SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
FALL 2010 MONITORING REPORT

ARCH CHEMICALS
ROCHESTER PLANT SITE
ROCHESTER, NEW YORK

ARCH CHEMICALS, INC.
CHARLESTON, TENNESSEE

FEBRUARY 2011

SURFACE WATER AND GROUNDWATER MONITORING PROGRAM
FALL 2010 MONITORING REPORT

ARCH CHEMICALS
ROCHESTER PLANT SITE
ROCHESTER, NEW YORK

Prepared by

MACTEC Engineering & Consulting, P.C.
Portland, Maine

for

ARCH CHEMICALS, INC.
Charleston, Tennessee

February 2011

3616086023.03

Nelson M. Breton, C.G.
Principal Hydrogeologist

Jeffrey E. Brandow, P.E.
Principal Engineer

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

This monitoring report presents the results of an on-going groundwater and surface water monitoring program being conducted by Arch Chemicals, Inc., at its Rochester, New York, manufacturing facility. Results in this report include surface and groundwater samples collected in November 2010.

During this monitoring event, samples from a total of 27 groundwater monitoring or pumping wells and four locations associated with the Dolomite Products Quarry seep and outfall were collected and analyzed by TestAmerica in Amherst, New York.

As in prior reports, monitoring results were compared with previous average concentrations at each sampling location. Twenty of the 27 monitoring wells sampled for chloropyridines had contaminant concentrations that were at or below their respective 5-year prior averages. Twenty-two of the 26 monitoring wells sampled for volatile organic compounds had concentrations at or below their 5-year prior average. Contaminant contour plots are generally consistent with past observations.

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). Chloropyridine concentrations in quarry seep QS-4 are below the prior 5-year average for this location. Samples from the quarry ditch and the canal were at trace levels or were non-detect for their respective locations.

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

During the period June 2010 through November 2010, the on-site groundwater extraction system pumped approximately 8 million gallons of groundwater to the on-site treatment system, containing an estimated 571 pounds of chloropyridines and 46 pounds of target volatile organic compounds.

In January 2010, Arch discovered that extraction well PW11 had partially collapsed and needed to be replaced. New pumping well PW16 was installed in July 2010 to replace PW11, and was activated in September 2010.

Overall, the extraction system operating condition is now very good, with improved consistency and flow rates. However, PW-14 continues to exhibit a poor well yield of less than 0.5 gallons per minute. An attempt to clean the well by physical and chemical means in November 2010 did not result in any observed improvement in this well. At the present time, Arch intends to continue to operate PW-14, but will likely reassess the value of this well as part of the design process for the planned groundwater collection trench in the southeastern part of the site.

The next regular monitoring event will occur in May 2011 and will include groundwater, surface water, and seep sampling.

1.0 INTRODUCTION

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

The Fall 2010 sampling event included the collection and analysis of a total of 31 groundwater, surface water, and seep samples from off-site and on-site locations. Samples were collected November 16 through 19, 2010, for analysis of selected chloropyridines and volatile organic compounds (VOCs).

This report presents the results of the Fall 2010 monitoring event.

2.0 SAMPLE COLLECTION AND ANALYSIS

2.1 GROUNDWATER

Groundwater samples were collected from off-site wells, on-site wells and piezometers for analysis of selected chloropyridines (2-chloropyridine, 2,6-dichloropyridine, 3-chloropyridine, 4-chloropyridine, pyridine, and p-fluoroaniline) and target compound list (TCL) VOCs. Samples were collected by personnel from Test America Laboratories, Inc., (TestAmerica) and transported to their lab in Amherst, New York for analysis. Table 1 lists the wells that were sampled and the requested analyses. The off-site and on-site locations of these sampling points are shown in Figures 1 and 2, respectively. Groundwater sampling data sheets are provided in Appendix A.

Groundwater was collected with the low flow/low stress purging technique from most of the wells using bladder or peristaltic pumps. Samples from active pumping wells were collected from the discharge lines. Pumping well PW-11 is partially blocked due to well collapse, and was therefore not sampled. This well has now been replaced with new pumping well PW-16, located approximately 60 feet north of PW-11.

Groundwater piezometric elevations were measured on November 16, 2010. Piezometric contour maps were constructed for each water-bearing zone (overburden, bedrock, and deep bedrock) and are presented in Figures 3, 4, and 5.

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

2.2 SURFACE WATER

Surface water and quarry seep samples were collected as part of the on-going monitoring program for the Arch Rochester site. The location of the quarry and its outfall in relation to the site is shown on Figure 6. Samples of the main quarry seep (QS-4), the quarry ditch

where the quarry dewatering discharge enters the ditch (QD-1), the quarry ditch as it enters the Erie Barge Canal (QO-2), and the surface water in the canal approximately 100-feet downstream of the quarry ditch (QO-2S1) were collected by TestAmerica on May 14, 2010. All quarry-related samples were analyzed for the Arch suite of selected chloropyridines. The quarry locations sampled during the Fall 2010 event are shown on Figure 7.

2.3 ANALYTICAL PROCEDURES

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

Samples were analyzed for the Arch suite of selected chloropyridines and TCL VOCs by USEPA SW-846 Methods 8270C and 8260B, respectively. The reporting limits for the chloropyridines and VOCs are approximately 10 micrograms per liter (µg/L) and 5 to 25 µg/L, respectively, for undiluted samples.

2.4 QUALITY CONTROL

All laboratory analytical results were reviewed and qualified following U.S. Environmental Protection Agency Contract Laboratory Program (USEPA CLP), "National Functional Guidelines for Organic Data Review", June, 2008, as modified by USEPA Region II, "SOP No. HW-6 Revision 14", September 2006. 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.

Matrix Spike/Matrix Spike Duplicate. Percent recoveries for 2-chloropyridine (131, 162) and 2,6-dichloropyridine (124, 151) in the matrix spike/matrix spike duplicate (MS/MSD) associated with sample B-11 were above the laboratory control limits of 11-123 and 18-115, respectively, indicating a potential high bias for these target analytes. The positive detections of 2-chloropyridine and 2,6-dichloropyridine in sample B-11 were qualified as estimated (J) and may represent potential high biases.

Miscellaneous. Samples from 24 of the wells were analyzed at dilutions due to high concentrations of volatile organic or semivolatile organic target analytes. Non-detects are reported at elevated reporting limits.

3.0 ANALYTICAL RESULTS

3.1 GROUNDWATER

The validated results from the Fall 2010 groundwater monitoring event are provided in Tables 2 and 3. Table 4 provides a comparison of the Fall 2010 analytical results for selected chloropyridines and VOCs in representative wells to mean concentrations of the prior five years (Fall 2005 through Spring 2010). Long term trends for both selected chloropyridines and VOCs are also presented as time-series plots for representative wells in Appendix B. A summary of the analytical findings is presented below by parameter class.

3.1.1 Chloropyridines

On-Site. Chloropyridines were detected above sample quantitation limits in all 16 on-site wells sampled in the Fall 2010 event. Concentrations of chloropyridines ranged from 170 micrograms per liter (µg/L) (sum of all chloropyridine and pyridine isomer concentrations) in pumping well BR-5A to 90,000 µg/L in pumping well PW-15. Four of the 16 on-site wells exhibited total chloropyridine concentrations that were slightly above their respective means from monitoring events over the previous five years (BR-6A, BR-9, BR-127, and PZ-107).

Off-Site. Chloropyridines were detected above sample quantitation limits in all 11 off-site wells that were sampled. Concentrations of total selected chloropyridines ranged from an estimated 7 µg/L (in well MW-16 on the former General Signals property) to approximately 6,200 µg/L in well MW-106 west of McKee Road. Three of the 11 off-site wells contained total chloropyridine concentrations above their respective 5-year prior means (B-16, BR-105, and PZ-102).

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. Contours are approximated (shown as dashed lines) where they are based on data from previous sampling rounds.

3.1.2 Selected VOCs.

On-Site. Selected VOCs were detected in 11 of the 16 on-site wells sampled in the Fall 2010 event. Total concentrations of selected VOCs ranged from not detected (in wells BR-7A, MW-127, PW-13, PW-16, and PZ-105) to 270,000 µg/L in PZ-106 for the sum of the principal site-related contaminants (carbon tetrachloride, chloroform, methylene chloride, tetrachloroethene, and trichloroethene). Three of the 16 on-site wells (B-11, PW-14, and PZ-107) contained concentrations of total VOCs above their 5-year prior means.

In addition to the selected VOCs, other notable constituents detected in on-site wells include chlorobenzene (in 10 out of 16 wells), toluene (8 of 16), benzene (8 of 16), carbon disulfide (7 of 16), 1,2-dichloroethene (6 of 16), vinyl chloride (5 of 16), total xylenes (4 of 16), ethylbenzene (3 of 16), bromoform (2 of 16), 1,1-dichloroethane (2 of 16), and acetone (2 of 16).

Off-Site. Selected VOCs were detected in three of the 10 off-site wells sampled for VOCs in the Fall 2010 event. Total concentrations of selected VOCs ranged from not detected (in

BR-105, BR-106, BR-126, MW-106, PZ-102, PZ-103, and PZ-104) to 2.5 µg/L (in BR-105D). Only one of the off-site wells (PZ-101) had selected VOC concentrations slightly above its prior 5-year mean. In addition to the selected VOCs, other notable constituents detected in off-site wells include benzene (in 9 out of 10 wells), chlorobenzene (9 of 10), 1,2-dichloroethene (4 of 10), toluene (2 of 10), 1,1-dichloroethane (3 of 10), vinyl chloride (2 of 10), ethyl benzene (2 of 10), and total xylenes (2 of 10).

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 data from previous sampling rounds.

3.2 SURFACE WATER

Results from the Fall 2010 canal and quarry monitoring event are presented in Table 5, and summarized below. In general, chloropyridines in the quarry and canal samples remain at low levels, below their 5-year mean concentrations.

3.2.1 Quarry

One quarry seep (QS-4) was sampled in the Fall 2010 monitoring event, and contained 139 µg/L total chloropyridines.

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. A trace of pyridine (estimated concentration of 0.43 µg/L) was detected in the sample from QD-1. Chloropyridine-related compounds were not detected in the sample at QO-2.

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 AND MAINTENANCE

Table 6 is a summary of the system flow measurements for the on-site extraction wells from June 2010 through November 2010. The total volume pumped during the six-month period was approximately 8 million gallons.

Table 7 provides a calculation of mass removal rates since the previous groundwater monitoring event (i.e., from June 2010 through November 2010). Arch estimates that approximately 46 pounds of target VOCs and 571 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.

New pumping well PW-16 was installed during the summer of 2010, and was activated in September 2010. This well replaces failed pumping well PW-11. Since being activated, the pumping rate in the new well has stabilized at between 4 and 5 gallons per minute.

Pumping well PW-14 continues to exhibit a poor well yield of less than 0.5 gallons per minute. An attempt to clean the well by physical and chemical means in November 2010 did not result in any observed improvement in this well. At the present time, Arch intends to continue to operate PW-14, but will likely reassess the value of this well as part of the design process for the planned groundwater collection trench in this part of the site.

Maintenance activity during this reporting period included pump and/or meter repairs at wells BR-7A, BR-9, PW-14, and BR-127. New wellhead enclosures were installed at wells BR-5A, BR-7A, and BR-9. The groundwater sewer line near BR-7A was cleaned and repaired, with new cleanouts installed to facilitate future maintenance activities.

Overall, the system operating condition is now very good, with improved consistency and flow rates.

5.0 NEXT MONITORING EVENT

The next regular monitoring event will occur in May 2011 and will include groundwater, surface water, and seep sampling.

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

Figures

Legend

Outline of Arch Property Boundary

Monitoring Well

NOTES

1. Source - Topographic Quadrangle 7.5-Minute Series

N

0 250 500 1,000 Feet

Prepared by DBW | Checked by JEB

ERIE BARGE CANAL

I-390

FIRTH RIXSON

ARCH

BUFFALO RD. BUSINESS CENTER

MW-103/BR-103

MW-108/BR-108

PZ-102

BR-111/BR-111D

BR-106/MW-106

PZ-103

MW-16

AID TO HOSPITALS

ARM

BR-126

MW-105/BR-105

BR-112/BR-112D

MW-104/BR-104

BUFFALO ROAD

MW-114/BR-114

12-6

CUMBERLAND FARMS PETROLEUM TERMINAL

OW-105

NESS-W

NESS-E

8-8

7-6

BR-113/BR-113D

LEXINGTON

11-8

GENERAL RAIL SIGNAL CO.

DOLOMITE PRODUCTS QUARRY

9-6

10-6

RW-1

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)

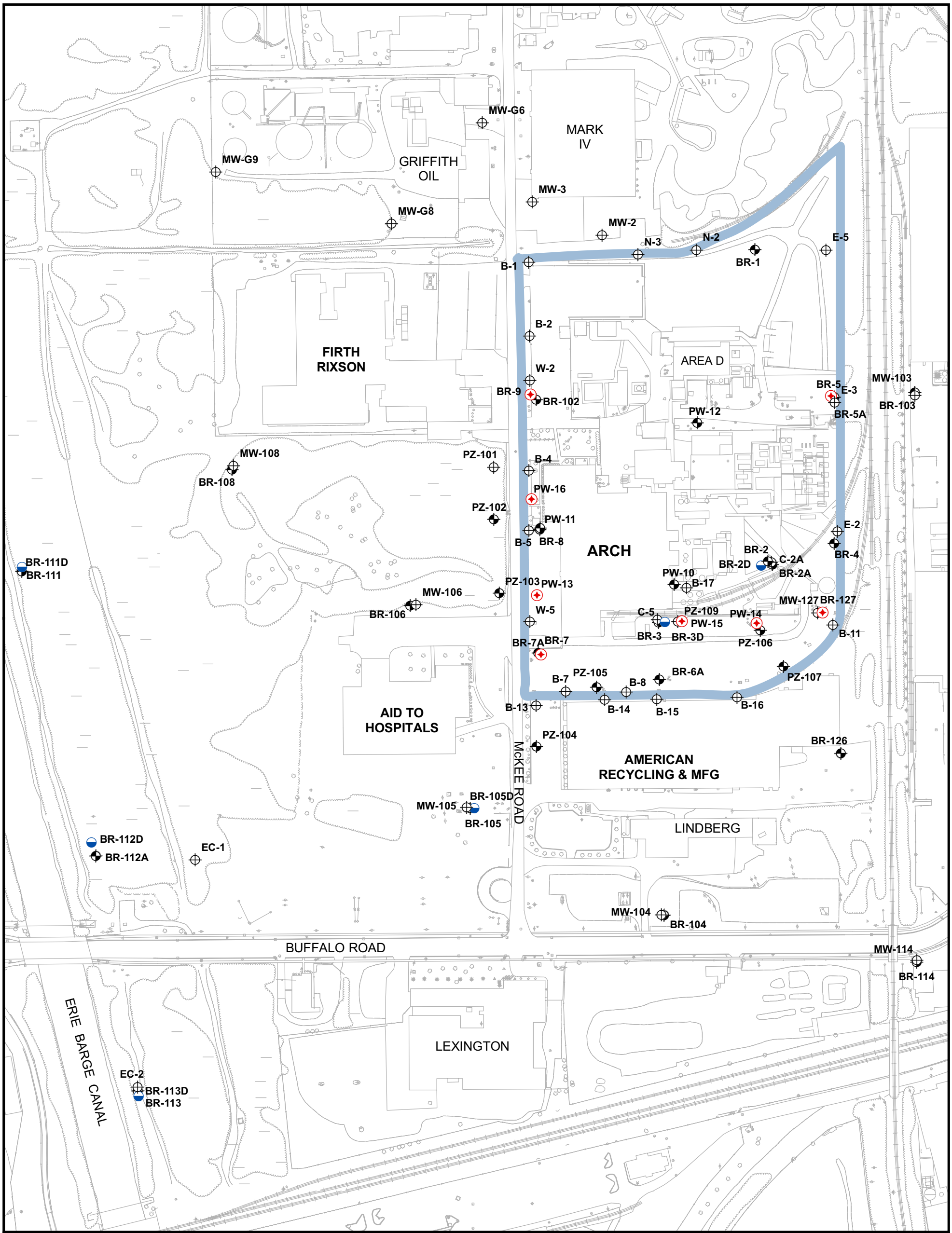
LETTINGTON DRIVE

BR-124D

Figure 1
Off-Site Groundwater Monitoring Well Locations

Arch Chemicals
Rochester, NY
MACTEC, Inc.

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Fall 2009\Arch_OffsiteWells_Fig1.mxd PDF: P:\Projects\Arch\Rochester\GIS\Figures\Monitoring_Fall2009\Figure1_OffsiteWells.pdf



NOTES:

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

N

0 100 200 400 Feet

Legend

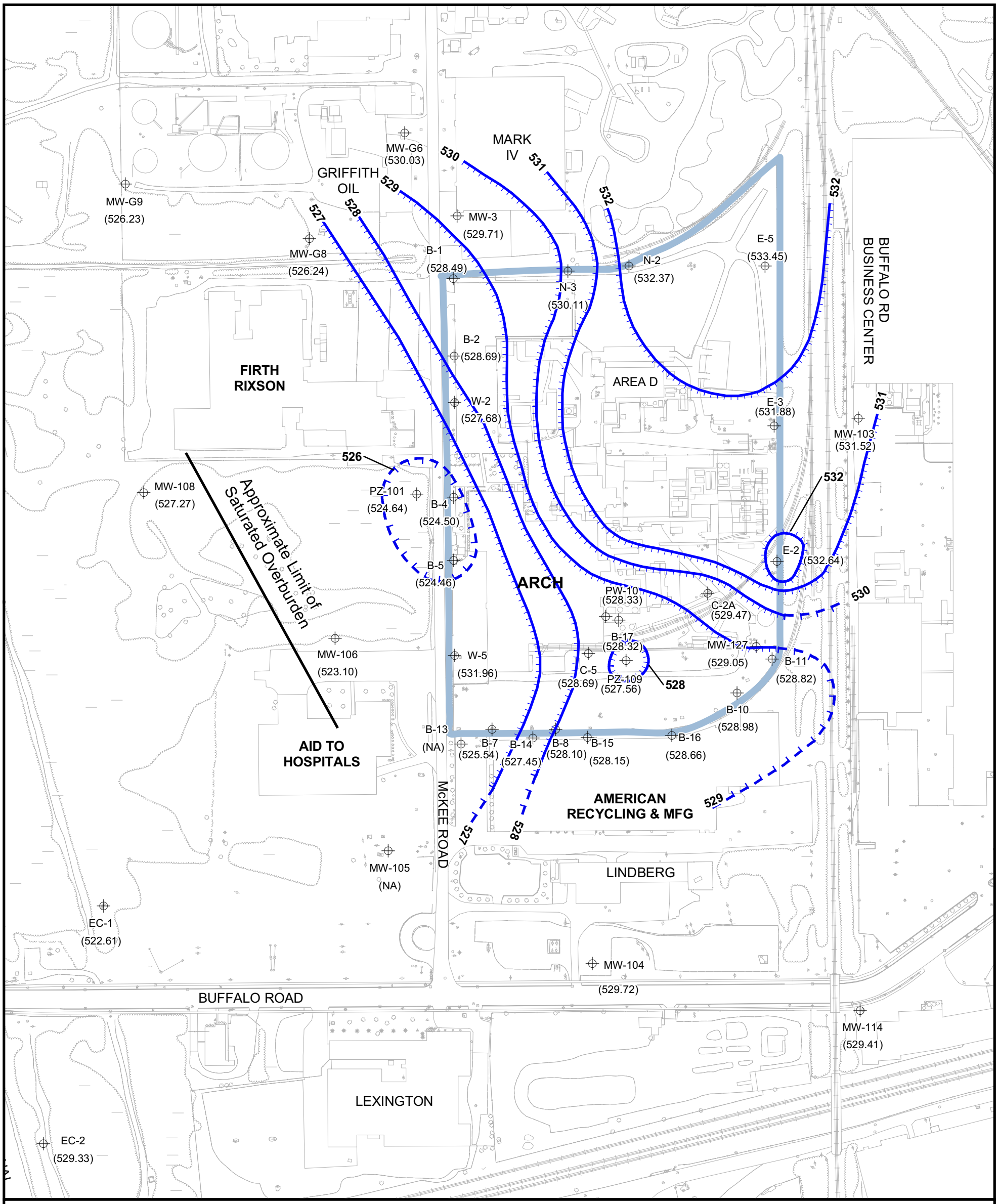
- Outline of Arch Property Boundary
- Active Pumping Well
- Overburden Monitoring Well
- Bedrock Monitoring Well
- Deep Bedrock Monitoring Well

Figure 2
Onsite Monitoring Well Locations

Arch Chemicals
Rochester, NY
MACTEC, Inc.

Prepared by JEB	Checked by NMB

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Fall_2010\OnsiteWells_Fig2.mxd PDF: P:\Projects\Arch\Rochester\GIS\Figures\Monitoring_Fall2010\Figure_2_10.pdf 02/09/2011 12:04 PM jebrandow



Legend

- MW-114 (528.76) — Piezometric Elevation at Well or Piezometer
- Outline of Arch Property Boundary
- Interpreted Groundwater Flow Direction
- 528 — Overburden Piezometric Elevation Contour (MSL)

N

NOTES:

1. Water Levels Measured on Nov 16, 2010
2. NA = Not Available
3. Dashed Contours Reflect Uncertainty
4. Water levels from W-5 were interpreted to be anomalous and not used in contouring.

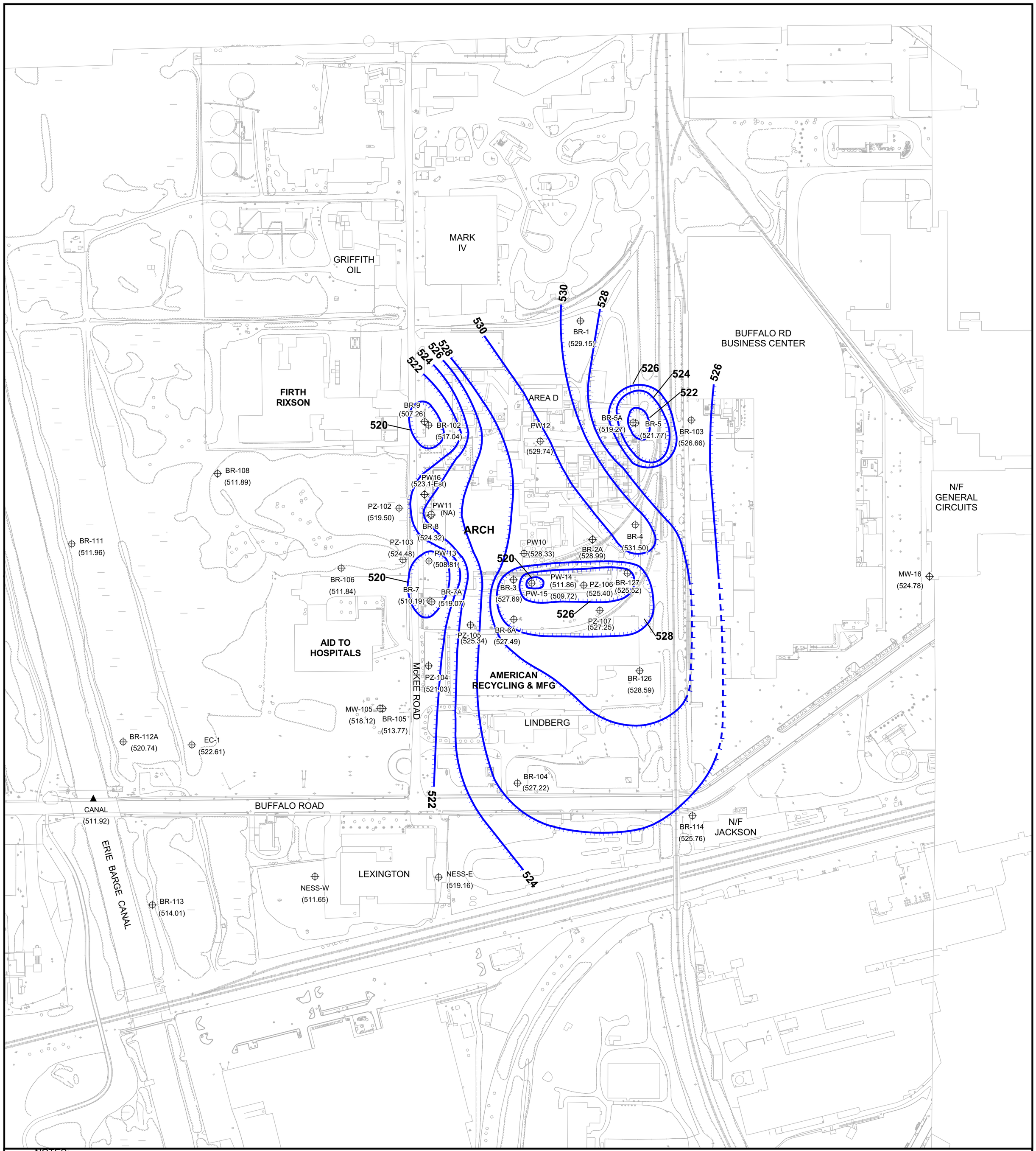
0 100 200 400 Feet

Prepared by BJS | Checked by NMB

Figure 3
Fall 2010
Overburden Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY
MACTEC, Inc.

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Fall_2010\OverburdenGW_Fig3.mxd PDF: P:\Projects\Arch\Rochester\GIS\Figures\Monitoring_Fall2010\Figure_3_10.pdf 02/10/2011 10:58 AM jebrandow



NOTES:

1. Water Levels Measured on November 16, 2010
2. Dashed Contours Reflect Uncertainty

NA = Not Available

PW-11 has been replaced by PW-16

(523.2-Est) Estimated Water Elevation at PW-16

Legend

BR-112A (520.18) — Piezometric Elevation at Well or Piezometer (Feet MSL)

CANAL (507.69) — Piezometric Elevation at Surface Water Measuring Point

Interpreted Groundwater Flow Direction

530 — Bedrock Piezometric Elevation Contour (MSL)

N

0 100 200 400 Feet

Prepared by BJS | Checked by NMB

Figure 4
Fall 2010
Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY
MACTEC, Inc.

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Fall_2010\BedrockGW_Fig4.mxd PDF: P:\Projects\Arch\Rochester\GIS\Figures\Monitoring_Fall2010\Figure_4_10.pdf 02/04/2011 11:52 AM bjschoonard

Legend

- Bedrock Well ('D' Designates Deep Well)
- 500 — Deep Bedrock Elevation Contour (MSL)
- Interpreted Groundwater Flow Direction
- Outline of Arch Property Boundary
- BR-116D (509.03) Piezometric Elevation at Deep Bedrock Well

NOTES

1. Water Levels Measured on November 16, 2010
2. Dashed Contours Reflect Uncertainty

N

0 250 500 1,000 Feet

Prepared by BJS | Checked by NMB

ERIE BARGE CANAL

I-390

FIRTH RIXSON

BR-9

ARCH

BUFFALO RD. BUSINESS CENTER

BR-103

BR-108

BR-111D (511.49)

BR-111

AID TO HOSPITALS

BR-106

BR-3D (480.03)

ARM

BR-112D (511.86)

BR-112

BR-105

BR-105D (510.81)

BR-104

BR-114

BUFFALO ROAD

CUMBERLAND FARMS PETROLEUM TERMINAL

BR-113

BR-113D (511.90)

LEXINGTON

GENERAL RAIL SIGNAL CO.

DOLOMITE PRODUCTS QUARRY

PFAUDLER

BR-122D (507.37)

BR-117D (498.57)

BR-117

BR-118

BR-118D (500.19)

BR-116D (509.70)

BR-116

BR-123D (508.40)

BR-124D (505.94)

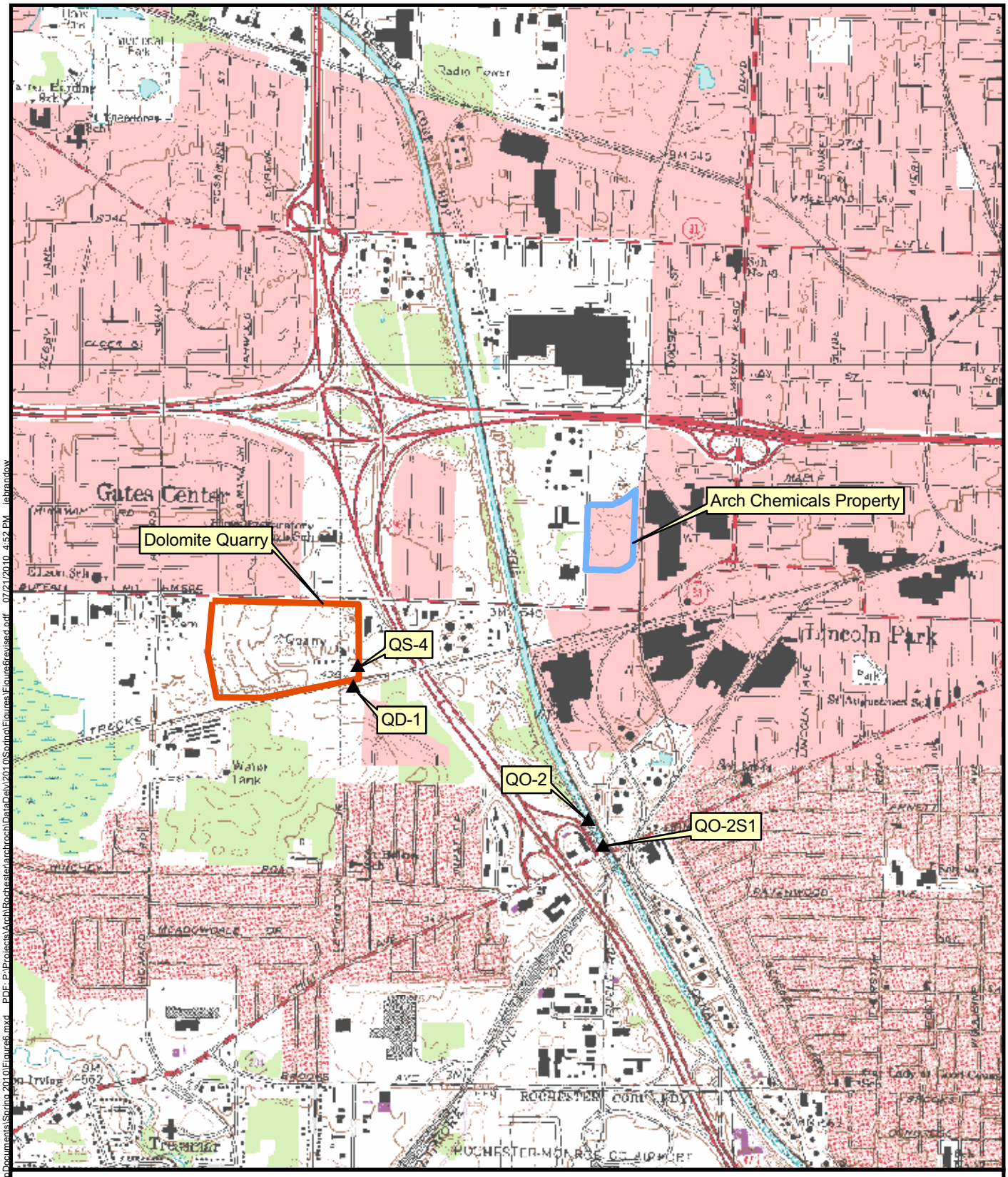
LETTINGTON DRIVE

498 500 502 504 506 508 510

Figure 5
Fall 2010
Deep Bedrock Groundwater
Interpreted Piezometric Contours

Arch Chemicals
Rochester, NY
MACTEC, Inc.

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Fall_2010\Deep_BedrockGW_Fig5.mxd PDF: P:\Projects\Arch\Rochester\GIS\Figures\Monitoring_Fall2010\Figure_5_10.pdf 12/28/2010 11:39 AM bjschoonard



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

N

0 1,000 2,000 Feet

Legend

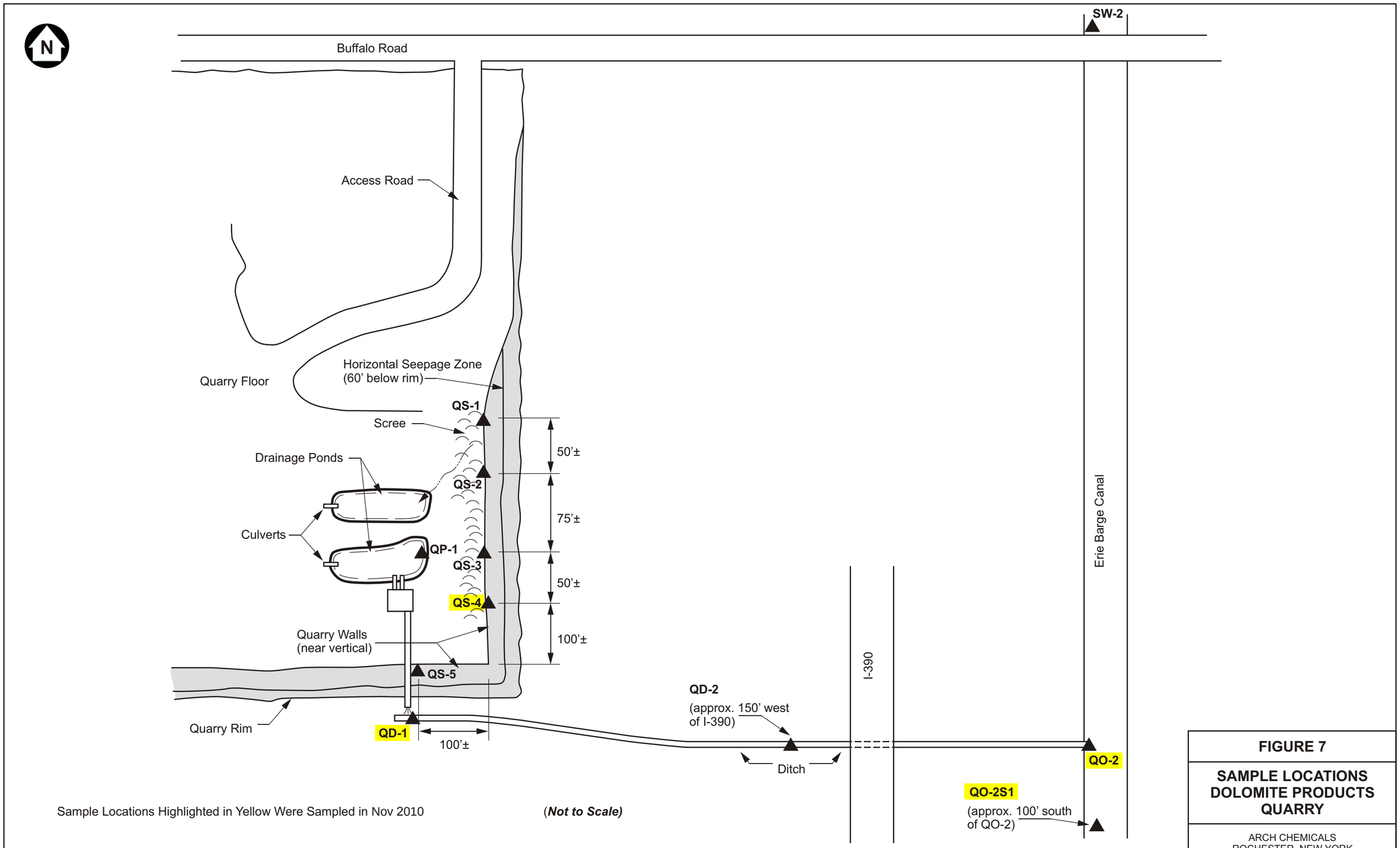
- Arch Property Boundary
- Dolomite Quarry Boundary
- ▲ Surface Water Sample Location

Figure 6
Sample Locations
Erie Barge Canal

Arch Chemicals
Rochester, New York
MACTEC, Inc.

Prepared by JEB | Checked by NMB

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Spring 2010\Figure6.mxd PDF: P:\Projects\Arch\Rochester\archroch\DataDelv\2010\Spring\Figures\Figure6revised.pdf 07/21/2010 4:52 PM jebrandow



Sample Locations Highlighted in Yellow Were Sampled in Nov 2010

(***Not to Scale)***

FIGURE 7

SAMPLE LOCATIONS
DOLOMITE PRODUCTS QUARRY

ARCH CHEMICALS
ROCHESTER, NEW YORK

W2004030a.cdr

MARK IV

GRIFFITH OIL

FIRTH RIXSON

BUFFALO RD BUSINESS CENTER

AREA D

ARCH

AID TO HOSPITALS

AMERICAN RECYCLING & MFG

LINDBERG

N/F GENERAL CIRCUITS

N/F JACKSON

LEXINGTON

BUFFALO ROAD

McKEE ROAD

ERIE BARGE CANAL

100

1000

10,000

BR-9 190
BR-102 NS
PW12 700
BR-5A 130
E-3 (NS)
BR-103 NS
MW-103 (NS)
BR-108 NS
MW-108 (NS)
PZ-101 (71)
PW-16 3000
PZ-102 2200
BR-8 NS
PW11 NS
BR-111D {NS}
PW10 9700
B-17 (NS)
PW14 3100
BR-127 7400
MW-127 (3500)
MW-16 3.4
BR-106 610
MW-106 (4500)
PZ-103 2800
PW13 1500
BR-3 NS
PW15 79000
PZ-106 23000
B-11 (290)
BR-7A 7900
PZ-107 6900
B-7 (NS)
PZ-105 200
BR-6A 5800
B-16 (710)
BR-126 1300
MW-126 (NS)
PZ-104 1100
BR-105 820
BR-112D {NS}
MW-104 (NS)
BR-104 NS
BR-114 NS
MW-114 (NS)
NESS-W NS
NESS-E NS
BR-113D {NS}

Legend

100 Outline of Arch Property Boundary

BR-105 740 Chloropyridine Concentration Contour

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

0 100 200 400 Feet

N

Prepared by BJS | Checked by JEB

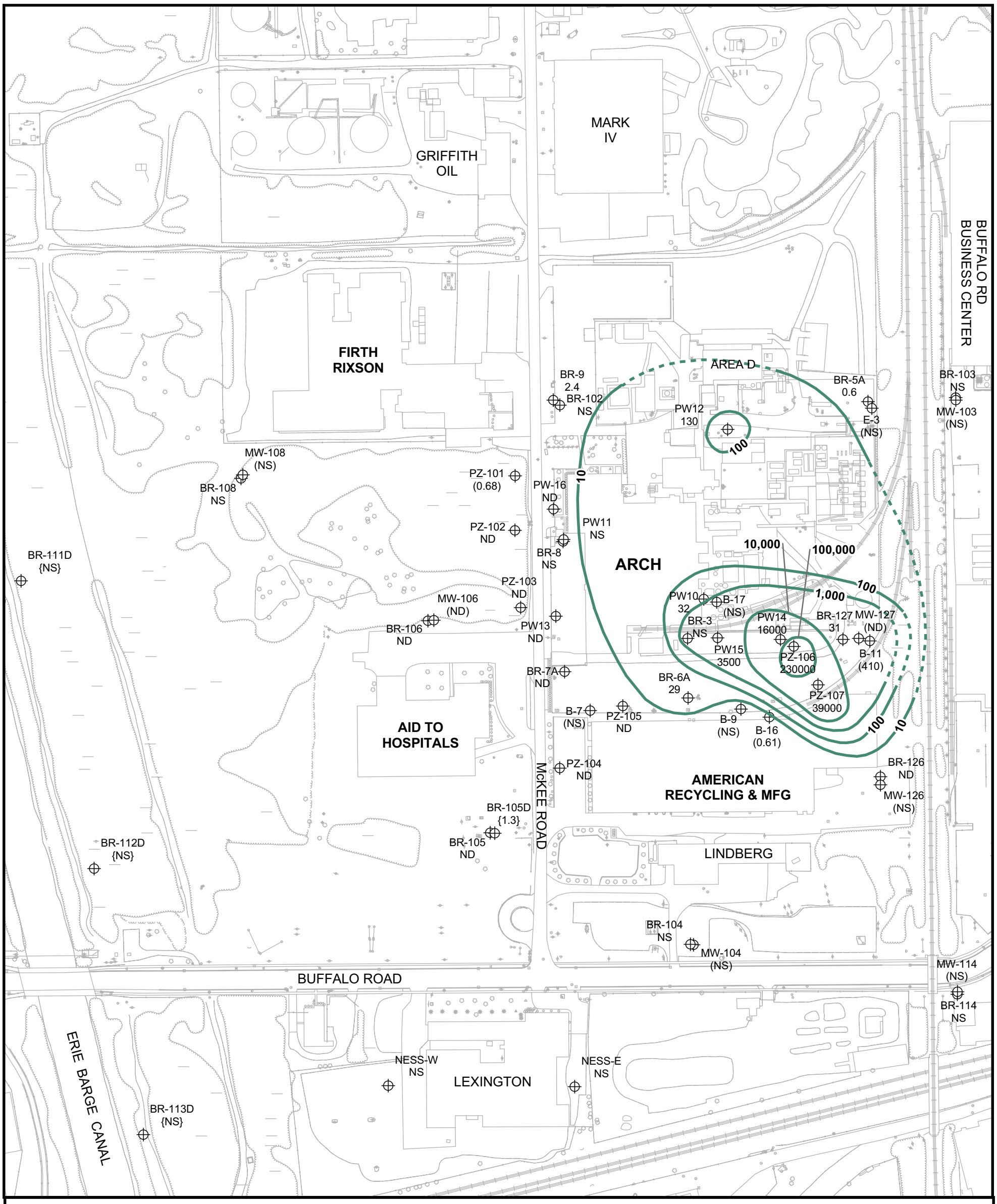
NOTES:

1. Samples Collected May, 2009
2. Selected Chloropyridines consist of 2,6-Dichloropyridine, 2-Chloropyridine, 3-Chloropyridine, 4-Chloropyridine, and P-Fluoroaniline.
3. Concentration contours represented for Bedrock Wells and selected Overburden and Deep Bedrock Wells.
4. Dashed concentration contours represent inferences from historical analytical results.
5. Concentrations are in µg/L

Figure 8
Fall 2010
Selected Chloropyridine Concentration Contours

Arch Chemicals
Rochester, NY
MACTEC, Inc.

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Fall_2010\ChloroPyridine_Fig8.mxd PDF: P:\Projects\Arch\Rochester\GIS\Figures\Monitoring_Fall2010\Figure_8_10.pdf 01/18/2011 9:50 AM bjschoonard



Legend

100	VOC Concentration Contour
BR-105D {1.3}	Outline of Arch Property Boundary
{1000}	Deep Bedrock Well
(1000)	Overburden Well
1000	Bedrock Well
NS	Not Sampled
ND	Not Detected

0 100 200 Feet

N

Prepared by BJS | Checked by JEB

NOTES:

1. Samples Collected in November, 2010
2. Selected VOCs consist of Carbon tetrachloride, Methylene chloride Chloroform, TCE, and PCE.
3. Concentration contours represented for Bedrock Wells and selected Overburden and Deep Bedrock Wells.
4. Dashed concentration contours represent inferences from historical analytical results.
5. Concentrations are in µg/L

Figure 9
Fall 2010
Selected Volatile Organic Compound Concentration Contours

Arch Chemicals
Rochester, NY

MACTEC, Inc.

Document: P:\Projects\Arch\Rochester\GIS\MapDocuments\Fall_2010\Arch_VOCs_Fig9.mxd PDF: P:\Projects\Arch\Rochester\GIS\Figures\Monitoring_Fall2010\Figure_9_10.pdf 01/18/2011 9:01 AM bjschoonard

Tables

TABLE 1
FALL 2010 GROUNDWATER SAMPLING AND ANALYTICAL PROGRAM

ARCH CHEMICALS, INC
ROCHESTER, NEW YORK

			ANALYSIS	PYRIDINES	VOCs
SITE / AREA	**WELL / POINT**	**DATE**	**QC TYPE**		
AID TO HOSPITALS	BR-106	11/17/2010	Sample	X	X
	MW-106	11/17/2010	Sample	X	X
	PZ-101	11/18/2010	Sample	X	X
	PZ-102	11/18/2010	Sample	X	X
	PZ-103	11/18/2010	Sample	X	X
AMERICAN RECYCLING & MANUF. (58 MCKEE ROAD)	B-16	11/19/2010	Sample	X	X
	BR-126	11/18/2010	Sample	X	X
	PZ-104	11/18/2010	Sample	X	X
ARCH ROCHESTER	B-11	11/18/2010	Sample	X	X
	BR-127	11/17/2010	Sample	X	X
	BR-5A	11/17/2010	Sample	X	X
	BR-6A	11/18/2010	Sample	X	X
	BR-7A	11/17/2010	Sample	X	X
	BR-9	11/17/2010	Sample	X	X
	MW-127	11/19/2010	Sample	X	X
	PW10	11/18/2010	Sample	X	X
	PW12	11/19/2010	Sample	X	X
	PW13	11/17/2010	Sample	X	X
	PW14	11/17/2010	Sample	X	X
	PW15	11/17/2010	Sample	X	X
	PW16	11/18/2010	Sample	X	X
	PZ-105	11/18/2010	Sample	X	X
	PZ-106	11/18/2010	Sample	X	X
	PZ-107	11/18/2010	Duplicate	X	X
	PZ-107	11/18/2010	Sample	X	X
FORMER GENERAL CIRCUITS(Corner of Buffalo and Mt Read Blvd.)	MW-16	11/16/2010	Sample	X	
DOLOMITE PRODUCTS, INC.	QD-1	11/16/2010	Sample	X	
	QS-4	11/16/2010	Sample	X	
ERIE BARGE CANAL(Samples in canal or property along canal)	QO-2	11/16/2010	Sample	X	
	QO-2S1	11/16/2010	Sample	X	
RG & E RIGHT OF WAY	BR-105	11/17/2010	Sample	X	X
	BR-105D	11/17/2010	Sample	X	X

TABLE 2
FALL 2010 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11	B-16	BR-105	BR-105D	BR-106	BR-126	BR-127	BR-5A	BR-6A	BR-7A	BR-9
SAMPLE DATE:	11/18/2010	11/19/2010	11/17/2010	11/17/2010	11/17/2010	11/18/2010	11/17/2010	11/17/2010	11/18/2010	11/17/2010	11/17/2010
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270C (µg/L)											
2,6-Dichloropyridine	290 J	500	140	26 J	170	370	890 J	27	1000	1000	23
2-Chloropyridine	170 J	710	820	170	610	1300	7400	130	5800	7900	190
3-Chloropyridine	2.8 J	9.6 U	100 U	14 J	100 U	100 U	1200 U	19 U	160 J	1000 U	3.2 J
4-Chloropyridine	19 U	9.6 U	100 U	50 U	100 U	100 U	1200 U	19 U	500 U	1000 U	9.5 U
p-Fluoroaniline	19 U	6.4 J	100 U	10 J	12 J	100 U	1200 U	15 J	500 U	1000 U	5.4 J
Pyridine	48 U	24 U	250 U	120 U	250 U	250 U	3100 U	49 U	1200 U	2500 U	24 U

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value

TABLE 2
FALL 2010 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	MW-106	MW-127	MW-16	PW10	PW12	PW13	PW14	PW15	PW16	PZ-101	PZ-102
SAMPLE DATE:	11/17/2010	11/19/2010	11/16/2010	11/18/2010	11/19/2010	11/17/2010	11/17/2010	11/17/2010	11/18/2010	11/18/2010	11/18/2010
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270C (µg/L)											
2,6-Dichloropyridine	1600	360	3.3 J	9700	370	190 J	500	4500 J	200	45	460
2-Chloropyridine	4500	3500	3.4 J	3000	700	1500	3100	79000	2700	71	2200
3-Chloropyridine	500 U	67 J	9.7 U	140 J	100 U	200 U	120 J	10000 U	42 J	9.4 U	250 U
4-Chloropyridine	500 U	250 U	9.7 U	1000 U	100 U	200 U	250 U	10000 U	96 U	9.4 U	250 U
p-Fluoroaniline	130 J	250 U	9.7 U	1000 U	120	19 J	250 U	10000 U	52 J	0.92 J	41 J
Pyridine	1200 U	620 U	24 U	2500 U	250 U	500 U	82 J	6500 J	240 U	24 U	620 U

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value

TABLE 2
FALL 2010 GROUNDWATER MONITORING RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PZ-103	PZ-104	PZ-105	PZ-106	PZ-107	PZ-107
SAMPLE DATE:	11/18/2010	11/18/2010	11/18/2010	11/18/2010	11/18/2010	11/18/2010
QC TYPE:	Sample	Sample	Sample	Sample	Duplicate	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270C (µg/L)						
2,6-Dichloropyridine	860	250	500 U	5700	820	1200
2-Chloropyridine	2800	1100	200 J	23000	4500	6900
3-Chloropyridine	33 J	100 U	500 U	280 J	80 J	150 J
4-Chloropyridine	200 U	100 U	500 U	2000 U	500 U	500 U
p-Fluoroaniline	87 J	100 U	500 U	2000 U	500 U	500 U
Pyridine	500 U	250 U	1200 U	580 J	150 J	340 J

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value

TABLE 3
FALL 2010 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	B-11	B-16	BR-105	BR-105D	BR-106	BR-126	BR-127	BR-5A	BR-6A
SAMPLE DATE:	11/18/2010	11/19/2010	11/17/2010	11/17/2010	11/17/2010	11/18/2010	11/17/2010	11/17/2010	11/18/2010
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs BY SW-846 Method 8260/5ML (µg/L)									
1,1,1-Trichloroethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethane	10 U	0.96 J	5 U	1.4 J	0.72 J	5 U	5 U	5 U	5 U
1,1-Dichloroethene	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2,4-Trimethylbenzene	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)	20 U	1.2 J	16	6.6 J	10 U	10 U	11	9.4 J	2.7 J
1,2-Dichloropropane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
1,3,5-Trimethylbenzene	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone	50 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
2-Hexanone	50 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
4-Methyl-2-pentanone	50 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Acetone	50 U	25 U	25 U	3.8 J	25 U	25 U	25 U	25 U	8 J
Benzene	10 U	2.7 J	1.8 J	3.4 J	3.6 J	1.8 J	2.7 J	7.1	0.95 J
Bromodichloromethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromoform	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Bromomethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	66	5 U	5 U	5 U	5 U	5 U	7	0.75 J	5 U
Carbon tetrachloride	82	5 U	5 U	5 U	5 U	5 U	8.6	5 U	5 U
Chlorobenzene	10 U	36	4.9 J	5 U	32	3 J	3.9 J	21	2.4 J
Chlorodibromomethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroethane	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	410	0.61 J	5 U	1.2 J	5 U	5 U	31	0.59 J	29
Chloromethane	10 U	5 U	5 U	2.3 J	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Ethyl benzene	10 U	2 J	5 U	5 U	5 U	5 U	2 J	5 U	5 U
Methylene chloride	25	5 U	5 U	1.3 J	5 U	5 U	0.89 J	0.6 J	1.6 J
Styrene	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethene	11	5 U	5 U	5 U	5 U	5 U	6.9	5 U	0.8 J
Toluene	10 U	50	5 U	5 U	5 U	5 U	7.8	2.7 J	8.3
trans-1,3-Dichloropropene	10 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene	10 U	5 U	5 U	5 U	5 U	5 U	5	0.51 J	1.8 J
Vinyl acetate	50 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U	25 U
Vinyl chloride	10 U	5 U	13	1 J	5 U	5 U	5.9	2 J	21
Xylenes, Total	30 U	12 J	15 U	15 U	15 U	15 U	2.1 J	1 J	15 U

Notes: U = Compound not detected; value represents sample quantitation limit.
J = Estimated value.

TABLE 3
FALL 2010 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	BR-7A	BR-9	MW-106	MW-127	PW10	PW12	PW13	PW14	PW15
SAMPLE DATE:	11/17/2010	11/17/2010	11/17/2010	11/19/2010	11/18/2010	11/19/2010	11/17/2010	11/17/2010	11/17/2010
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
VOCs BY SW-846 Method 8260/5ML (µg/L)									
1,1,1-Trichloroethane	5 U	2 J	5 U	5 U	10 U	100 U	5 U	400 U	40 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
1,1-Dichloroethane	5 U	11	5 U	5 U	10 U	100 U	1.9 J	400 U	40 U
1,1-Dichloroethene	5 U	2.2 J	5 U	5 U	10 U	100 U	5 U	400 U	40 U
1,2,4-Trimethylbenzene	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
1,2-Dichloroethane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
1,2-Dichloroethene (total)	10 U	250	10 U	10 U	20 U	200 U	2.3 J	800 U	80 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
1,3,5-Trimethylbenzene	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
2-Butanone	25 U	25 U	25 U	25 U	50 U	500 U	25 U	2000 U	200 U
2-Hexanone	25 U	25 U	25 U	25 U	50 U	500 U	25 U	2000 U	200 U
4-Methyl-2-pentanone	25 U	25 U	25 U	25 U	50 U	500 U	25 U	2000 U	200 U
Acetone	25 U	3.3 J	25 U	25 U	50 U	500 U	25 U	2000 U	200 U
Benzene	7	54	29	5 U	10 U	100 U	9.7	400 U	100
Bromodichloromethane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
Bromoform	5 U	5 U	5 U	5 U	60	100 U	5 U	400 U	36
Bromomethane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
Carbon disulfide	5 U	5 U	5 U	5 U	10 U	100 U	5 U	480	160
Carbon tetrachloride	5 U	5 U	5 U	5 U	16	100 U	5 U	1300	450
Chlorobenzene	230	22	280	5 U	10 U	5300	100	400 U	150
Chlorodibromomethane	5 U	5 U	5 U	5 U	10	100 U	5 U	400 U	40 U
Chloroethane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
Chloroform	5 U	5 U	5 U	5 U	8.6 J	130	5 U	16000	3500
Chloromethane	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
Ethyl benzene	5 U	2.3 J	5 U	5 U	10 U	410	5 U	400 U	40 U
Methylene chloride	5 U	5 U	5 U	5 U	10 U	100 U	5 U	2600	420
Styrene	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
Tetrachloroethene	5 U	5 U	5 U	5 U	32	65 J	5 U	400 U	770
Toluene	5 U	2.6 J	5 U	5 U	10 U	9300	2.4 J	400 U	320
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	10 U	100 U	5 U	400 U	40 U
Trichloroethene	5 U	2.4 J	5 U	5 U	10 U	100 U	5 U	400 U	68
Vinyl acetate	25 U	25 U	25 U	25 U	50 U	500 U	25 U	2000 U	200 U
Vinyl chloride	5 U	190	5 U	5 U	10 U	100 U	3.1 J	400 U	40 U
Xylenes, Total	15 U	2.5 J	15 U	15 U	30 U	2500	15 U	1200 U	120 U

Notes: U = Compound not detected; value represents sample quantitation limit.
J = Estimated value.

TABLE 3
FALL 2010 GROUNDWATER MONITORING RESULTS
VOLATILE ORGANIC COMPOUNDS

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	PW16	PZ-101	PZ-102	PZ-103	PZ-104	PZ-105	PZ-106	PZ-107	PZ-107
SAMPLE DATE:	11/18/2010	11/18/2010	11/18/2010	11/18/2010	11/18/2010	11/18/2010	11/18/2010	11/18/2010	11/18/2010
QC TYPE:	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Duplicate	Sample
VOCs BY SW-846 Method 8260/5ML (µg/L)									
1,1,1-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
1,1,2,2-Tetrachloroethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
1,1,2-Trichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
1,1-Dichloroethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
1,1-Dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
1,2,4-Trimethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
1,2-Dichloroethane	3.6 J	5 U	5 U	2.2 J	5 U	5 U	4000 U	500 U	500 U
1,2-Dichloroethene (total)	4.5 J	10 U	10 U	1.5 J	10 U	10 U	8000 U	1000 U	1000 U
1,2-Dichloropropane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
1,3,5-Trimethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
2-Butanone	25 U	25 U	25 U	25 U	25 U	25 U	20000 U	2500 U	2500 U
2-Hexanone	25 U	25 U	25 U	25 U	25 U	25 U	20000 U	2500 U	2500 U
4-Methyl-2-pentanone	25 U	25 U	25 U	25 U	25 U	25 U	20000 U	2500 U	2500 U
Acetone	25 U	25 U	25 U	25 U	25 U	25 U	20000 U	2500 U	2500 U
Benzene	11	5 U	21	32	1.5 J	5 U	4000 U	500 U	500 U
Bromodichloromethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Bromoform	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Bromomethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Carbon disulfide	5 U	5 U	5 U	2.2 J	5 U	5 U	48000	320 J	310 J
Carbon tetrachloride	5 U	5 U	5 U	5 U	5 U	5 U	27000	14000	11000
Chlorobenzene	390	4.2 J	330	1000	9.8	1.8 J	4000 U	500 U	500 U
Chlorodibromomethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Chloroethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Chloroform	5 U	5 U	5 U	5 U	5 U	5 U	230000	48000	39000
Chloromethane	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
cis-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Ethyl benzene	5 U	5 U	5 U	1.5 J	5 U	5 U	4000 U	500 U	500 U
Methylene chloride	5 U	0.68 J	5 U	5 U	5 U	5 U	11000	9600	7800
Styrene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Tetrachloroethene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	1900	1500
Toluene	9.4	5 U	5 U	1.8 J	5 U	5 U	4000 U	500 U	500 U
trans-1,3-Dichloropropene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Trichloroethene	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Vinyl acetate	25 U	25 U	25 U	25 U	25 U	25 U	20000 U	2500 U	2500 U
Vinyl chloride	5 U	5 U	5 U	5 U	5 U	5 U	4000 U	500 U	500 U
Xylenes, Total	15 U	15 U	15 U	4.3 J	15 U	15 U	12000 U	1500 U	1500 U

Notes: U = Compound not detected; value represents sample quantitation limit.
J = Estimated value.

TABLE 4
COMPARISON OF FALL 2010
CHLOROPYRIDINES AND VOLATILE ORGANICS CONCENTRATIONS
IN GROUNDWATER TO PREVIOUS RESULTS (ug/L)

ARCH ROCHESTER
SEMI-ANNUAL GROUNDWATER MONITORING REPORT

WELL	SELECTED CHLOROPYRIDINES				SELECTED VOCs			
	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV-2010 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV-2010 RESULT
ON-SITE WELLS/LOCATIONS								
B-11	1	4,800	4,800	460	1	570	84	**530**
B-17	5	28,000,000	440,000		5	350,000	14,000	
B-7	5	9,100	950		5	260	36	
BR-127	10	29,000	7,000	**8,300**	10	1,300	220	52
BR-3	5	6,500,000	75,000		5	920,000	130,000	
BR-5A	10	1,700	290	170	10	9,400	14	1.7
BR-6A	10	140,000	6,300	**7,000**	10	26,000	57	33
BR-7A	10	510,000	27,000	8,900	10	3,000	130	ND
BR-8	5	57,000	210		5	6,900	11	
BR-9	10	720	110	**220**	10	160	4.6	2.4
E-3	5	600	130		5	12,000	41	
MW-127	10	15,000	6,200	3,900	10	7,500	1,300	ND
PW10	10	240,000	86,000	13,000	10	120,000	7,700	57
PW11	9	27,000	1,100		9	30,000	99	
PW12	10	15,000	2,300	1,200	10	120,000	510	200
PW13	10	7,500	1,700	1,700	10	920	110	ND
PW14	10	29,000	20,000	3,800	10	160,000	19,000	**20,000**
PW15	7	730,000	220,000	90,000	7	8,200	6,400	5,200
PW16	0	3,000		3,000	0	ND		ND
PZ-105	10	190,000	12,000	200	10	9,700	41	ND
PZ-106	10	120,000	64,000	30,000	10	1,400,000	390,000	270,000
PZ-107	10	11,000	8,000	**8,600**	10	89,000	11,000	**59,000**
OFF-SITE WELLS/LOCATIONS								
B-16	1	33,000	950	**1200**	1	4,500	7.4	0.61
BR-103	5	400	11		5	38	7.6	
BR-104	5	3,100	5.7			9		
BR-105	10	24,000	870	**960**	10	310	3.3	ND
BR-105D	10	10,000	690	220	10	230	3.9	2.5
BR-106	10	25,000	4,100	790	10	6,300	0.062	ND
BR-108	5	1,700	33			ND		
BR-112D	5	310	48			4.3		
BR-113D	5	490	28			2.8		
BR-114	5	520	180		5	12	0.1	
BR-116	5	12	ND			84		
BR-116D	5	710	35			120		
BR-117D	5	80	7.7			1.9		
BR-118D	5	330	59			6.6		
BR-122D	5	650	160			ND		
BR-123D	5	860	73			4		
BR-126	9	9,000	2,800	1,700	9	230	39	ND
MW-103	5	97	20		5	750	17	
MW-104	5	180	3.3			1		

TABLE 4
COMPARISON OF FALL 2010
CHLOROPYRIDINES AND VOLATILE ORGANICS CONCENTRATIONS
IN GROUNDWATER TO PREVIOUS RESULTS (ug/L)

ARCH ROCHESTER
SEMI-ANNUAL GROUNDWATER MONITORING REPORT

WELL	SELECTED CHLOROPYRIDINES				SELECTED VOCs			
	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV-2010 RESULT	# EVENTS IN PRIOR 5 YRS	HISTORIC MAXIMUM	5-YEAR MEAN	NOV-2010 RESULT
MW-106	10	130,000	6,500	6,200	10	450	0.25	ND
MW-114	5	18	ND		5	24	20	
MW-16	5	360	7	6.7	1	8	8	
NESS-E	5	5,000	100			700		
NESS-W	5	2,100	ND			89		
PZ-101	10	27,000	190	120	10	6.1	0.25	**0.68**
PZ-102	10	58,000	1,200	**2,700**	10	10,000	2.4	ND
PZ-103	10	73,000	8,000	3,800	10	44,000	4.8	ND
PZ-104	10	9,100	2,400	1,400	10	40	0.14	ND
QD-1	6	11	6.2	0.43		ND		
QO-2	11	380	5.4	ND		ND		
QO-2S1	11	27	0.85	ND		ND		
QS-4	11	3,400	200	140		ND		

Note:
1) Number of samples and mean reflect 5-year sampling period from November 2005 through May 2009. Historic maximum based on all available results from March 1990 through November 2009.
2) Chloropyridines represented by: 2-Chloropyridine, 2,6-Dichloropyridine, 3-Chloropyridine, 4-Chloropyridine, p-Fluoroaniline, and Pyridine.
3) Selected VOCs represented by Carbon Tetrachloride, Chloroform, Methylene Chloride, Tetrachloroethene, and Trichloroethene.
4) **Bold and shade** - Nov 2010 exceeds 5-year mean.
5) ND = Not detected
BLANK = Not sampled

TABLE 5
FALL 2010 QUARRY SEEP AND OUTFALL WATER SAMPLE RESULTS
CHLOROPYRIDINES

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

LOCATION:	QS-4	QO-2	QO-2S1	QD-1
SAMPLE DATE:	11/16/2010	11/16/2010	11/16/2010	11/16/2010
QC TYPE:	Sample	Sample	Sample	Sample
SELECTED CHLOROPYRIDINES BY SW-846 Method 8270C (µg/L)				
2,6-Dichloropyridine	29	9.6 U	9.8 U	9.8 U
2-Chloropyridine	110	9.6 U	9.8 U	9.8 U
3-Chloropyridine	9.9 U	9.6 U	9.8 U	9.8 U
4-Chloropyridine	9.9 U	9.6 U	9.8 U	9.8 U
p-Fluoroaniline	9.9 U	9.6 U	9.8 U	9.8 U
Pyridine	25 U	24 U	25 U	0.43 J

Notes:
U = Compound not detected; value represents sample quantitation limit.
J = Estimated value

TABLE 6
EXTRACTION WELL WEEKLY FLOW MEASUREMENTS - JUNE 2010 THROUGH NOVEMBER 2010

ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

Week Ending	BR-5A [Gal./Wk.]	BR-7A [Gal./Wk.]	BR-9 [Gal./Wk.]	PW-13 [Gal./Wk.]	PW-14 [Gal./Wk.]	PW-15 [Gal./Wk.]	PW-16 [Gal./Wk.]	BR-127 [Gal./Wk.]	Total [Gal.]
Jun '10									
06/06/10	18,651	47,743	77,221	75,126	1,279	33,153		29,173	282,346
06/13/10	21,924	41,015 **	74,511	104,612	1,219	39,278		31,754	314,313
06/20/10	24,337	46,559	77,170	102,528	1,250	39,207		32,123	323,174
06/27/10	24,037	45,157	77,456	101,555	1,013	38,450		31,693	319,361
								Total [Gal.]	1,239,194
Jul '10									
07/04/10	23,964	44,729	84,381 *	104,350	1,351	37,288		31,002	327,065
07/11/10	21,395	52,579	54,795 **	104,534	1,175	34,762		28,658	297,898
07/18/10	23,233	44,219	69,054	91,886	1,445	35,142		27,472	292,451
07/25/10	23,302	48,375	75,413	101,143	1,477	34,798		25,981	310,489
								Total [Gal.]	1,227,903
Aug '10									
08/01/10	23,650	37,825 **	73,671	106,802	1,580	34,275		28,068	305,871
08/08/10	22,576	43,505	74,837	108,601	1,540	32,644		29,602	313,305
08/15/10	21,761	40,186	74,024	107,777	1,527	31,618		28,435	305,328
08/22/10	20,734	36,389	78,046	107,797	1,540	29,181		29,627	303,314
08/29/10	21,392	35,137	75,847 *	106,038	1,590	34,096		29,685	303,785
								Total [Gal.]	1,531,603
Sep '10									
09/05/10	19,561	25,493 **	63,935	92,347	1,562	28,814		25,427	257,139
09/12/10	18,485	32,194	69,177	97,199	1,569	29,667		27,785	276,076
09/19/10	18,517	29,031	74,390	102,908	1,602	28,746		29,846	285,040
09/26/10	17,847	19,521 **	83,152	99,288	1,372	27,108	20,687	28,780	297,755
								Total [Gal.]	1,116,010
Oct '10									
10/03/10	17,402	47,456 **	75,130 **	41,996 **	1,571	26,809	17,618	27,459	255,441
10/10/10	19,564	73,263	106,191	63,726	1,611	27,755	31,544	26,670	350,324
10/17/10	22,955	65,993	105,919	66,347	1,261	27,990	48,071	27,686	366,222
10/24/10	23,157	56,793	102,516	66,494	596 *	11,926 **	48,225	27,272	336,979
10/31/10	11,455 **	34,346 **	50,329 **	30,680 **	419 **	7,679 **	22,699 **	12,831 **	170,438
								Total [Gal.]	1,479,404
Nov '10									
11/07/10	23,124	70,310	94,109	65,309	1,340	11,804 **	47,577	27,664	341,237
11/14/10	22,639	73,993	109,431	66,017	1,388	21,547	47,189	27,145	369,349
11/21/10	22,231	69,879	100,221	63,445	1,314	27,970	47,588	26,563	359,211
11/28/10	21,340	63,613	84,767	43,928	1,198	26,553	48,743	26,008	316,150
								Total [Gal.]	1,385,947
Total 6 Mo. Removal (Gal.)	549,233	1,225,303	2,085,693	2,222,433	34,789	758,260	379,941	724,409	7,980,061

Notes:
1) * - Flow rate is estimated due to a meter failure or reading error
2) ** - Flow rate adversely affected by pump failure, pluggage in discharge line, or other maintenance activity

TABLE 7

MASS REMOVAL SUMMARY
PERIOD: JUNE 2010 - NOVEMBER 2010

ARCH ROCHESTER
FALL 2010 GROUNDWATER MONITORING REPORT

Well	Total Vol. Pumped (gallons)	Avg. VOC Conc. (ppm)	Avg. PYR. Conc. (ppm)	VOCs Removed (pounds)	PYR. Removed (pounds)
BR-5A	549,000	0.002	0.20	0.01	0.9
BR-7A	1,225,000	0.006	8.9	0.06	91
BR-9	2,086,000	0.003	0.14	0.05	2.4
PW-13	2,223,000	0.001	1.3	0.03	25
PW-14	35,000	25	2.9	7.2	1
PW-15	758,000	5.8	64	37	406
PW-16	380,000	0.0	3.0	0	9
BR-127	724,000	0.24	5.9	1.5	36
Totals:	7,980,000			46	571

Note: VOC and pyridine concentrations used in this table are an average of the analytical results from the Spring 2010 and Fall 2010 sampling events for each well (except PW-16 which was activated in Sept. 2010 and has only been sampled once)

TABLE 8
2011 SAMPLING SCHEDULE
ARCH CHEMICALS, INC.
ROCHESTER, NEW YORK

ARCH ROCHESTER						**2011**					
MONITORING PROGRAM						**SPRING**		**FALL**		**TOTAL**	
	Well	***zone***	***area***	***Frequency/Parameters***	***Purpose***	***Pyridines***	***VOCs***	***Pyridines***	***VOCs***	***Pyridines***	***VOCs***
OFF-SITE	MW-103	OB	BRBC	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
MONITORING	BR-103	BR	BRBC	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	MW-104	OB	BUFFALO RD	annual monitoring, PYR	trend monitoring	1				1	0
	BR-104	BR	BUFFALO RD	annual monitoring, PYR	trend monitoring	1				1	0
	BR-105	BR	AID-HOSP	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	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-108	BR	AID-HOSP	annual monitoring, PYR	trend monitoring	1				1	0
	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-116	BR	PFAUDLER	annual monitoring, PYR	trend monitoring	1				1	0
	BR-116D	BR deep	PFAUDLER	annual monitoring, PYR	trend monitoring	1				1	0
	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
	NESS-E	BR deep	NESS	annual monitoring, PYR	trend monitoring	1				1	0
	NESS-W	BR deep	NESS	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
	PZ-104	BR	ARM	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
	BR-126	BR	ARM	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	B-16	OB	ARM	semi-annual monitoring, VOCs & PYR	continue until replaced by trench	1	1	1	1	2	2
	MW-16	BR	Gen'l Circuits	annual monitoring, PYR	trend monitoring			1		1	0
ON-SITE	PZ-107	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	perimeter sentinel/trend monitoring	1	1	1	1	2	2
MONITORING	PZ-106	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	PZ-105	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	trend monitoring	1	1	1	1	2	2
	BR-127	BR	ON-SITE	semi-annual monitoring, VOCs & PYR	perimeter sentinel/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	annual monitoring, VOCs & PYR	trend monitoring	1	1			1	1
	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-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
	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	pumping well	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
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						52	35	31	26	83	61

Revised: 01/10/11

Prepared by: JEB Checked by: NMB

Appendix A

Groundwater Field Sampling Data Sheets

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

FIELD REPORT

TestAmerica Laboratories, Inc.

REMEDIAL INVESTIGATION SAMPLING
ARCH CHEMICAL
ROCHESTER, NEW YORK

FALL 2010 Event

Prepared For:

MacTec, Inc.
511 Congress Street
Portland, Maine 04101

Attention: Mr. Nelson Breton

Prepared By:

TEST AMERICA LABORATORIES, INC.
Audubon Business Center
10 Hazelwood Drive
Amherst, New York 14228-2298

NY5A5762

Written By: Roger Senf

Reviewed By:

Date: 1-12-11

1.0 INTRODUCTION

This report describes the sampling of the following points:

- Twenty-seven (27) groundwater samples
- One (1) barge canal sample
- One (2) quarry outfall samples
- One (1) quarry seep/pond sample

These activities were in support of the Phase II Remediation Investigation being conducted at the Arch Chemical facility in Rochester, New York. The samples were collected from November 16-19, 2010 by Test America Laboratories, Inc. (TAL) personnel.

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. All well bottoms were sounded with the weighted steel measuring tape. All 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 wells with a deionized water rinse and paper towel wipe. These data are presented on Sampling Summary Table and Field Observation forms.

2.2 Well Purging

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

1) Purging three (3) 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 puring technique using either QED Low-Flow Bladder pumps or a variable rate peristaltic pump.

   Wells that were purged of three (3) 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 stabilization has occurred, sampling can be conducted. All purged 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 Observation Forms.

2.3 Surface Water Samples

Surface water samples were collected from one (1) location on the Erie Barge Canal, two (2) outfall sample and one (1) 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, perisaltic pumps or bladder (SamplePro) pumps when low flow purging techniques were used. Each bailer was constructed with teflon, bottom-filling check valve and was assembled without glues or welds. New ¼" poly rope was attached to each bailer. The bailer was slowly lowered into the water column, minimizing agitation and devolatilization. Low density polyethylene (LDPE) tubing was used with both the bladder (QED) and the peristaltic pumps. The bladder pumps were decontaminated between sample locations in accordance with the work plan. Personnel exercised care in all aspects of the sampling to ensure the collection of a representative sample An additional sample container was collected from each well in order to facilitate the measurement of field analytical parameters. Data pertaining to sampling are presented on the Sampling Summary Table and the Field Observation 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 a seep 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 presented in the Sampling Summary Table and Field Observation Forms.

4.0 SAMPLE CONTAINERS

Monitoring wells and surface water samples requiring analysis for volatile organics were collected into 40 ml glass vials with teflon septa. Samples for semi-volatile and Pyridine analysis were collected into one (1) liter amber glass bottles with teflon-lined caps. All bottles were purchased new and cleaned (Protocol A, 300 series) from Environmental Supply 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. All 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 analysis. Each trip blank consisted of two 40 ml glass vials with teflon septa which were filled with deionized water at the TAL laboratory. These blanks were transported to the site, stored with field collected samples and submitted to the TAL facility for analysis.

6.2 Equipment Rinse Blank

Equipment rinse blanks were collected as required by the work plan.

7.0 CHAIN OF CUSTODY

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

Sampling Summary Table
ARCH CHEMICAL
NOVEMBER 2010
RI SAMPLING/ROCHESTER NY FACILITY

Sample Point	—Water Level— Date	Time	Water Level (ft)*	Water Elevation (ft)**	Bottom Of Well (ft)*	Field Measurements Date	Time	pH (STD) (Units)	Spec. Cond. (umhos)	Temp (°C)	Turb. (NTU)	Other Field Measurements
B-11	11/17/2010	1130	7.15	N/A	N/A	11/18/2010	1407	7.34	1714	13.4	36.10	EH(mv)= -53
	Comments: SL.TURBID											
B-16	11/19/2010	1205	7.31	N/A	N/A	11/19/2010	1225	7.26	2086	13.2	4.09	EH(mv)= -45 DO(ppm)= 0.91
	Comments: CLEAR											
BR-105	11/17/2010	1000	23.13	N/A	N/A	11/17/2010	1035	6.87	2177	12.4	2.54	EH(mv)= -26 DO(ppm)= 0.74
	Comments: CLEAR											
BR-105D	11/17/2010	1006	25.69	N/A	N/A	11/17/2010	1120	6.78	29030	10.3	2.67	EH(mv)= -303 DO(ppm)= 0.66
	Comments: CLEAR											
BR-106	11/17/2010	1155	23.88	N/A	N/A	11/17/2010	1305	7.25	2805	11.0	3.18	EH(mv)= -133 DO(ppm)= 0.28
	Comments: CLEAR											
BR-126	11/18/2010	1356	9.09	N/A	N/A	11/18/2010	1420	7.42	956	13.2	8.88	EH(mv)= -89 DO(ppm)= 0.79
	Comments: CLEAR											
BR-127	11/17/2010	1125	8.37	N/A	N/A	11/17/2010	1127	7.86	2990	15.8	2.48	EH(mv)= -212
	Comments: CLEAR LT.AMBER TINT/2.61 GPM											
BR-5A	11/17/2010	1150	16.97	N/A	N/A	11/17/2010	1152	7.72	1613	13.9	9.89	EH(mv)= -122
	Comments: CLEAR/ 13.11 GPM											
BR-6A	11/18/2010	1215	13.30	N/A	N/A	11/18/2010	1240	7.45	4215	14.5	17.10	EH(mv)= -221 DO(ppm)= 0.78
	Comments: CLEAR SL. YELLOW TINT											
BR-7A	11/17/2010	1220	29.91	N/A	N/A	11/17/2010	1221	7.51	2377	14.7	5.83	EH(mv)= -184
	Comments: CLEAR GREY/7.14 GPM											
BR-9	11/17/2010	1050	30.19	N/A	N/A	11/17/2010	1054	7.16	2372	14.5	126.00	EH(mv)= -162
	Comments: GREY TURBID/7.60 GPM											
MW-106	11/17/2010	1155	12.36	N/A	N/A	11/17/2010	1220	7.27	4750	11.9	3.20	EH(mv)= -216 DO(ppm)= 0.95
	Comments: CLEAR											
MW-127	11/19/2010	1038	6.58	N/A	N/A	11/19/2010	1103	7.35	1447	11.6	4.34	EH(mv)= 33 DO(ppm)= 0.68
	Comments: CLEAR											
MW-16	11/16/2010	1048	12.01	N/A	N/A	11/16/2010	1115	6.89	3513	12.7	39.30	EH(mv)= 0 DO(ppm)= 0.79
	Comments: CLEAR/AMBER TINT											
PW-10	11/18/2010	1031	10.43	N/A	N/A	11/18/2010	1115	8.18	1282	13.8	11.69	EH(mv)= -29 DO(ppm)= 0.70
	Comments: CLEAR AMBER											
PW-12(BR-101)	11/19/2010	1130	7.18	N/A	N/A	11/19/2010	1145	7.27	2492	13.1	5.24	EH(mv)= -128 DO(ppm)= 0.90
	Comments: CLEAR											

SG - Specific Gravity
EH - Redox
DO - Dissolved Oxygen

* From Top of Riser
** Elevation Above Sea Level

Sampling Summary Table
ARCH CHEMICAL
NOVEMBER 2010
RI SAMPLING/ROCHESTER NY FACILITY

Sample Point	—Water Level— Date	Time	Water Level (ft)*	Water Elevation (ft)**	Bottom Of Well (ft)*	Field Measurements Date	Time	pH (STD) (Units)	Spec. Cond. (umhos)	Temp (°C)	Turb. (NTU)	Other Field Measurements
PW-13	11/17/2010	1205	30.26	N/A	N/A	11/17/2010	1207	7.32	3200	15.8	3.81	EH(mv)= -187
	Comments: CLEAR											
PW-14	11/17/2010	1115	21.90	N/A	N/A	11/17/2010	1117	7.67	3620	16.1	411.00	EH(mv)= -245
	Comments: TURBID GREY/.33 GPM											
PW-15	11/17/2010	1100	20.23	N/A	N/A	11/17/2010	1105	7.97	6030	15.5	8.37	EH(mv)= -213
	Comments: AMBER CLEAR/2.47 GPM											
PW-16	11/18/2010	1030	17.91	N/A	N/A	11/18/2010	1033	6.61	4772	16.5	13.04	EH(mv)= 3
	Comments: CLEAR											
PZ-101	11/18/2010	1130	18.31	N/A	N/A	11/18/2010	1155	7.07	6887	9.1	9.48	EH(mv)= -32 DO(ppm)= 0.88
	Comments: CLEAR											
PZ-102	11/18/2010	1015	20.63	N/A	N/A	11/18/2010	1105	7.25	5997	10.7	4.70	EH(mv)= -136 DO(ppm)= 0.92
	Comments: CLEAR											
PZ-103	11/18/2010	1228	15.86	N/A	N/A	11/18/2010	1255	7.30	5764	11.4	4.17	EH(mv)= -161 DO(ppm)= 0.57
	Comments: CLEAR											
PZ-104	11/18/2010	1318	14.81	N/A	N/A	11/18/2010	1340	7.47	1623	15.8	23.70	EH(mv)= -143 DO(ppm)= 0.79
	Comments: SL.TURBID											
PZ-105	11/18/2010	1127	11.93	N/A	N/A	11/18/2010	1150	7.76	950	13.0	150.00	EH(mv)= 19 DO(ppm)= 0.95
	Comments: TURBID GREY											
PZ-106	11/18/2010	1243	11.54	N/A	N/A	11/18/2010	1305	6.37	6950	13.5	3.21	EH(mv)= -95 DO(ppm)= 0.77
	Comments: CLEAR YELLOW TINT											
PZ-107	11/18/2010	1311	10.67	N/A	N/A	11/18/2010	1335	6.50	5000	13.6	1.79	EH(mv)= -131 DO(ppm)= 0.70
	Comments: CLEAR											
PZ-107	11/18/2010	1311	10.67	N/A	N/A	11/18/2010	1336	6.50	4997	13.6	1.70	EH(mv)= -131 DO(ppm)= 0.69
	Comments: CLEAR/DUP											
QD-1	11/16/2010	1240	0.00	N/A	N/A	11/16/2010	1245	7.81	1779	12.0	N/A	
	Comments: CLEAR											
QO-2	11/16/2010	1305	0.00	N/A	N/A	11/16/2010	1310	7.61	1781	12.1	N/A	
	Comments: CLEAR											
QO-2S1	11/16/2010	1320	0.00	N/A	N/A	11/16/2010	1325	7.90	830	12.1	N/A	
	Comments: CLEAR											
QS-4	11/16/2010	1340	0.00	N/A	N/A	11/16/2010	1350	7.78	1728	10.9	N/A	
	Comments: CLEAR											

SG - Specific Gravity
EH - Redox
DO - Dissolved Oxygen

* From Top of Riser
** Elevation Above Sea Level

SEMI-ANNUAL GROUNDWATER ELEVATION REPORT
ARCH CHEMICAL ROCHESTER, N.Y.

SAMPLE POINT	DATE	DEPTH TO WATER	CASING ELEVATION	GW ELEVATION	TIME	Comments
B-1	11/16/10	9.26		-9.26	1019	NO L-NAPL ; NO D-NAPL
B-10		9.82		-9.82	1007	NO L-NAPL ; NO D-NAPL
B-11		7.18		-7.18	1008	NO L-NAPL ;NO D-NAPL 11.55 BOT.
B-13		12.76		-12.76	1030	DRY AT 12.76
B-14		10.50		-10.50	1015	
B-15		7.14		-7.14	1020	
B-16		7.55		-7.55	1025	NO L-NAPL ;NO D-NAPL 13.20 BOT.
B-17		10.42		-10.42	951	NO L-NAPL ; NO D-NAPL
B-2		10.33		-10.33	915	NO L-NAPL ; NO D-NAPL
B-4		18.37		-18.37	1040	NO L-NAPL ; NO D-NAPL
B-5		15.75		-15.75	1045	NO L-NAPL ; NO D-NAPL
B-7		15.57		-15.57	1021	NO L-NAPL ; NO D-NAPL
B-8		10.78		-10.78	1003	NO L-NAPL ; NO D-NAPL
BR-1		8.13		-8.13	929	NO L-NAPL ; NO D-NAPL
BR-102		22.39		-22.39	1019	
BR-103		6.53		-6.53	1122	
MW-103		1.73		-1.73	1123	
BR-104		10.34		-10.34	1135	
MW-104		7.82		-7.82	1136	
BR-105		23.13		-23.13	1001	
BR-105D		25.68		-25.68	1000	
MW-105		18.79		-18.79	1002	DRY AT 18.79
BR-106		23.90		-23.90	957	
MW-106		12.34		-12.34	955	
BR-108		28.69		-28.69	942	
MW-108		13.42		-13.42	943	
BR-111		28.46		-28.46	1112	
BR-111D		28.85		-28.85	1111	
BR-112A		26.98		-26.98	1117	
BR-112D		36.05		-36.05	1115	
BR-113		29.01		-29.01	1134	
BR-113D		31.03		-31.03	1135	

SEMI-ANNUAL GROUNDWATER ELEVATION REPORT
ARCH CHEMICAL ROCHESTER, N.Y.

SAMPLE POINT	DATE	DEPTH TO WATER	CASING ELEVATION	GW ELEVATION	TIME	Comments
BR-114	11/16/10	14.01		-14.01	1131	
MW-114		10.28		-10.28	1130	
BR-116		29.63		-29.63	1045	
BR-116D		35.52		-35.52	1043	
BR-117		24.00		-24.00	845	CASCADING WELL
BR-117D		48.59		-48.59	847	
BR-118		30.73		-30.73	855	CASING/SEAL DAMAGED
BR-118D		47.74		-47.74	857	
BR-122D		44.97		-44.97	1021	
BR-123D		45.22		-45.22	1015	
BR-124D		31.51		-31.51	1007	
BR-126		9.31		-9.31	1008	
BR-127		9.28			1010	NO L-NAPL
MW-127		7.82			1011	NO L-NAPL ; NO D-NAPL
BR-2		10.28		-10.28	945	NO L-NAPL ; NO D-NAPL
BR-2A		11.37		-11.37	944	NO L-NAPL ; NO D-NAPL
BR-2D		0.05		-0.05	946	NO L-NAPL ; NO D-NAPL
BR-3		10.51		-10.51	954	NO L-NAPL
BR-3D		57.64		-57.64	955	NO L-NAPL ; NO D-NAPL
BR-4		7.53		-7.53	942	NO L-NAPL
BR-5		14.53		-13.82	933	NO L-NAPL ; NO D-NAPL
BR-5A		17.08		-17.08	934	
BR-6A		13.41		-13.41	1004	
BR-7		28.91		-28.91	1024	
BR-7A		20.05		-20.05	1025	NO L-NAPL ; NO D-NAPL
BR-8		15.40		-15.40	1042	NO L-NAPL ; NO D-NAPL
BR-9		34.91		-34.91	1020	NO L-NAPL
C-2A		10.19		-10.19	946	NO L-NAPL ; NO D-NAPL
C-3						BURIED
C-5		10.94		-10.94	956	NO L-NAPL ; NO D-NAPL
E-2		5.68		-5.68	943	NO L-NAPL ; NO D-NAPL
E-3		4.71		-4.71	935	NO L-NAPL ; NO D-NAPL

SEMI-ANNUAL GROUNDWATER ELEVATION REPORT
ARCH CHEMICAL ROCHESTER, N.Y.

SAMPLE POINT	DATE	DEPTH TO WATER	CASING ELEVATION	GW ELEVATION	TIME	Comments
E-5	11/16/10	5.86		-5.86	930	NO L-NAPL ; NO D-NAPL
EC-1		17.38		-17.38	1127	
EC-2		12.67		-12.67	1136	
ERIE CANAL		32.87		-32.87	1139	
MW-16		12.01		-12.01	1138	
MW-3		6.18		-6.18	1150	
MW-G6		4.62		-4.62	1157	
MW-G7						NOT LOCATED
MW-G8		8.01		-8.01	1159	
MW-G9		10.37		-10.37	1205	
N-2		4.96		-4.96	927	NO L-NAPL ; NO D-NAPL
N-3		7.27		-7.27	905	NO L-NAPL
NESS-E		21.15		-21.15	1149	
NESS-W		31.39		-31.39	1145	
PW-10		10.43		-10.43	947	NO L-NAPL
PW-16		17.90		-17.90	1045	NO L-NAPL
PW-12		7.75		-7.75	938	NO L-NAPL
PW-13		27.32		-27.32	1032	NO L-NAPL; NO D NAPL
PW-14		25.17		-25.17	957	NO L-NAPL
PW-15		28.60		-28.60	953	NO L-NAPL
PZ-101		18.31		-18.31	930	
PZ-102		21.39		-21.39	932	
PZ-103		15.72		-15.72	934	
PZ-104		15.82		-15.82	1012	
PZ-105		11.59		-11.59	1001	NO L-NAPL ; NO D-NAPL
PZ-106		11.84		-11.84	958	NO L-NAPL ; NO D-NAPL
PZ-107		11.14		-11.14	1006	NO L-NAPL ; NO D-NAPL
PZ-109		11.03		-11.03	954	NO L-NAPL; NO D-NAPL
W-2		12.64		-12.64	917	NO L-NAPL ; NO D-NAPL
W-5		6.57		-6.57	1031	NO L-NAPL ; NO D-NAPL

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: B-11

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-17-10 / 1130

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: ____

Cond of prot. Casing/riser: (X) Unlocked ( ) Good
( ) Loose ( ) Flush Mount
( ) Damaged ____

If prot.casing; depth to riser below: ____

Gas Meter (Calibration/ Reading): % Gas: / % LEL: /

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

PURGE INFORMATION:

Date / Time Initiated: 11-17-10 / 1132

Date / Time Completed: 11-17-10 / 1137

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 7.15

Elevation. G/W MSL: ____

Well Total Depth, Feet: 11.55

Method of Well Purge: PERISTALTIC

One (1) Riser Volume, Gal: .72

Dedicated: PSL (Y) / N

Total Volume Purged, Gal: .75 TO DRY

Purged To Dryness (Y) / N

Purge Observations: ____

Start SLIGHT Finish CLEAR

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)	Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1137		TO DRY	15.1	7.71	1694	15.70	-33	

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID B-11

Date/Time 11-18-10 / 1405 Water Level @ Sampling, Feet: 7.97

Method of Sampling: PERISTALTIC Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1407	13.4	7.34	1714	36.1	-53	

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: Clouds 40°

Sample Characteristics: SL TURB

COMMENTS AND OBSERVATIONS:

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

Date: 11/18/10 By: _____ Company: TAC

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: B-16

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-19-10 / 1205

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: —

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good
( ) Loose (X) Flush Mount
( ) Damaged ____

If prot.casing; depth to riser below: —

Gas Meter (Calibration/ Reading): % Gas: — / —

% LEL: — / —

Vol. Organic Meter (Calibration/Reading):

Volatiles (ppm): — / —

PURGE INFORMATION:

Date / Time Initiated: 11-19-10 / 1206

Date / Time Completed: 11-19-10 / 1225

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 7.31

Elevation. G/W MSL:

Well Total Depth, Feet: 13.20

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations: Lo-Flow

Start Clear Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1210	mL/min 200	WL 7.63		13.2	7.37	2073	5.45	-29	0.95
1215				13.1	7.29	2078	4.21	-35	0.91
1220				13.1	7.28	2080	4.07	-40	0.91
1225	—	—		13.2	7.26	2086	4.09	-45	0.91

Sampled at 1225 / 11-19-10

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

_____

_____

_____

_____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-105

Field Personnel: AL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-17-10 / 1000

Cond of seal: (X) Good ( ) Cracked ( ) None ( ) Buried %

Prot. Casing/riser height: —

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good ( ) Loose (X) Flush Mount ( ) Damaged

If prot.casing; depth to riser below: —

Gas Meter (Calibration/ Reading): % Gas: — / —

% LEL: — / —

Vol. Organic Meter (Calibration/Reading):

Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-17-10 / 1008

Date / Time Completed: 11-17-10 / 1635

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 4.0

Initial Water Level, Feet: 23.13

Elevation. G/W MSL:

Well Total Depth, Feet:

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations: Lo-Flo

Start Clear Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
	ml/min	WL							
1015	150	23.14		13.0	6.72	2183	4.54	0	0.85
1020				12.9	6.82	2180	4.10	-19	0.78
1025				12.6	6.92	2182	2.77	-20	0.77
1030				12.5	6.88	2178	2.85	-25	0.76
1035	↓	↓		12.4	6.87	2177	2.54	-26	0.74

Sampled at 1035 / 11-17-10

John Stiles

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: 364075 NTU std. = _____NTU 10 NTU std. = 10 NTU

Solutions: RTO928

pH Serial #: 6215171 4.0 std.= 4.00 7.0 std.= 7.00 10.0 std. = _____

Solutions: 4-RTO4550 7-RTO574

Conductivity Serial #: 6215171 1000 umhos/cm= 1000 _____umhos/cm=_____

Solutions: RTO 4556

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-105-D

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-17-10 / 1006

Cond of seal: (X) Good ( ) Cracked ( ) None ( ) Buried %

Prot. Casing/riser height: —

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good ( ) Loose (X) Flush Mount ( ) Damaged

If prot.casing; depth to riser below: —

Gas Meter (Calibration/ Reading): % Gas: — / —

% LEL: — / —

Vol. Organic Meter (Calibration/Reading):

Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-17-10 / 1055

Date / Time Completed: 11-17-10 / 1120

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 25.69

Elevation. G/W MSL:

Well Total Depth, Feet:

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations: Lo-Flow

Start Clear Finish Clear

Strong Odor

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1105	80 mL/min	25.75		10.3	6.63	21,360	3.40	-278	0.68
1110		25.82		10.3	6.71	25,880	3.38	-290	0.65
1115				10.4	6.73	27,070	2.80	-302	0.66
1120				10.3	6.78	29,030	2.67	-303	0.66

Sampled at 1120 / 11-17-10

John Stell

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-106

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-17-10 / 1155

Cond of seal: ( ) Good ( ) Cracked ( ) None ( ) Buried %

Prot. Casing/riser height:

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good ( ) Loose (X) Flush Mount ( ) Damaged

If prot.casing; depth to riser below:

Gas Meter (Calibration/ Reading): % Gas: / % LEL: /

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

PURGE INFORMATION:

Date / Time Initiated: 11-17-10 1243

Date / Time Completed: 11-17-10 / 1305

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 4.0

Initial Water Level, Feet: 23.88

Elevation. G/W MSL:

Well Total Depth, Feet:

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations: LO-FLO

Start Sl. Turbid Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1250	~~mL/min 23.92~~	WL 23.92		11.0	7.60	2800	3.88	-150	0.62
1255	200			11.0	7.26	2798	3.25	-136	0.31
1300	"	"		11.0	7.18	2802	3.08	-133	0.30
1305	"	"		11.0	7.25	2805	3.18	-133	0.28

Sampled at 1305 / 11-17-10

John Stolc

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: ___/___/_____ By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-126

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1356

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: —

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good
( ) Loose (X) Flush Mount
( ) Damaged ____

If prot.casing; depth to riser below: —

Gas Meter (Calibration/ Reading): % Gas: — / — % LEL: — / —

Vol. Organic Meter (Calibration/Reading): Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1400

Date / Time Completed: 11-18-10 / 1420

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 4.0

Initial Water Level, Feet: 9.09

Elevation. G/W MSL: ____

Well Total Depth, Feet: 45.45

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: ____

Start Sl. Turbid Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)	Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1405	ml/min 150 / WL 9.11		12.9	7.75	964	10.41	-103	0.82
1410	| / |		13.0	7.45	967	8.85	-94	0.80
1415	| / |		13.1	7.44	948	9.05	-93	0.81
1420	| / |		13.2	7.42	956	8.88	-89	0.79

Sampled at 1420 / 11-18-10

John Stell

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: ___/___/_____ By: _____ Company: _____

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-127

Field Personnel: PL, RS

Sample Matrix: GW

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time HT 11-17-10 / 1125

Water Level @ Sampling, Feet: 8.37

Method of Sampling: SAMPLE PORT

Dedicated: Y/ N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1127	15.9	7.86	2990	2.49	-212	

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: RAIN 45°

Sample Characteristics: Clear LT AMBER TINT

COMMENTS AND OBSERVATIONS: 2.61 GPM

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

Date: 11/17/10 By: [signature] Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-5A

Field Personnel: PL, RS

Sample Matrix: GW

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-17-10 / 1150

Water Level @ Sampling, Feet: 16.97

Method of Sampling: SAMPLE PORT

Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1152	13.9	7.72	1613	9.89	-122	

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: RAIN WIND 45

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS: 13.11 GEM

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

Date: 11/17/10 By: [signature] Company: TAL

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-6A

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1215

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: ____

Cond of prot. Casing/riser: (X) Unlocked ( ) Good
( ) Loose ( ) Flush Mount
( ) Damaged ____

If prot.casing; depth to riser below: ____

Gas Meter (Calibration/ Reading): % Gas: / % LEL: /

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

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1217

Date / Time Completed: 11-18-10 / 1240

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: ____

Initial Water Level, Feet: 13.30

Elevation. G/W MSL: ____

Well Total Depth, Feet: ____

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: ____

Start Yellow Tint Clear Finish Yellow Tint Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz) wl / ml/m	Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1225	13.32 / 200		14.4	7.31	4174	17.9	-220	0.82
1230	↓ / ↓		14.5	7.40	4211	16.2	-220	0.80
1235			14.5	7.41	4215	16.5	-221	0.79
1240			14.5	7.45	4215	17.1	-221	0.78

SAMPLE @ 1240 11-18-10

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR 7A

Field Personnel: PL, RS

Sample Matrix: GW

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-17-10 / 1220

Water Level @ Sampling, Feet: 29.91

Method of Sampling: SAMPLE PUMP

Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1221	14.7	7.51	2377	5.83	-184	

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: LT RAIN WIND 45

Sample Characteristics: CLEAR GRAY TINT

COMMENTS AND OBSERVATIONS: 7.14 GPM

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

Date: 11/17/10 By: _____ Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: BR-9

Field Personnel: PL RS

Sample Matrix: GW

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-17-10 / 1050

Water Level @ Sampling, Feet: 30.19

Method of Sampling: SAMPLE PUMP

Dedicated: (Y) N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1054	14.5	7.16	2372	126	-162	

INSTRUMENT CHECK DATA:

Turbidity Serial #: 316737 NTU std. = ____ NTU 10 NTU std. = 10 NTU

Solutions: RTO6920

pH Serial #: 6203713 4.0 std.= 4.00 7.0 std.= 7.00 10.0 std. =____

Solutions: 4-RTO4550 7-RTO0574

Conductivity Serial #: 6203713 1000 umhos/cm= 1000 ____ umhos/cm=____

Solutions: RTO4556

GENERAL INFORMATION:

Weather conditions @ time of sampling: RAIN 45°

Sample Characteristics: SL TURBID

COMMENTS AND OBSERVATIONS: 7.60 GM

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

Date: 11/17/10 By: [signature] Company: TAL

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: MW-106

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-17-10 / 1155

Cond of seal: (X) Good ( ) Cracked ( ) None ( ) Buried ____ %

Prot. Casing/riser height: ____

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good ( ) Loose (X) Flush Mount ( ) Damaged ____

If prot.casing; depth to riser below: ____

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

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

PURGE INFORMATION:

Date / Time Initiated: 11-17-10 / 1201

Date / Time Completed: 11-17-10 / 1220

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 12.36

Elevation. G/W MSL: ____

Well Total Depth, Feet: ____

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: Lo-Flow

Start Black Tint Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1205	ml/min 150	12.42		11.8	7.60	4859	4.18	-216	1.08
1210	↓	12.50		12.0	7.34	4770	3.58	-215	0.94
1215		12.58		12.0	7.31	4762	3.40	-215	0.97
1220	↓	12.64		11.9	7.27	4750	3.20	-216	0.95

Sampled at 1220 / 11-17-10

John Stell

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: ___/___/___ By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: MW-127

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-19-10 / 1038

Cond of seal: (X) Good ( ) Cracked ( ) None ( ) Buried %

Prot. Casing/riser height: —

Cond 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 Meter (Calibration/Reading):

Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-19-10 / 1043

Date / Time Completed: 11-19-10 / 1103

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 6.58

Elevation. G/W MSL:

Well Total Depth, Feet: 11.25

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations:

Start Clear Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
	mL/min	WL							
1048	100	7.15		11.7	7.04	1418	4.45	99	0.83
1053	"	7.31		11.6	7.32	1423	4.51	46	0.65
1058	"	7.37		11.6	7.33	1431	4.34	38	0.68
1103	—	7.40		11.6	7.35	1447	4.34	33	0.68

Sampled at 1103 / 11-19-10

John Stolz

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: 31C733 NTU std. = _____NTU 10 NTU std. = 10 NTU

Solutions: RT00928

pH Serial #: 6215171 4.0 std.= 4.00 7.0 std.= 7.00 10.0 std. = _____

Solutions: 4- RT04550 7- RT10574

Conductivity Serial #: 6215171 1000 umhos/cm= 1000 _____umhos/cm=_____

Solutions: RT04850

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: MW-16

Field Personnel: PI, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-16-10 / 1048

Cond of seal: (X) Good ( ) Cracked ( ) None ( ) Buried %

Prot. Casing/riser height: —

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good ( ) Loose (X) Flush Mount ( ) Damaged

If prot.casing; depth to riser below: —

Gas Meter (Calibration/ Reading): % Gas: — / —

% LEL: — / —

Vol. Organic Meter (Calibration/Reading):

Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-16-10 / 1050

Date / Time Completed: 11-16-10 / 1115

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 4.0

Initial Water Level, Feet: 12.01

Elevation. G/W MSL:

Well Total Depth, Feet: 34.40

Method of Well Purge: PERISTALTIC

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations: LO-FLO

Start CLEAR Finish AMBER TINT

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1100	150 ml	12.72		13.0	7.01	3492	19.2	-13	0.80
1110	150	12.70		12.7	7.00	3510	38.1	-2	0.82
1115	150	12.70		12.7	6.89	3513	39.3	0	0.79

SAMPLED @ 1115 / 11-16-10

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: 316733 NTU std. = 10 NTU 10 NTU std. = 10 NTU

Solutions: RT00928

pH Serial #: 6225177 4.0 std.= 4.0 7.0 std.= 7.0 10.0 std. = _____

Solutions: RT04550 RT10578

Conductivity Serial #: 6225177 1000 umhos/cm= 1000 _____ umhos/cm= _____

Solutions: RT04556

GENERAL INFORMATION:

Weather conditions @ time of sampling: SUNNY, 50°F

Sample Characteristics: YELLOW TINT

COMMENTS AND OBSERVATIONS: _____

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

Date: 11/16/10 By: _____ Company: TAL

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PW-10

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1031

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None ( ) Buried

Prot. Casing/riser height: ____

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good
( ) Loose (X) Flush Mount
( ) Damaged ____

If prot.casing; depth to riser below: ____

Gas Meter (Calibration/ Reading): % Gas: / % LEL: /

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

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1035

Date / Time Completed: 11-18-10 / 1115

Surf. Meas. Pt: (X) Prot. Casing ( ) Riser

Riser Diameter, Inches: ____

Initial Water Level, Feet: 10.43

Elevation. G/W MSL: ____

Well Total Depth, Feet: ____

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: Y / (N)

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: ____

Start Clear Yellow Finish Clear Yellow

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
	DL	Meter							
1045	10.61	200		14.2	7.93	1409	15.56	-36	.79
1050	↓	↓		13.9	8.10	1398	15.21	-35	0.77
1055				14.0	8.13	1355	12.20	-33	0.75
1100				14.1	8.14	1300	12.01	-31	0.74
1105				14.0	8.17	1298	11.86	-30	0.73
1110				13.9	8.18	1291	11.80	-30	0.71
1115	↓	↓		13.8	8.18	1282	11.69	-29	0.70

Sample @ 1115 / 11-18-10

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

_____

_____

_____

_____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PW-12

Field Personnel: RL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-19-10 / 1130

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None ( ) Buried

Prot. Casing/riser height: ____

Cond 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 Meter (Calibration/Reading): Volatiles (ppm) ____ / ____

PURGE INFORMATION:

Date / Time Initiated: 11-19-10 / 1132

Date / Time Completed: 11-19-10 / 1145

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 6.0

Initial Water Level, Feet: 7.18

Elevation. G/W MSL: ____

Well Total Depth, Feet: ____

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: Strong Odor

Start Clear Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
	mL/min	WL							
1135	200	7.23		13.0	7.15	2503	5.60	-125	0.95
1140	"	"		13.2	7.20	2498	4.99	-126	0.92
1145	"	"		13.1	7.27	2492	5.24	-128	0.90

Sampled at 1145 / 11-19-10
John Stell

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PW-13

Field Personnel: PL, RS

Sample Matrix: GW

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-17-10 / 1205

Water Level @ Sampling, Feet: 30.26

Method of Sampling: SAMPLE PORT

Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1207	15.8	7.32	3200	3.81	-187	

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: LT RAIN 45°

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

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

Date: 11/17/10 By: [signature] Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PW-14

Field Personnel: PL, RS

Sample Matrix: GW

[X] Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-17-10 / 1115

Water Level @ Sampling, Feet: 21.80

Method of Sampling: Bailer Pot

Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes [X] No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1117	16.1	7.67	3620	411.0	-245	

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: RAIN 4°

Sample Characteristics: TURBID GRAY

COMMENTS AND OBSERVATIONS: .33 GPM

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

Date: 11/17/10 By: [signature] Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PW-15

Field Personnel: PL RS

Sample Matrix: GW

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-17-10 / 1100

Water Level @ Sampling, Feet: 20.23

Method of Sampling: SAMP POT

Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1101	15.5	7.97	6030	8.37	-213	

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: WIND 45°

Sample Characteristics: Clear AMBER

COMMENTS AND OBSERVATIONS: 2.47 GPM

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

Date: 11/17/10 By: [signature] Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: MW-16

Field Personnel: PL, RS

Sample Matrix: GW

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-19-10 / 1070

Water Level @ Sampling, Feet: 17.91

Method of Sampling: ~~PP~~ BAILER ~~SAMPLE PUMP~~

Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1033	16.5	6.61	4772	13.01	3	

INSTRUMENT CHECK DATA:

Turbidity Serial #: 36Y075 NTU std. = ____ NTU 10 NTU std. = 10 NTU

Solutions: RTO 928

pH Serial #: ~~BEG~~ 623713 4.0 std.= 4.0 7.0 std.= 7.0 10.0 std. = ____

Solutions: 4-RTO4550 7-RTB00574

Conductivity Serial #: 623713 1000 umhos/cm= 1000 ____ umhos/cm= ____

Solutions: ~~RTO 928~~ RTO 4556

GENERAL INFORMATION:

Weather conditions @ time of sampling: LT RAIN 45

Sample Characteristics: clear

COMMENTS AND OBSERVATIONS:

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

Date: 11/17/10 By: [signature] Company: TAL

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PZ-101

Field Personnel: RL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1130

Cond of seal: (X) Good ( ) Cracked ( ) None ( ) Buried %

Prot. Casing/riser height: —

Cond 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 Meter (Calibration/Reading):

Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1133

Date / Time Completed: 11-18-10 / 1155

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 18.31

Elevation. G/W MSL:

Well Total Depth, Feet: 21.69

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations:

Start Sl. Turbid Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
	mL/min	L							
1140	100	18.71		9.8	7.33	6743	12.37	-83	0.89
1145	|	18.82		9.2	7.19	6710	11.00	-42	0.91
1150	|	18.89		9.2	7.13	6706	10.00	-38	0.89
1155	—	18.98		9.1	7.07	6887	9.48	-32	0.88

Sampled at 1155 / 11-18-10

John Stall

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU
Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____
Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____
Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PZ-102

Field Personnel: RL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 1015

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: —

Cond 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 Meter (Calibration/Reading): Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 1045

Date / Time Completed: 11-18-10 1105

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 20.63

Elevation. G/W MSL: ____

Well Total Depth, Feet: 32.60

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: ____

Start Sl. Turbid Black Specs. Finish Clear Black Specs

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)	Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1050	ml/min 150 WL 20.82		10.7	7.40	6043	5.73	-113	1.00
1055	| 20.83		10.7	7.30	6010	4.93	-129	0.98
1100	| |		10.8	7.26	6001	4.76	-132	0.96
1105	↓ ↓		10.7	7.25	5997	4.70	-136	0.92

Sampled at 1105 / 11-18-10

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: 316733 NTU std. = ____NTU 10 NTU std. = 10 NTU

Solutions: RT00928

pH Serial #: 6215171 4.0 std.= 4.00 7.0 std.= 7.00 10.0 std. = _____

Solutions: RT004550 RT10574

Conductivity Serial #: 6215171 1000 umhos/cm= 1000 _____umhos/cm=_____

Solutions: RT04556

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PZ-103

Field Personnel: AL, JJ, AS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1228

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: —

Cond of prot. Casing/riser: (X) Unlocked (X) Good
( ) Loose ( ) Flush Mount
(X) Damaged Broken Lid

If prot.casing; depth to riser below: —

Gas Meter (Calibration/ Reading): % Gas: — / — % LEL: — / —

Vol. Organic Meter (Calibration/Reading): Volatiles (ppm) — / —

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1234

Date / Time Completed: 11-18-10 / 1255

Surf. Meas. Pt: ( ) Prot. Casing ( ) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 15.86

Elevation. G/W MSL: ____

Well Total Depth, Feet: 32.52

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: ____

Start Clear w/ Black Specs Finish Clear w/ Black Specs

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/hr)	Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1240	ml/min 100 / WL 16.36		11.4	7.55	5666	4.16	-139	0.89
1245	↓ / 16.62		11.5	7.38	5699	4.25	-152	0.63
1250	↓ / 16.89		11.4	7.33	5736	4.16	-157	0.58
1255	↓ / 17.02		11.4	7.30	5764	4.17	-161	0.57

Sampled at 1255 / 11-18-10
John Stec

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PZ-104

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1318

Cond of seal: (X) Good ( ) Cracked ____ %
( ) None ( ) Buried

Prot. Casing/riser height: ____

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good
( ) Loose (X) Flush Mount
( ) Damaged ____

If prot.casing; depth to riser below: ____

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

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

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1320

Date / Time Completed: 11-18-10 / 1340

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 14.81

Elevation. G/W MSL: ____

Well Total Depth, Feet: ____

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: ____

Start Sl. Turbid Finish Sl. Turbid

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1325	mL/min 200	WL 14.87		15.5	7.69	1642	28.1	-144	0.93
1330	"	"		15.8	7.49	1634	26.0	-144	0.82
1335	"	"		15.8	7.44	1633	24.3	-145	0.80
1340	"	"		15.8	7.47	1623	23.7	-143	0.79

Sampled at 1340 / 11-18-10

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: ___/___/___ By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: P2-105

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1127

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: ____

Cond of prot. Casing/riser: ( ) Unlocked ( ) Good
( ) Loose (X) Flush Mount
( ) Damaged ____

If prot.casing; depth to riser below: ____

Gas Meter (Calibration/ Reading): % Gas: / % LEL: /

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

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1130

Date / Time Completed: 11-18-10 / 1150

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 11.93

Elevation. G/W MSL: ____

Well Total Depth, Feet: 32.86

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N) SL TURBID SL TURBID

Purge Observations: ____

Start Grey Finish Grey

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1135	mL/m 75	WL 12.11		14.3	7.90	963	151	17	0.99
1140	↓	12.19		13.9	7.81	959	152	17	0.97
1145	↓	12.24		13.5	7.77	951	149	18	0.96
1150	↓	12.29		13.0	7.76	950	150	19	0.95

SAMPLE @ 1150 11-18-10

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: ___/___/_____ By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: P2-106

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1243

Cond of seal: ( ) Good ( ) Cracked ( ) None ( ) Buried %

Prot. Casing/riser height:

Cond 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 Meter (Calibration/Reading): Volatiles (ppm) /

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1245

Date / Time Completed: 11-18-10 / 1305

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 11.54

Elevation. G/W MSL:

Well Total Depth, Feet: 27.90

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal:

Dedicated: (Y) / N

Total Volume Purged, Gal:

Purged To Dryness Y / (N)

Purge Observations:

Start clear Yellow Finish clear Yellow Tint

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1250	WL 11.77	PUMP 100		14.1	6.52	7063	8.26	-72	0.82
1255	11.79			13.9	6.49	6990	6.41	-94	0.80
1300				13.7	6.40	6950	4.84	-94	0.78
1305	↓	↓		13.5	6.37	6950	3.21	-95	0.77

SAMPLE @ 1305 / 11-18-10

PL 2

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ( )	Other ( )

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____NTU std. = _____NTU _____NTU std. = _____NTU

Solutions: _____

pH Serial #: _____ 4.0 std.=_____ 7.0 std.=_____ 10.0 std. =_____

Solutions: _____

Conductivity Serial #: _____ _____umhos/cm=_____ _____umhos/cm=_____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: ___/___/_____ By: _____ Company: _____

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: PZ-107

Field Personnel: PL, JJ, RS

Sample Matrix: GW

MONITORTING WELL INSPECTION:

Date/Time 11-18-10 / 1311

Cond of seal: ( ) Good ( ) Cracked ____ %
( ) None (X) Buried

Prot. Casing/riser height: ____

Cond 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 Meter (Calibration/Reading): Volatiles (ppm): /

PURGE INFORMATION:

Date / Time Initiated: 11-18-10 / 1316

Date / Time Completed: 11-18-10 / 1335

Surf. Meas. Pt: ( ) Prot. Casing (X) Riser

Riser Diameter, Inches: 2.0

Initial Water Level, Feet: 10.67

Elevation. G/W MSL: ____

Well Total Depth, Feet: 27.90

Method of Well Purge: Peristaltic

One (1) Riser Volume, Gal: ____

Dedicated: (Y) / N

Total Volume Purged, Gal: ____

Purged To Dryness Y / (N)

Purge Observations: ____

Start Clear Finish Clear

PURGE DATA: (if applicable)

Time	Purge Rate (gpm/htz)		Cumulative Volume	Temp. (C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other ORP	Other DO
1320	Init 10.70	MAIN 200		13.8	6.56	5053	2.17	-125	0.75
1325	↓	↓		13.7	6.54	5021	1.97	-130	0.73
1330				13.7	6.50	5011	1.82	-130	0.72
1335	↓	↓		13.6	6.50	5000	1.79	-131	0.70

Sample @ 1335 / 11-18-10
MS
(Field Dup)

FIELD OBSERVATIONS (continued)

SAMPLING INFORMATION: POINT ID _____

Date/Time _____ / _____ Water Level @ Sampling, Feet: _____

Method of Sampling: _____ Dedicated: Y / N

Multi-phased/ layered: ( ) Yes ( ) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other (DO)
1336	13.6	6.50	4997	1.70	-131	0.69

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: _____

Sample Characteristics: _____

COMMENTS AND OBSERVATIONS: _____

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

Date: / / By: _____ Company: _____

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: GD-1

Field Personnel: PL, RS

Sample Matrix: S/W

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-16-10 1240

Water Level @ Sampling, Feet: N/A

Method of Sampling: MANUAL GRAB

Dedicated: (Y) N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1245	12.0	7.81	1779			

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: CLOUDY, 50°F

Sample Characteristics: CLEAR

COMMENTS AND OBSERVATIONS: _____

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

Date: 11/16/10 By: _____ Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: GO-2

Field Personnel: PL, RS

Sample Matrix: S/W

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-16-10 1305

Water Level @ Sampling, Feet: N/A

Method of Sampling: MANUAL GRAB

Dedicated: (Y) N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1310	12.1	~~7.90~~	~~830~~ RS			
		7.61	1781			

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: CLOUDY, 50°F

Sample Characteristics: CLEAR

COMMENTS AND OBSERVATIONS:

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

Date: 11/16/10 By: BJ Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: GO-2S1

Field Personnel: PL, RS

Sample Matrix: S/W

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-16-10 1320

Water Level @ Sampling, Feet: N/A

Method of Sampling: DIPPER

Dedicated: (Y) / N

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1325	12.1	~~7.61~~	~~1781~~	RS		
		7.90	830			

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: 4- RT004550 7- RT10574

Conductivity Serial #: _____ 1000 umhos/cm= _____ _____ umhos/cm= _____

Solutions: RT04556

GENERAL INFORMATION:

Weather conditions @ time of sampling: Cloudy, 50°F

Sample Characteristics: Clear

COMMENTS AND OBSERVATIONS:

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

Date: 11/16/10 By: [signature] Company: TAL

LeachField Form
Revision 0
March, 15 2002

FIELD OBSERVATIONS

Facility: ARCH

Sample Point ID: GS-4

Field Personnel: PL, RS

Sample Matrix: S/W

(X) Grab ( ) Composite

SAMPLING INFORMATION:

Date/Time 11-16-10 1340

Water Level @ Sampling, Feet: N/A

Method of Sampling: MANUAL GRAB

Dedicated: Y (N)

Multi-phased/ layered: ( ) Yes (X) No If YES: ( ) light ( ) heavy

SAMPLING DATA:

Time	Temp. (°C)	pH (std units)	Conduct (Umhos/cm)	Turb. (NTU)	Other (ORP)	Other ( )
1350	10.9	7.78	1728			

INSTRUMENT CHECK DATA:

Turbidity Serial #: _____ NTU std. = _____ NTU _____ NTU std. = _____ NTU

Solutions: _____

pH Serial #: _____ 4.0 std.= _____ 7.0 std.= _____ 10.0 std. = _____

Solutions: _____

Conductivity Serial #: _____ _____ umhos/cm= _____ _____ umhos/cm= _____

Solutions: _____

GENERAL INFORMATION:

Weather conditions @ time of sampling: CLOUDY, 50°F

Sample Characteristics: CLEAR

COMMENTS AND OBSERVATIONS: _____

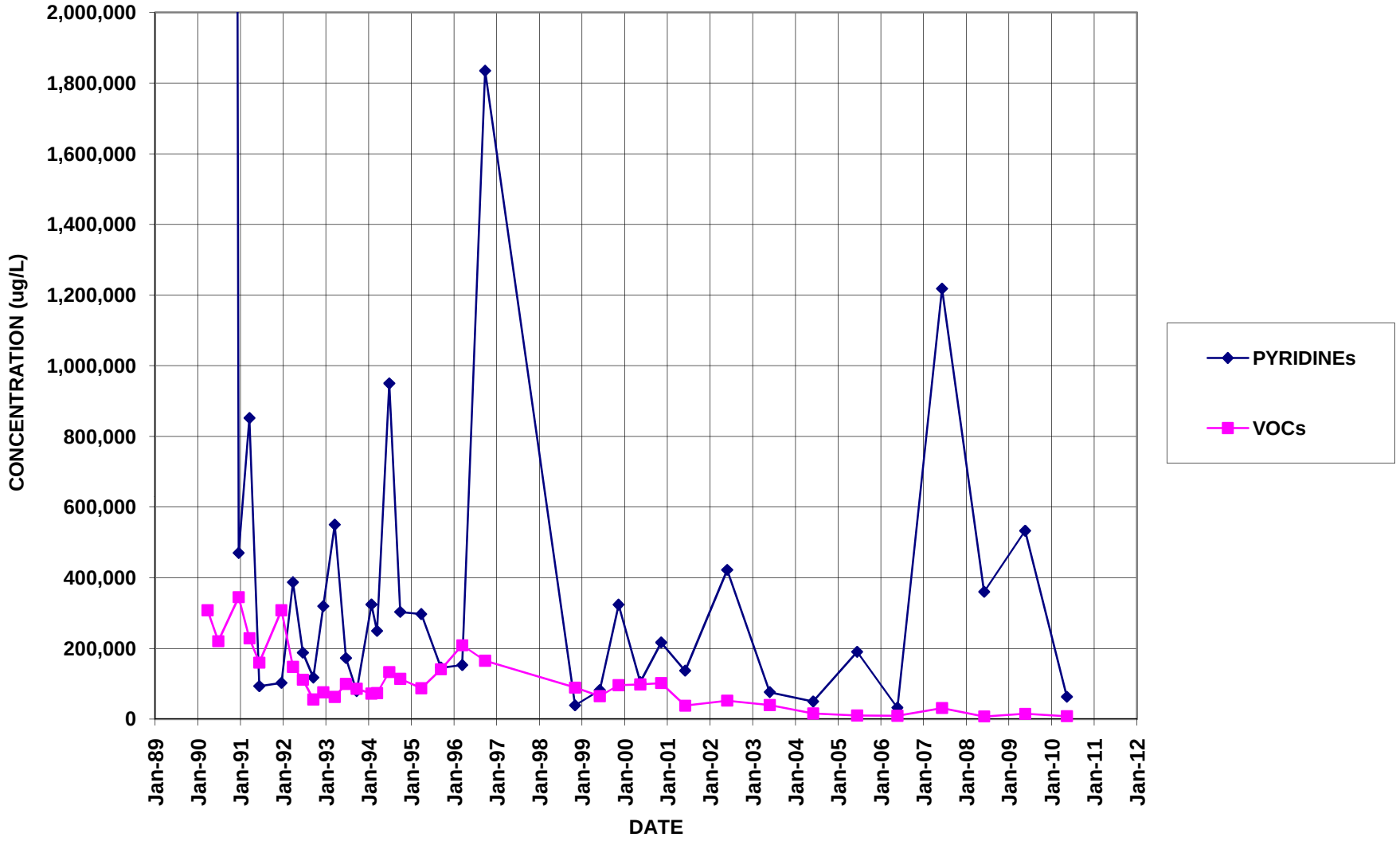
I certify that sampling procedures were in accordance with all applicable EPA, State and Site-Specific protocals.

Date: 11/16/10 By: [signature] Company: TAL

Appendix B

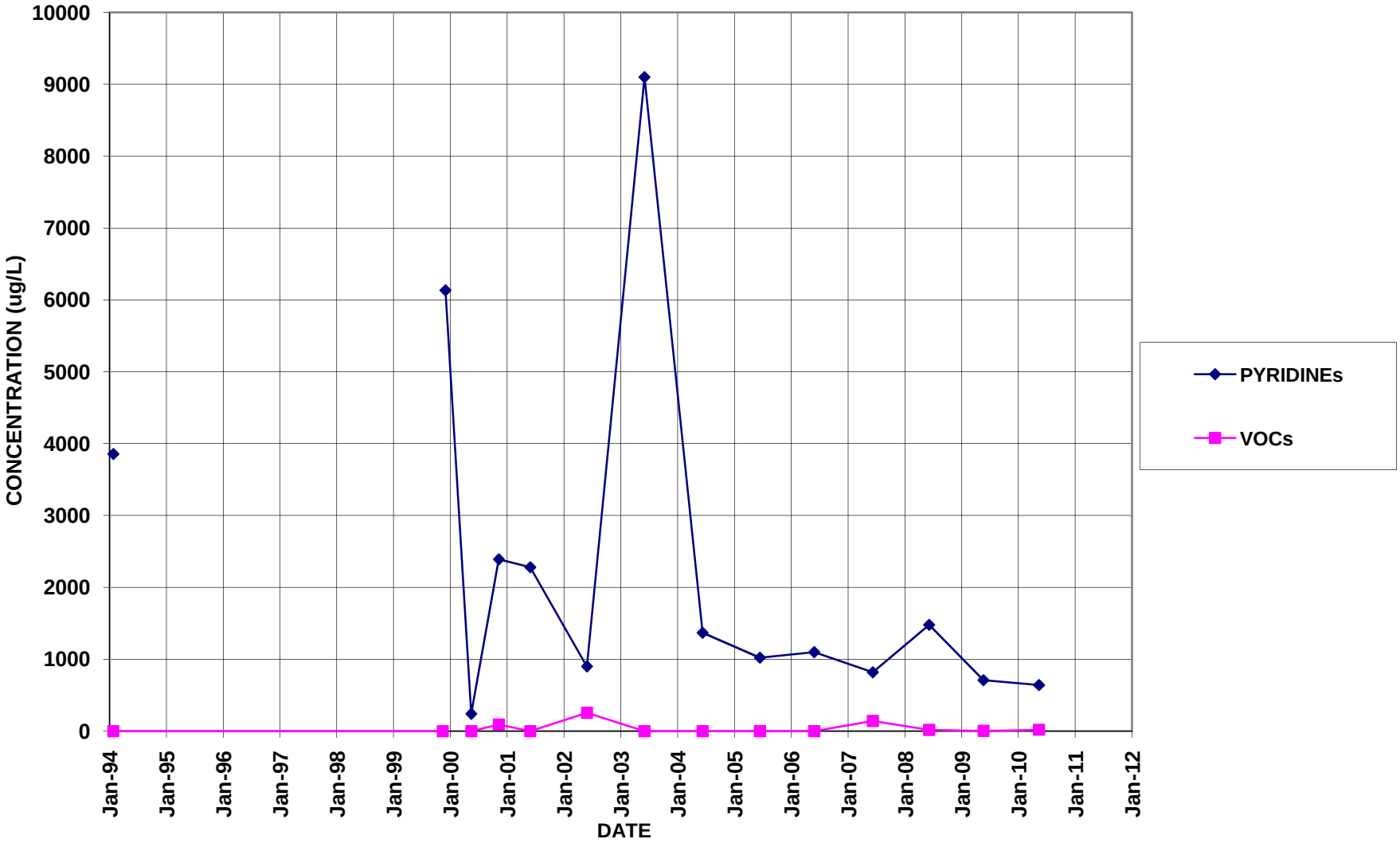
Well Trend Data

B-17



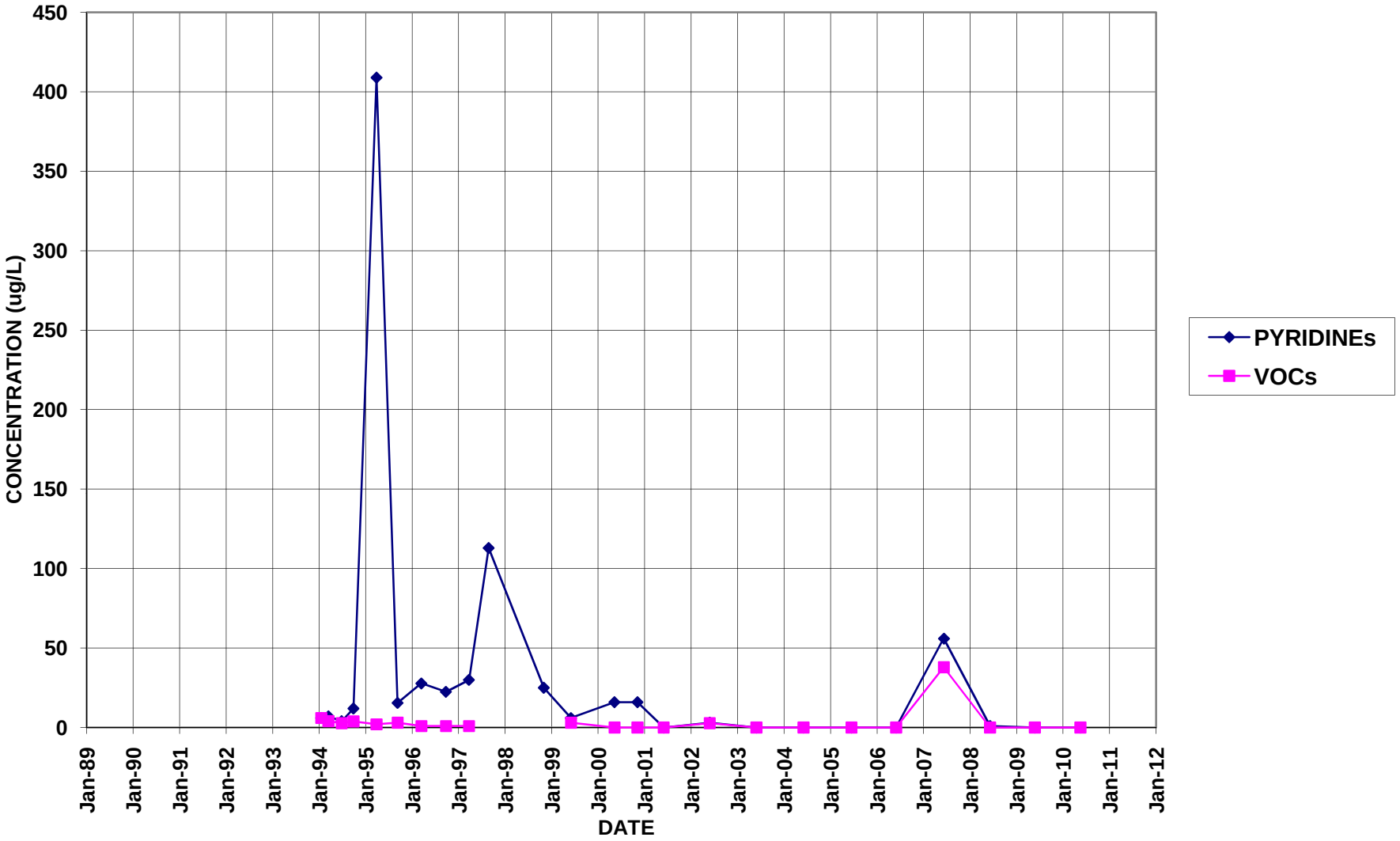
Prepared by: nmb
Reviewed by: jeb

B-7



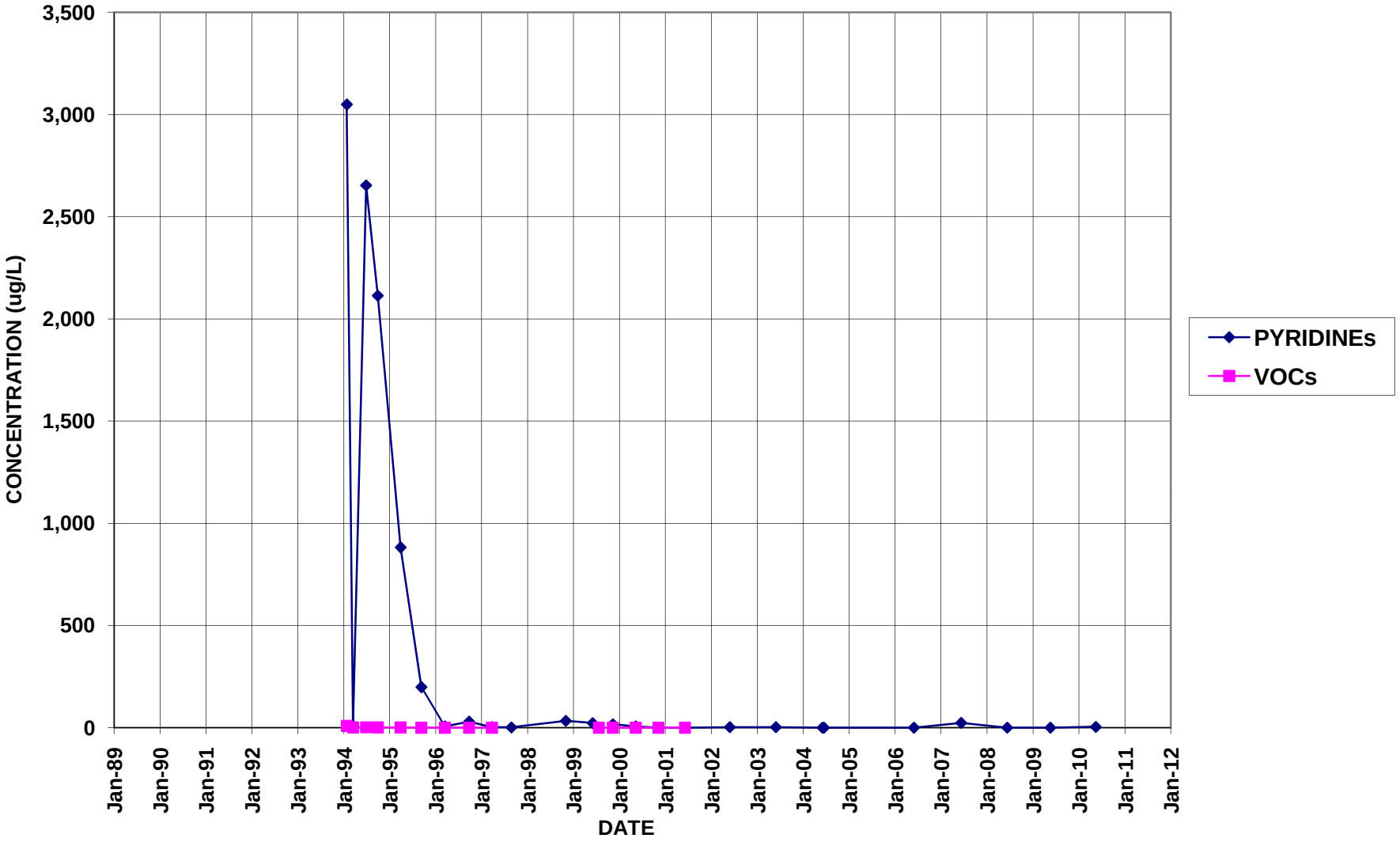
Prepared by: nmb
Reviewed by: jeb

BR-103

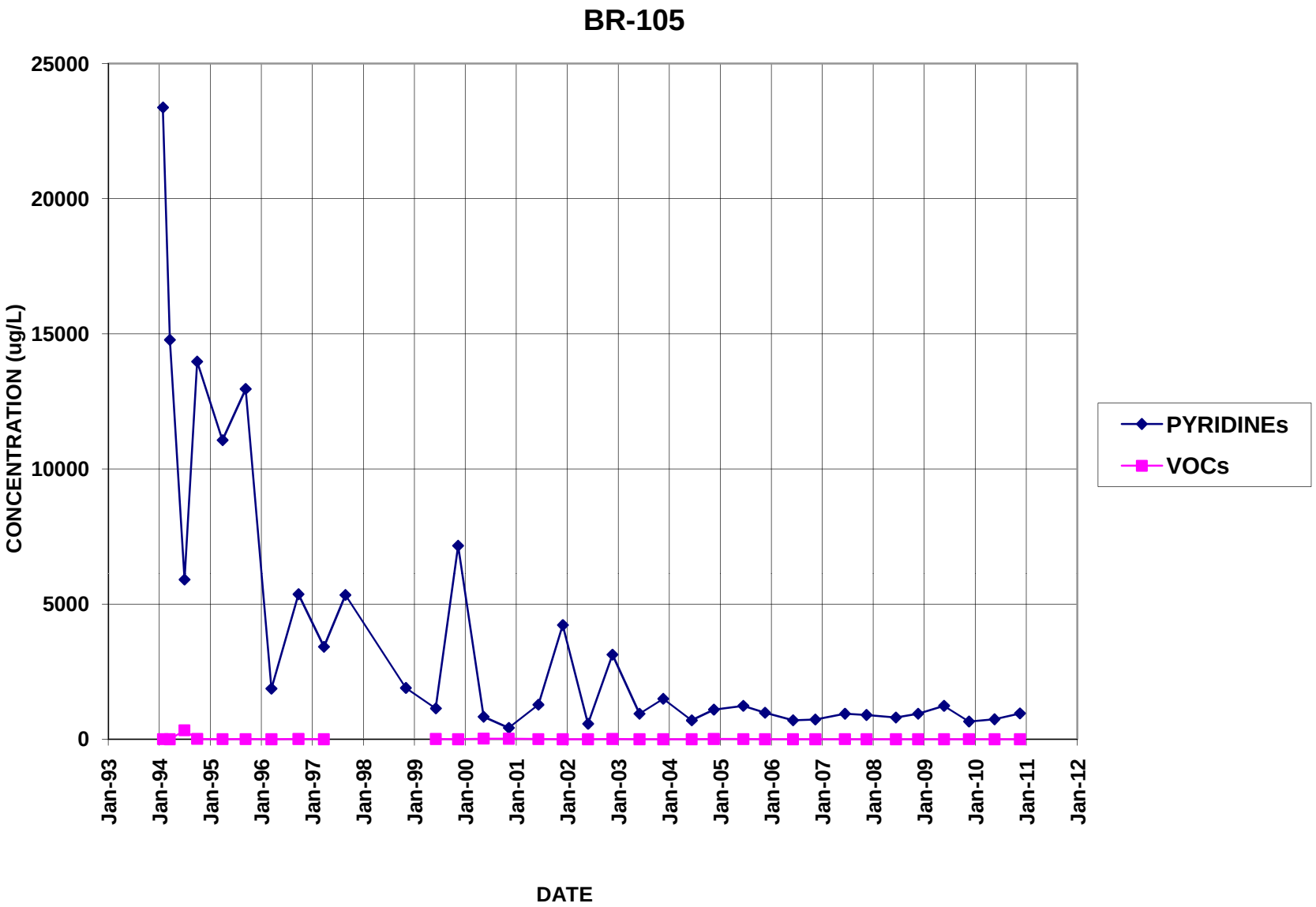


Prepared by: nmb
Reviewed by: jeb

BR-104

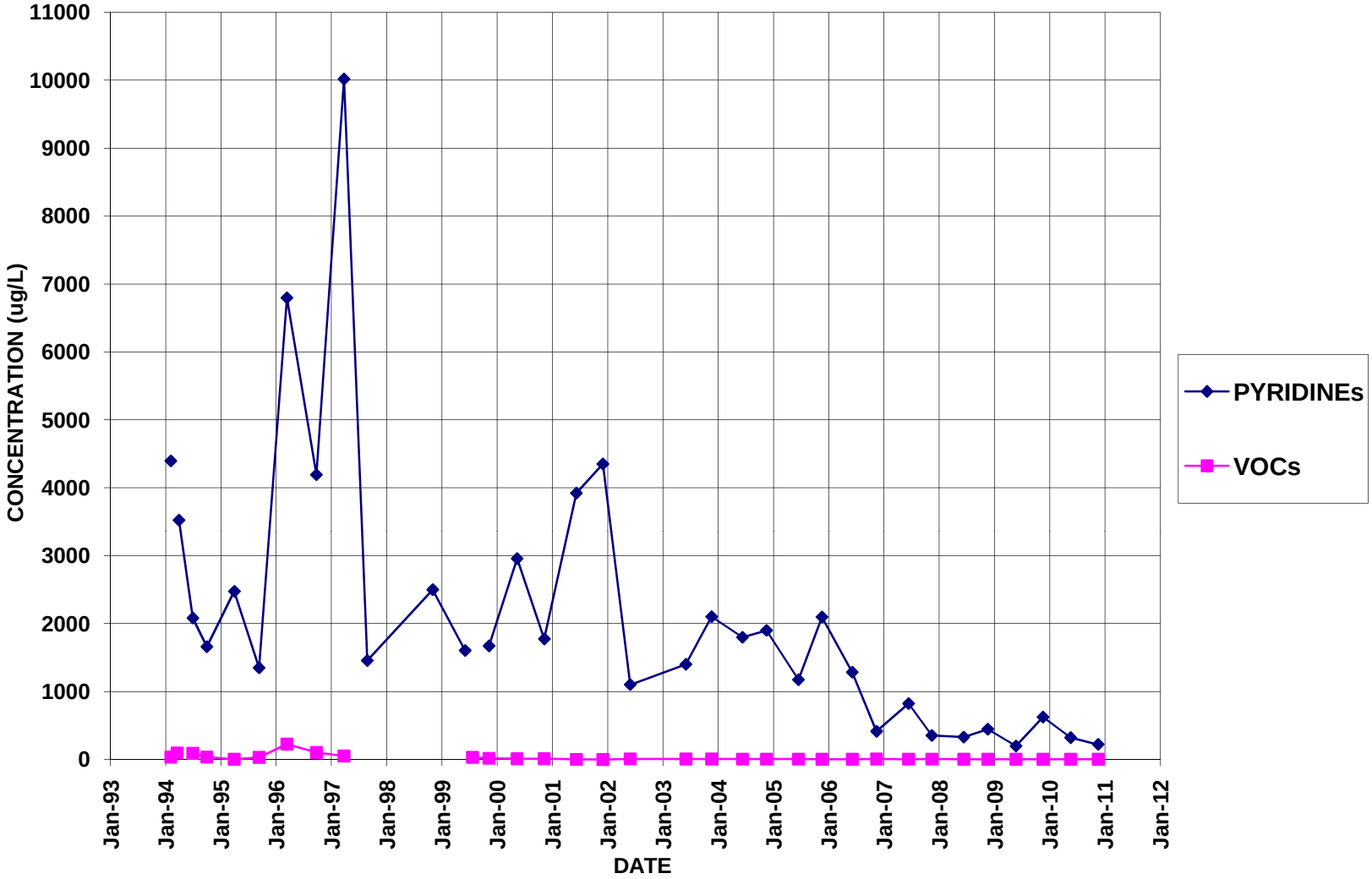


Prepared by: nmb
Reviewed by: jeb



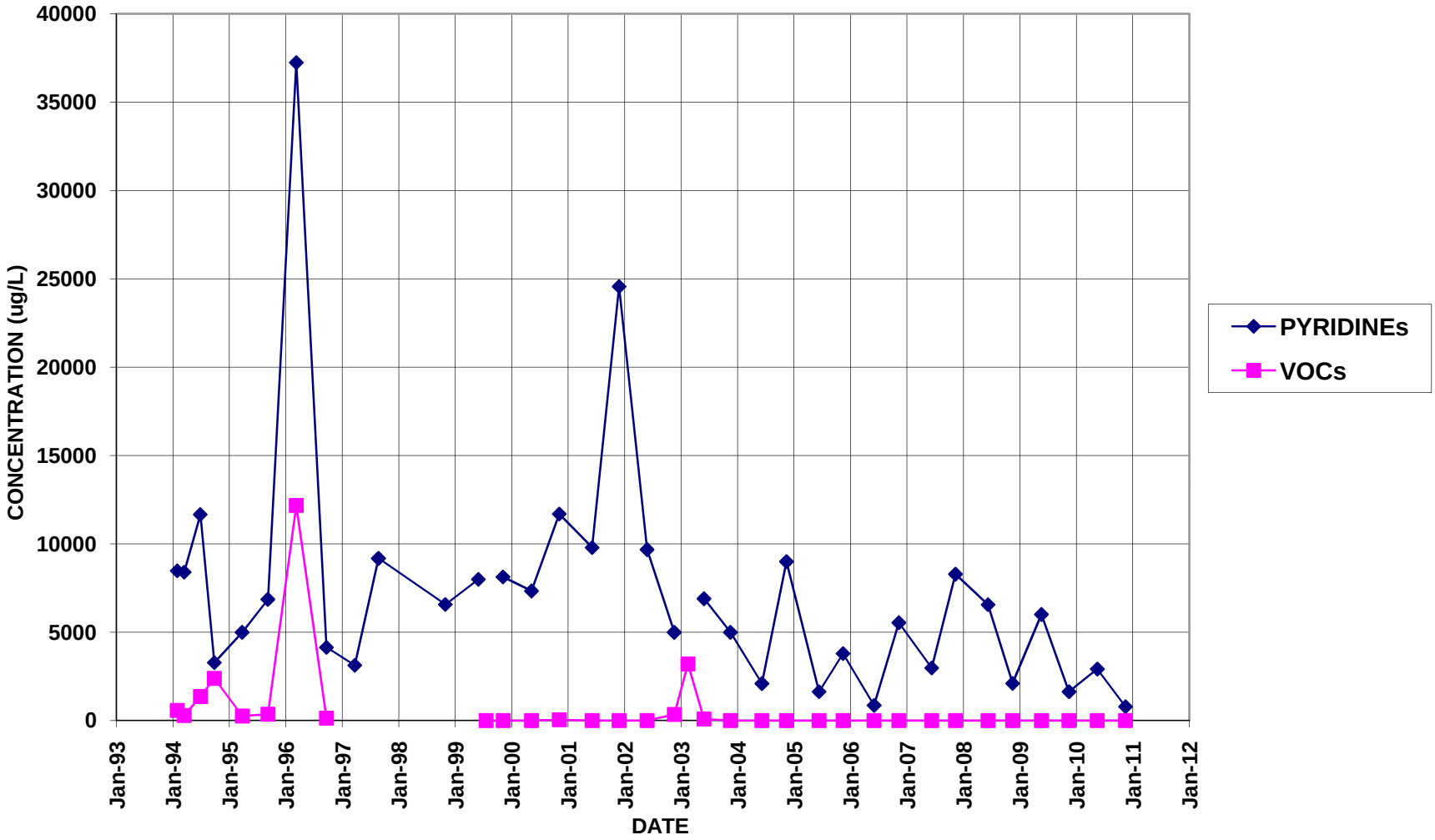
Prepared by: nmb
Reviewed by: jeb

BR-105D

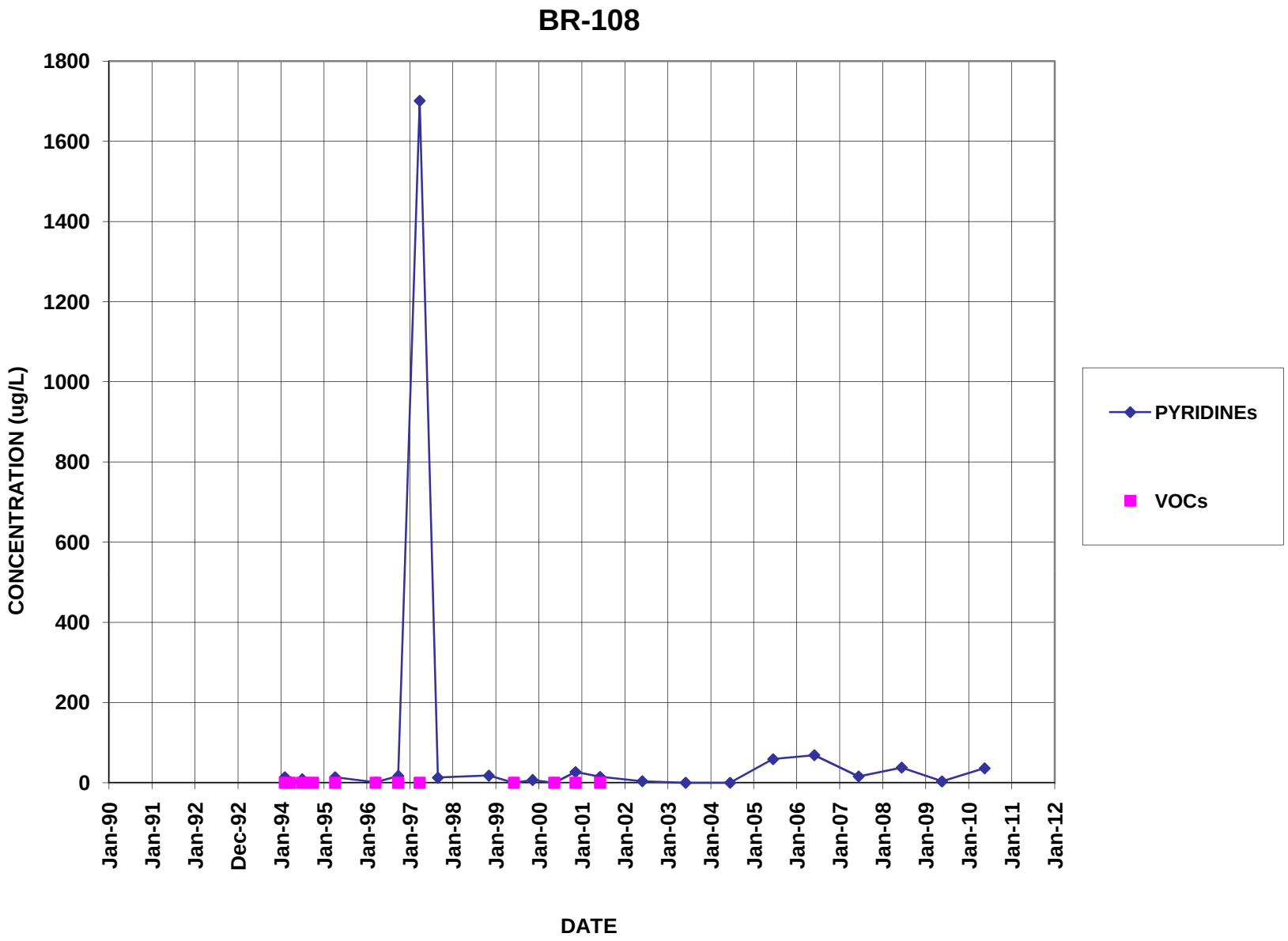


Prepared by: nmb
Reviewed by: jeb

BR-106

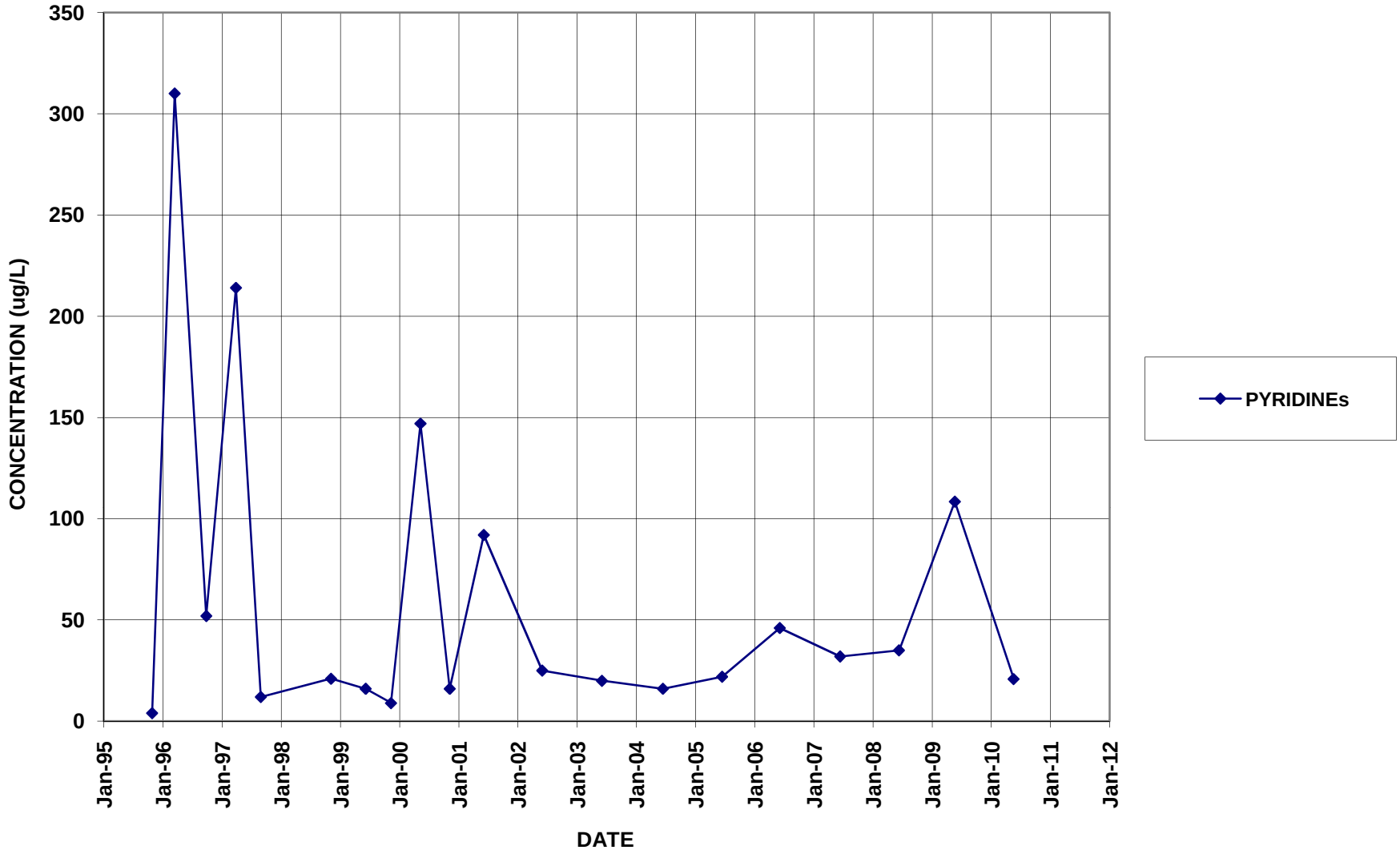


Prepared by: nmb
Reviewed by: jeb



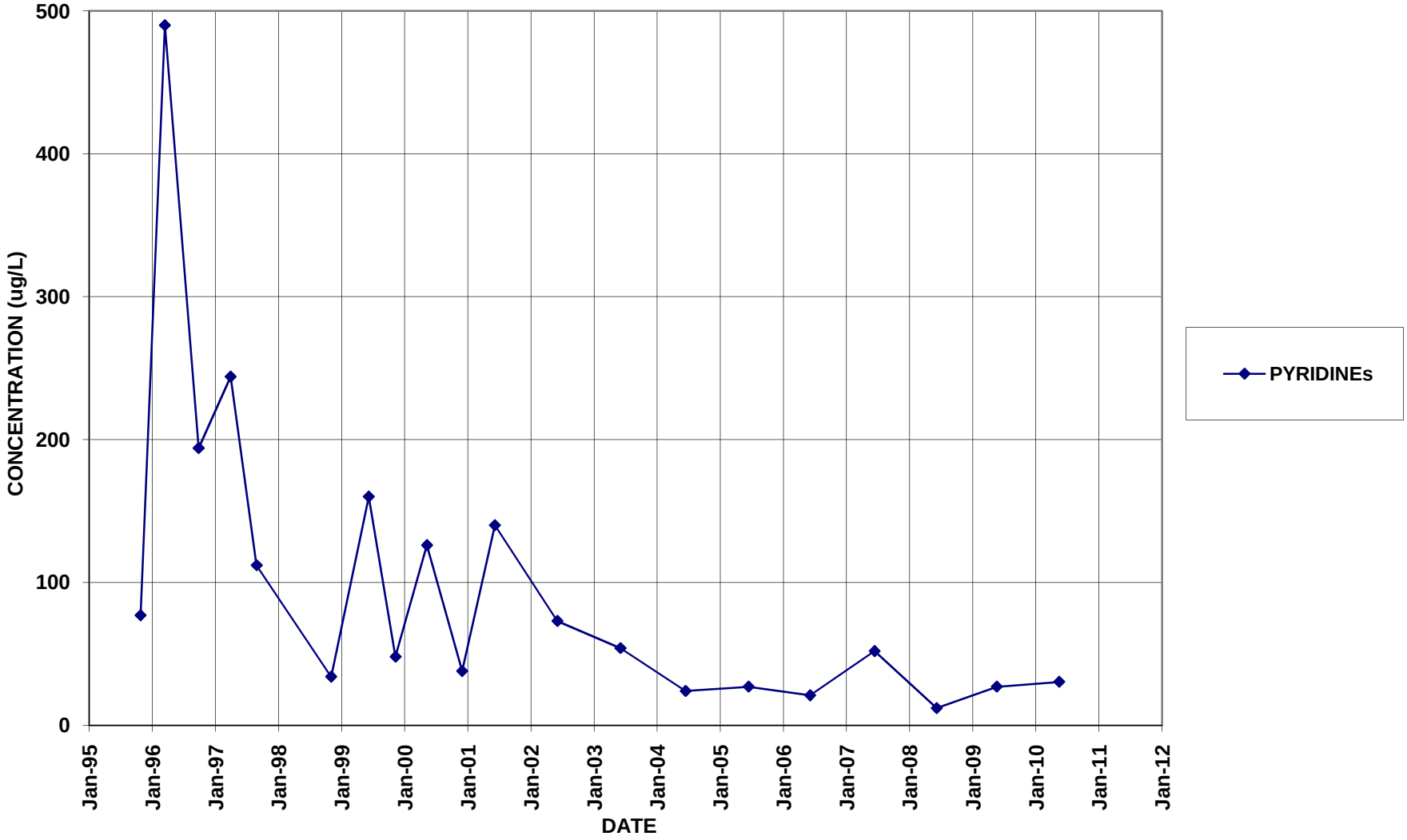
Prepared by: nmb
Reviewed by: jeb

BR-112D



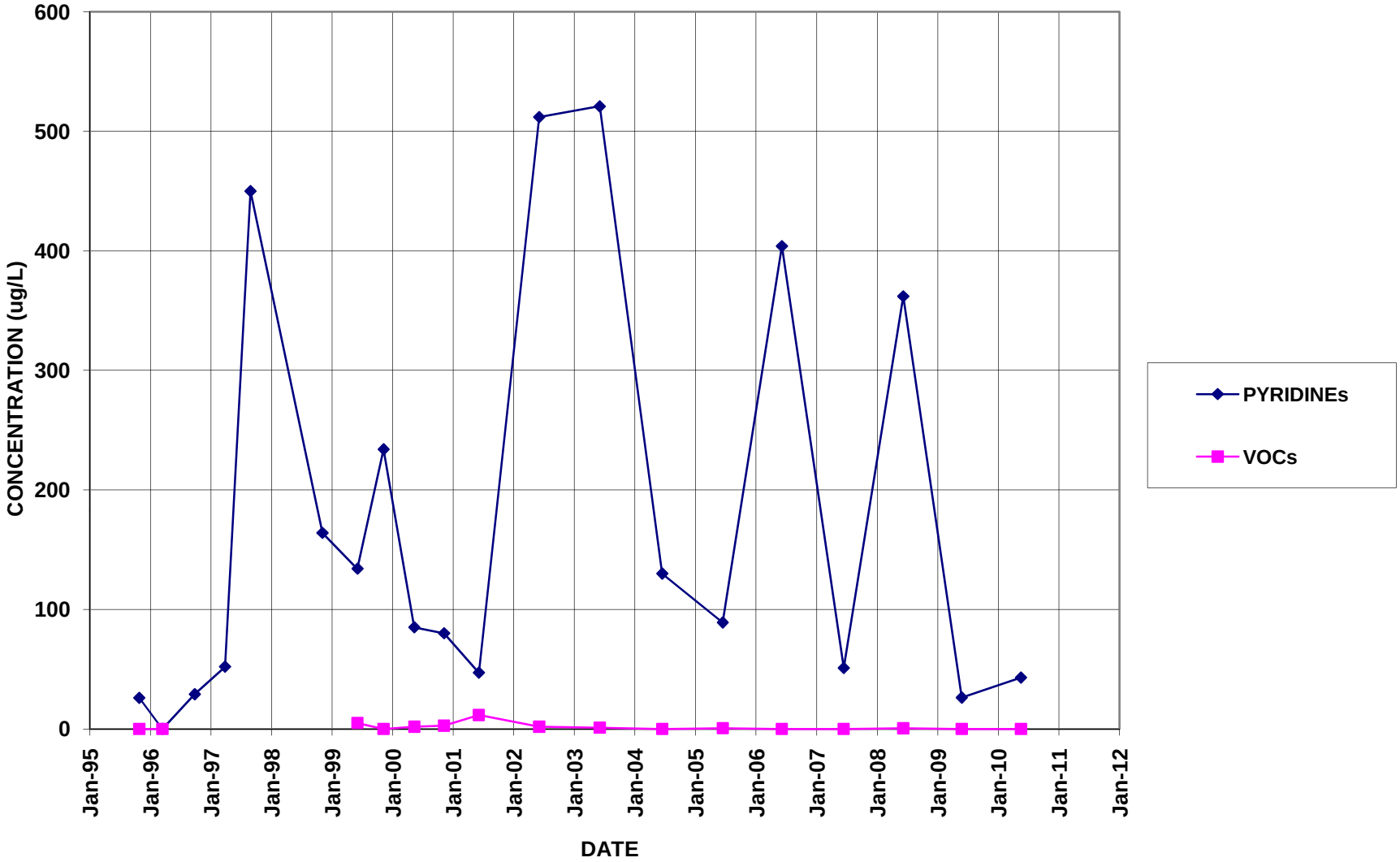
Prepared by: nmb
Reviewed by: jeb

BR-113D



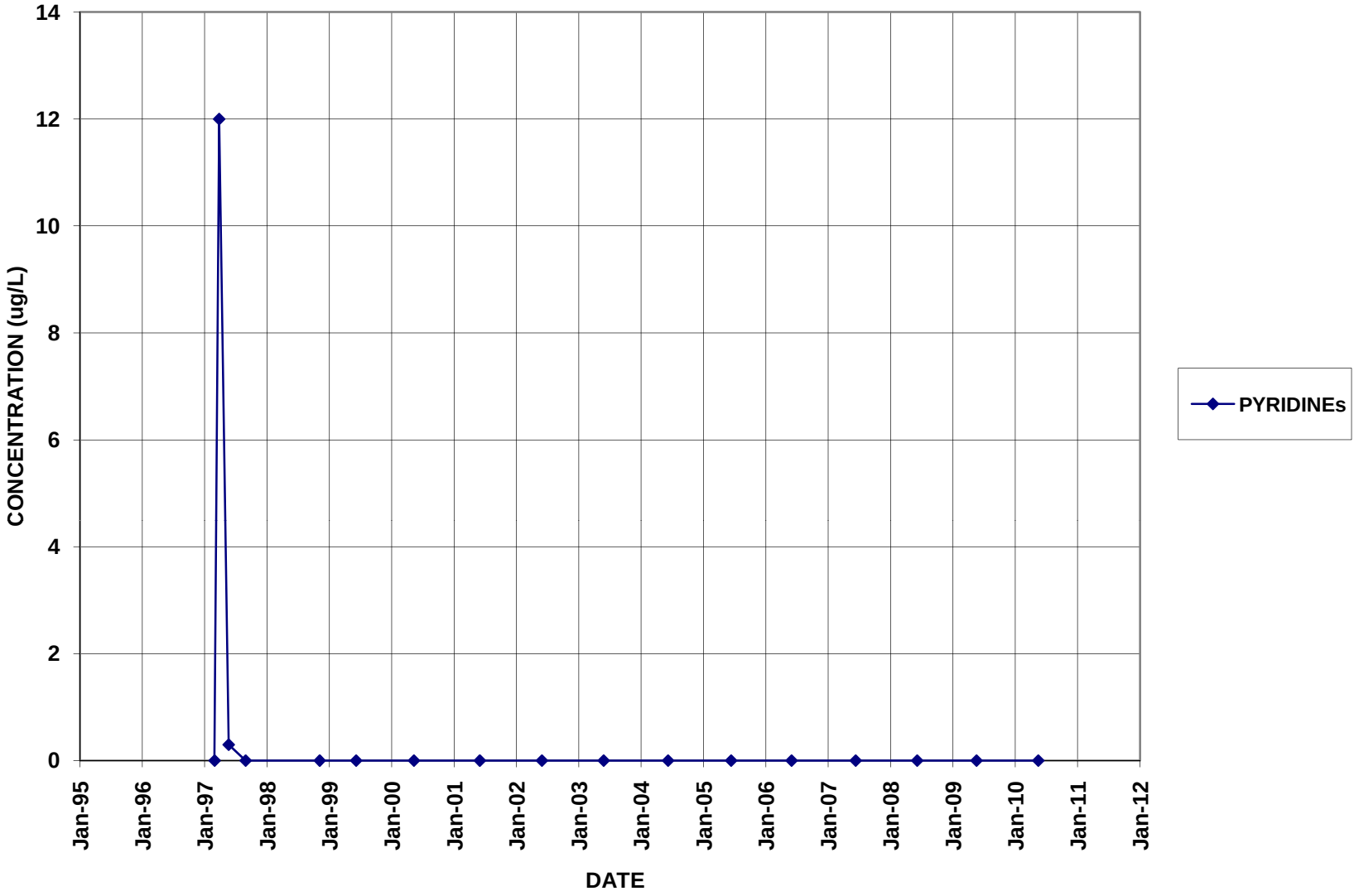
Prepared by: nmb
Reviewed by: jeb

BR-114



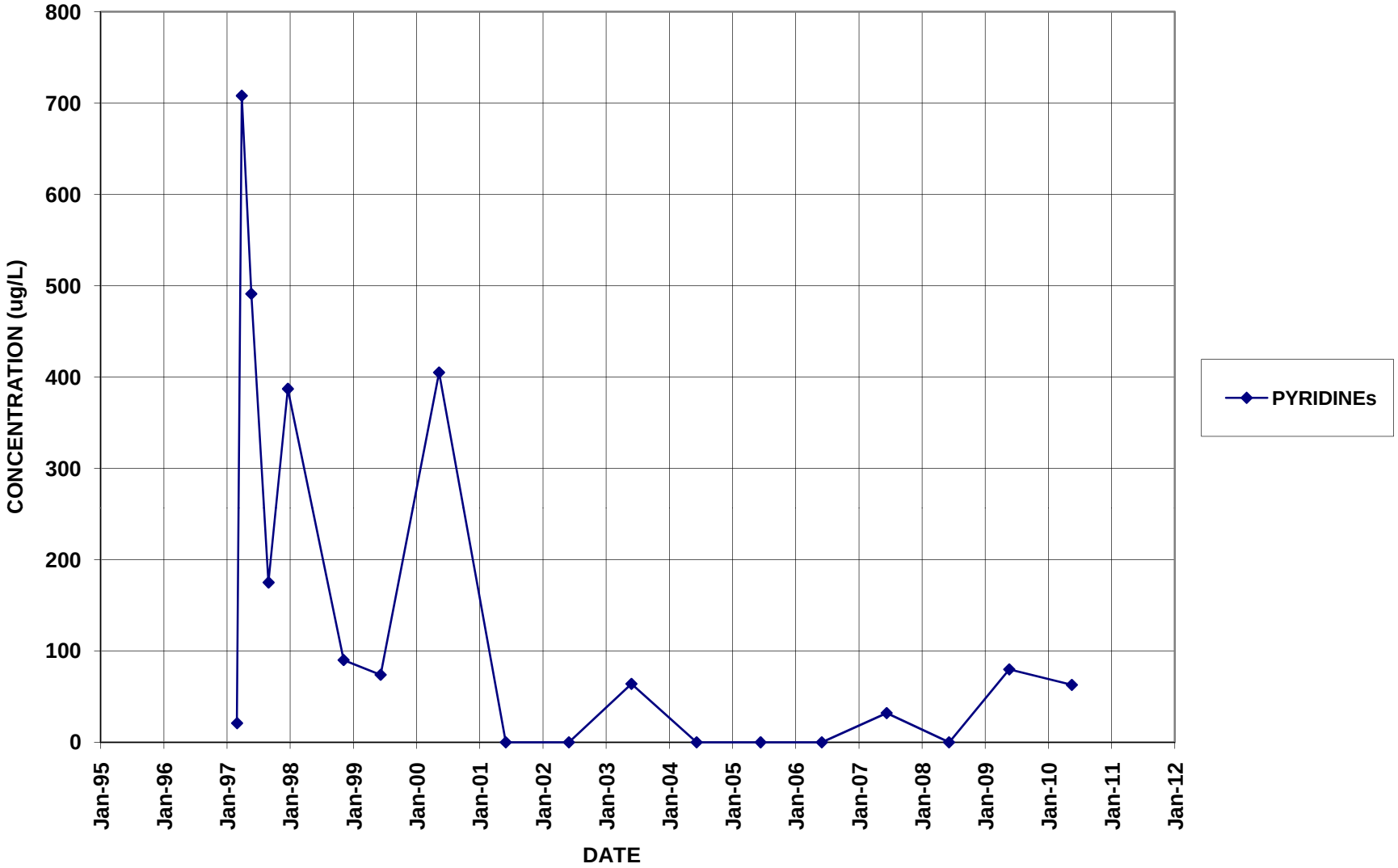
Prepared by: nmb
Reviewed by: jeb

BR-116



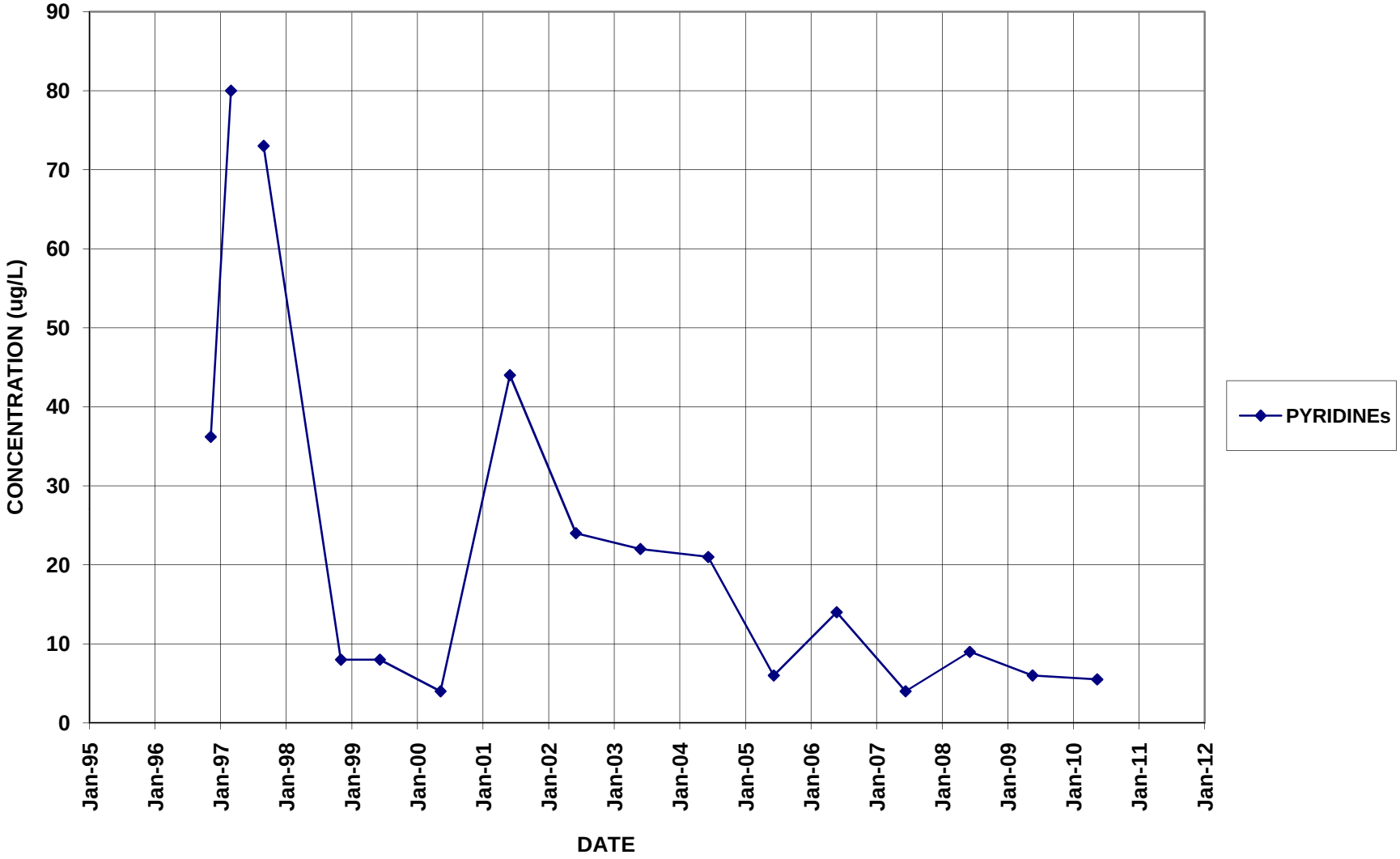
Prepared by: nmb
Reviewed by: jeb

BR-116D



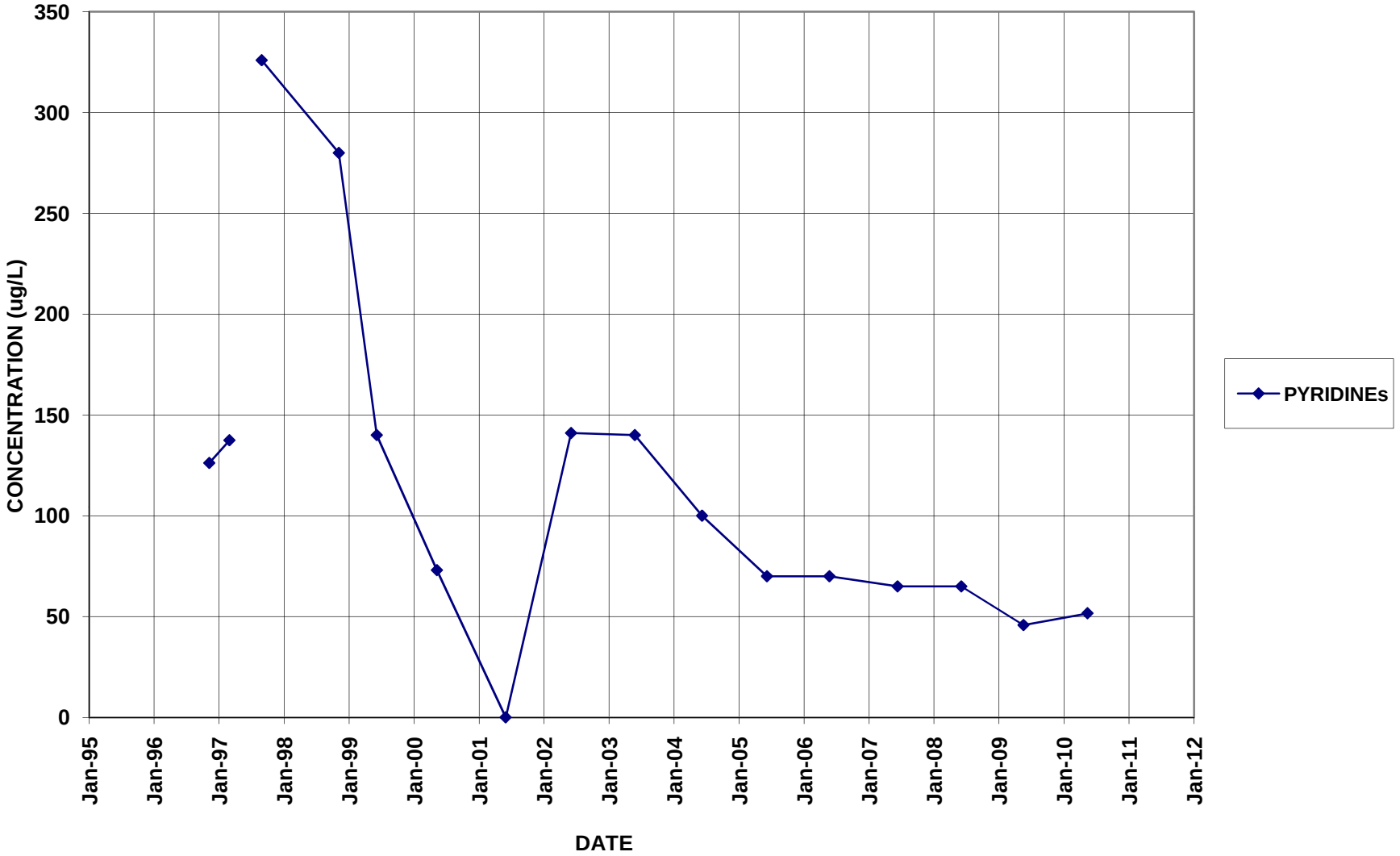
Prepared by: nmb
Reviewed by: jeb

BR-117D



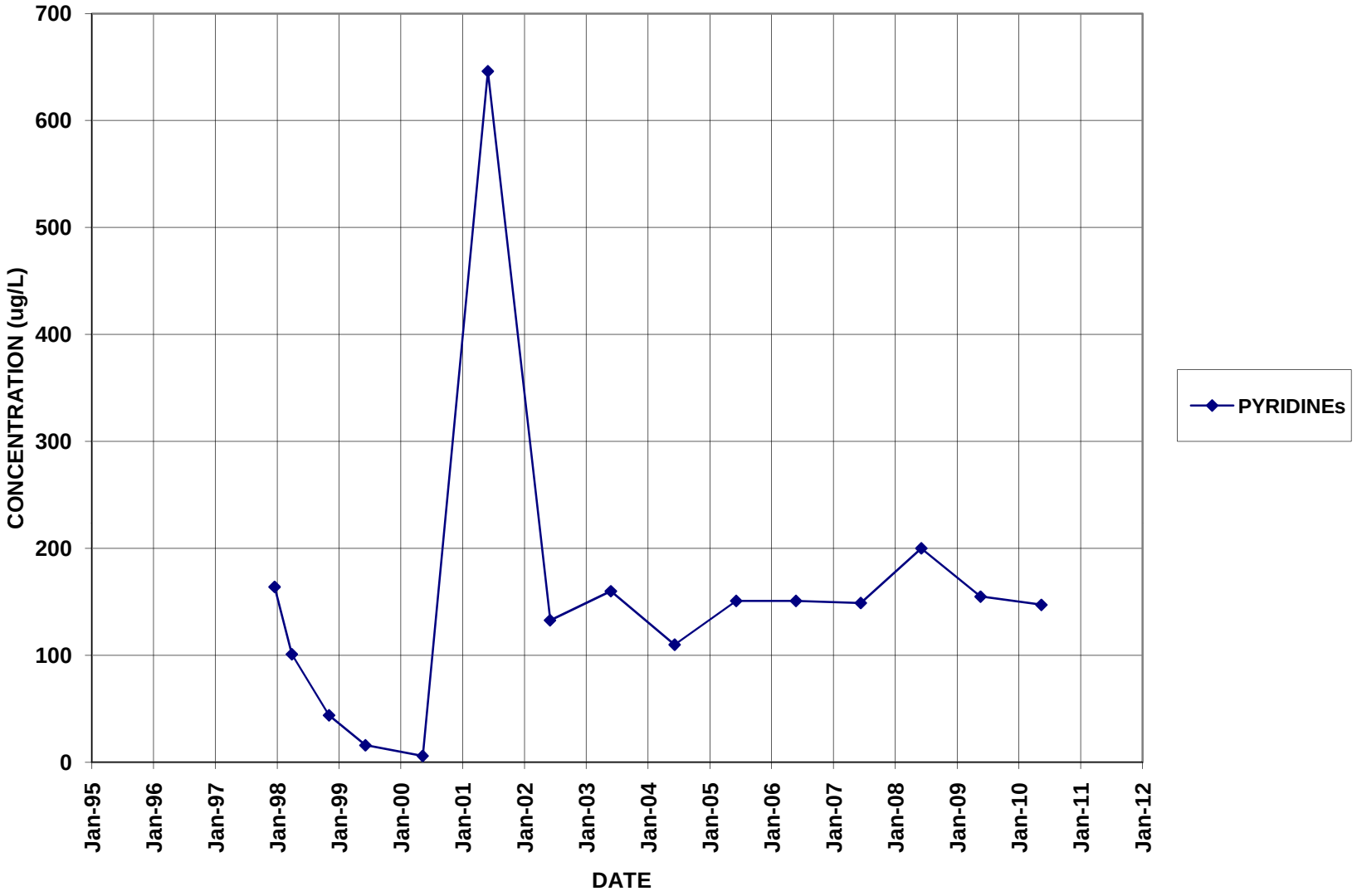
Prepared by: nmb
Reviewed by: jeb

BR-118D



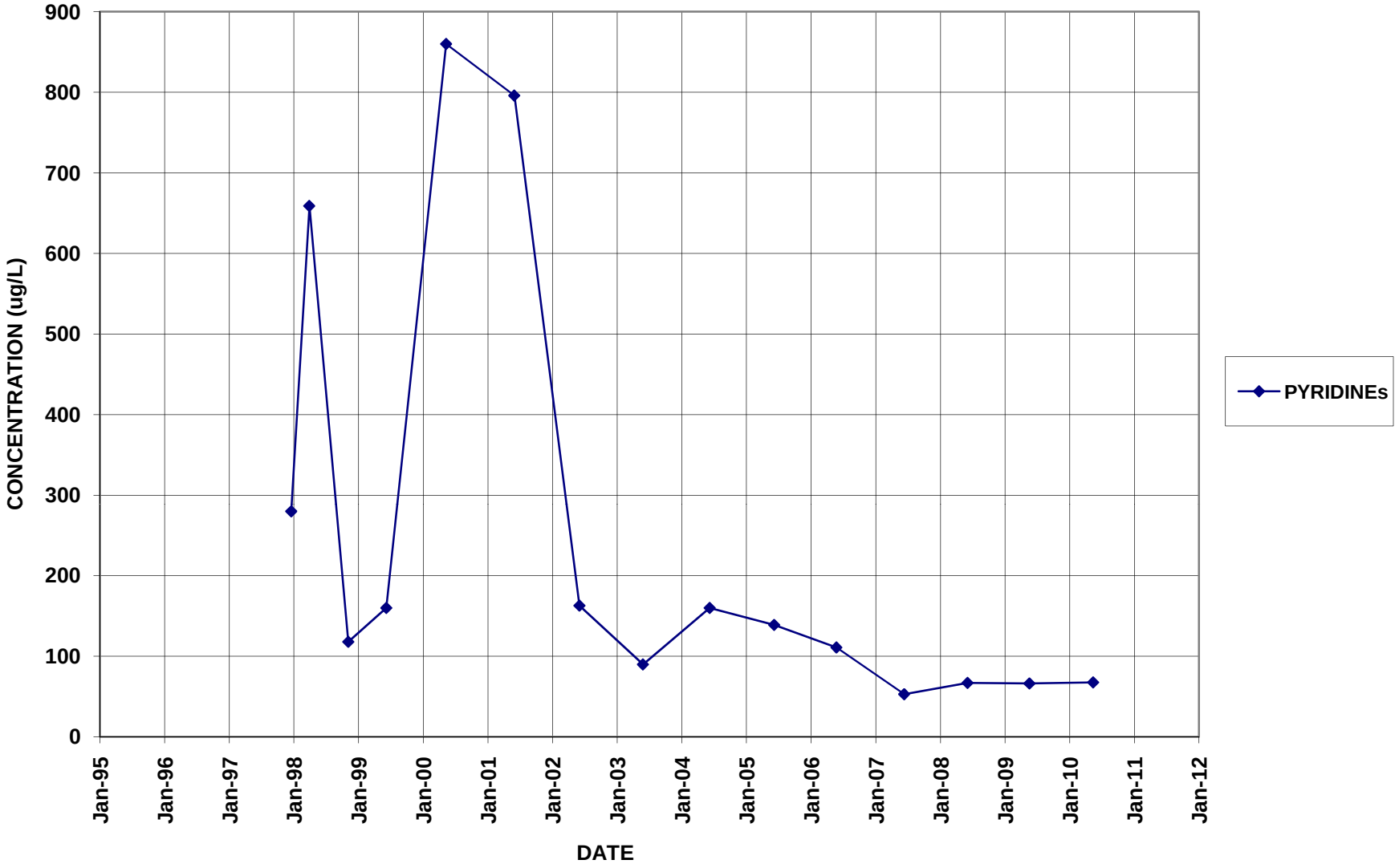
Prepared by: nmb
Reviewed by: jeb

BR-122D



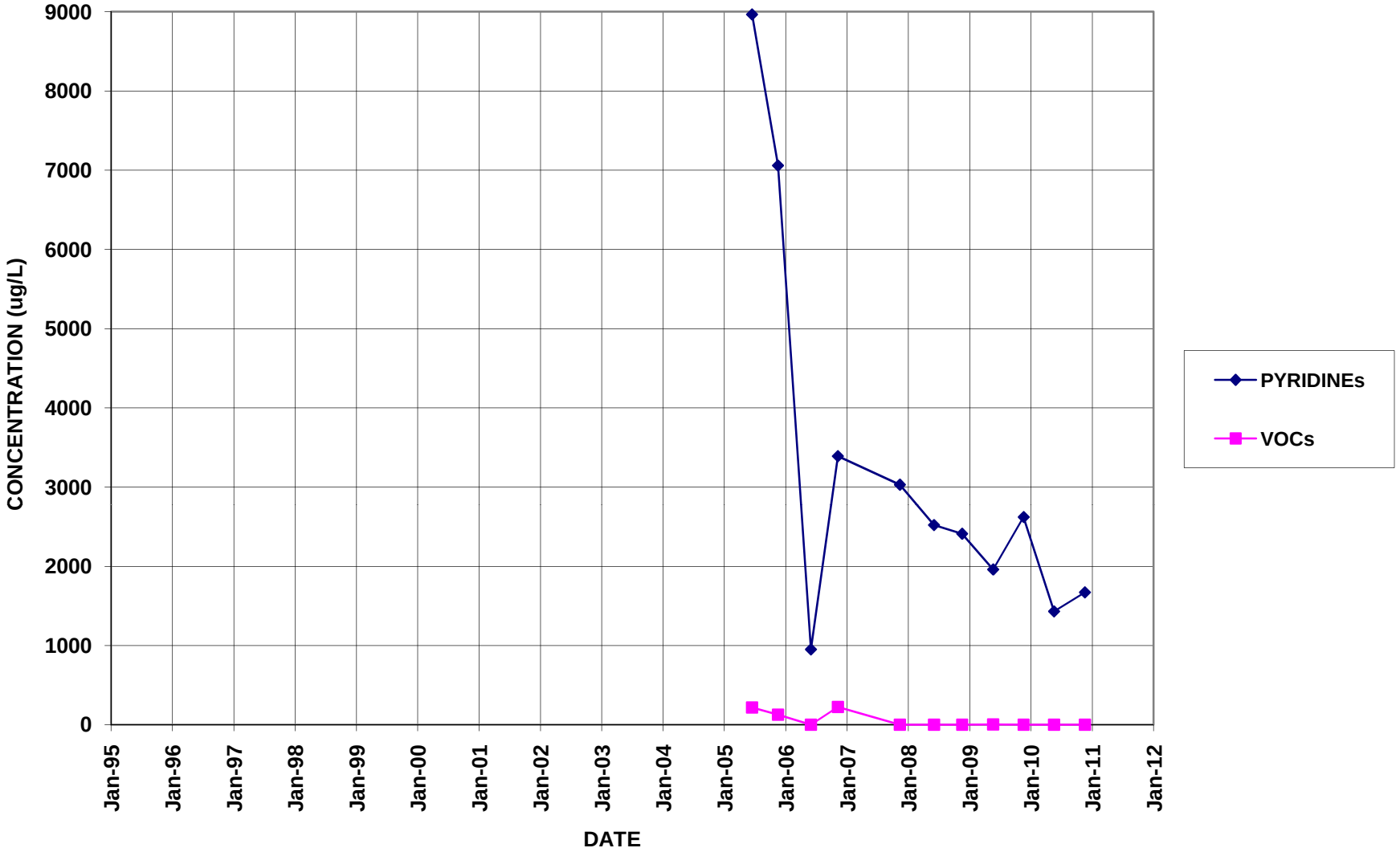
Prepared by: nmb
Reviewed by: jeb

BR-123D



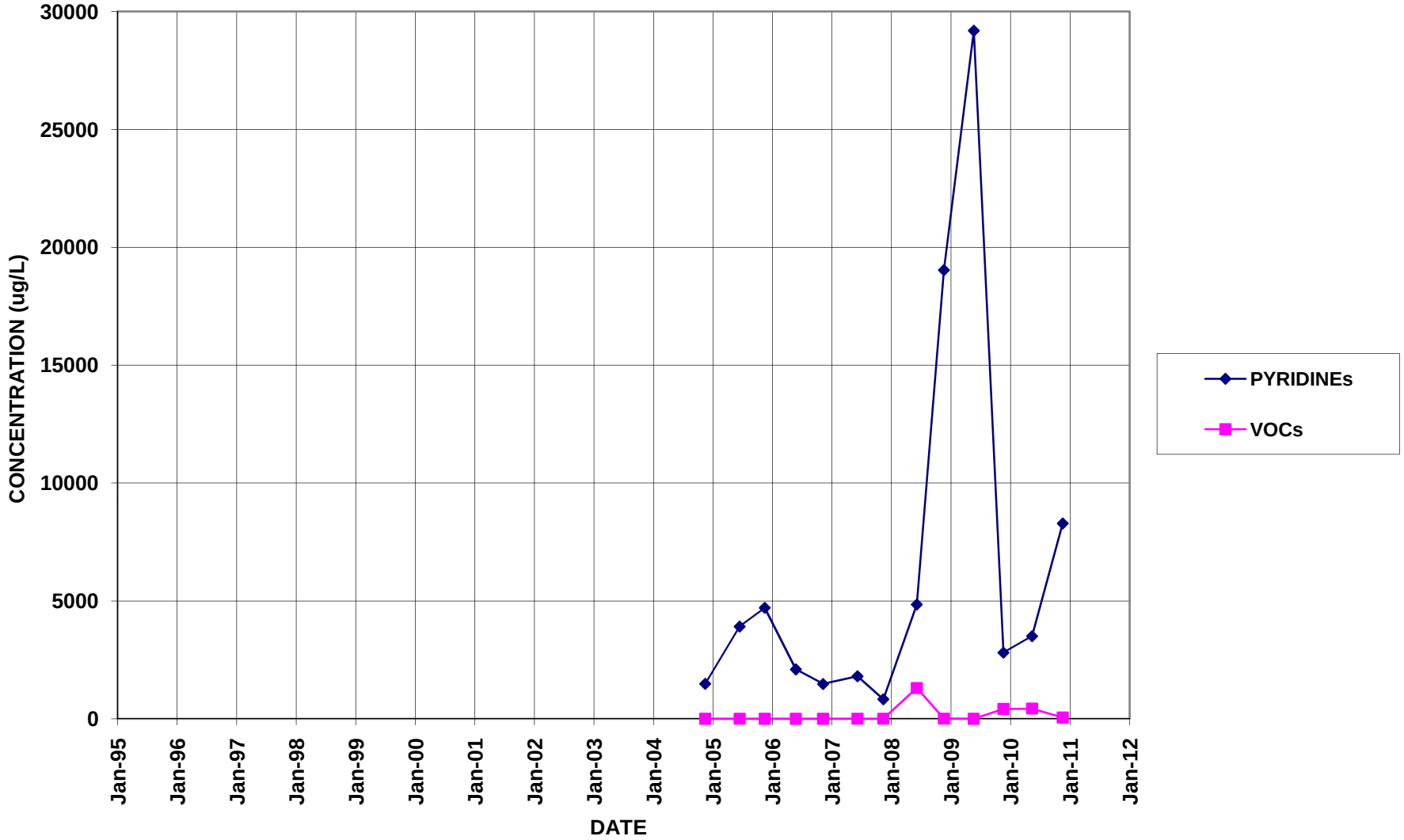
Prepared by: nmb
Reviewed by: jeb

BR-126

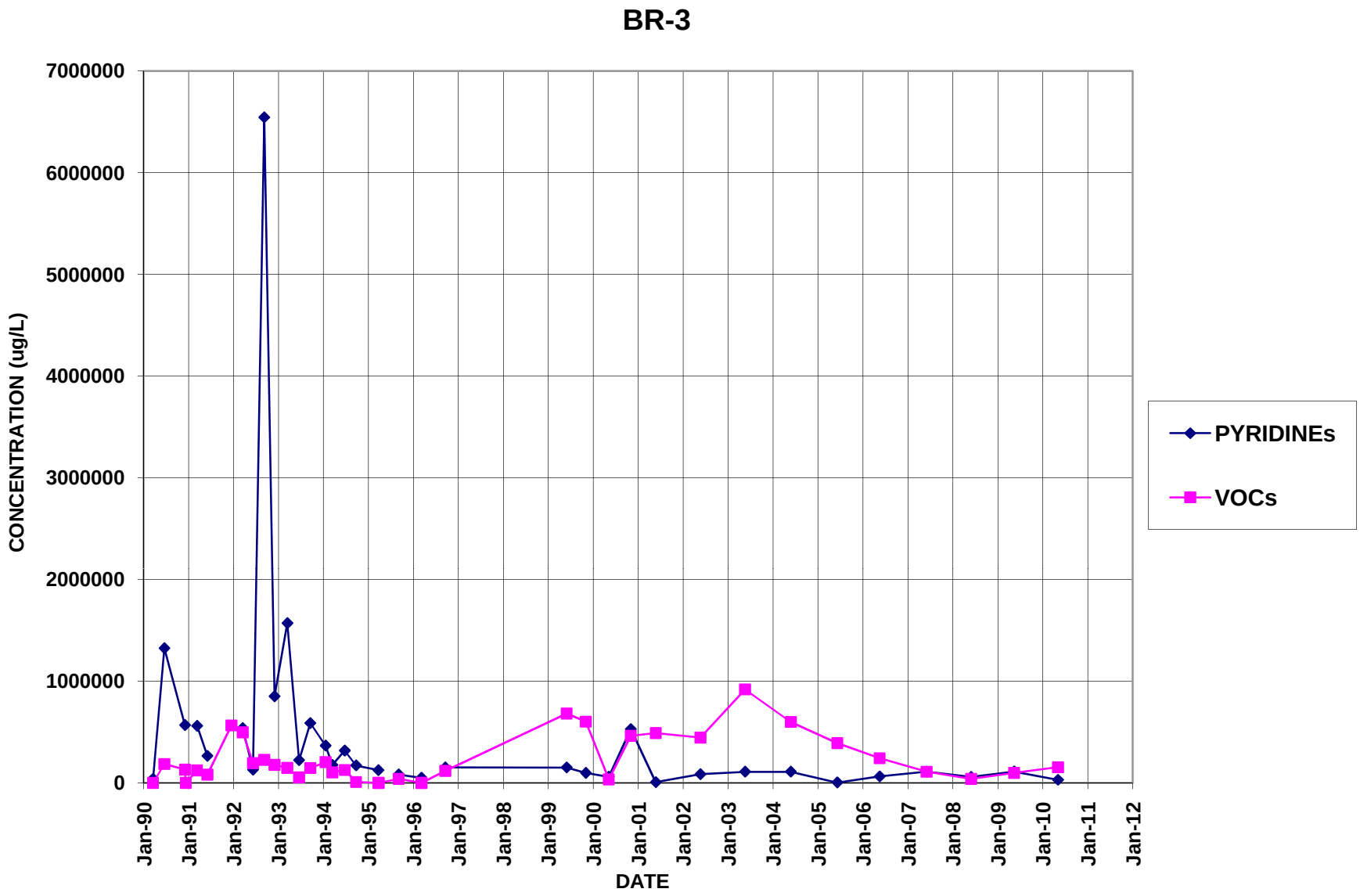


Prepared by: nmb
Reviewed by: jeb

BR-127

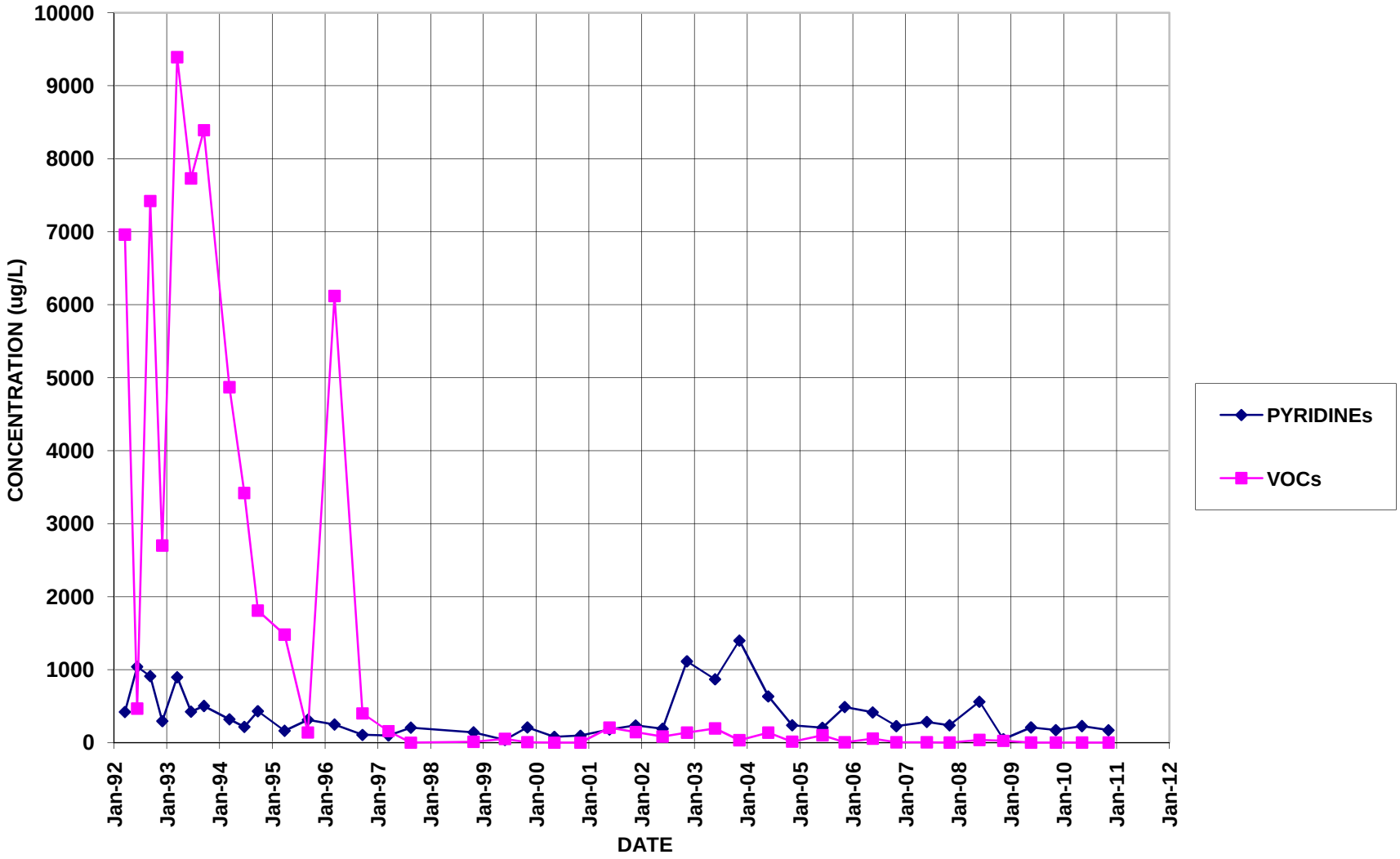


Prepared by: nmb
Reviewed by: jeb



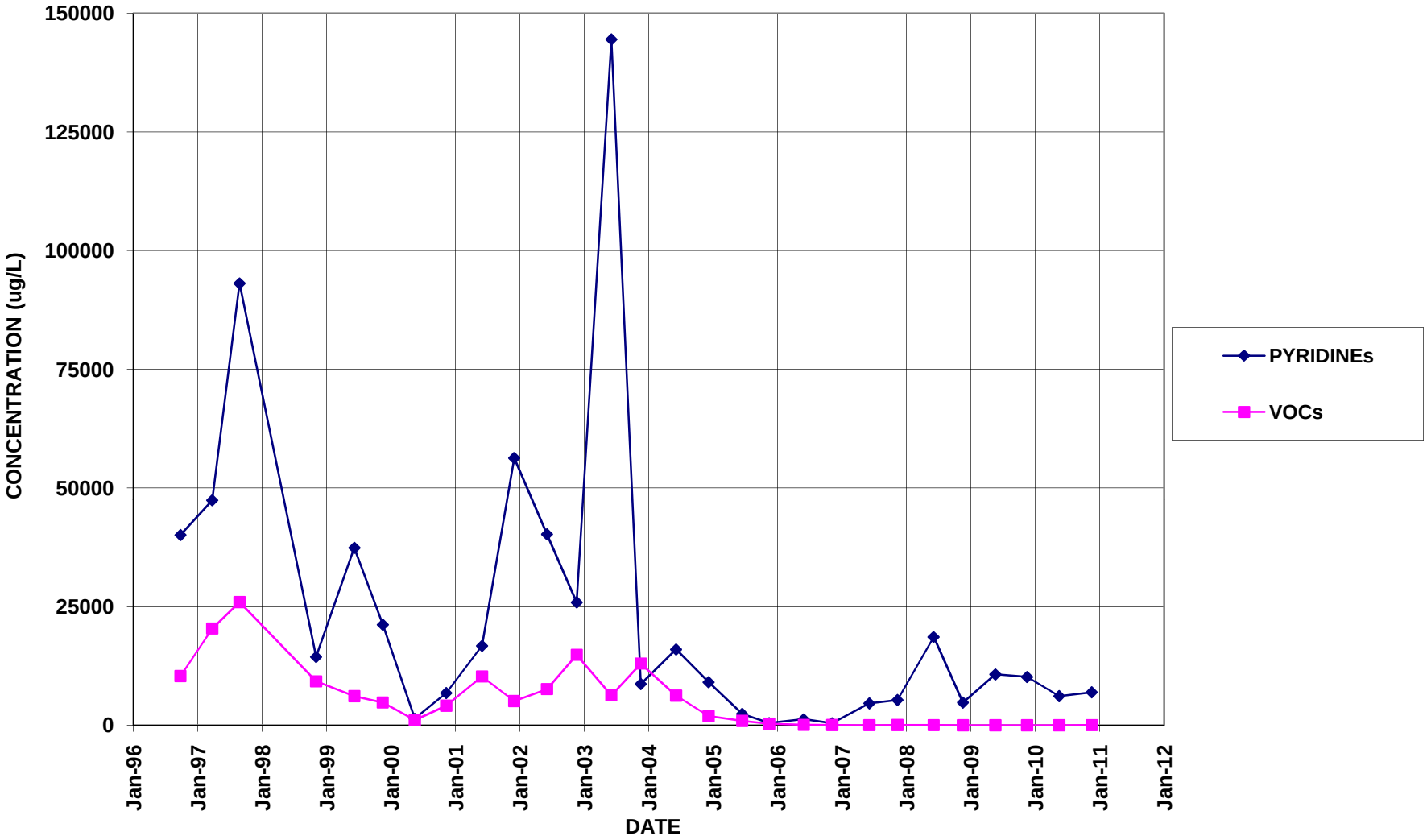
Prepared by: nmb
Reviewed by: jeb

BR-5A



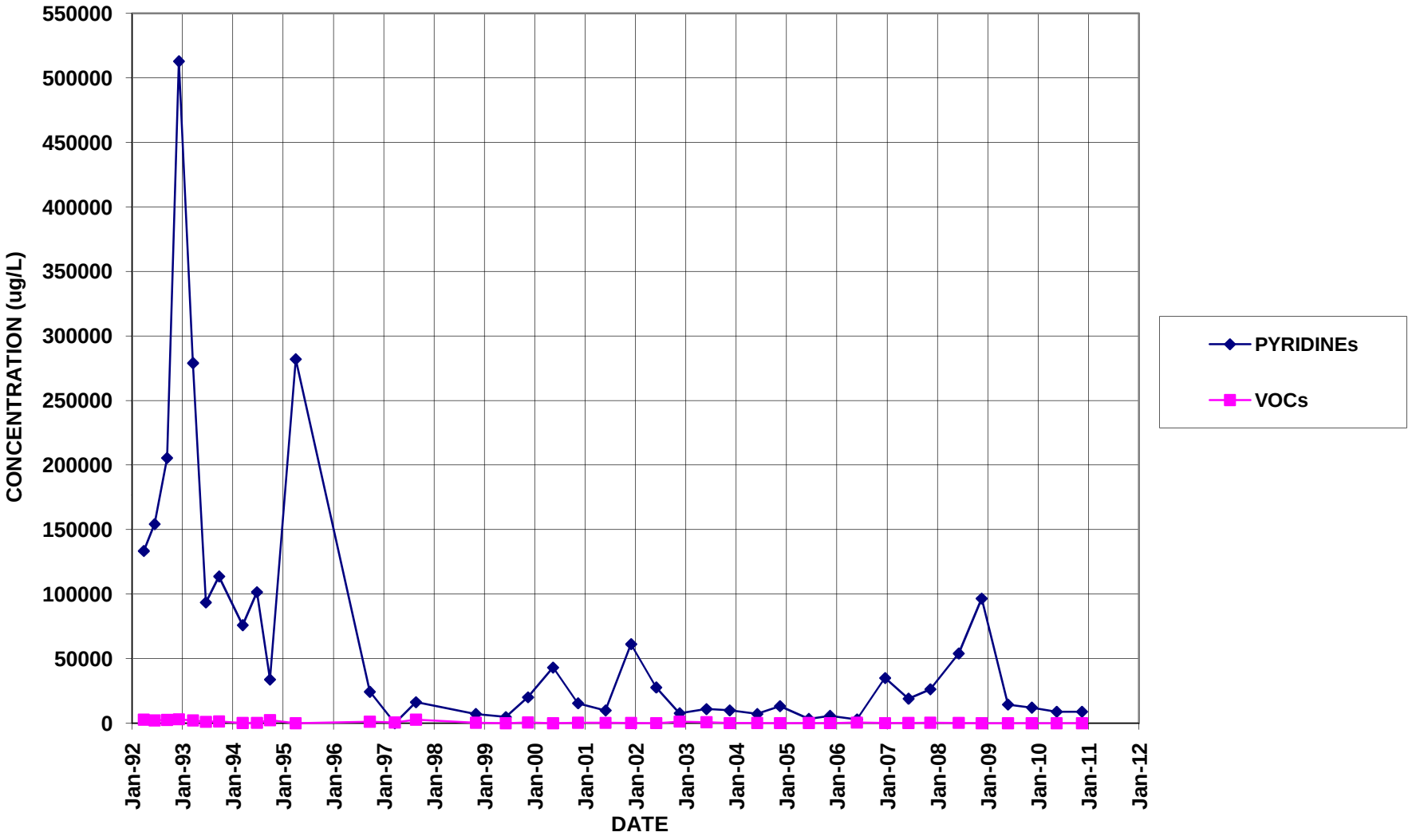
Prepared by: nmb
Reviewed by: jeb

BR-6A



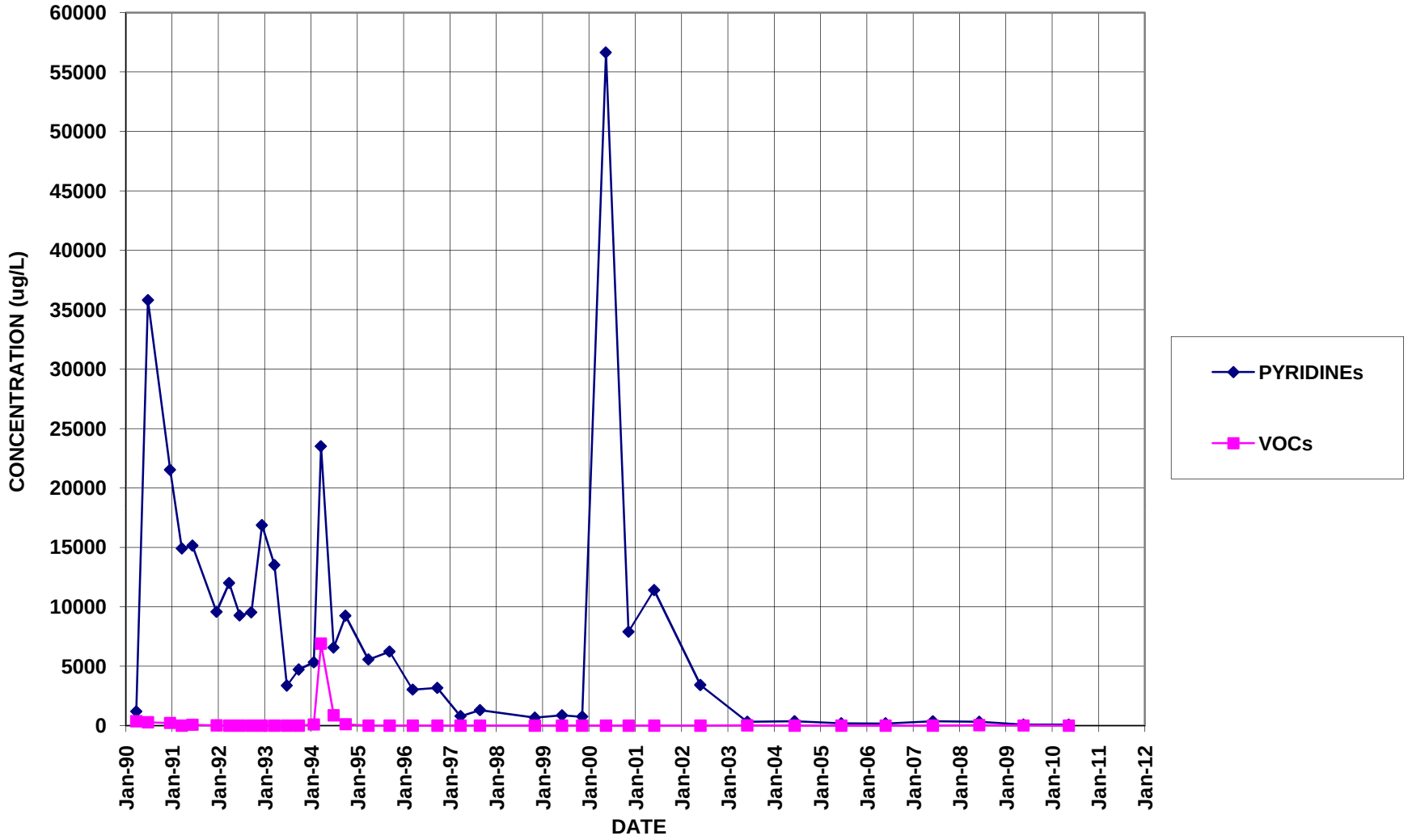
Prepared by: nmb
Reviewed by: jeb

BR-7A



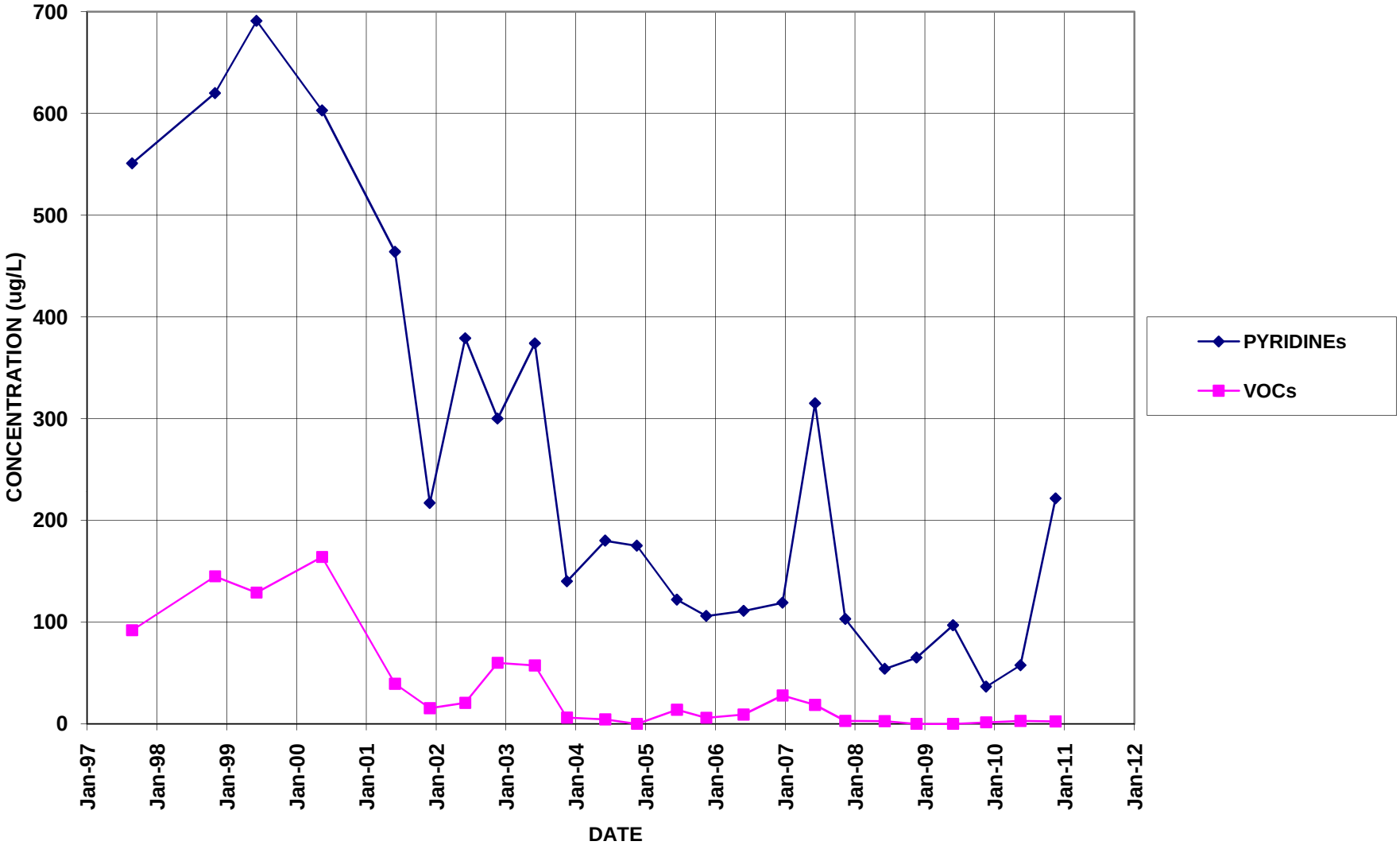
Prepared by: nmb
Reviewed by: jeb

BR-8

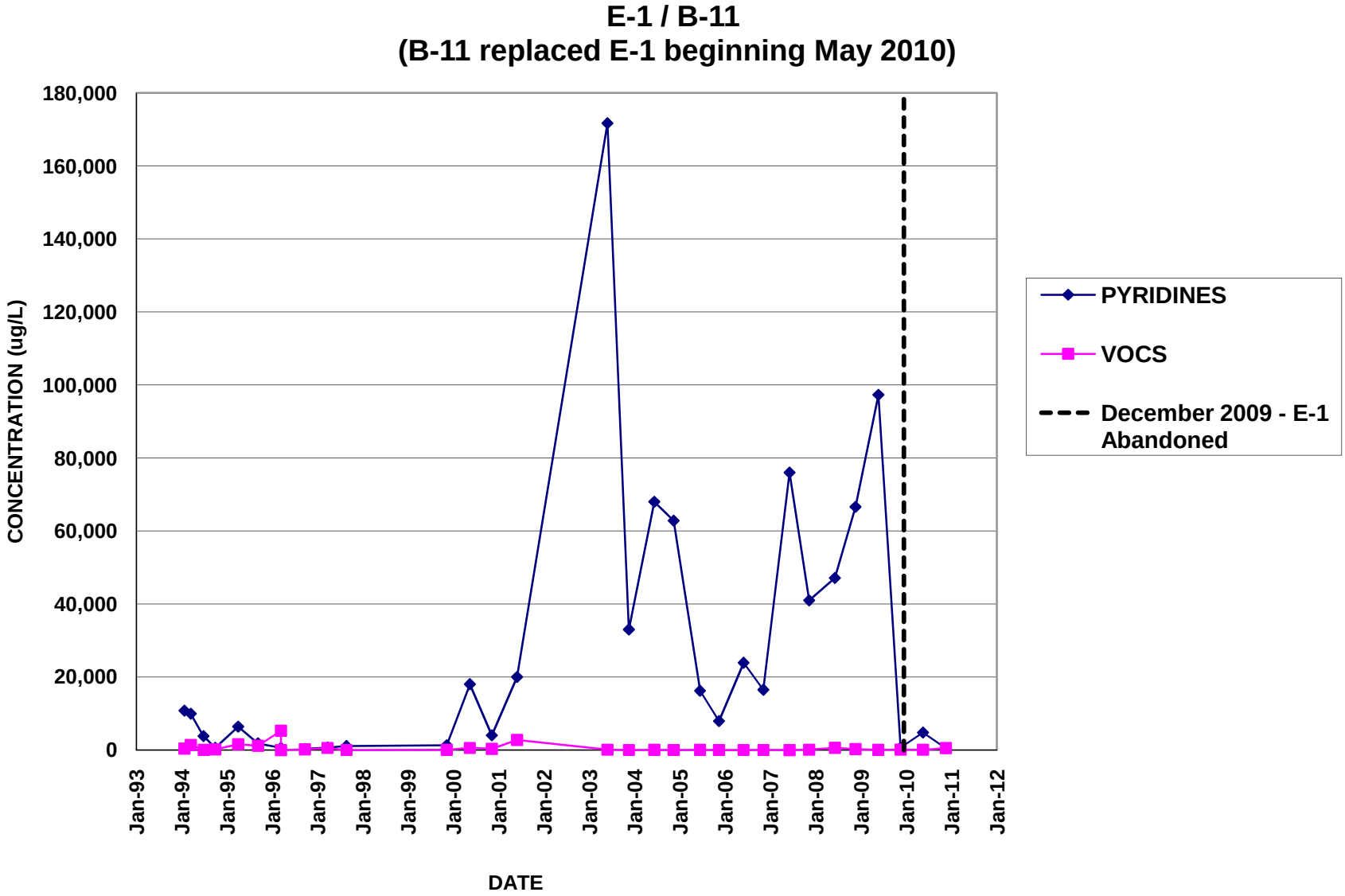


Prepared by: nmb
Reviewed by: jeb

BR-9

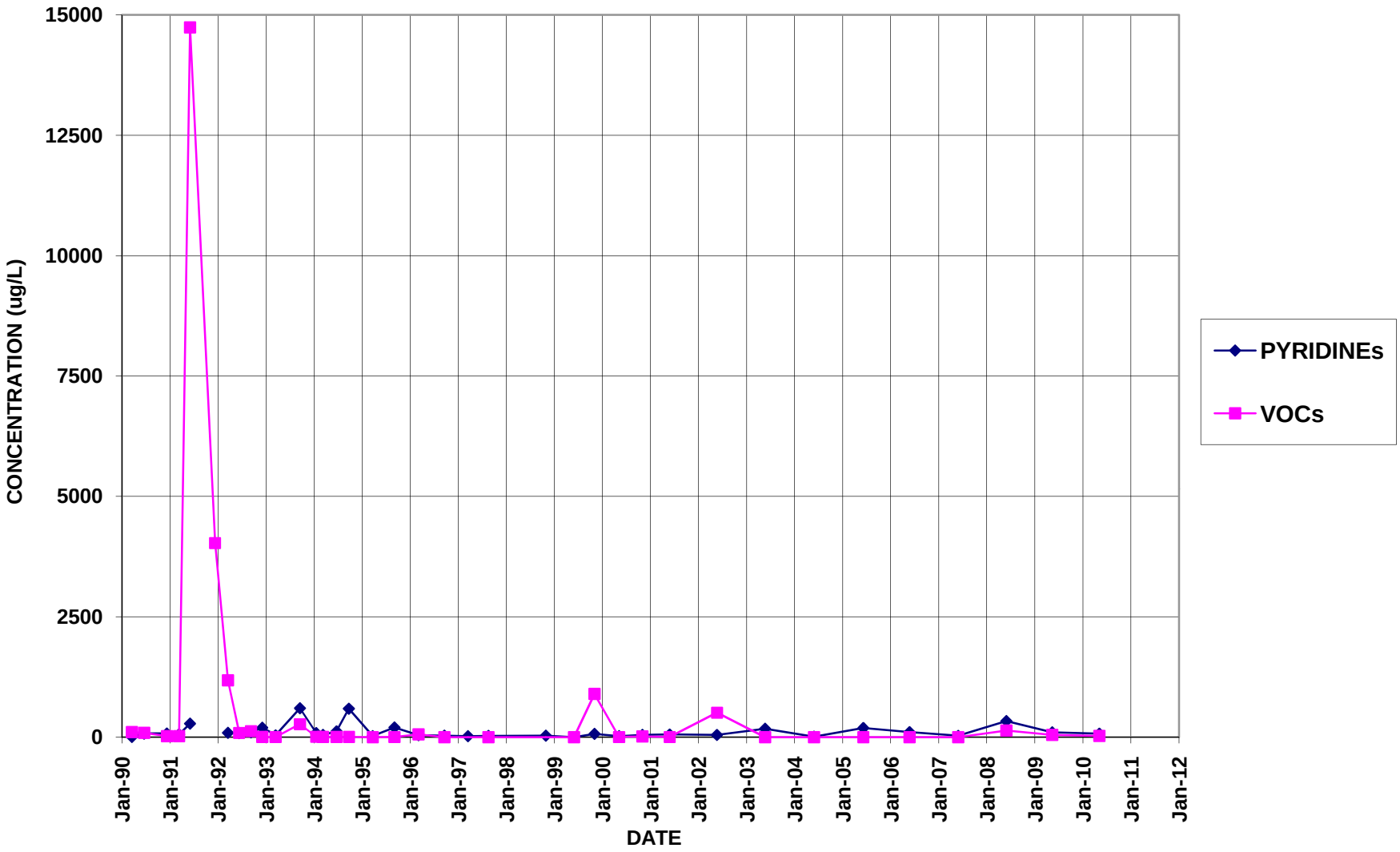


Prepared by: nmb
Reviewed by: jeb



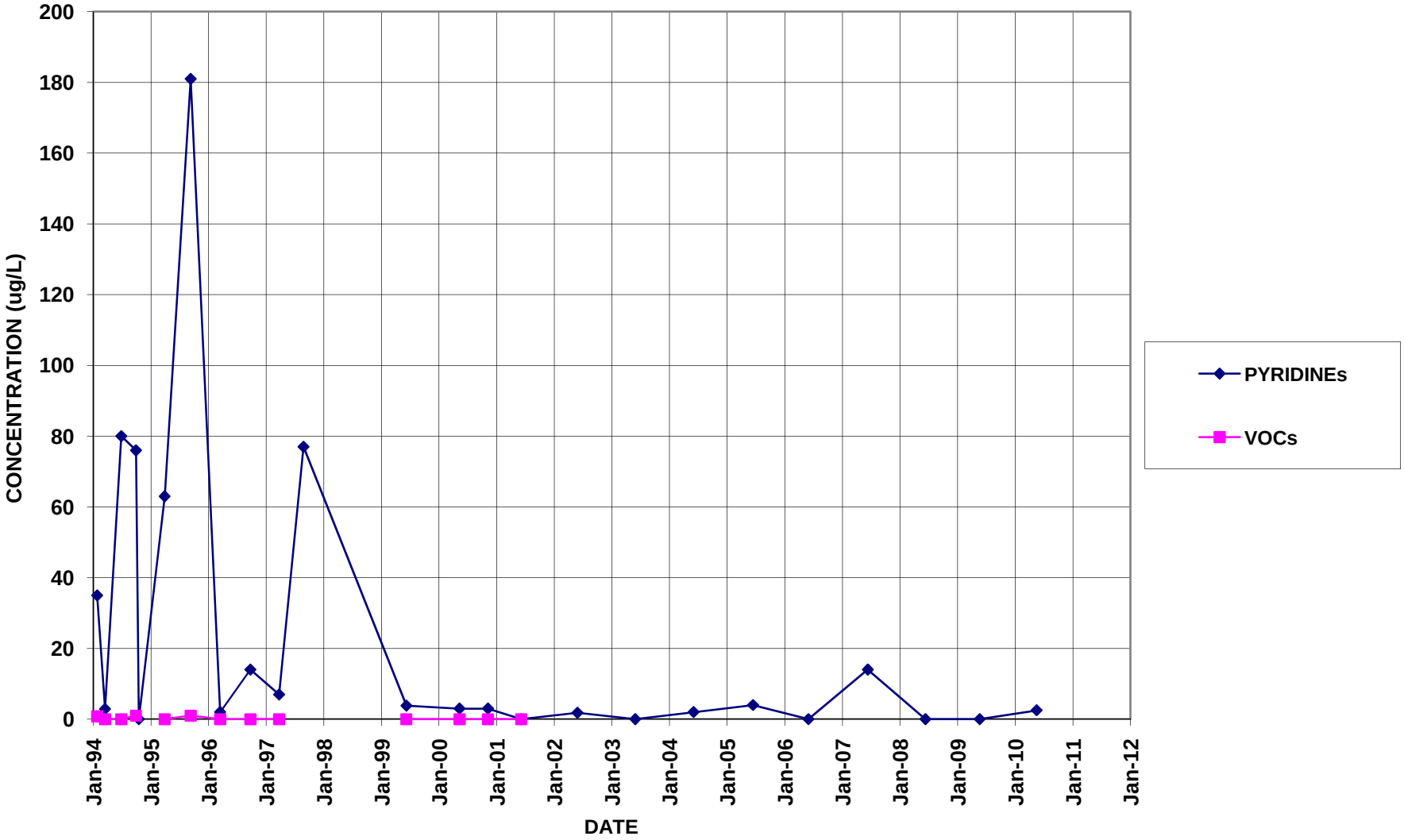
Prepared by: nmb
Reviewed by: jeb

E-3



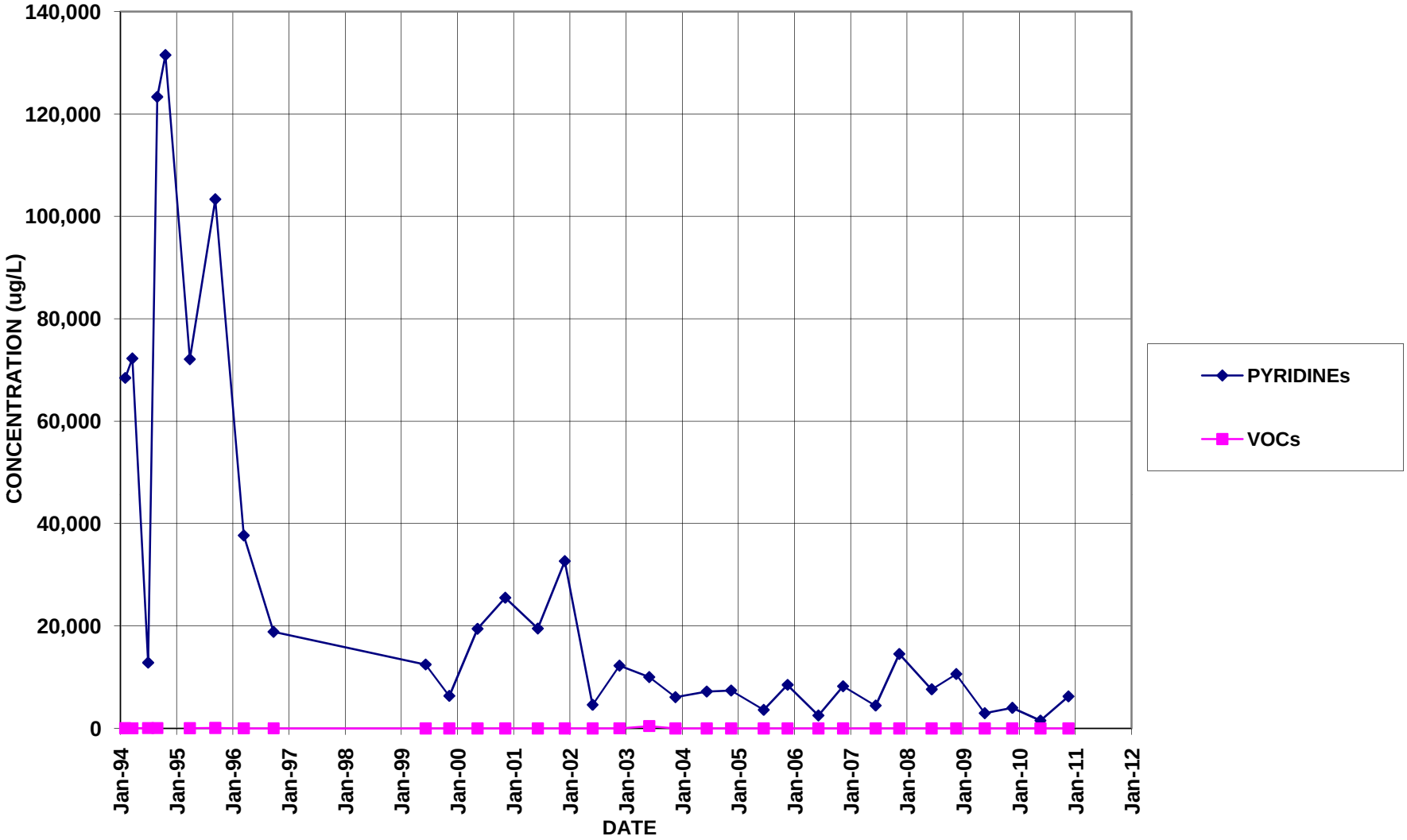
Prepared by: nmb
Reviewed by: jeb

MW-104



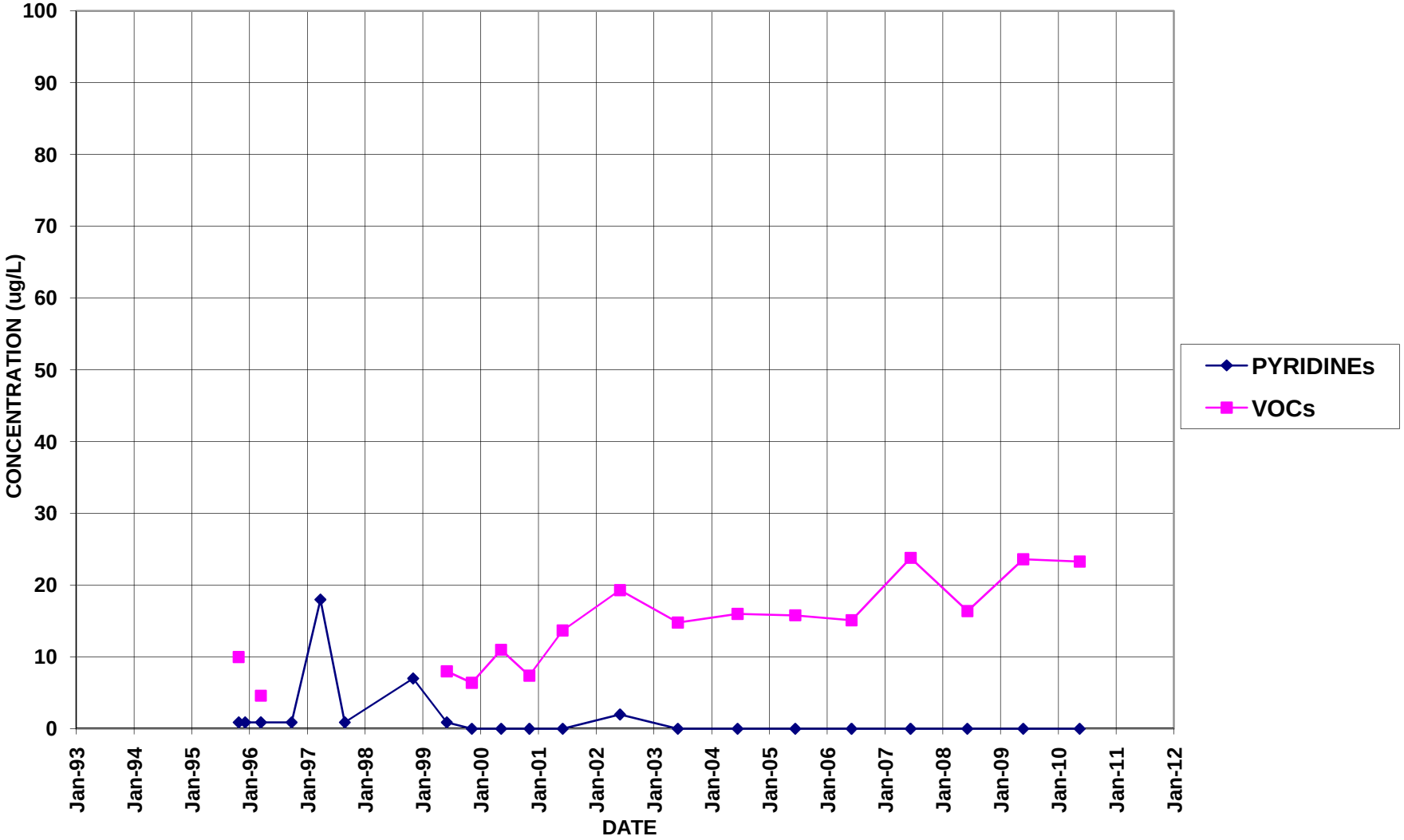
Prepared by: nmb
Reviewed by: jeb

MW-106



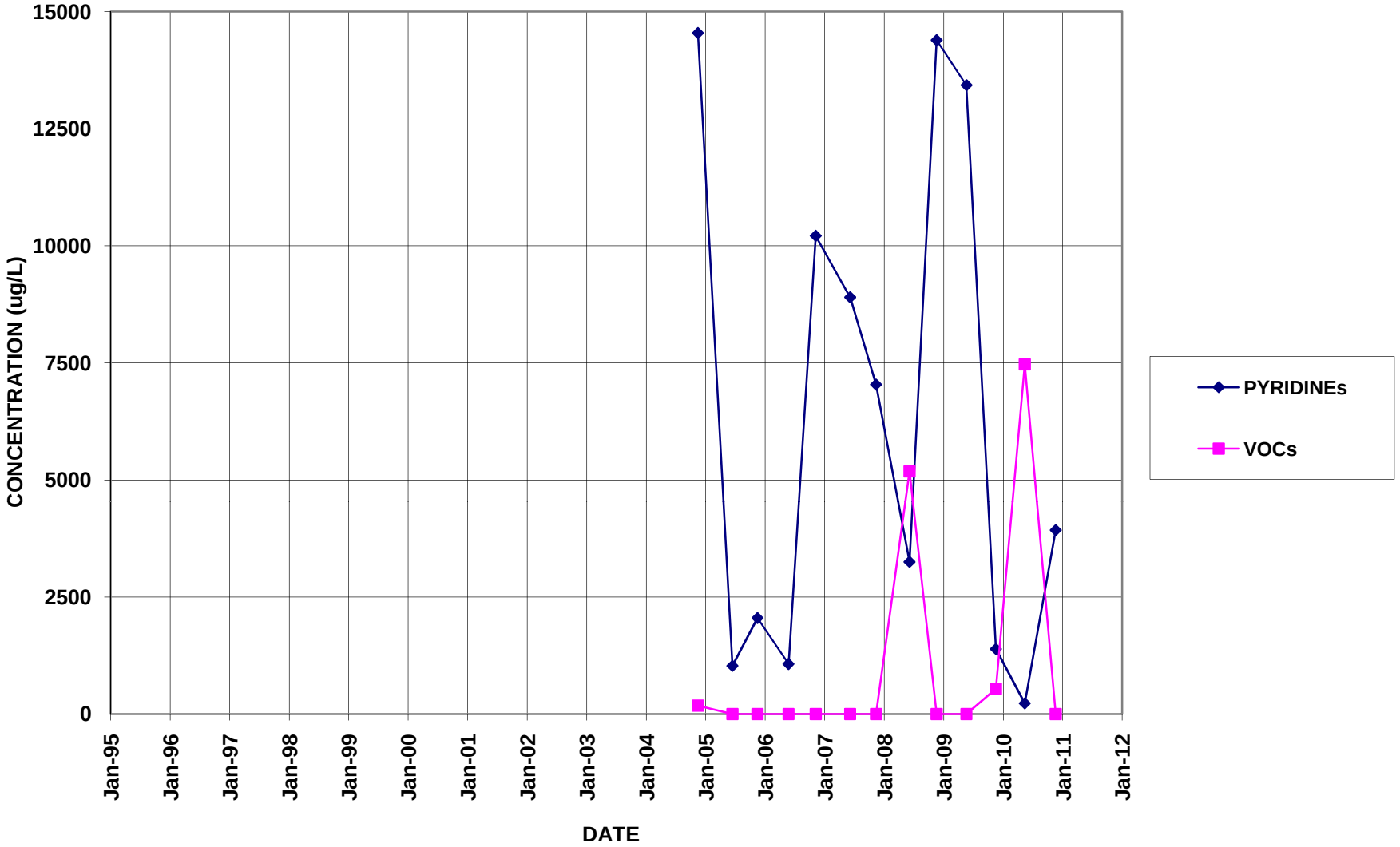
Prepared by: nmb
Reviewed by: jeb

MW-114



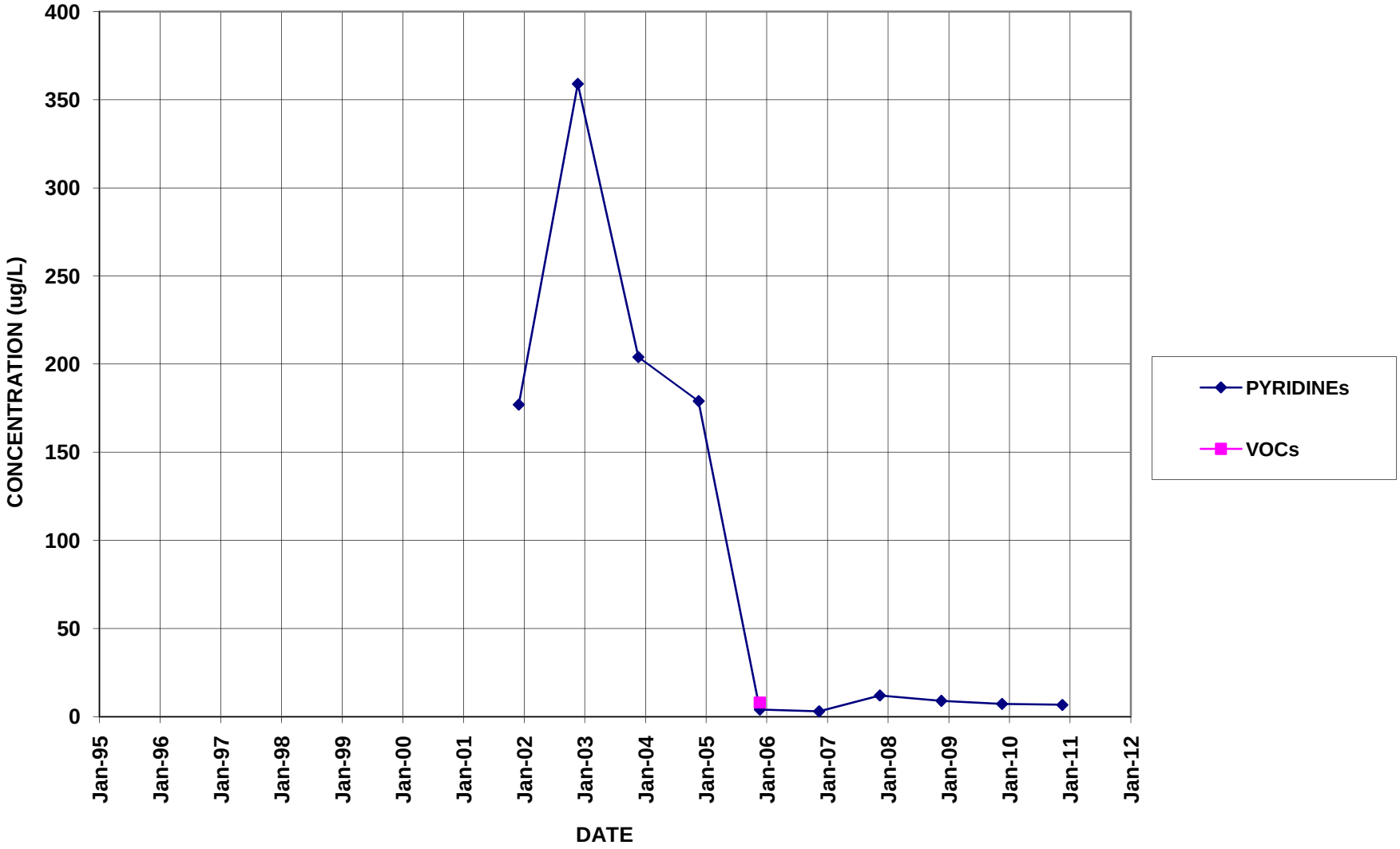
Prepared by: nmb
Reviewed by: jeb

MW-127



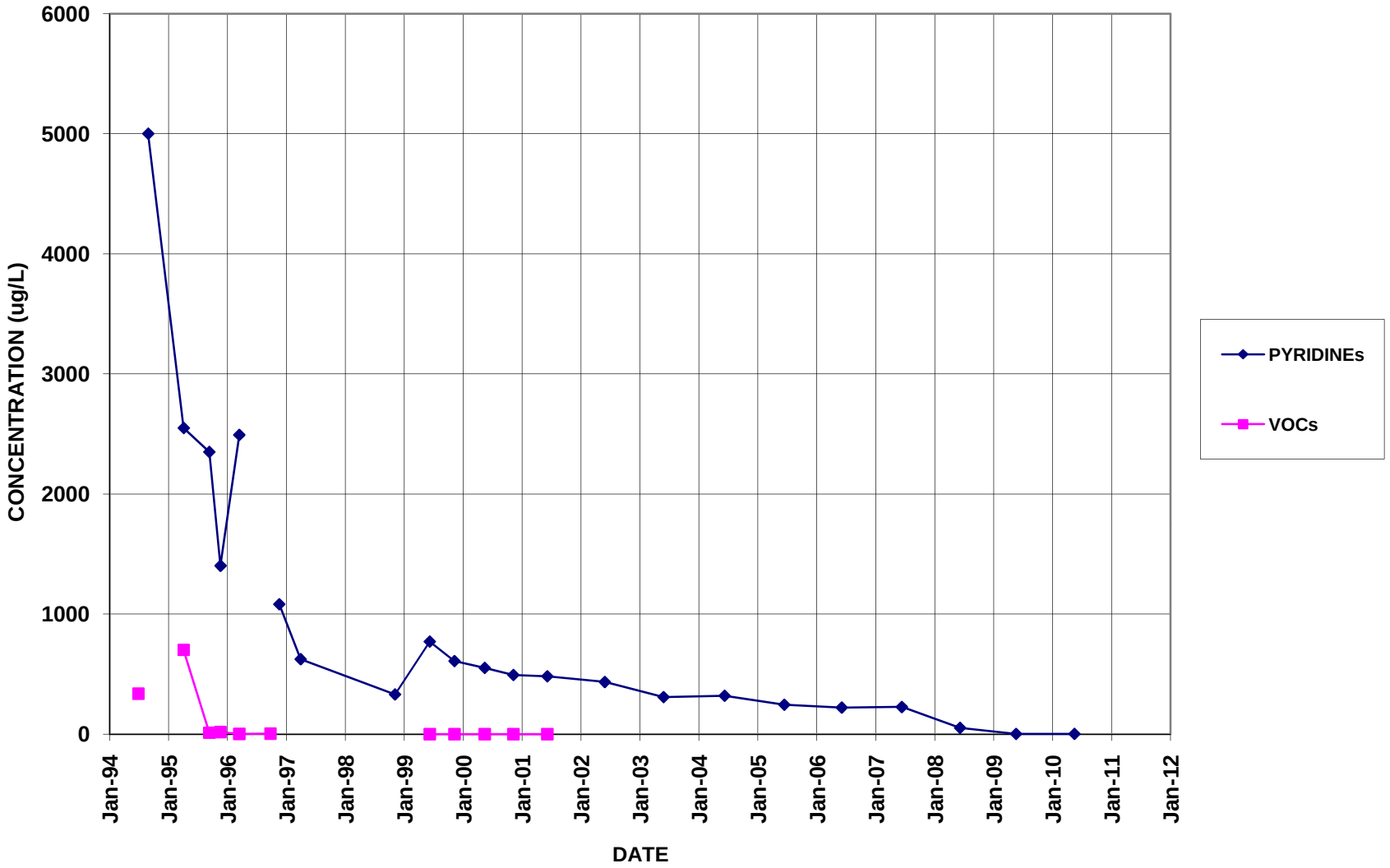
Prepared by: nmb
Reviewed by: jeb

MW-16

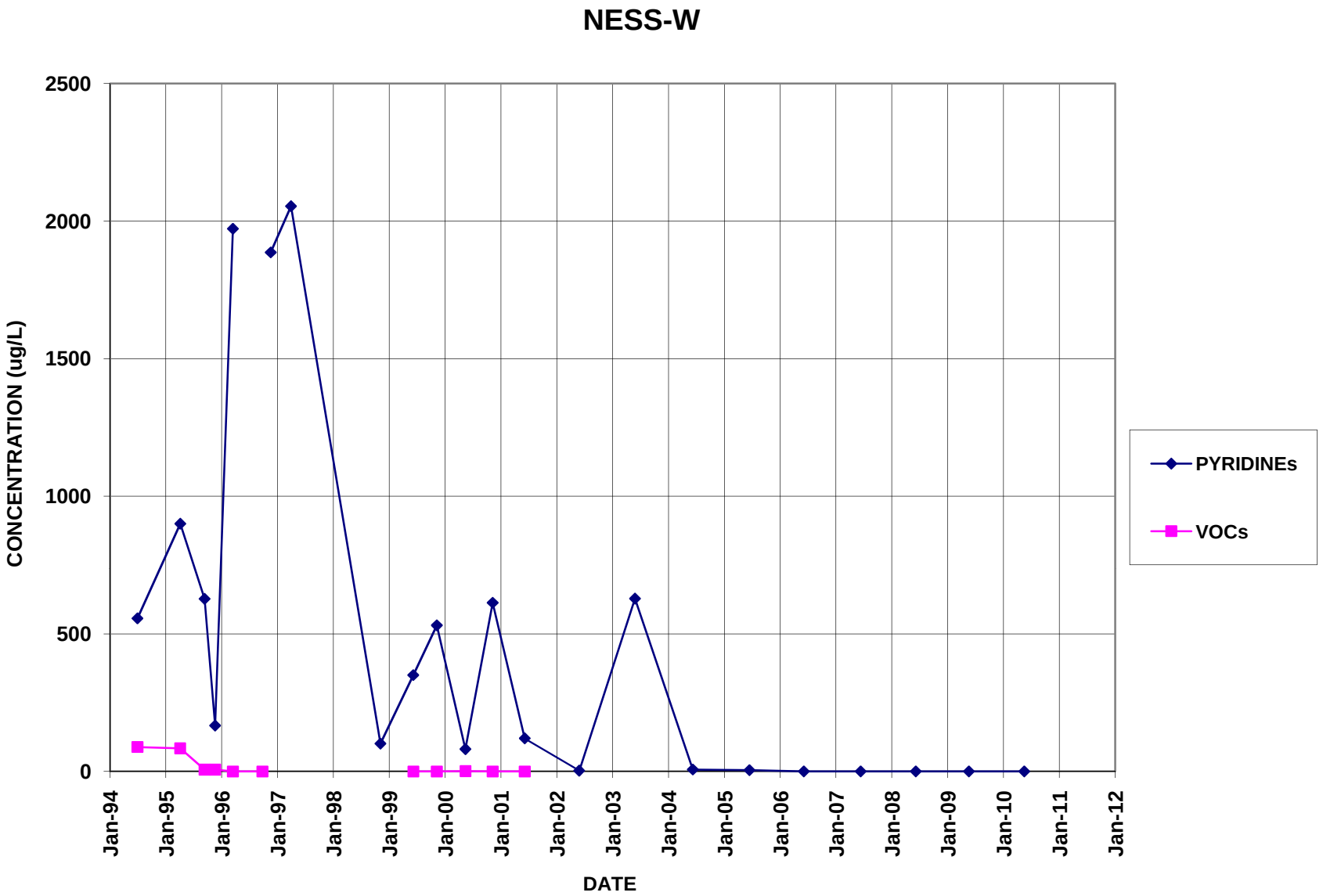


Prepared by: nmb
Reviewed by: jeb

NESS-E

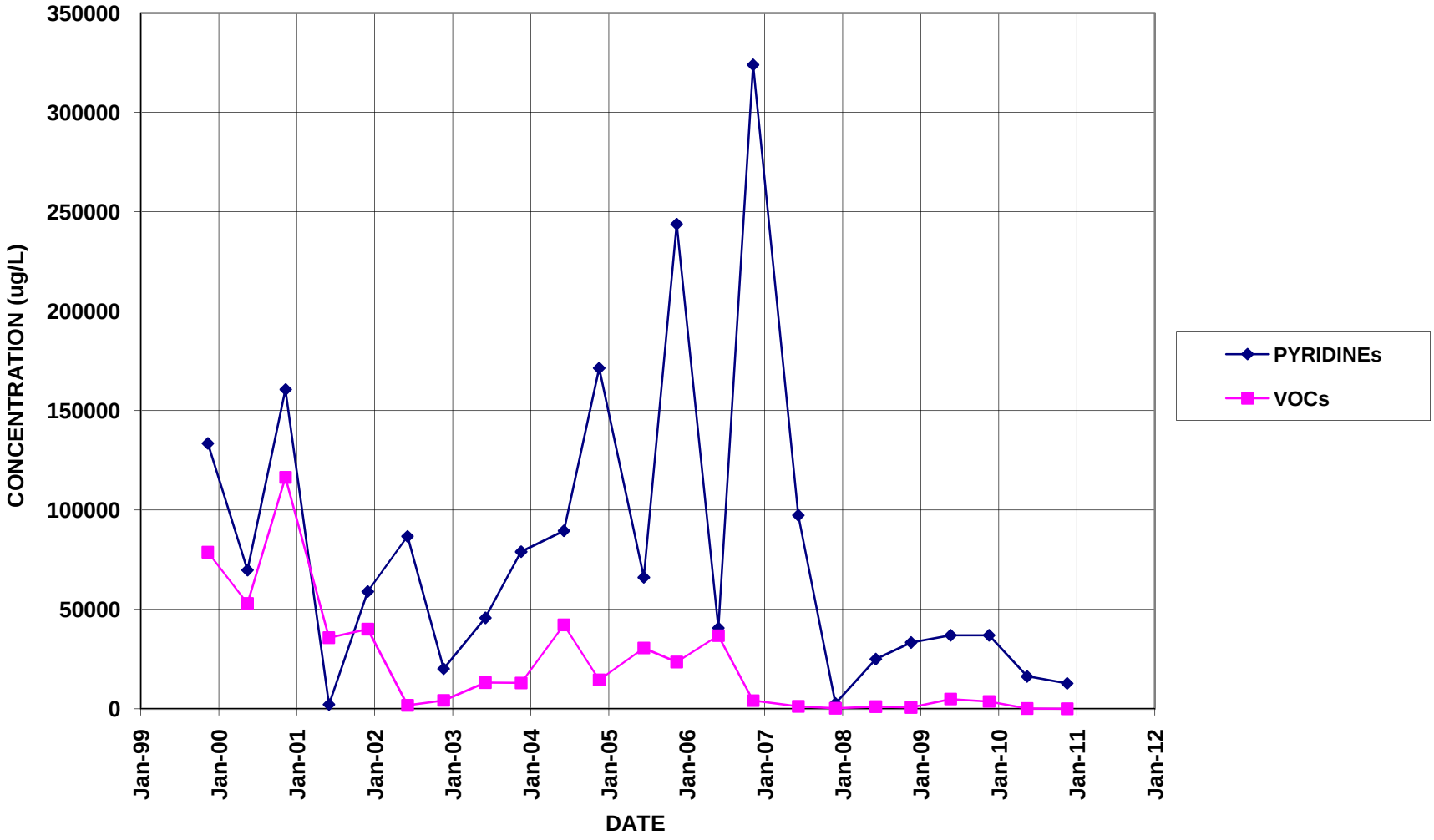


Prepared by: nmb
Reviewed by: jeb



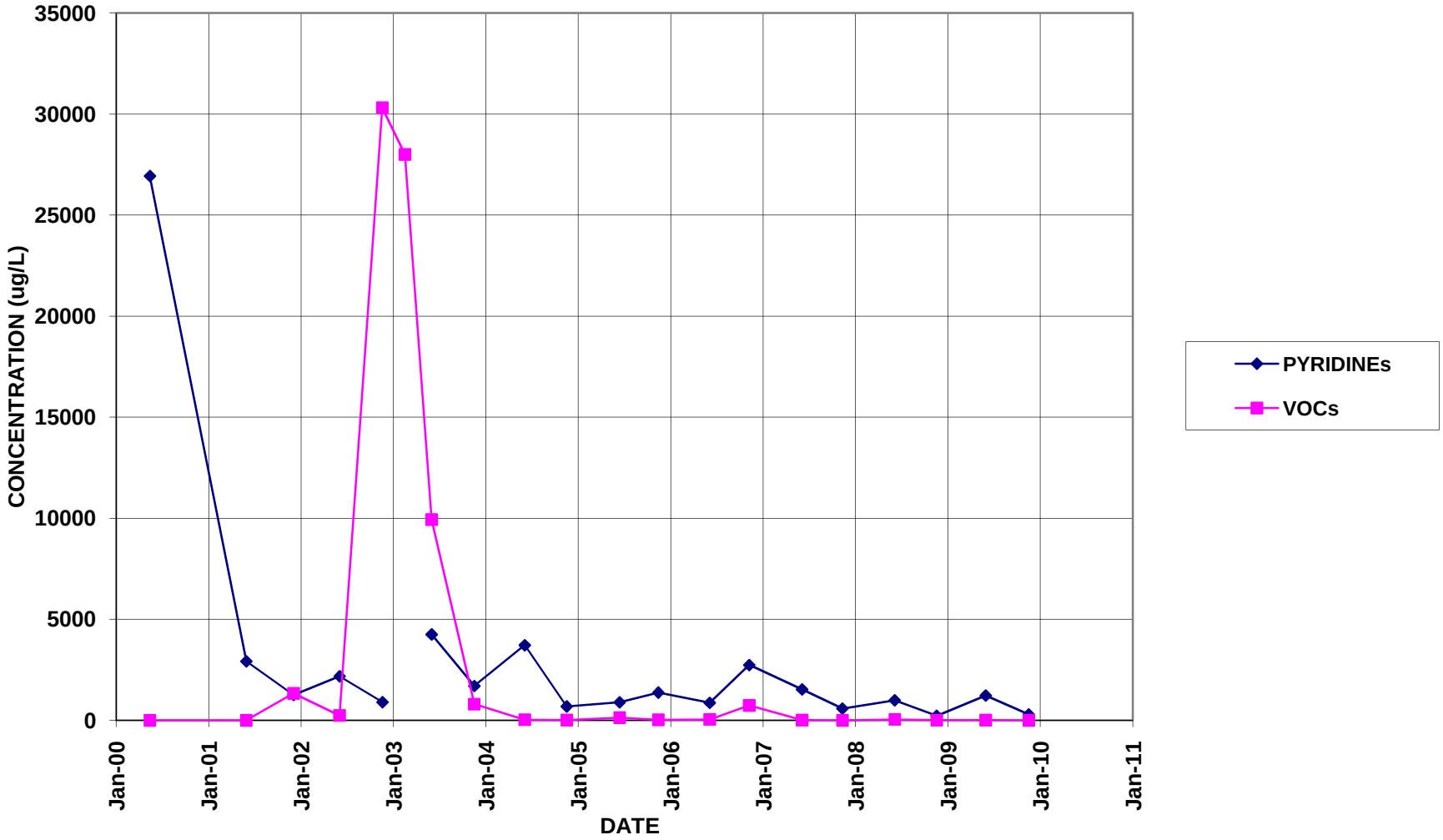
Prepared by: nmb
Reviewed by: jeb

PW10



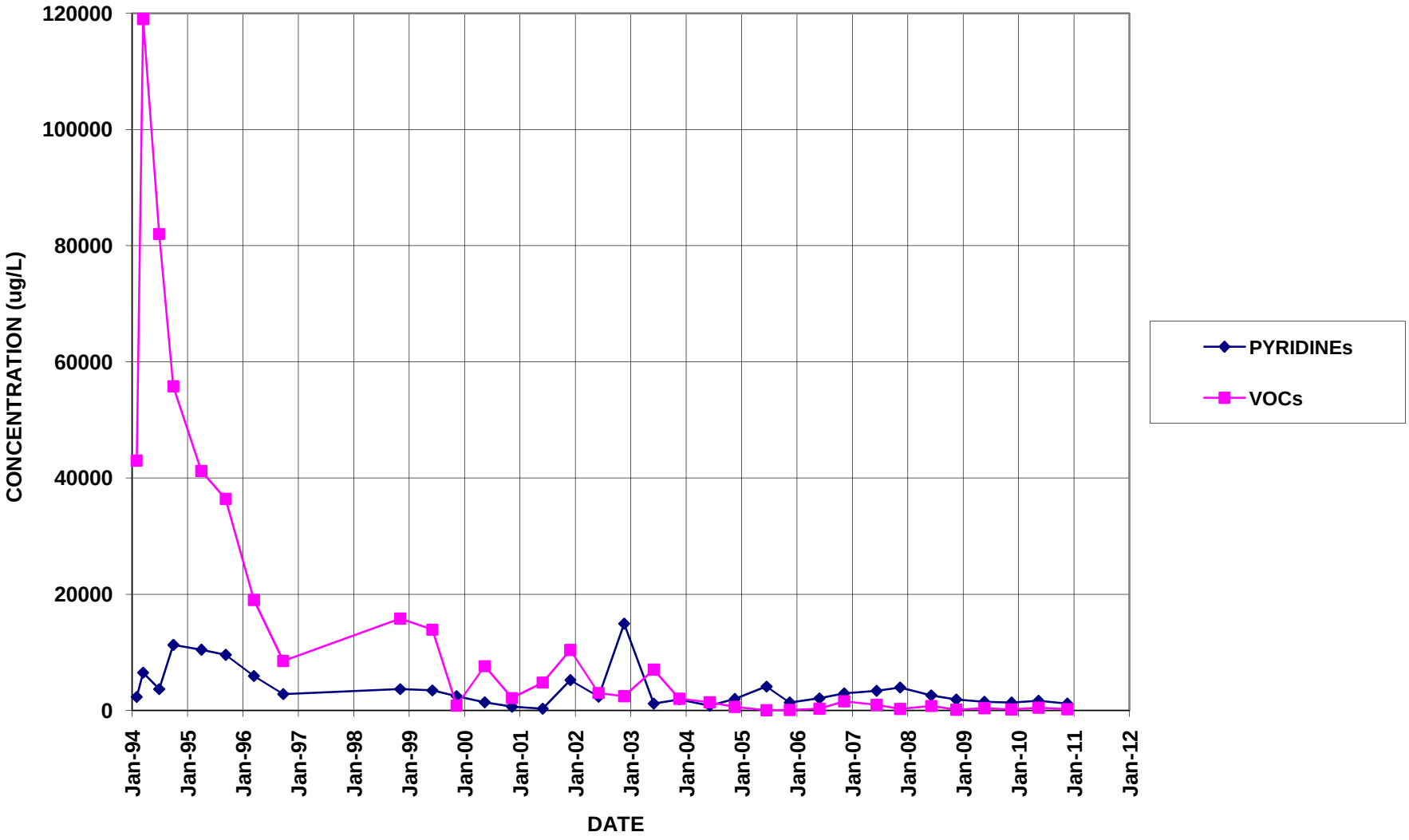
Prepared by: nmb
Reviewed by: jeb

PW11



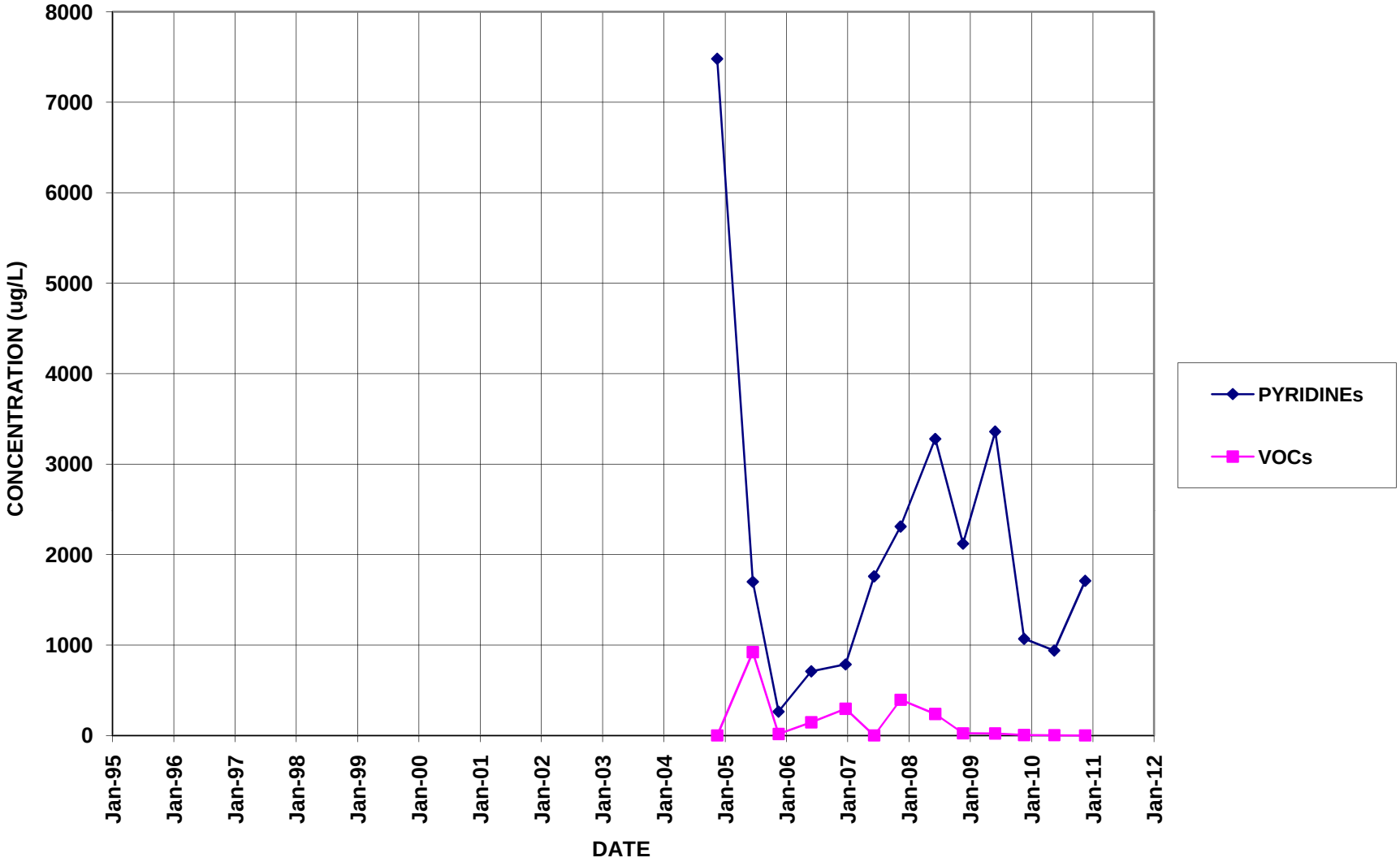
Prepared by: nmb
Reviewed by: jeb

PW12 (Formerly BR-101)



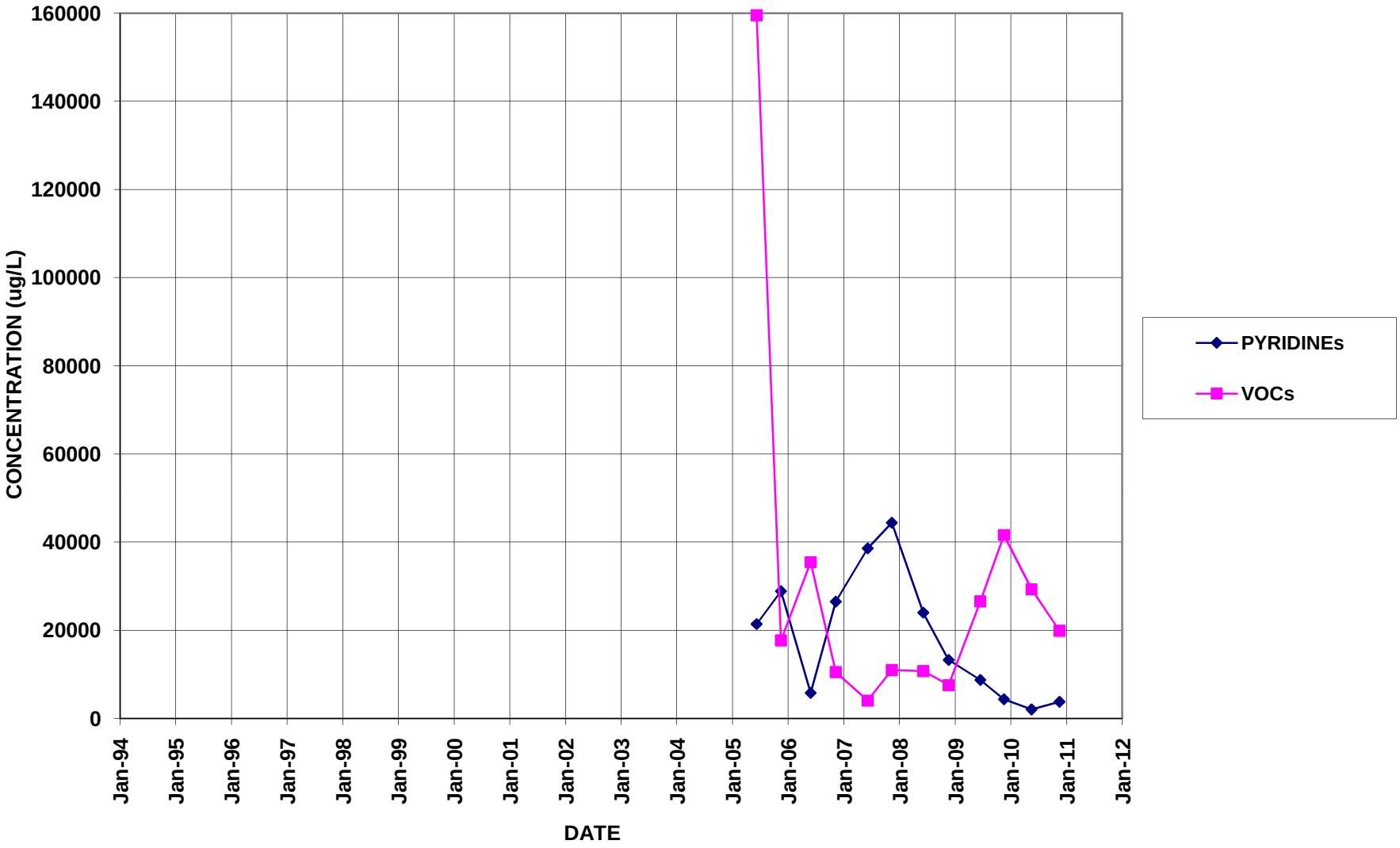
Prepared by: nmb
Reviewed by: jeb

PW13



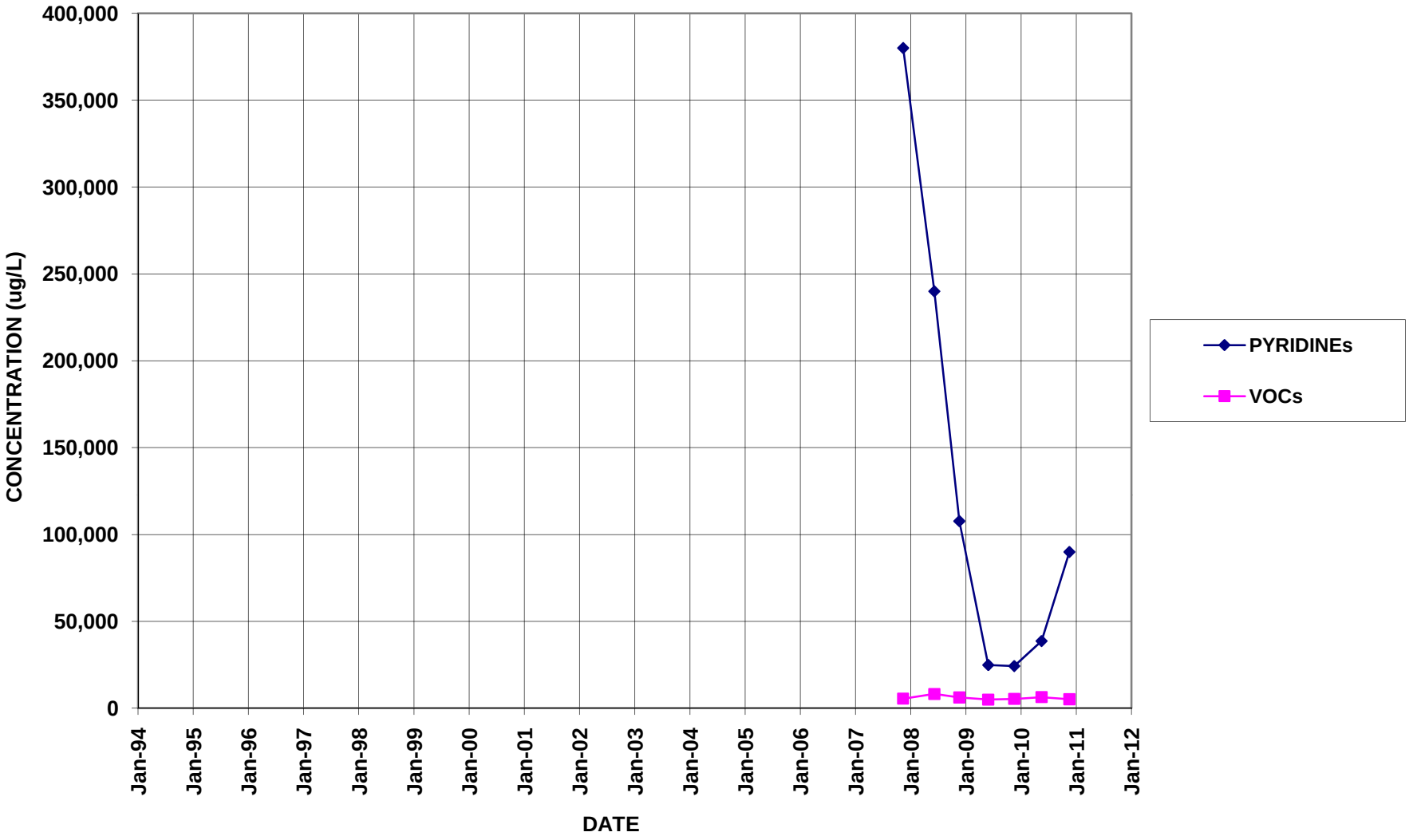
Prepared by: nmb
Reviewed by: jeb

PW14



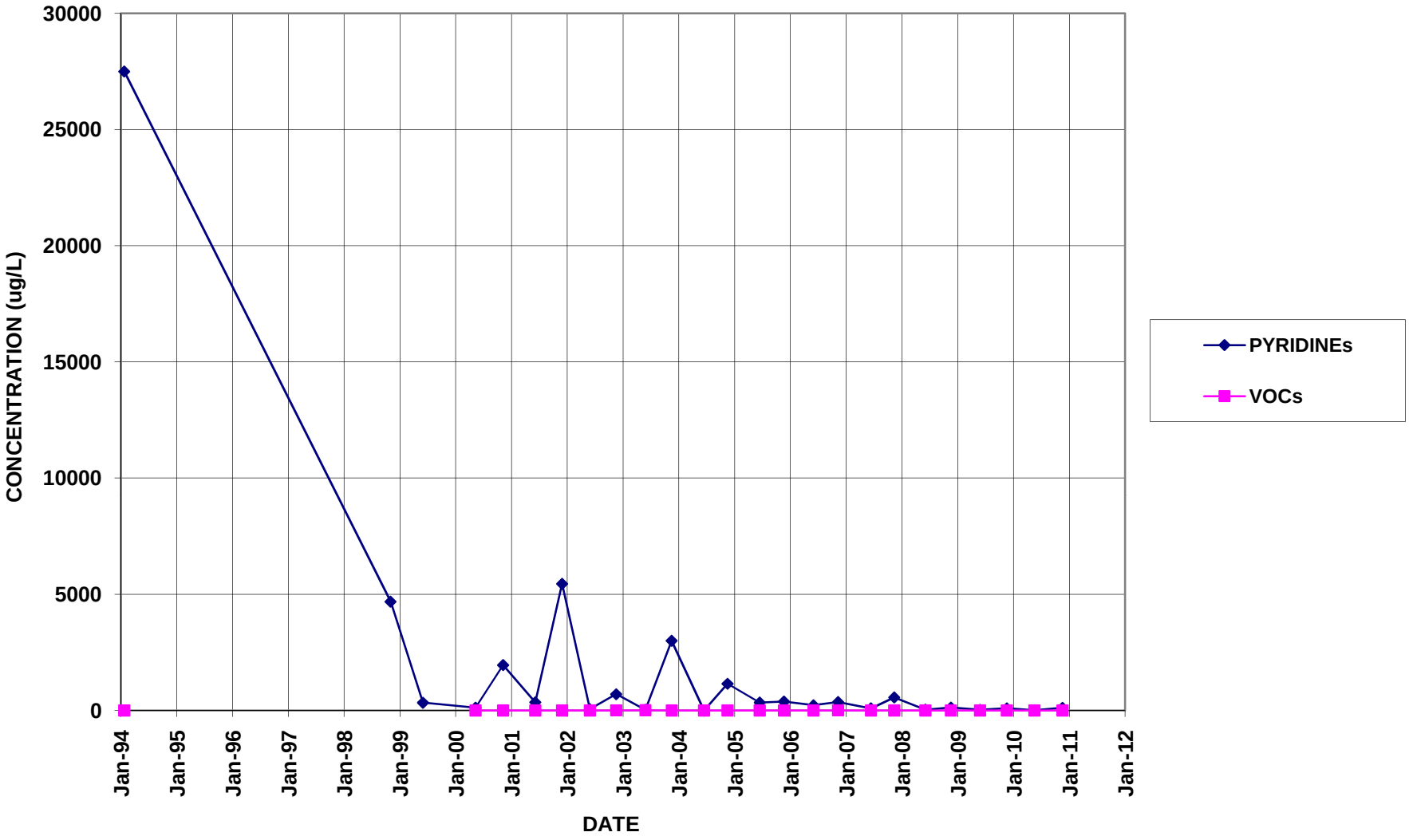
Prepared by: nmb
Reviewed by: jeb

PW15



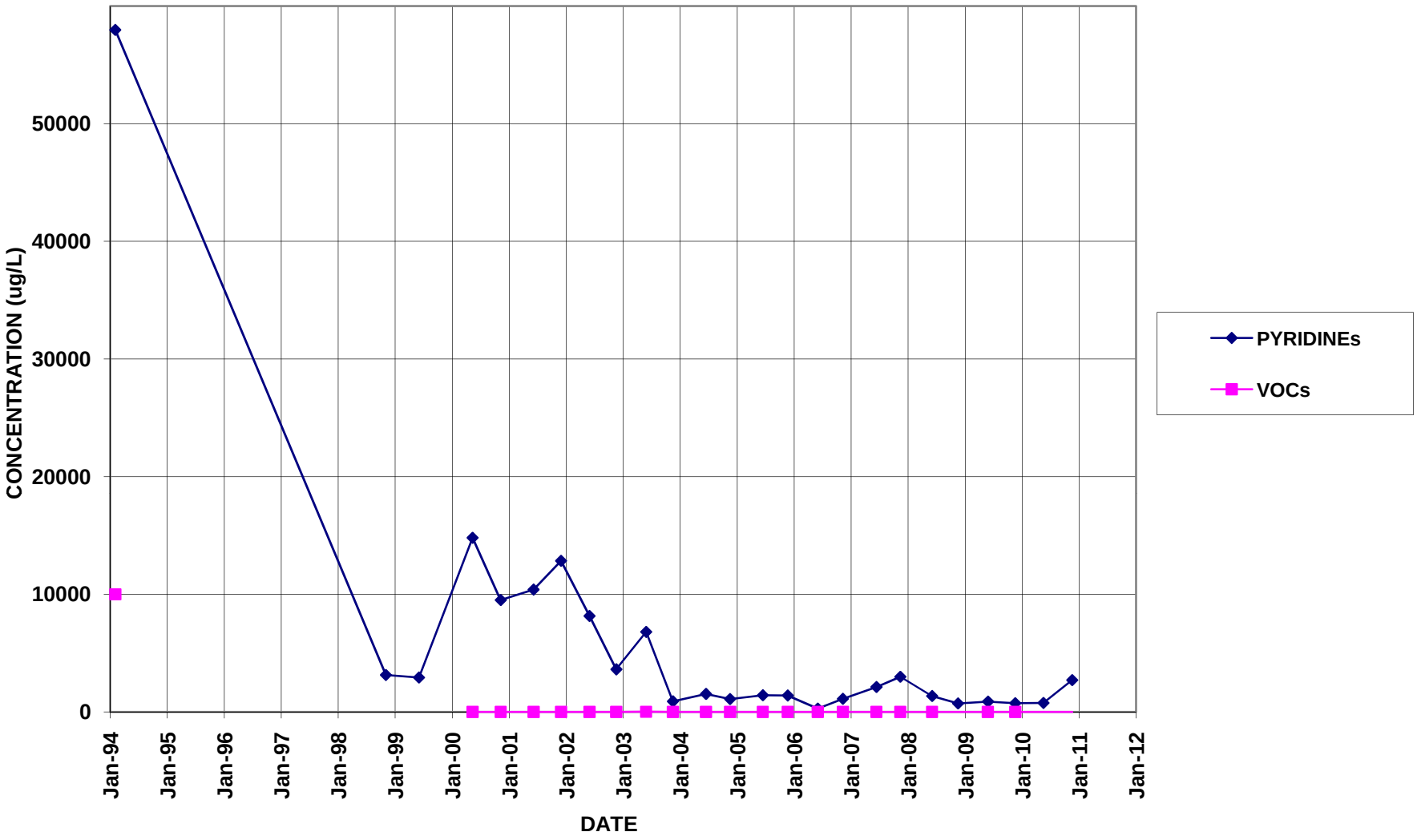
Prepared by: nmb
Reviewed by: jeb

PZ-101



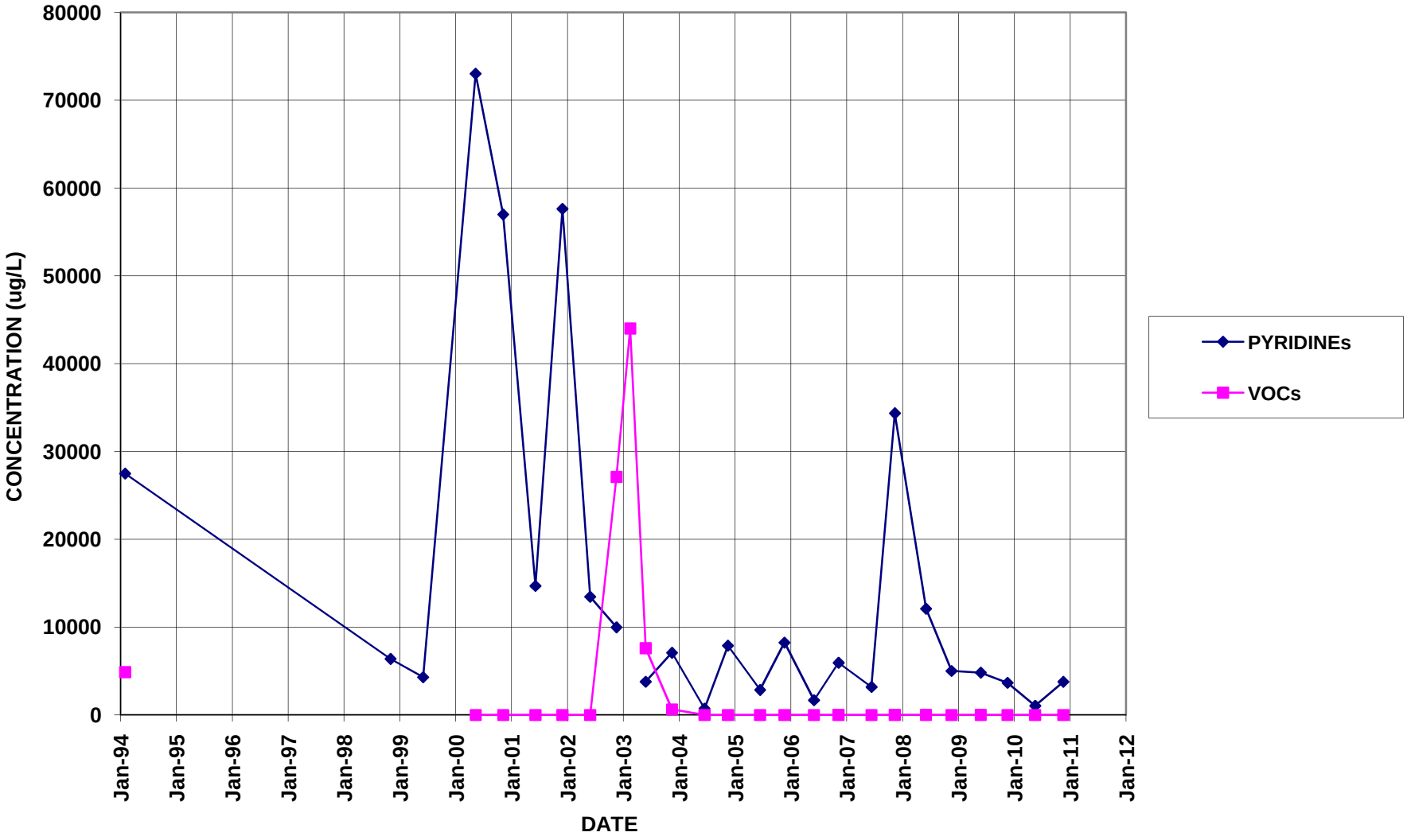
Prepared by: nmb
Reviewed by: jeb

PZ-102



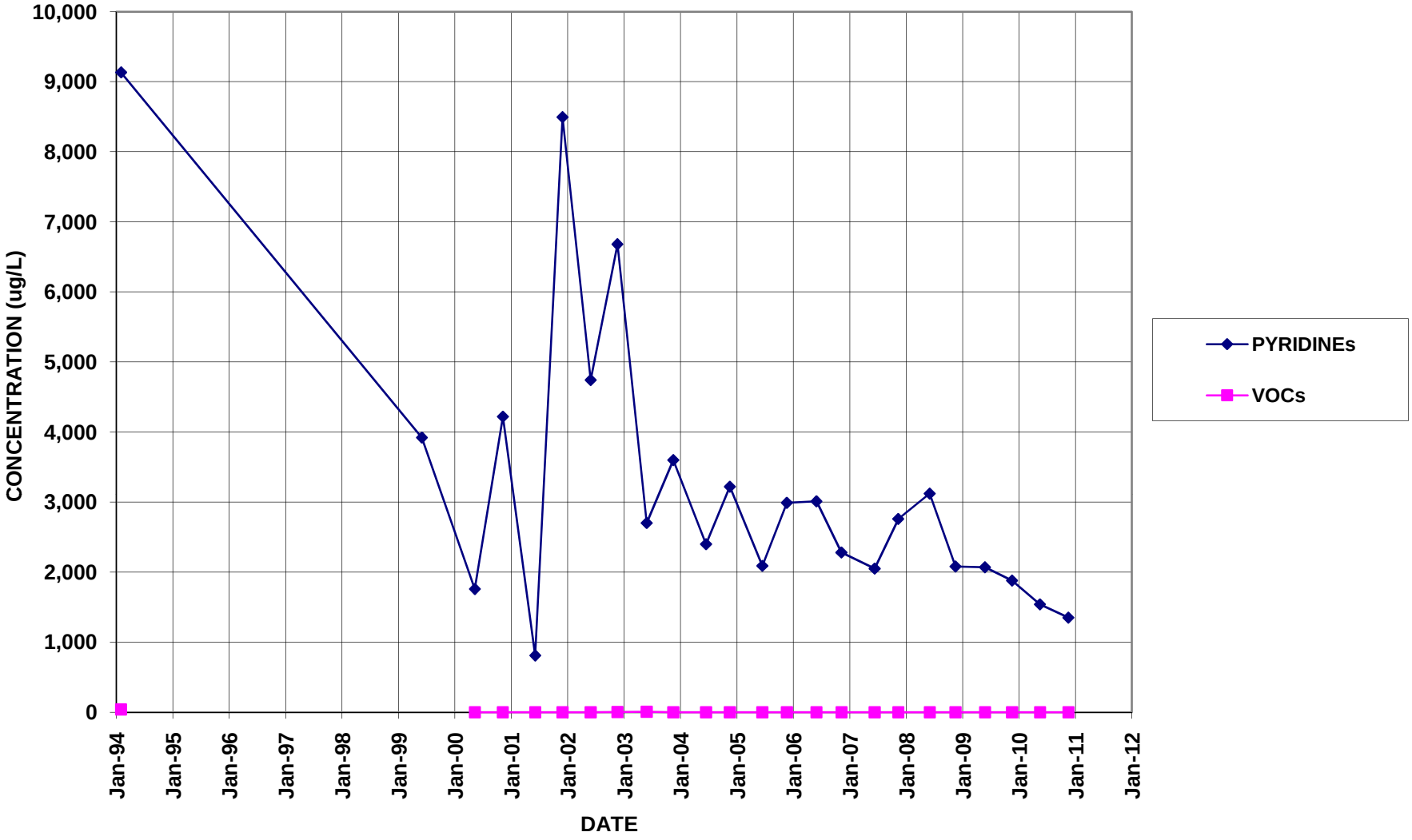
Prepared by: nmb
Reviewed by: jeb

PZ-103



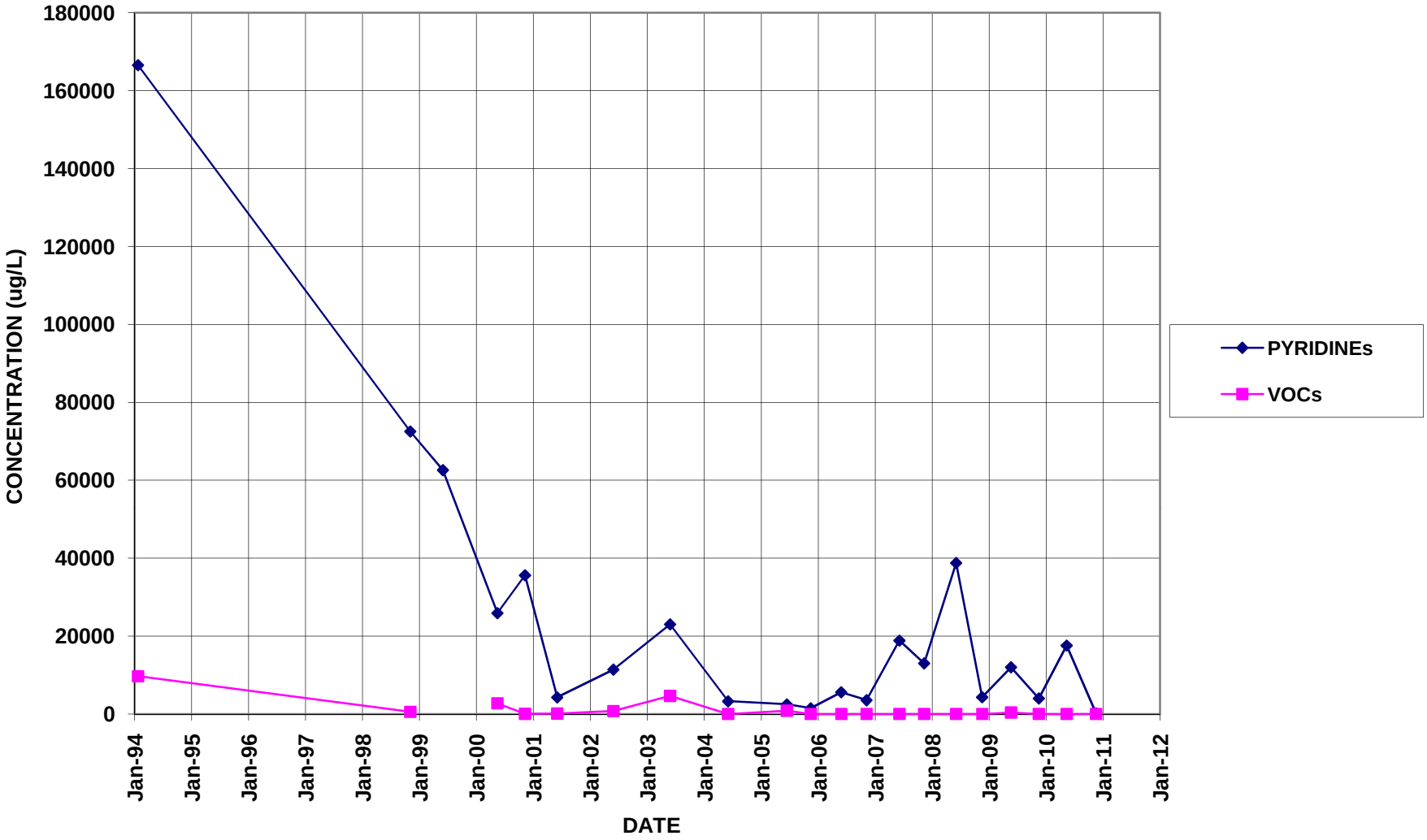
Prepared by: nmb
Reviewed by: jeb

PZ-104



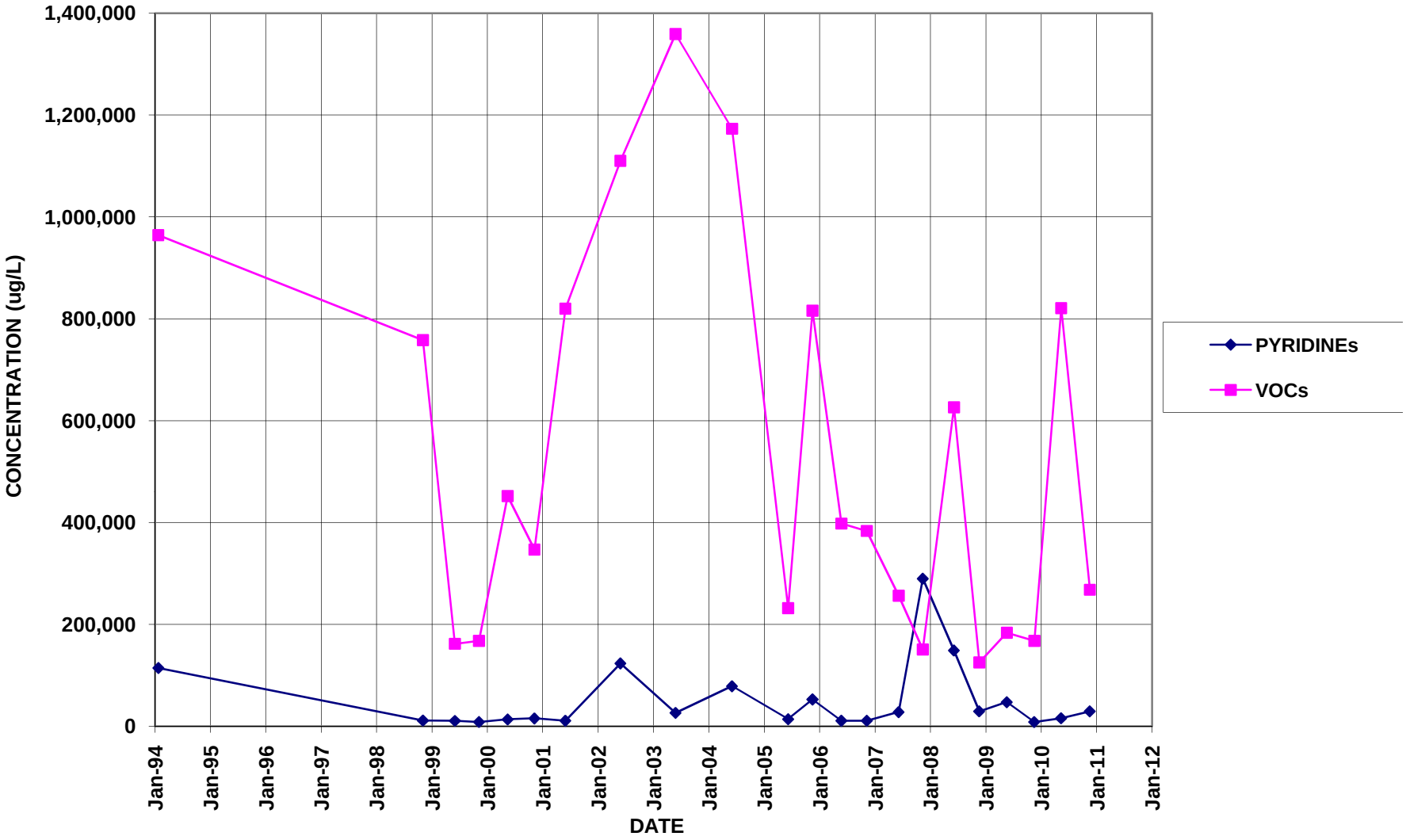
Prepared by: nmb
Reviewed by: jeb

PZ-105



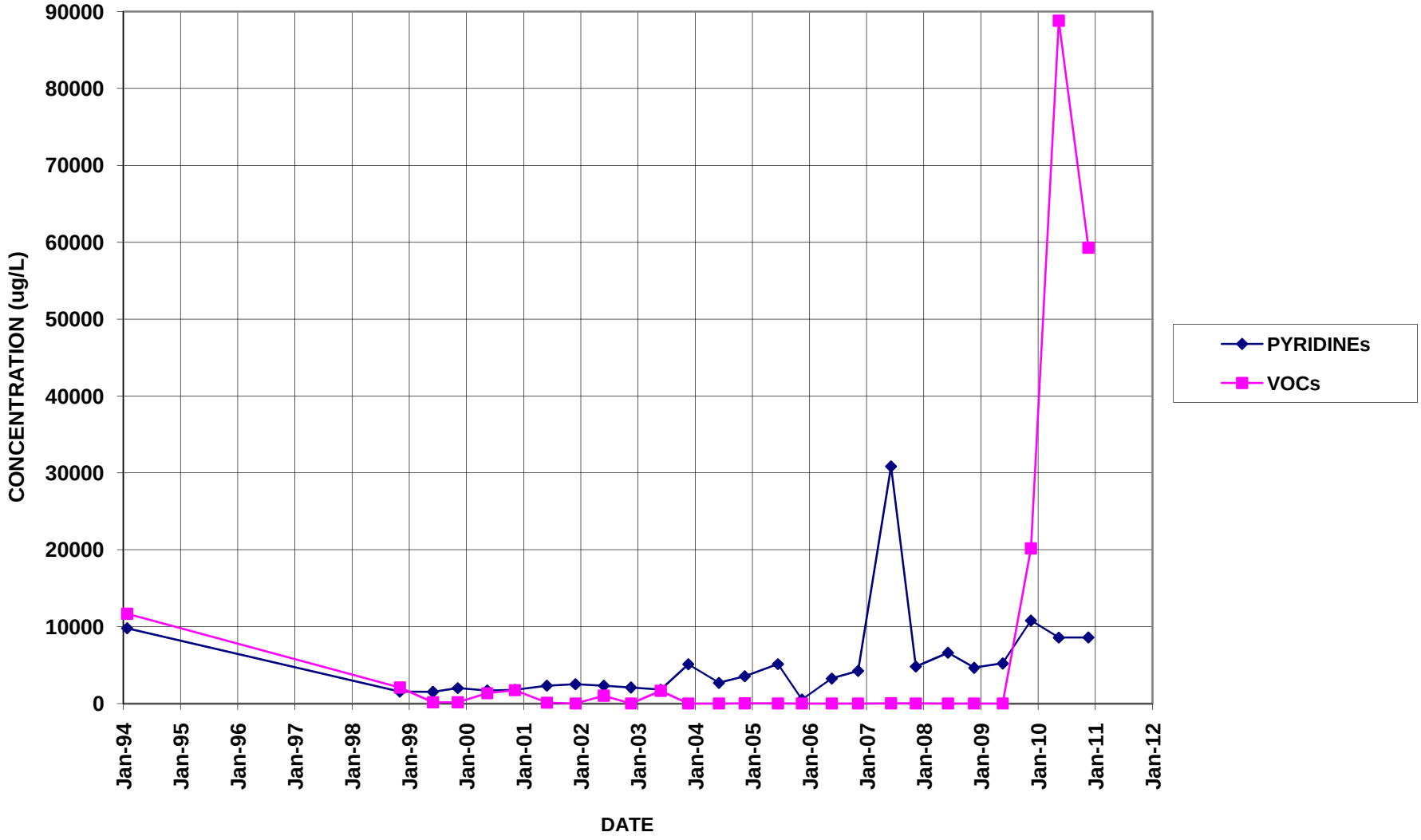
Prepared by: nmb
Reviewed by: jeb

PZ-106

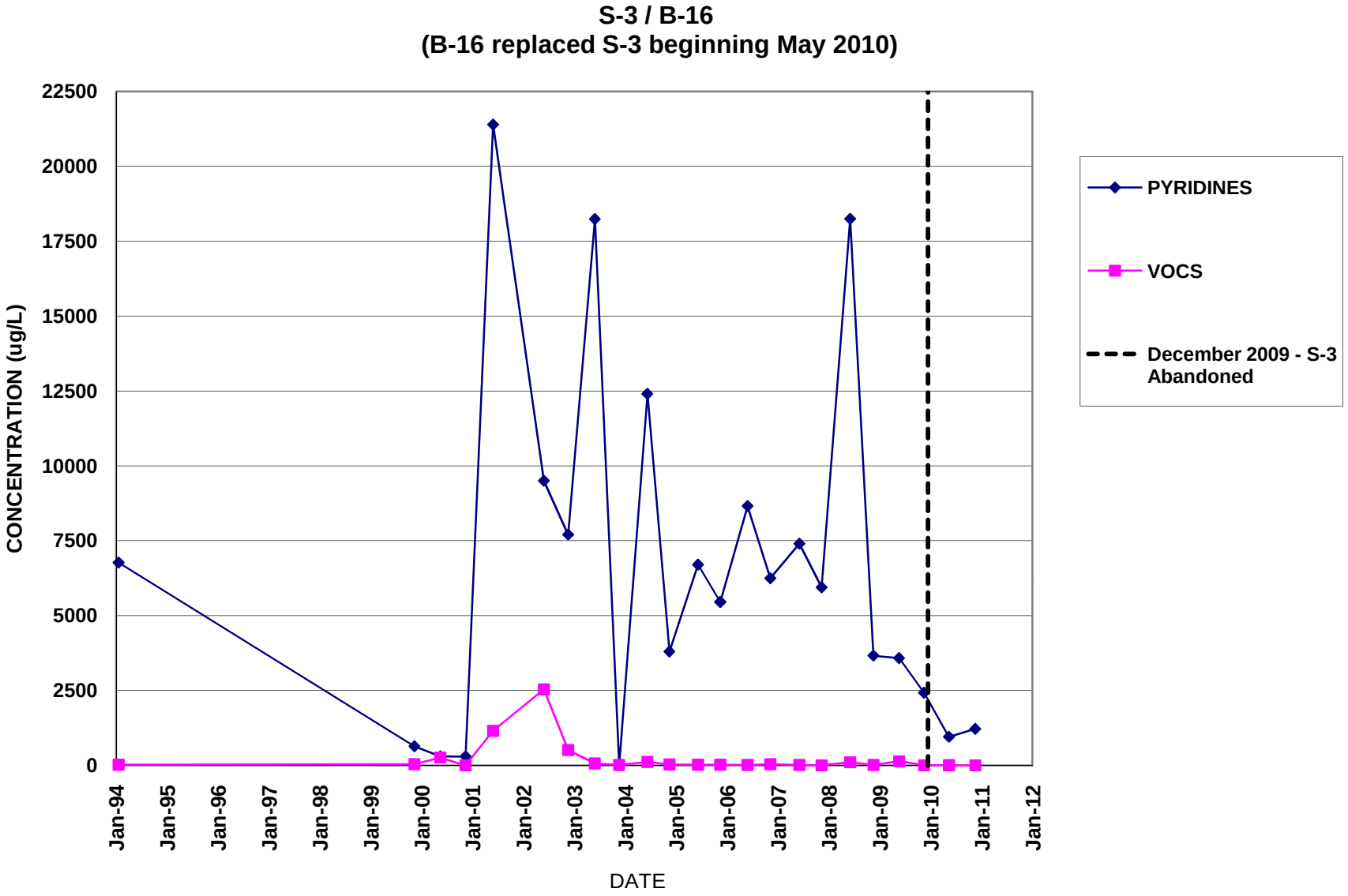


Prepared by: nmb
Reviewed by: jeb

PZ-107

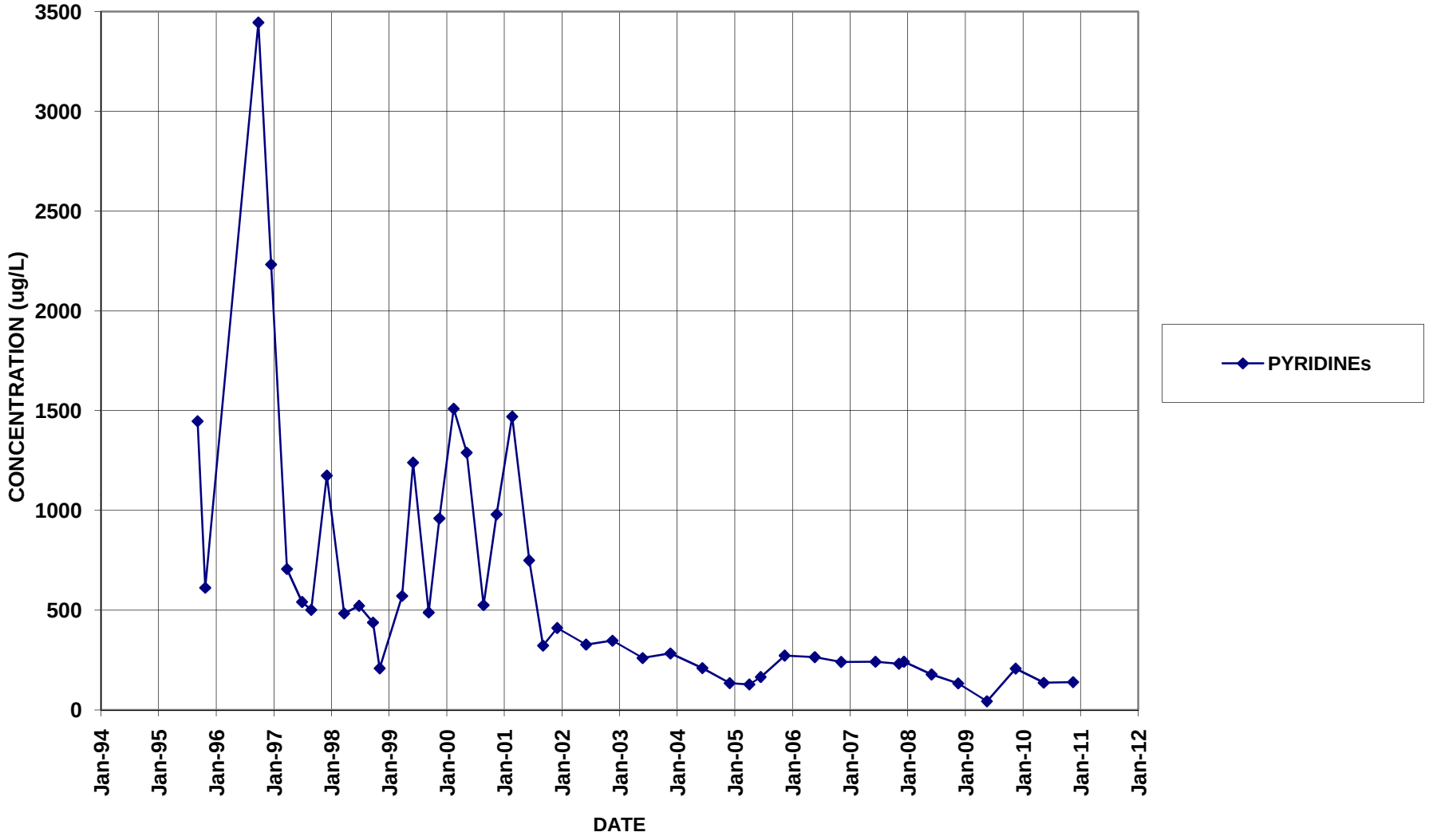


Prepared by: nmb
Reviewed by: jeb



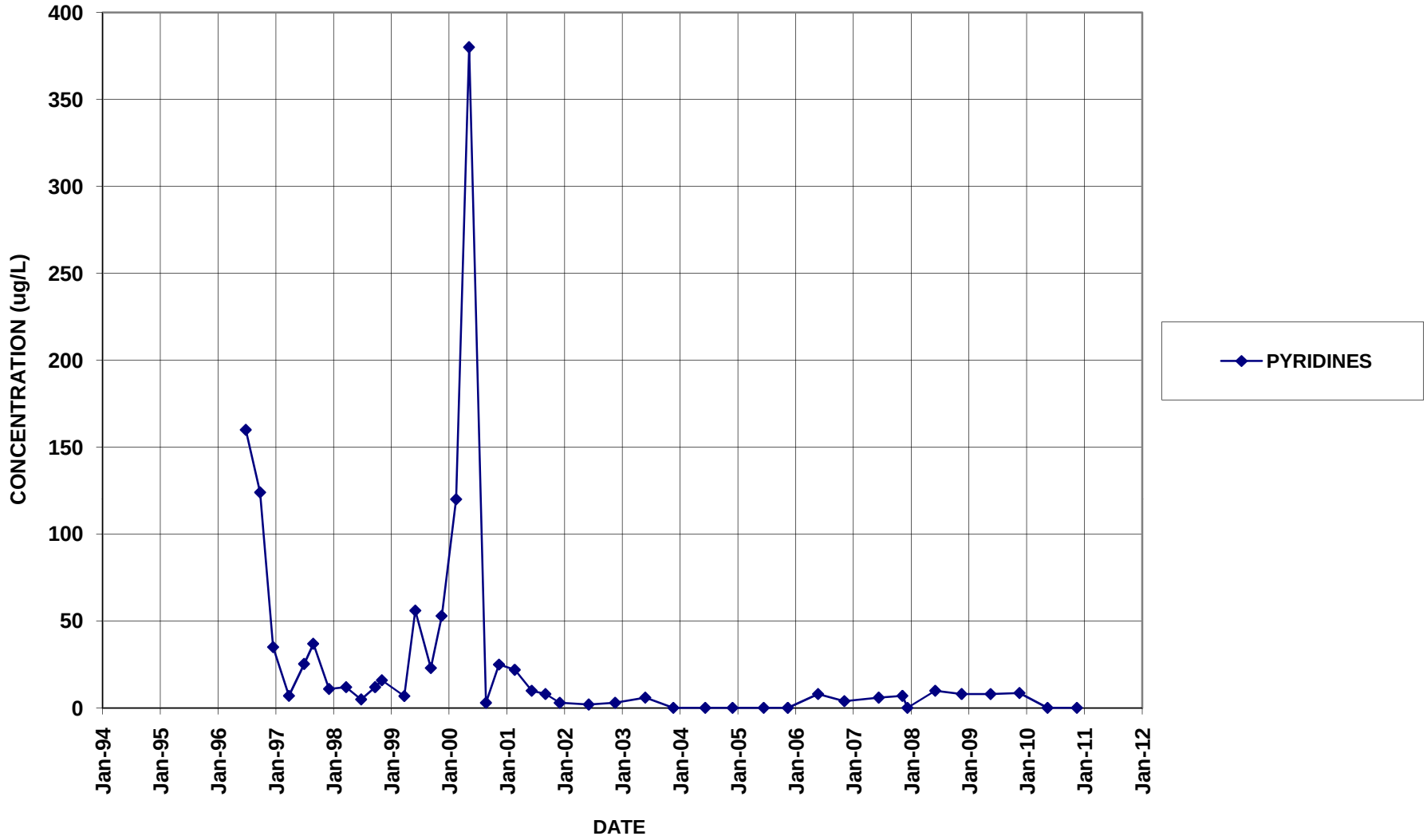
Prepared by: nmb
Reviewed by: jeb

QS-4 (QUARRY SEEP)



Prepared by: nmb
Reviewed by: jeb

QO-2 (QUARRY OUTFALL)



Prepared by: nmb
Reviewed by: jeb