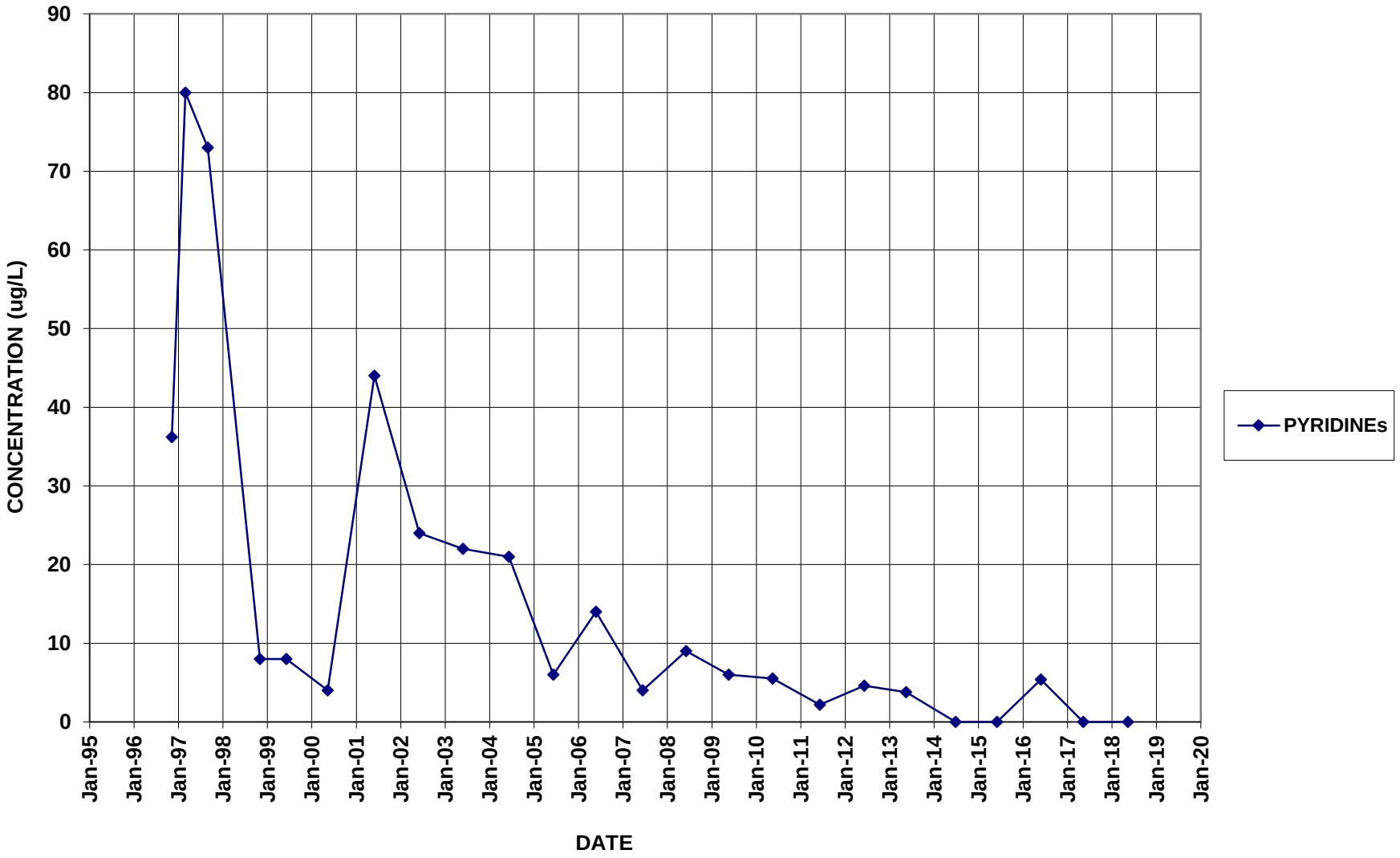
Prepared by: jar
Reviewed by: nmb

BR-114



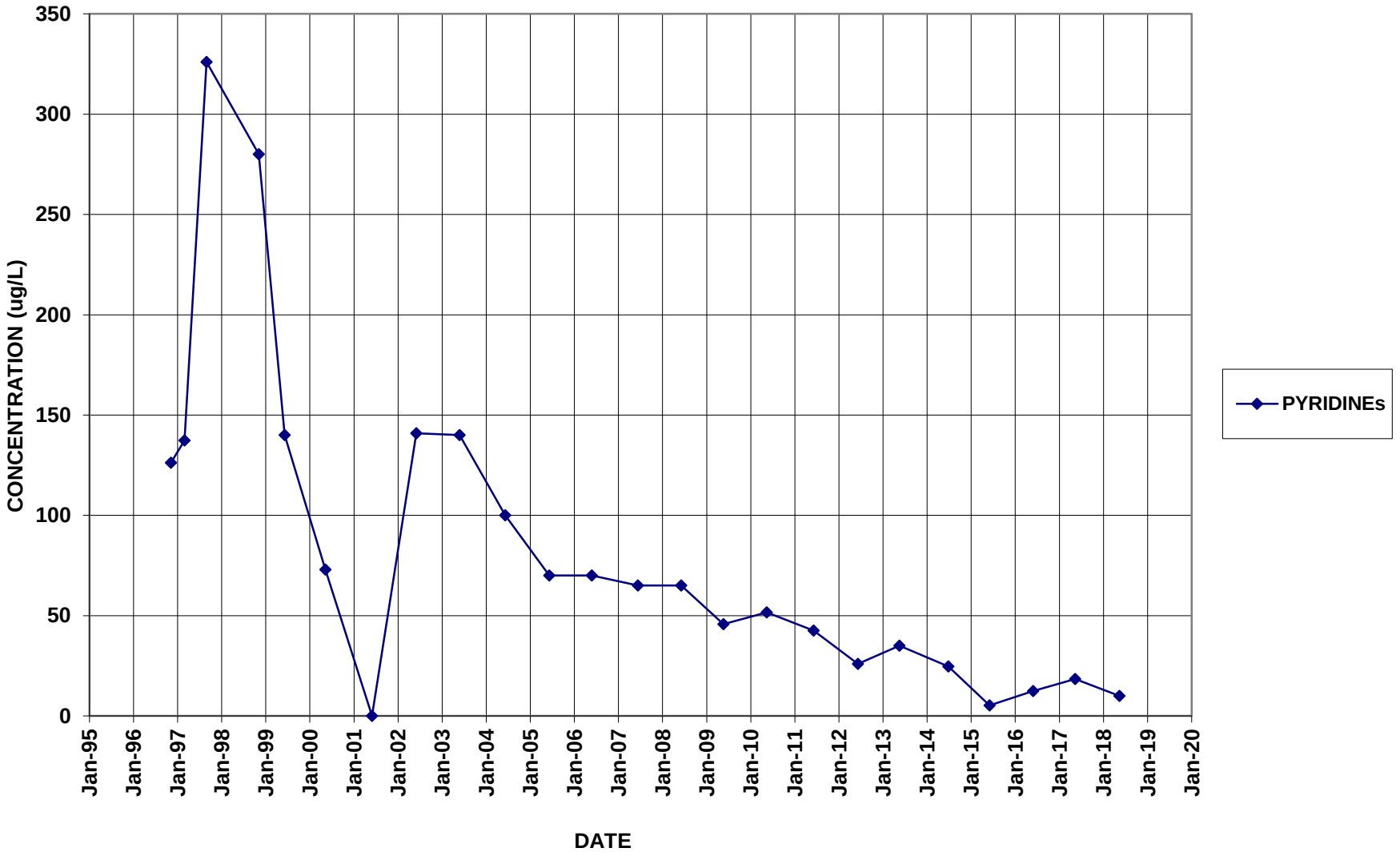
Prepared by: jar
Reviewed by: nmb

BR-117D



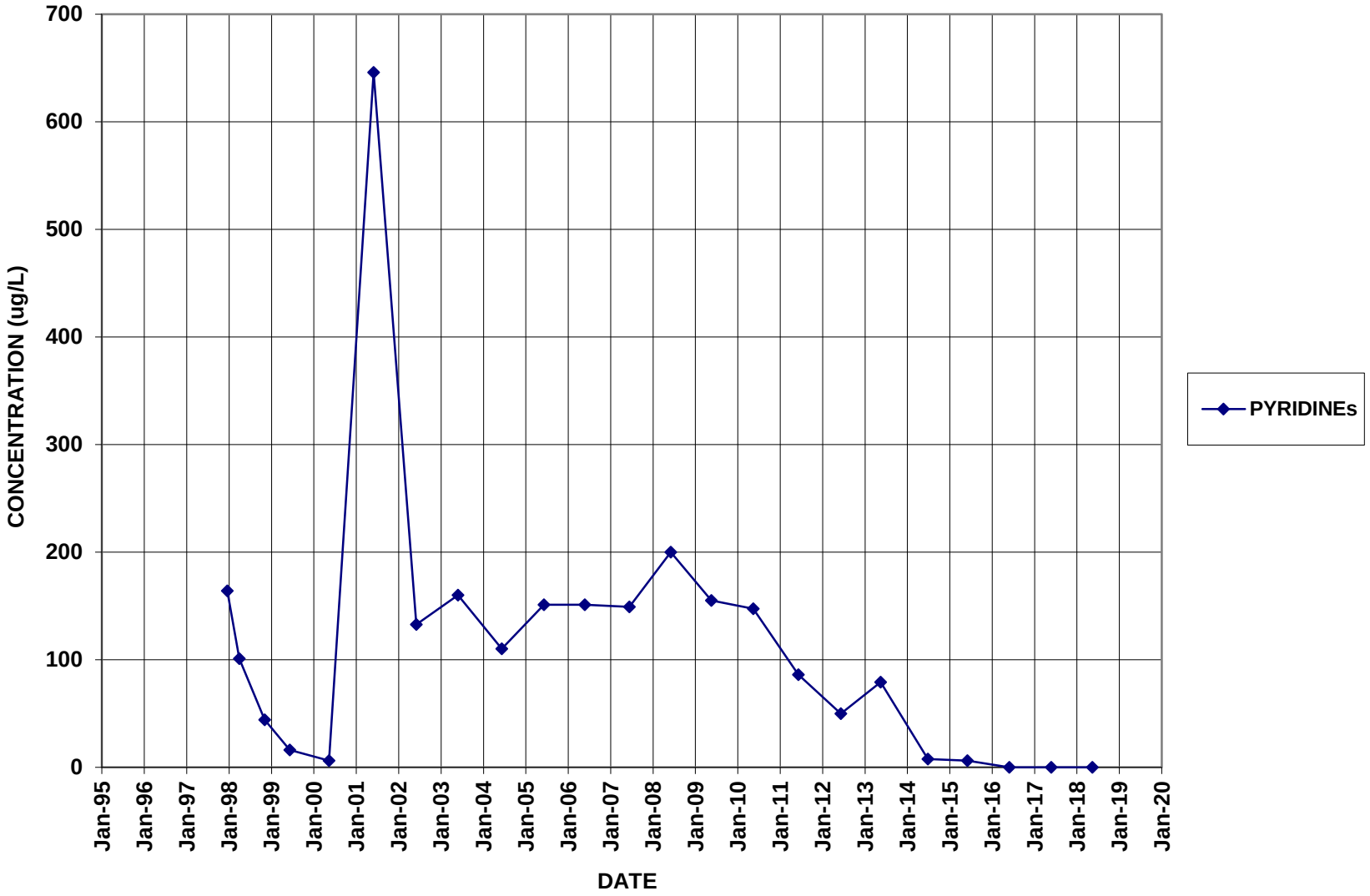
Prepared by: jar
Reviewed by: nmb

BR-118D



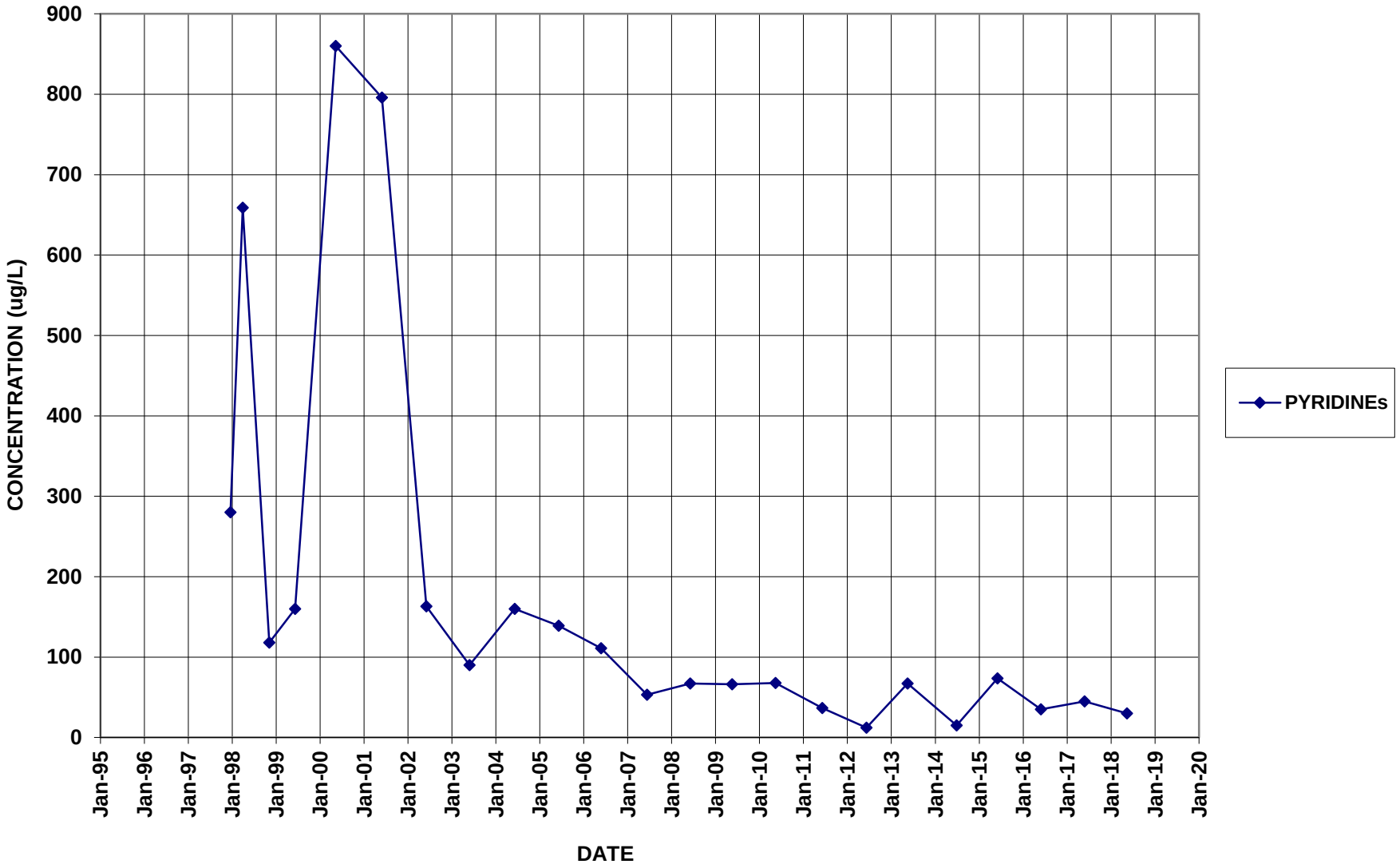
Prepared by: jar
Reviewed by: nmb

BR-122D



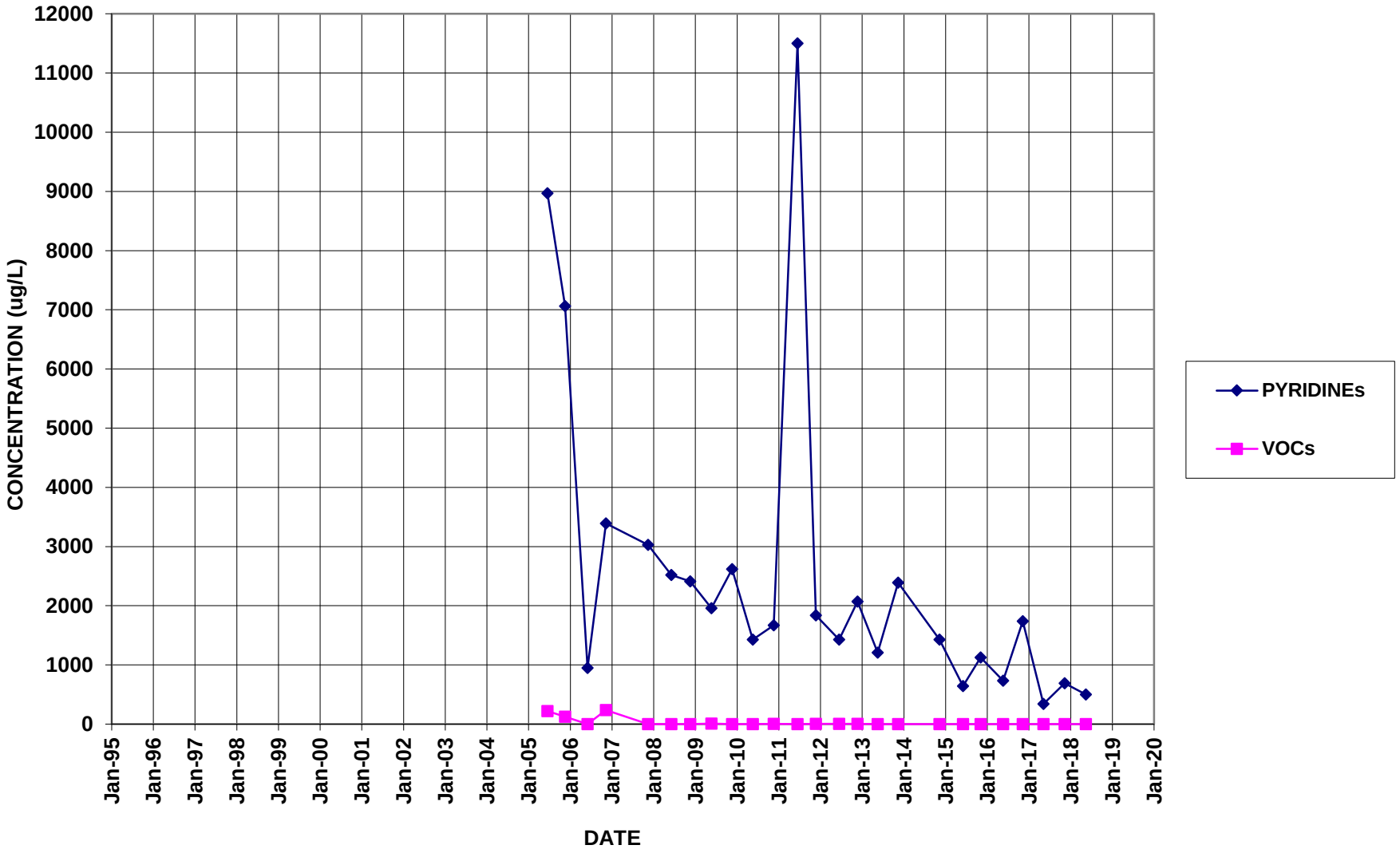
Prepared by: jar
Reviewed by: nmb

BR-123D



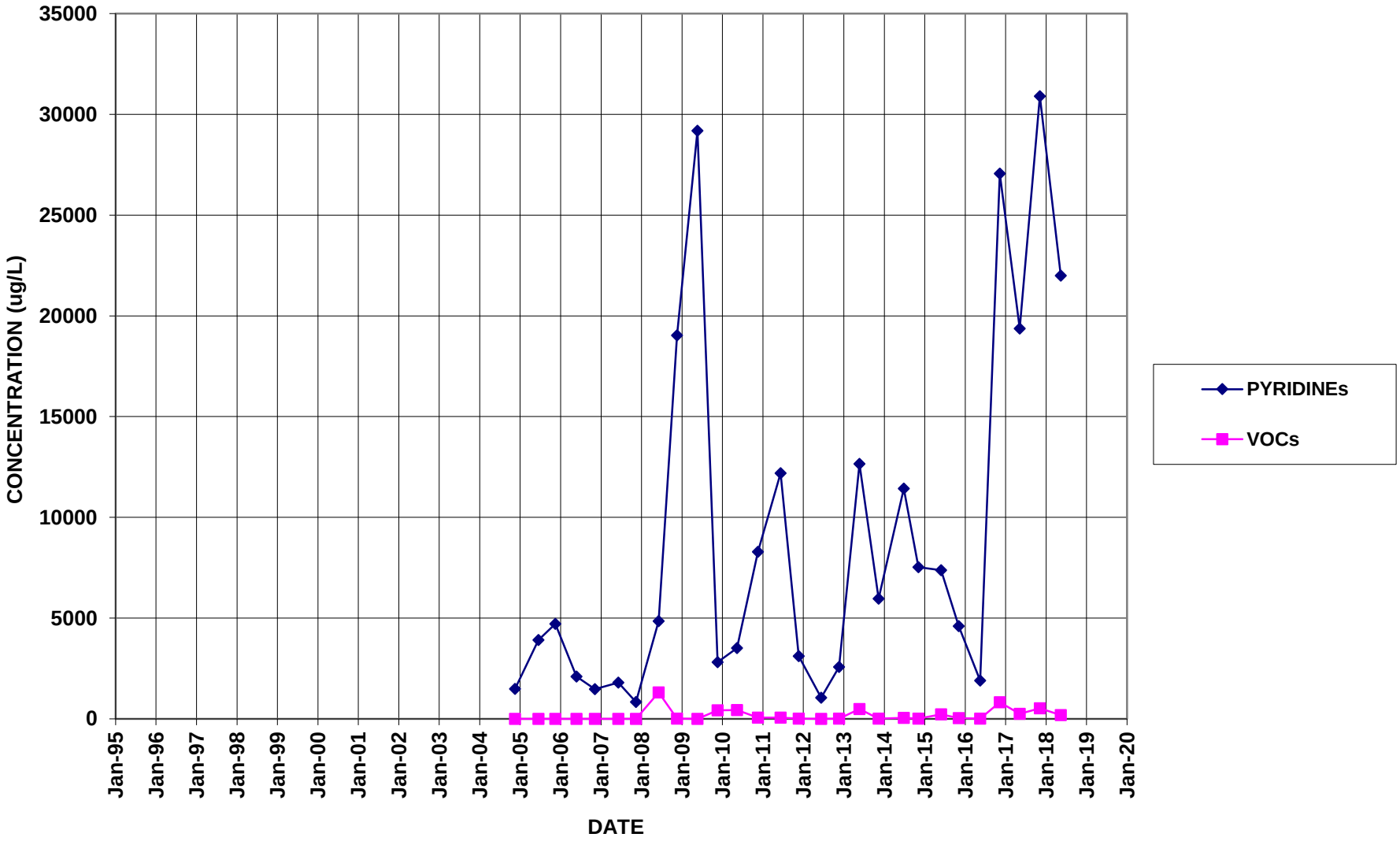
Prepared by: jar
Reviewed by: nmb

BR-126

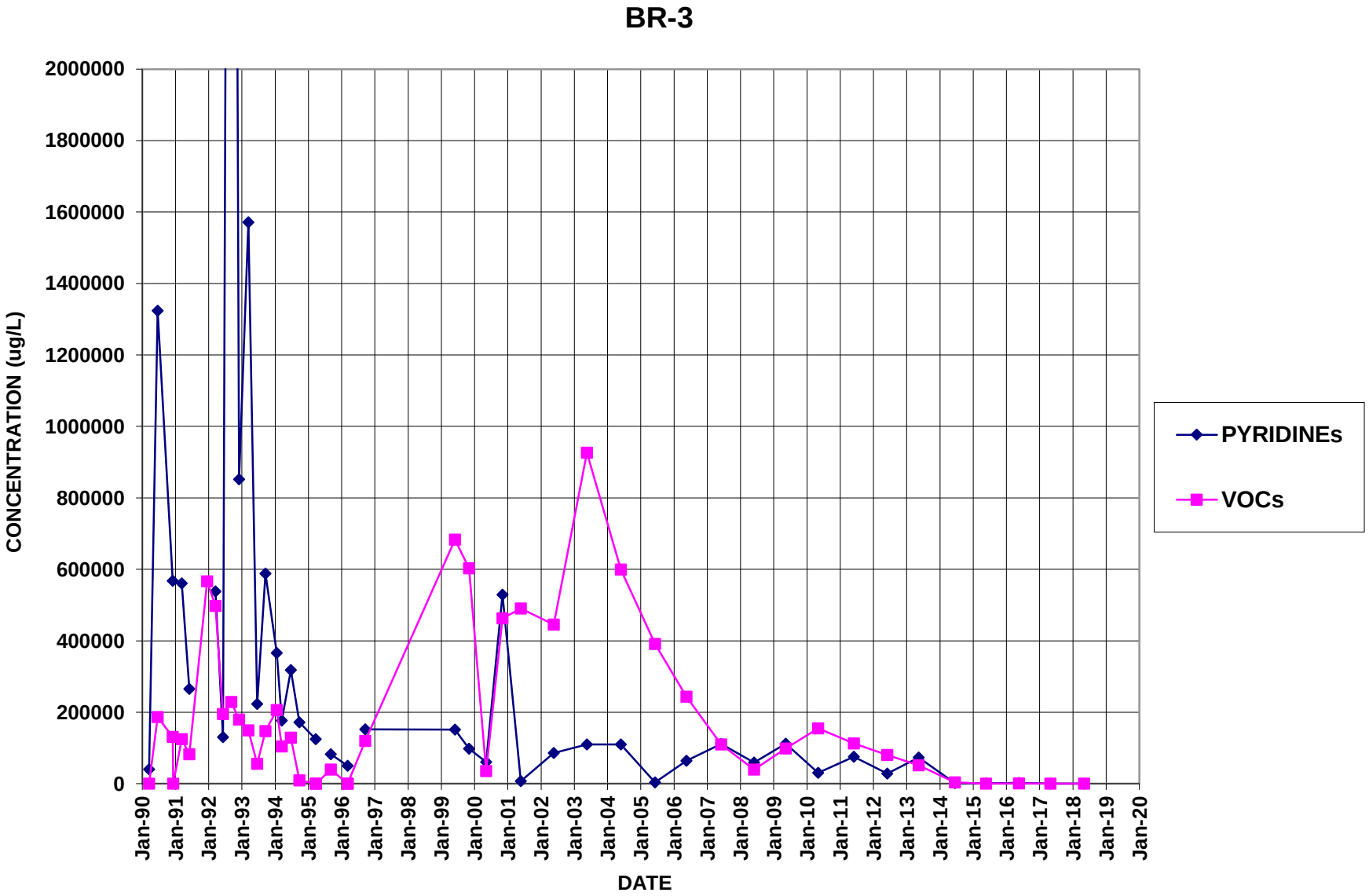


Prepared by: jar
Reviewed by: nmb

BR-127

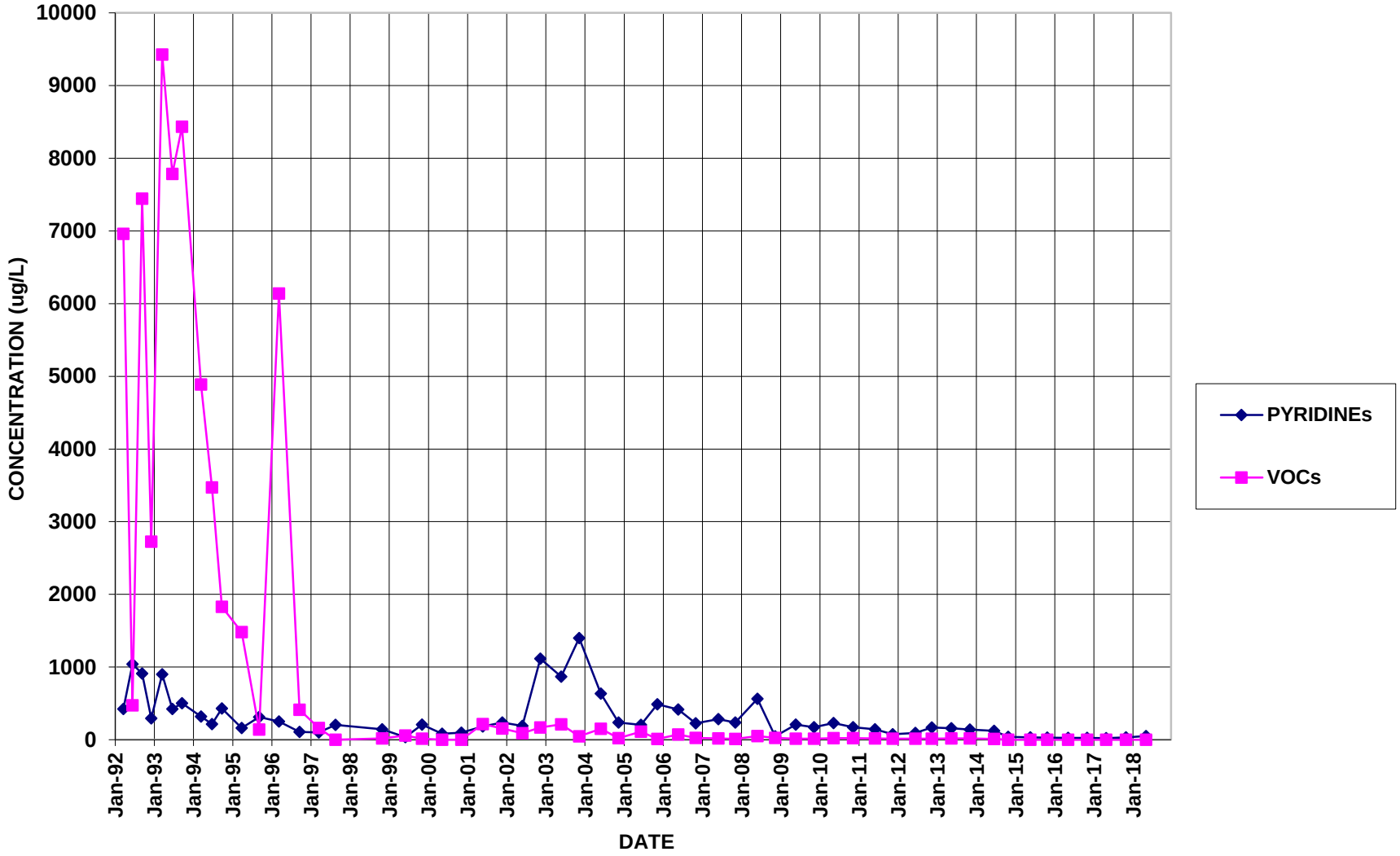


Prepared by: jar
Reviewed by: nmb



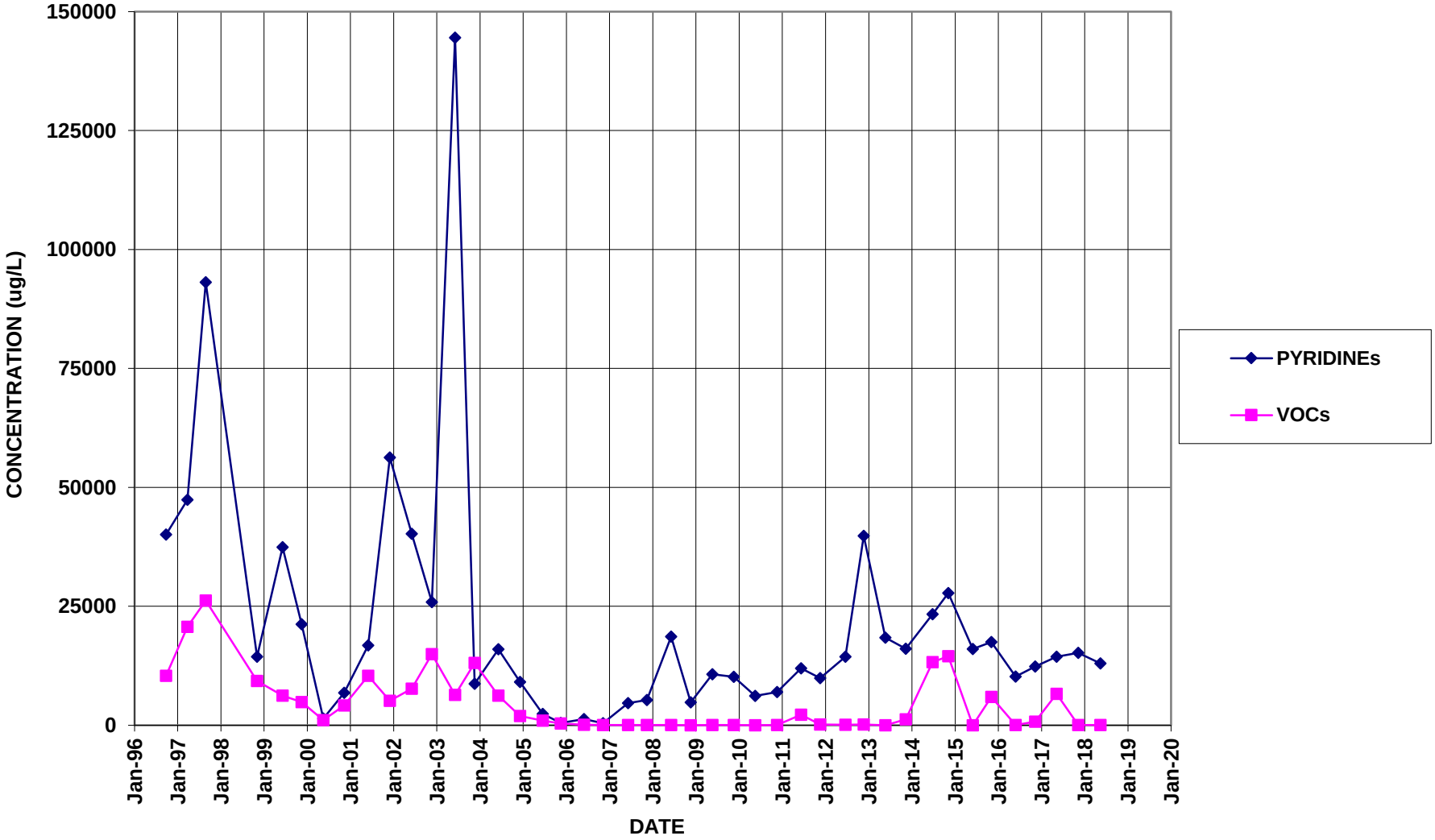
Prepared by: jar
Reviewed by: nmb

BR-5A



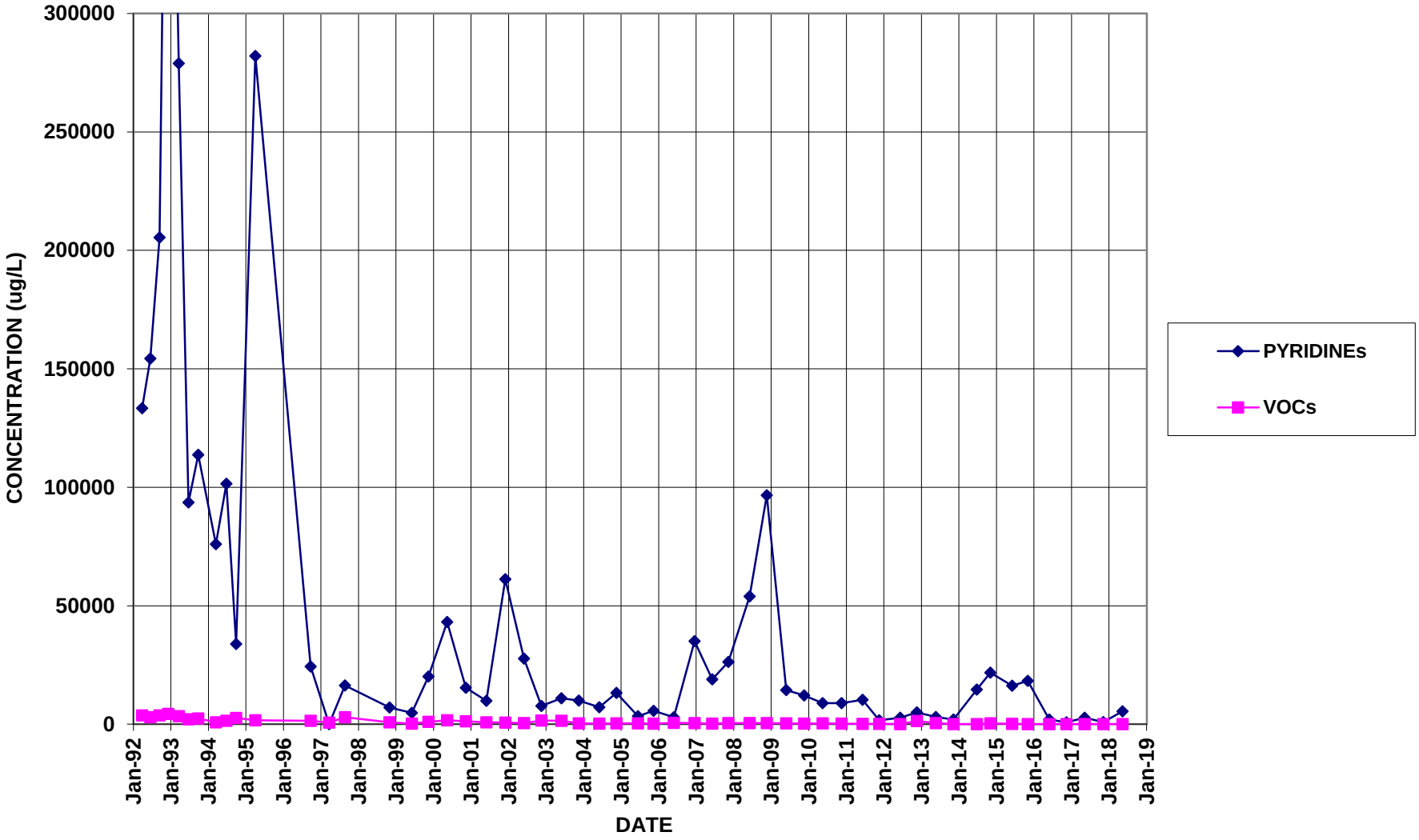
Prepared by: jar
Reviewed by: nmb

BR-6A



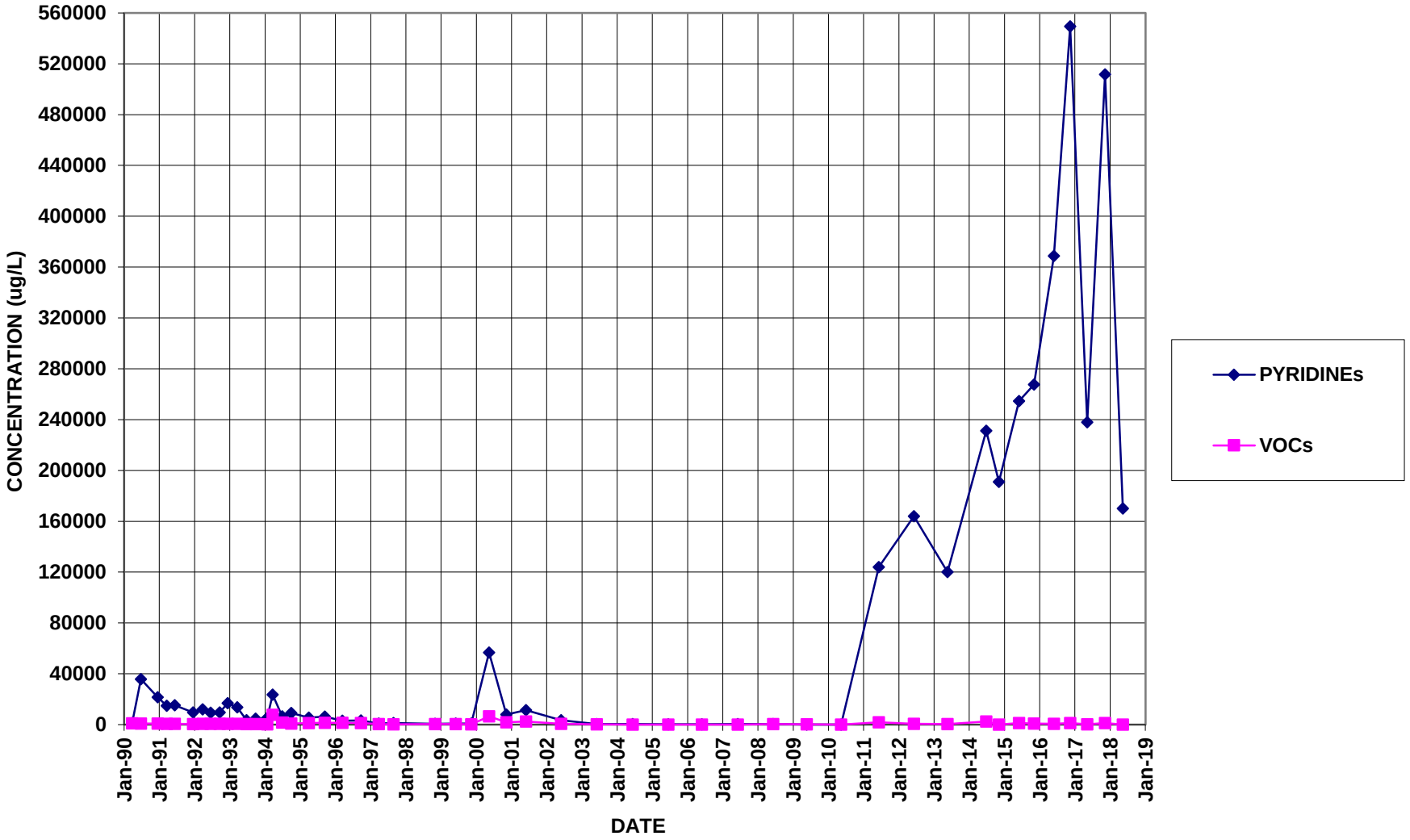
Prepared by: jar
Reviewed by: nmb

BR-7A



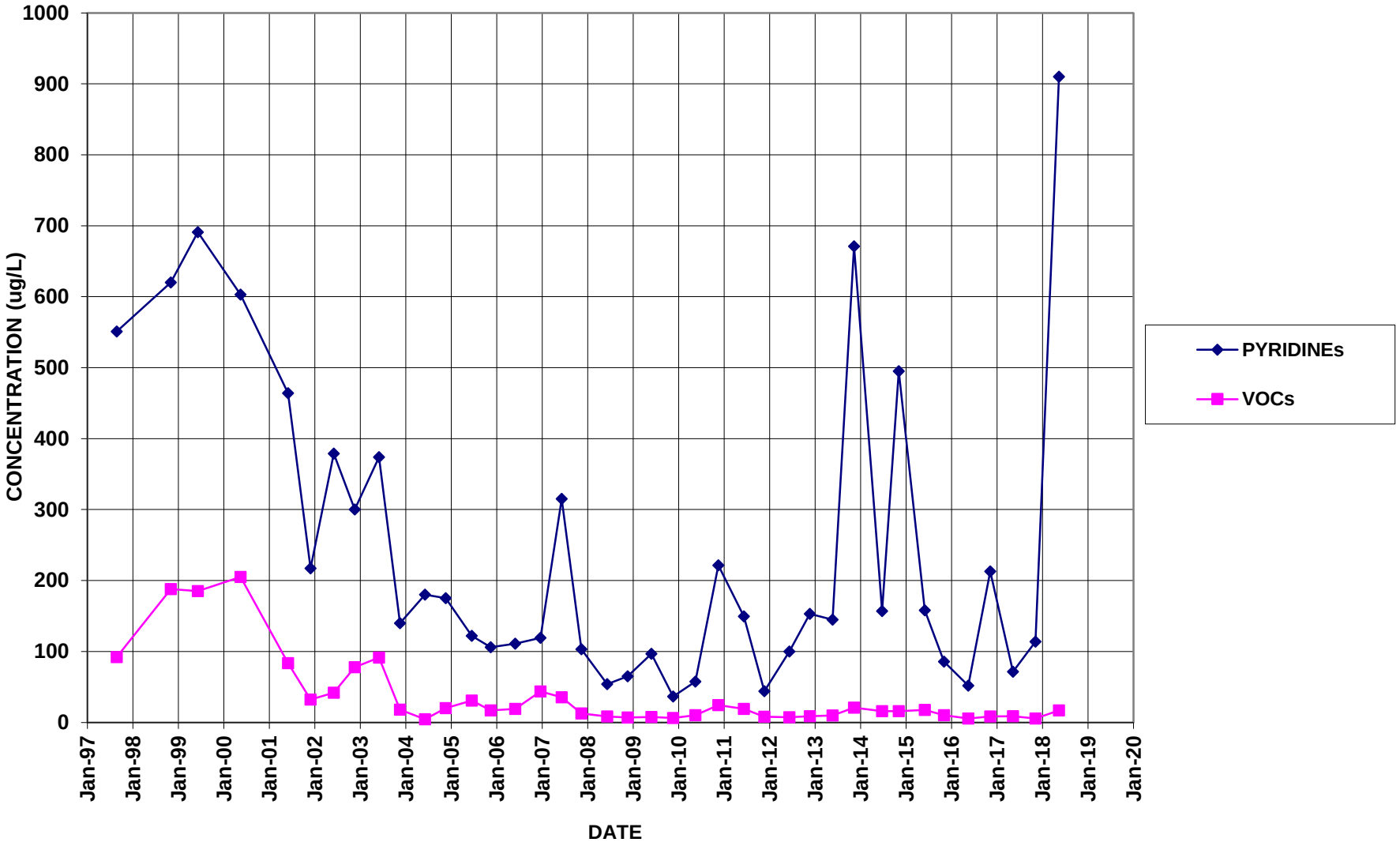
Prepared by: jar
Reviewed by: nmb

BR-8



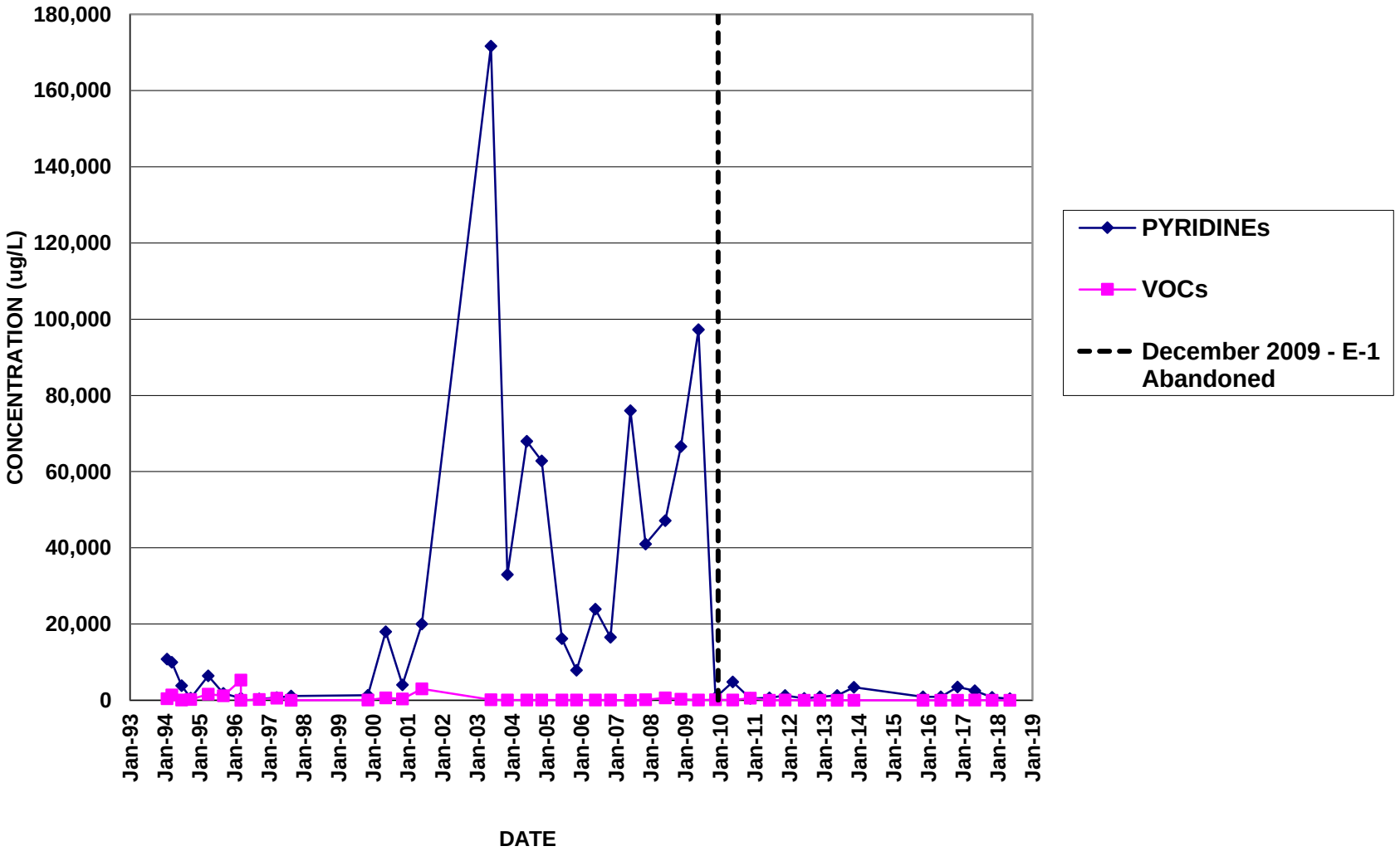
Prepared by: jar
Reviewed by: nmb

BR-9



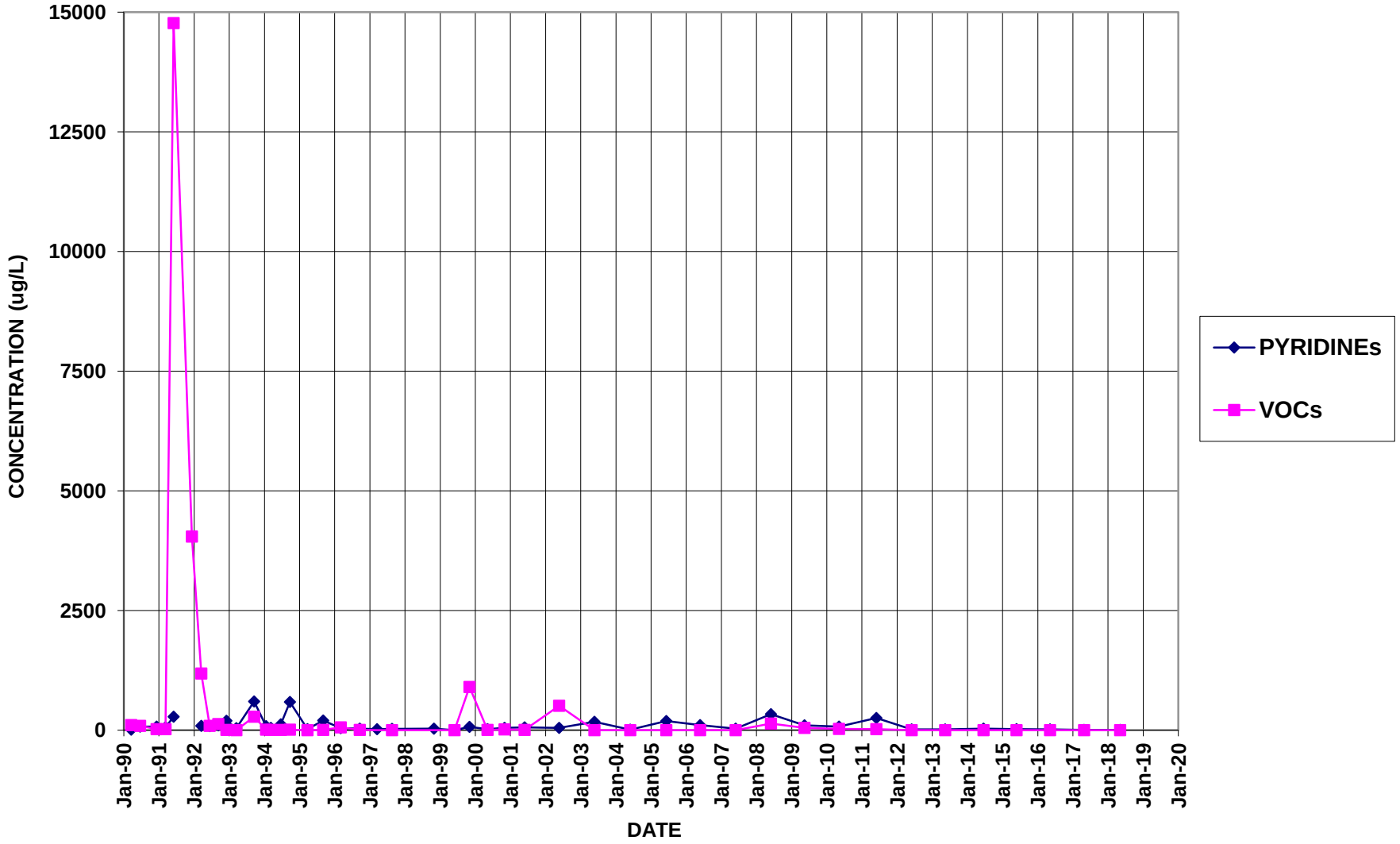
Prepared by: jar
Reviewed by: nmb

E-1 / B-11
(B-11 replaced E-1 beginning May 2010)



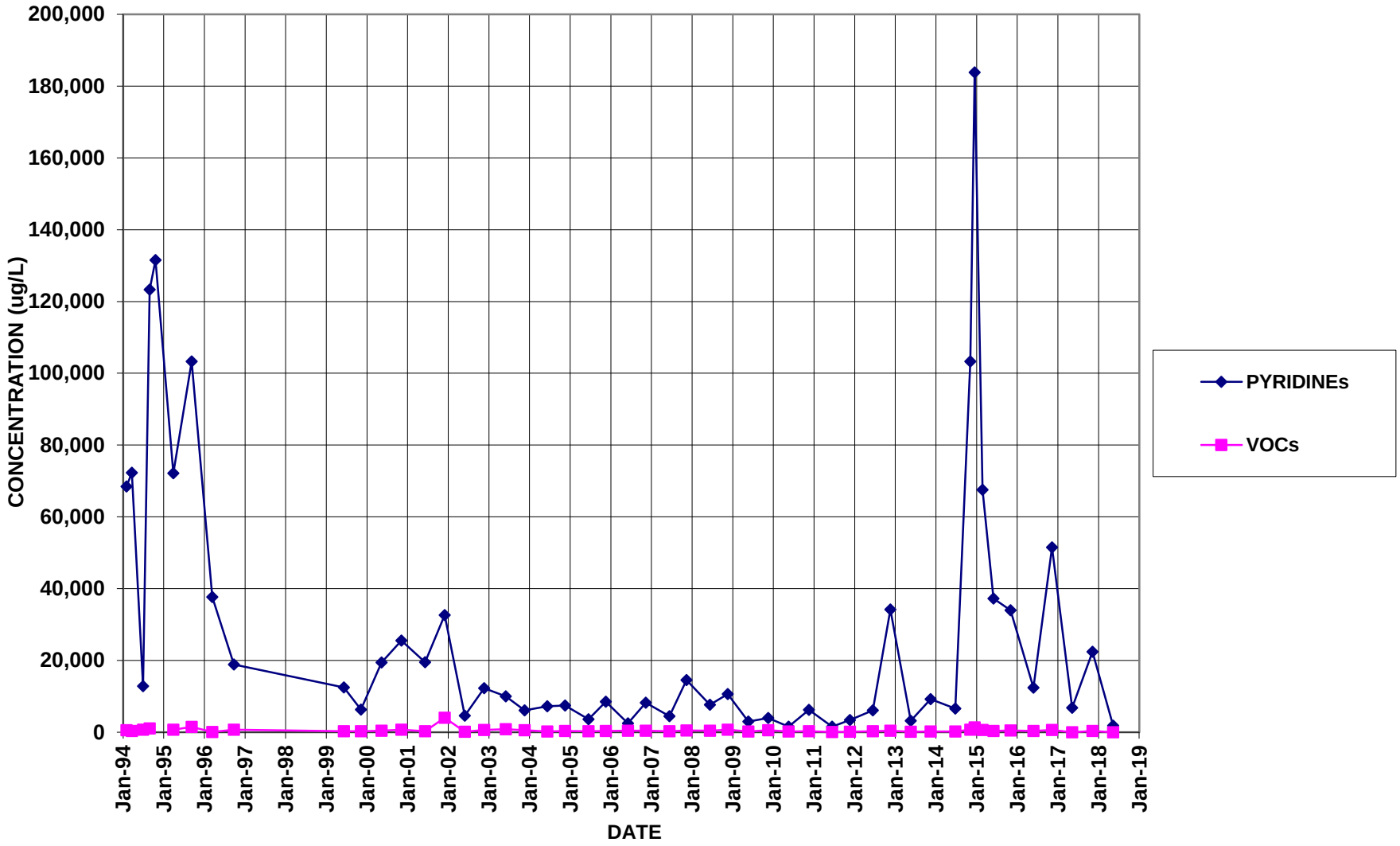
Prepared by: jar
Reviewed by: nmb

E-3



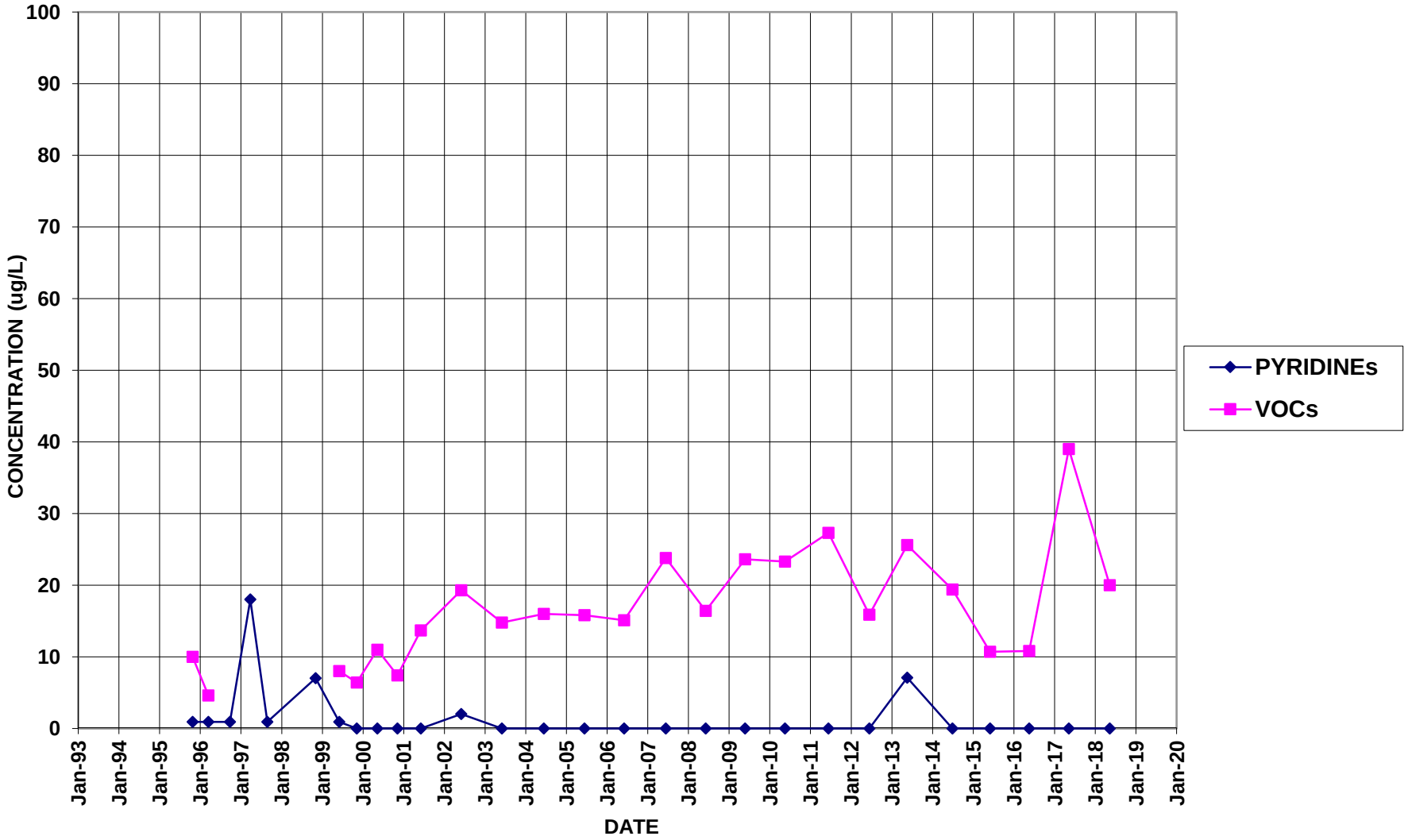
Prepared by: jar
Reviewed by: nmb

MW-106



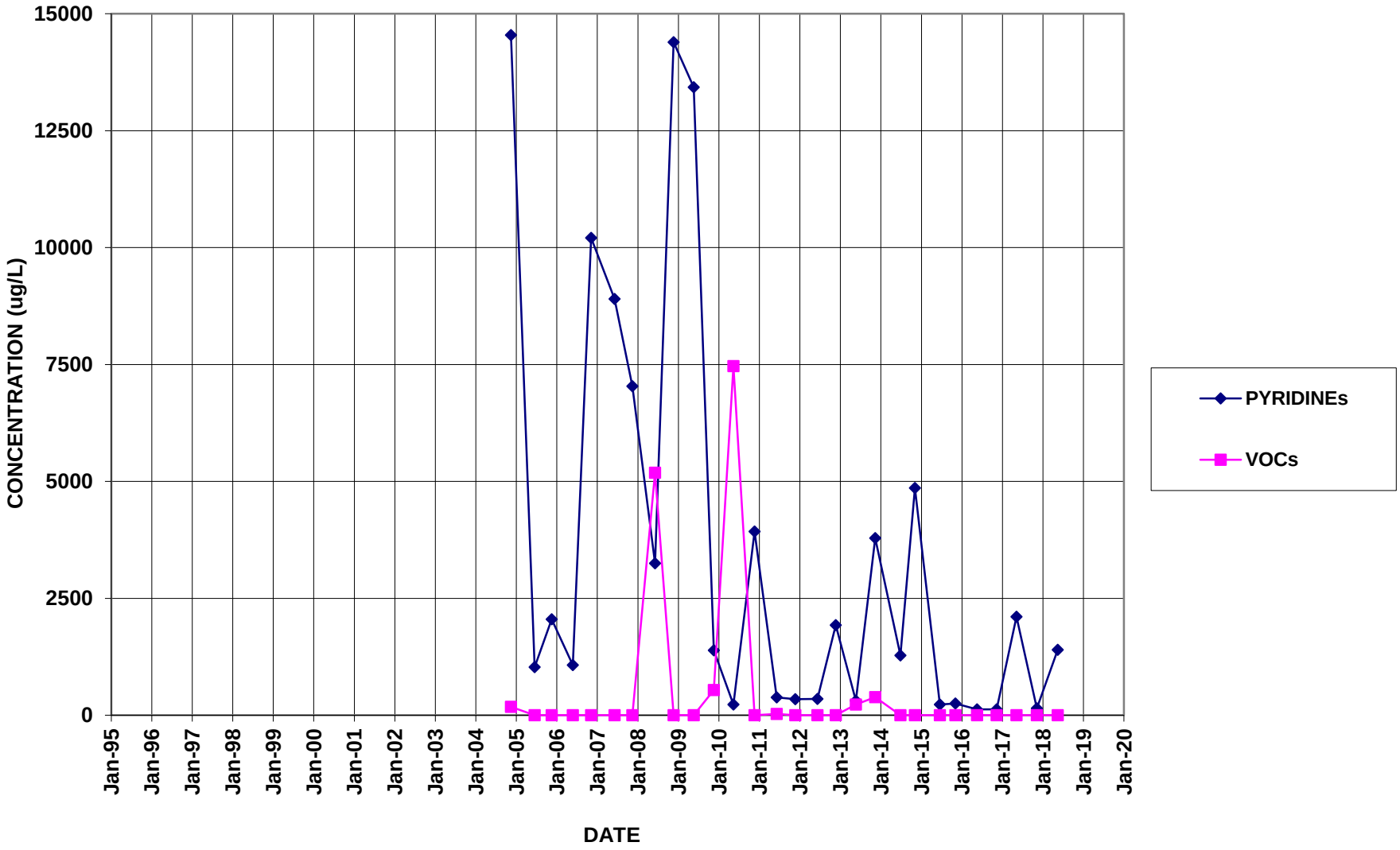
Prepared by: jar
Reviewed by: nmb

MW-114



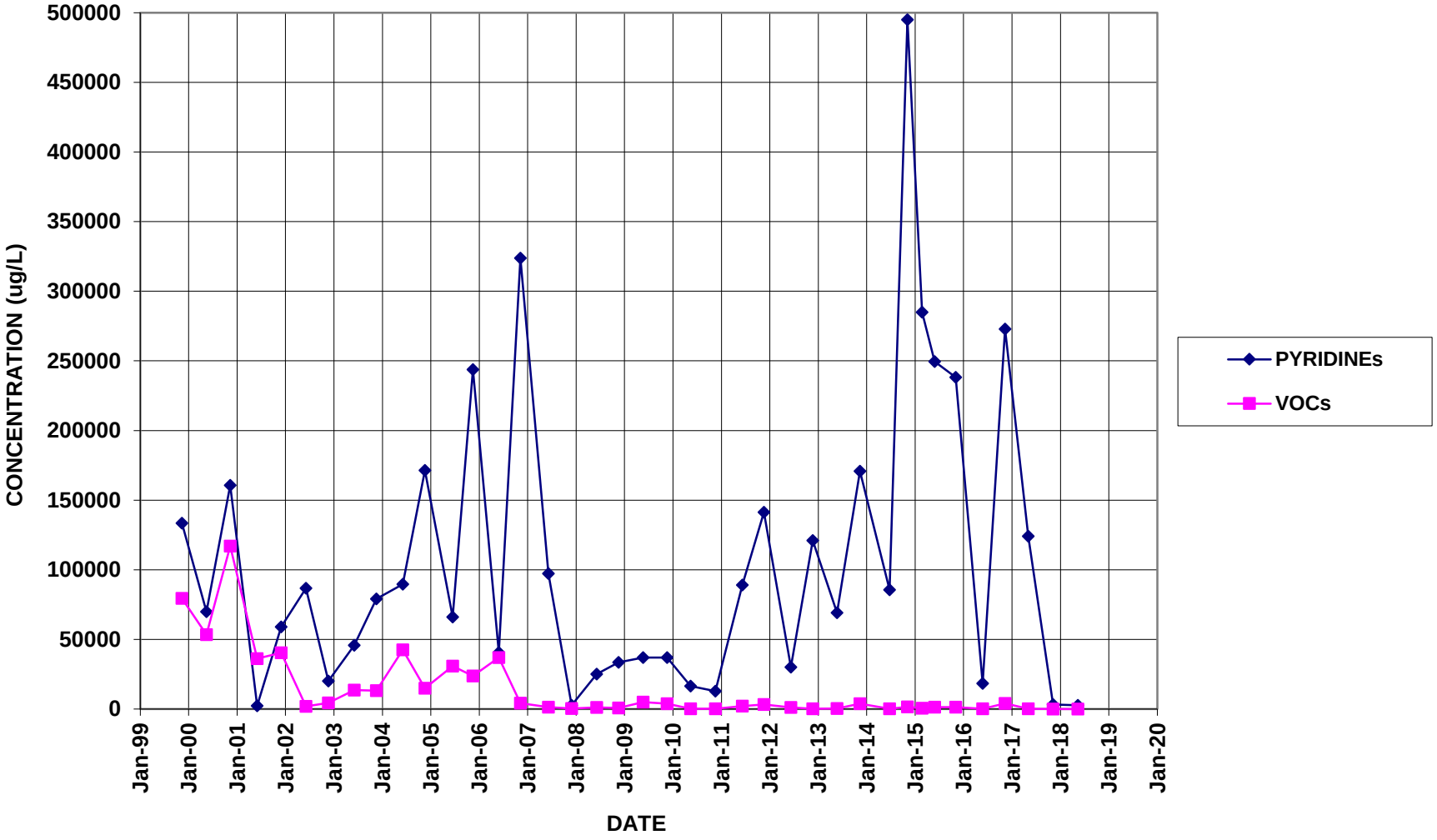
Prepared by: jar
Reviewed by: nmb

MW-127



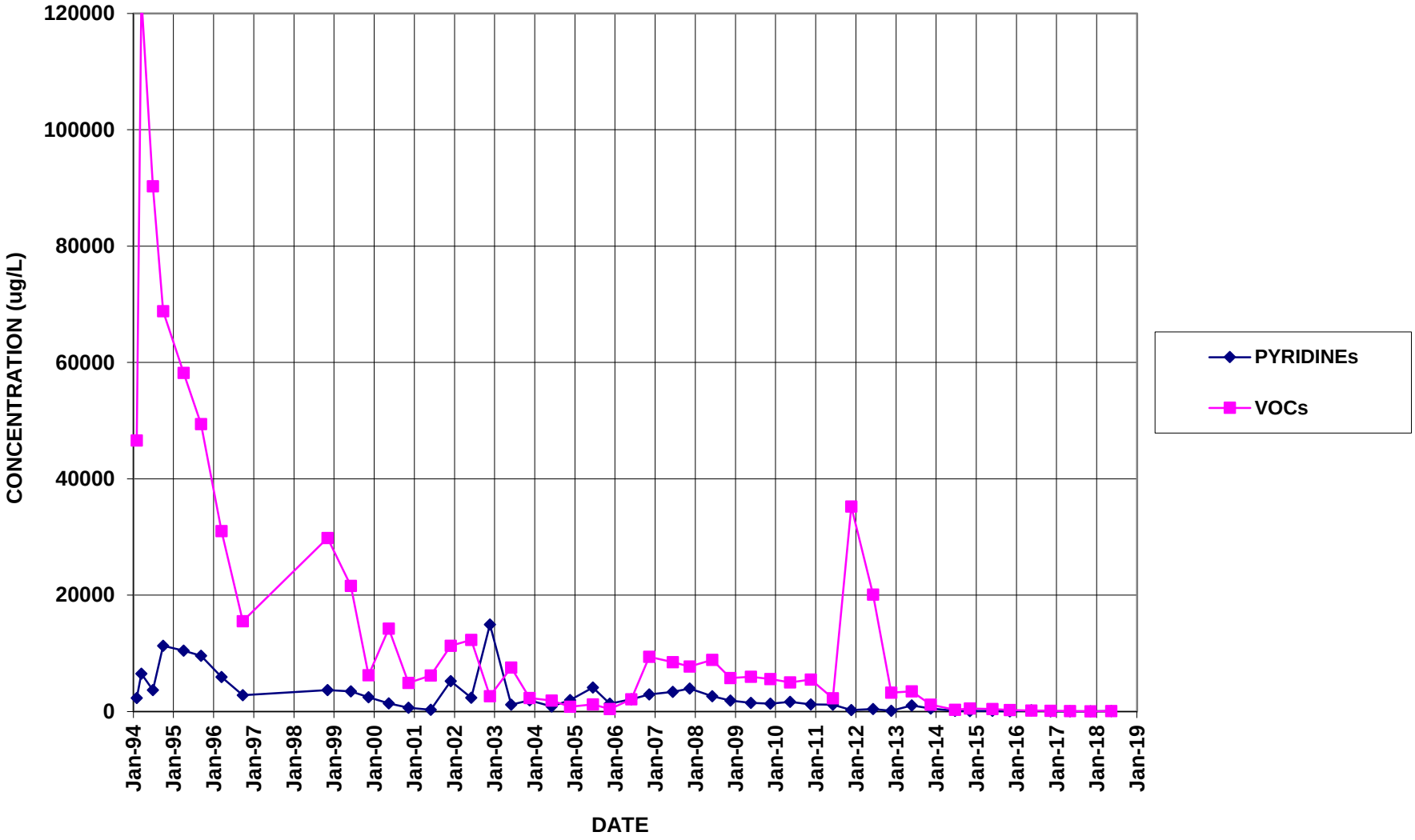
Prepared by: jar
Reviewed by: nmb

PW10



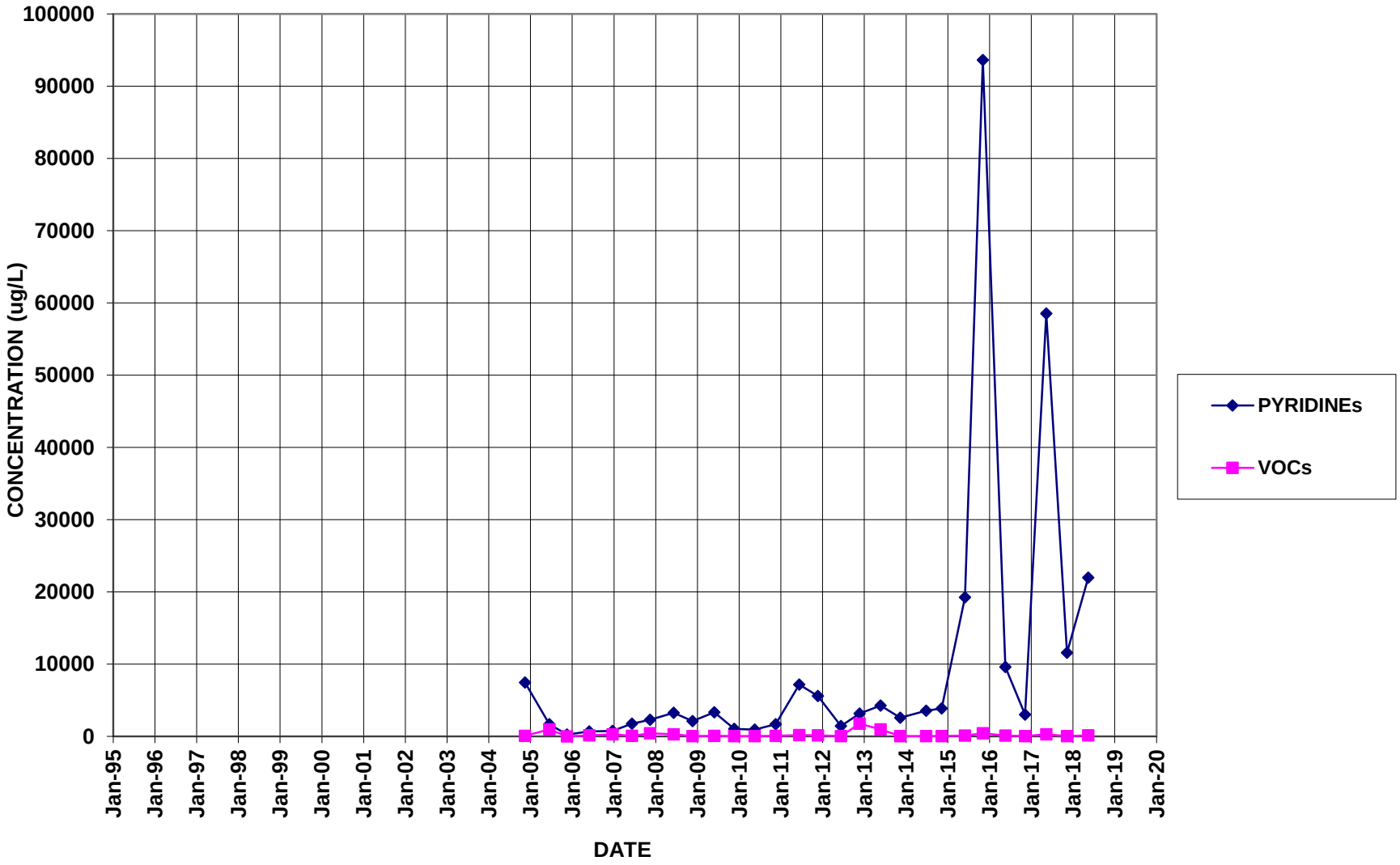
Prepared by: jar
Reviewed by: nmb

PW12 (Formerly BR-101)



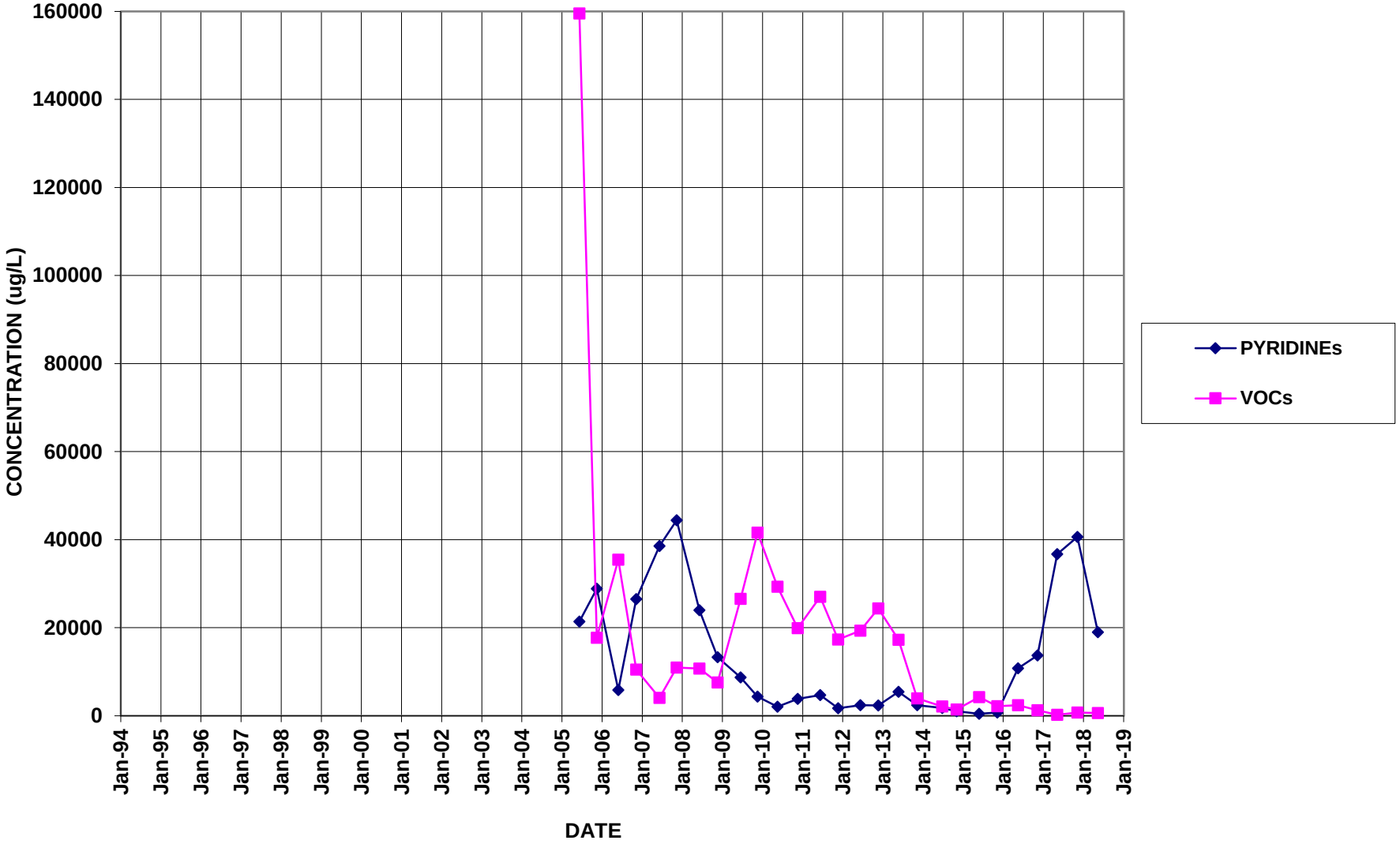
Prepared by: jar
Reviewed by: nmb

PW13



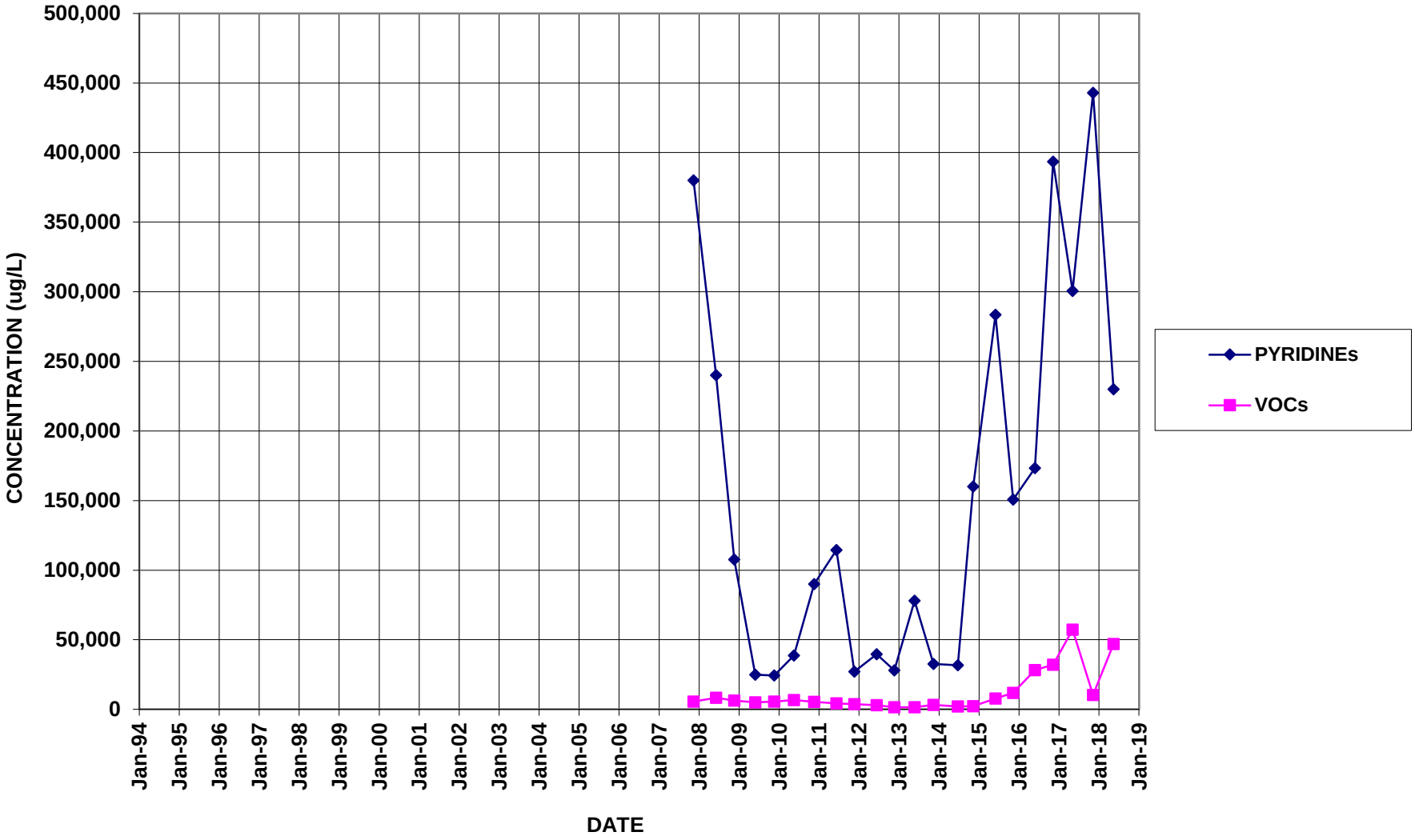
Prepared by: jar
Reviewed by: nmb

PW14



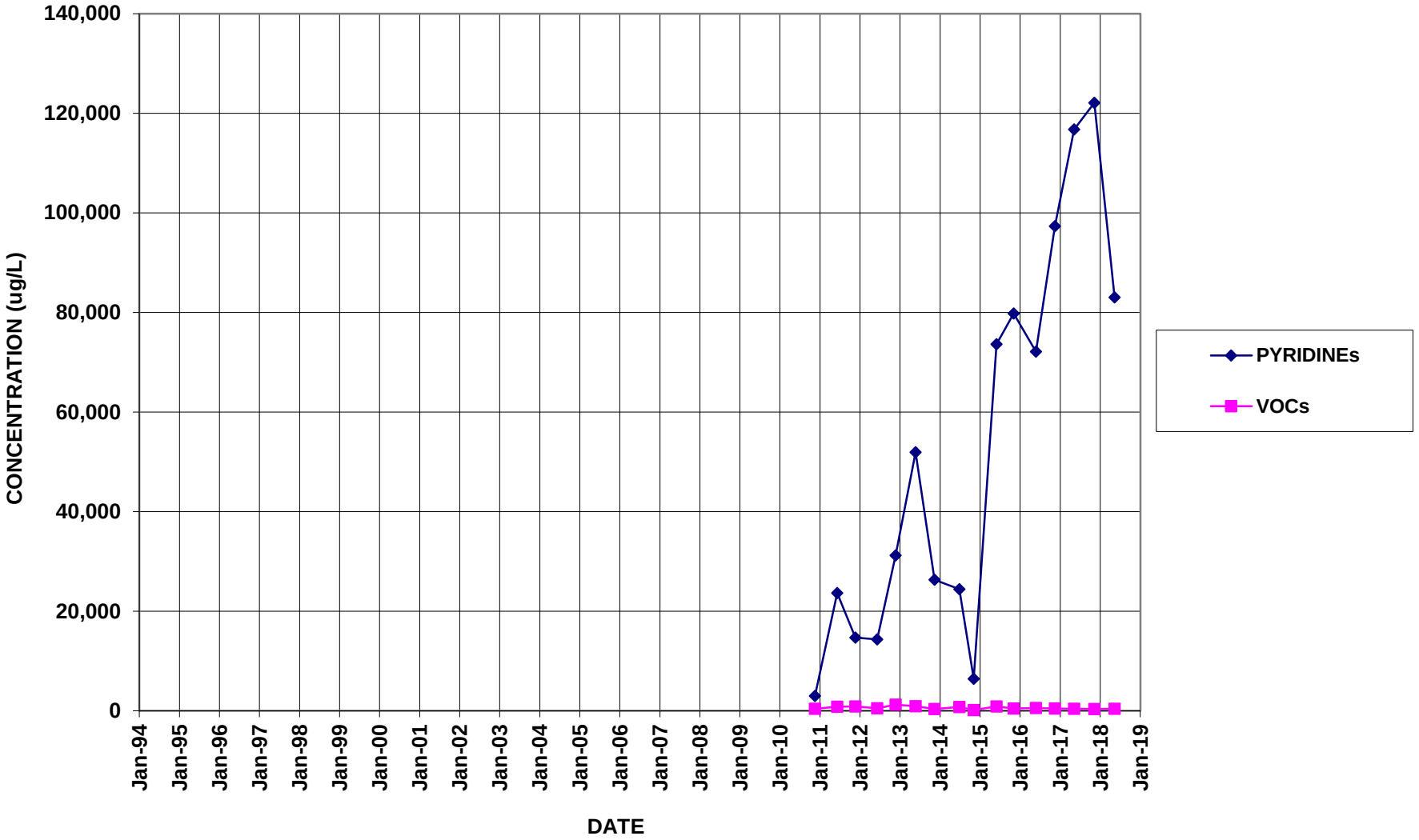
Prepared by: jar
Reviewed by: nmb

PW15



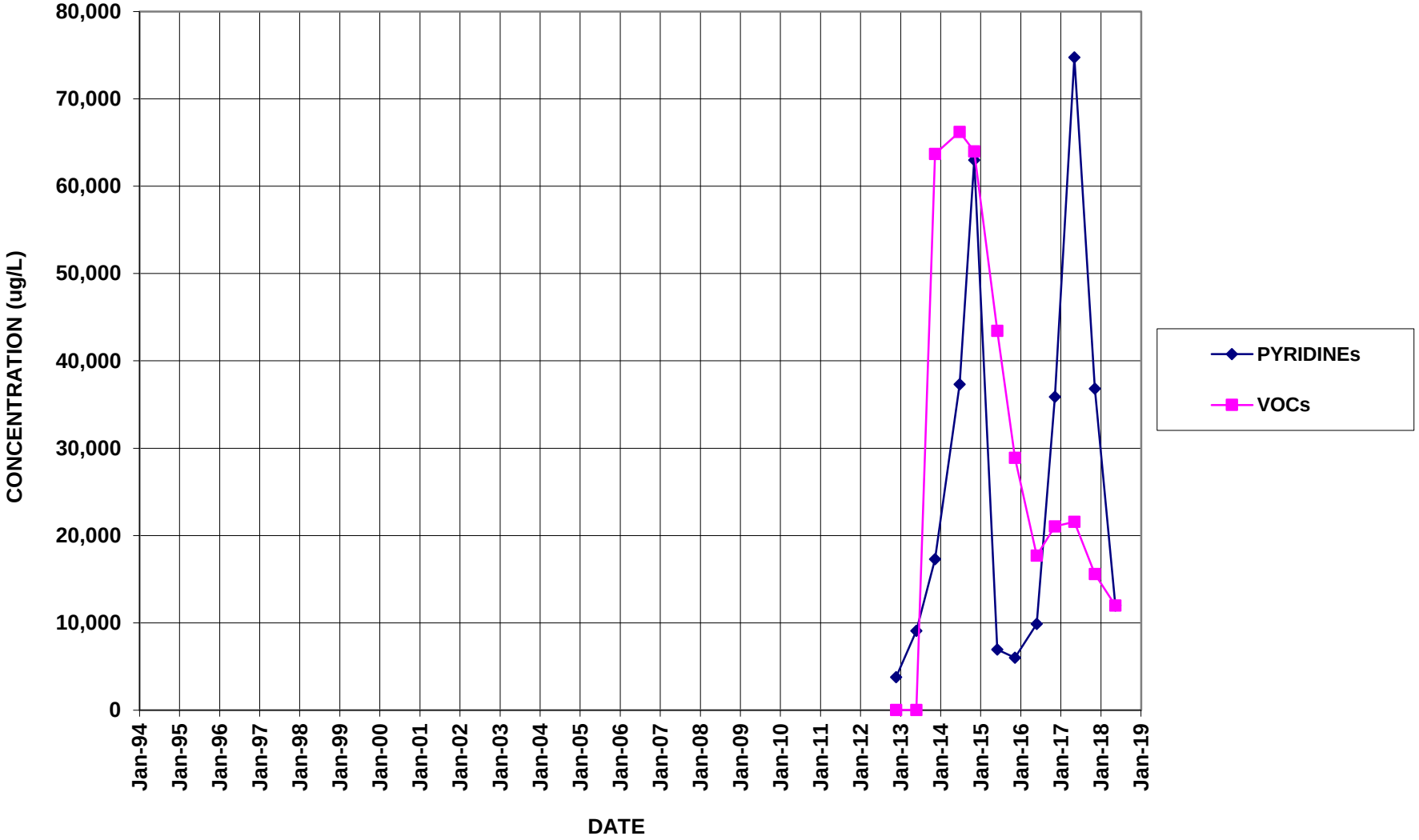
Prepared by: jar
Reviewed by: nmb

PW16



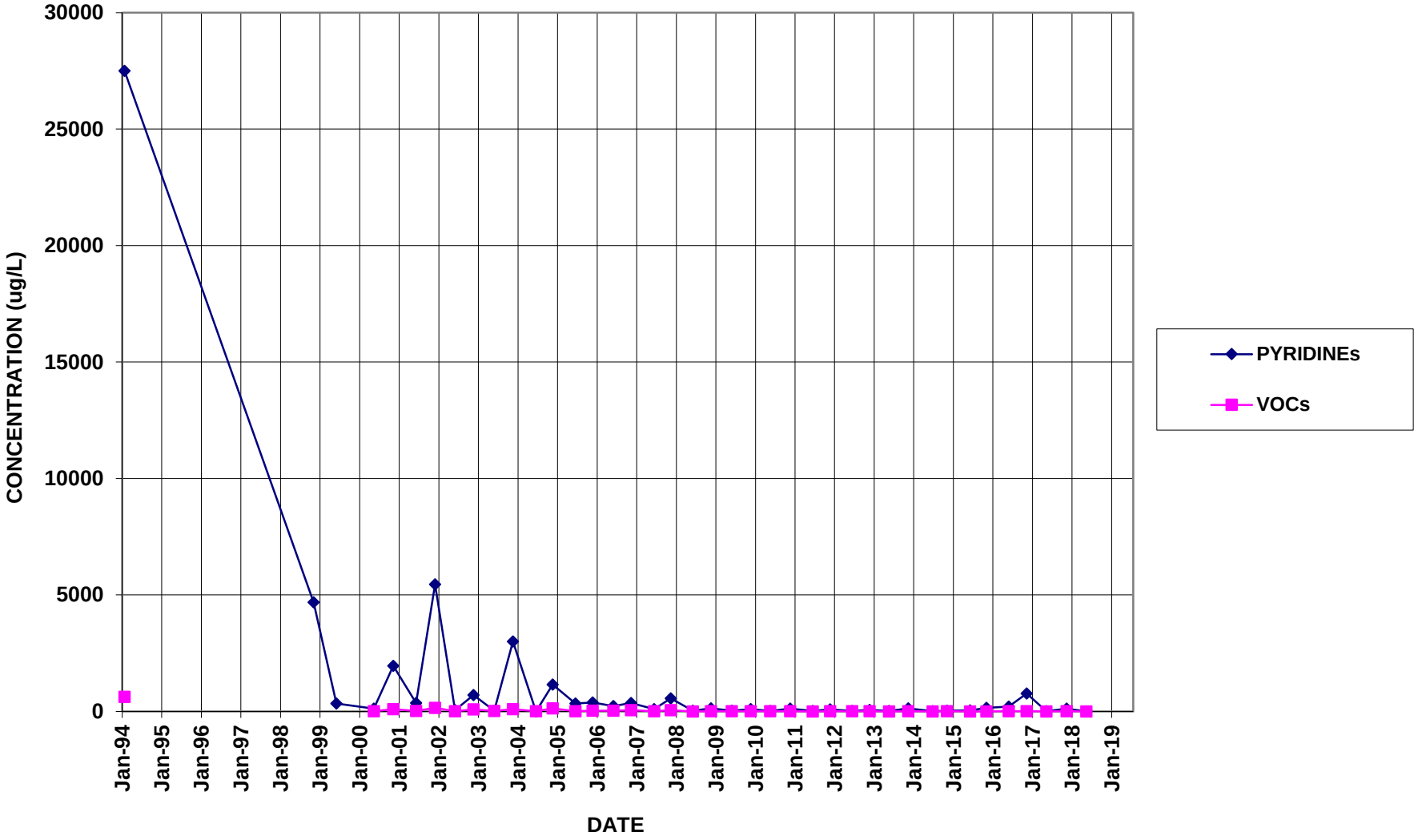
Prepared by: jar
Reviewed by: nmb

PW17



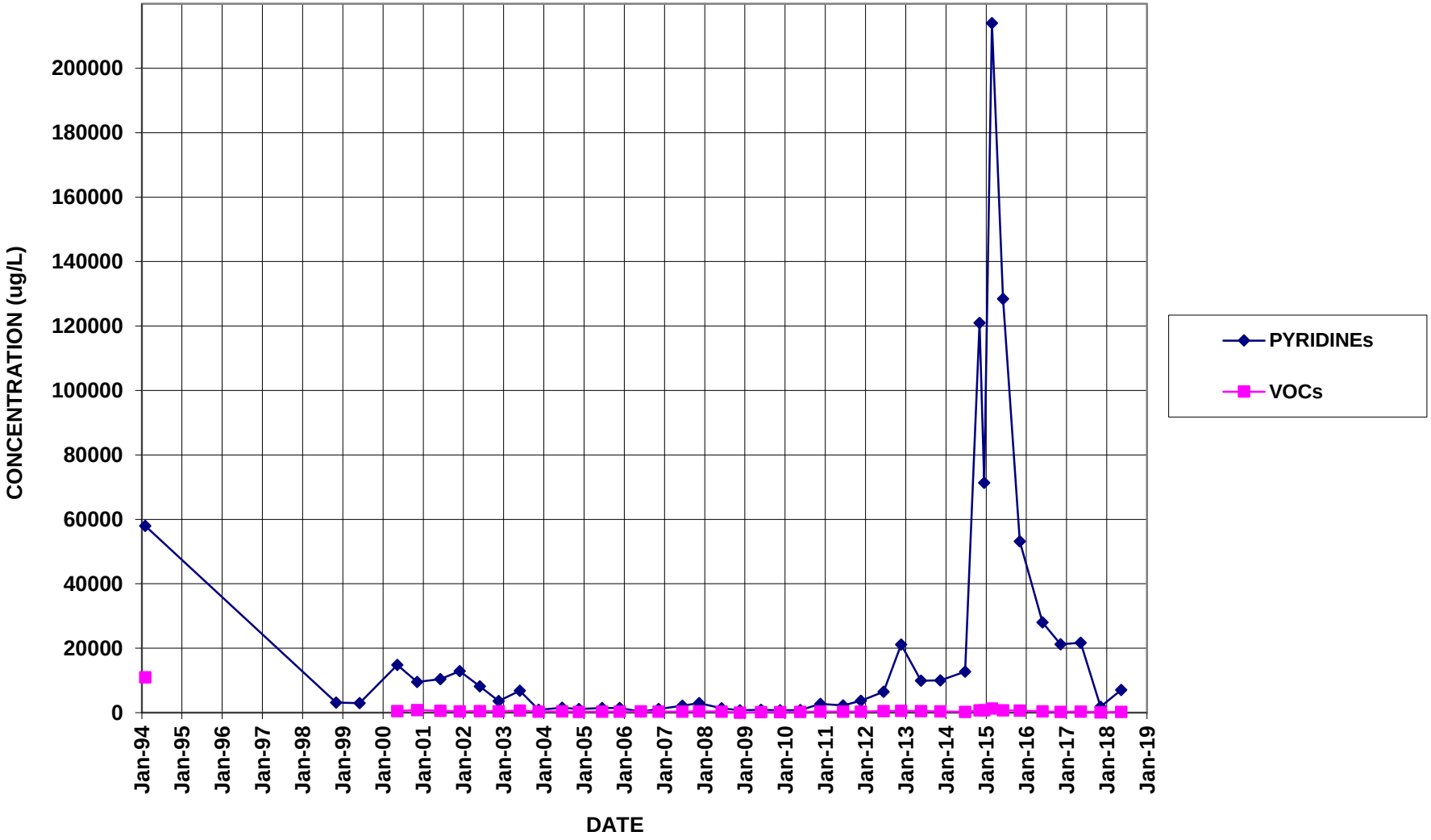
Prepared by: jar
Reviewed by: nmb

PZ-101



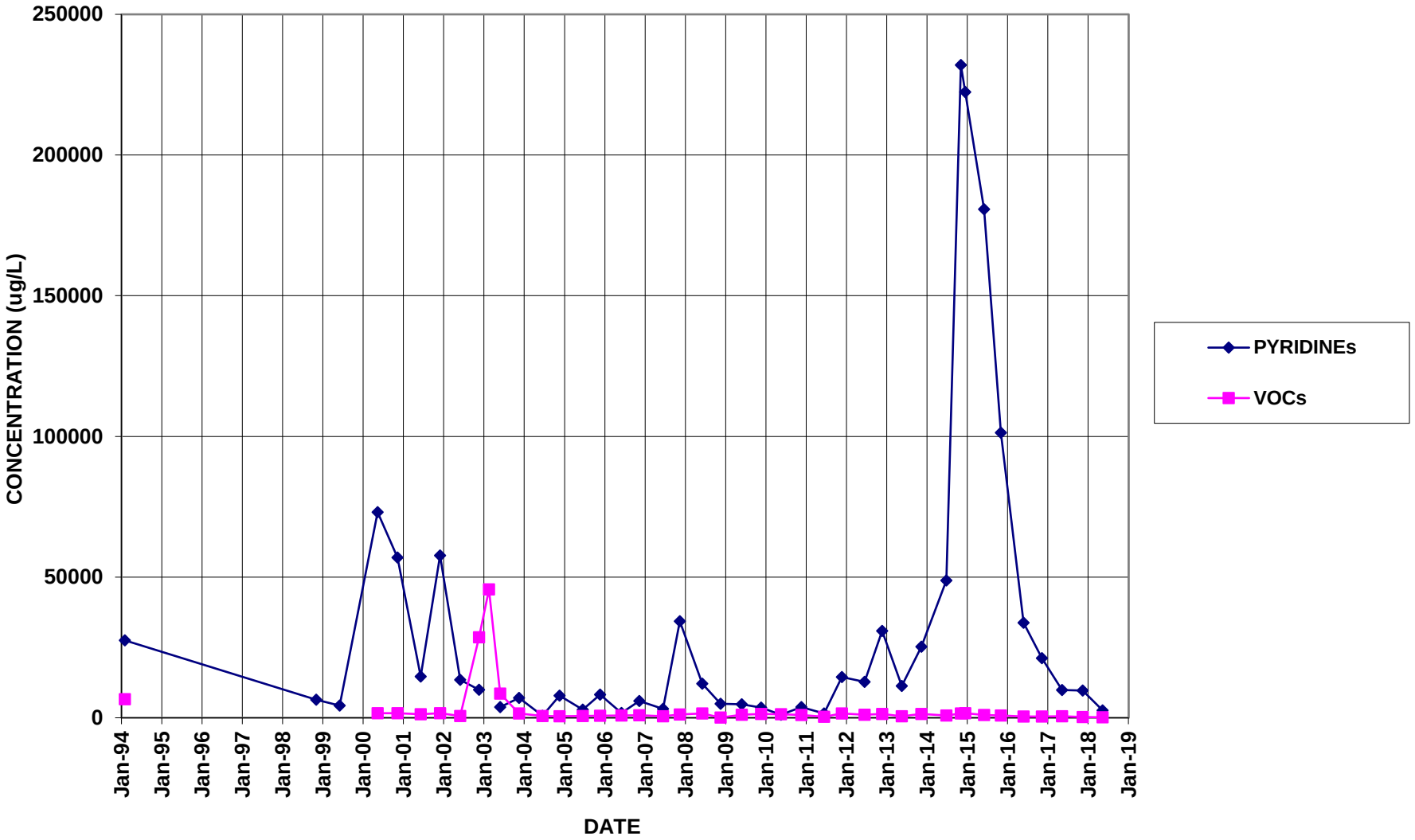
Prepared by: jar
Reviewed by: nmb

PZ-102



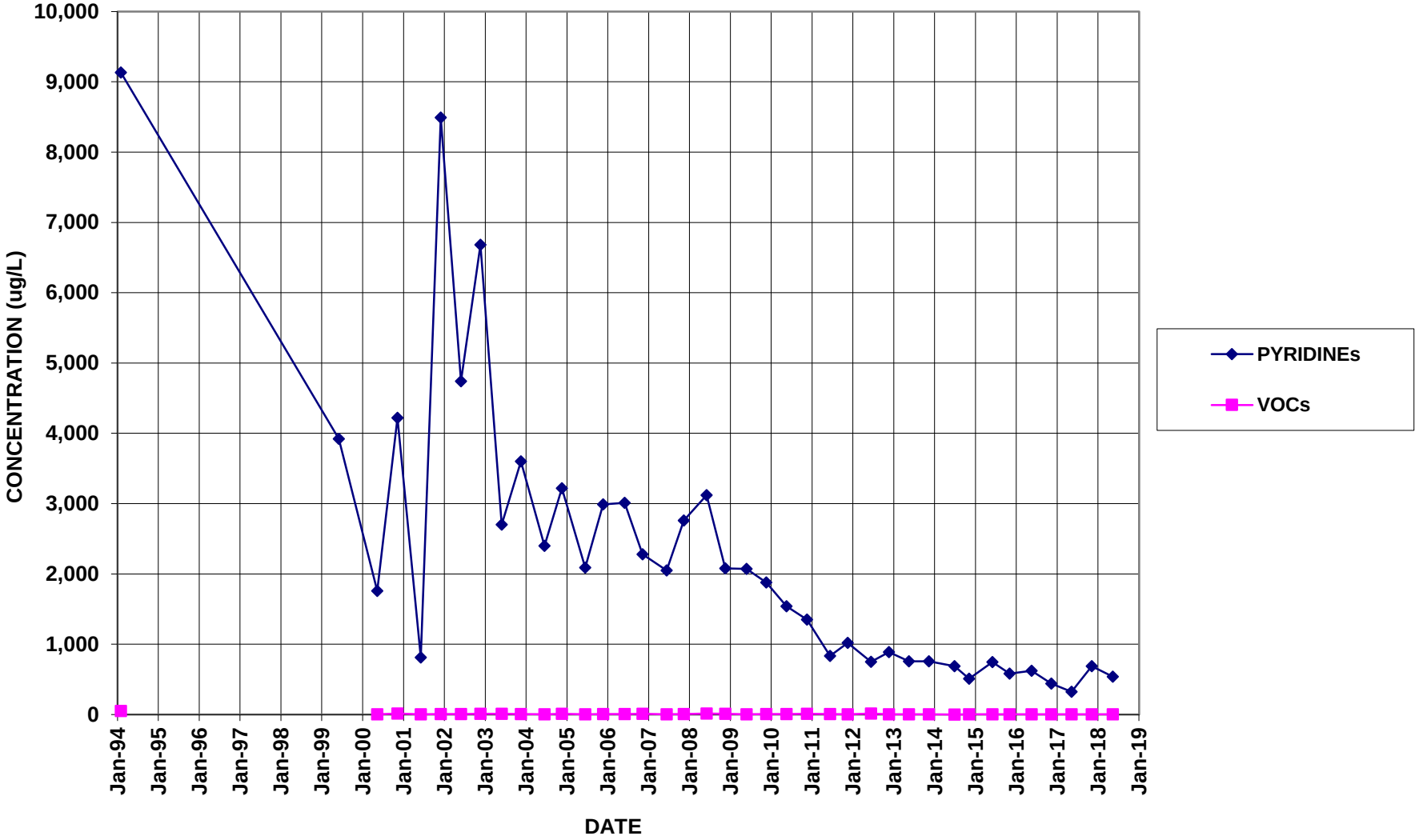
Prepared by: jar
Reviewed by: nmb

PZ-103



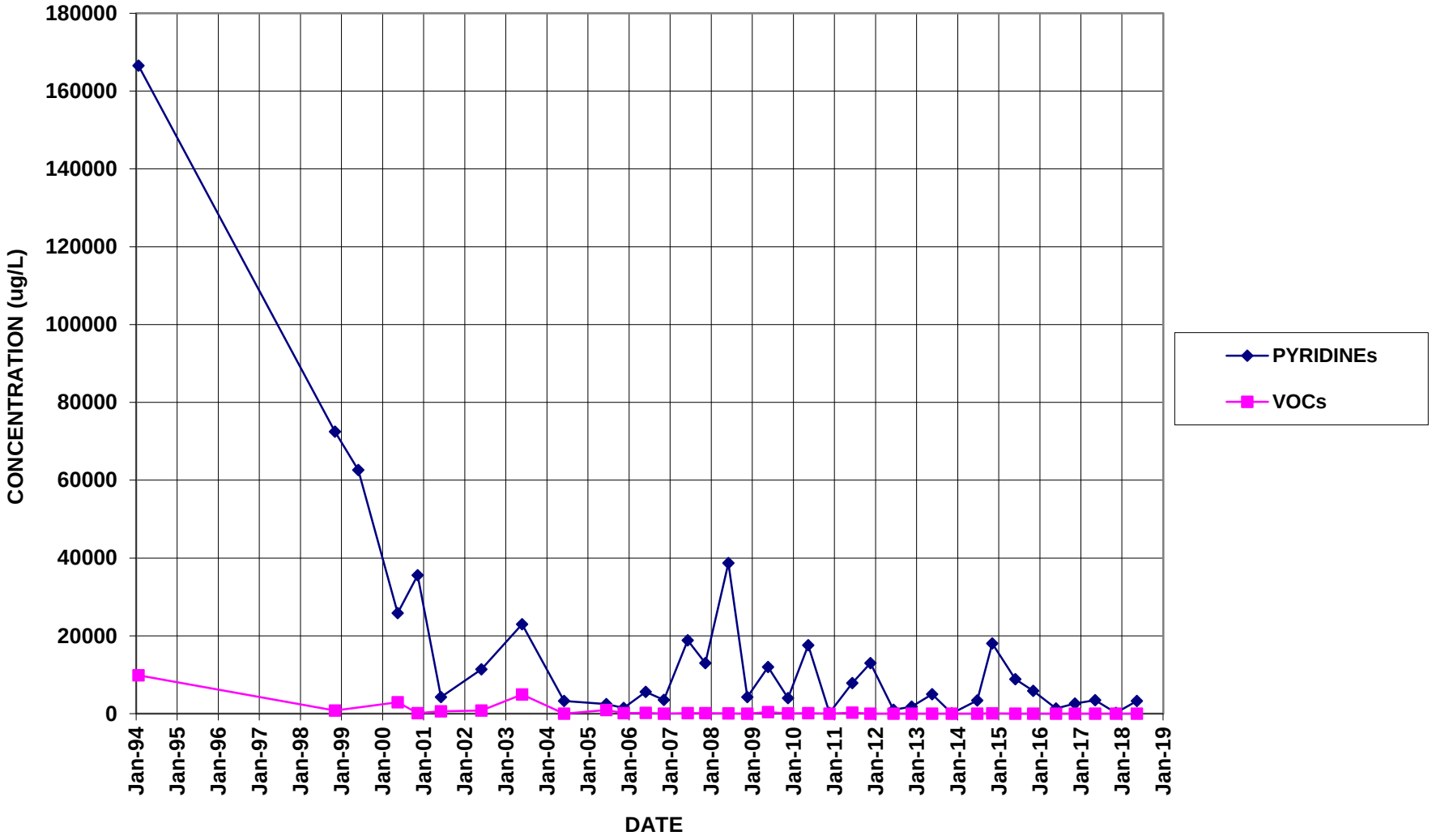
Prepared by: jar
Reviewed by: nmb

PZ-104



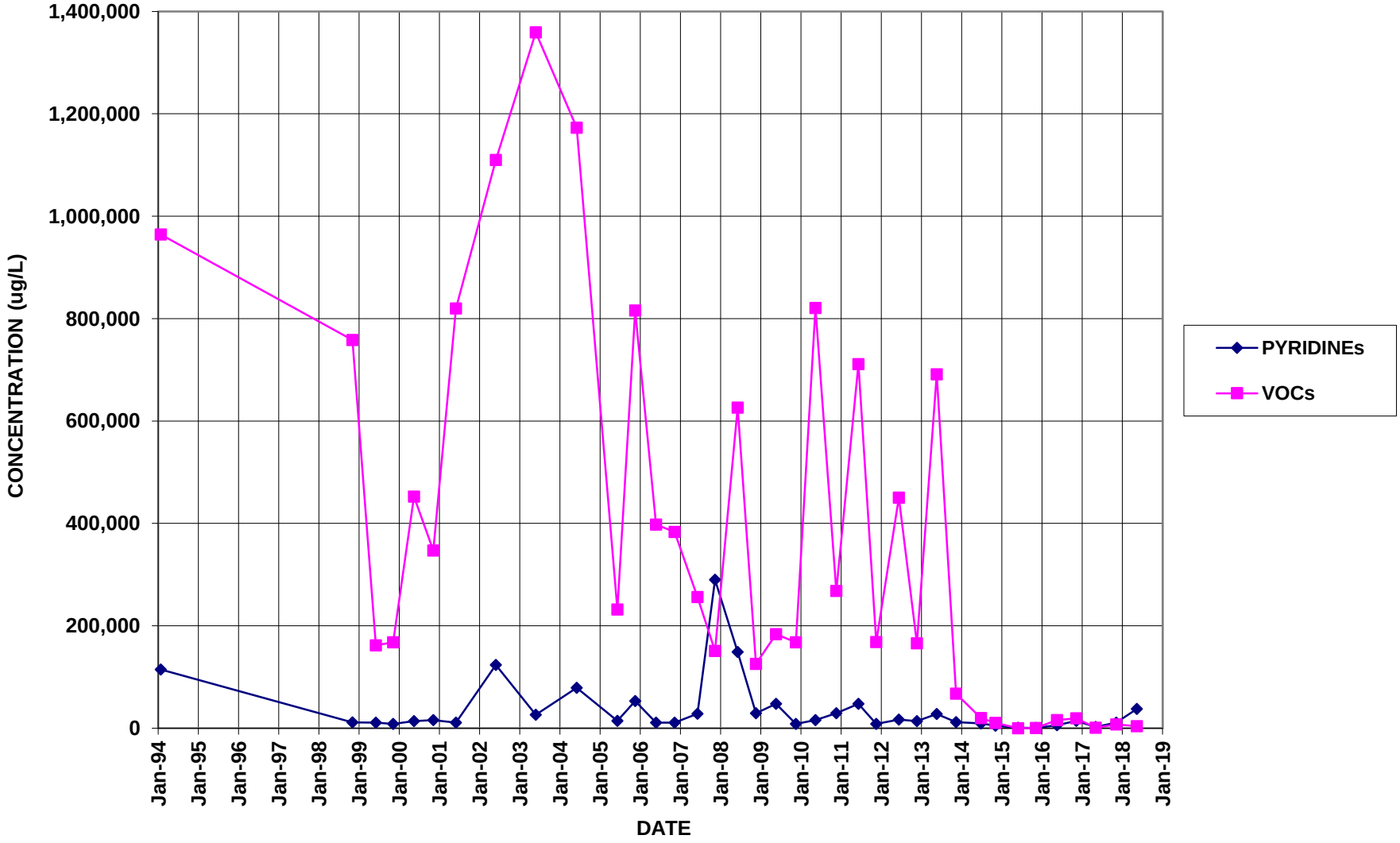
Prepared by: jar
Reviewed by: nmb

PZ-105



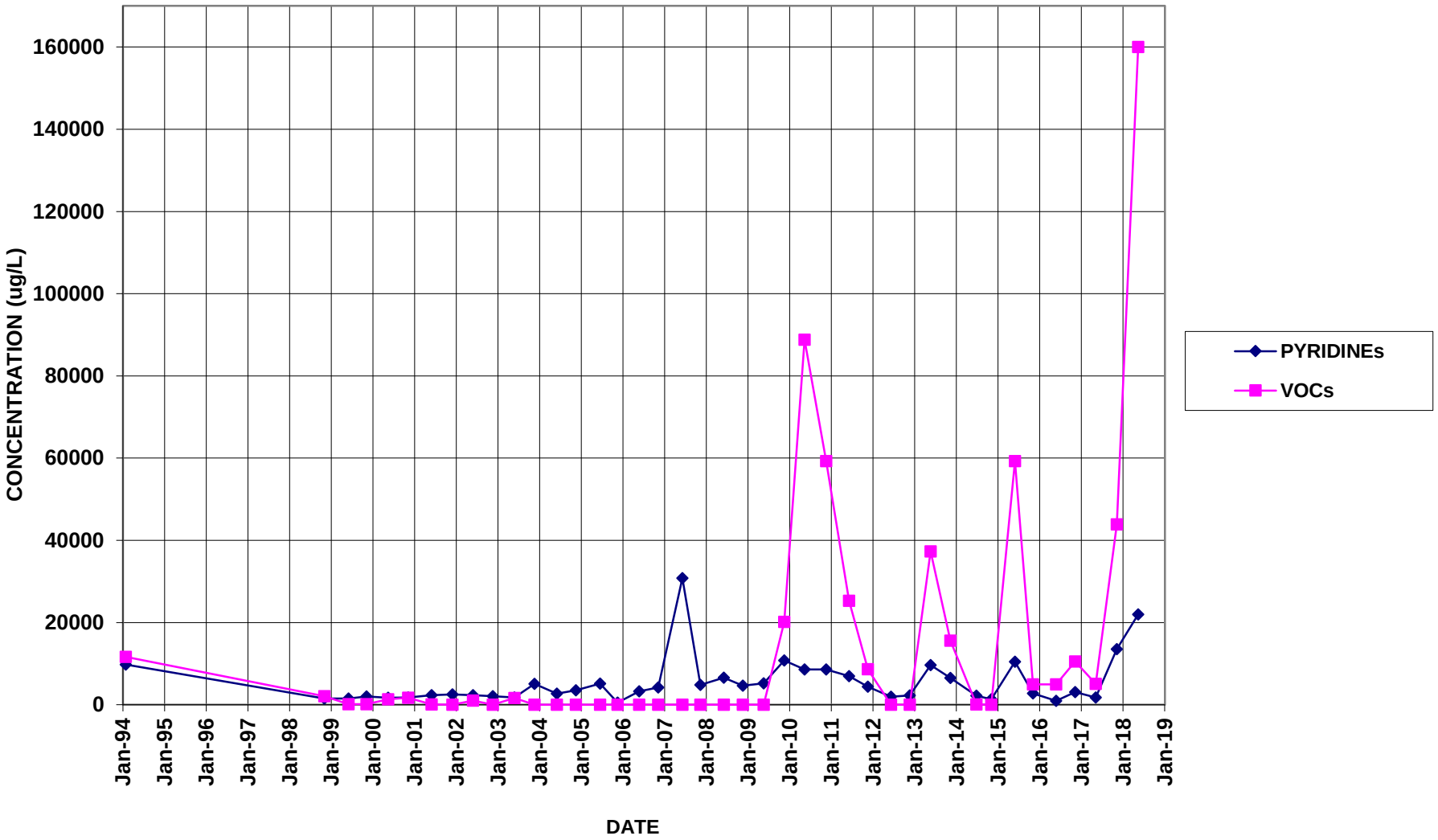
Prepared by: jar
Reviewed by: nmb

PZ-106

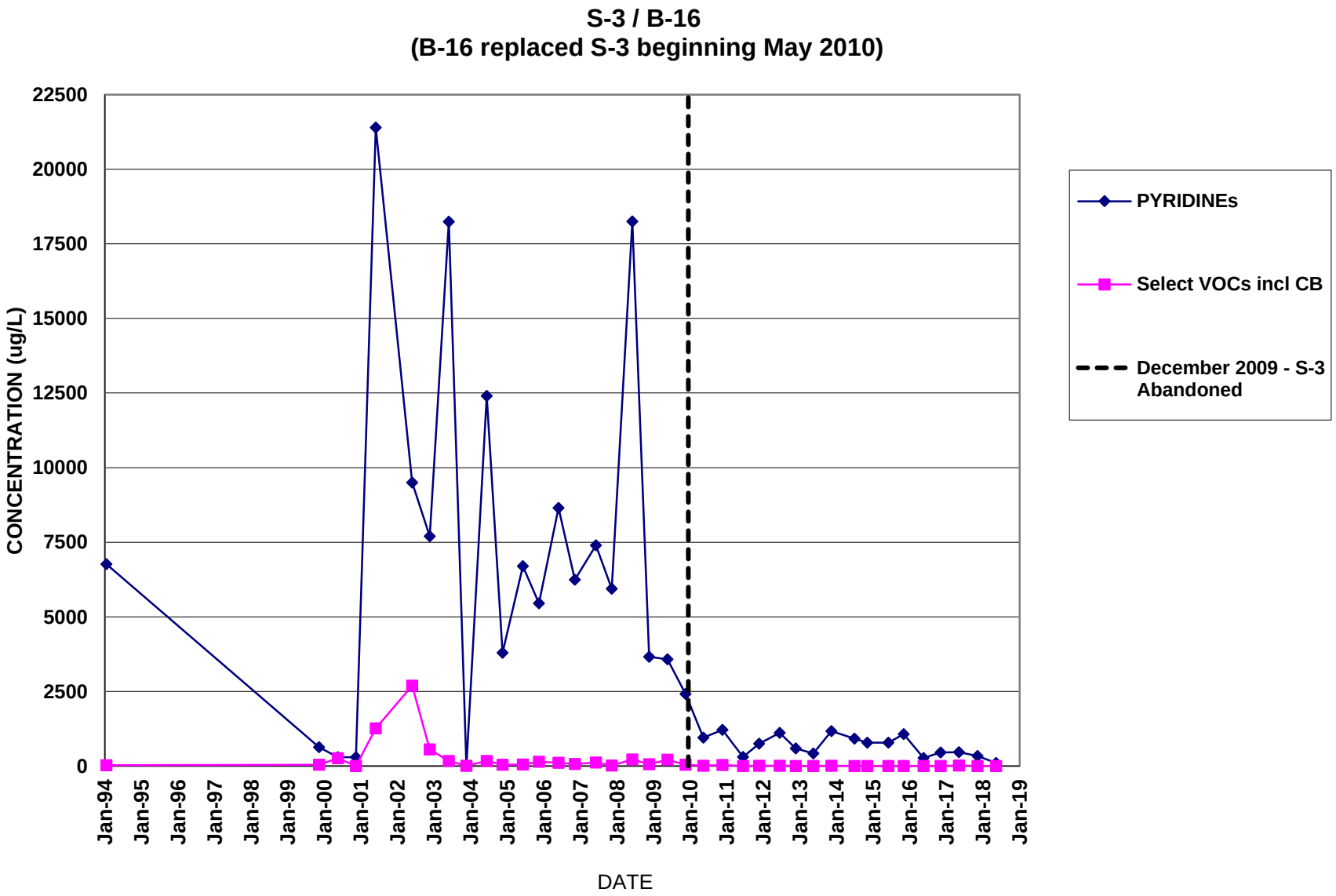


Prepared by: jar
Reviewed by: nmb

PZ-107

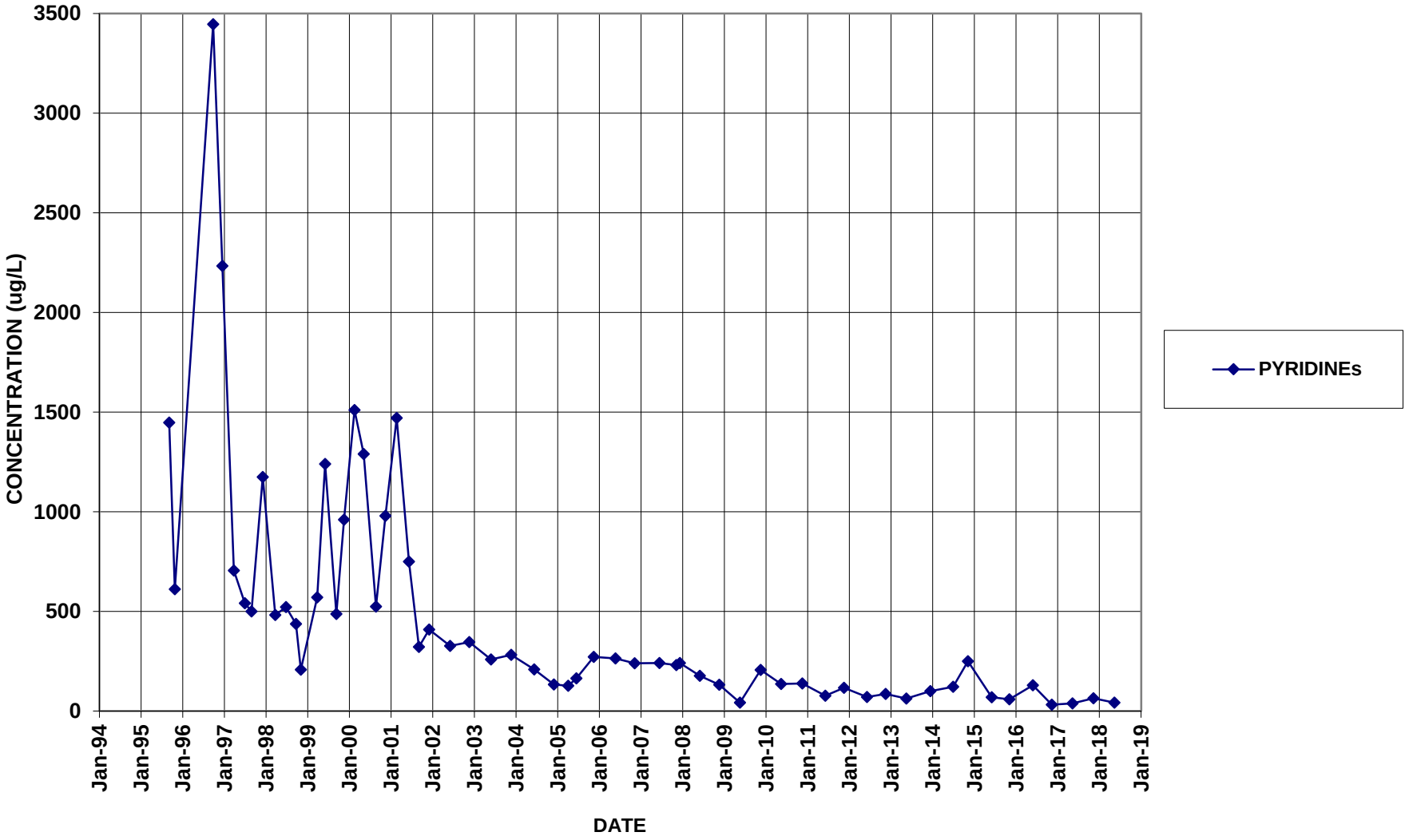


Prepared by: jar
Reviewed by: nmb



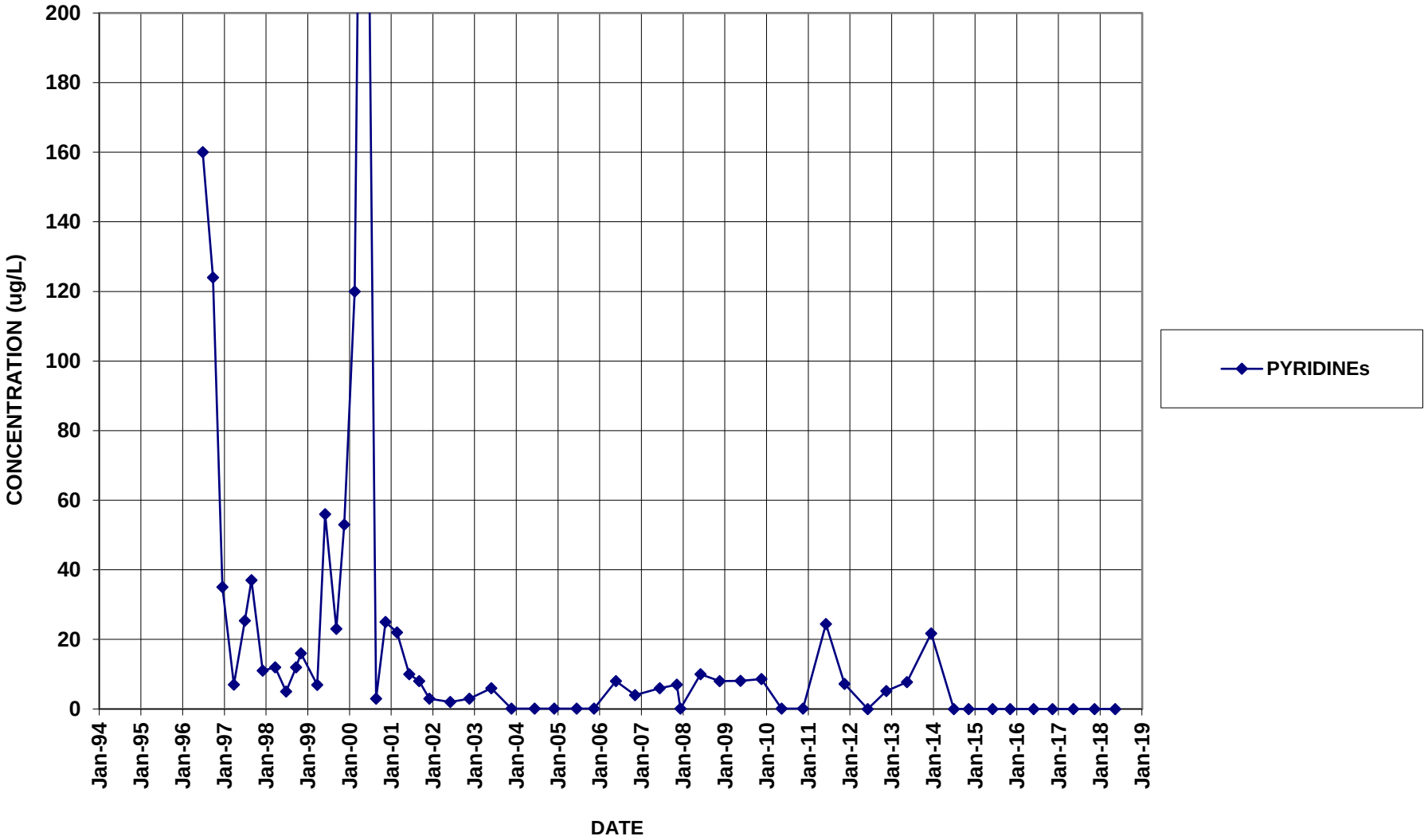
Prepared by: jar
Reviewed by: nmb

QS-4 (QUARRY SEEP)



Prepared by: jar
Reviewed by: nmb

QO-2 (QUARRY OUTFALL)



Prepared by: jar
Reviewed by: nmb