Lonza
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12 September 2019

Mr. Todd Caffoe, P.E.
Project Manager
New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, NY 14414

Re: Spring 2019 Monitoring Report
Arch Chemicals (Site #828018a) 100 McKee Rd., Rochester, NY

Dear Mr. Caffoe:

Enclosed is an electronic copy of the Spring 2019 Monitoring Report for the Arch Chemicals Site in Rochester, New York. The report describes the results of the semi-annual groundwater and surface water monitoring completed in May 2019 as part of Lonza's on-going monitoring program at the site. Please note that this report also includes results of groundwater sampling and analysis for PFAS and 1,4-Dioxane that was requested by the NYSDEC. An electronic data deliverable (EDD) of the analytical results will be provided to the New York State Department of Environmental Conservation in a separate online submittal.

If you have any questions regarding this report, please call me at (585) 613-3752.

Sincerely,

Francien Trubia
Environmental Specialist
Lonza

encl.

cc : Melissa Doroski, NYSDOH – Albany
Jean Robert Jean, USEPA Region II
Richard Hampson, Lonza
Nelson Breton, AMEC E & E PC

Arch Chemicals, Inc.

Rochester, New York (Site #828018a)

Groundwater Monitoring Report 62
Spring 2019

September 2019

SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
SPRING 2019 MONITORING REPORT

ARCH CHEMICALS
ROCHESTER PLANT SITE
ROCHESTER, NEW YORK

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

SEPTEMBER 2019

SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
SPRING 2019 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)

September 2019

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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 2019, samples from a total of 40 groundwater monitoring or pumping wells, four locations associated with the Dolomite Products Quarry seep and outfall, and one groundwater effluent sample at the carbon treatment beds were collected by Matrix Environmental Technologies Inc., of Orchard Park, New York, and analyzed by Paradigm Environmental Services, Inc., of Rochester, New York. Samples from a subset of locations including an upgradient well, BR-1, were also analyzed by Alpha Analytical Laboratory located in Mansfield, Massachusetts, for emerging contaminants per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The added PFAS and 1,4-dioxane analysis and effluent sample collection were done at the request of the NYSDEC and are not part of the routine monitoring program.

As in prior reports, monitoring results were compared with previous average concentrations at each sampling location. Thirteen of the 40 wells sampled for chloropyridines had contaminant concentrations that were above their respective 5-year prior averages. Eleven of the 34 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 31 micrograms per liter (µg/L), which is below its prior 5-year average of 87 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 2018 through May 2019, the on-site groundwater extraction system pumped approximately 7.1 million gallons of groundwater to the on-site treatment system, containing an estimated 3,300 pounds of chloropyridines and 91 pounds of target volatile organic compounds.

The next regular monitoring event will occur in November 2019 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 2019 sampling event included the collection and analysis of groundwater, surface water, and seep samples from a total of 44 off-site and on-site locations, as well as one effluent sample from the carbon treatment beds. The Spring 2019 event also included collection and analysis of treated groundwater effluent at the carbon treatment beds. Samples were collected from May 8 through 15, 2019, for analysis of selected chloropyridines and volatile organic compounds (VOCs). Samples from a subset of locations, including an upgradient well, BR-1, were also collected and analyzed for per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The samples collected for PFAS and 1,4-dioxane analysis and effluent sample were collected at the request of NYSDEC (NYSDEC letter to Lonza, dated January 25, 2019) and are not part of the routine monitoring program.

This report presents the results of the Spring 2019 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 from a subset of locations were also collected for analysis of PFAS and 1,4-dioxane. 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; analysis of PFAS and 1,4-dioxane were sub-contracted to Alpha Analytical of Mansfield Massachusetts. Samples for PFAS and 1,4-dioxane were collected and analyzed in accordance with the work plan, “2019 Emerging Contaminant Sampling and Analytical Plan for Per- and Polyfluoroalkyl Substances and 1,4-Dioxane Sampling Arch Rochester Site (Site ID# 828018a)”. Table 1 lists the wells that were sampled and the requested analyses and the sampling locations are shown on Figures 1 and 2, respectively. Sample location BR-3 was intended for sample collection for the Spring 2019 event but the well was inaccessible due to debris in the well and no sample was collected. The location of the groundwater effluent sample collected at the carbon treatment beds is shown in Figure 2.

Groundwater sampling data sheets are provided in Appendix A.

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

Groundwater piezometric elevations were measured on May 7, 2019. Piezometric contours were constructed for each water-bearing zone (overburden, bedrock, and deep bedrock) and are presented on 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, 2019. All quarry-related samples were analyzed for the Arch suite of selected chloropyridines. The quarry locations sampled during the Spring 2019 event are shown on Figure 7.

2.3 ANALYTICAL PROCEDURES

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.

Samples from a subset of locations were analyzed for PFAS and 1,4-dioxane using USEPA Method 537 Modified and Method 8270D-Selected Ion Monitoring, respectively. The reporting limits for PFAS and 1,4-dioxane are approximately 2 nanograms per liter (ng/L) and 150 ng/L, respectively.

2.4 QUALITY CONTROL

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): PZ105, BR-8, BR-106, MW-106, and PW-13.

Duplicates. Field duplicates for chloropyridines and VOCs were collected at locations BR-127 and BR-5A. A field duplicate for PFAS and 1,4-dioxane was collected at location PZ104, and a field duplicate for chloropyridines only was collected at location QS4. Relative percent differences (RPDs) between sample and field duplicate results for all target analytes in all field duplicate pairs were within the control limit.

Laboratory Control Samples (LCS). Percent recoveries of pyridine (44 to 49) in all LCS associated with the sampling event were below nominal control limits of 50-140, indicating potential low biases for pyridine in all samples. Nominal control limits were used in the absence of statistically derived laboratory control limits. 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 PW15 and PW13 for chloropyridines and VOCs, and for sample B15 for PFAS and 1,4-dioxane. The MS/MSD for SVOC sample PW15 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 PW13, percent recoveries of pyridine (47, 41) were less than the 50-140 nominal control limits, indicating potential low bias. Pyridine was not detected in sample PW13 and the reporting limit was qualified estimated (UJ).

In the MS/MSD associated with VOC sample PW15, percent recoveries for carbon tetrachloride (58) and chloroform (34, 6) were less than the laboratory control limits, indicating potential low bias. In addition, the RPD between MS and MSD recoveries for chloroform (139) was greater than the laboratory control limit. Results for carbon tetrachloride and chloroform in PW15 were qualified estimated (J).

In the MS/MSD associated with VOC sample PW13, percent recoveries for 1,2-dichlorobenzene (126) and 1,3-dichlorobenzene (123) were greater than the laboratory control limits, indicating potential high bias. In addition, the RPD between MS and MSD recoveries for 1,2-dichlorobenzene (38) was greater than the laboratory control limit. Results for 1,2-dichlorobenzene and 1,3-dichlorobenzene in PW13 were qualified estimated (J). The percent recovery of bromomethane (63) in the MSD associated with sample PW13 was less than the control limits, indicating potential low bias. Bromomethane was not detected in sample PW13 and the reporting limit was qualified estimated (UJ). Inconsistent spike recoveries were observed for chlorobenzene (135, 76) in the MS/MSD associated with PW13, with one recovery greater than the control limits and one recovery less than the control limits. In addition, the RPD between MS and MSD recoveries for chlorobenzene (56) was greater than the laboratory control limit. The detection of chlorobenzene in PW13 was qualified estimated (J).

In the MS/MSDs associated with PFAS and 1,4-dioxane sample from B15, all percent recoveries and RPDs were within laboratory control limits (PFAS) or nominal control limits (1,4-dioxane). PFAS and 1,4-dioxane results for sample B15 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. As a result, non-detections are reported at elevated reporting limits.

3.0 ANALYTICAL RESULTS

3.1 GROUNDWATER

The validated results from the Spring 2019 groundwater monitoring event are provided in Tables 2 and 3. Table 4 provides a comparison of the Spring 2019 analytical results for selected chloropyridines and VOCs in representative wells to mean concentrations of the prior five years (Fall 2013 through Fall 2018). Concentration 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 24 of the 25 on-site wells sampled in the Spring 2019 event. Concentrations of chloropyridines (sum of all chloropyridine and pyridine isomer concentrations) ranged from not detected (in well PW12) to 690,000 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 ten of the 15 off-site wells that were sampled. Concentrations of total chloropyridines ranged from not detected (in wells BR-114, BR-117D, BR-122D, MW114, and PZ-101) to 36,000 µg/L in well PZ-102. Three of the off-site wells contained total chloropyridine concentrations above their respective five-year prior means (see Table 4).

Post Groundwater Carbon Treatment Beds. For the groundwater effluent sample collected at the Carbon Treatment Beds, pyridine was detected at a concentration of 115 J ug/L. Chloropyridines were not detected (See Table 2).

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 distribution is generally similar to the prior monitoring event in November 2018, with some notable decreases in wells around the perimeter of the plume (i.e., MW-106, BR-126, and PZ-101). Chloropyridine levels remain high in on-site wells B-17 (690,000 µg/L) and BR-8 (550,000 µg/L) as compared to other on-site monitoring wells. Concentrations of chloropyridines are greater than the respective five year means for each. The concentrations of chloropyridines in PZ-105 and PZ-106 to the south and southeast are greater than their respective five-year means. A relatively high concentration of chloropyridines was measured at pumping well PW-15 (250,000 µg/L, slightly less than the five year mean of 260,000 µg/L). To the northwest,

relatively high concentrations of chloropyridines were detected in wells BR-9 and PW-16, which are both active pumping wells. This indicates the pumping wells are effectively pulling in water from multiple areas with elevated concentrations of chloropyridines.

3.1.2 SELECTED VOCS

On-Site. Selected VOCs were detected in 20 of the 25 on-site wells sampled for VOCs in the Spring 2019 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, E-3, and MW-127) to 25,000 µg/L in well PW15. Nine of the on-site wells contained total concentrations of selected 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 8 out of 25 wells), benzene (14 of 25), 1,2-dichlorobenzene (7 of 25), 1,4-dichlorobenzene (10 of 25), carbon disulfide (11 of 25), 1,3-dichlorobenzene (6 of 25), vinyl chloride (5 of 25), cis-1,2-dichloroethene (5 of 25), 1,2,3-trichlorobenzene (2 of 25), 1,2,4-trichlorobenzene (2 of 25), and 1,1-dichloroethane (3 of 25).

Off-Site. Selected VOCs were detected in six of the nine off-site wells sampled for VOCs during the Spring 2019 event. Total concentrations of selected VOCs ranged from not detected (in wells PZ-101, BR-114, and BR-105D) to 340 µg/L (in well PZ-103). One well (BR-106) contained a total concentration of selected VOCs above its 5-year prior mean for VOCs (see Table 4).

In addition to the selected VOCs, other notable constituents detected in multiple off-site wells include benzene (in 7 out of 9 wells), 1,2-dichlorobenzene (5 of 9), 1,3-dichlorobenzene (3 of 9), 1,4-dichlorobenzene (3 of 9), carbon disulfide (2 of 9), and cis-1,2-dichloroethene (2 of 9).

Post Groundwater Carbon Treatment Beds. VOCs detected in the treated groundwater effluent sample were methylene chloride (252 ug/L), vinyl chloride (63.5 ug/L), and methyl tertbutyl ether (2.91 ug/L) (See Tables 3).

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 from the Fall 2018 event were observed in wells BR-127, MW-106, and PZ-107. VOC concentrations in PZ-107 were well below the previous five year mean and an order of magnitude less than the Fall 2018 concentration. Increases were observed in wells B-11, B-16, BR-8, PW-15, PW-17, and PZ-106, although the May 2019 concentrations of target VOCs in PZ-106, BR-8, and PW-15 are only slightly greater than the previous five year means. The target VOCs concentration for PW-17 increased from the Fall 2018 event but is still well below the previous five year mean. VOCs observed in off-site wells primarily consist of chlorobenzenes, which appear to be closely associated with chloropyridines at this site.

3.1.3 PFAS

Samples for analysis of PFAS were collected at on-site wells BR-1, B-15, BR-8, PZ-104, and PZ-107. Two PFAS compounds, perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic

acid (PFOS), are under consideration for New York drinking water Maximum Contaminant Levels (MCLs) of 10 ng/L each as proposed by the New York Drinking Water Quality Council in December 2018. PFOA concentrations exceeded the New York recommended MCLs in wells B-15 (20 ng/L), PZ-107 (23 ng/L), and BR-8 (36 ng/L). With the exception of BR-8 (19 ng/L), PFOS concentrations were less than the New York recommended MCL. PFOS and PFOA, along with other PFAS compounds were also detected in upgradient well BR-1 (See Table 5).

3.1.4 1,4-DIOXANE

Samples for analysis of 1,4-dioxane were collected at on-site wells BR-1, B-15, BR-8, PZ-104, and PZ-107. 1,4-Dioxane was detected in three of the five wells sampled for 1,4-dioxane in the Spring 2019 event. 1,4-Dioxane concentrations ranged from not detected (in wells BR-1 and B-15) to 6.0 µg/L in well BR-8 (See Table 5). With the exception of BR-8 (6.02 ug/L), 1,4-dioxane concentrations were less than 1 µg/L, the proposed drinking water MCL recommended by the New York Drinking Water Quality Council in December 2018.

3.2 SURFACE WATER

Results from the Spring 2019 canal and quarry monitoring event are presented in Table 6 and are discussed below.

3.2.1 QUARRY

One quarry seep sample (QS-4) was collected in the Spring 2019 monitoring event. The sample contained 31 µg/L total chloropyridines, which is below its prior five-year mean of 87 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 7 presents a summary of the system flow measurements for the on-site extraction wells from December 2018 through May 2019. The total volume pumped during the six-month period was approximately 7.1 million gallons. Overall, the system pumped reliably throughout the period with system flow rates averaging between 21 and 36 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 low flow during the winter months (when the canal is drawn down), and increased flow beginning in May. Well PW-16, was 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 six-month period.

Table 8 provides a calculation of mass removal rates since the previous groundwater monitoring event (i.e., from December 2018 through May 2019). Arch estimates that approximately 91 pounds of target VOCs and 3,300 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 OPTIMIZATION OF MONITORING NETWORK

Monitoring well B-11 is reportedly damaged; however, well MW-127 is located nearby and tracks closely with B-11. Arch recommends that well B-11 be dropped from the groundwater quality monitoring program and abandoned at this time. Debris was noted in well BR-3 that prevented sample collection. The debris should be cleared to allow for sample collection prior to May 2020 which is the next scheduled sampling event for this well.

6.0 NEXT MONITORING EVENT

The next regular monitoring event will occur in November 2019 and will include groundwater, surface water, and seep sampling.

Table 9 shows the 2019 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

amec
AMEC E & E PC

Prepared/Date: JAR 07/18/19	Checked/Date:

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

BR-113/BR-113D

8-8

7-6

11-8

LEXINGTON

GENERAL RAIL SIGNAL CO.

HOWARD ROAD

DOLOMITE PRODUCTS QUARRY

9-6

RW-1

10-6

13-4

Morey

OW-102A

OW-103

BR-122D

PFAUDLER

BR-117/BR-117D

BR-121D (Abandoned)

BR-118/BR-118D

BR-123D

BR-116/BR-116D

BR-120D (Abandoned)

BR-119D (Abandoned)

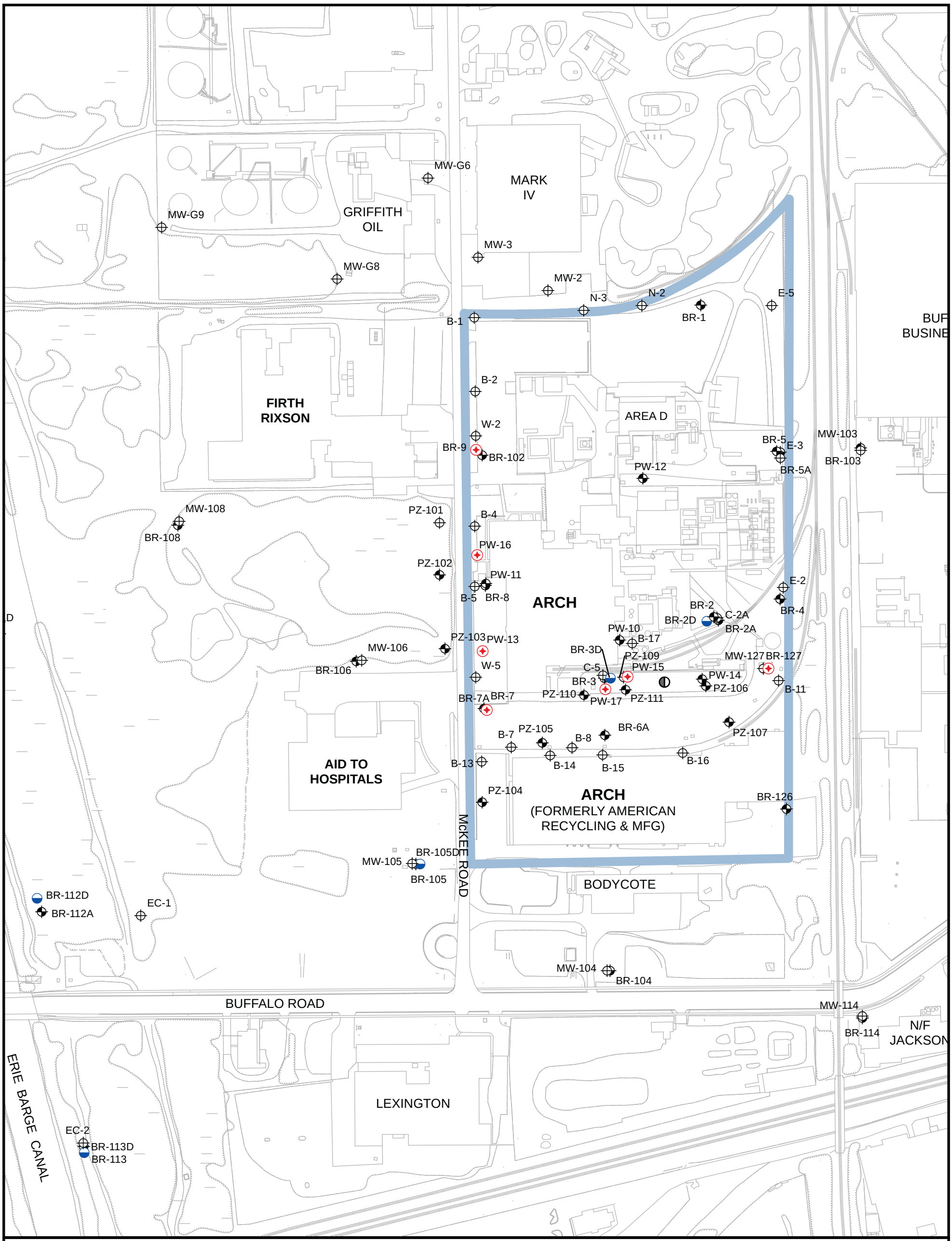
LETTINGTON DRIVE

BR-124D

Figure 1
Spring 2019
Off-Site Groundwater Monitoring Well Locations

Arch Chemicals
Rochester, NY

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Spring 2018\Arch_OffsiteWells_Fig1.mxd PDF: P:\Projects\Arch\Arch-Lonza-2018 GW Monitoring-3616176065\4.0_Deliverables\Spring_2018\Figures\Figure_1_Off_Site_Loc.pdf 6/26/2018 10:11 AM bradford.schoonard



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
- Carbon Treatment Sample Location
- Property Owned by Lonza

0 100 200 Feet

N

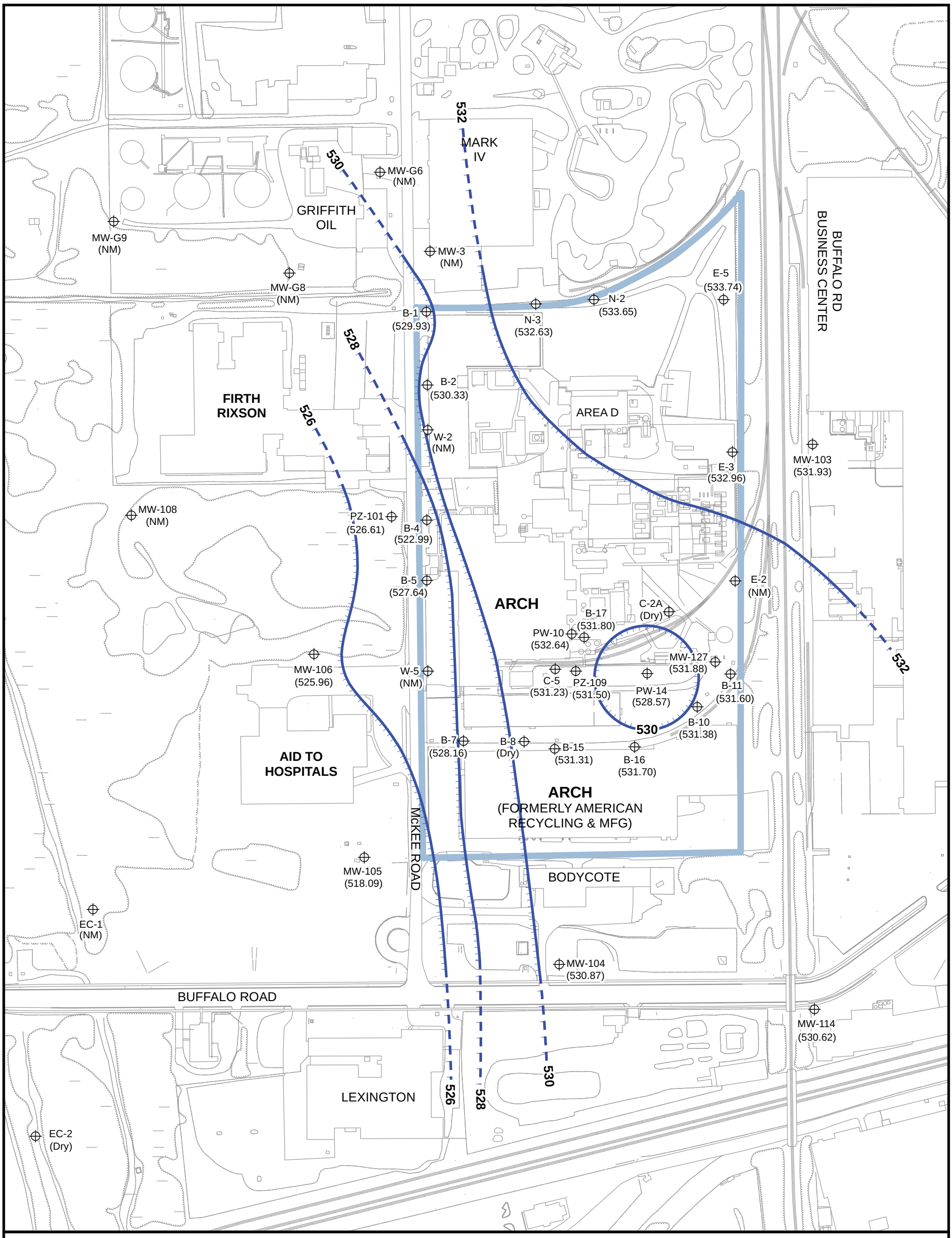
AMEC E & E PC

Prepared/Date: BRP 07/23/19	Checked/Date: JAR 07/23/19

Figure 2
Spring 2019 Onsite Monitoring Well Locations

Arch Chemicals Rochester, NY

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Spring 2019\OnsiteWells_Fig2.mxd PDF: P:\Projects\Arch\Arch-Lonza-2019 GW Monitoring-3616196076\4.0_Deliverables\4.1_Reports\Spring_2019\Figures\Figure_2_On-Site_Monitoring_Well_Locations.pdf 07/23/2019 7:55 AM brian.peters



NOTES:
1. Water Levels Measured on May 7, 2019
2. Dashed Contours Reflect Uncertainty
3. NM = Not Measured

0 100 200 Feet

N

amec
AMEC E & E PC

Legend

PZ-101 (526.61) — Piezometric Elevation (Feet MSL) at Well or Piezometer

Property Owned by Lonza

Interpreted Groundwater Flow Direction

528 — Overburden Piezometric Elevation Contour (Feet MSL)

Prepared/Date: BRP 07/22/19	Checked/Date: BCG 07/22/19

Figure 3
Spring 2019
Overburden Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

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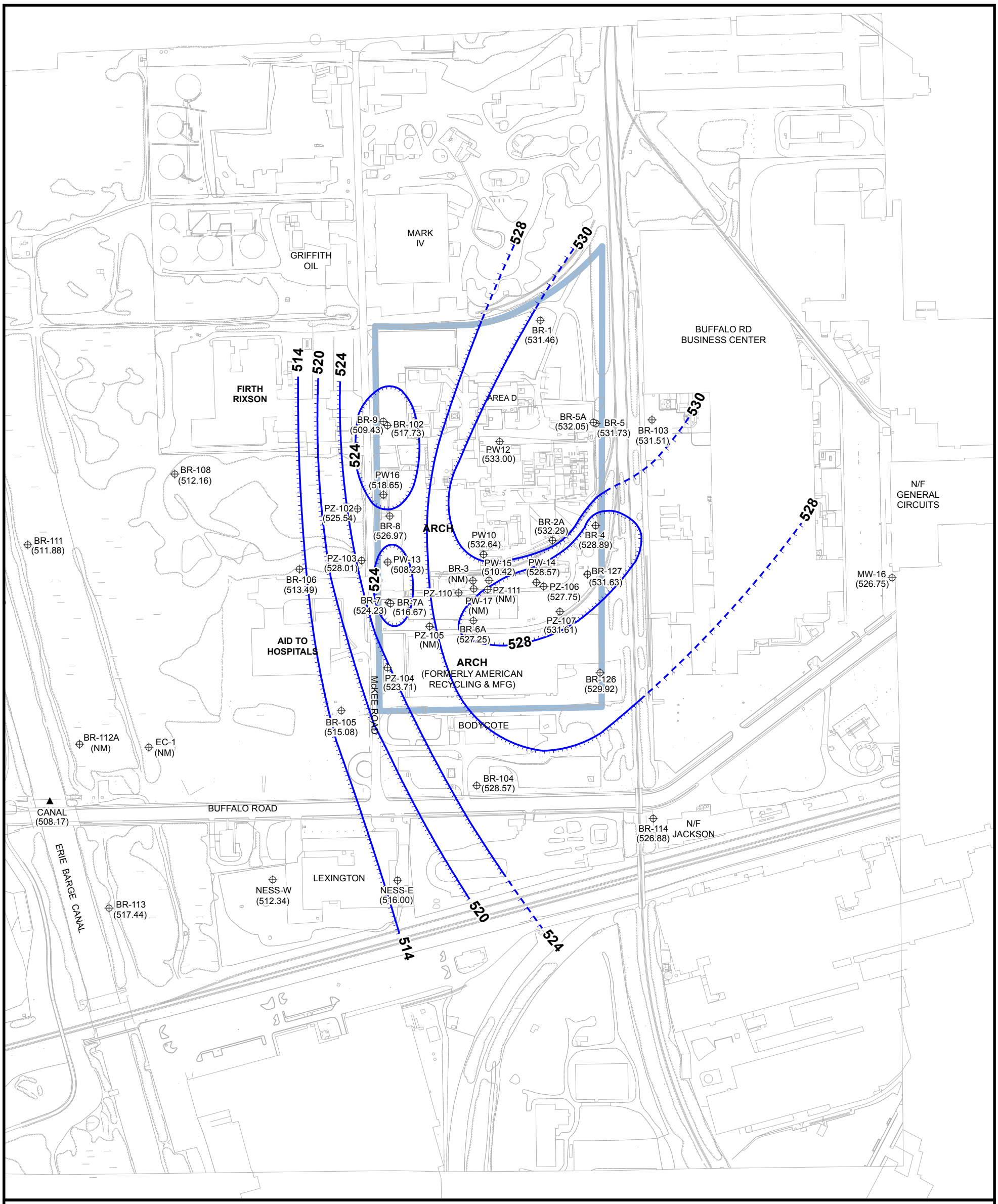


Legend

- BR-114 (526.88) — 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

0 150 300 Feet

N

NOTES:

1. Water Levels Measured on May 7, 2019
2. Dashed Contours Reflect Uncertainty

Figure 4
Spring 2019
Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

Prepared/Date: BRP 08/30/19	Checked/Date: CRS 08/30/19

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Spring 2019\BedrockGW_Fig4_Spring2019.mxd PDF: P:\Projects\Arch\Arch-Lonza-2019 GW Monitoring-3616196076\4.0_Deliverables\4.1_Reports\Spring_2019\Figures\Figure_4_Bdrk_GW_Contours.pdf 08/30/2019 10:30 AM brian.peters

Legend

- Bedrock Well ('D' Designates Deep Well)
- 500 — Deep Bedrock Elevation Contour (MSL)
- Interpreted Groundwater Flow Direction
- Property Owned by Lonza
- BR-116D (510.30) — Piezometric Elevation (Feet MSL) at Deep Bedrock Well

NOTES:

1. Water Levels Measured on May 7, 2019
2. Dashed Contours Reflect Uncertainty
3. Wells BR-105D and BR-3D not used in contouring

0 250 500 Feet

N

amec
AMEC E & E PC

Prepared/Date: BRP 08/13/19
Checked/Date: JAR 08/13/19

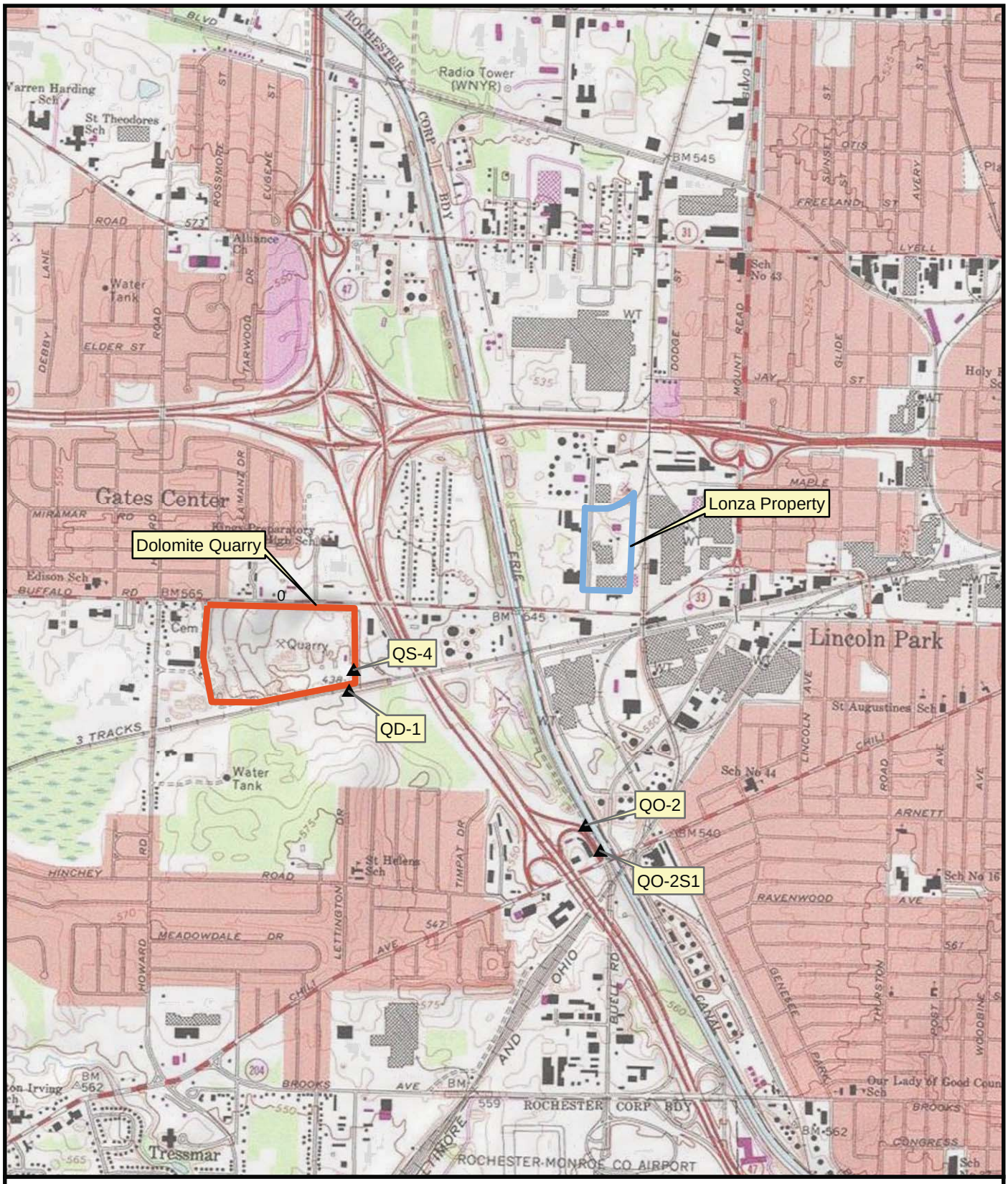
BR-111D (511.54)
BR-3D (487.24)
BR-105D (510.32)
BR-112D (511.79)
BR-113D (511.82)
BR-122D (507.77)
BR-117D (499.96)
BR-118D (501.83)
BR-123D (508.79)
BR-116D (510.30)
BR-124D (505.30)

502 504 506 508 510

Figure 5
Spring 2019
Deep Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Spring 2019\Deep_BedrockGW_Fig5_Spring2019.mxd PDF: P:\Projects\Arch\Arch-Lonza-2019 GW Monitoring-3616196076\4.0_Deliverables\4.1_Reports\Spring_2019\Figures\Figure_5_Deep_Bdrk_GW_Contours.pdf 08/13/2019 1:46 PM brian.peters



0 1,000 2,000 Feet

N

Legend

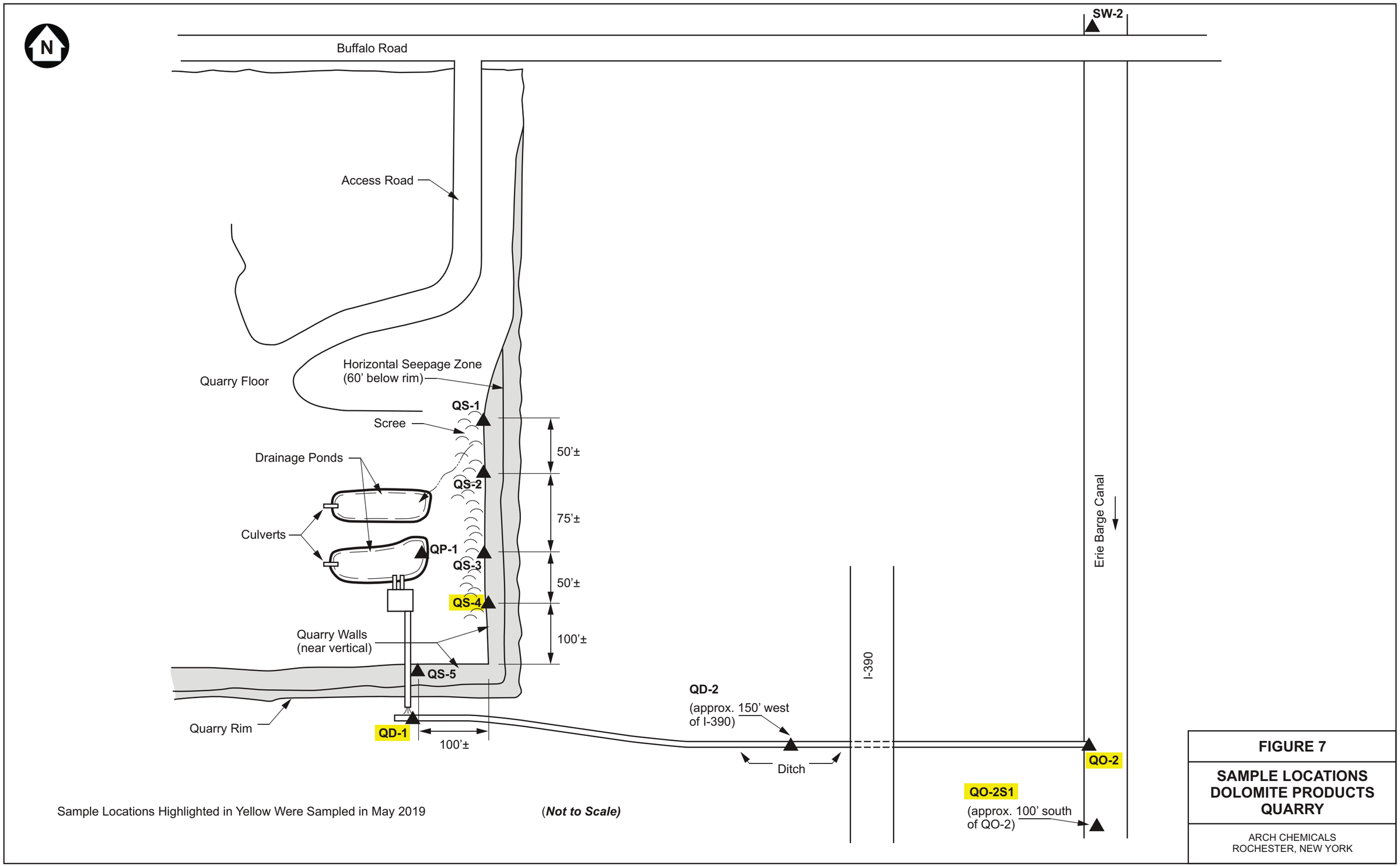
- Lonza Property
- Dolomite Quarry Boundary
- ▲ Surface Water Sample Location

AMEC E & E PC

Prepared/Date: JAR 07/18/19	Checked/Date:

Figure 6
Spring 2019
Sample Locations
Erie Barge Canal

Arch Chemicals
Rochester, NY



Sample Locations Highlighted in Yellow Were Sampled in May 2019

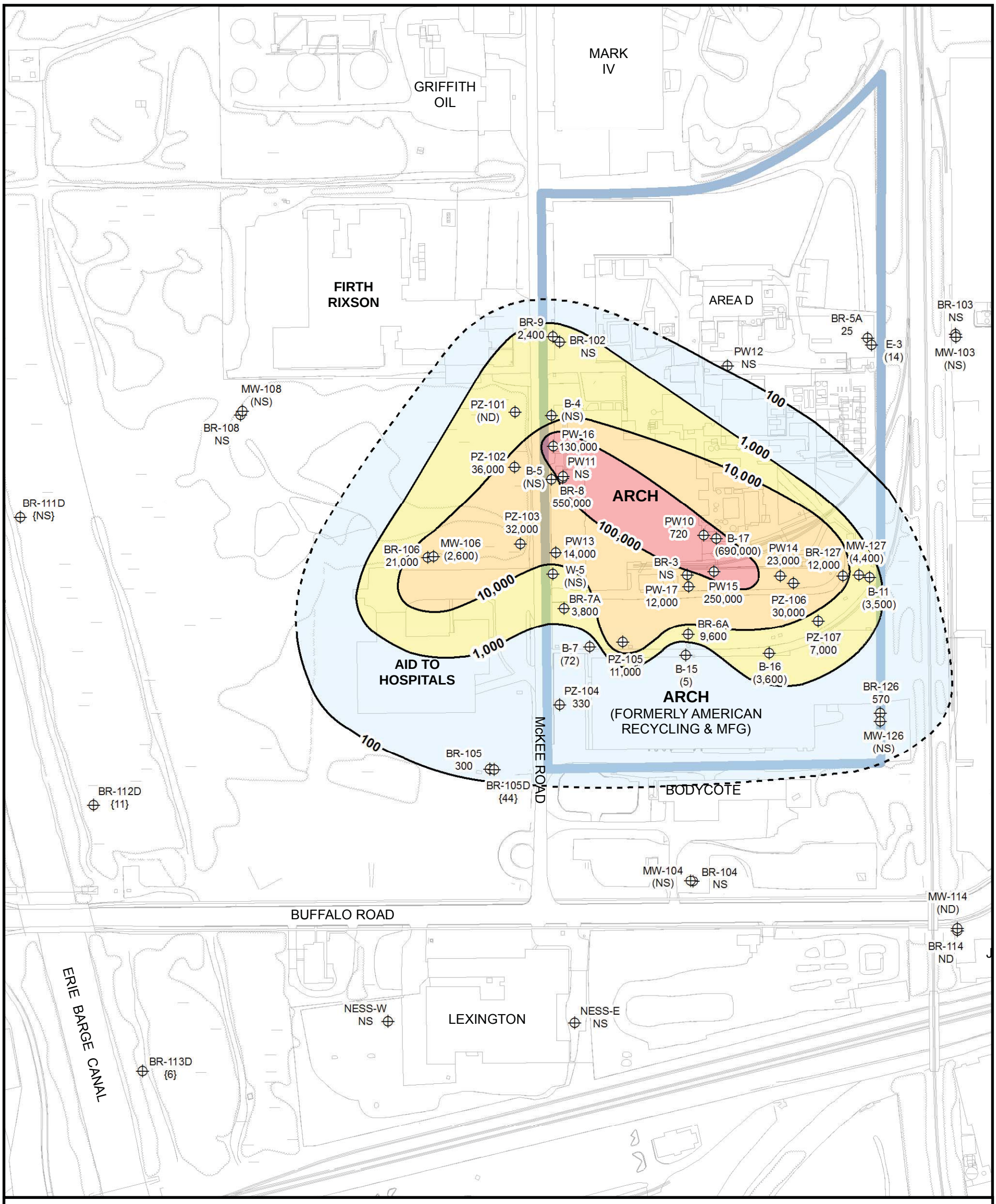
(***Not to Scale***)

FIGURE 7

SAMPLE LOCATIONS
DOLOMITE PRODUCTS QUARRY

ARCH CHEMICALS
ROCHESTER, NEW YORK

W2004030a.cdr



Legend

- Property Owned by Lonza
- 100 — Chloropyridine Concentration Contour
- MW-106 (28000) — 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

AMEC E & E PC

NOTES:

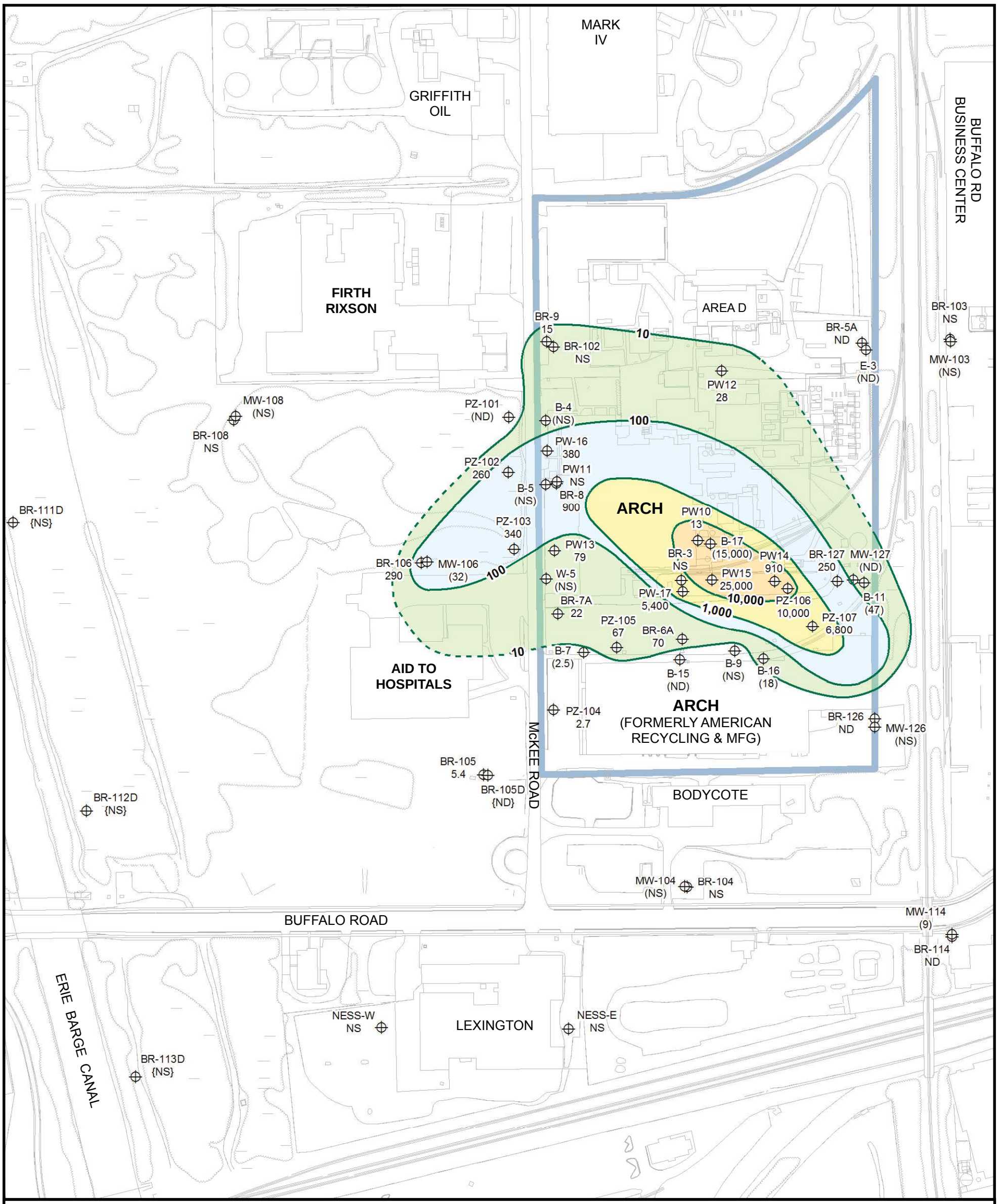
1. Samples Collected May 8-15, 2019
2. Selected chloropyridines consist of 2,6-dichloropyridine, 2-chloropyridine, 3-chloropyridine, 4-chloropyridine, and P-fluoroaniline.
3. Concentration contours represented for Bedrock Wells and selected Overburden and Deep Bedrock Wells.
4. Dashed concentration contours represent inferences from historical analytical results.
5. Concentrations are in µg/L.

Prepared/Date: BRP 07/23/19	Checked/Date: BCG 07/23/19

Figure 8
Spring 2019
Selected Chloropyridine Concentration Contours

Arch Chemicals
Rochester, NY

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Spring 2019\ChloroPyridine_Contours_Fig8_Spring2019.mxd PDF: P:\Projects\Arch\Arch-Lonza-2019 GW Monitoring-3616196076\4.0_Deliverables\4.1_Reports\Spring_2019\Figures\Figure_8_ChloroPyridines.pdf 07/23/2019 7:57 AM brian.peters



Legend

- Property Owned by Lonza
- 100 — VOC Concentration Contour
- BR-127 550 — 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

AMEC E & E PC

NOTES:

1. Samples Collected May 8-15, 2019
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 08/13/19	Checked/Date: JAR 08/13/19

Figure 9
Spring 2019
Selected Volatile Organic Compound Concentration Contours

Arch Chemicals
Rochester, NY

Tables

TABLE 1
SPRING 2019 GROUNDWATER SAMPLING AND ANALYTICAL PROGRAM

ARCH CHEMICALS, INC
ROCHESTER, NEW YORK

			ANALYSIS	PYRIDINES	VOCs	PFAS	1,4-DIOXANE
SITE / AREA	**WELL / POINT**	**DATE**	**QC TYPE**				
AID TO HOSPITALS	BR-106	5/10/2019	Sample	X	X		
	MW-106	5/10/2019	Sample	X	X		
	PZ-101	5/9/2019	Sample	X	X		
	PZ-102	5/13/2019	Sample	X	X		
	PZ-103	5/13/2019	Sample	X	X		
ARCH ROCHESTER	B-11	5/15/2019	Sample	X	X		
	B-15	5/8/2019	Sample	X	X	X	X
	B-16	5/10/2019	Sample	X	X		
	B-17	5/9/2019	Sample	X	X		
	B-7	5/10/2019	Sample	X	X		
	BR-1	5/8/2019	Sample			X	X
	BR-126	5/13/2019	Sample	X	X		
	BR-127	5/10/2019	Duplicate	X	X		
	BR-127	5/10/2019	Sample	X	X		
	BR-5A	5/9/2019	Duplicate	X	X		
	BR-5A	5/9/2019	Sample	X	X		
	BR-6A	5/8/2019	Sample	X	X		
	BR-7A	5/15/2019	Sample	X	X		
	BR-8	5/8/2019	Sample	X	X	X	X
	BR-9	5/8/2019	Sample	X	X		
	CARBON TREAT	5/14/2019	Sample	X	X		
	E-3	5/9/2019	Sample	X	X		
	MW-127	5/9/2019	Sample	X	X		
	PW10	5/9/2019	Sample	X	X		
	PW12	5/9/2019	Sample	X	X		
	PW13	5/14/2019	Sample	X	X		
	PW14	5/10/2019	Sample	X	X		
	PW15	5/10/2019	Sample	X	X		
	PW16	5/13/2019	Sample	X	X		
	PW17	5/10/2019	Sample	X	X		
	PZ-104	5/8/2019	Duplicate			X	X
	PZ-104	5/8/2019	Sample	X	X	X	X
	PZ-105	5/15/2019	Sample	X	X		
	PZ-106	5/9/2019	Sample	X	X		
	PZ-107	5/8/2019	Sample	X	X	X	X
ERIE BARGE CANAL	BR-112D	5/14/2019	Sample	X			
(Samples in canal or property along canal)	BR-113D	5/14/2019	Sample	X			
	QO-2	5/15/2019	Sample	X			
	QO-2S1	5/15/2019	Sample	X			
DOLOMITE PRODUCTS, INC.	BR-117D	5/14/2019	Sample	X			
(Samples at or near Dolomite Quarry)	BR-118D	5/14/2019	Sample	X			
	QD-1	5/15/2019	Sample	X			
	QS-4	5/15/2019	Duplicate	X			
	QS-4	5/15/2019	Sample	X			
N/F Jackson Welding and Gas Products	BR-114	5/13/2019	Sample	X	X		
	MW-114	5/13/2019	Sample	X	X		
RG & E RIGHT OF WAY	BR-105	5/13/2019	Sample	X	X		
	BR-105D	5/13/2019	Sample	X	X		
OU-1	BR-122D	5/14/2019	Sample	X			
	BR-123D	5/14/2019	Sample	X			

N/F = now or formerly

TABLE 2
SPRING 2019 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
SAMPLE DATE:	5/15/2019	5/8/2019	5/10/2019	5/9/2019	5/10/2019	5/13/2019	5/13/2019	5/10/2019	5/14/2019	5/14/2019
QC TYPE:	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)										
2,6-Dichloropyridine	376	9.51 U	471 U	50000 U	30.9	51.8	14.1	1800 J	9.52 U	9.48 U
2-Chloropyridine	3130	5.09 J	3570	608000	41.3	244	16.6	19500	11.4	6.29 J
3-Chloropyridine	200 U	9.51 U	471 U	50000 U	9.46 U	19 U	13.6	2000 U	9.52 U	9.48 U
4-Chloropyridine	200 U	9.51 U	471 U	50000 U	9.46 U	19 U	9.27 U	2000 U	9.52 U	9.48 U
p-Fluoroaniline	200 U	9.51 U	471 U	50000 U	9.46 U	19 U	9.27 U	2000 U	9.52 U	9.48 U
Pyridine	200 UJ	9.51 UJ	471 UJ	80600 J	9.46 UJ	19 UJ	9.27 UJ	2000 UJ	9.52 UJ	9.48 UJ

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

TABLE 2
SPRING 2019 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-114	BR-117D	BR-118D	BR-122D	BR-123D	BR-126	BR-127	BR-127	BR-5A	BR-5A
SAMPLE DATE:	5/13/2019	5/14/2019	5/14/2019	5/14/2019	5/14/2019	5/13/2019	5/10/2019	5/10/2019	5/9/2019	5/9/2019
QC TYPE:	FS	FS	FS	FS	FS	FS	FD	FS	FD	FS
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)										
2,6-Dichloropyridine	9.53 U	9.7 U	9.6 U	9.5 U	9.5 U	138	2000 U	2000 U	17.5	18.3
2-Chloropyridine	9.53 U	9.7 U	7.01 J	9.5 U	51	427	11400	11600	5.89 J	6.25 J
3-Chloropyridine	9.53 U	9.7 U	9.6 U	9.5 U	9.5 U	80 U	2000 U	2000 U	9.51 U	9.51 U
4-Chloropyridine	9.53 U	9.7 U	9.6 U	9.5 U	9.5 U	80 U	2000 U	2000 U	9.51 U	9.51 U
p-Fluoroaniline	9.53 U	9.7 U	9.6 U	9.5 U	9.5 U	80 U	2000 U	2000 U	9.51 U	9.51 U
Pyridine	9.53 UJ	9.7 UJ	9.6 UJ	9.5 UJ	9.5 UJ	80 UJ	2000 UJ	2000 UJ	9.51 UJ	9.51 UJ

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

TABLE 2
SPRING 2019 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-6A	BR-7A	BR-8	BR-9	CARBON TREAT	E-3	MW-106	MW-114	MW-127	PW10
SAMPLE DATE:	5/8/2019	5/15/2019	5/8/2019	5/8/2019	5/14/2019	5/9/2019	5/10/2019	5/13/2019	5/9/2019	5/9/2019
QC TYPE:	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)										
2,6-Dichloropyridine	1540 J	254	40000 U	200 U	9.61 U	9.43 U	342	9.49 U	400 U	400 U
2-Chloropyridine	8020	3510	491000	2400	9.61 U	13.8	2280	9.49 U	4410	722
3-Chloropyridine	2000 U	250 U	21700 J	200 U	9.61 U	9.43 U	200 U	9.49 U	400 U	400 U
4-Chloropyridine	2000 U	250 U	40000 U	200 U	9.61 U	9.43 U	200 U	9.49 U	400 U	400 U
p-Fluoroaniline	2000 U	250 U	40000 U	200 U	9.61 U	9.43 U	200 U	9.49 U	400 U	400 U
Pyridine	2000 UJ	250 UJ	35400 J	200 UJ	115 J	9.43 UJ	200 UJ	9.49 UJ	400 UJ	400 UJ

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

TABLE 2
SPRING 2019 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW12	PW13	PW14	PW15	PW16	PW17	PZ-101	PZ-102	PZ-103	PZ-104
SAMPLE DATE:	5/9/2019	5/14/2019	5/10/2019	5/10/2019	5/13/2019	5/10/2019	5/9/2019	5/13/2019	5/13/2019	5/8/2019
QC TYPE:	FS	FS	FS	FS	FS	FS	FS	FS	FS	FS
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)										
2,6-Dichloropyridine	9.62 U	2000 U	2000 U	20000 U	8000 U	4000 U	10.4 U	4000 U	2140	190 U
2-Chloropyridine	9.62 U	14000	23400	237000	132000	12400	10.4 U	35600	28400	325
3-Chloropyridine	9.62 U	2000 U	2000 U	20000 U	8000 U	4000 U	10.4 U	4000 U	1360 J	190 U
4-Chloropyridine	9.62 U	2000 U	2000 U	20000 U	8000 U	4000 U	10.4 U	4000 U	2000 U	190 U
p-Fluoroaniline	9.62 U	2000 U	2000 U	20000 U	8000 U	4000 U	10.4 U	4000 U	2000 U	190 U
Pyridine	9.62 UJ	2000 UJ	2000 UJ	13100 J	8000 UJ	4000 UJ	10.4 UJ	4000 UJ	2000 UJ	190 UJ

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

TABLE 2
SPRING 2019 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-105	PZ-106	PZ-107
SAMPLE DATE:	5/15/2019	5/9/2019	5/8/2019
QC TYPE:	FS	FS	FS
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)			
2,6-Dichloropyridine	1620	2000 U	950 U
2-Chloropyridine	9160	28400	6960
3-Chloropyridine	800 U	2000 U	950 U
4-Chloropyridine	800 U	2000 U	950 U
p-Fluoroaniline	800 U	2000 U	950 U
Pyridine	800 UJ	1270 J	950 UJ

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

TABLE 3
SPRING 2019 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
SAMPLE DATE:	5/15/2019	5/8/2019	5/10/2019	5/9/2019	5/10/2019	5/13/2019	5/13/2019	5/10/2019	5/13/2019
QC TYPE:	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	200 U	2 U	2 U	2 U	5 UJ	2 U
1,1,2,2-Tetrachloroethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,1,2-Trichloroethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,1-Dichloroethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,1-Dichloroethene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,2,3-Trichlorobenzene	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
1,2,4-Trichlorobenzene	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
1,2-Dibromo-3-chloropropane	10 U	10 U	10 U	1000 U	10 U	10 U	10 U	25 UJ	10 U
1,2-Dibromoethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,2-Dichlorobenzene	2 U	2 U	2 U	200 U	2 U	2.46	2 U	112 J	2 U
1,2-Dichloroethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,2-Dichloropropane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
1,3-Dichlorobenzene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	10.1 J	2 U
1,4-Dichlorobenzene	2 U	2 U	1.05 J	200 U	2 U	2 U	2 U	11 J	2 U
1,4-Dioxane	20 U	20 U	20 U	2000 U	20 U	20 U	20 U	50 UJ	20 U
2-Butanone	11.5	10 U	10 U	1000 U	10 U	10 U	10 U	25 UJ	10 U
2-Hexanone	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
4-Methyl-2-pentanone	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
Acetic acid, methyl ester	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Acetone	95.5	10 U	10 U	1000 U	10 U	10 U	10 U	25 UJ	10 U
Benzene	0.731 J	1 U	1.19	100 U	1 U	0.822 J	4.84	12.8 J	0.586 J
Bromochloromethane	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
Bromodichloromethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Bromoform	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
Bromomethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Carbon disulfide	2 U	2 U	2 U	114 J	2 U	2 U	6.8	5 UJ	2 U
Carbon tetrachloride	5.03	2 U	2 U	9890	2 U	2 U	2 U	5 UJ	2 U
Chlorobenzene	3.05	2 U	1.76 J	390	1.01 J	5.38	2 U	285 J	2 U

TABLE 3
SPRING 2019 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
SAMPLE DATE:	5/15/2019	5/8/2019	5/10/2019	5/9/2019	5/10/2019	5/13/2019	5/13/2019	5/10/2019	5/13/2019
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)									
Chloroethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Chloroform	39	2 U	15.2	2730	1.52 J	2 U	2 U	5 UJ	2 U
Chloromethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Cis-1,2-Dichloroethene	2.33	2 U	2.78	200 U	2 U	5.74	4.92	5 UJ	2 U
Cis-1,3-Dichloropropene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Cyclohexane	10 U	10 U	10 U	1000 U	10 U	10 U	8.17 J	25 UJ	10 U
Dibromochloromethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Dichlorodifluoromethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Ethylbenzene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Isopropylbenzene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Methyl cyclohexane	2 U	2 U	2 U	200 U	2 U	2 U	4.53	5 UJ	2 U
Methyl Tertbutyl Ether	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Methylene chloride	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
Styrene	5 U	5 U	5 U	500 U	5 U	5 U	5 U	12.5 UJ	5 U
Tetrachloroethene	2 U	2 U	1.17 J	2430	2 U	2 U	2 U	5 UJ	2 U
Toluene	2 U	2 U	2 U	180 J	2 U	2 U	2 U	5 UJ	2 U
trans-1,2-Dichloroethene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
trans-1,3-Dichloropropene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Trichloroethene	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Trichlorofluoromethane	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Vinyl chloride	2 U	2 U	3.15	200 U	2 U	6.17	2 U	5 UJ	2 U
Xylene, o	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U
Xylenes (m&p)	2 U	2 U	2 U	200 U	2 U	2 U	2 U	5 UJ	2 U

Notes:

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

J = Estimated value

µg/L = micrograms per Liter

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-126	BR-127	BR-127	BR-5A	BR-5A	BR-6A	BR-7A	BR-8	BR-9
SAMPLE DATE:	5/13/2019	5/10/2019	5/10/2019	5/9/2019	5/9/2019	5/8/2019	5/15/2019	5/8/2019	5/8/2019
QC TYPE:	Sample	Duplicate	Sample	Duplicate	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)									
1,1,1-Trichloroethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	1.54 J
1,1,2,2-Tetrachloroethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	51
1,1,2-Trichloroethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
1,1-Dichloroethane	2 U	10 U	10 U	2 U	2 U	4 U	1.93 J	20 UJ	6.47
1,1-Dichloroethene	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	1.13 J
1,2,3-Trichlorobenzene	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
1,2,4-Trichlorobenzene	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
1,2-Dibromo-3-chloropropane	10 U	50 U	50 U	10 U	10 U	20 U	10 U	100 UJ	10 U
1,2-Dibromoethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
1,2-Dichlorobenzene	2 U	10 U	10 U	2 U	2 U	4 U	10.3	223 J	8
1,2-Dichloroethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
1,2-Dichloropropane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
1,3-Dichlorobenzene	2 U	10 U	10 U	2 U	2 U	4 U	2.83	118 J	2 J
1,4-Dichlorobenzene	2 U	5.81 J	6.19 J	2 U	2 U	4 U	2.58	44.3 J	1.58 J
1,4-Dioxane	20 U	100 U	100 U	20 U	20 U	40 U	20 U	200 UJ	20 U
2-Butanone	10 U	50 U	50 U	10 U	10 U	20 U	10 U	100 UJ	10 U
2-Hexanone	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
4-Methyl-2-pentanone	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
Acetic acid, methyl ester	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Acetone	10 U	50 U	50 U	10 U	10 U	20 U	10 U	100 UJ	10 U
Benzene	1.34	3.66 J	3.78 J	1 U	1 U	2.03	3.21	24.3 J	27.7
Bromochloromethane	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
Bromodichloromethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Bromoform	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
Bromomethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Carbon disulfide	2 U	23.2	30.1	2 U	2 U	4 U	2 U	18.7 J	2 U
Carbon tetrachloride	2 U	11.9	14.5	2 U	2 U	4 U	2 U	20 UJ	2 U
Chlorobenzene	2 U	5.08 J	5.93 J	2 U	2 U	11.7	18.5	895 J	13.7

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-126	BR-127	BR-127	BR-5A	BR-5A	BR-6A	BR-7A	BR-8	BR-9
SAMPLE DATE:	5/13/2019	5/10/2019	5/10/2019	5/9/2019	5/9/2019	5/8/2019	5/15/2019	5/8/2019	5/8/2019
QC TYPE:	Sample	Duplicate	Sample	Duplicate	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)									
Chloroethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Chloroform	2 U	182	199	2 U	2 U	13.4	3.99	20 UJ	2 U
Chloromethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Cis-1,2-Dichloroethene	2 U	10 U	10 U	2 U	2 U	11.9	2 U	20 UJ	97.7
Cis-1,3-Dichloropropene	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Cyclohexane	10 U	50 U	50 U	10 U	10 U	20 U	10 U	100 UJ	18
Dibromochloromethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Dichlorodifluoromethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Ethylbenzene	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	1.22 J
Isopropylbenzene	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2.15
Methyl cyclohexane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	5.32
Methyl Tertbutyl Ether	2 U	10 U	10 U	2 U	2 U	4 U	1.45 J	20 UJ	2 U
Methylene chloride	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
Styrene	5 U	25 U	25 U	5 U	5 U	10 U	5 U	50 UJ	5 U
Tetrachloroethene	2 U	10	15.5	2 U	2 U	4 U	2 U	20 UJ	2 U
Toluene	2 U	10 U	10 U	2 U	2 U	44.2	2 U	80.1 J	2 U
trans-1,2-Dichloroethene	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
trans-1,3-Dichloropropene	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Trichloroethene	2 U	9.72 J	11	2 U	2 U	44.9	2 U	20 UJ	1.41 J
Trichlorofluoromethane	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Vinyl chloride	2 U	10 U	10 U	2 U	2 U	17.2	2 U	20 UJ	90
Xylene, o	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U
Xylenes (m&p)	2 U	10 U	10 U	2 U	2 U	4 U	2 U	20 UJ	2 U

Notes:

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

J = Estimated value

µg/L = micrograms per Liter

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	CARBON TREAT	E-3	MW-106	MW-114	MW-127	PW10	PW12	PW13	PW14
SAMPLE DATE:	5/14/2019	5/9/2019	5/10/2019	5/13/2019	5/9/2019	5/9/2019	5/9/2019	5/14/2019	5/10/2019
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)									
1,1,1-Trichloroethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,1,2,2-Tetrachloroethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,1,2-Trichloroethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,1-Dichloroethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	1.65 J	20 U
1,1-Dichloroethene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,2,3-Trichlorobenzene	10 U	5 U	5 UJ	5 U	5 U	13.7	5.46 J	5 UJ	50 U
1,2,4-Trichlorobenzene	10 U	5 U	5 UJ	5 U	5 U	34.4	47.8	5 UJ	50 U
1,2-Dibromo-3-chloropropane	20 U	10 U	10 UJ	10 U	10 U	10 U	20 U	10 UJ	100 U
1,2-Dibromoethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,2-Dichlorobenzene	4 U	2 U	6.09 J	2 U	2 U	2 U	2.65 J	44.9 J	20 U
1,2-Dichloroethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,2-Dichloropropane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
1,3-Dichlorobenzene	4 U	2 U	2 UJ	2 U	2 U	2 U	8.57	9.89 J	20 U
1,4-Dichlorobenzene	4 U	2 U	2 UJ	2 U	2 U	2 U	5.22	9.07 J	20 U
1,4-Dioxane	40 U	20 U	20 UJ	20 U	20 U	20 U	40 U	20 UJ	200 U
2-Butanone	20 U	10 U	10 UJ	10 U	10 U	10 U	20 U	10 UJ	100 U
2-Hexanone	10 U	5 U	5 UJ	5 U	5 U	5 U	10 U	5 UJ	50 U
4-Methyl-2-pentanone	10 U	5 U	5 UJ	5 U	5 U	5 U	10 U	5 UJ	50 U
Acetic acid, methyl ester	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Acetone	20 U	10 U	10 UJ	10 U	10 U	10 U	20 U	10 UJ	100 U
Benzene	2 U	1 U	1.72 J	1 U	1 U	1 U	2 U	4.94 J	7.81 J
Bromochloromethane	10 U	5 U	5 UJ	5 U	5 U	5 U	10 U	5 UJ	50 U
Bromodichloromethane	4 U	2 U	2 UJ	2 U	2 U	2 U	3.83 J	2 UJ	20 U
Bromoform	10 U	5 U	5 UJ	5 U	5 U	5 U	10 U	5 UJ	50 U
Bromomethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Carbon disulfide	4 U	2 U	2 UJ	2 U	2 U	1.05 J	4 U	2.43 J	14.5 J
Carbon tetrachloride	4 U	2 U	2 UJ	2 U	2 U	2.48	4 U	2 UJ	10.5 J
Chlorobenzene	4 U	2 U	30.9 J	2 U	2 U	2 U	7.71	77.7 J	20 U

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	CARBON TREAT	E-3	MW-106	MW-114	MW-127	PW10	PW12	PW13	PW14
SAMPLE DATE:	5/14/2019	5/9/2019	5/10/2019	5/13/2019	5/9/2019	5/9/2019	5/9/2019	5/14/2019	5/10/2019
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)									
Chloroethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Chloroform	4 U	2 U	2 UJ	6.78	2 U	2.03	20.7	1.06 J	832
Chloromethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Cis-1,2-Dichloroethene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Cis-1,3-Dichloropropene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Cyclohexane	20 U	10 U	10 UJ	10 U	10 U	10 U	20 U	10 UJ	100 U
Dibromochloromethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Dichlorodifluoromethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Ethylbenzene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Isopropylbenzene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Methyl cyclohexane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Methyl Tertbutyl Ether	2.91 J	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Methylene chloride	252	5 U	5 UJ	5 U	5 U	5 U	10 U	5 UJ	50 U
Styrene	10 U	5 U	5 UJ	5 U	5 U	5 U	10 U	5 UJ	50 U
Tetrachloroethene	4 U	2 U	1.52 J	2 U	2 U	6.48	4 U	2 UJ	14.5 J
Toluene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	1.93 J	12.7 J
trans-1,2-Dichloroethene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
trans-1,3-Dichloropropene	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Trichloroethene	4 U	2 U	2 UJ	2.18	2 U	1.96 J	4 U	2 UJ	53.5
Trichlorofluoromethane	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Vinyl chloride	63.5	2 U	2 UJ	2 U	2 U	2 U	4 U	1.87 J	20 U
Xylene, o	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U
Xylenes (m&p)	4 U	2 U	2 UJ	2 U	2 U	2 U	4 U	2 UJ	20 U

Notes:

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

J = Estimated value

µg/L = micrograms per Liter

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW15	PW16	PW17	PZ-101	PZ-102	PZ-103	PZ-104	PZ-105	PZ-106
SAMPLE DATE:	5/10/2019	5/13/2019	5/10/2019	5/9/2019	5/13/2019	5/13/2019	5/8/2019	5/15/2019	5/9/2019
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)									
1,1,1-Trichloroethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,1,2,2-Tetrachloroethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,1,2-Trichloroethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,1-Dichloroethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,1-Dichloroethene	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,2,3-Trichlorobenzene	500 U	25 U	250 U	5 U	10 U	25 U	5 U	5 UJ	250 U
1,2,4-Trichlorobenzene	500 U	25 U	250 U	5 U	10 U	25 U	5 U	5 UJ	250 U
1,2-Dibromo-3-chloropropane	1000 U	50 U	500 U	10 U	20 U	50 U	10 U	10 UJ	500 U
1,2-Dibromoethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,2-Dichlorobenzene	200 U	409	100 U	2 U	111	212	2 U	3.53 J	100 U
1,2-Dichloroethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,2-Dichloropropane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
1,3-Dichlorobenzene	200 U	86.7	100 U	2 U	23	64.5	2 U	2 UJ	100 U
1,4-Dichlorobenzene	127 J	108	100 U	2 U	12.3	54.8	2 U	2 UJ	100 U
1,4-Dioxane	2000 U	100 U	1000 U	20 U	40 U	100 U	20 U	20 UJ	1000 U
2-Butanone	1000 U	50 U	500 U	10 U	20 U	50 U	10 U	10 UJ	500 U
2-Hexanone	500 U	25 U	250 U	5 U	10 U	25 U	5 U	5 UJ	250 U
4-Methyl-2-pentanone	500 U	25 U	250 U	5 U	10 U	25 U	5 U	5 UJ	250 U
Acetic acid, methyl ester	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Acetone	1000 U	50 U	500 U	10 U	20 U	50 U	10 U	10 UJ	500 U
Benzene	59.9 J	9.81	50 U	1 U	15.1	8.08	1 U	6.31 J	50 U
Bromochloromethane	500 U	25 U	250 U	5 U	10 U	25 U	5 U	5 UJ	250 U
Bromodichloromethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Bromoform	770	25 U	250 U	5 U	10 U	25 U	5 U	5 UJ	250 U
Bromomethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Carbon disulfide	2440	9.33 J	1260	2 U	2.72 J	10 U	2 U	2 UJ	160
Carbon tetrachloride	7130 J	10 U	427	2 U	4 U	10 U	2 U	2 UJ	1640
Chlorobenzene	156 J	377	100 U	2 U	257	335	2.71	66.7 J	100 U

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW15	PW16	PW17	PZ-101	PZ-102	PZ-103	PZ-104	PZ-105	PZ-106
SAMPLE DATE:	5/10/2019	5/13/2019	5/10/2019	5/9/2019	5/13/2019	5/13/2019	5/8/2019	5/15/2019	5/9/2019
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs By SW-846 Method 8260C (µg/L)									
Chloroethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Chloroform	15400 J	10 U	3380	2 U	4 U	10 U	2 U	2 UJ	7890
Chloromethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Cis-1,2-Dichloroethene	200 U	10 U	107	2 U	4 U	10 U	2 U	2 UJ	100 U
Cis-1,3-Dichloropropene	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Cyclohexane	1000 U	50 U	500 U	10 U	20 U	50 U	10 U	10 UJ	500 U
Dibromochloromethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Dichlorodifluoromethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Ethylbenzene	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Isopropylbenzene	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Methyl cyclohexane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Methyl Tertbutyl Ether	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Methylene chloride	1770	25 U	940	5 U	10 U	25 U	5 U	5 UJ	608
Styrene	500 U	25 U	250 U	5 U	10 U	25 U	5 U	5 UJ	250 U
Tetrachloroethene	720	10 U	554	2 U	4 U	10 U	2 U	2 UJ	345
Toluene	138 J	87	100 U	2 U	2.88 J	10 U	2 U	2 UJ	60 J
trans-1,2-Dichloroethene	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
trans-1,3-Dichloropropene	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Trichloroethene	200 U	10 U	51.2 J	2 U	4 U	10 U	2 U	2 UJ	100 U
Trichlorofluoromethane	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Vinyl chloride	200 U	10 U	231	2 U	4 U	10 U	2 U	2 UJ	100 U
Xylene, o	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U
Xylenes (m&p)	200 U	10 U	100 U	2 U	4 U	10 U	2 U	2 UJ	100 U

Notes:

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

J = Estimated value

µg/L = micrograms per Liter

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-107
SAMPLE DATE:	5/8/2019
QC TYPE:	Sample
VOCs By SW-846 Method 8260C (µg/L)	
1,1,1-Trichloroethane	100 U
1,1,2,2-Tetrachloroethane	100 U
1,1,2-Trichloro-1,2,2-Trifluoroethane	100 U
1,1,2-Trichloroethane	100 U
1,1-Dichloroethane	100 U
1,1-Dichloroethene	100 U
1,2,3-Trichlorobenzene	250 U
1,2,4-Trichlorobenzene	250 U
1,2-Dibromo-3-chloropropane	500 U
1,2-Dibromoethane	100 U
1,2-Dichlorobenzene	100 U
1,2-Dichloroethane	100 U
1,2-Dichloropropane	100 U
1,3-Dichlorobenzene	100 U
1,4-Dichlorobenzene	100 U
1,4-Dioxane	1000 U
2-Butanone	500 U
2-Hexanone	250 U
4-Methyl-2-pentanone	250 U
Acetic acid, methyl ester	100 U
Acetone	500 U
Benzene	50 U
Bromochloromethane	250 U
Bromodichloromethane	100 U
Bromoform	250 U
Bromomethane	100 U
Carbon disulfide	100 U
Carbon tetrachloride	817
Chlorobenzene	100 U

TABLE 3
SPRING 2019 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-107
SAMPLE DATE:	5/8/2019
QC TYPE:	Sample
VOCs By SW-846 Method 8260C (µg/L)	
Chloroethane	100 U
Chloroform	4720
Chloromethane	100 U
Cis-1,2-Dichloroethene	100 U
Cis-1,3-Dichloropropene	100 U
Cyclohexane	500 U
Dibromochloromethane	100 U
Dichlorodifluoromethane	100 U
Ethylbenzene	100 U
Isopropylbenzene	100 U
Methyl cyclohexane	100 U
Methyl Tertbutyl Ether	100 U
Methylene chloride	1140
Styrene	250 U
Tetrachloroethene	129
Toluene	100 U
trans-1,2-Dichloroethene	100 U
trans-1,3-Dichloropropene	100 U
Trichloroethene	100 U
Trichlorofluoromethane	100 U
Vinyl chloride	100 U
Xylene, o	100 U
Xylenes (m&p)	100 U

Notes:

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

J = Estimated value

µg/L = micrograms per Liter

TABLE 4
COMPARISON OF SPRING 2019
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 2019 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	MAY 2019 RESULT
ON-SITE WELLS/LOCATIONS								
B-11	7	4,800	1700	**3,500**	7	570	22	**47**
B-15	10	13,000	67	5	10	1,600	ND	ND
B-16	10	33,000	540	**3,600**	10	4,500	4.2	**18**
B-17	6	28,000,000	580,000	**690,000**	6	350,000	4,400	**15,000**
B-4	1	740	13		1	42	ND	
B-5	4	360,000	180,000		6	670	160	
B-7	5	9,100	140	72	5	270	4.4	2.5
BR-126	9	12,000	970	570	9	240	ND	ND
BR-127	10	44,000	16,000	12,000	10	1,300	270	250
BR-3	5	6,500,000	1,000		5	930,000	1,100	
BR-5A	10	1,700	42	25	10	9,400	1	ND
BR-6A	10	140,000	16,000	9,600	10	69,000	4,200	70
BR-7A	10	510,000	8,400	3,800	10	5,600	82	22
BR-8	10	550,000	300,000	**550,000**	10	7,800	810	**900**
BR-9	10	1,300	240	**2,400**	10	210	11	**15**
E-3	5	600	15	14	5	15,000	ND	ND
MW-127	10	15,000	1,100	**4,400**	10	7,500	0	ND
PW10	11	500,000	160,000	720	11	120,000	820	13
PW12	10	15,000	70	ND	10	120,000	190	28
PW13	10	94,000	23,000	14,000	10	1,800	140	79
PW14	10	99,000	22,000	**23,000**	10	160,000	1,700	910
PW15	10	440,000	260,000	250,000	10	57,000	20,000	**25,000**
PW16	10	120,000	73,000	**130,000**	10	1,200	470	380
PW17	10	75,000	28,000	12,000	10	66,000	29,000	5,400
PZ-104	10	9,100	570	330	10	52	2.1	**2.7**
PZ-105	10	190,000	4,800	**11,000**	10	9,900	29	**67**
PZ-106	10	290,000	11,000	**30,000**	10	1,400,000	8,200	**10,000**
PZ-107	10	31,000	7,800	7,000	10	160,000	36,000	6,800
W-5	1	450,000	ND		1	2,500	ND	
OFF-SITE WELLS/LOCATIONS								
BR-103	2	400	ND		2	46	ND	
BR-104	1	3,100	5.8			11		
BR-105	10	24,000	910	300	10	350	9.0	5.4
BR-105D	10	17,000	200	44	10	230	0.19	ND
BR-106	11	46,000	20,000	**21,000**	11	12,000	220	**290**
BR-108	2	1,700	ND			2		
BR-112D	5	310	12	11		4.3		
BR-113D	5	490	ND	**6**		2.8		
BR-114	5	520	2.5	ND	5	12	ND	ND
BR-116	1	12	ND			86		
BR-116D	1	710	6.6			130		
BR-117D	5	80	1.1	ND		1.9		
BR-118D	5	330	14	7		6.6		
BR-122D	5	650	2.7	ND		ND		

TABLE 4
COMPARISON OF SPRING 2019
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 2019 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	MAY 2019 RESULT
BR-123D	5	860	40	**51**		7		
MW-103	2	97	ND		2	750	ND	
MW-104	1	180	6			5.8		
MW-106	11	130,000	34,000	2,600	11	4,000	380	32
MW-114	5	18	ND	ND	5	27	20	9
MW-16	1	360	22			10		
NESS-E	1	5,000	46			710		
NESS-W	1	6,300	ND			94		
PZ-101	10	27,000	130	ND	10	620	1.3	ND
PZ-102	11	210,000	56,000	36,000	11	11,000	440	260
PZ-103	10	230,000	66,000	32,000	10	46,000	610	340
QD-1	10	11	1	ND		ND		
QO-2	9	380	ND	ND		ND		
QO-2S1	10	27	ND	ND		ND		
QS-4	10	13,000	87	31		ND		

Note:
1) Number of samples and mean reflect 5-year sampling period from May 2014 through November 2018.
   Historic maximum based on all available results from March 1990 through November 2018.
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 2019 exceeds 5-year mean.
5) ND = Not detected
   BLANK = Not sampled

TABLE 5
SPRING 2019 GROUNDWATER MONITORING RESULTS
1,4-DIOXANE AND PER-/POLYFLUOROALKYL SUBSTANCES (PFAS)

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

Parameter Name	Analytical Method	(1)	Units	Well Sample ID: B-15 Sample Date: 5/8/2019 Sample Type: FS	BR-1 5/8/2019 FS	BR-8 5/8/2019 FS	PZ-104 5/8/2019 FS	PZ-104 DUP 5/8/2019 FD	PZ-107 5/8/2019 FS
1,4-Dioxane	8270D-SIM	1	UG/L	0.139 U	0.139 U	6.02	0.326	0.312	0.943
6:2 Fluorotelomer sulfonate (6:2 FTS)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
8:2 Fluorotelomer sulfonate (8:2 FTS)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
N-EtFOSAA	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
N-MeFOSAA	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
Perfluorobutanesulfonic acid (PFBS)	537 (mod)		NG/L	0.961 J	1.93 U	10 U	0.725 J	0.879 J	1.31 J
Perfluorobutanoic acid (PFBA)	537 (mod)		NG/L	9.76	17.4	5.38 J	11.8	12.1	24.4
Perfluorodecanesulfonic acid (PFDS)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
Perfluorodecanoic acid (PFDA)	537 (mod)		NG/L	0.827 J	0.629 J	1.86 J	1.83 U	1.83 U	1.93 U
Perfluorododecanoic acid (PFDoA)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
Perfluoroheptanesulfonic acid (PFHpS)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
Perfluoroheptanoic acid (PFHpA)	537 (mod)		NG/L	7.77	1.17 J	9.18 J	2.01	2	10
Perfluorohexanesulfonic acid (PFHxS)	537 (mod)		NG/L	0.444 J	1.93 U	10 U	0.352 J	0.396 J	0.49 J
Perfluorohexanoic acid (PFHxA)	537 (mod)		NG/L	12.5	2.22	13.9	5.59	5.52	12.1
Perfluorononanoic acid (PFNA)	537 (mod)		NG/L	2.21	0.448 J	1.74 J	1.83 U	1.83 U	1.05 J
Perfluorooctanessulfonic acid (PFOS)	537 (mod)	10	NG/L	6.84	1.45 J	19	1.83 U	1.83 U	5.1
Perfluorooctanoic acid (PFOA)	537 (mod)	10	NG/L	19.9	7.48	35.5	4.42	4.54	22.8
Perfluoropentanoic acid (PFPeA)	537 (mod)		NG/L	18.6	2.32	10 U	6.07	5.82	7.05
Perfluorotetradecanoic acid (PFTeDA)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
Perfluorotridecanoic acid (PFTrDA)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
Perfluoroundecanoic acid (PFUnDA)	537 (mod)		NG/L	1.76 U	1.93 U	10 U	1.83 U	1.83 U	1.93 U
Perfluroroctanesulfonamide (FOSA)	537 (mod)		NG/L	1.76 U	1.93 U	46.6	1.83 U	1.83 U	3.08

(1) New York Drinking Water Quality Council (DWQC) Maximum Contaminant Level (MCL) recommendations December 2018

N-EtFOSAA = N-ethyl perfluorooctanesulfonamidoacetic acid

N-MeFOSAA = N-methyl perfluorooctanesulfonamidoacetic acid

FS = field sample FD = field duplicate

UG/L = microgram per liter

NG/L = nanogram per liter

Prepared by: BCG 8/9/19
Checked by: JAR 8/13/19

TABLE 6
SPRING 2019 QUARRY SEEP AND OUTFALL WATER SAMPLE RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	QD-1	QO-2	QO-2S1	QS-4	QS-4
SAMPLE DATE:	5/15/2019	5/15/2019	5/15/2019	5/15/2019	5/15/2019
QC TYPE:	FS	FS	FS	FD	FS
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270D (µg/L)					
2,6-Dichloropyridine	10.1 U	10.1 U	9.99 U	8.32 J	7.72 J
2-Chloropyridine	10.1 U	10.1 U	9.99 U	24.9	23.1
3-Chloropyridine	10.1 U	10.1 U	9.99 U	10 U	10.1 U
4-Chloropyridine	10.1 U	10.1 U	9.99 U	10 U	10.1 U
p-Fluoroaniline	10.1 U	10.1 U	9.99 U	10 U	10.1 U
Pyridine	10.1 UJ	10.1 UJ	9.99 UJ	10 UJ	10.1 UJ

Notes:

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

J = Estimated value

µg/L = micrograms per Liter

TABLE 7
EXTRACTION WELL WEEKLY FLOW MEASUREMENTS - DECEMBER 2018 THROUGH MAY 2019

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 '18								
12/02/18	64,010	45,969	12,444	0	52,541	0	71,760	246,724
12/09/18	83,127	38,032	10,543	8	58,920	2	69,216	259,848
12/16/18	82,355	34,453	11,100	5,038	59,886	10,098	65,099	268,029
12/23/18	76,180	33,541	11,332	3,782	55,414	694	64,328	245,271
12/30/18	88,803	36,544	10,747	12,664	54,295	575	42,314	245,942
								1,265,814
Jan '19								
01/06/19	94,981	35,932	11,134	12,814	55,413	614	47,364	258,252
01/13/19	98,003	38,344	9,489	12,097	43,577	708	29,186	231,404
01/20/19	92,313	38,582	11,153	11,489	38,124	697	52,918	245,276
01/27/19	78,487	43,774	9,315	11,185	38,937	328	55,719	237,745
							Total [Gal.]	972,677
Feb '19								
02/03/19	0	59,749	13,430	33,700	44,681	684	5,880	158,124
02/10/19	66,819	41,726	9,607	29,493	41,495	11	533	189,684
02/17/19	115,141	44,405	10,465	30,294	48,421	19	2,600	251,345
02/24/19	112,953	41,430	9,925	34,927	55,914	16	650	255,815
							Total [Gal.]	854,968
Mar '19								
03/03/19	111,379	43,552	10,349	36,598	54,105	177	29,834	285,994
03/10/19	127,884	57,476	16,551	36,309	5	1	43,315	281,541
03/17/19	120,939	59,338	17,106	38,827	6	552	40,589	277,357
03/24/19	103,883	61,945	18,390	43,589	1	1,200	9,571	238,579
03/31/19	54,920	62,836	18,257	41,803	52,340	949	57,016	288,121
							Total [Gal.]	1,371,592
Apr '19								
04/07/19	79,541	46,010	9,149	37,275	66,042	696	55,385	294,098
04/14/19	105,948	35,545	10,808	37,746	44,968	884	54,896	290,795
04/21/19	107,296	44,113	9,032	39,060	61,265	703	56,610	318,079
04/28/19	116,328	50,593	10,350	42,708	57,872	947	60,543	339,341
							Total [Gal.]	1,242,313
May '19								
05/05/19	92,300	65,923	35,269	38,828	57,347	1,061	58,621	349,349
05/12/19	80,770	75,965	57,395	42,452	61,482	1,294	38,714	358,072
05/19/19	73,436	75,693	60,043	32,687	67,865	1,247	66,970	377,941
05/26/19	69,659	71,344	54,951	26,896	68,568	1,185	57,768	350,371
							Total [Gal.]	1,435,733
Total 6 Mo. Removal (Gal.)	2,297,455	1,282,814	468,334	692,269	1,239,484	25,342	1,137,399	7,143,097

TABLE 8

MASS REMOVAL SUMMARY
PERIOD: DECEMBER 2018 THROUGH MAY 2019

ARCH ROCHESTER
SPRING 2019 GROUNDWATER MONITORING REPORT

Well	Total Vol. Pumped (gallons)	Avg. VOC Conc. (ppm)	Avg. PYR. Conc. (ppm)	VOCs Removed (pounds)	PYR. Removed (pounds)
BR-7A	2,297,000	0.019	2.5	0.36	48
BR-9	1,283,000	0.011	1.3	0.12	14
PW-13	468,300	0.061	8.6	0.24	34
PW-15	692,300	14	340	82	2000
PW-16	1,239,000	0.34	97	3.5	1000
PW-17	25,340	2.7	6.6	0.57	1.4
BR-127	1,137,000	0.40	22	3.8	200
Totals:	7,143,000			91	3,300

Notes: VOC and pyridine concentrations used in this table are an average of the analytical results from the Fall 2018 and Spring 2019 sampling events for each well;
Total select VOCs include chlorobenzene, PCE, TCE, methylene chloride, carbon tetrachloride, and chloroform

TABLE 9
2019 SAMPLING SCHEDULE
ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

ARCH ROCHESTER						**2019**					
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 2019 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 19, 2019

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TABLES
TABLE 1 Sampling Summary Table
TABLE 2 Groundwater Elevation Table

APPENDIX
APPENDIX A Field Observation Forms

1.0 INTRODUCTION

This report describes the sampling of the following points:

- 41 groundwater samples
- 5 PFAS 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, 2019 by Matrix Environmental Technologies Inc. (METI) field personnel. The samples were collected from May 8 through May 15, 2019.

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 (Sample Pro) 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	5/15/2019	10:50	10.35	NM	10.55	3.78	15.50	214.0	-205	3.71
B-15	On-Site	OB	5/8/2019	10:31	4.73	NM	7.55	0.56	9.56	0.0	91	10.36
B-16	Off-Site	OB	5/10/2019	12:13	5.82	NM	7.79	1.07	14.72	0.0	61	2.73
B-17	On-Site	OB	5/9/2019	14:00	6.59	NM	9.74	10.30	17.43	0.0	-193	0.67
B-7	On-Site	OB	5/10/2019	8:58	16.64	NM	7.32	1.93	15.14	4.3	33	0.98
BR-105	Off-Site	BR	5/13/2019	11:42	21.75	NM	7.63	2.76	11.06	0.0	-133	0.97
BR-105D	Off-Site	BR deep	5/13/2019	12:12	27.07	NM	7.36	79.50	11.70	0.0	-386	0.56
BR-106	Off-Site	BR	5/10/2019	14:26	22.14	NM	7.41	5.39	13.29	24.3	-175	0.88
BR-112D	Off-Site	BR deep	5/14/2019	14:45	36.04	NM	8.63	3.36	10.05	7.0	-331	5.27
BR-113D	Off-Site	BR deep	5/14/2019	13:55	31.07	NM	7.97	4.05	9.74	0.0	-366	0.86
BR-114	Off-Site	BR	5/13/2019	13:40	12.76	NM	8.07	1.91	11.01	52.4	-264	0.95
BR-117D	Off-Site	BR deep	5/14/2019	12:35	46.86	NM	9.07	0.53	10.46	57.0	-184	5.49
BR-118D	Off-Site	BR deep	5/14/2019	13:20	46.14	NM	10.72	0.65	11.07	51.2	-170	4.14
BR-122D	Off-Site	BR deep	5/14/2019	10:33	44.63	NM	7.67	1.80	8.38	0.0	-245	1.37
BR-123D	Off-Site	BR deep	5/14/2019	11:32	44.88	NM	8.25	2.57	9.28	4.9	-149	7.61
BR-126	Off-Site	BR	5/13/2019	9:03	0.45	NM	7.73	1.01	10.06	8.7	-184	1.08
BR-127	On-Site	BR	5/10/2019	11:30	9.43	NM	8.45	5.32	13.89	0.0	-180	3.40
BR-1	On-Site	BR	5/8/2019	12:08	6.20	NM	8.55	0.86	10.75	21.2	-150	1.03
BR-5A	On-Site	pumping well	5/9/2019	10:10	4.37	NM	7.32	4.47	14.77	23.4	84	1.67
BR-6A	On-Site	BR	5/8/2019	14:35	14.68	NM	8.44	6.23	14.53	28.0	-239	1.05
BR-7A	On-Site	pumping well	5/15/2019	8:25	23.10	NM	10.81	2.79	12.88	17.6	-319	8.14
BR-8	On-Site	BR	5/8/2019	15:26	12.88	NM	8.10	11.90	13.89	51.6	-186	2.52
BR-9	On-Site	pumping well	5/8/2019	16:00	32.83	NM	7.52	3.47	14.49	0.0	-115	4.51
E-3	On-Site	OB	5/9/2019	11:00	4.22	NM	7.99	1.70	17.02	25.4	-190	0.84
MW-106	Off-Site	OB	5/10/2019	13:48	10.85	NM	7.47	1.21	13.39	223.0	-100	1.18
MW-114	Off-Site	OB	5/13/2019	14:10	10.93	NM	8.55	0.93	10.60	9.4	-244	1.89
MW-127	On-Site	OB	5/9/2019	11:40	5.48	NM	7.77	7.69	17.92	12.6	-155	0.80
PW-10	On-Site	pumping well	5/9/2019	13:23	6.79	NM	8.63	4.18	22.01	0.0	-115	0.96
PW-12	On-Site	BR	5/9/2019	9:35	4.83	NM	8.17	0.30	12.53	0.0	-32	9.31
PW-13	On-Site	pumping well	5/14/2019	8:40	27.75	NM	7.95	4.34	13.22	12.3	-278	3.95
PW-14	On-Site	pumping well	5/10/2019	10:20	8.61	NM	9.76	7.19	16.18	0.0	-234	0.86
PW-15	On-Site	pumping well	5/10/2019	11:10	27.95	NM	10.26	11.60	14.28	0.0	-204	7.14
PW-16	On-Site	pumping well	5/13/2019	10:05	NM	NM	8.29	8.65	11.32	336.0	-291	3.72
PW-17	On-Site	pumping well	5/10/2019	10:45	29.47	NM	7.75	5.52	15.57	37.6	-109	3.00
PZ-101	Off-Site	BR	5/9/2019	8:50	17.13	NM	7.55	4.28	11.52	0.0	22	7.86
PZ-102	Off-Site	BR	5/13/2019	8:57	15.56	NM	7.79	5.26	8.12	0.0	-291	1.17
PZ-103	Off-Site	BR	5/13/2019	9:35	13.55	NM	7.73	4.11	8.28	0.0	-278	1.34
PZ-104	Off-Site	BR	5/8/2019	9:20	13.31	NM	7.42	3.08	10.46	0.0	-52	8.09

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	5/15/2019	9:45	12.23	NM	7.63	4.37	12.38	4.1	-291	1.06
PZ-106	On-Site	BR	5/9/2019	14:51	12.61	NM	9.37	5.44	16.02	0.0	-166	0.78
PZ-107	On-Site	BR	5/8/2019	13:38	13.06	NM	7.24	2.94	13.06	0.0	-85	0.96
Post-Carbon	On-Site	-	5/14/2019	9:40	NA	NA	8.35	5.32	12.25	4.6	-179	5.73
QD-1	Quarry/Canal	quarry ditch	5/15/2019	11:55	NM	NA	12.01	1.86	12.97	0.0	-96	9.60
QO-2	Quarry/Canal	quarry outfall	5/15/2019	13:06	NM	NA	12.71	1.95	14.31	0.0	-118	11.40
QO-2S1	Quarry/Canal	canal at outfall	5/15/2019	13:15	NM	NA	10.04	0.52	14.57	0.0	28	10.01
QS-4	Quarry/Canal	quarry seep	5/15/2019	11:30	NM	NA	11.63	2.07	12.67	0.0	-171	9.90

** 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	5/7/2019	7.82	537.75	529.93	9:38	
B-10	On-Site	OB	5/7/2019	7.42	538.80	531.38	11:11	
B-11	On-Site	OB	5/7/2019	4.40	536.00	531.60	11:17	
B-15	On-Site	OB	5/7/2019	3.98	535.29	531.31	11:44	
B-16	Off-Site	OB	5/7/2019	4.51	536.21	531.70	11:46	
B-17	On-Site	OB	5/7/2019	6.94	538.74	531.80	10:05	
B-2	On-Site	OB	5/7/2019	8.69	539.02	530.33	9:35	
B-4	On-Site	OB	5/7/2019	19.88	542.87	522.99	15:16	
B-5	On-Site	OB	5/7/2019	12.57	540.21	527.64	15:23	
B-7	On-Site	OB	5/7/2019	12.95	541.11	528.16	10:41	
B-8	On-Site	OB	5/7/2019	Dry	538.88	Dry	-	
BR-1	On-Site	BR	5/7/2019	5.82	537.28	531.46	9:55	
BR-102	On-Site	BR	5/7/2019	21.70	539.43	517.73	9:33	
BR-103	Off-Site	BR	5/7/2019	1.68	533.19	531.51	14:07	
BR-104	Off-Site	BR	5/7/2019	8.99	537.56	528.57	13:57	
BR-105	Off-Site	BR	5/7/2019	21.82	536.90	515.08	12:00	
BR-105D	Off-Site	BR deep	5/7/2019	26.17	536.49	510.32	11:58	
BR-106	Off-Site	BR	5/7/2019	22.25	535.74	513.49	11:39	
BR-108	Off-Site	BR	5/7/2019	28.42	540.58	512.16	15:00	
BR-111	Off-Site	BR	5/7/2019	28.54	540.42	511.88	12:10	
BR-111D	Off-Site	BR	5/7/2019	28.80	540.34	511.54	12:09	
BR-112D	Off-Site	BR deep	5/7/2019	36.12	547.91	511.79	12:06	
BR-113	Off-Site	BR	5/7/2019	25.58	543.02	517.44	12:21	
BR-113D	Off-Site	BR deep	5/7/2019	31.11	542.93	511.82	12:20	
BR-114	Off-Site	BR	5/7/2019	12.89	539.77	526.88	14:03	
BR-116	Off-Site	BR	5/7/2019	27.88	545.38	517.50	14:22	
BR-116D	Off-Site	BR deep	5/7/2019	34.92	545.22	510.30	14:23	
BR-117	Off-Site	BR	5/7/2019	32.48	547.61	515.13	13:11	
BR-117D	Off-Site	BR deep	5/7/2019	47.20	547.16	499.96	13:09	
BR-118	Off-Site	BR	5/7/2019	22.51	547.79	525.28	13:14	
BR-118D	Off-Site	BR deep	5/7/2019	46.10	547.93	501.83	13:15	
BR-122D	Off-Site	BR deep	5/7/2019	44.57	552.34	507.77	13:24	
BR-123D	Off-Site	BR deep	5/7/2019	44.83	553.62	508.79	13:30	
BR-124D	Off-Site	BR deep	5/7/2019	32.15	537.45	505.30	14:53	
BR-126	Off-Site	BR	5/7/2019	7.98	537.90	529.92	11:49	
BR-127	On-Site	BR	5/7/2019	4.42	536.05	531.63	11:15	
BR-2	On-Site	BR	5/7/2019	8.72	538.97	530.25	10:02	
BR-2A	On-Site	BR	5/7/2019	8.07	540.36	532.29	10:01	
BR-2D	On-Site	BR deep	5/7/2019	8.04	537.26	529.22	10:00	
BR-3	On-Site	BR	5/7/2019	NM	538.20	NM	-	Inaccessible
BR-3D	On-Site	BR deep	5/7/2019	50.43	537.67	487.24	11:04	
BR-4	On-Site	BR	5/7/2019	10.14	539.03	528.89	10:15	
BR-5	On-Site	BR	5/7/2019	4.57	536.30	531.73	9:49	
BR-5A	On-Site	pumping well	5/7/2019	4.30	536.35	532.05	9:44	
BR-6A	On-Site	BR	5/7/2019	13.65	540.90	527.25	10:55	
BR-7	On-Site	BR	5/7/2019	14.87	539.10	524.23	11:26	
BR-7A	On-Site	pumping well	5/7/2019	22.45	539.12	516.67	11:25	
BR-8	On-Site	BR	5/7/2019	12.75	539.72	526.97	15:21	
BR-9	On-Site	pumping well	5/7/2019	32.74	542.17	509.43	9:30	
C-2A	On-Site	OB	5/7/2019	Dry	539.66	Dry	-	
C-5	On-Site	OB	5/7/2019	8.40	539.63	531.23	11:00	
CANAL	Off-Site	SW	5/7/2019	36.62	544.79	508.17	13:46	
E-2	On-Site	OB	5/7/2019	NM	538.32	NM	-	Inaccessible
E-3	On-Site	OB	5/7/2019	3.63	536.59	532.96	9:50	
E-5	On-Site	OB	5/7/2019	5.57	539.31	533.74	9:52	
EC-2	Off-Site	BR	5/7/2019	Dry	542.00	Dry	12:18	
MW-103	Off-Site	OB	5/7/2019	1.32	533.25	531.93	14:08	
MW-104	Off-Site	OB	5/7/2019	6.67	537.54	530.87	13:55	
MW-105	Off-Site	OB	5/7/2019	18.82	536.91	518.09	12:02	
MW-106	Off-Site	OB	5/7/2019	9.48	535.44	525.96	11:38	
MW-114	Off-Site	OB	5/7/2019	9.07	539.69	530.62	14:01	
MW-127	On-Site	OB	5/7/2019	4.99	536.87	531.88	11:14	
MW-16	Off-Site	BR	5/7/2019	10.04	536.79	526.75	14:11	
MW-3	Off-Site	OB	5/7/2019	NM	535.89	NM	-	Inaccessible
MW-G6	Off-Site	OB	5/7/2019	NM	534.65	NM	-	Inaccessible
MW-G8	Off-Site	OB	5/7/2019	NM	534.25	NM	-	Inaccessible
MW-G9	Off-Site	OB	5/7/2019	NM	536.60	NM	-	Inaccessible
N-2	On-Site	OB	5/7/2019	3.68	537.33	533.65	9:57	

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	5/7/2019	4.75	537.38	532.63	10:40	
NESS-E	Off-Site	BR deep	5/7/2019	24.31	540.31	516.00	15:10	
NESS-W	Off-Site	BR deep	5/7/2019	30.70	543.04	512.34	15:11	
PW-10	On-Site	pumping well	5/7/2019	6.12	538.76	532.64	10:07	
PW-12	On-Site	BR	5/7/2019	4.49	537.49	533.00	8:48	
PW-13	On-Site	pumping well	5/7/2019	27.90	536.13	508.23	11:22	
PW-14	On-Site	pumping well	5/7/2019	8.46	537.03	528.57	11:16	
PW-15	On-Site	pumping well	5/7/2019	27.90	538.32	510.42	11:07	
PW-16	On-Site	pumping well	5/7/2019	20.67	539.32	518.65	15:18	
PW-17	On-Site	pumping well	5/7/2019	29.34	NA	NA	10:58	
PZ-101	Off-Site	BR	5/7/2019	16.34	542.95	526.61	11:33	
PZ-102	Off-Site	BR	5/7/2019	15.35	540.89	525.54	11:31	
PZ-103	Off-Site	BR	5/7/2019	12.19	540.20	528.01	11:29	
PZ-104	Off-Site	BR	5/7/2019	13.14	536.85	523.71	11:42	
PZ-105	On-Site	BR	5/7/2019	NM	536.93	NM	-	Well underwater.
PZ-106	On-Site	BR	5/7/2019	9.49	537.24	527.75	11:09	
PZ-107	On-Site	BR	5/7/2019	6.78	538.39	531.61	11:12	
PZ-109	On-Site	BR	5/7/2019	7.09	538.59	531.50	11:05	
PZ-110	On-Site	BR	5/7/2019	12.26	NA	NA	10:57	
PZ-111	On-Site	BR	5/7/2019	NM	NA	NM		Could Not Locate Well
W-5	On-Site	OB	5/7/2019	NM	538.53	NM		Inaccessible

APPENDIX A

FIELD OBSERVATION FORMS

5-7-19

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		7.82	9:38			
B-10	On-Site	OB		9.93	11:11			
B-11	On-Site	OB		4.40	11:17			Dry (at 14:17)
B-15	On-Site	OB		3.98	11:44			
B-16	Off-Site	OB		4.51	11:46			
B-17	On-Site	OB		6.94	10:05			
B-2	On-Site	OB		8.69	9:25			
B-4	On-Site	OB		9.88	15:16			
B-5	On-Site	OB		13.54	15:23			
B-7	On-Site	OB		12.95	10:41			
B-8	On-Site	OB		DRY	—			
BR-1	On-Site	BR		5.82	9:55			
BR-102	On-Site	BR		2.70	9:33			
BR-103	Off-Site	BR		1.68	14:07			
BR-104	Off-Site	BR		8.99	13:57			
BR-105	Off-Site	BR		21.82	12:00			
BR-105D	Off-Site	BR deep		36.17	11:58			
BR-106	Off-Site	BR		32.25	11:39			
BR-108	Off-Site	BR		28.42	15:00			
BR-111	Off-Site	BR		28.54	12:10			
BR-111D	Off-Site	BR		28.80	12:09			
BR-112D	Off-Site	BR deep		36.12	12:06			
BR-113	Off-Site	BR		25.58	12:21			
BR-113D	Off-Site	BR deep	3.41	25.58	12:30			
BR-114	Off-Site	BR		12.89	14:03			
BR-116	Off-Site	BR		27.88	14:22			
BR-116D	Off-Site	BR deep		34.92	14:23			
BR-117	Off-Site	BR		32.48	13:11			
BR-117D	Off-Site	BR deep		47.20	13:09			
BR-118	Off-Site	BR		32.51	13:14			
BR-118D	Off-Site	BR deep		46.10	13:15			
BR-122D	Off-Site	BR deep		44.57	13:24			
BR-123D	Off-Site	BR deep		44.83	13:30			
BR-124D	Off-Site	BR deep		32.15	14:53			
BR-126	Off-Site	BR		7.98	11:49			well under debris
BR-127	On-Site	BR		4.42	11:15			
BR-2	On-Site	BR		8.72	10:02			
BR-2A	On-Site	BR		8.07	10:01			
BR-2D	On-Site	BR deep		8.04	10:00			
BR-3	On-Site	BR		NS-1				debris in well
BR-3D	On-Site	BR deep		50.43	11:09			
BR-4	On-Site	BR		10.14	10:15			
BR-5	On-Site	BR		4.57	9:49			
BR-5A	On-Site	pumping well		4.30	9:44			
BR-6A	On-Site	BR		13.65	10:35			
BR-7	On-Site	BR		14.87	11:26			
BR-7A	On-Site	pumping well		32.45	11:25			
BR-8	On-Site	BR		12.75	15:31			
BR-9	On-Site	pumping well		35.96	9:30			
C-2A	On-Site	OB		DRY				
C-5	On-Site	OB		8.48	11:00			
CANAL	Off-Site	SW		36.62	13:46			
E-2	On-Site	OB		Destroyed				
E-3	On-Site	OB		3.63	9:50			
E-5	On-Site	OB		5.57	9:52			
EC-2	Off-Site	BR		12.71	DRY 12:18			
MW-103	Off-Site	OB		7.32	14:08			
MW-104	Off-Site	OB		6.67		13:55		
MW-105	Off-Site	OB		18.85	12:02			
MW-106	Off-Site	OB		9.98	11:58			
MW-114	Off-Site	OB		9.07		14:01		
MW-127	On-Site	OB		4.99	11:14			
MW-16	Off-Site	BR		10.04		14:11		need new Bolt
MW-3	Off-Site	OB		NS-1				

~~28.54~~ ~~26.17~~ 34.92

Table 2
Groundwater Elevation Report
Lonza, Rochester, NY

5-7-19

Sample Location		Zone	Date	Depth to water	Casing Elevation	GW Elevation	Time	Comments
MW-G6	Off-Site	OB		NS-1				
MW-G8	Off-Site	OB		NS-1				
MW-G9	Off-Site	OB		NS-1				
N-2	On-Site	OB		5.68	9:57			
N-3	On-Site	OB		4.15	10:40			
NESS-E	Off-Site	BR deep		24.31	15:10			
NESS-W	Off-Site	BR deep		30.79	15:11			
PW-10	On-Site	pumping well		6.17	10:07			
PW-12	On-Site	BR		4.40	9~~10:45~~			
PW-13	On-Site	pumping well		27.90	11:32			
PW-14	On-Site	pumping well		8.46	11:16			
PW-15	On-Site	pumping well		27.90	11:07			
PW-16	On-Site	pumping well		20.67		15:18		
PW-17	On-Site	pumping well			24.34	10:59		
PZ-101	Off-Site	BR		16.34		11:37		
PZ-102	Off-Site	BR		15.35		11:31		
PZ-103	Off-Site	BR		12.19		11:39		
PZ-104	Off-Site	BR		13.14		11:42		
PZ-105	On-Site	BR	NS-1	7.84		10:54		Condensate
PZ-106	On-Site	BR		9.49	11:09			
PZ-107	On-Site	BR		6.78		11:13		
PZ-109	On-Site	BR		7.09		11:05		
PZ-110	On-Site	BR		12.26		10.57		
PZ-111	On-Site	BR			NS-1			
W-5	On-Site	OB		NS-1				

4.

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ104

Field Personnel: DK + CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 8:45

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: 5-8-19 9:00

Date/Time Completed: 9:50

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): ____

Elevation G/W MSL: 13.13

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: Y / N new PFA tubing

Total Volume Purged (gal): 2.1 L

Purged to Dryness: Y / (N)

Purge Observations: Clear, no odor

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
9:05	13.30	250 mL/min		8.90	7.55	3.25	0.0	60	12.4	
9:10	13.30	~~250~~ 275		10.04	7.45	3.14	0.0	-20	9.53	
9:15	13.30	<67.5		10.28	7.44	3.10	0.0	-40	8.75	
9:20	13.31			10.46	7.42	3.08	0.0	-52	8.09	
→ SAMPLE										

45°, sunny

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: B15

Field Personnel: DK + CZ | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-8-19 10:02 | Condition of seal: (✓) Good ( ) Cracked ____ %

( ) None ( ) Buried

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

if prot casing; depth to riser below: ____

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

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

PURGE INFORMATION

Date/Time Initiated: 5-8-19 10:08 | Date/Time Completed: 11:09

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

Initial Water Level (ft): 4.08 | Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.1L | Purged to Dryness: Y / (✓) N

Purge Observations: Clear | Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate ~~(spm/htz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:11	4.48	250mL/min		9.88	7.72	0.584	0.0	35	10.57	
10:16	~~4.48~~ 4.49	125		9.78	7.60	0.573	0.0	58	8.59	
10:21	4.53	67.5		9.63	7.56	0.565	0.0	75	11.54	
10:26	4.61			9.61	7.57	0.561	0.0	84	10.99	
10:31	4.73			9.56	7.55	0.556	0.0	91	10.32	
↳ SAMPLE										

MS/MSD

47°F, Sunny Windy

Alpha

Page 1 of 2

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR-1

Field Personnel: DK + CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-8-19 11:40

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: 5-8-19 11:46

Date/Time Completed: 12:18

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

Riser Diameter (inches): 4" Steel

Initial Water Level (ft): 6.15

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge: Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) N new tubing

Total Volume Purged (gal): 2L

Purged to Dryness: Y / N

Purge Observations: Light tan color/clear, no odor

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
11:48	6.23	250mL/min		9.56	8.11	0.850	26.0	-47	8.11	
11:53	6.20	125		10.10	8.50	0.856	25.8	-116	1.88	
11:58	6.20	<67.5		10.32	8.53	0.859	23.7	-130	1.47	
12:03	6.20			10.51	8.58	0.860	21.0	-149	1.10	
12:08	6.20			10.75	8.55	0.858	21.2	-150	1.03	
↳ SAMPLE										

48°F Sunny

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PZ107

Field Personnel: DKCZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-8-19 13:07 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: 5-8 6.62 13:16 Date/Time Completed: 13:56

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

Initial Water Level (ft): 6.62 Elevation G/W MSL: 2" PVC

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

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

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

Purge Observations: Clear, no odor 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
13:18	7.45	250mL/min		12.60	7.32	2.82	4.7	-62	6.49	
13:23	7.56	125		12.54	7.25	2.90	0.2	-74	2.02	
13:28	7.60	67.5		12.75	7.24	2.92	0.0	-81	1.15	
13:33	7.53	<67.5		13.05	7.24	2.94	0.0	-84	1.03	
13:38	7.52			13.06	7.24	2.94	0.0	-85	0.96	
↳ SAMPLE										

47°F Sunny

FIELD OBSERVATIONS

Facility: Costa

Sample Point ID: BR 6A

Field Personnel: DK + CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-8-19 14:03

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: 5-8 14:11

Date/Time Completed: 14:45

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

Riser Diameter (inches) 4" Steel

Initial Water Level (ft): 13.63

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: Cloudy, Brown color, chemical odor

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hsz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
14:15	13.92	250mL/min		14.67	8.34	6.08	2.52	-265	4.18	
14:20	14.15	125		14.52	8.41	6.19	27.9	-284	1.56	
14:25	14.33	67.5		14.56	8.42	6.20	28.2	-238	1.34	
14:30	14.49	<67.5		14.57	8.45	6.22	28.2	-230	1.26	
14:35	14.68			14.53	8.44	6.23	28.0	-234	1.05	
→	SAMPLE									

48°F Sunny

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BRS

Field Personnel: DKCZ

Sample Matrix: Gw

MONITORING WELL INSPECTION

Date/Time: 5-8-19 14:58

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

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

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

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

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

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

PURGE INFORMATION

Date/Time Initiated: 5-8-19 15:08

Date/Time Completed: 15:46

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 12.67

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N new tube

Total Volume Purged (gal): 1.75L

Purged to Dryness: Y (N)

Purge Observations: Cloudy, dark brown, frothy

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
15:11	12.78	250mL/min		14.13	8.06	11.6	51.7	-168	9.32	
15:16	12.82	125		13.70	8.11	11.9	54.4	-188	3.30	
15:21	12.86	67.5		13.89	8.11	11.9	51.0	-187	2.07	
15:26	12.88			13.89	8.10	11.9	51.6	-186	2.52	
→	SAMPLE									

50°F, Sunny

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR9

SAMPLING INFORMATION

Date/Time 5-8-19 15:58 Water Level at Sampling (ft) 32.83

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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
16:00	14.49	7.52	3.47	0.10	-115	4.51	

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: 50°F, Sunny

Sample characteristics: clear, some particles

Comments and Observations:

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

Date: 5-8-19 by: DKtCZ Company: Matrix

FIELD OBSERVATIONS

Facility: Conti Sample Point ID: DZ101

Field Personnel: DK + CZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-18 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: 5-9 8:27 Date/Time Completed: 9:02

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

Initial Water Level (ft): 16.35 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): 1.7 L Purged to Dryness: Y (N)

Purge Observations: Clear, no odor 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
8:30	16.74	250mL/min		11.45	9.08	4.38	0.0	-14	16.5	
8:35	16.87	67.5		11.32	7.87	4.31	0.0	8	9.71	
8:40	16.96			11.47	7.61	4.27	0.0	17	8.62	
8:45	17.03	<67.5		11.57	7.58	4.27	0.0	20	8.30	
8:50	17.13			11.52	7.55	4.28	0.0	22	7.86	
→ SAMPLE										

52°F Overcast

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PW12

Field Personnel: DC

Sample Matrix:

MONITORING WELL INSPECTION

Date/Time: 5-9-19 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: 5-9 9:17

Date/Time Completed: 9:40

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

Riser Diameter (inches): 6" Steel

Initial Water Level (ft): 4.76

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge: Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (✓) Y / N

Total Volume Purged (gal): 2.2L

Purged to Dryness: Y / (✓) N

Purge Observations: Clear, no odor

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (ppm/hr)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
9:20	4.85	250 mL/min		12.44	8.18	0.348	13.8	-52	17.4	
9:25	4.83	125		12.76	8.24	0.305	0.0	-35	9.93	
9:30	4.83			12.51	8.20	0.297	0.0	-30	9.55	
9:35	4.83			12.53	8.17	0.298	0.0	-32	9.31	
	→ SAMPLE									

54°F
Overcast

FIELD OBSERVATIONS

Facility: Lot 74 | Sample Point ID: BR5A

Field Personnel: DK + CZ | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-19 9:45 | 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: 5-9-19 9:48 | Date/Time Completed: 10:30

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

Initial Water Level (ft): 4.28 | 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: tan, cloudy, no odor | 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
9:50	4.34	250mL/min		13.5	7.44	4.23	56.4	81	6.73	
9:55	4.37	125		13.83	7.34	4.41	43.6	74	2.23	
10:00	4.36	67.5		14.23	7.33	4.44	32.1	79	1.88	
10:05	4.36			14.45	7.32	4.44	24.4	82	1.74	
10:10	4.37			14.77	7.32	4.47	23.4	84	1.67	
↳	SAMPLE									

Did Dupes

54°F, cloudy

FIELD OBSERVATIONS

Facility: Conoco Sample Point ID: E3

Field Personnel: NK + CZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-19 10:32 Condition of seal: ( ) Good ( ) Cracked ____ %

( ) None ( ) Buried

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

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 10:37 Date/Time Completed: 11:08

Surf. Meas. Point: ( ) Pro Casing (~~O~~ Riser Riser Diameter (inches) 2" Metal

Initial Water Level (ft): 3.62 Elevation G/W MSL: ____

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

One (1) Riser Vol (gal): ____ Dedicated: ~~O~~ N New

Total Volume Purged (gal): 2.2L Purged to Dryness: Y (N)

Purge Observations: Cloudy, brown, no 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
10:40	4.22	250 mL/min		15.77	7.95	1.60	131	-190	6.03	
10:45	4.14	~~67.5~~ 125		16.50	8.01	1.56	105	-190	1.44	
10:50	4.14	67.5		17.15	8.02	1.58	29.9	-193	1.37	
10:55	4.17			17.27	7.99	1.61	28.3	-190	0.97	
11:00	4.22			17.02	7.9	1.70	25.4	-190	0.84	
↳	SAMPLE									

56°F, Cloudy

FIELD OBSERVATIONS

Facility: Logan Sample Point ID: MW127

Field Personnel: DK & CZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-19 11:14 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: 5-9-19 11:17 Date/Time Completed: 11:49

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

Initial Water Level (ft): 4.52 Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.1L Purged to Dryness: Y / (✓) N

Purge Observations: Light Brown, cloudy Start ____ Finish ____

PURGE DATA (if applicable) No odor

Time	Water Level	Purge Rate ~~(gpm/htz)~~	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
11:20	5.31	250mL/min		16.68	7.81	7.36	42.2	-136	7.21	
11:25	5.37	125		17.08	7.81	7.58	27.58	-146	1.41	
11:30	5.41			17.49	7.80	7.64	20.7	-152	1.03	
11:35	5.47	67.5		17.79	7.78	7.69	15.5	-154	0.87	
11:40	5.48			17.92	7.77	7.69	12.6	-155	0.80	
	→	SAMPLE								

54°F, Sun + clouds

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PW10

Field Personnel: PKC

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-19 12:53

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

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

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

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

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

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

PURGE INFORMATION

Date/Time Initiated: 5-9 13:01

Date/Time Completed: 13:31

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 6.16

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): 1.9L

Dedicated: (✓) N

Total Volume Purged (gal): ✓

Purged to Dryness: Y / (✓)

Purge Observations: clear, slight chem odor

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
13:03	6.31	250		20.24	8.61	4.31	22.8	-87	7.66	
13:08	6.56	125		20.35	8.66	4.14	11	-104	1.40	
13:13	6.68	67.5		21.05	8.65	4.15	0.0	-110	1.09	
13:18	6.73			21.52	8.69	4.13	0.0	-113	0.92	
13:23	6.79			22.01	8.63	4.18	0.0	-115	0.96	
→ SAMPLE										

72°, overcast

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: B17

Field Personnel: DK+CZ | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-19 13:35 | 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: 5-9 13:38 | Date/Time Completed: 14:08

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

Initial Water Level (ft): 6.55 | 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): 21 2L | Purged to Dryness: Y (N)

Purge Observations: Brown tint + chemical odor (Cpyridine) | Start ____ | Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/ltr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:40	6.60	250mL/min		18.94	9.19	7.82	13.8	107	5.06	
13:45	6.58	125		16.95	9.19	8.31	8.9	106	1.12	
13:50	6.58	125		17.77	9.18	8.42	6.6	105	0.86	
13:55	6.59	61.5		17.79	9.23	8.45	8.1	146	0.73	
14:00	6.59			17.43	9.74	10.3	0.0	193	0.67	
↳	SAMPLE									

72°, overcast

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: PZ106

Field Personnel: DK+CZ | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-9-19 14:26 | 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 14:29 | Date/Time Completed: 14:58

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

Initial Water Level (ft): 9.18 | Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.4L | Purged to Dryness: Y (N)

Purge Observations: Slight brown tint | Start ____ Finish ____

PURGE DATA (if applicable) Slight odor

Time	Water Level	Purge Rate (~~gpm/hr~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
14:31	9.95	250 mL/min		17.91	9.41	5.41	6.3	-154	6.05	
14:36	9.94	125		19.39	9.39	5.44	2.9	-160	1.25	
14:41	11.67	~~125~~		16.37	9.37	5.45	0.0	-163	0.97	
14:46	12.35			16.15	9.37	5.44	0.0	-165	0.82	
14:51	12.61			16.02	9.37	5.44	0.0	-166	0.78	
↳ SAMPLE										

72°F, Cloudy

FIELD OBSERVATIONS

Facility: 5-10-19 Sample Point ID: B7

Field Personnel: DK + CZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-19 8:28 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 8:35 Date/Time Completed: 9:09

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

Initial Water Level (ft): 12.76 Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.2L Purged to Dryness: Y / (N)

Purge Observations: light brown, cloudiness Start ____ Finish ____

PURGE DATA (if applicable) no odor

Time	Water Level	Purge Rate (~~gpm/hte~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
8:38	15.03	250 mL/min		15.20	7.48	1.96	16	30	8.48	
8:43	15.60	125		15.18	7.30	2.00	14.2	40	1.70	
8:48	16.04			15.14	7.30	1.97	7.6	47	1.25	
8:53	16.39	67.5		15.16	7.31	1.95	4.9	38	1.07	
8:58	16.64			15.14	7.32	1.93	4.3	33	0.98	

Rain, 60's

FIELD OBSERVATIONS

Facility: Conoco Sample Point ID: PW14

Field Personnel: DK+CZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-19 9:45 Condition of seal: ( ) Good ( ) Cracked ____ %

( ) None ( ) Buried

Gorilla tape

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 9:58 Date/Time Completed: 10:28

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

Initial Water Level (ft): 8.24 Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.2L Purged to Dryness: Y / (N)

Purge Observations: Clear, Brown Mat, Pyridine oder Start ____ Finish ____

PURGE DATA (if applicable) mL/

Time	Water Level	Purge Rate (~~gpm/htz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:00	8.31	250		15.94	9.64	6.96	0.0	-189	6.61	
10:05	8.37	125		16.02	9.74	7.11	0.0	-213	1.74	
10:10	8.45			15.99	9.75	7.23	0.0	-227	1.10	
10:15	8.54	675		16.10	9.76	7.19	0.0	-233	0.90	
10:20	8.61			16.18	9.76	7.19	0.0	-234	0.86	
↳ SAMPLE										

Rain 60°F

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW17

SAMPLING INFORMATION

Date/Time 5-10-19 10:40 Water Level at Sampling (ft) 29.47

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

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

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:45	15.57	7.75	5.52	37.6	409	3.00	

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: 60 °F, cloudy

Sample characteristics: wet, cloudy, some particles

Comments and Observations:

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

Date: 5-10-19 by: DK+CZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW 15

SAMPLING INFORMATION

Date/Time 5-10-19 10:58 Water Level at Sampling (ft) 27.95

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

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

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
11:10	14.28	10.26	11.6	0.0	-204	7.14	

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: 63°F, Cloudy

Sample characteristics: Brown tint, pyridine odor

Comments and Observations: MS/MSD

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

Date: 5-10-19 by: DK + CZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR127

SAMPLING INFORMATION

Date/Time 5-10-19 11:20 Water Level at Sampling (ft) 9.43

Method of Sampling Pumping bell 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
11:30	13.89	8.45	5.32	0.0	180	3.40	

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: 63°F, cloudy

Sample characteristics: slight tint, slight odor

Comments and Observations: Dupe

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

Date: 5-10-19 by: DK & CE Company: Matrix

FIELD OBSERVATIONS

Facility: Lot 29 Sample Point ID: B16

Field Personnel: DK+CZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-19 11:45 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 11:50 Date/Time Completed: 12:21

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

Initial Water Level (ft): 4.38 Elevation G/W MSL: ____

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

One (1) Riser Vol (gal): 27 Dedicated: (Y) / N

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

Purge Observations: clear, no 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
11:53	5.10	250 mL/min		14.45	8.36	0.731	0.0	-6	10	
11:58	5.65	125		14.18	7.93	0.699	0.0	41	7.77	
12:03	5.76	67.5		14.46	7.87	0.782	0.0	54	5.40	
12:08	5.80			14.58	7.80	0.880	0.0	60	3.59	
12:13	5.82			14.72	7.7	~~0.~~ 1.07	0.0	61	2.73	
→ SAMPLE										

63°F, windy, cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: MW106

Field Personnel: DK+CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-19 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: 5-10 1:28

Date/Time Completed: 13:59

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 9.55

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N

Total Volume Purged (gal): 2.2L

Purged to Dryness: Y / (N)

Purge Observations: Orange cloudy slight sheen/Aroden

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hte~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:33	10.54	250mL/min		14.29	7.51	1.23	252	-97	3.06	
13:38	10.71	~~125~~		13.52	7.48	1.22	246	-101	1.36	
13:43	10.80			13.49	7.46	1.24	237	-101	1.23	
13:48	10.85	125		13.39	7.47	1.21	223	-100	1.18	
↳	SAMPLE									

63°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR106

Field Personnel: DK+CZ+PB

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-10-19 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: 5-10 14:01

Date/Time Completed: 14:30

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

Riser Diameter (inches) 6" Steel

Initial Water Level (ft): 21.55

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N

Total Volume Purged (gal): 2.2L

Purged to Dryness: Y (N)

Purge Observations: gray, cloudy, sulfur 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
14:06	22.14	250mL/min		13.16	7.43	5.24	33.8	-149	3.94	
14:11	22.14	125		12.96	7.38	5.35	37.5	-168	1.16	
14:16	↓			13.23	7.40	5.35	31.9	-175	0.95	
14:21	↓	67.5		13.37	7.40	5.38	28.4	-179	0.90	
14:26	↓			13.29	7.41	5.39	24.3	-175	0.88	
→	SAMPLE									

62°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: P-2102

Field Personnel: DK/CZ

Sample Matrix:

MONITORING WELL INSPECTION

Date/Time: 5-13-19 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: 5-13 8:33

Date/Time Completed: 9:08

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

Riser Diameter (inches): 2" PVC

Initial Water Level (ft): 15.20

Elevation G/W MSL:

Well Total Depth (ft):

Method of Well Purge

One (1) Riser Vol (gal):

Dedicated: (Y) / N

Total Volume Purged (gal): 1.75 L

Purged to Dryness: Y / (N)

Purge Observations: Clear, sulfur odor

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
8:37	16.58	250 mL/m		7.77	8.27	5.33	0.0	-205	8.21	
8:42	15.50	67.5		7.92	7.83	5.25	0.0	-225	2.44	
8:47	15.52			8.05	7.79	5.26	0.0	-253	1.61	
8:52	15.55			8.22	7.79	5.26	0.0	-277	1.29	
8:57	15.56			8.12	7.79	5.26	0.0	-291	1.17	
Lg	SAMPLE									

45°F, light rain

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ103

Field Personnel: DK x CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-13-19 9:11

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: 5-13 9:16

Date/Time Completed: 9:46

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

Riser Diameter (inches) 2" PVC

Initial Water Level (ft): 12.13

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): 1.62

Purged to Dryness: Y / (N)

Purge Observations: Clear, slight chemical odor

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
9:20	12.89	250 mL/min		8.29	7.85	4.26	0.0	-269	5.70	
9:25	13.17	67.5		8.17	7.75	4.12	0.0	-275	1.56	
9:30	13.38			8.28	7.74	4.11	0.0	-277	1.41	
9:35	13.55			8.28	7.73	4.11	0.0	-278	1.34	
SAMPLE										

45 °F, light rain

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW 16

SAMPLING INFORMATION

Date/Time 5-13-16 9:50 Water Level at Sampling (ft) Probe gunked up from staying in well.

Method of Sampling pumping well Dedicated: (Y) N

Multi-phased/layered: Y / N if yes; ( ) Light ( ) Heavy Couldn't get level.

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:05	11.32	8.29	8.65	336	-29	3.72	

INSTRUMENT CALIFBRATION/CHECK DATA

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

GENERAL INFORMATION

Weather conditions at time of sampling: 45°F light rain

Sample characteristics: Black, dark gray, frothy

Comments and Observations: Sheen

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

Date: 5-13-16 by: DKACZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: BR126

Field Personnel: DKF CZ | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 10:20 5/13/19 | 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: 5-13 10:26 | Date/Time Completed: 11:00

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

Initial Water Level (ft): 8.03 | Elevation G/W MSL: ____

Well Total Depth (ft): ____ | Method of Well Purge 4" Steel Peristaltic

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

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

Purge Observations: clear, small particles | Start ____ Finish ____

PURGE DATA (if applicable) no odor

Time	Water Level	Purge Rate (~~spm/btz~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
10:30	8.09	250 mL/min		9.83	8.01	1.01	13.6	-84	11.5	
10:35	8.08	125		9.97	7.75	1.01	11.8	-88	1.82	
10:40	8.06	675		10.01	7.74	1.00	9.7	-86	1.31	
10:45	8.06			10.07	7.74	1.01	9.5	-85	1.26	
10:50	↓			10.06	7.73	1.01	8.7	-84	1.08	
	→ SAMPLE									

45°F, Light Rain

FIELD OBSERVATIONS

Facility: Lonza ~~Hill~~ Sample Point ID: BR105

Field Personnel: DK + CZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-13-19 11:13 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: 5-13 11:19 Date/Time Completed: 11:48

Surf. Meas. Point: ( ) Pro Casing (~~X~~) Riser Riser Diameter (inches) 6" SS Steel

Initial Water Level (ft): 21.73 Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.5L Purged to Dryness: Y / N

Purge Observations: Clear no odor 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
11:22	21.75	250 mL/min		10.34	7.97	2.65	0.0	-117	8.80	
11:27	21.74	125		10.47	7.64	2.74	0.0	-121	4.73	
11:32	21.74			10.85	7.64	2.75	0.0	-128	1.24	
11:37	21.75			11.00	7.63	2.76	0.0	-132	1.03	
11:42	21.75			11.06	7.63	2.76	0.0	-133	0.97	
11:45	SAMPLE									

45°F, Cloudy

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR105D

Field Personnel: DK + CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-13-19 11:49

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: 5-13 11:50

Date/Time Completed: 12:26

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

Riser Diameter (inches): 2" PVC

Initial Water Level (ft): 25.77

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: Clear, sulfur odor

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
11:57	26.46	~~250mL/min~~ 250		11.04	7.48	69.2	0.0	-340	3.86	
12:02	26.83	675		11.48	7.37	78	0.0	-374	0.72	
12:07	26.98			11.62	7.36	79	0.0	-380	0.61	
12:12	27.07			11.70	7.36	79.5	0.0	-386	0.56	
↳	SAMPLE									

45° Light Rain

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR14

Field Personnel: DK + CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-13-19 13:08

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

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

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

if prot casing; depth to riser below: ____

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

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

PURGE INFORMATION

Date/Time Initiated: 5-13 13:14

Date/Time Completed: 13:46

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

Riser Diameter (inches) 6" steel

Initial Water Level (ft): 12.80

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Peristaltic

One (1) Riser Vol (gal): ____

Dedicated: (✓) N

Total Volume Purged (gal): 2.5L

Purged to Dryness: Y (✓)

Purge Observations: Fan, cloudy, 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
13:20	12.76	250 mL/min		11.05	9.05	1.63	90	-257	9.10	
13:25	12.74	125		10.95	8.68	1.60	86	-263	1.92	
13:30	12.76	67.5		10.98	8.27	1.83	75.3	-262	1.20	
13:35	12.76			11.01	8.12	1.90	60	-262	1.08	
13:40				11.01	8.07	1.91	52.4	-264	0.95	
↳	SAMPLE									

45°F, Rain

FIELD OBSERVATIONS

Facility: Lonza | Sample Point ID: MW114

Field Personnel: DK + CZ | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-13-19 13:46 | 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: 5-13-19 13:47 | Date/Time Completed: 14:16

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

Initial Water Level (ft): 9.06 | Elevation G/W MSL: ____

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

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

Total Volume Purged (gal): 2.1 L | Purged to Dryness: Y / (N)

Purge Observations: clear, no 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
1350	10.04	≈50mL/min		10.76	8.46	1.33	17.3	-242	4.22	
13:55	10.57	67.5		10.67	8.49	0.966	13.9	-244	2.70	
14:00	12.84			10.65	8.54	0.927	15.1	-243	2.31	
14:05	11.72			10.61	8.54	0.922	10.7	-243	2.09	
14:10	10.93			10.60	8.55	0.926	9.4	-244	1.89	
↳	SAMPLE									

45°F, Rain

DK

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: PW13

SAMPLING INFORMATION

Date/Time 5-14-19 8:30 Water Level at Sampling (ft) 27.75

Method of Sampling Pumping well Dedicated: Y / N

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

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
8:40	13.22	7.95	4.34	12.3	-28	3.95	

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: 40°F, Rain

Sample characteristics: clear, slight 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: 5-14-19 by: DK + EZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: Post Carbon

SAMPLING INFORMATION

Date/Time 5-14-19 9:35 Water Level at Sampling (ft)

Method of Sampling SAMPLE port Dedicated: (Y) N

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

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
9:40	12.25	8.35	5.32	4.6	-179	5.73	

INSTRUMENT CALIFBRATION/CHECK DATA

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

GENERAL INFORMATION

Weather conditions at time of sampling: 39°F Rain

Sample characteristics: a little cloudy, no odor

Comments and Observations:

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

Date: 5/14/19 by: DKF CZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR122D

Field Personnel: DK+CZ

Sample Matrix: _____

MONITORING WELL INSPECTION

Date/Time: 5-14-19 9:57

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 10:08

Date/Time Completed: 10:38

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

Riser Diameter (inches) 4" Steel

Initial Water Level (ft): 44.61

Elevation G/W MSL: _____

Well Total Depth (ft): _____

Method of Well Purge Bladder pumps

One (1) Riser Vol (gal): _____

Dedicated: (Y) N

Total Volume Purged (gal): 4.5 L

Purged to Dryness: Y (N)

Purge Observations: Cloudy, slight sulfur odor

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
10:13	44.63	250 mL/min		7.96	7.49	1.90	0.10	-204	4.63	
10:18	44.63			8.22	7.71	1.85	0.0	-228	1.89	
10:23	44.63			8.36	7.68	1.81	0.10	-239	1.47	
10:28	"			8.37	7.68	1.80	0.0	-245	1.80	
10:33	"			8.38	7.67	1.80	0.0	-245	1.37	
↳ SAMPLE										

40°F, Rain

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR123D

Field Personnel: 5-14-19 TDT

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-19 10:58

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

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

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

( ) loose ( ) flush mount

( ) Damaged ____

if prot casing; depth to riser below: ____

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

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

PURGE INFORMATION

Date/Time Initiated: 5-14-19 11:09

Date/Time Completed: 11:37

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

Riser Diameter (inches) 4" Steel

Initial Water Level (ft): ~~44.89~~ 44.91

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge Bladder Pump

One (1) Riser Vol (gal): ____

Dedicated: (Y) / N new tubing

Total Volume Purged (gal): 4.5L

Purged to Dryness: Y / (N)

Purge Observations: no odor, small particles

Start ____ Finish ____

PURGE DATA (if applicable)

Time	Water Level	Purge Rate (~~gpm/hta~~)	Cumulative Volume	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
11:12	44.89	~~450~~ 450		8.55	8.16	2.66	0.0	-177	5.20	
11:17	44.91			8.85	8.17	2.64	0.0	-158	6.25	
11:22	44.91			9.07	8.22	2.60	0.0	-151	7.42	
11:27	44.89			9.16	8.21	2.59	1.4	-152	7.36	
11:32	44.88			9.28	8.25	2.57	4.9	-149	7.61	
→ SAMPLE										

Sample from 11:37

41°F, Rain

FIELD OBSERVATIONS

Facility: Lang

Sample Point ID: BR117D

Field Personnel: JK+CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5/14/19 12:20

Condition of seal: (✓) Good ( ) Cracked ____ %
( ) None ( ) Buried

Prot. Casing/Riser Height: ____

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

if prot casing; depth to riser below: ____

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

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

PURGE INFORMATION

Date/Time Initiated: 5-14 12:22

Date/Time Completed: 12:40

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

Riser Diameter (inches) 4" Steel

Initial Water Level (ft): 46.85

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): 2.5L

Purged to Dryness: Y / (N)

Purge Observations: tan, cloudy, no odor

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
12:25	46.87	250mL/min		10.31	9.11	0.523	74	-176	6.52	
12:30	46.86			10.47	9.08	0.526	61	-181	5.73	
12:35	46.86			10.46	9.07	0.526	57	-184	5.49	
→ SAMPLE					↓					
					Battery running low					

43°F, light rain

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR118D

Field Personnel: DK+CZ

Sample Matrix:

MONITORING WELL INSPECTION

Date/Time: 5-14-19 12:48

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 12:56

Date/Time Completed: 13:25

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

Riser Diameter (inches): 4" Steel

Initial Water Level (ft): 46.13

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): 4.5L

Purged to Dryness: Y (N)

Purge Observations: cloudy, orange/brown

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	~~Pre~~ 46.14	250mL/min		10.49	10.64	0.646	66.6	-143	3.71	
13:05	46.13			10.57	10.61	0.649	64.7	-168	3.91	
13:10	46.14			10.59	10.63	0.650	62.3	-169	4.02	
13:15	46.14			11.03	10.71	0.650	58.4	-169	4.09	
13:20	46.14			11.07	10.72	0.650	51.2	-170	4.14	
→	SAMPLE									

43°F, Rain

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: BR113D

Field Personnel: DK+CZ

Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-19 13:30

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 1:33

Date/Time Completed: 14:01

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

Riser Diameter (inches): 2" PVC

Initial Water Level (ft): 30.97

Elevation G/W MSL: ____

Well Total Depth (ft): ____

Method of Well Purge ____

One (1) Riser Vol (gal): ____

Dedicated: Y / N

Total Volume Purged (gal): 4.5 L

Purged to Dryness: Y / N

Purge Observations: clean, sulfur 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
13:35	31.00	250 mL/min		9.90	8.30	3.83	0.0	-263	9.91	
13:40	31.06			9.74	8.07	3.84	0.0	-323	1.25	
13:45	31.04			9.76	7.95	3.84	0.0	-349	1.00	
13:50	31.09			9.73	7.99	3.89	0.0	-363	0.90	
13:55	31.07			9.74	7.97	4.05	0.0	-366	0.86	
↳	SAMPLE									

43°F, Rain

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR1121

Field Personnel: DKtCZ Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-14-19 14:30 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 36.04 Date/Time Completed: 14:45

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

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

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

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

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

Purge Observations: clear, sulfur odor 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
14:45			2" Riser	Bent	can't	get				
			pump down,	used	bailer					
14:45				10.05	8.63	3.36	7.0	-33.1	5.27	

46°F, Rain

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: BR7A

SAMPLING INFORMATION

Date/Time 5-15-19 8:18 Water Level at Sampling (ft) 23.10

Method of Sampling Pumping Well Dedicated: (Y) N

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

SAMPLING DATA

Time	Temp (C)	pH (SU)	Conductivity (mS/cm)	Turb. (NTU)	ORP	DO	Other
8:25	12.88	10.81	2.79	17.6	-319	8.14	

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, Cloudy

Sample characteristics: clear, slight sediment

Comments and Observations:

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

Date: 5-15-19 by: DKF CZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza

Sample Point ID: PZ105

Field Personnel: DK+CZ

Sample Matrix:

MONITORING WELL INSPECTION

Date/Time: 5-15-19 9:00

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

( ) None ( ) Buried

Prot. Casing/Riser Height: ____

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

( ) loose (✓) flush mount

( ) Damaged Box buried

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: 5-15-19 9:20

Date/Time Completed: 10:02

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

Riser Diameter (inches) 2"

Initial Water Level (ft): 9.12

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): 1.75 L

Purged to Dryness: Y / (N)

Purge Observations: ~~slight~~ mostly clear, slight odor, small black particles

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
9:25	9.98	250 mL/min		11.18	10.43	9.40	0.0	-325	6.20	
9:30	10.74	125		11.82	8.54	4.33	0.10	-291	1.96	
9:35	10.99	<67.5		12.01	8.24	4.34	2.7	-292	1.54	
9:40	11.74			12.20	7.84	4.38	6.5	-295	1.26	
9:45	12.23			12.38	7.63	4.37	4.1	-291	1.06	
↳	SAMPLE									

47°F, Sun + clouds

FIELD OBSERVATIONS

Facility: Lot 29 | Sample Point ID: B11

Field Personnel: DK+CZ | Sample Matrix: GW

MONITORING WELL INSPECTION

Date/Time: 5-15-19 10:09 | 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 10:16 | Date/Time Completed: 11:09

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

Initial Water Level (ft): 4.28 | Elevation G/W MSL: ____

Well Total Depth (ft): 11.65 | Method of Well Purge Peristaltic

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

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

Purge Observations: cloudy, gray/brown | 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
10:30	5~~8~~.94	250 mL/min		17.80	10.96	3.66	678	-225	3.53	
10:35	7.57	125		17.69	10.61	3.63	684	-234	2.14	
10:40	8.98	67.5		16.73	10.73	3.69	700	-217	2.13	
10:45	9.96			15.92	10.68	3.74	408	-216	2.12	
10:50	10.35			15.50	10.55	3.78	214	-205	3.71	
LS	SAMPLE									

50°F, sunny

FIELD OBSERVATIONS

Facility: Con Z9   Sample Point ID: QS4

SAMPLING INFORMATION

Date/Time: 5-15-19 11:20   Water Level at Sampling (ft): ———

Method of Sampling: Water pouring octofrack intergun   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
11:30	12.67	11.63	2.07	0.0	-171	9.90	

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: 60°F, Sunny

Sample characteristics: clear, slight sulfur odor

Comments and Observations:

Dupe

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

Date: 5-15-19   by: DKCZ   Company: Matrix

FIELD OBSERVATIONS

Facility: Conoco Sample Point ID: OD-1

SAMPLING INFORMATION

Date/Time 5-15-19 11:50 Water Level at Sampling (ft) —

Method of Sampling Bucket into waterflow 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
11:55	12.97	12.01	1.86	0.0	-96	9.60	

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: 64°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: 5-15-19 by: DK + CZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: QC-2

SAMPLING INFORMATION

Date/Time 5-15-19 12:58 Water Level at Sampling (ft)

Method of Sampling Bucket from flow 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
13:06	14.31	12.71	1.95	0.0	118	11.4	

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: 64°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: 5-15-19 by: DK+CZ Company: Matrix

FIELD OBSERVATIONS

Facility: Lonza Sample Point ID: QO-251

SAMPLING INFORMATION

Date/Time 5-15-19 13:08 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 (mS/cm)	Turb. (NTU)	ORP	DO	Other
13:15	14.57	10.04	0.517	0.0	28	10.01	

INSTRUMENT CALIFBRATION/CHECK DATA

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

GENERAL INFORMATION

Weather conditions at time of sampling: 64°F, Cloudy

Sample characteristics: Clear, no odor

Comments and Observations:

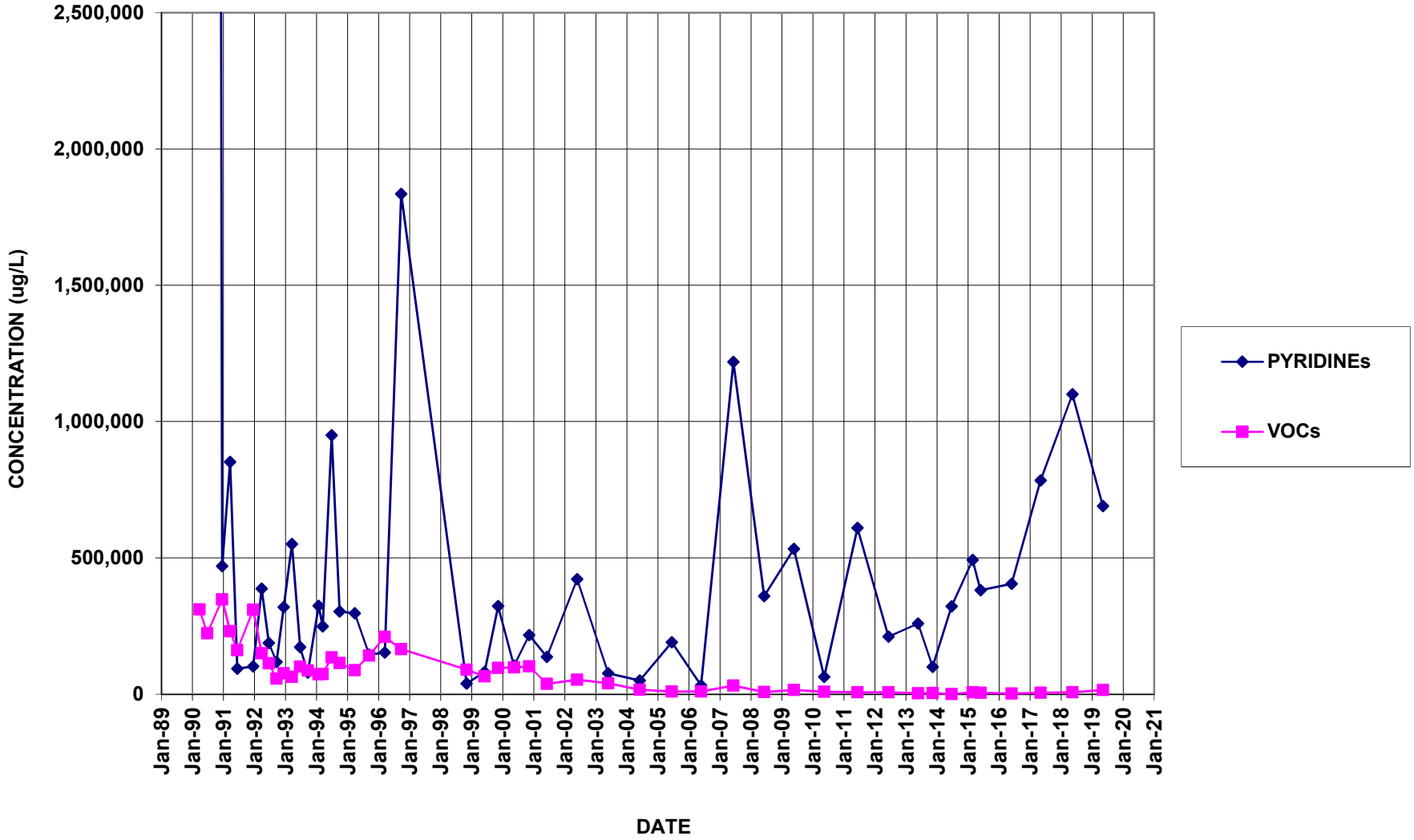
I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocols:

Date: 5-15-19 by: DKTCZ Company: Matrix

Appendix B

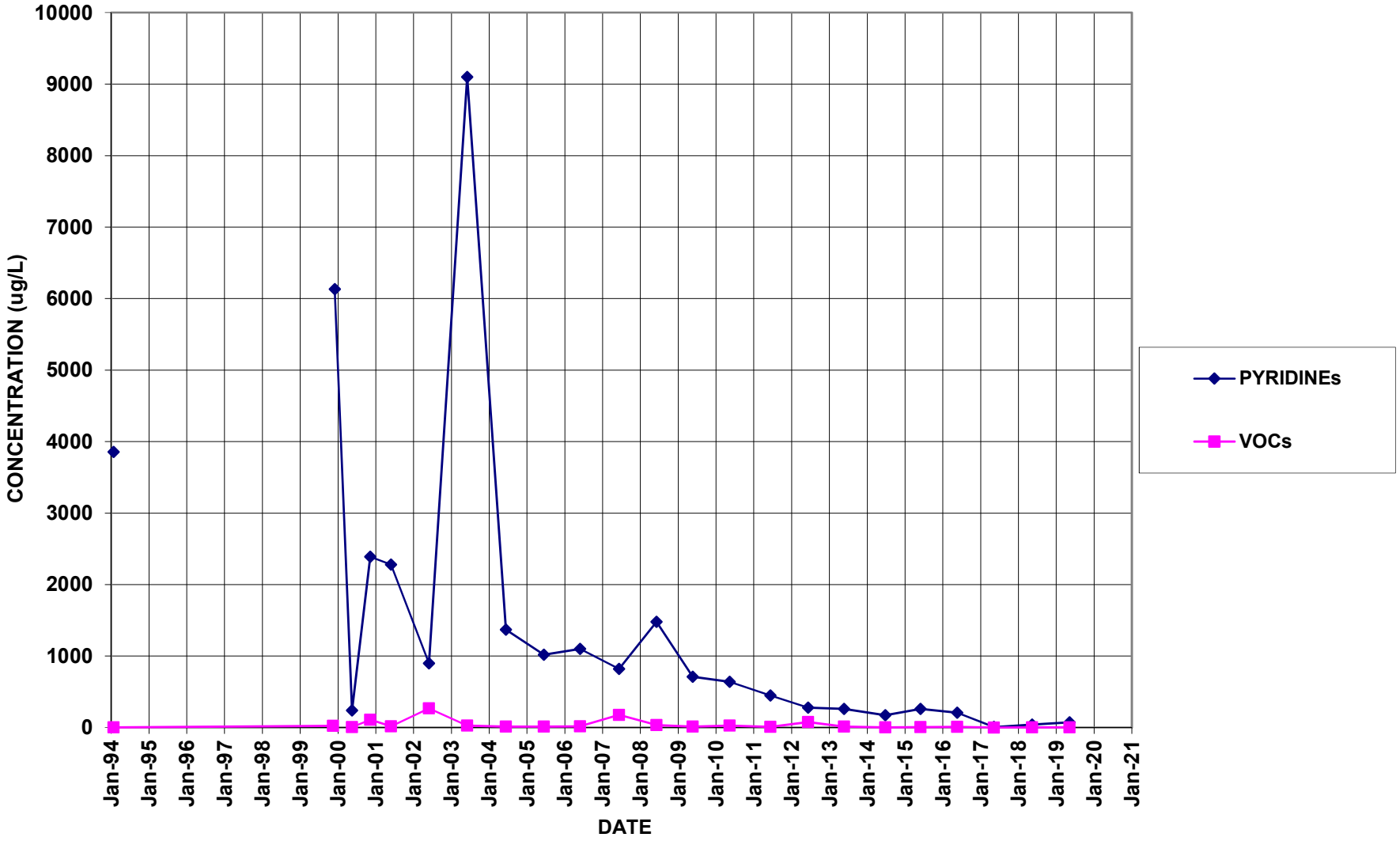
Well Trend Data

B-17

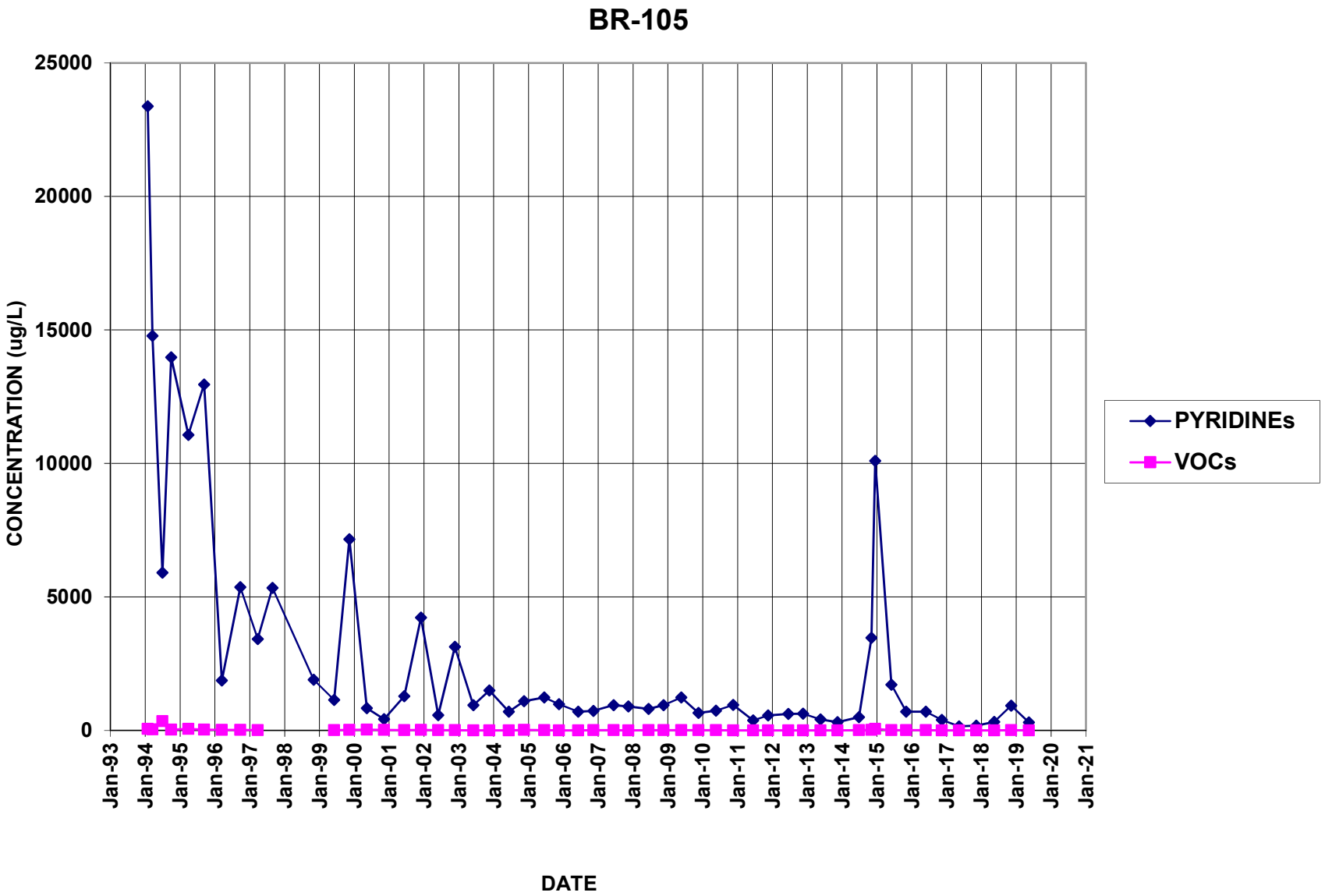


Prepared by: JAR 7/31/19
Reviewed by: nmb

B-7

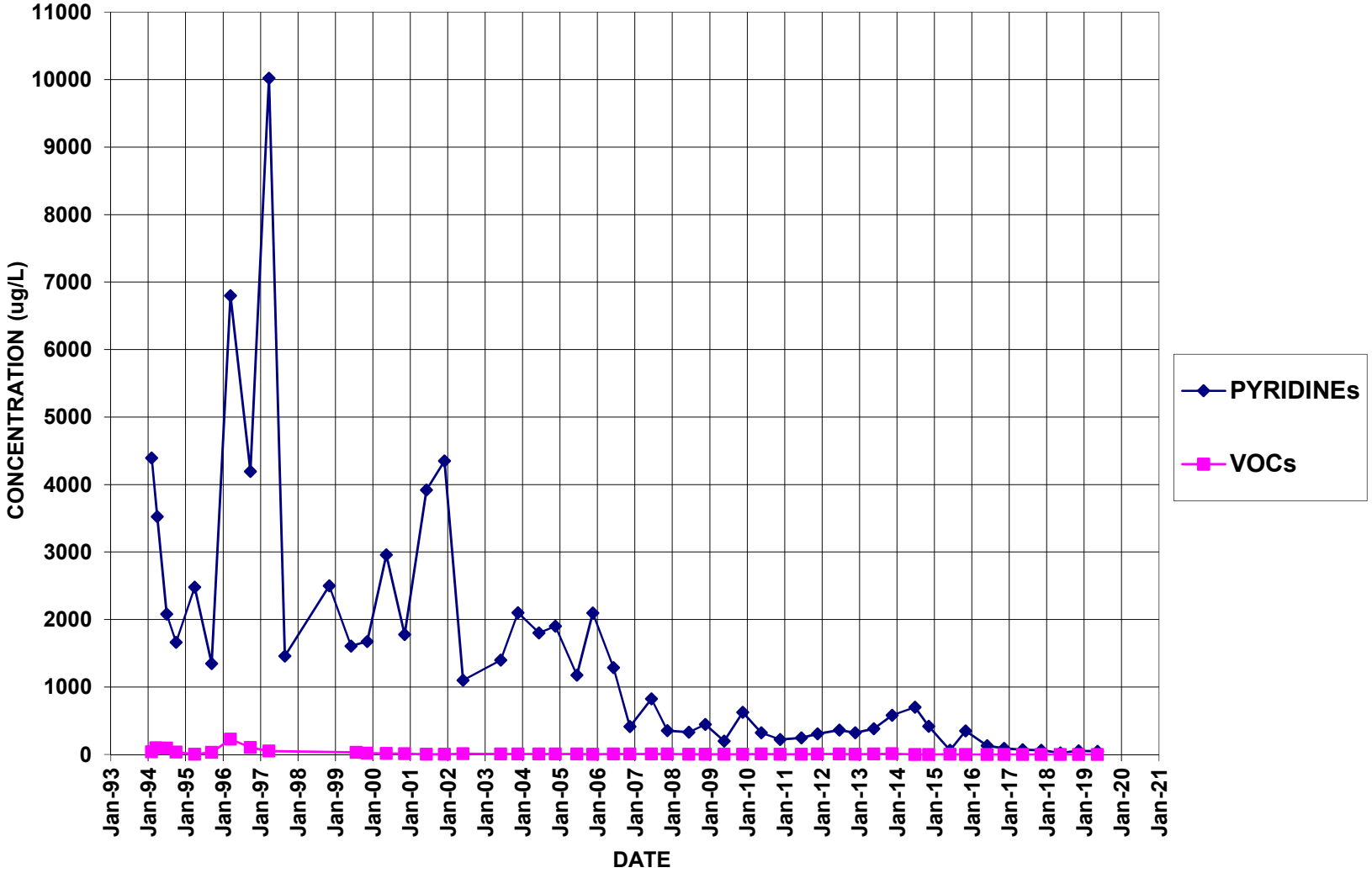


Prepared by: JAR 7/31/19
Reviewed by: nmb



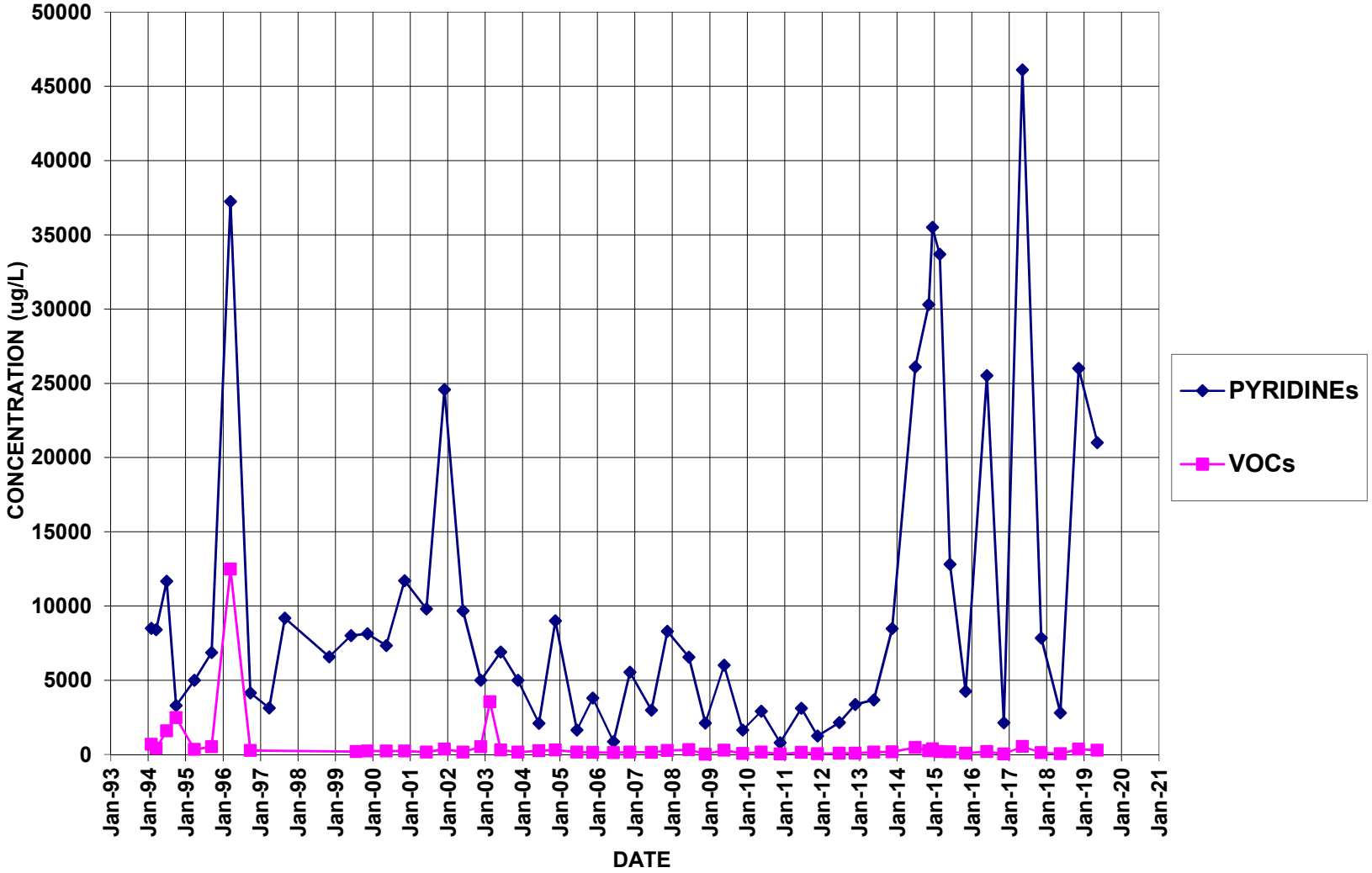
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-105D



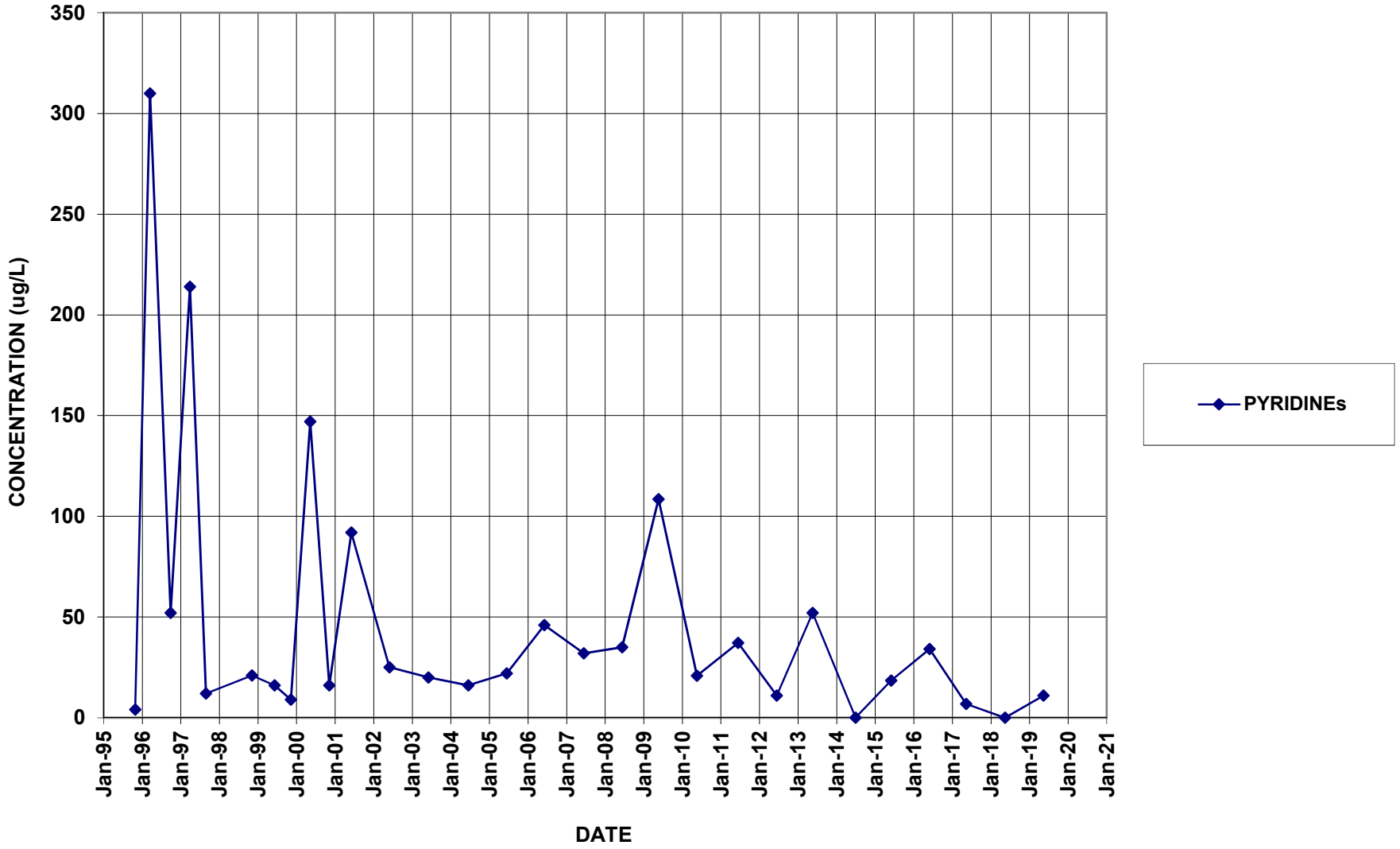
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-106



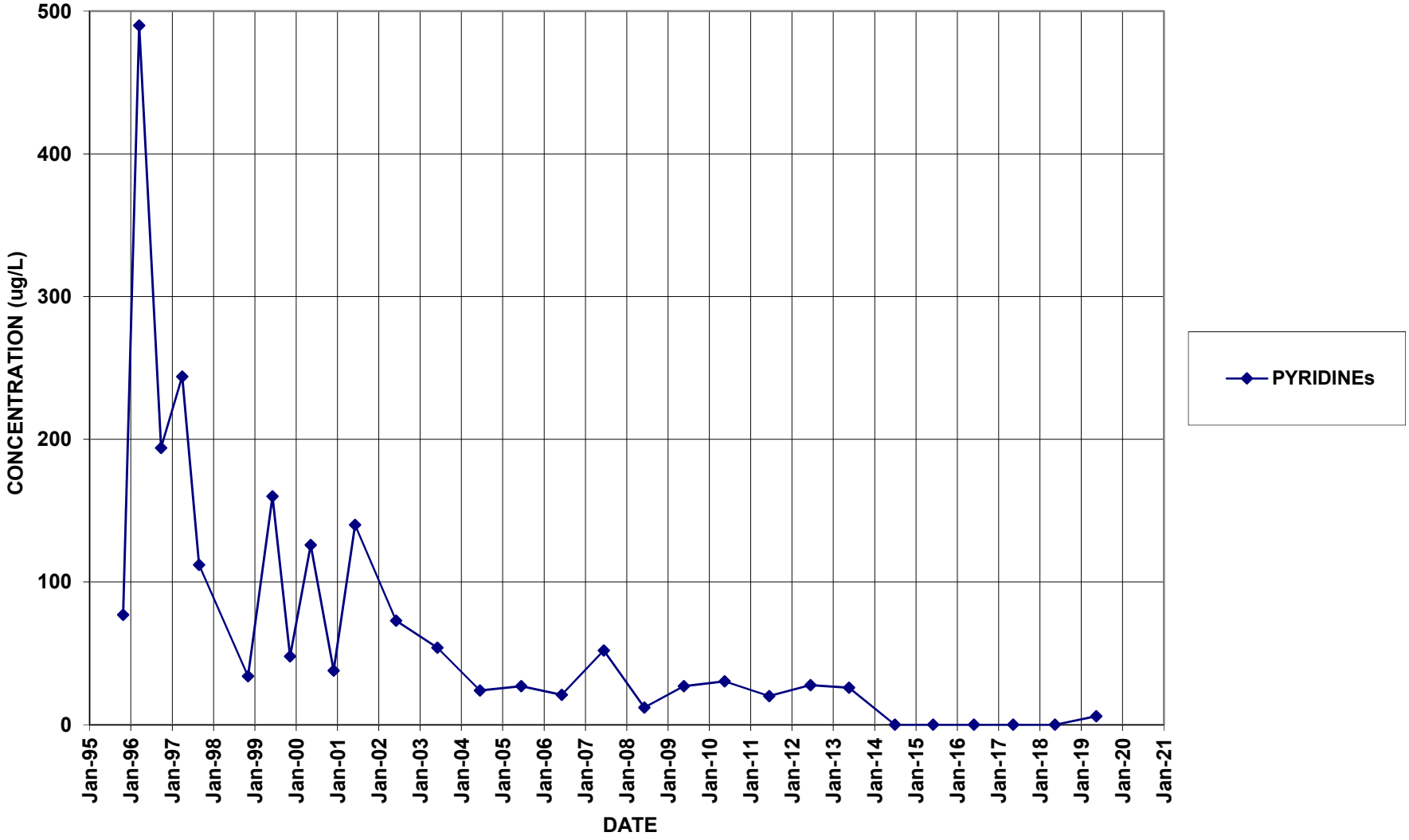
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-112D



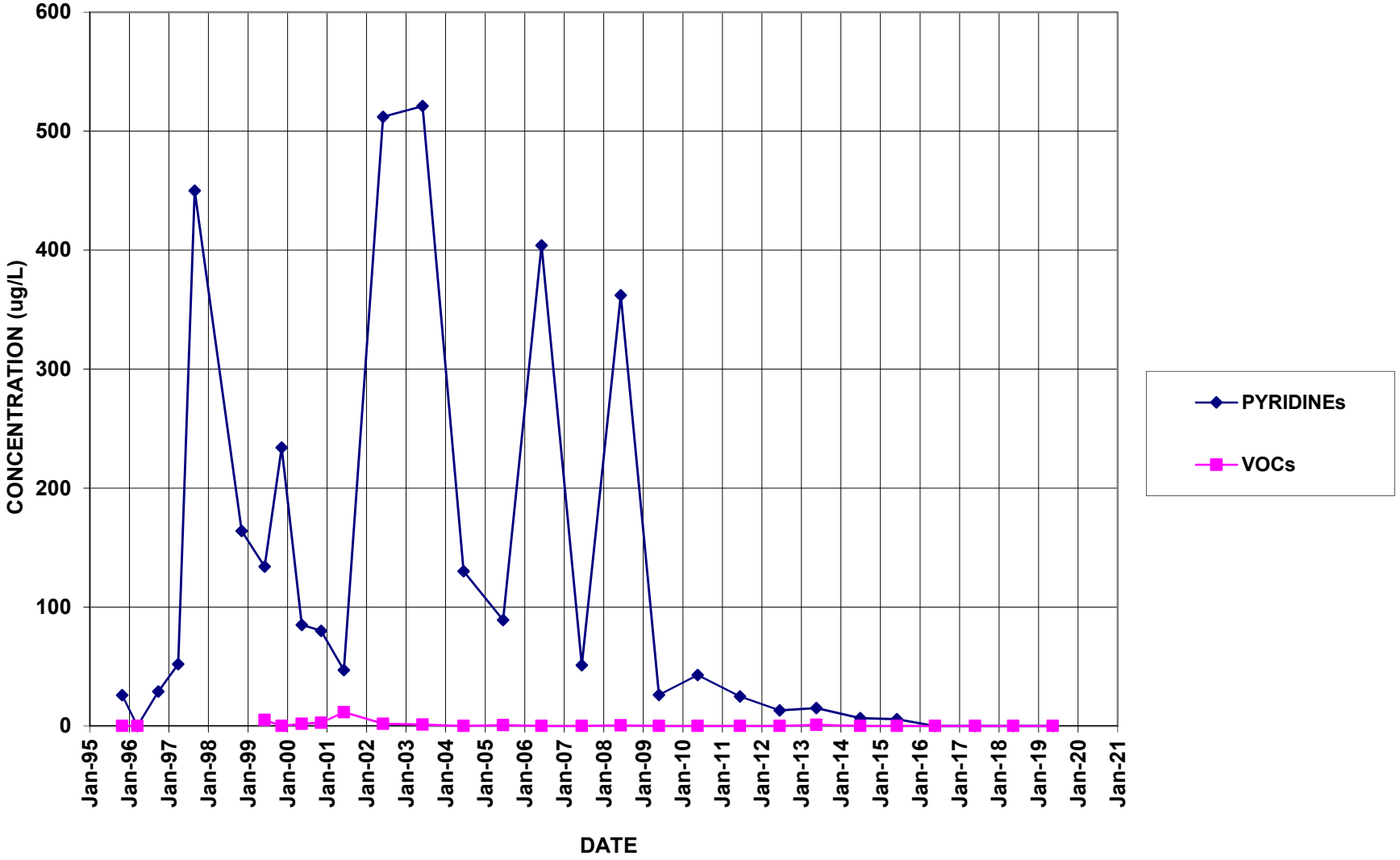
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-113D



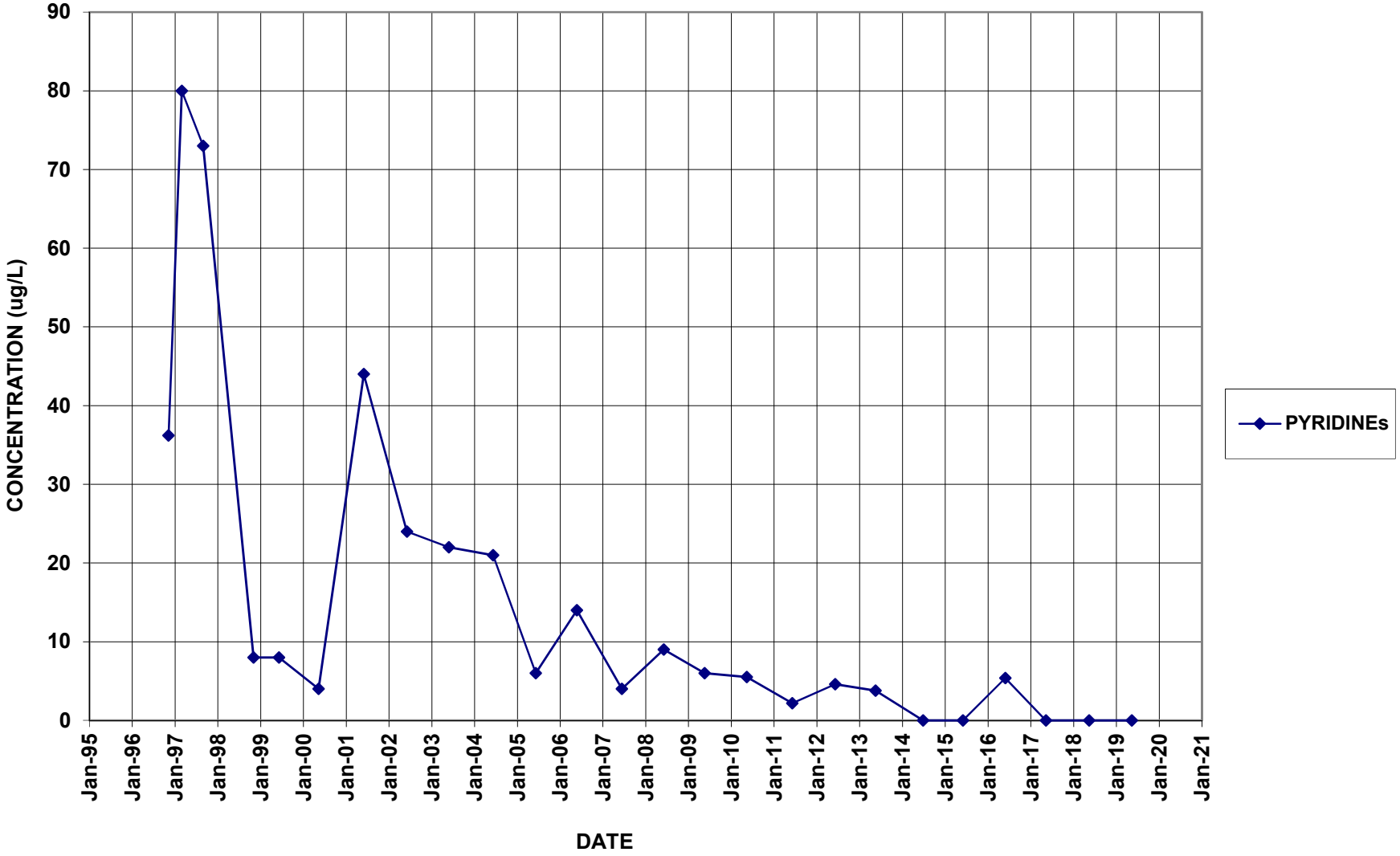
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-114



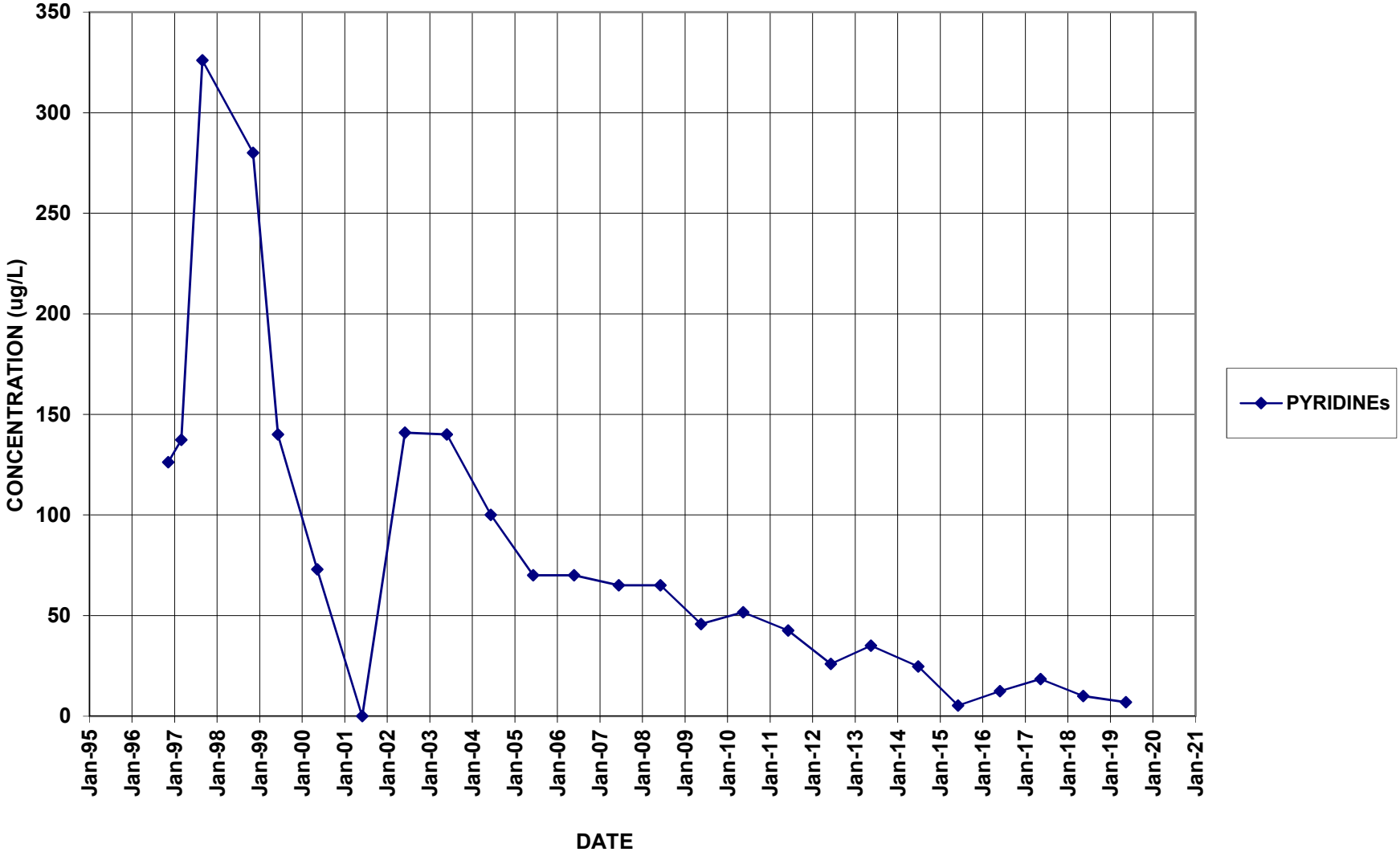
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-117D



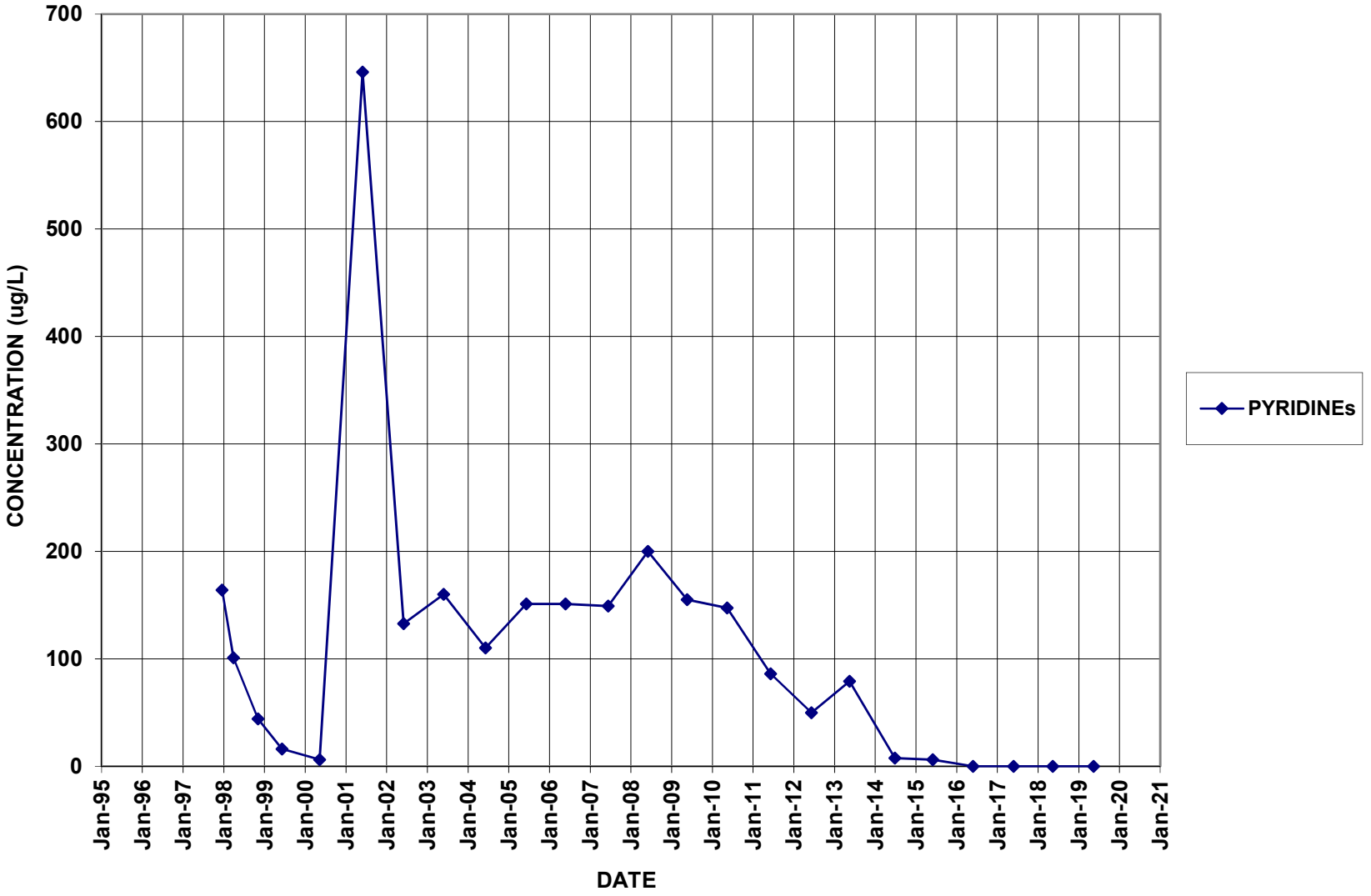
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-118D



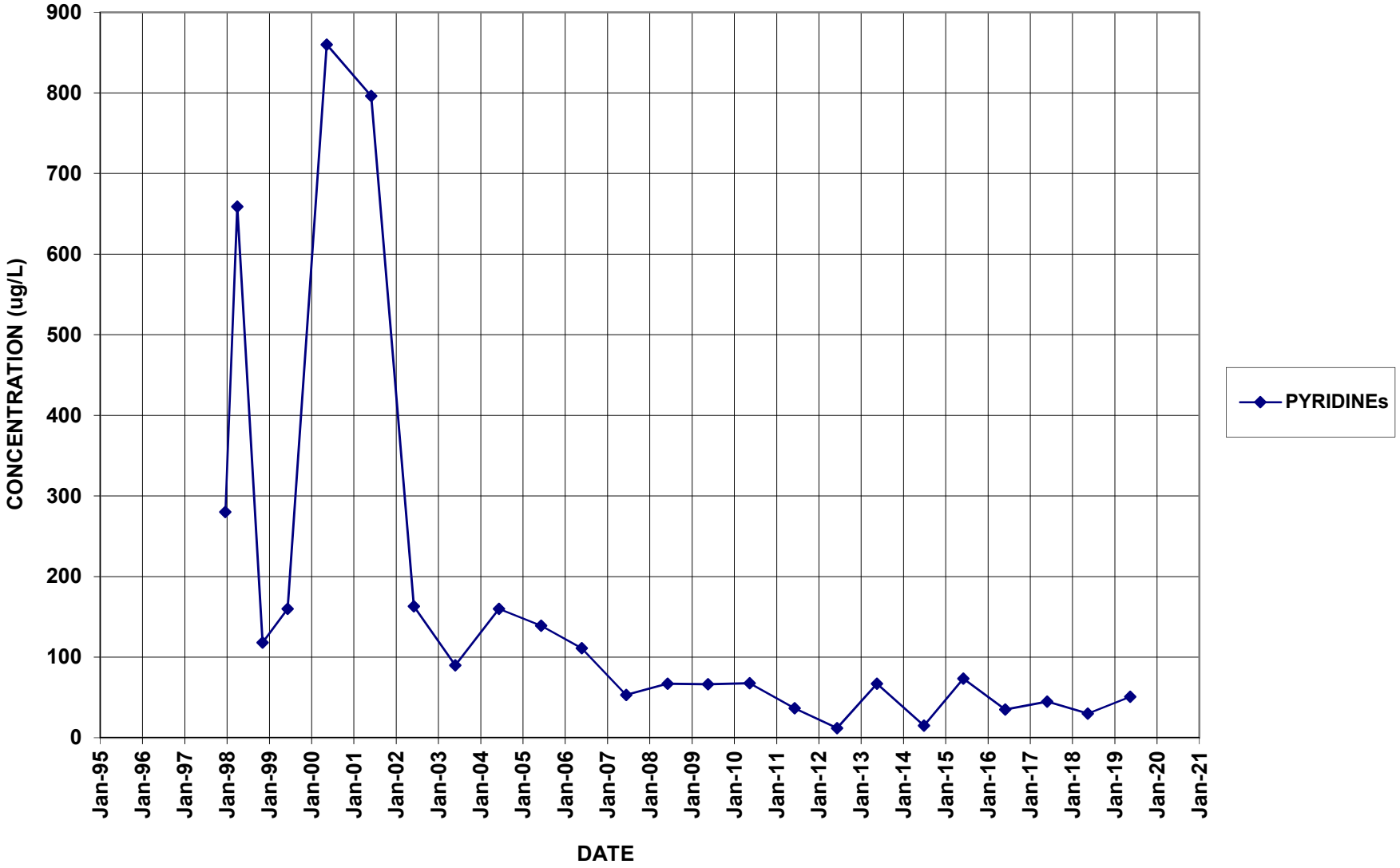
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-122D



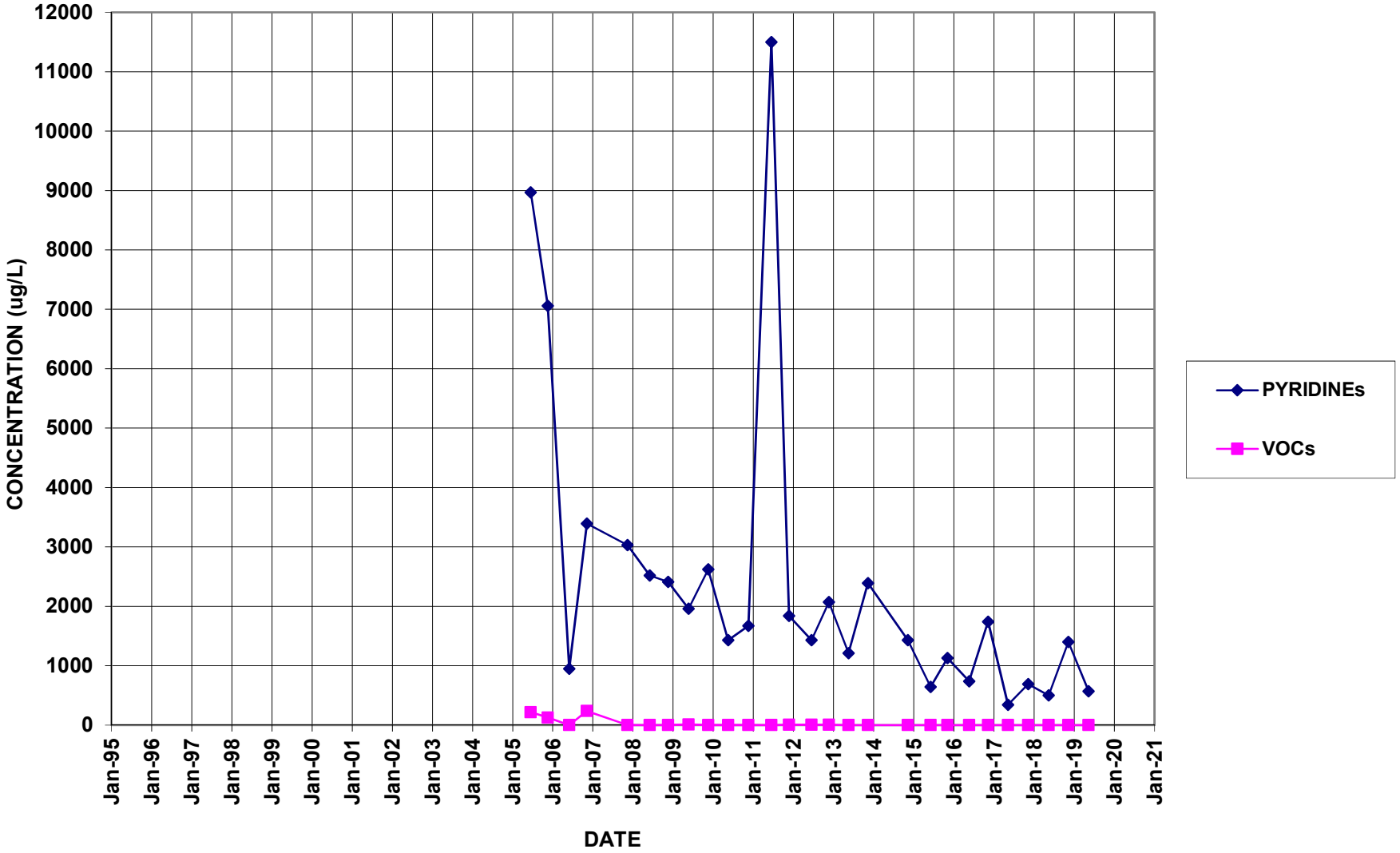
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-123D



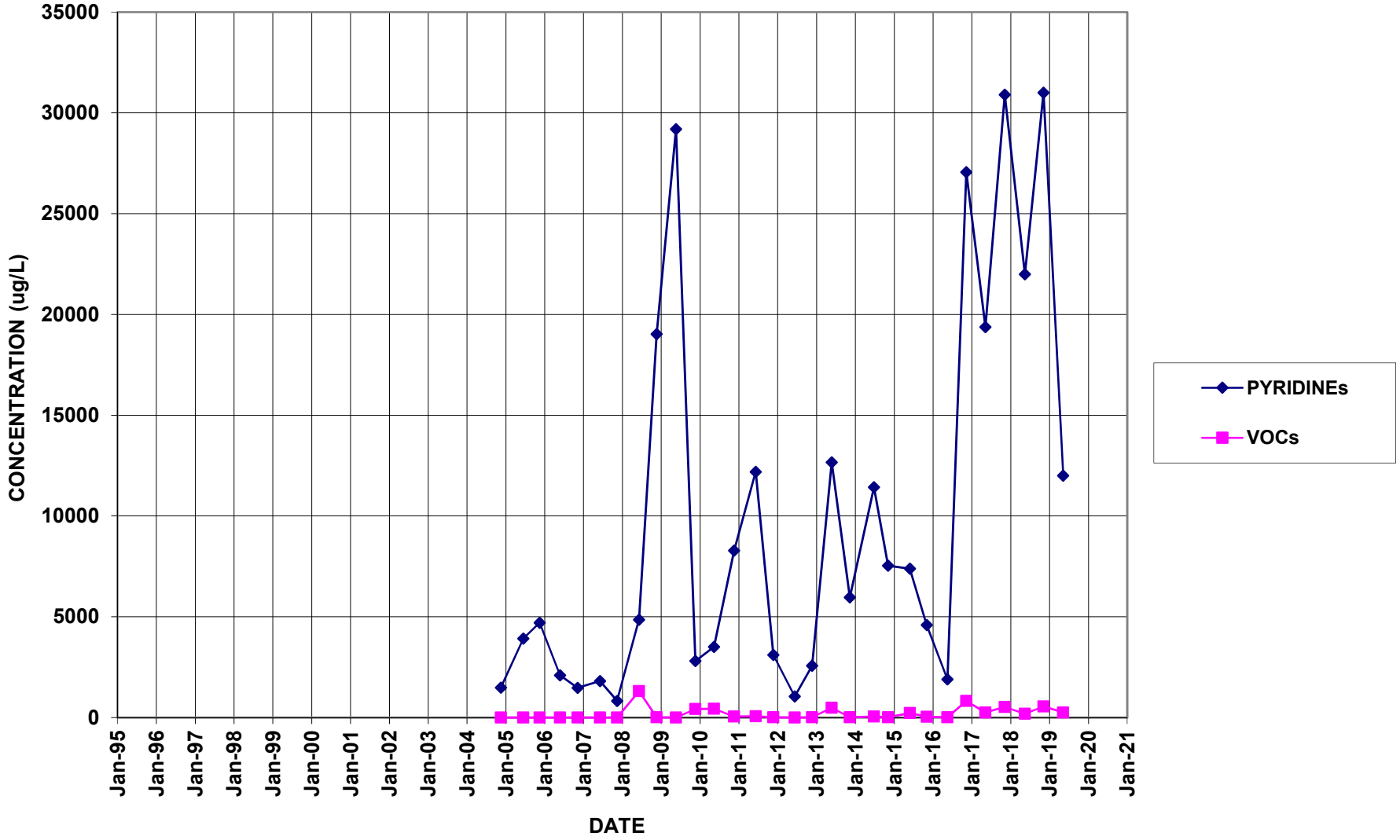
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-126



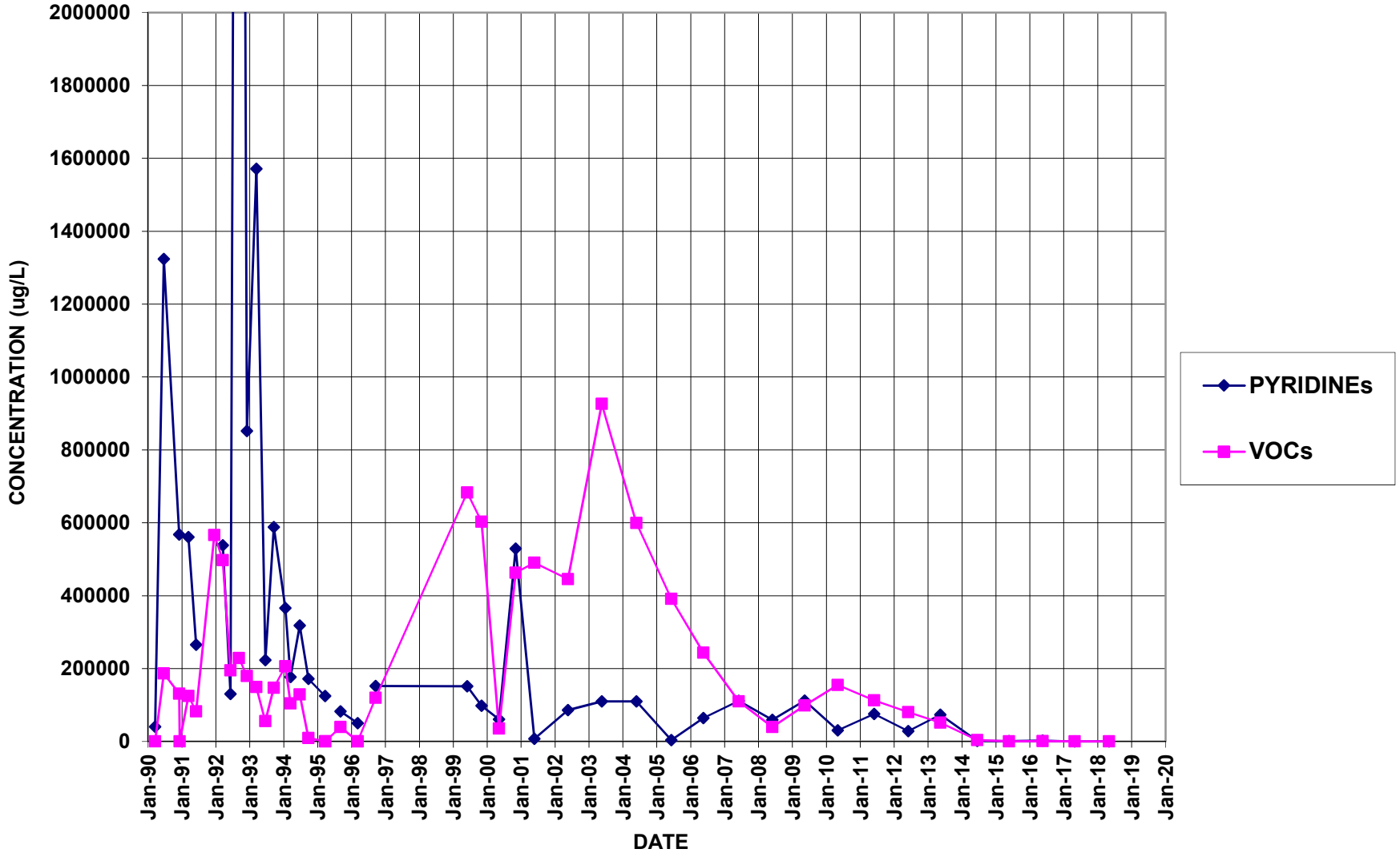
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-127



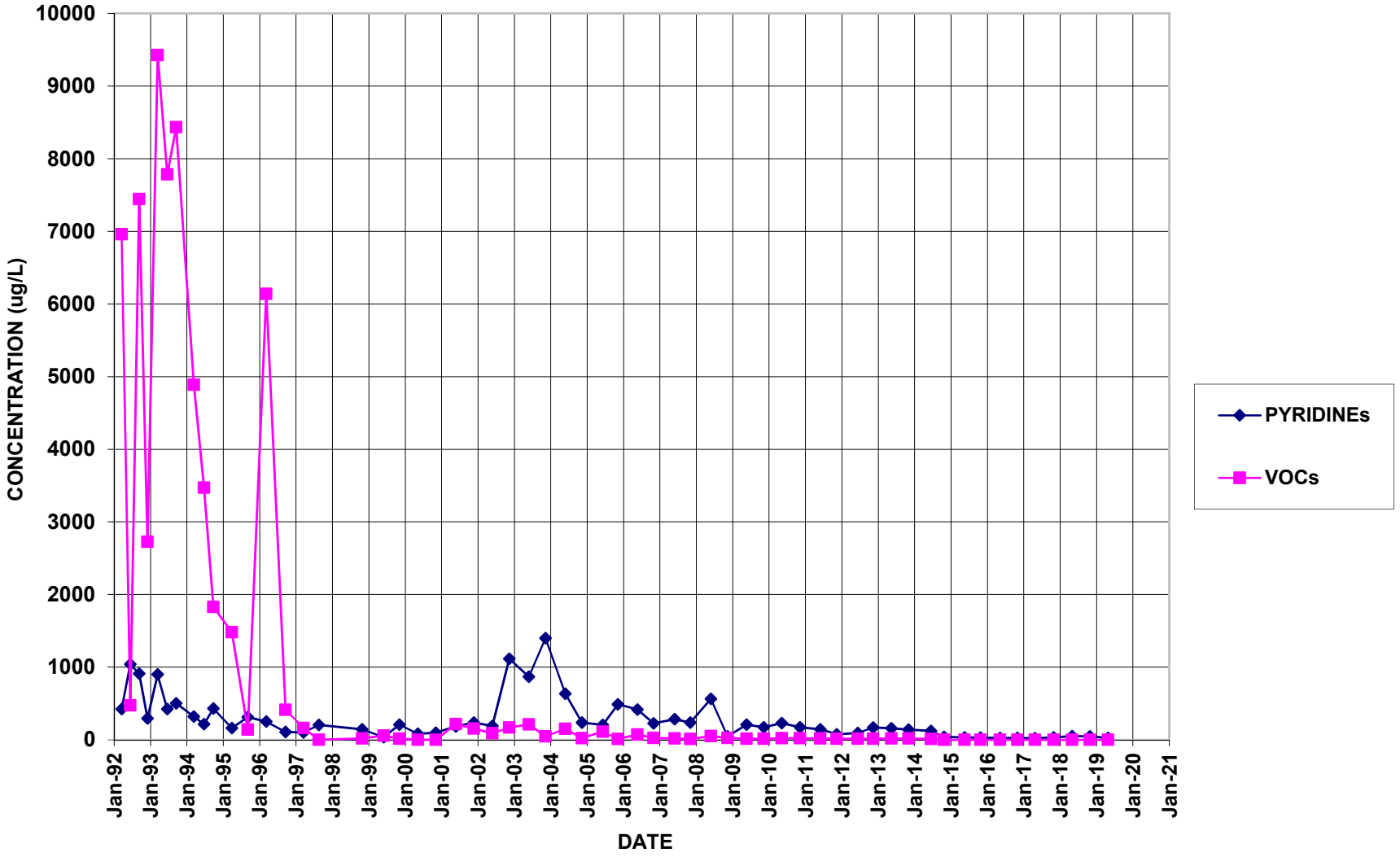
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-3



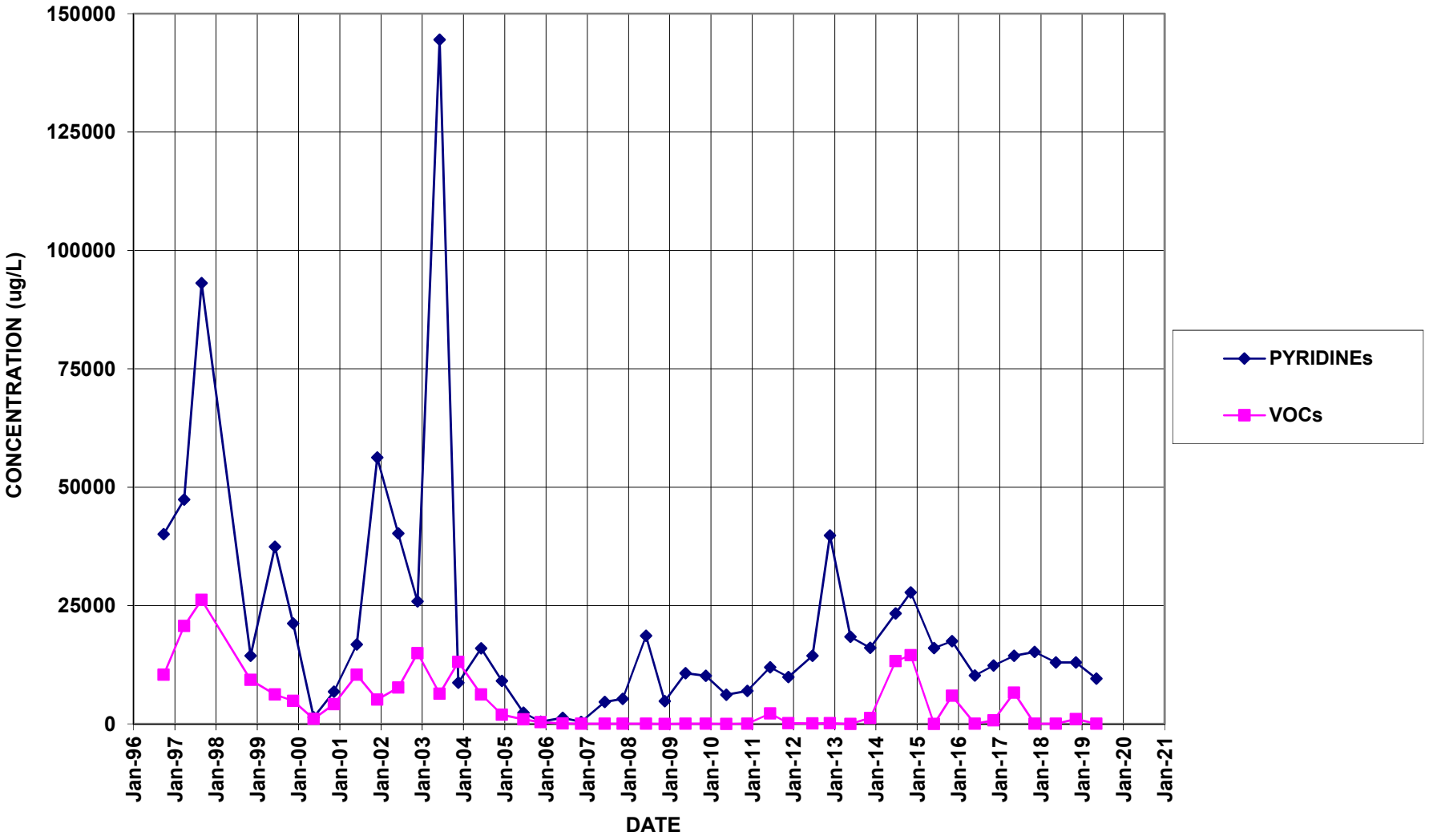
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-5A



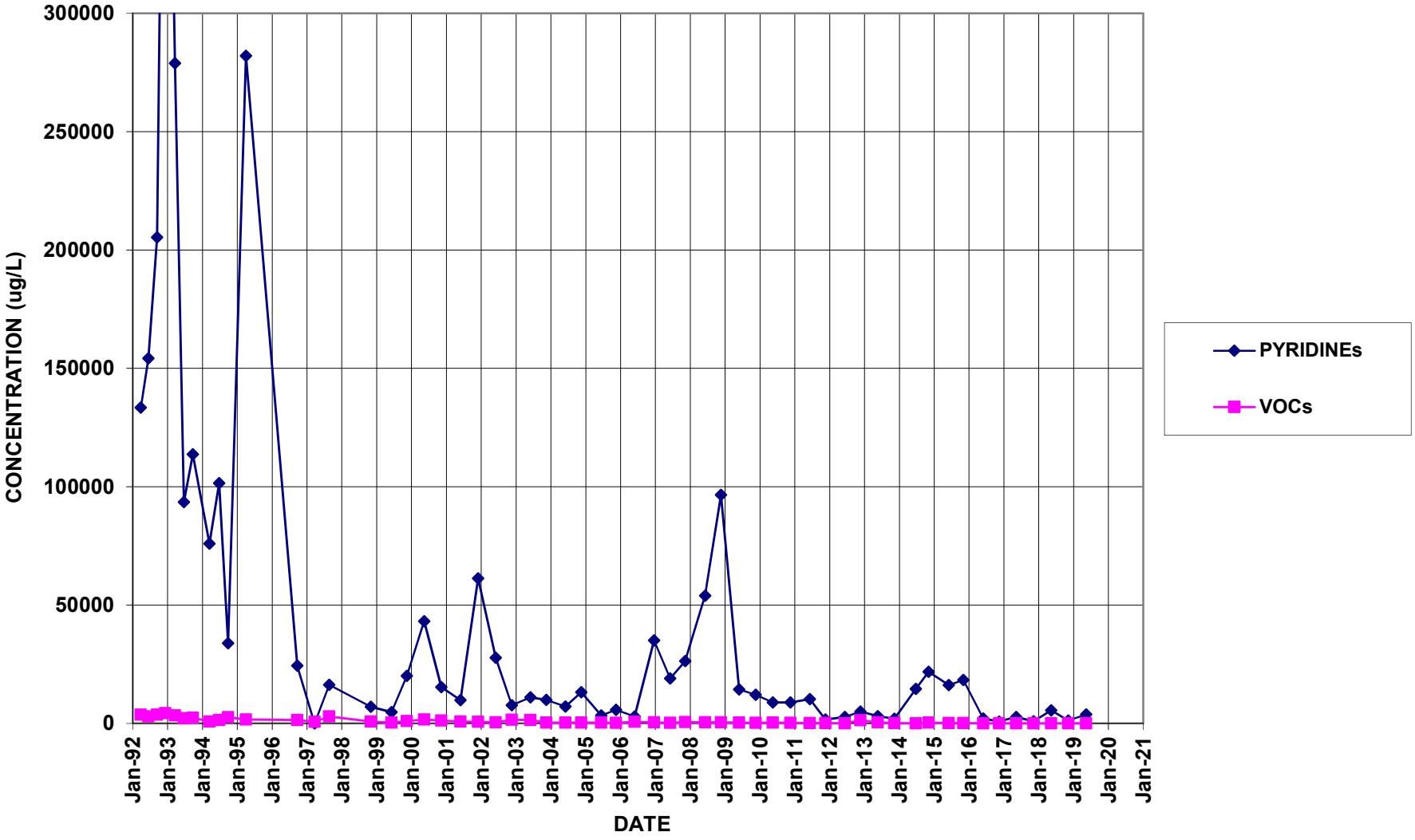
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-6A



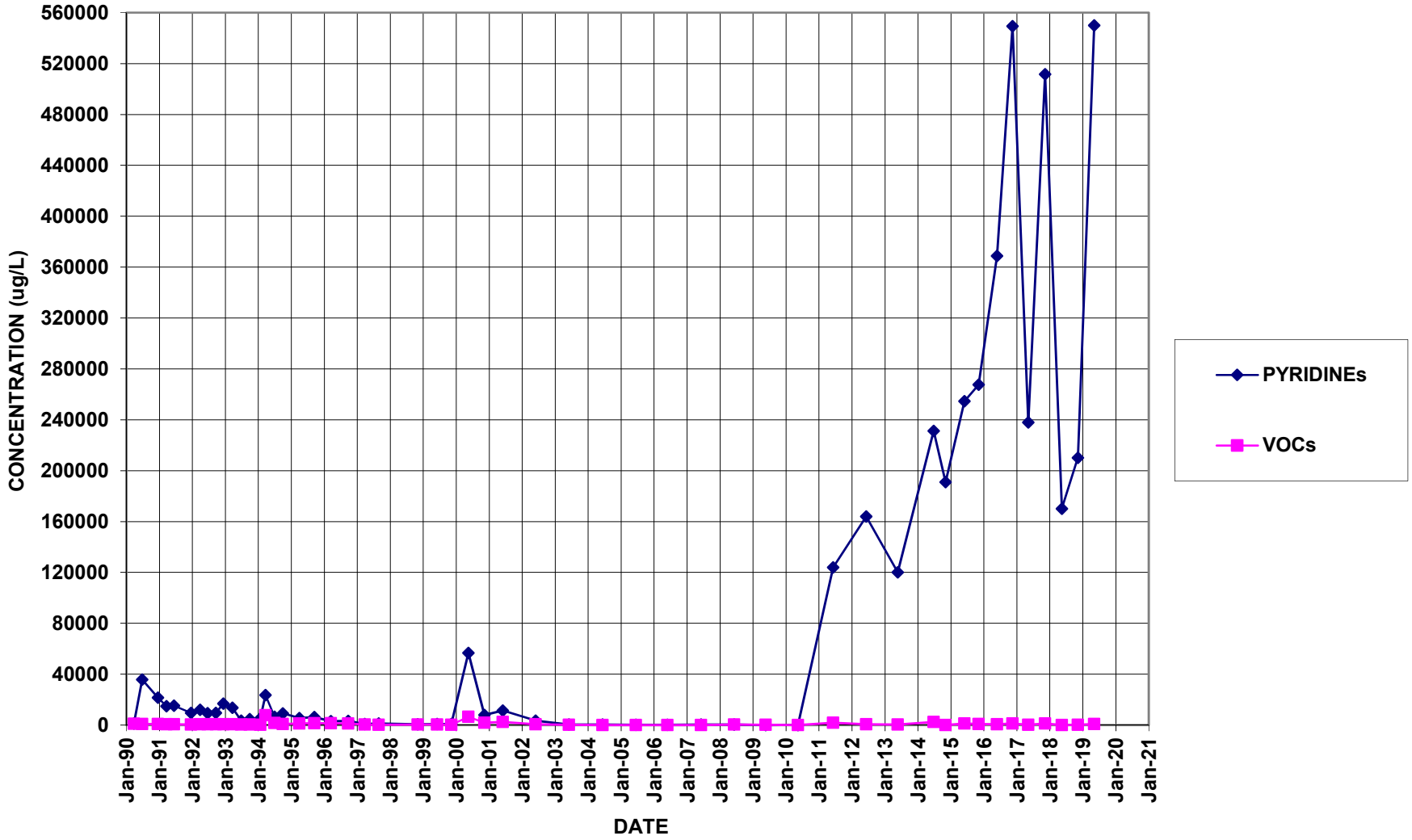
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-7A



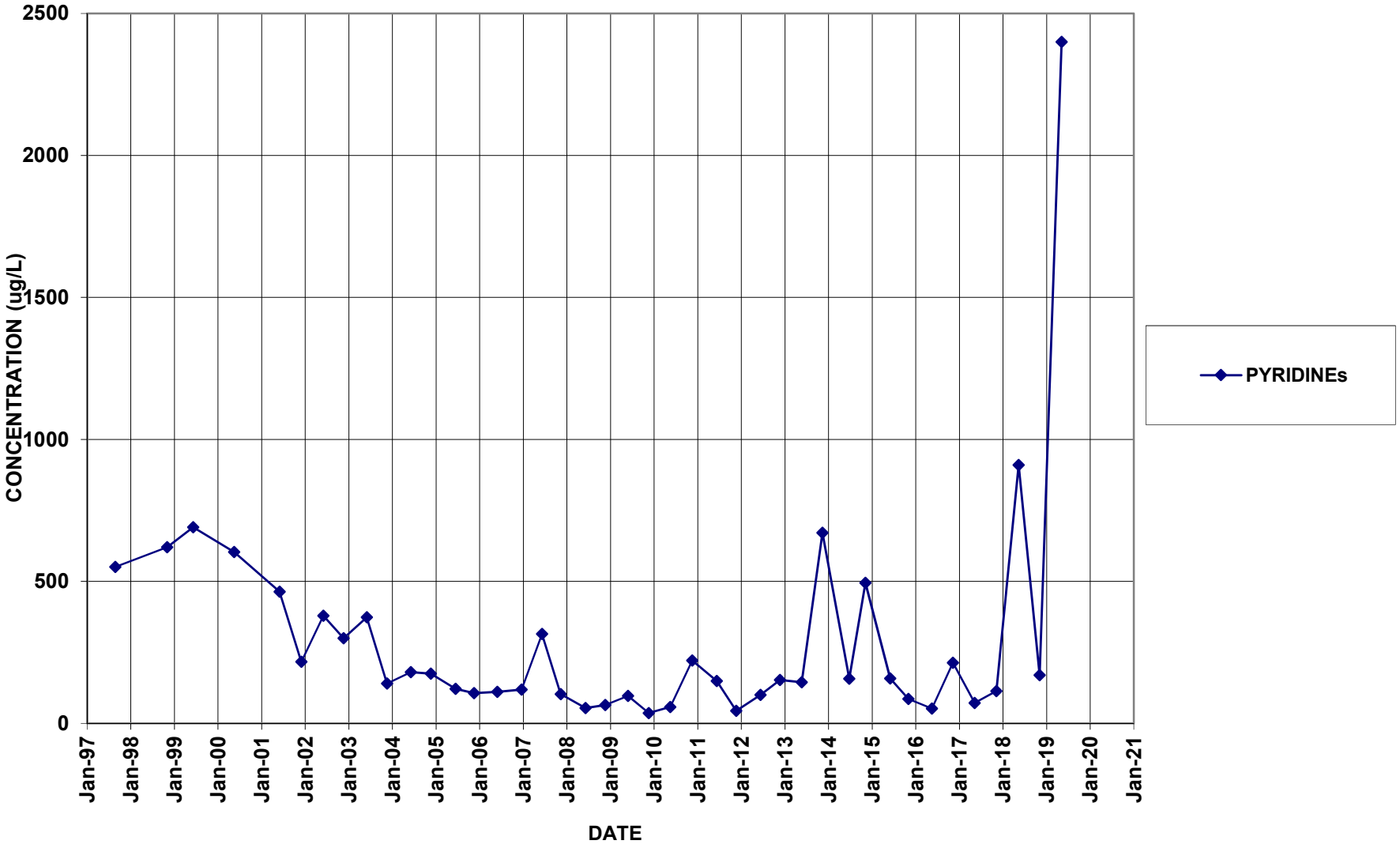
Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-8

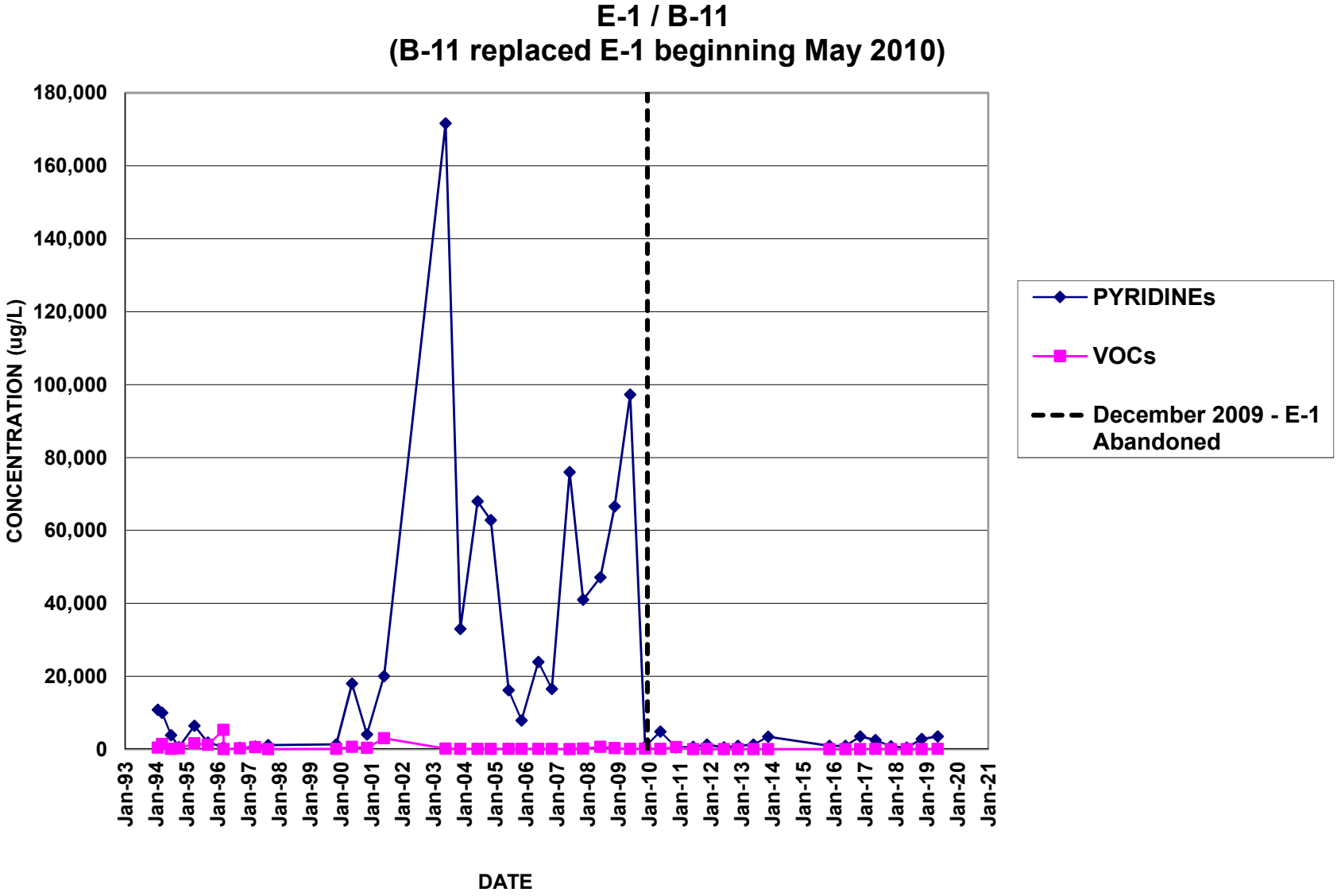


Prepared by: JAR 7/31/19
Reviewed by: nmb

BR-9

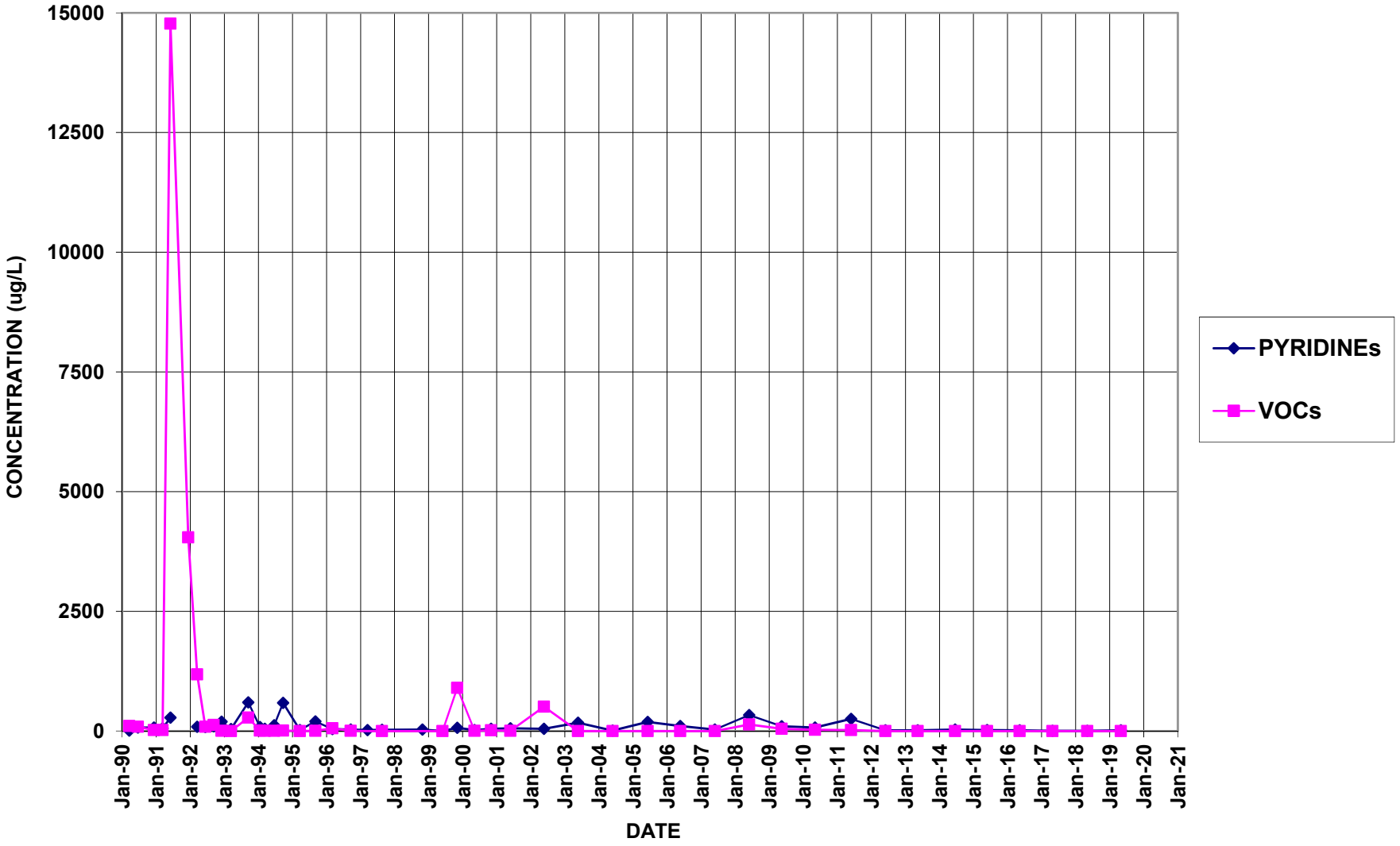


Prepared by: JAR 7/31/19
Reviewed by: nmb



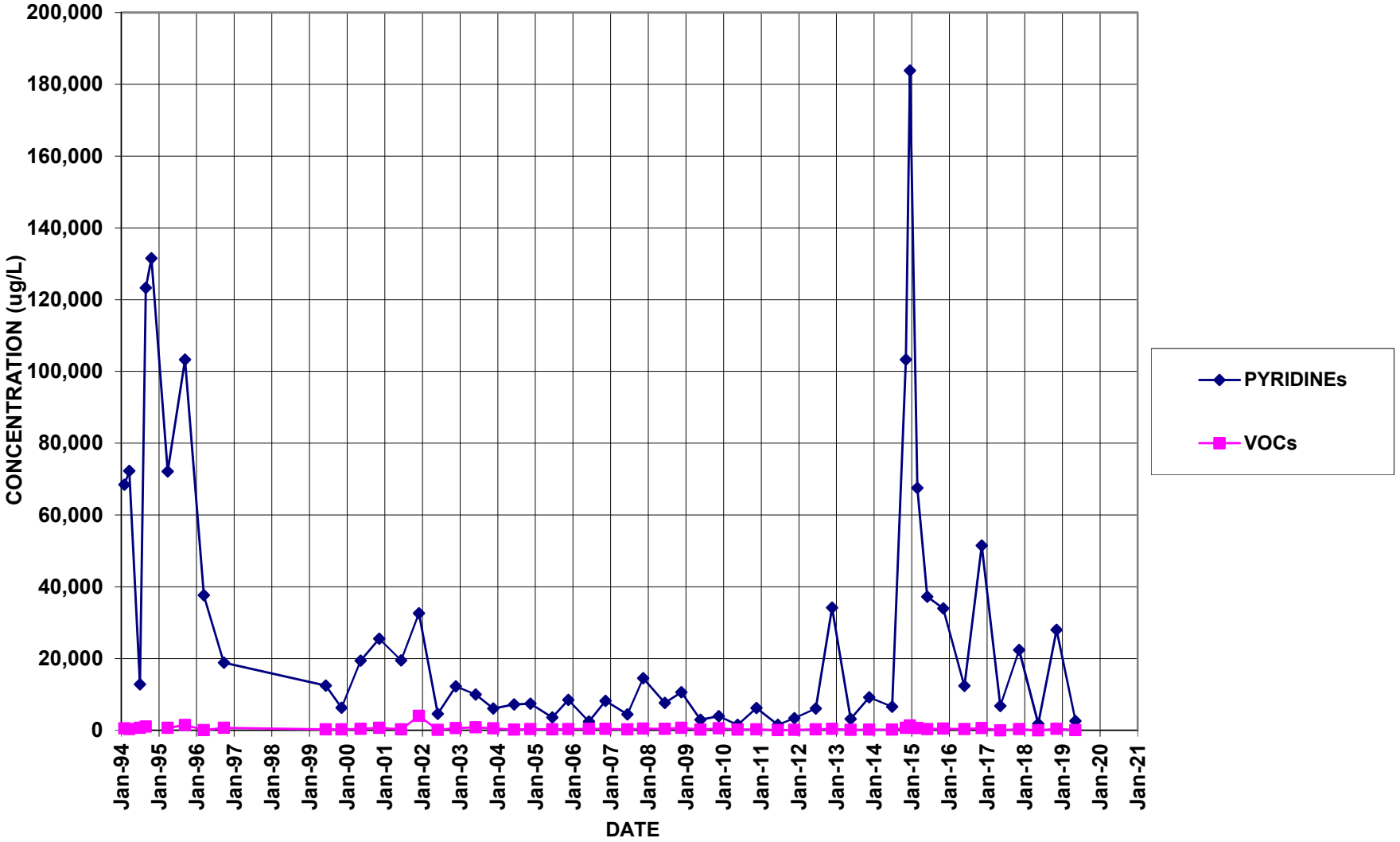
Prepared by: JAR 7/31/19
Reviewed by: nmb

E-3



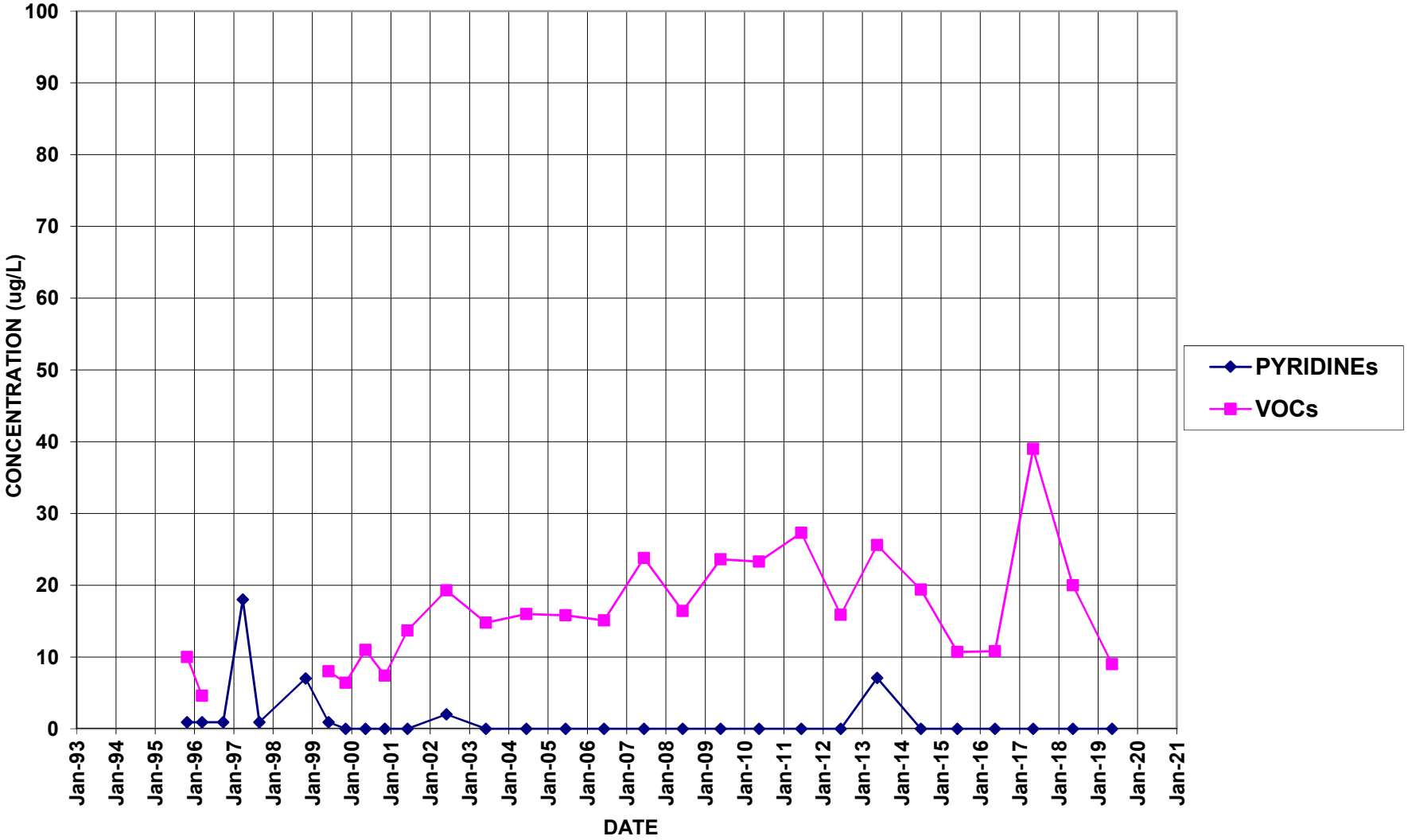
Prepared by: JAR 7/31/19
Reviewed by: nmb

MW-106



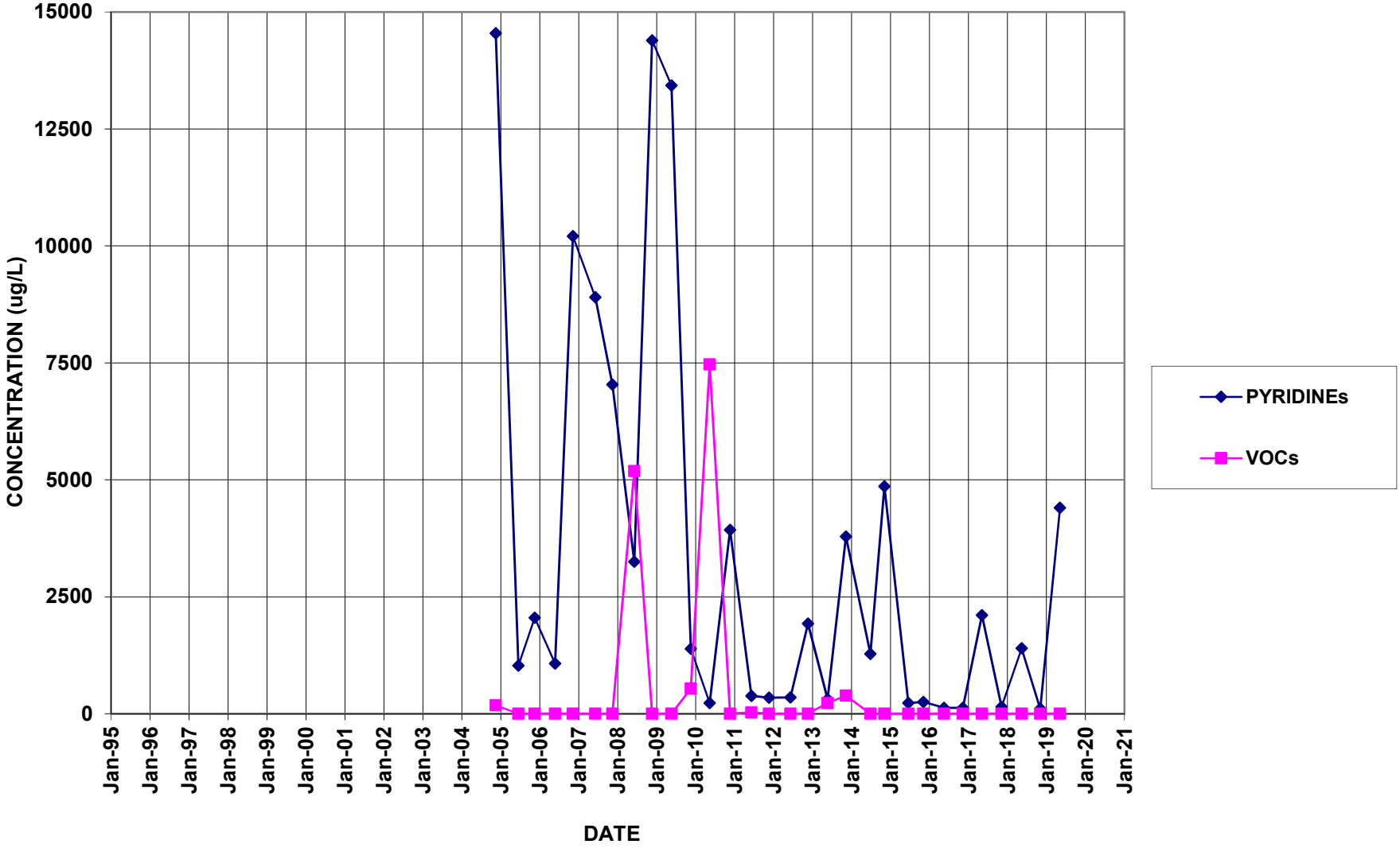
Prepared by: JAR 7/31/19
Reviewed by: nmb

MW-114



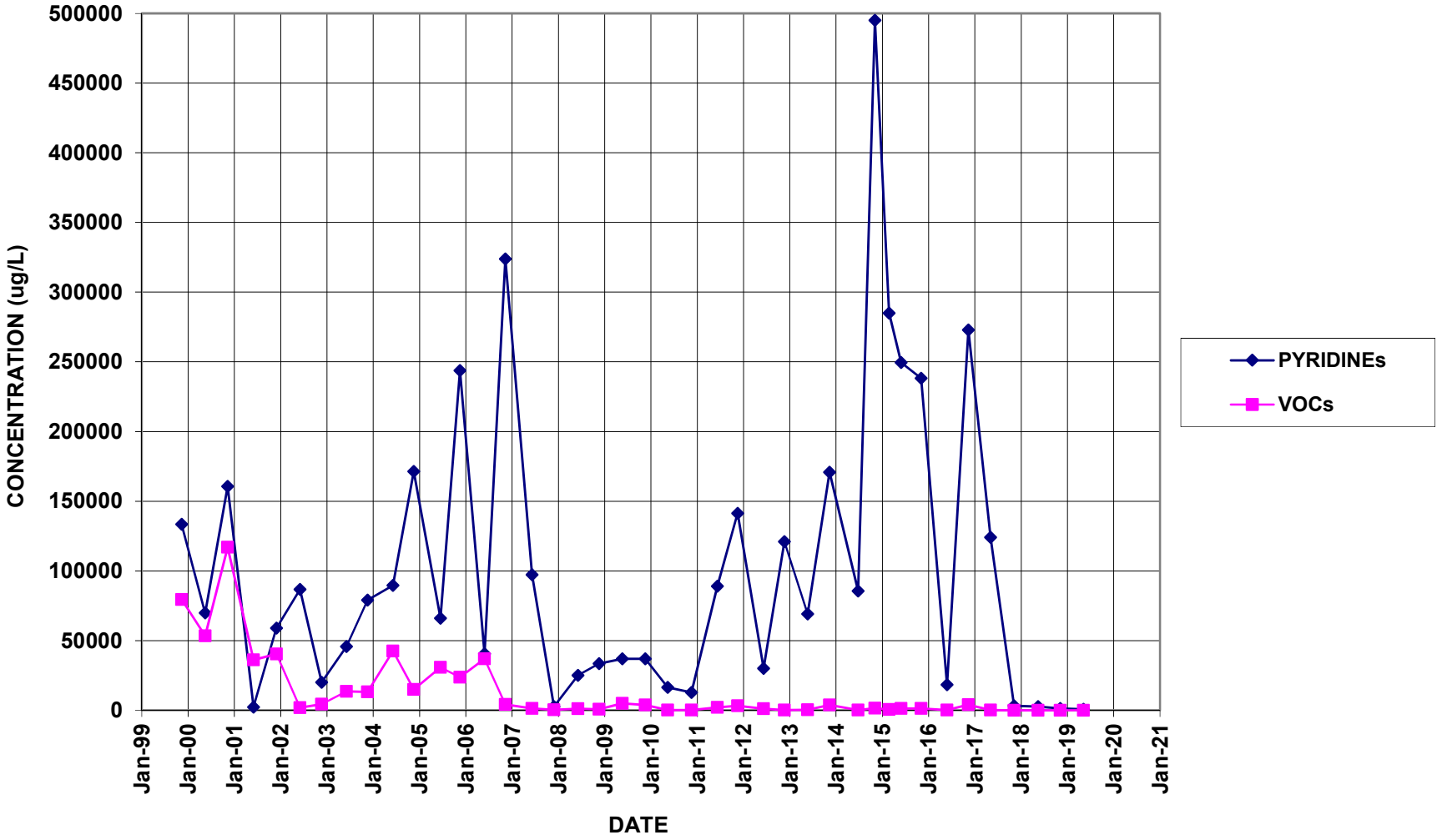
Prepared by: JAR 7/31/19
Reviewed by: nmb

MW-127



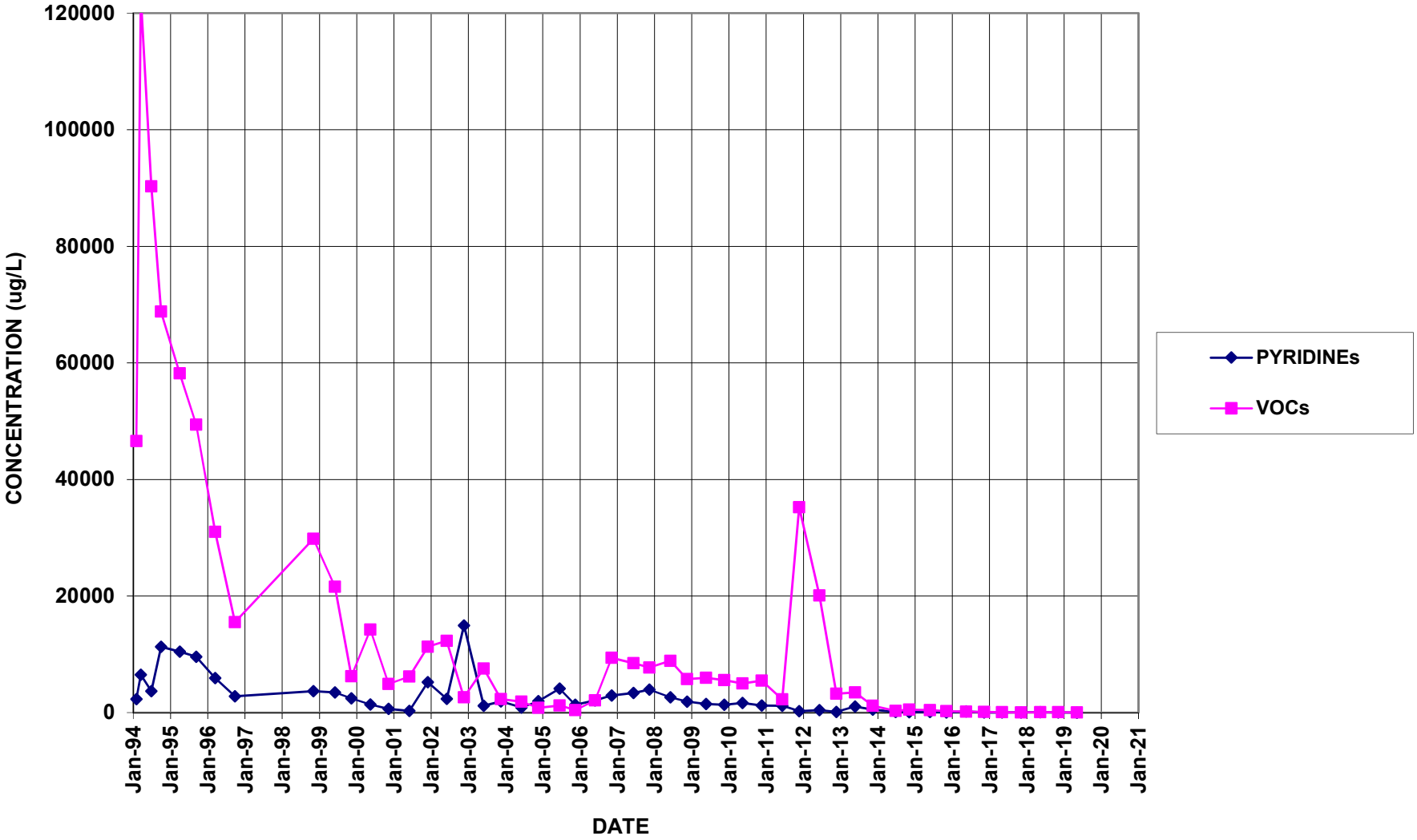
Prepared by: JAR 7/31/19
Reviewed by: nmb

PW10



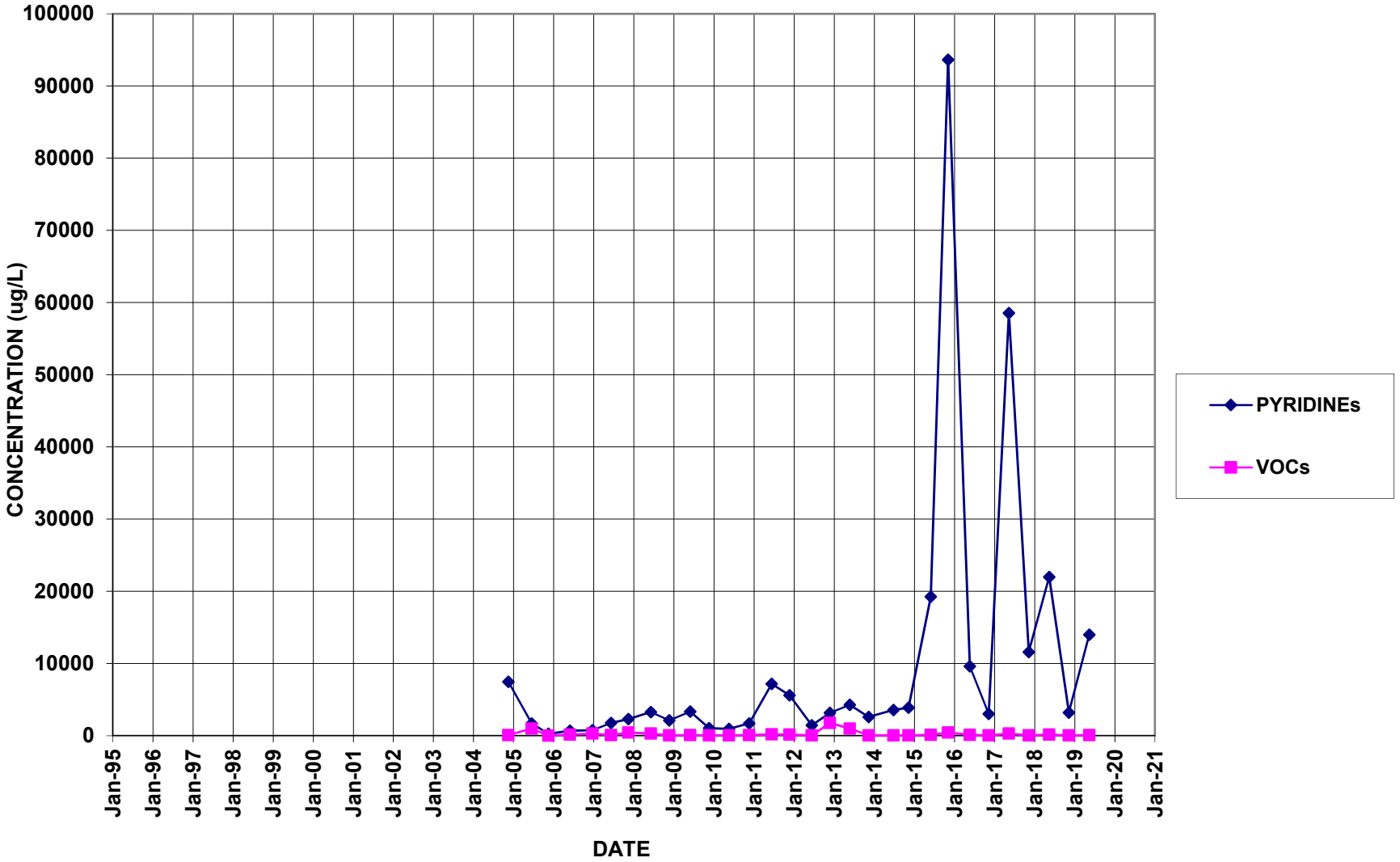
Prepared by: JAR 7/31/19
Reviewed by: nmb

PW12 (Formerly BR-101)



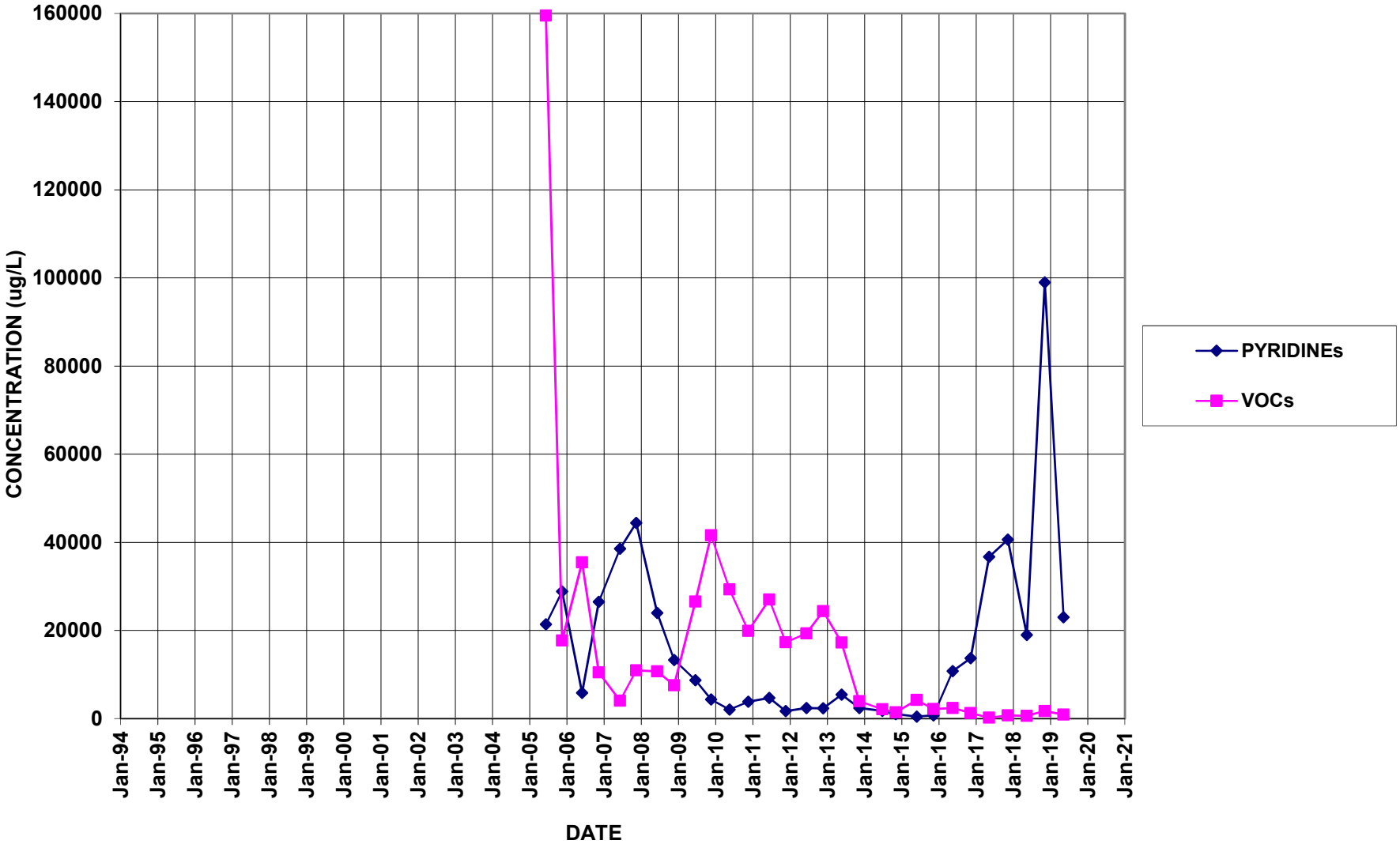
Prepared by: JAR 7/31/19
Reviewed by: nmb

PW13



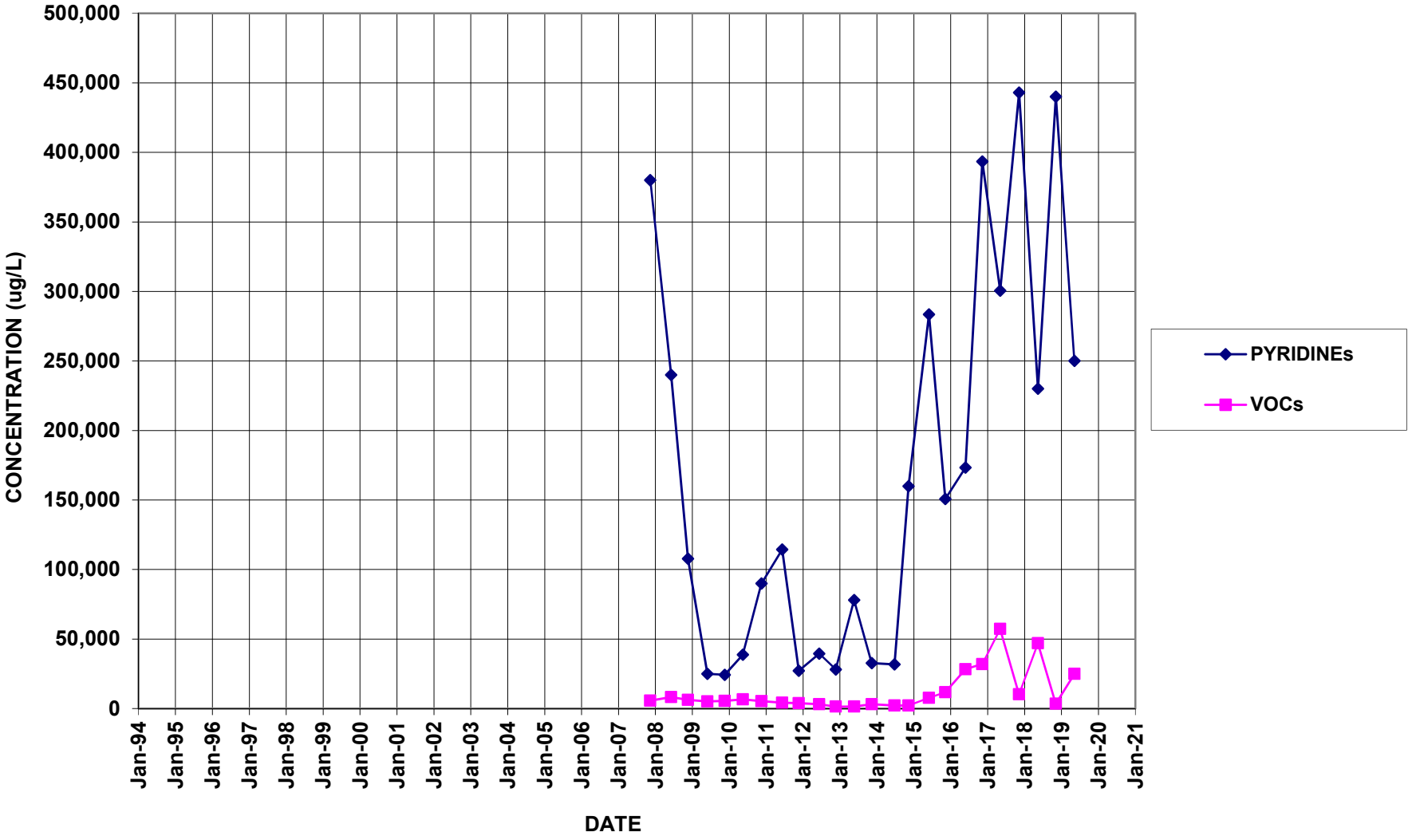
Prepared by: JAR 7/31/19
Reviewed by: nmb

PW14



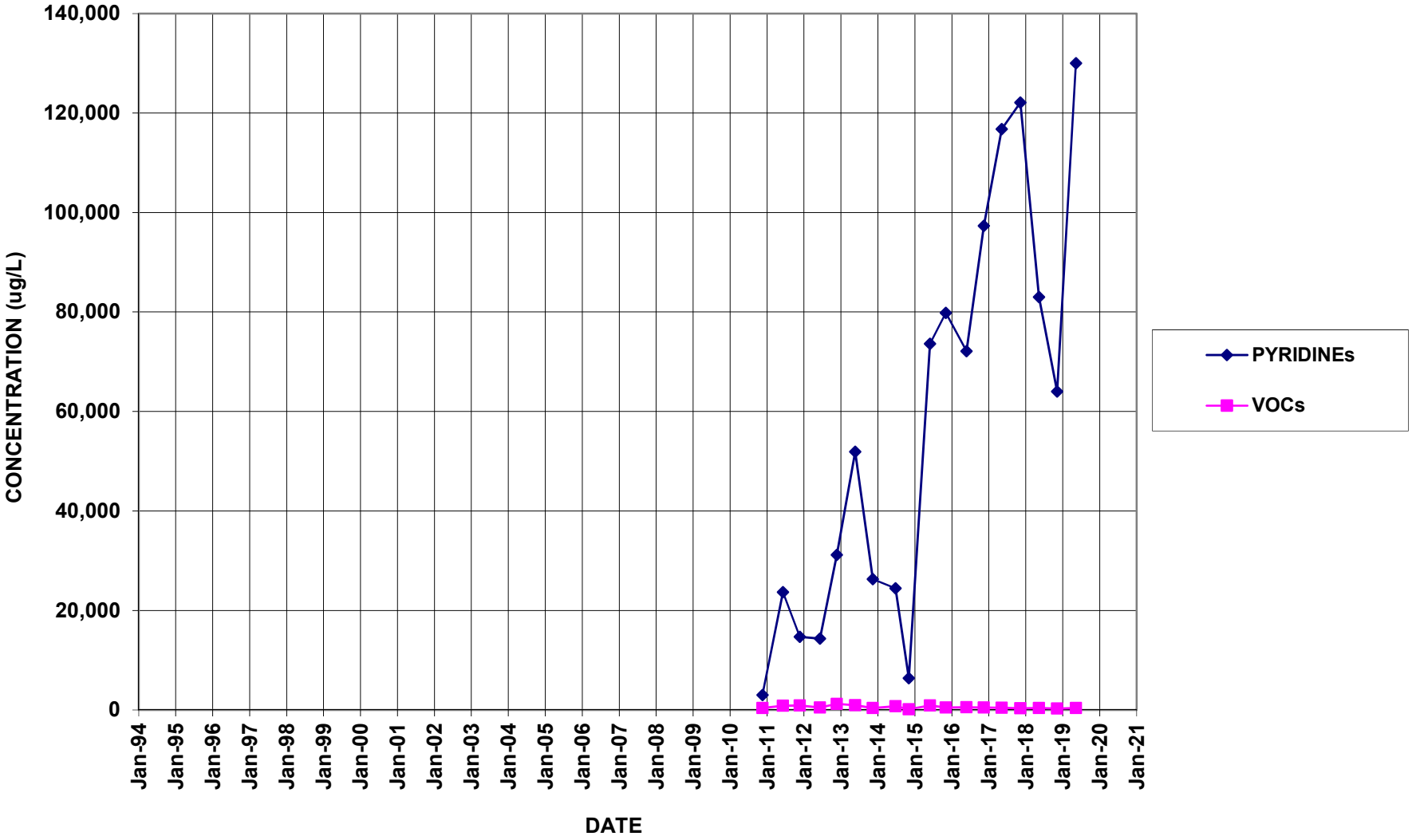
Prepared by: JAR 7/31/19
Reviewed by: nmb

PW15



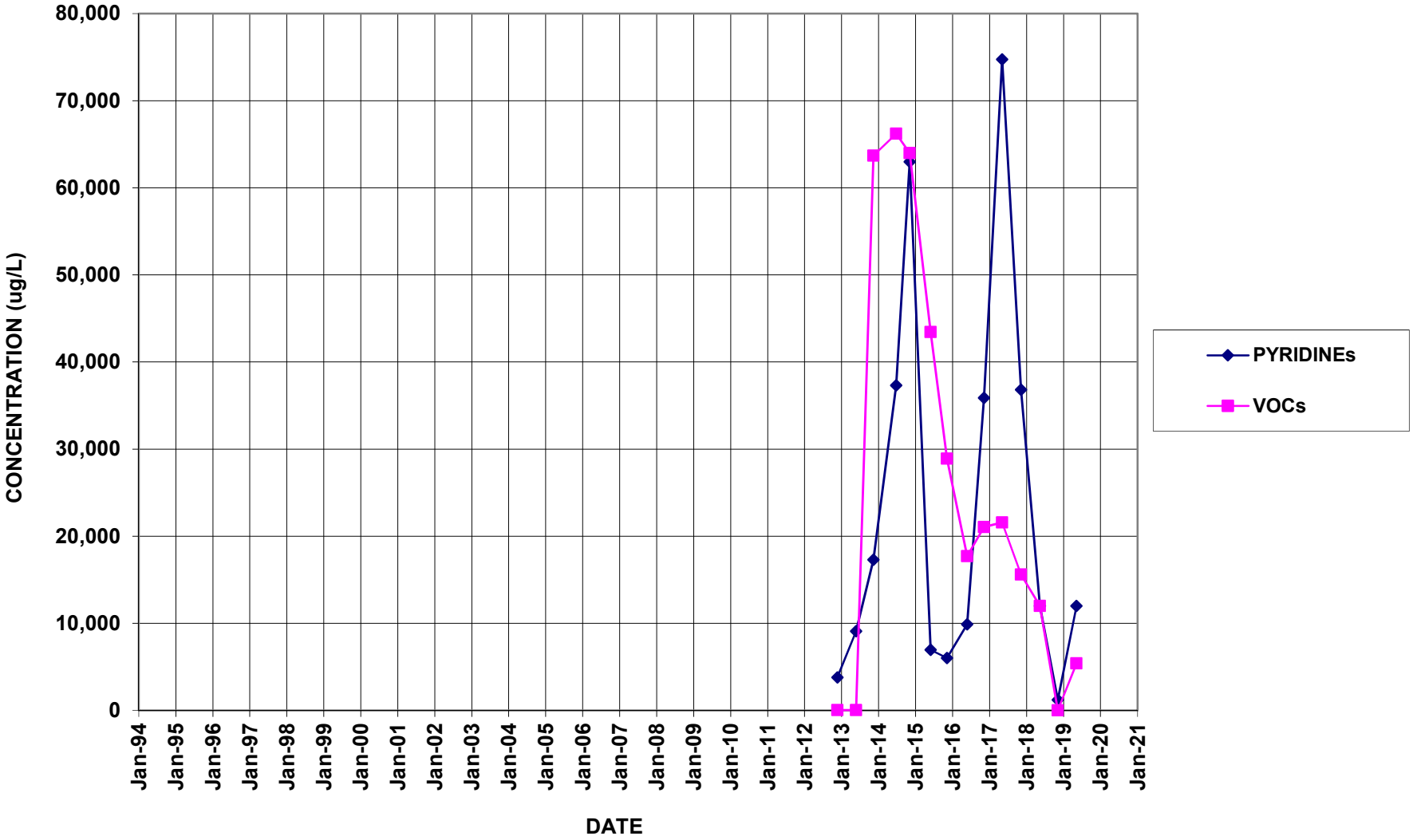
Prepared by: JAR 7/31/19
Reviewed by: nmb

PW16



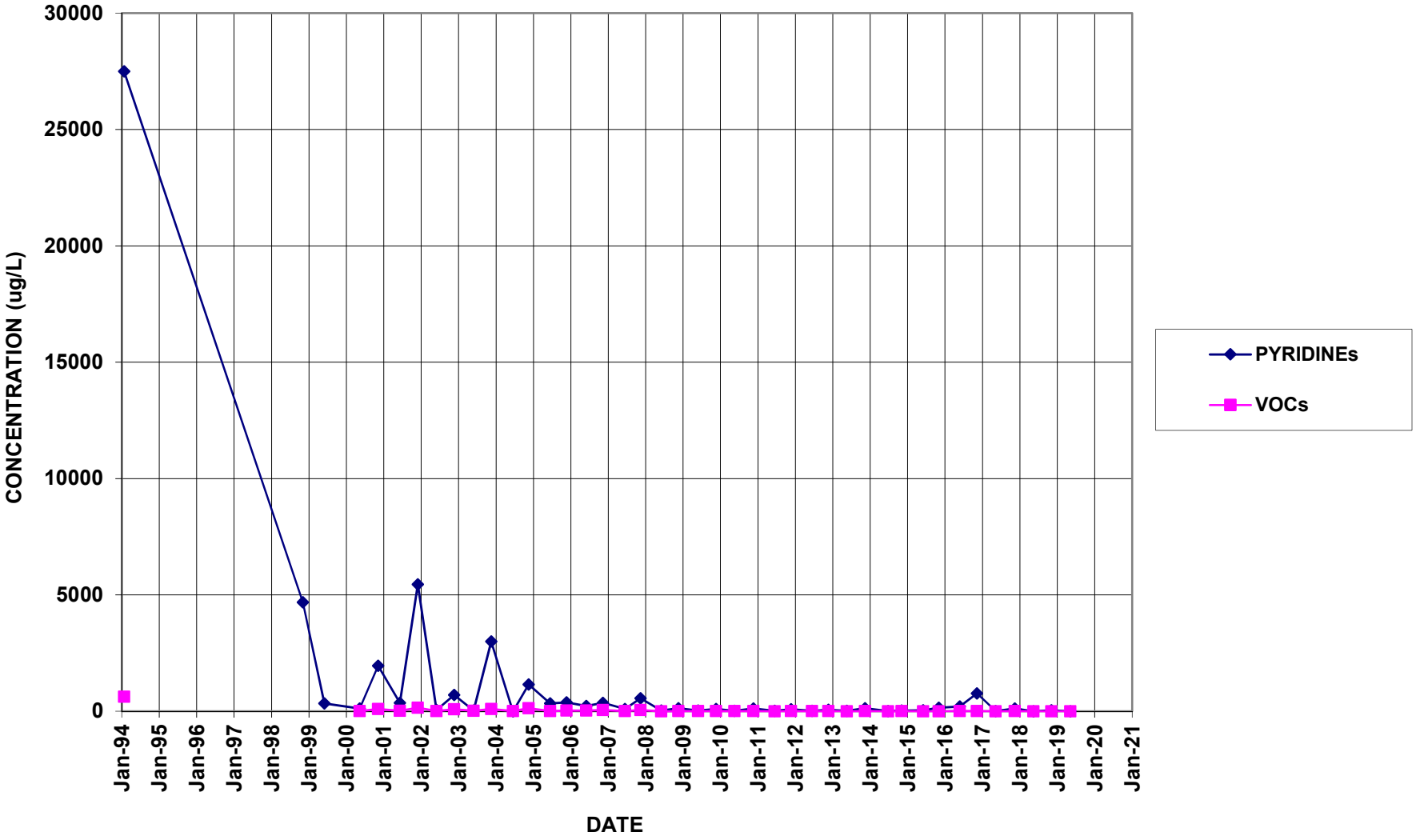
Prepared by: JAR 7/31/19
Reviewed by: nmb

PW17



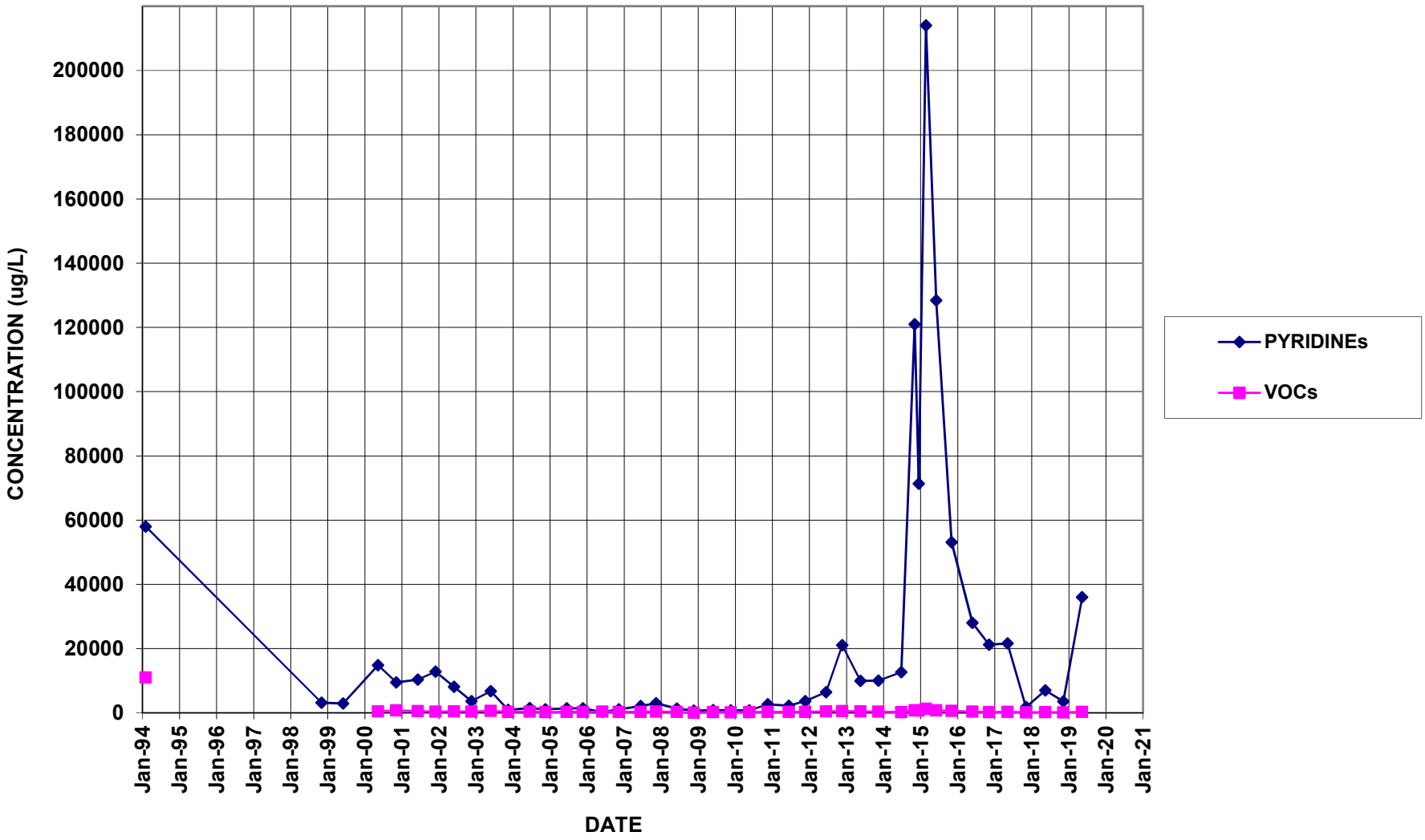
Prepared by: JAR 7/31/19
Reviewed by: nmb

PZ-101



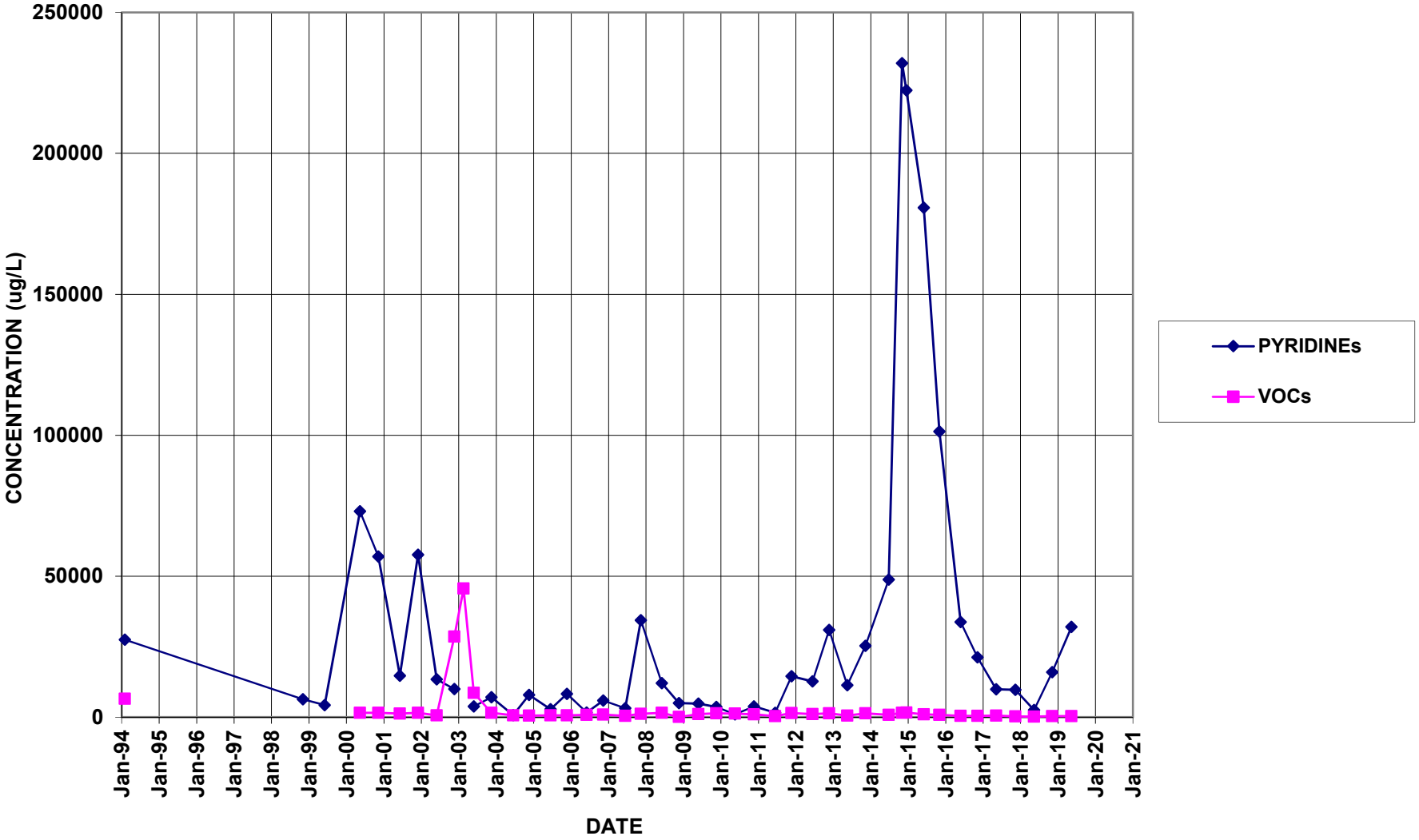
Prepared by: JAR 7/31/19
Reviewed by: nmb

PZ-102



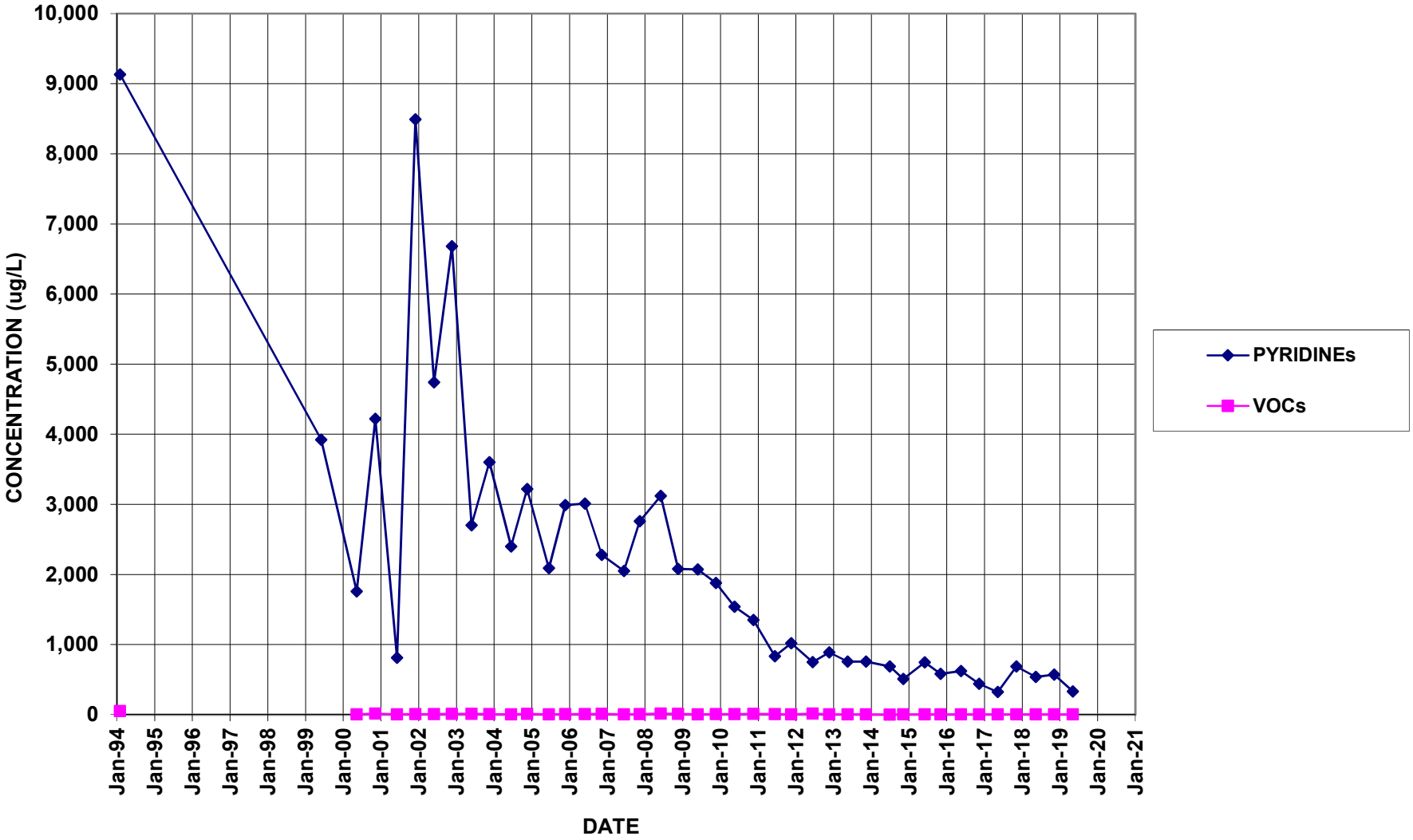
Prepared by: JAR 7/31/19
Reviewed by: nmb

PZ-103



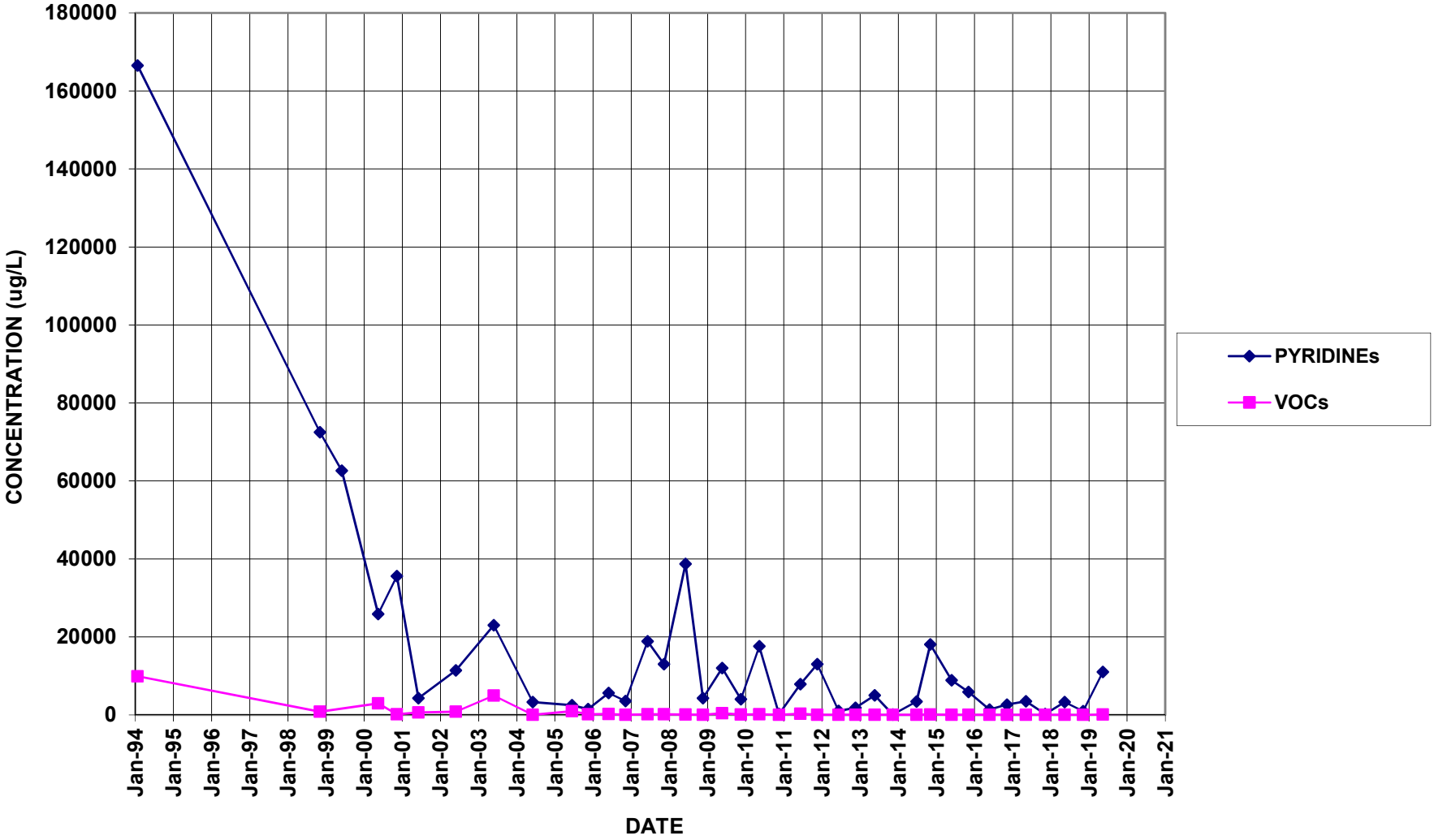
Prepared by: JAR 7/31/19
Reviewed by: nmb

PZ-104



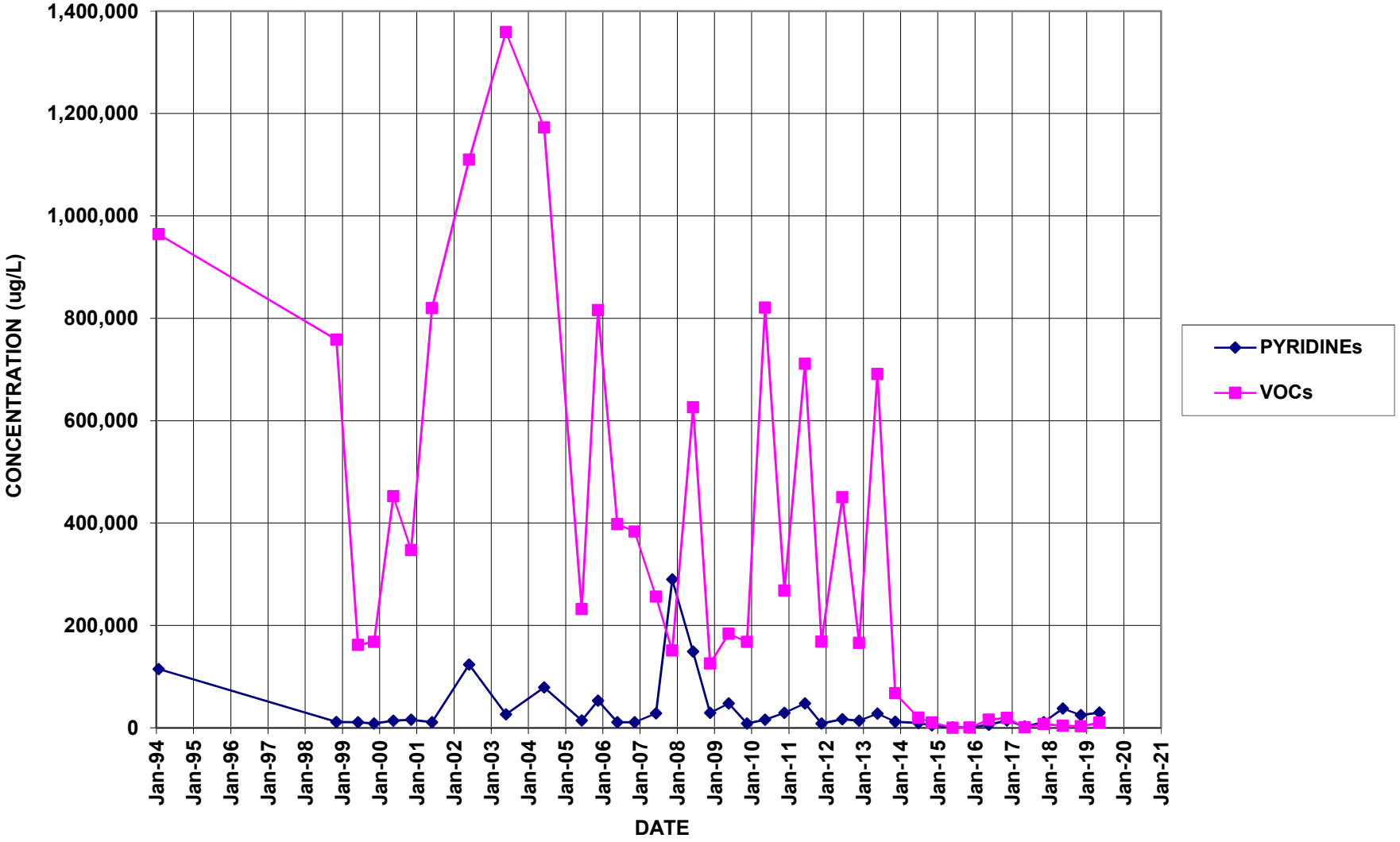
Prepared by: JAR 7/31/19
Reviewed by: nmb

PZ-105



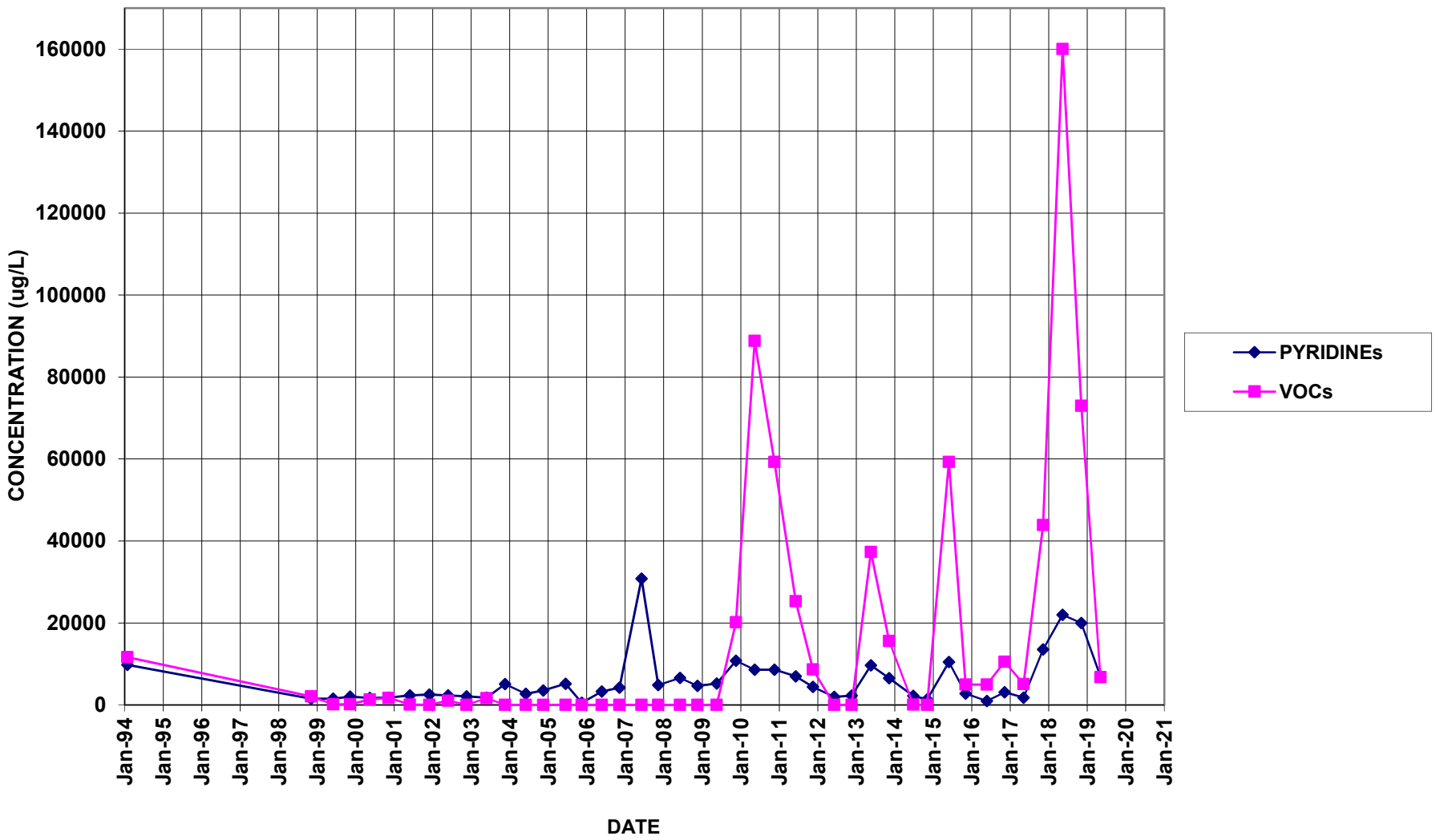
Prepared by: JAR 7/31/19
Reviewed by: nmb

PZ-106

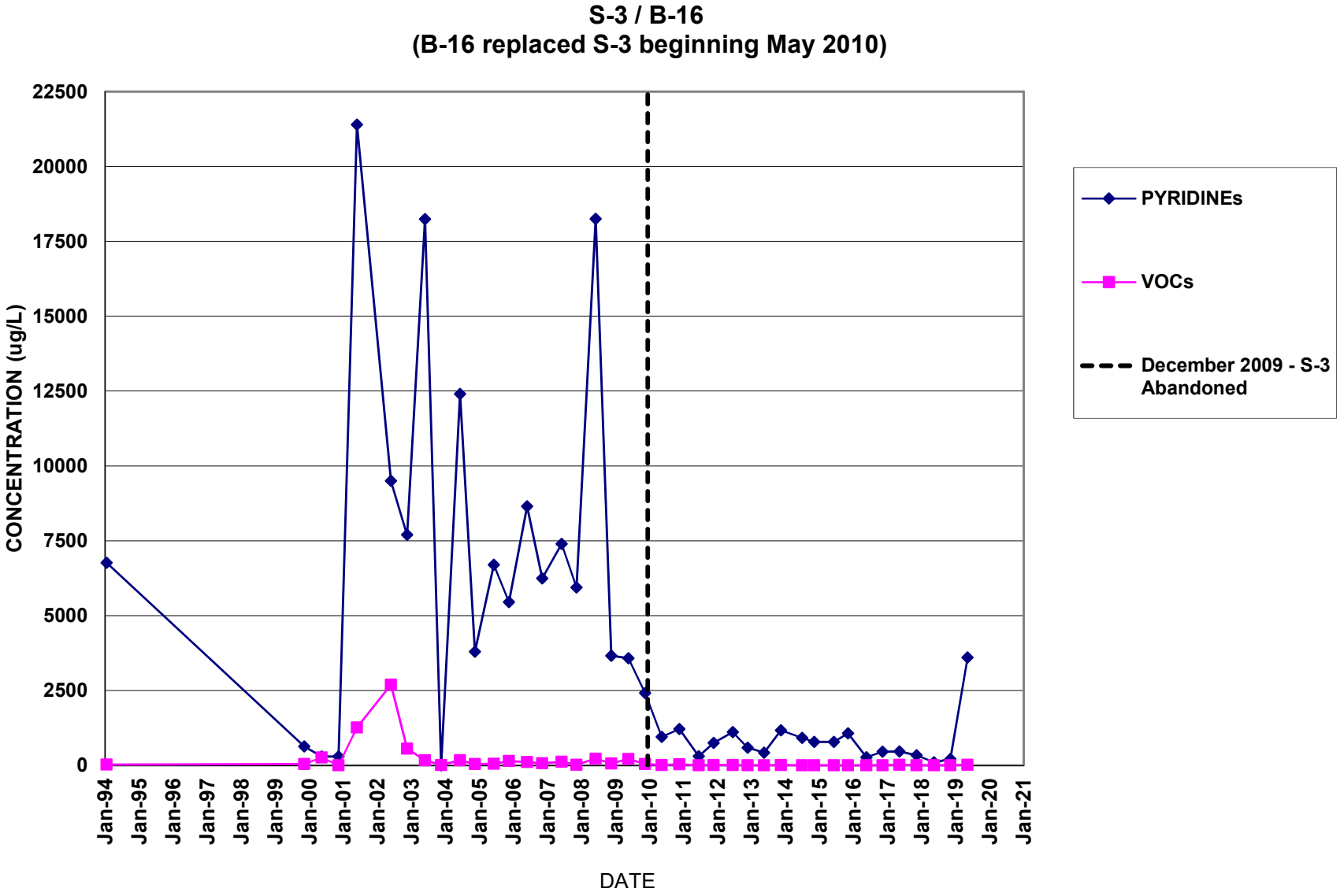


Prepared by: JAR 7/31/19
Reviewed by: nmb

PZ-107

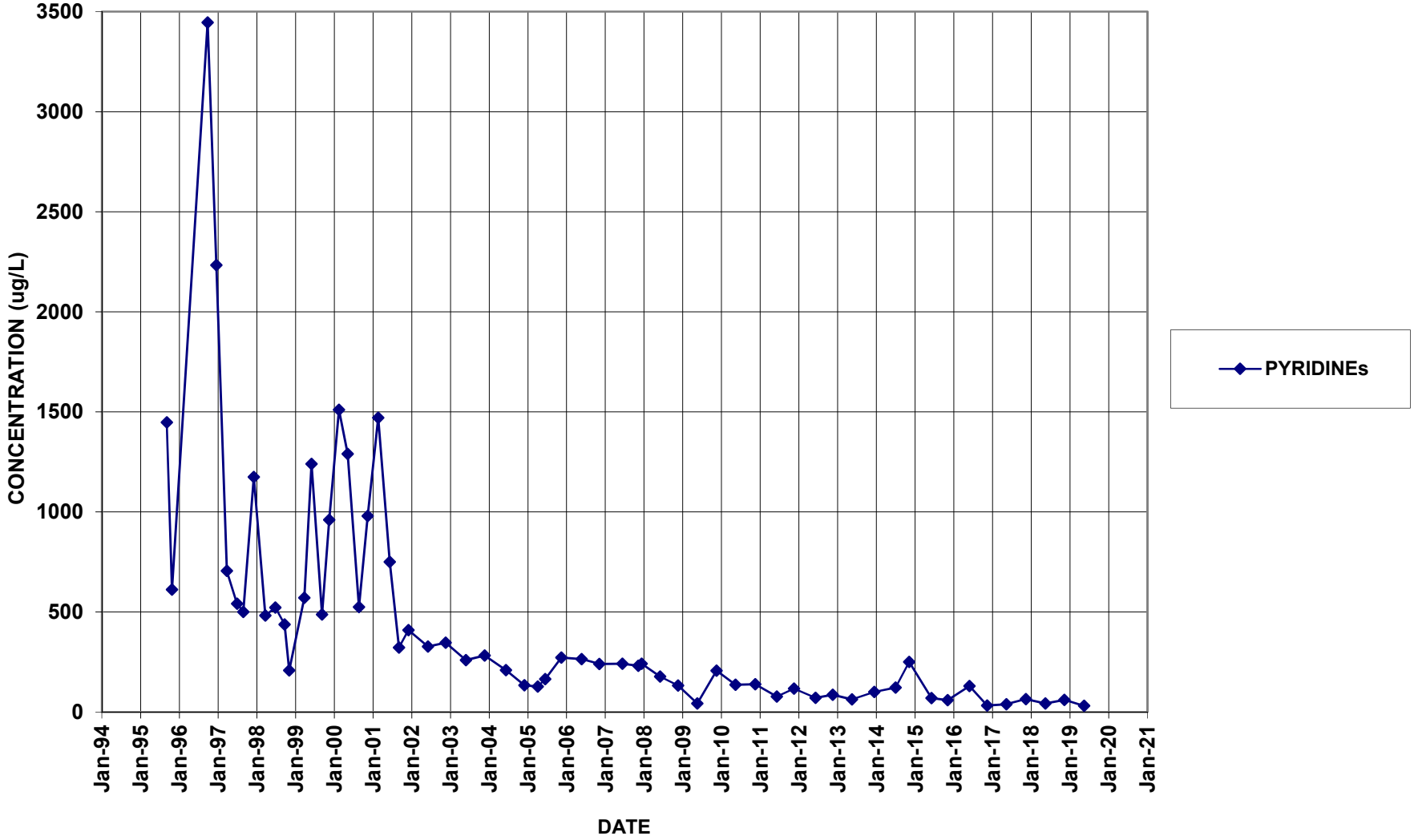


Prepared by: JAR 7/31/19
Reviewed by: nmb



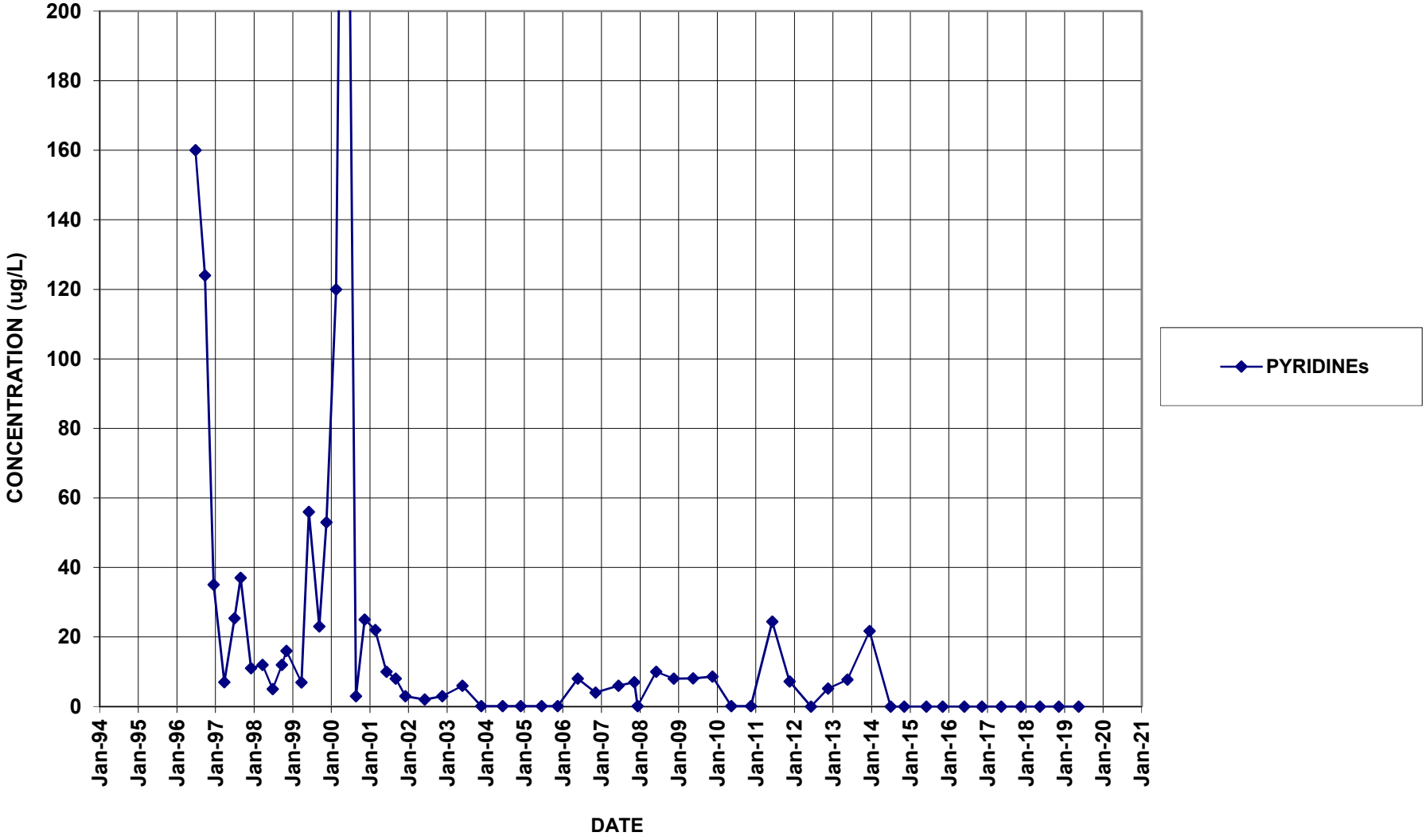
Prepared by: JAR 7/31/19
Reviewed by: nmb

QS-4 (QUARRY SEEP)



Prepared by: JAR 7/31/19
Reviewed by: nmb

QO-2 (QUARRY OUTFALL)



Prepared by: JAR 7/31/19
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