Sparrows Point LLC

January 31, 2013

Mr. Andrew Fan
US EPA Region III, 3LC20
1650 Arch Street
Philadelphia, PA 19103-2029

Ms. Barbara Brown
Project Coordinator
Maryland Department of the Environment
1800 Washington Blvd
Baltimore, Maryland 21230

Subject: **Interim Measures 2012 Annual Report**
Former Sludge Bin Storage Area, Rod & Wire Mill
Consent Decree, Civil Action JFM-97-558

Dear Mr. Fan and Ms. Brown:

Enclosed please find the referenced 2012 annual report for the interim measures being conducted at the former Rod & Wire Mill area. This report is submitted to satisfy the annual reporting requirements for this interim measure specified in Section V.A. of the Consent Decree. The report was distributed electronically on January 31st, 2013 in accordance with the outlined reporting requirements; this correspondence provides paper copies for your use.

Please contact me at (314) 686-5611 should questions arise during your review of the enclosed progress report.

Sincerely,

Russell Becker
Vice President, Remediation

Enclosure

1650 Des Peres Road, Suite 303, St. Louis, Missouri 63131 Ph: 314-835-1515 Fax: 314-835-1616

Interim Measures 2012 Annual Report
Former Sludge Bin Storage Area,
Rod & Wire Mill

Prepared for

Sparrows Point, LLC

Sparrows Point LLC

January 31, 2013

ENVIRONMENTAL
ENGINEERING & CONTRACTING, INC.
200 Harry S. Truman Parkway, Suite 300
Annapolis, MD 21401 (401) 263-2234

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1.0 SUMMARY

During 2012, Sparrows Point, LLC operated the groundwater pump and treat Interim Measure at the former Rod & Wire Mill Sludge Bin Storage Area at Sparrows Point in accordance with the scope and schedule submitted in the July 2000 *Work Plan for Re-Establishment of Interim Measures, Former Sludge Bin Storage Area, Rod & Wire Mill* that was approved by U. S. EPA on November 3, 2000. The interim measure tasks included:

- Maintaining institutional controls at the former *in situ* leaching area,
- Groundwater treatment system monitoring, operation and maintenance,
- Semi-annual groundwater elevation monitoring, and
- Semi-annual sampling and analysis of groundwater.

Specifics of the interim measures tasks completed in 2012 are as follows:

- Institutional controls were maintained at the former sludge bin storage area to minimize and manage activities that could disturb soils at the site. These controls consist of notice sign boundary markers and continuation of an authorization program to conduct work in the area.
- Operation and maintenance of the groundwater recovery wells, transfer pipeline and treatment process equipment located at the existing wastewater treatment facility.
- Evaluation of the groundwater pump and treat system, including documentation of treatment flow, review of semi-annual groundwater elevation data, and review of effectiveness.
- Semi-annual sampling, analysis and evaluation of the groundwater impacted by former operations at the sludge bin storage area.

A total of 2,981,417 gallons of water were extracted from the two Former Sludge Bin Storage Area groundwater pumping wells (RW15-PZM020 and RW10-PZM020) during 2012. This compares to 3,471,639 gallons extracted in 2011. The average total pumping rate for 2012 was 8,160 gallons per day (gpd), or 5.6 gallons per minute (gpm). A total of 183 pounds (lbs) of cadmium and 6,442 pounds (lbs) of zinc were removed and treated during 2012. This compares to 179 lbs of cadmium and 8,418 lbs of zinc removed in

2011. The decrease in mass removal of zinc in 2012 as compared to 2011 is due to the decrease in volume of water pumped from both wells RW15-PZM020 and RW10-PZM020 in 2012.

Intermediate zone (approximately 20 to 30 feet below the ground surface) groundwater pumping, at the average annual 2012 pumping rate of 2.85 gallons per minute (gpm) for recovery well RW15-PZM020 and 2.82 gpm for recovery well RW10-PZM020, has historically demonstrated a radius of intermediate zone pumping influence that effectively controls movement the intermediate zone plume. The groundwater elevation data for the shallow zone (groundwater table surface to 15 feet below this surface), combined with the chemistry data, document a water table situation where contamination migration is effectively controlled in this groundwater zone. Groundwater elevation data for the deeper groundwater zone (greater than 50 feet in depth) suggest that heads in this zone may not be influenced by the pump and treat system; however, the chemistry data (further discussed below) indicate that this zone is minimally impacted. Groundwater monitoring data collected during 2012 suggests that there was some improvement in groundwater quality as compared to 2011.

Cadmium—Cadmium concentrations in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years. At most of the non-pumping wells the 2012 cadmium concentrations are also similar to prior years. An exception is RW06-PZM001 where the 2012 4th quarter cadmium concentration (25 mg/l) was unreasonably higher than historically has been observed and is considered to be a non-representative outlier to be monitored going forward. In 2011, cadmium concentrations returned to levels similar to previous concentrations in RW06-PZM001 (2.3 mg/l and 1.7 mg/l in the 2nd and 4th quarters, respectively), but then spiked again in the 4th quarter 2012 to another unreasonably high concentration similar to what was observed in the 4th quarter results in 2010 (24 mg/l).

Zinc—Zinc concentrations for 2012 in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years. In 2011, exceptions included the 4th quarter zinc concentrations for RW10-PZM004 (460 mg/l), RW20-PZM020 (100 mg/l), and RW10-PZM065 (460 mg/l). Each of these concentrations

was unreasonably higher than historically has been observed and was considered to be a non-representative outlier to be monitored going forward. In 2012, zinc concentrations returned to levels similar to previous concentrations in all three of the wells that had outlier concentrations in 2011.

The Proposed Operating Plan for 2013 is to: maintain institutional controls at the former storage area, continue operation, maintenance, and monitoring of the groundwater pump and treat system, and complete semi-annual monitoring of groundwater consistent with procedures outlined in the approved July 2000 Work Plan and as modified in this report.

2.0 SUMMARY OF WORK PLAN FOR INTERIM MEASURES

This section summarizes the July 2000 Work Plan for Re-Establishment of Interim Measures:

- The work plan detailed the use of institutional controls for soils to establish a "Restricted Work Area" to control the exposure of on-site workers to soils in the Former Sludge Bin Storage Area.
- Groundwater monitoring network improvements were proposed including the use of 32 wells for monitoring the performance of the groundwater pump and treat system. This monitoring network (excluding well TS04-PZM007 destroyed in 2003) was to be used to collect water level and groundwater quality data.
- A groundwater pump and treat system was proposed that was subsequently installed and began operation in 2001. The groundwater pump and treat system consists of two intermediate depth zone recovery wells (RW10-PZM020 and RW15-PZM020) that are each pumped at a rate of between 5.0 and 12.9 gallons per minute (gpm) during operation. The expected normal operating rate for the treatment plant was set at a combined rate of 8.0 to 12.0 gpm with a maximum design flow of 25 gpm. Recovered groundwater is transported via a pipeline to the Humphreys Creek Wastewater Treatment Plant (HCWWTP) for subsequent treatment and discharge in accordance with the NPDES permit requirements for the facility.

3.0 MONITORING RESULTS FOR 2012

3.1 Groundwater Pump and Treat System Evaluation

The groundwater pump and treat system was evaluated with regard to: 1) the water levels measured in the various water bearing zones, and 2) the effectiveness of this system with respect to the mass of cadmium and zinc removed from groundwater.

3.1.1 Semi-Annual Water Level Monitoring

During 2012 water-level measurements for routine operations were manually measured semi- annually (April and October 2012) in all existing monitoring wells. A summary of the October water level measurements (depth to water and water elevation) is presented in Table 3-1.

The groundwater elevation data are also graphically presented as groundwater elevation contour maps in Figures 3-2 through 3-4. Figures 3-2, 3-3 and 3-4 represent the 4th quarter (October) 2012 data for the shallow, intermediate and deep water bearing zones. The intermediate water bearing zone is pumped and is therefore also referred to as the intermediate pumping zone.

The shallow water bearing zone (water table) includes piezometers screened to depths of approximately 15-feet below ground surface; the intermediate water bearing zone includes piezometers screened from approximately 20- to 30-foot depths; and the deep water bearing zone is defined as those piezometers screened from approximately 50- to 75-feet below ground surface. The water level results for each of these zones are discussed below.

Shallow Water Table Zone

Figure 3-2 presents the groundwater elevation contour map for the shallow water table zone, corresponding to the October2012 time period when the underlying zone (intermediate pumping zone) was being pumped.

Figure 3-2 indicates elevated groundwater centered at RW09-PZM004, roughly coincident with one of the intermediate zone pumping wells (RW10-PZM021). The elevated water table may be related to the movement and infiltration of surface water. As a result of the

elevated water table at RW09-PZM004, the shallow zone groundwater movement in the area north and east of RW09-PZM004 (proximity of the Rod & Wire Mill Site) is inferred to be north-northeastward (away from Bear Creek). West of RW09-PZM004 inferred shallow zone groundwater movement is westward. The groundwater chemistry data (see Section 3.2 chemistry discussion) reveal that elevated zinc and cadmium concentrations in shallow groundwater are primarily associated with the area east of RW09-PZM004 and, thus, are associated with shallow groundwater flow that is away from Bear Creek. At the western edge of the monitored shallow zone (near TS04-PDM004) shallow groundwater is inferred to be flowing toward Bear Creek. However, at this location and in nearby near-shore wells RW19-PZP000 and RW20-PZP000 both the cadmium and zinc concentrations in shallow groundwater are predominantly trace or non-detect (see Section 3.2 chemistry discussion).

Intermediate Pumping Zone

Figures 3-3 present groundwater elevations within the intermediate pumping zone during the 4th (Figure 3-3) quarters of 2012. These contours are not reflective of pumping conditions as the measurements were made after an equipment outage of the system as noted in the operational notes. Prior years have demonstrated the capture zone and effectiveness of this Interim Measure.

This system is maintaining a broad zone of influence extending from the pumping wells for a distance of at least 300 feet. This zone of influence is somewhat elongated and more extensive in an east to west direction. The zone of influence extends to Bear Creek to the west and beyond the eastern edge of the former Rod and Wire Mill to the east.

Deep Zone

Figure 3-4 presents the groundwater elevation contour map for the deep water bearing zone, corresponding to the October 2012 time period when the overlying zone (intermediate pumping zone) was being pumped.

Figure 3-4 indicates a north to northwesterly decrease in water levels, inferring north to northwestward groundwater flow within the deep water bearing zone. Pumping the intermediate zone does not appear to affect the deep water bearing zone.

3.1.2 Evaluation of Pump and Treat System Effectiveness

In 2012, a total of 2,981,417 gallons of water were extracted from the Former Sludge Bin Storage Area pumping wells and treated at the HCWWTP. This contrasts to a total volume of 3,471,639 gallons that were pumped and treated in 2011. The average pumping rate for the pump and treat system for 2012 was 8,160 gpd, or 5.6 gpm. Pumping rates of approximately 2.85 gpm were achieved in recovery well RW15-PZM020 and 2.82 gpm in RW10-PZM020. These pumping rates appear to effectively capture the most impacted groundwater beneath the Former Sludge Bin Storage Area, as revealed by Figures 3-1 through 3-3, discussed above.

A total of 183 pounds (lbs) of cadmium and 6,442 pounds (lbs) of zinc were removed and treated from the Rod & Wire Mill area in 2012. This compares to treated amounts of 179 lbs of cadmium and 8,418 lbs of zinc in 2011. The decrease in mass removal of zinc in 2012 as compares to 2011 is due to the decrease in volume of water pumped from both wells RW15-PZM020 and RW10-PZM020.

- **Treated water volume (gal):**
  - RW10-PZM020: 1,995,558 (2011); 1,481,883 (**2012**)
  - RW15-PZM020: 1,476,081 (2011); 1,499,534 (**2012**)

The averaged 2nd and 4th quarter metals concentrations were:

- **Average Cadmium and Zinc Concentrations:**
  - RW10-PZM020:
    - Cd: 10 ppm (2011); 12 ppm (**2012**)
    - Zn: 480 ppm (2011); 470 ppm (**2012**)
  - RW15-PZM020:
    - Cd: 1.0 ppm (2011); 3.3 ppm (**2012**)
    - Zn: 34.5 ppm (2011); 51 ppm (**2012**)
- **Treated mass (lbs):**
  - RW10-PZM020:
    - Cd: 167 (2011); 142 (**2012**)
    - Zn: 7,993 (2011); 5,805(**2012**)

- RW15-PZM020:
  - Cd: 12 (2011); 41 (**2012**)
  - Zn: 425 (2011); 637 (**2012**)

The pump and treat system is removing significant amounts of cadmium and zinc from groundwater within the intermediate water bearing zone at the current pumping rates, and it is controlling groundwater flow and associated cadmium and zinc migration within the shallow zone and the intermediate water bearing zone.

3.2 Groundwater Chemistry Data

Groundwater chemistry data were collected on a semi-annual basis during the 2nd and 4th quarters. The locations of the wells are shown in Figure 3-1. The sampling occurred during the following months of 2012:

- April 2012
- October 2012

Tables 3-2 and 3-3 present the data from 2012 for total cadmium and zinc, respectively. The tables also show semi-annual data from 2001 through 2011. A comparison of the 2012 data with data from previous years indicates the following:

Cadmium—Cadmium concentrations in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years. At most of the non-pumping wells the 2012 cadmium concentrations are also similar to prior years. An exception is RW06-PZM001 where the 2012 4th quarter cadmium concentration (25 mg/l) was unreasonably higher than historically has been observed and is considered to be a non-representative outlier to be monitored going forward. In 2011, cadmium concentrations returned to levels similar to previous concentrations in RW06-PZM001 (2.3 mg/l and 1.7 mg/l in the 2nd and 4th quarters, respectively), but then spiked again in the 4th quarter 2012 to another unreasonably high concentration similar to what was observed in the 4th quarter results in 2010 (24 mg/l).

Zinc—Zinc concentrations in the two pumping wells (RW10-PZM020 and RW15-PZM020) are generally similar to concentrations observed in recent prior years. At most of the non-

pumping wells the 2012 zinc concentrations are also similar to prior years. Outlier values were observed in the 2011 4th quarter zinc concentrations for RW10-PZM004 (460 mg/l), RW20- PZM020 (100 mg/l), and RW10-PZM065 (460 mg/l). Each of these concentrations was unreasonably higher than historically has been observed and was considered to be a non-representative outlier to be monitored going forward. In 2012, zinc concentrations returned to levels similar to previous concentrations in all three wells that had outlier concentrations in 2011.

All of the analytical results from the most recent sampling event (4th quarter 2012) are depicted in plan view at the well locations in Figures 3-5 through 3-10. These figures indicate that the highest cadmium and zinc concentrations are in the monitoring wells located near and east-northeast of pumping well RW10-PZM020.

3.3 2012 Operations and Maintenance

Daily pumping records for the groundwater pump and treat system from January through December 2012 are provided in Appendix B. A summary of isolated operational outages which occurred in 2012 is provided in Appendix C. Overall, the groundwater treatment system operated as intended.

4.0 Proposed Operating Plan for 2013

The Proposed Operating Plan for 2013 includes the following requirements:

- Operation, maintenance and monitoring of the groundwater pump and treat system on a year round basis;
- Semi-annual monitoring of groundwater quality, including sampling and analysis for total cadmium and zinc from 31 monitoring wells; and
- Semi-annual groundwater level measurements and evaluation of groundwater flow characteristics;

Thirty-one wells in the monitoring network are proposed to be used to collect bi-annual groundwater samples for analysis of cadmium and zinc in 2012. Sampling and analysis will be performed at 14 shallow wells, 13 intermediate wells, and 4 deep wells located in the general area of the former Sludge Bin Storage Area. Sampling, analysis, and data validation will be performed in accordance with the November 1999 DCQAP. Water-level measurements will be collected semi-annually in conjunction with the sampling and analysis program. The routine bi-annual water level measurements will be performed manually in all 31 wells in the monitoring network.

FIGURES

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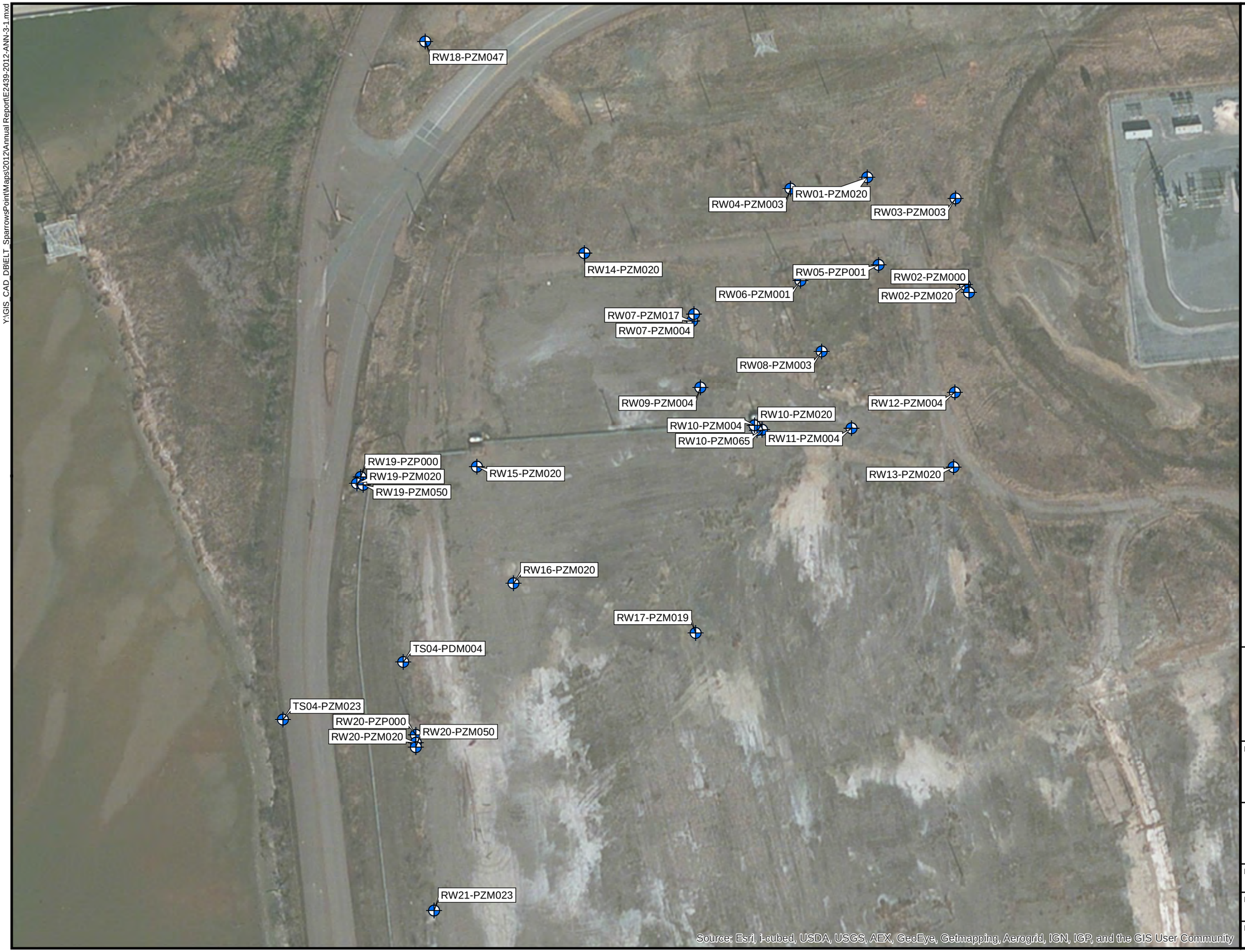

LEGEND

- Test Station (Well ID)

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

WELL LOCATION MAP

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-1

Date	Figure
January 29, 2013	3-1

PE/PG	PM	Drafter
MZ	BB	SS

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LEGEND

- Test Station with Groundwater Elevation in Feet Above Mean Sea Level
- Line of Equal Groundwater Elevation (Dashed Where Inferred)

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

SHALLOW GROUNDWATER ELEVATION CONTOUR MAP

OCTOBER 2012

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-2

Date	Figure
January 31, 2013	3-2

PE/PG	PM	Drafter
MZ	BB	SS

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LEGEND

- Test Station with Groundwater Elevation in Feet Above Mean Sea Level
- Line of Equal Groundwater Elevation (Dashed Where Inferred)

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

INTERMEDIATE GROUNDWATER ELEVATION CONTOUR MAP

OCTOBER 2012

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-3

Date	Figure
January 31, 2013	3-3

PE/PG	PM	Drafter
MZ	BB	SS

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LEGEND

- Test Station with Groundwater Elevation in Feet Above Mean Sea Level
- Line of Equal Groundwater Elevation (Dashed Where Inferred)

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

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Maryland

DEEP GROUNDWATER ELEVATION CONTOUR MAP

OCTOBER 2012

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-4

Date	Figure
January 31, 2013	3-4

PE/PG	PM	Drafter
MZ	BB	SS

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LEGEND

Test Station with Cadmium Concentration in mg/L

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

CADMIUM CONCENTRATIONS IN SHALLOW GROUNDWATER

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-5

Date	Figure
January 29, 2013	3-5

PE/PG	PM	Drafter
MZ	BB	SS

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LEGEND

Test Station with Zinc Concentration in mg/L

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

ZINC CONCENTRATIONS IN SHALLOW GROUNDWATER

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-6

Date	Figure
January 29, 2013	3-6

PE/PG	PM	Drafter
MZ	BB	SS

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RW01-PZM020 (0.3)

RW14-PZM020 (0.43)

RW02-PZM020 (0.12)

RW07-PZM017 (6.6)

RW10-PZM020 (10)

RW19-PZM020 (0.013)

RW15-PZM020 (1.1)

RW13-PZM020 (<0.00050)

RW16-PZM020 (0.11)

RW17-PZM019 (5)

TS04-PZM023 (0.006)

RW20-PZM020 (0.0038)

RW21-PZM023 (1.9)

Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

LEGEND

Test Station with Cadmium Concentration in mg/L

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

CADMIUM CONCENTRATIONS IN INTERMEDIATE GROUNDWATER

Project Number	File Number	Figure
E-2439.01	E2439-2012-ANN-3-7	3-7

Date	PE/PG	PM	Drafter
January 29, 2013	MZ	BB	SS

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RW01-PZM020 (100)

RW14-PZM020 (260)

RW02-PZM020 (2600)

RW07-PZM017 (330)

RW10-PZM020 (470)

RW19-PZM020 (5)

RW15-PZM020 (46)

RW13-PZM020 (0.76)

RW16-PZM020 (53)

RW17-PZM019 (47)

TS04-PZM023 (2.6)

RW20-PZM020 (100)

RW21-PZM023 (21)

Source: Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

LEGEND

Test Station with Zinc Concentration in mg/L

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

ZINC CONCENTRATIONS IN INTERMEDIATE GROUNDWATER

Project Number	File Number	Figure
E-2439.01	E2439-2012-ANN-3-8	3-8
Date: January 29, 2013		
PE/PG: MZ	PM: BB	Drafter: SS

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LEGEND

Test Station with Cadmium Concentration in mg/L

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

CADMIUM CONCENTRATIONS IN DEEP GROUNDWATER

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-9

Date	Figure
January 29, 2013	3-9

PE/PG	PM	Drafter
MZ	BB	SS

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LEGEND

Test Station with Zinc Concentration in mg/L

N

0 50 100 200 Feet

ENVIRONMENTAL ENGINEERING & CONTRACTING, INC.

Project

Former Rod & Wire Mill
Sparrows Point, LLC
Maryland

ZINC CONCENTRATIONS IN DEEP GROUNDWATER

Project Number	File Number
E-2439.01	E2439-2012-ANN-3-10
Date: January 29, 2013	Figure: 3-10

PE/PG	PM	Drafter
MZ	BB	SS

TABLES

Table 3-1
2012 Water Level Elevation Data

Well Number	Top of Casing Elevation (ft)	Date	Depth to Water	Water Level Elevation (ft)
RW01-PZM020	12.72	10/25/2012	11.90	0.82
RW02-PZM000	12.37	10/25/2012	6.70	5.67
RW02-PZM020	13.00	10/25/2012	12.41	0.59
RW03-PZM003	10.83	10/25/2012	5.72	5.11
RW04-PZM003	11.09	10/23/2012	6.24	4.85
RW05-PZP001	11.04	NM	NM	NM
RW06-PZM001	12.17	10/25/2012	7.73	4.44
RW07-PZM004	15.27	10/25/2012	8.36	6.91
RW07-PZM017	12.95	10/25/2012	12.40	0.55
RW08-PZM003	11.35	10/25/2012	6.14	5.21
RW09-PZM004	15.22	10/23/2012	7.83	7.39
RW10-PZM004	12.34	10/25/2012	3.80	8.54
RW10-PZM020	12.46	10/25/2012	7.61	4.85
RW10-PZM065	12.34	11/02/2012	4.36	7.98
RW11-PZM004	15.35	10/23/2012	7.25	8.10
RW12-PZM004	15.37	10/23/2012	8.36	7.01
RW13-PZM020	14.62	10/23/2012	12.47	2.15
RW14-PZM020	15.15	10/23/2012	13.02	2.13
RW15-PZM020	12.70	10/25/2012	9.61	3.09
RW16-PZM020	13.84	11/02/2012	12.41	1.43
RW17-PZM019	13.67	11/02/2012	8.46	5.21
RW18-PZM047	15.68	11/02/2012	10.44	5.24
RW19-PZM020	13.49	11/02/2012	13.91	0.42
RW19-PZM050	12.99	11/02/2012	14.47	1.48
RW19-PZP000	13.49	11/02/2012	8.66	4.83
RW20-PZM020	13.47	10/23/2012	12.49	0.98
RW20-PZM050	13.03	10/23/2012	15.37	2.34
RW20-PZP000	12.82	10/23/2012	8.77	4.05
RW21-PZM023	12.91	10/23/2012	14.40	1.49
TS04-PDM004	13.71	10/23/2012	10.11	3.60
TS04-PPM007*	10.22	NM	NM	NM
TS04-PZM023	10.09	11/02/2012	10.53	0.44

NM- No Measurement

* Microbac report indicates well was destroyed in 2003, possibly by a plow.

Summary of Cadmium Monitoring Data for 2012 and Comparison with Prior Years

		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		
New Well Designation	**Former Well Designation**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**1st Q**	**3rd Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**2nd Q**	**4th Q**	**UNITS**
Shallow (Water Table) Monitoring Wells																										
RW02-PZM000	RW-3	0.36	0.67	0.47	0.29	0.29	0.067	0.17	0.21	0.34	0.26	0.12	0.034	0.47	0.03	0.057	0.30	0.17	0.15	0.11	0.033	0.11	0.11	0.11	0.31	mg/L
RW03-PZM003	RW-92	6.5	8.6	4.1	3.9	7.8	8.3	7.7	6.6	6.6	6.2	5.7	0.94	4.1	0.4	0.21	0.30	0.28	0.05	0.50	0.012	3.6	1.6	6.4	3.9	mg/L
RW04-PZM003	RW-91	0.57	0.52	0.31	0.32	0.55	0.71	0.73	0.9	0.67	0.73	0.24	0.72	0.4	0.49	0.69	0.18	0.38	0.20	0.65	0.72	0.78	0.64	0.61	0.69	mg/L
RW05-PZP001	RW-96	0.02	0.20	0.1	0.15	0.039	0.019	0.061	0.18	0.041	0.11	0.076	0.049	0.088	0.02	0.11	0.069	0.028	0.013	0.092	0.042	0.032	0.049	NS	NS	mg/L
RW06-PZM001	RW 94	1.3	2.1	1.8	2.8	1.2	4.2	2.6	6.1	2.9	7.3	3.2	1.1	3.5	1.5	1.5	16	3	1.5	1.4	24 (a)	2.3	1.7	4.9	25 (a)	mg/L
RW07-PZM004	RW-7	Note 2	0.005	0.003	0.017	0.005	0.005	0.005	0.012	0.005	0.005	0.016	0.011	0.02	0.01	0.005	0.018	0.035	0.075	0.0059	0.035	<0.00050	<0.00050	<0.00050	0.00095	mg/L
RW08-PZM003	RW-88	34	30	33	27	36	29	32	26	30	23	25	16	20	19	19	20	21	18	18	18	21	16	22	6	mg/L
RW09-PZM004	New Well "X"	Note 1	0.005	0.003	0.005	0.005	0.005	0.005	0.044	0.005	0.005	0.005	0.005	0.005	0.005	0.0003	0.0011	0.00079	0.00099	<0.00050	0.00084	0.00052	<0.00050	0.00068	<0.00050	mg/L
RW10-PZM004	RW-26	0.0025	0.045	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.0003	0.0032	0.00098	0.0005	<0.00050	<0.00050	<0.00050	11	0.0013	<0.00050	mg/L
RW11-PZM004	New Well "Y"	Note 1	14	30	33	34	37	20	24	18	32	31	24	21	32	19	41	16	35	22	23	20	25	35	NS	mg/L
RW12-PZM004	New Well "Z"	Note 1	1.1	0.36	0.28	0.85	2.3	1.8	3	2.3	3	1.7	0.12	1.2	2.5	0.069	0.11	0.05	0.044	0.090	0.11	0.38	0.21	1.30	1.60	mg/L
RW19-PZP000			0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.0005	0.00085	0.0033	0.0033	<0.00050	<0.00050	0.001	<0.00050	0.0017	<0.00050	mg/L
RW20-PZP000	RW-8		0.005	0.005	0.005	0.005	0.005	0.18	0.01	0.005	0.005	0.005	0.005	0.005	0.005	0.0003	0.025	0.0014	0.0013	<0.00050	<0.00050	<0.00050	<0.00050	0.0010	<0.00050	mg/L
TS04-PDM004	TS-04-PD		0.005	0.012	0.005	0.005	0.005	0.013	0.025	0.008	0.01	0.005	0.005	0.008	0.006	0.00057	0.0016	0.0028	0.0014	0.00085	0.0013	<0.00050	<0.00050	<0.00050	<0.00050	mg/L
TS04-PPM007	TS-04-PP		0.005	0.005	0.005	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	mg/L
Intermediate (Sand 2) Monitoring Wells																										
RW01-PZM020	RW-1	0.39	0.16	0.34	0.47	0.53	0.39	0.27	0.32	0.17	0.082	0.41	0.25	0.45	0.12	0.32	0.36	0.37	0.13	0.20	0.061	0.4	0.27	0.22	0.30	mg/L
RW02-PZM020	RW-2	1.2	0.041	0.01	0.46	0.48	0.005	1.6	1.7	1.5	0.335	0.32	0.25	0.04	0.23	0.093	0.35	0.30	0.10	0.021	0.068	0.13	0.17	0.12	0.12	mg/L
RW07-PZM017	RW-6	5.3	6.6	22	24	21	13	10	14	7.7	13	18	15	14	15	15	14	7.0	6.5	3.6	10	8.9	10	5.1	7	mg/L
RW10-PZM020	RW-27	3.0	38	13	15	13	15	15	14	14	6.05	14	12	11	10	10	8.9	10.0	9.8	8.6	10	10	10	13	10	mg/L
RW13-PZM020	RW-4	Note 2	0.50	0.066	0.023	0.061	0.005	0.14	0.23	0.24	0.005	0.005	0.005	0.005	0.005	0.0003	0.0091	0.0110	0.0085	0.0032	0.0027	0.00062	0.0093	<0.00050	<0.00050	mg/L
RW14-PZM020	New Well "A"	Note 1	1.7	1.8	0.43	2.1	1.6	1.9	2.3	2.3	1.8	2.0	1.8	1.6	1.3	1.3	1.0	0.42	0.83	0.90	0.69	0.57	0.54	0.45	0.43	mg/L
RW15-PZM020	RW-24R	2.5	3.3	8	4.4	5.3	1.9	1.1	1.8	4.4	2.2	1.9	2.4	2.3	1.7	1.6	1.4	1.6	1.3	0.33	1.1	1	0.96	5.5	1.10	mg/L
RW16-PZM020	New Well "B"	Note 1	0.78	0.08	0.012	0.17	5.0	0.083	5.4	4	5.2	3.6	3.2	0.13	1.2	0.005	0.027	0.022	0.011	0.0065	0.055	<0.00050	0.0016	1.3	0.11	mg/L
RW17-PZM019	New Well "C"	Note 1	5.4	0.088	0.034	0.018	0.005	14	17	15	16	11	9.8	9.6	6.2	5.8	4.5	5.6	5.7	6.1	6.1	6.2	5.7	6.4	5.0	mg/L
RW19-PZM020	RW-12	0.03	0.016	0.13	0.15	0.025	0.082	0.17	0.28	0.32	0.2	0.15	0.20	0.15	0.15	0.094	0.11	0.11	0.13	0.061	0.096	<0.00050	0.029	0.011	0.013	mg/L
RW20-PZM020	RW-9B	0.58	0.25	0.13	0.021	0.039	3.4	0.005	0.22	0.19	0.014	0.013	0.022	0.022	0.005	0.005	0.046	0.019	0.0011	0.0026	<0.0050	<0.00050	0.0031	0.013	0.0038	mg/L
RW21-PZM023	RW-32	Note 2	6.8	6.7	6.4	6.3	6.6	6.3	5.8	4.7	3.8	2.9	2.6	2.7	2	1.9	1.9	1.8	1.7	1.7	1.8	3.9	1.8	1.8	1.9	mg/L
TS04-PZM023	New Well "D"	Note 1	11	4.3	3.8	3.2	1.1	1.2	1	1.1	0.84	0.80	0.64	0.38	0.35	0.19	0.17	0.13	0.28	0.39	0.31	0.25	0.015	0.0072	0.006	mg/L
Deep (Sand 3) Monitoring Wells																										
RW10-PZM065	RW-28		0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.052	0.005	0.005	0.005	0.005	0.007	0.0003	0.0031	0.0025	0.0028	<0.00050	<0.00050	<0.00050	10	0.0013	<0.00050	mg/L
RW18-PZM047	RW-22		0.005	0.003	0.005	0.005	0.005	0.87	0.014	0.041	0.005	0.007	0.005	0.005	0.005	0.005	0.0051	0.0037	0.0024	0.0037	0.0034	0.0022	0.00079	<0.00050	<0.00050	mg/L
RW19-PZM050	RW-13		0.005	0.005	0.005	0.005	0.005	0.005	0.015	0.023	0.005	0.005	0.005	0.005	0.005	0.002	0.0016	0.0061	0.014	0.0044	0.0041	0.0027	0.0034	0.0017	<0.00050	mg/L
RW20-PZM050	RW-10		0.005	0.005	0.005	0.005	0.005	0.026	0.014	0.025	0.005	0.005	0.005	0.005	0.005	0.0003	0.0019	0.0050	0.022	0.029	<0.00050	0.001	<0.00050	0.0013	0.0012	mg/L

Note 1: New wells installed prior to 3rd quarter 2001.

Note 2: Replacement wells installed prior to 3rd quarter 2001. mg/L = milligrams per liter.

The shaded cells are non-detect results. The blank cells represent data not collected.

NS = Well destroyed. Not sampled.

(a) Unreliable outlier.

Prepared: January 2013

Summary of Zinc Monitoring Data for 2012 and Comparison with Prior Years

New Well Designation	Former Well Designation	2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		2011		2012		Unit
		1st Q	3rd Q	1st Q	3rd Q	1st Q	3rd Q	1st Q	3rd Q	2nd Q	4th Q	2nd Q	4th Q	2nd Q	4th Q	2nd Q	4th Q	2nd Q	4th Q	2nd Q	4th Q	2nd Q	4th Q	2nd Q	4th Q	Unit
Shallow (Water Table) Monitoring Wells																										
RW02-PZM000	RW-3	18	29	26	13	14	3.7	12	13	16	17	5.1	0.97	20	1.1	2.6	14	8	4.5	4.2	1.1	4.3	3.9 (B2)	5	13	mg/L
RW03-PZM003	RW-92	250	240	160	170	250	200	240	190	210	150	170	37	170	120	140	130	150	110	140	0.13	140	110 (B2)	180	130	mg/L
RW04-PZM003	RW-91	12	9.3	7.1	6.2	12	13	14	16	13	13	6.3	13	9.5	10	15	4.9	9.5	5.5	16	14	14	12 (B2)	13	12	mg/L
RW05-PZP001	RW-96	***0.82***	6.1	3.4	3.7	1.2	0.56	1.8	5.2	0.87	3.9	3.0	1.3	2.9	0.64	6.2	2.3	0.76	0.35	3.7	1.2	1	1.4 (B2)	NS	NS	mg/L
RW06-PZM001	RW-94	19	14	15	21	17	25	20	39	23.0	47	26	15	32	19	23	110	26	36	14	160 (a)	17	14 (B2)	40	160	mg/L
RW07-PZM004	RW-7	Note 2	1.1	2.9	8.7	3.5	3.2	1.5	2	0.31	0.94	9.1	4.0	13	3.9	9.7	4.5	19.0	33	3.8	23	3.6	0.065 (B1)	0.15	0.17	mg/L
RW08-PZM003	RW-88	870	850	820	660	750	610	700	590	650	460	460	420	420	560	370	420	410	390	370	390	380	320 (B2)	370	330	mg/L
RW09-PZM004	New Well "X"	Note 1	2.8	8.5	1.9	5.1	3.2	2.0	4.3	0.043	0.07	0.040	0.042	0.039	0.04	0.02	0.0086	0.0063	0.02	0.019	0.011	0.058	0.024 (B1)	0.024	0.0078	mg/L
RW10-PZM004	RW-26	5.9	5.5	6.1	0.41	0.54	0.62	0.33	0.55	0.02	0.18	0.032	0.18	0.045	0.07	0.067	0.028	0.018	0.057	<0.0050	0.020	0.018	460 (B2) (a)	0.11	0.03	mg/L
RW11-PZM004	New Well "Y"	Note 1	1300	2800	3200	3500	3500	1900	2300	1400	2800	2700	2000	1800	2800	1600	3700	1400	3500	2400	2100	1900	2200 (B2)	3700	1800	mg/L
RW12-PZM004	New Well "Z"	Note 1	92	21	14	64	190	150	220	200	220	130	5.9	93	180	4.3	5.8	2.3	1.7	3.8	5.6	24	14 (B2)	110	110	mg/L
RW19-PZP000	RW-8		***0.088***	0.038	0.025	0.067	0.14	0.053	0.064	0.022	0.027	0.020	0.046	0.02	0.02	0.01	0.023	0.010	0.054	0.0073	0.014	0.067	0.025 (B1)	0.15	0.044 (B1)	mg/L
RW20-PZP000	RW20-PZP000		***0.044***	0.046	0.036	0.01	0.081	0.040	0.13	0.01	0.02	0.02	0.025	0.023	0.03	0.01	100	0.022	0.02	0.0053	0.0068	0.031	0.0081 (B1)	0.0095	<0.00050	mg/L
TS04-PDM004	TS04-PDM004		5.5	15	1.6	3.8	8.2	4.3	14	0.240	15	0.31	0.17	0.24	0.05	0.15	0.12	0.033	0.02	0.021	0.12	0.039	0.027 (B1)	0.26	0.41	mg/L
TS04-PPM007	TS04-PPM007		***0.35***	0.072	0.037	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	mg/L
Intermediate (Sand 2) Monitoring Wells																										
RW01-PZM020	RW-1	330	27	89	150	140	74	58	110	170	140	100	160	100	150	130	120	140	150	94	150	130	95 (B2)	70	100	mg/L
RW02-PZM020	RW-2	2200	48	13	2500	2800	3100	3300	3300	3200	2800	2700	2700	45	2900	1500	2200	2300	800	330	3300	3100	2600	3000	2600	mg/L
RW07-PZM017	RW-6	480	430	780	770	700	540	440	580	430	530	600	590	520	570	520	550	310	300	230	420	390	410 (B2)	260	330	mg/L
RW10-PZM020	RW-27	410	600	480	580	540	630	550	630	690	210	560	600	580	520	510	530	540	550	500	530	510	450 (B2)	470	470	mg/L
RW13-PZM020	RW-4	Note 2	120	15	3.4	3.2	0.16	0.12	0.16	0.059	0.081	0.030	0.048	0.037	0.07	0.029	0.017	0.020	0.076	<0.0050	<0.0050	0.028	0.07 (B1)	0.67	0.76	mg/L
RW14-PZM020	New Well "A"	Note 1	390	480	370	490	450	440	440	440	340	390	380	340	350	290	310	150	260	260	300	290	280 (B2)	280	260	mg/L
RW15-PZM020	RW-24R	490	330	170	120	150	190	170	150	91	52	120	47	39	33	34	33	47	28	65	29	32	37 (B2)	56	46	mg/L
RW16-PZM020	New Well "B"	Note 1	13	90	110	110	120	97	91	100	85	80	80	81	70	69	69	71	66	60	61	61	59	43	53	mg/L
RW17-PZM019	New Well "C"	Note 1	170	25	37	29	20	300	210	220	170	96	76	6.3	46	42	34	42	40	48	46	48	45 (B2)	62	47	mg/L
RW19-PZM020	RW-12	***3.4***	0.91	13	14	1.8	6.0	13	24	26	24	20	24	19	22	17	14	14	17	11	10	0.2	5.6 (B2)	4.6	5	mg/L
RW20-PZM020	RW-9B	180	190	160	62	97	150	160	130	150	120	130	120	130	83	52	2.0	120.0	0.16	2.0	56	120	100 (B2) (a)	130	100	mg/L
RW21-PZM023	RW-32	Note 2	63	60	60	58	58	58	50	39	35	29	27	25	22	22	21	20	19	19	20	42	20 (B2)	21	21	mg/L
TS04-PZM023	New Well "D"	Note 1	220	94	110	78	25	34	34	39	35	32	27	15	17	140	5.4	4.0	12.0	19	16	9	8.7 (B2)	5.2	2.6	mg/L
Deep (Sand 3) Monitoring Wells																										
RW10-PZM065	RW-28		***0.096***	0.11	0.12	0.01	0.074	0.01	0.065	0.031	0.022	0.031	0.057	0.024	0.23	0.042	0.015	0.053	0.084	<0.0050	<0.0050	0.015	460 (B2) (a)	0.046	0.043 (B1)	mg/L
RW18-PZM047	RW-22		15	7	5.8	9.2	13	26	15	7.3	12	6.9	4.9	4.7	2.9	1.8	6.9	1.2	1.1	3.9	5.7	3.3	0.48 (B2)	0.52	0.4	mg/L
RW19-PZM050	RW-13		0.53	0.43	0.42	0.19	0.23	0.24	0.087	0.092	0.051	0.19	0.22	0.086	0.05	0.33	0.22	0.54	0.17	0.092	0.19	0.15	0.16 (B1)	0.076	0.052 (B1)	mg/L
RW20-PZM050	RW-10		***0.057***	0.38	0.042	0.25	0.33	0.42	0.19	0.29	0.081	0.32	0.11	0.2	0.2	0.31	0.041	0.14	110*	36	0.22	1	0.011 (B1)	0.12	0.031	mg/L

Note 1: New wells installed prior to 3rd quarter 2001.

Note 2: Replacement wells installed prior to 3rd quarter 2001.

Note 3: The 2008 4th Q results for RW20-PZP000 and RW20-PZM020 may relate to a transcription error, to be further evaluated during the next sampling round. mg/L = milligrams per liter.

The blank cells represent data not collected.

The shaded cells are non-detect results.

The italicized values have been qualified by the data validator as qualitatively invalid due to their presence in associated laboratory or field blanks. NS = Well destroyed. Not sampled.

* The reported concentration doesn't match historic values, which typically are less than 1 mg/L, and is considered to be an error in sampling/reporting convention for this well.

(a) Unreliable outlier value.

(B1) Target analyte detected in the method blank at or above the reporting limit.

(B2) Target analyte detected in the method blank at or above the reporting limit. Concentration found in the samples was 20 times the concentration found in the method blank.

Prepared: January 2013

Table_3-3_Zinc_con_2011_Draft

APPENDIX B

Daily Pumping Records for the Groundwater Pump and Treat System

January 2012				
Date	Volume Pumped (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
1/1/2012	2,261	3,891	6,152	4.3
1/2/2012	4,438	3,463	7,901	5.5
1/3/2012	3,329	3,854	7,183	5.0
1/4/2012	4,756	4,113	8,869	6.2
1/5/2012	4,209	3,673	7,882	5.5
1/6/2012	4,337	3,770	8,107	5.6
1/7/2012	4,539	3,941	8,480	5.9
1/8/2012	2,868	2,565	5,433	3.8
1/9/2012	4,165	3,739	7,904	5.5
1/10/2012	4,185	3,753	7,938	5.5
1/11/2012	4,256	3,712	7,968	5.5
1/12/2012	5,406	4,688	10,094	7.0
1/13/2012	4,255	3,735	7,990	5.5
1/14/2012	2,380	3,792	6,172	4.3
1/15/2012	6,127	3,580	9,707	6.7
1/16/2012	3,376	3,001	6,377	4.4
1/17/2012	4,142	3,749	7,891	5.5
1/18/2012	4,138	3,613	7,751	5.4
1/19/2012	4,090	3,646	7,736	5.4
1/20/2012	4,503	4,043	8,546	5.9
1/21/2012	4,418	3,499	7,917	5.5
1/22/2012	4,358	3,374	7,732	5.4
1/23/2012	4,475	3,459	7,934	5.5
1/24/2012	3,192	2,542	5,734	4.0
1/25/2012	4,542	3,634	8,176	5.7
1/26/2012	4,299	3,317	7,616	5.3
1/27/2012	4,514	3,387	7,901	5.5
1/28/2012	5,701	4,274	9,975	6.9
1/29/2012	4,434	3,542	7,976	5.5
1/30/2012	4,434	3,542	7,976	5.5
1/31/2012	4,129	3,353	7,482	5.2
Total	**130,256**	**112,244**	**242,500**	**5.4**

February 2012				
Date	Volume Pumped (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
2/1/2012	3,961	3,200	7,161	5.0
2/2/2012	4,730	3,487	8,217	5.7
2/3/2012	4,643	3,428	8,071	5.6
2/4/2012	4,564	3,415	7,979	5.5
2/5/2012	5,144	3,852	8,996	6.2
2/6/2012	4,581	3,432	8,013	5.6
2/7/2012	4,510	3,397	7,907	5.5
2/8/2012	4,685	3,592	8,277	5.7
2/9/2012	3,277	2,526	5,803	4.0
2/10/2012	4,283	3,303	7,586	5.3
2/11/2012	4,200	3,300	7,500	5.2
2/12/2012	4,921	3,272	8,193	5.7
2/13/2012	6,603	4,236	10,839	7.5
2/14/2012	5,120	3,151	8,271	5.7
2/15/2012	5,183	3,171	8,354	5.8
2/16/2012	5,208	3,255	8,463	5.9
2/17/2012	4,766	3,046	7,812	5.4
2/18/2012	5,083	3,295	8,378	5.8
2/19/2012	5,031	3,311	8,342	5.8
2/20/2012	4,906	3,401	8,307	5.8
2/21/2012	5,234	3,839	9,073	6.3
2/22/2012	4,694	3,344	8,038	5.6
2/23/2012	4,655	3,478	8,133	5.6
2/24/2012	4,525	3,482	8,007	5.6
2/25/2012	3,232	2,499	5,731	4.0
2/26/2012	4,450	3,442	7,892	5.5
2/27/2012	4,372	3,459	7,831	5.4
2/28/2012	4,323	3,456	7,779	5.4
2/29/2012	5,423	4,279	9,702	6.7
Total	**136,307**	**98,348**	**234,655**	**5.6**

March 2012				
Date	Volume Pumped (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
3/1/2012	4,387	3,463	7,850	5.5
3/2/2012	4,398	3,502	7,900	5.5
3/3/2012	4,231	3,384	7,615	5.3
3/4/2012	4,032	3,216	7,248	5.0
3/5/2012	4,281	3,430	7,711	5.4
3/6/2012	4,329	3,459	7,788	5.4
3/7/2012	4,296	3,744	8,040	5.6
3/8/2012	4,753	3,592	8,345	5.8
3/9/2012	4,749	3,360	8,109	5.6
3/10/2012	4,656	3,024	7,680	5.3
3/11/2012	5,189	3,335	8,524	5.9
3/12/2012	3,798	2,458	6,256	4.3
3/13/2012	5,061	3,316	8,377	5.8
3/14/2012	5,033	3,292	8,325	5.8
3/15/2012	5,047	3,290	8,337	5.8
3/16/2012	6,302	4,103	10,405	7.2
3/17/2012	4,962	3,276	8,238	5.7
3/18/2012	4,788	3,151	7,939	5.5
3/19/2012	4,887	3,180	8,067	5.6
3/20/2012	4,606	2,891	7,497	5.2
3/21/2012	5,008	3,151	8,159	5.7
3/22/2012	4,895	3,161	8,056	5.6
3/23/2012	4,933	3,138	8,071	5.6
3/24/2012	5,491	3,554	9,045	6.3
3/25/2012	4,828	3,121	7,949	5.5
3/26/2012	5,138	3,323	8,461	5.9
3/27/2012	4,679	3,028	7,707	5.4
3/28/2012	3,716	2,296	6,012	4.2
3/29/2012	5,186	3,319	8,505	5.9
3/30/2012	4,736	3,015	7,751	5.4
3/31/2012	5,018	3,153	8,171	5.7
Total	**147,413**	**100,725**	**248,138**	**5.6**

April 2012				
Date	Volume Pumped (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
4/1/2012	6,027	3,788	9,815	6.8
4/2/2012	5,316	3,345	8,661	6.0
4/3/2012	4,949	3,115	8,064	5.6
4/4/2012	5,002	3,225	8,227	5.7
4/5/2012	4,479	2,906	7,385	5.1
4/6/2012	4,874	3,155	8,029	5.6
4/7/2012	4,905	3,166	8,071	5.6
4/8/2012	4,746	3,126	7,872	5.5
4/9/2012	5,420	3,590	9,010	6.3
4/10/2012	4,523	2,956	7,479	5.2
4/11/2012	5,094	3,148	8,242	5.7
4/12/2012	4,844	3,038	7,882	5.5
4/13/2012	4,596	2,886	7,482	5.2
4/14/2012	4,230	3,224	7,454	5.2
4/15/2012	5,115	3,275	8,390	5.8
4/16/2012	5,185	3,326	8,511	5.9
4/17/2012	5,408	3,553	8,961	6.2
4/18/2012	4,981	3,274	8,255	5.7
4/19/2012	5,061	3,327	8,388	5.8
4/20/2012	5,158	3,389	8,547	5.9
4/21/2012	4,496	2,961	7,457	5.2
4/22/2012	4,992	3,371	8,363	5.8
4/23/2012	4,894	3,313	8,207	5.7
4/24/2012	4,894	3,313	8,207	5.7
4/25/2012	5,373	3,640	9,013	6.3
4/26/2012	4,214	2,895	7,109	4.9
4/27/2012	4,275	2,902	7,177	5.0
4/28/2012	4,168	2,876	7,044	4.9
4/29/2012	3,019	2,118	5,137	3.6
4/30/2012	4,003	2,859	6,862	4.8
Total	**144,241**	**95,060**	**239,301**	**5.5**

May 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
5/1/2012	4,049	2,892	6,941	4.8
5/2/2012	4,062	2,906	6,968	4.8
5/3/2012	5,196	3,805	9,001	6.3
5/4/2012	4,200	3,008	7,208	5.0
5/5/2012	4,267	2,938	7,205	5.0
5/6/2012	3,920	2,802	6,722	4.7
5/7/2012	3,752	2,680	6,432	4.5
5/8/2012	3,958	2,898	6,856	4.8
5/9/2012	3,831	2,840	6,671	4.6
5/10/2012	3,789	2,684	6,473	4.5
5/11/2012	4,422	3,110	7,532	5.2
5/12/2012	3,838	2,711	6,549	4.5
5/13/2012	3,966	2,804	6,770	4.7
5/14/2012	3,739	2,696	6,435	4.5
5/15/2012	2,736	1,965	4,701	3.3
5/16/2012	3,767	2,729	6,496	4.5
5/17/2012	4,525	3,203	7,728	5.4
5/18/2012	3,160	2,265	5,425	3.8
5/19/2012	4,448	3,247	7,695	5.3
5/20/2012	3,061	2,214	5,275	3.7
5/21/2012	4,483	3,195	7,678	5.3
5/22/2012	3,754	2,738	6,492	4.5
5/23/2012	3,762	2,748	6,510	4.5
5/24/2012	4,084	2,716	6,800	4.7
5/25/2012	4,166	2,808	6,974	4.8
5/26/2012	3,890	2,652	6,542	4.5
5/27/2012	4,449	3,127	7,576	5.3
5/28/2012	3,339	2,346	5,685	3.9
5/29/2012	3,949	2,774	6,723	4.7
5/30/2012	3,914	2,747	6,661	4.6
5/31/2012	3,817	2,686	6,503	4.5
Total	**122,293**	**86,934**	**209,227**	**4.7**

June 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
6/1/2012	4,096	2,878	6,974	4.8
6/2/2012	2,969	2,148	5,117	3.6
6/3/2012	3,768	2,747	6,515	4.5
6/4/2012	4,692	3,426	8,118	5.6
6/5/2012	3,661	2,673	6,334	4.4
6/6/2012	3,767	2,753	6,520	4.5
6/7/2012	3,735	2,726	6,461	4.5
6/8/2012	3,419	2,498	5,917	4.1
6/9/2012	3,756	2,740	6,496	4.5
6/10/2012	3,730	2,724	6,454	4.5
6/11/2012	3,721	2,747	6,468	4.5
6/12/2012	4,149	3,041	7,190	5.0
6/13/2012	3,572	2,725	6,297	4.4
6/14/2012	3,543	2,678	6,221	4.3
6/15/2012	3,683	2,797	6,480	4.5
6/16/2012	2,665	2,022	4,687	3.3
6/17/2012	3,537	2,686	6,223	4.3
6/18/2012	3,588	2,724	6,312	4.4
6/19/2012	3,595	2,732	6,327	4.4
6/20/2012	5,253	3,425	8,678	6.0
6/21/2012	4,413	2,705	7,118	4.9
6/22/2012	4,434	2,747	7,181	5.0
6/23/2012	4,496	2,757	7,253	5.0
6/24/2012	3,941	2,480	6,421	4.5
6/25/2012	4,338	2,746	7,084	4.9
6/26/2012	4,562	2,742	7,304	5.1
6/27/2012	4,732	2,731	7,463	5.2
6/28/2012	5,162	3,065	8,227	5.7
6/29/2012	4,549	2,703	7,252	5.0
6/30/2012	4,614	2,751	7,365	5.1
Total	**120,140**	**82,317**	**202,457**	**4.7**

July 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
7/1/2012	4,583	2,618	7,201	5.0
7/2/2012	4,377	2,456	6,833	4.7
7/3/2012	4,720	2,651	7,371	5.1
7/4/2012	4,730	2,624	7,354	5.1
7/5/2012	4,829	2,665	7,494	5.2
7/6/2012	5,086	2,775	7,861	5.5
7/7/2012	4,859	2,653	7,512	5.2
7/8/2012	4,763	2,599	7,362	5.1
7/9/2012	4,648	2,535	7,183	5.0
7/10/2012	4,488	2,433	6,921	4.8
7/11/2012	5,279	2,659	7,938	5.5
7/12/2012	5,183	2,606	7,789	5.4
7/13/2012	5,135	2,582	7,717	5.4
7/14/2012	5,424	2,711	8,135	5.6
7/15/2012	5,175	2,588	7,763	5.4
7/16/2012	4,991	2,507	7,498	5.2
7/17/2012	5,060	2,591	7,651	5.3
7/18/2012	4,572	2,348	6,920	4.8
7/19/2012	3,603	2,513	6,116	4.2
7/20/2012	2,271	2,989	5,260	3.7
7/21/2012	3,966	3,130	7,096	4.9
7/22/2012	4,968	4,019	8,987	6.2
7/23/2012	3,870	3,047	6,917	4.8
7/24/2012	4,021	3,179	7,200	5.0
7/25/2012	3,877	3,157	7,034	4.9
7/26/2012	3,628	2,961	6,589	4.6
7/27/2012	3,892	3,177	7,069	4.9
7/28/2012	3,895	3,172	7,067	4.9
7/29/2012	3,882	3,164	7,046	4.9
7/30/2012	4,311	3,514	7,825	5.4
7/31/2012	3,541	2,887	6,428	4.5
Total	**137,627**	**87,510**	**225,137**	**5.0**

August 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
8/1/2012	3,541	2,887	6,428	4.5
8/2/2012	3,857	3,148	7,005	4.9
8/3/2012	3,184	2,645	5,829	4.0
8/4/2012	3,749	3,139	6,888	4.8
8/5/2012	3,749	3,164	6,913	4.8
8/6/2012	4,052	3,227	7,279	5.1
8/7/2012	5,183	3,868	9,051	6.3
8/8/2012	4,153	3,283	7,436	5.2
8/9/2012	4,177	3,317	7,494	5.2
8/10/2012	4,247	3,367	7,614	5.3
8/11/2012	1,082	3,367	4,449	3.1
8/12/2012	1,894	3,367	5,261	3.7
8/13/2012	1,894	3,367	5,261	3.7
8/14/2012	2,848	2,364	5,212	3.6
8/15/2012	3,722	3,204	6,926	4.8
8/16/2012	3,324	2,892	6,216	4.3
8/17/2012	3,332	2,898	6,230	4.3
8/18/2012	3,340	2,904	6,244	4.3
8/19/2012	2,561	2,190	4,751	3.3
8/20/2012	3,120	2,712	5,832	4.1
8/21/2012	3,564	5,407	8,971	6.2
8/22/2012	3,732	7,591	11,323	7.9
8/23/2012	4,688	9,545	14,233	9.9
8/24/2012	3,723	7,585	11,308	7.9
8/25/2012	3,450	7,076	10,526	7.3
8/26/2012	4,075	7,470	11,545	8.0
8/27/2012	4,364	7,493	11,857	8.2
8/28/2012	4,341	7,379	11,720	8.1
8/29/2012	4,412	7,309	11,721	8.1
8/30/2012	4,486	6,904	11,390	7.9
8/31/2012	8,677	7,324	16,001	11.1
Total	**116,521**	**142,393**	**258,914**	**5.8**

September 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
9/1/2012	4,411	7,311	11,722	8.1
9/2/2012	4,342	6,993	11,335	7.9
9/3/2012	4,623	6,953	11,576	8.0
9/4/2012	4,412	6,683	11,095	7.7
9/5/2012	4,412	6,683	11,095	7.7
9/6/2012	4,974	7,612	12,586	8.7
9/7/2012	4,542	6,951	11,493	8.0
9/8/2012	4,589	7,013	11,602	8.1
9/9/2012	4,605	7,056	11,661	8.1
9/10/2012	3,592	5,385	8,977	6.2
9/11/2012	4,962	6,967	11,929	8.3
9/12/2012	4,954	7,035	11,989	8.3
9/13/2012	4,844	6,857	11,701	8.1
9/14/2012	4,955	6,937	11,892	8.3
9/15/2012	4,817	6,834	11,651	8.1
9/16/2012	4,736	6,883	11,619	8.1
9/17/2012	5,555	8,079	13,634	9.5
9/18/2012	4,777	6,946	11,723	8.1
9/19/2012	4,628	6,916	11,544	8.0
9/20/2012	5,113	6,846	11,959	8.3
9/21/2012	5,077	6,576	11,653	8.1
9/22/2012	4,881	6,245	11,126	7.7
9/23/2012	5,179	6,932	12,111	8.4
9/24/2012	4,051	5,627	9,678	6.7
9/25/2012	4,866	6,856	11,722	8.1
9/26/2012	5,634	7,937	13,571	9.4
9/27/2012	4,723	6,738	11,461	8.0
9/28/2012	4,773	6,800	11,573	8.0
9/29/2012	4,728	6,734	11,462	8.0
9/30/2012	4,736	6,744	11,480	8.0
Total	**142,491**	**206,129**	**348,620**	**8.1**

October 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
10/1/2012	3,979	5,667	9,646	6.7
10/2/2012	4,730	6,738	11,468	8.0
10/3/2012	4,757	6,780	11,537	8.0
10/4/2012	4,742	6,767	11,509	8.0
10/5/2012	4,766	6,769	11,535	8.0
10/6/2012	4,873	6,767	11,640	8.1
10/7/2012	4,767	6,771	11,538	8.0
10/8/2012	5,726	8,098	13,824	9.6
10/9/2012	146	188	334	0.2
10/10/2012	0	0	0	0.0
10/11/2012	0	0	0	0.0
10/12/2012	0	0	0	0.0
10/13/2012	0	0	0	0.0
10/14/2012	0	0	0	0.0
10/15/2012	0	0	0	0.0
10/16/2012	0	0	0	0.0
10/17/2012	0	0	0	0.0
10/18/2012	0	0	0	0.0
10/19/2012	0	0	0	0.0
10/20/2012	0	0	0	0.0
10/21/2012	0	0	0	0.0
10/22/2012	0	0	0	0.0
10/23/2012	0	0	0	0.0
10/24/2012	2,798	4,708	7,506	5.2
10/25/2012	3,996	6,975	10,971	7.6
10/26/2012	3,846	6,846	10,692	7.4
10/27/2012	3,931	6,985	10,916	7.6
10/28/2012	3,881	6,899	10,780	7.5
10/29/2012	3,498	5,861	9,359	6.5
10/30/2012	4,225	7,097	11,322	7.9
10/31/2012	4,142	7,154	11,296	7.8
Total	**68,803**	**107,070**	**175,873**	**3.9**

System down for maintenance between 10/10 - 10/23

November 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
11/1/2012	4,077	7,201	11,278	7.8
11/2/2012	4,022	7,129	11,151	7.7
11/3/2012	4,297	7,080	11,377	7.9
11/4/2012	4,676	7,348	12,024	8.4
11/5/2012	5,111	8,352	13,463	9.3
11/6/2012	4,350	7,101	11,451	8.0
11/7/2012	3,522	5,748	9,270	6.4
11/8/2012	4,300	7,053	11,353	7.9
11/9/2012	4,189	7,053	11,242	7.8
11/10/2012	4,168	7,043	11,211	7.8
11/11/2012	4,229	7,173	11,402	7.9
11/12/2012	4,823	8,151	12,974	9.0
11/13/2012	4,191	7,083	11,274	0.0
11/14/2012	4,576	6,964	11,540	8.0
11/15/2012	4,604	6,820	11,424	7.9
11/16/2012	4,496	6,732	11,228	7.8
11/17/2012	4,613	7,010	11,623	8.1
11/18/2012	4,519	6,989	11,508	0.0
11/19/2012	3,258	5,726	8,984	6.2
11/20/2012	4,076	7,469	11,545	8.0
11/21/2012	4,806	8,919	13,725	9.5
11/22/2012	4,042	7,513	11,555	8.0
11/23/2012	4,027	7,482	11,509	8.0
11/24/2012	3,943	7,463	11,406	7.9
11/25/2012	3,879	7,418	11,297	7.8
11/26/2012	3,225	6,179	9,404	6.5
11/27/2012	3,911	7,438	11,349	7.9
11/28/2012	3,798	7,219	11,017	7.7
11/29/2012	3,868	7,446	11,314	7.9
11/30/2012	3,877	7,468	11,345	7.9
Total	**125,473**	**215,770**	**341,243**	**7.4**

December 2012				
Date	Pumped Volume (Gallons)			Total (gpm)
	Well #24 (RW15)	Well #27 (RW 10)	Total	MP 214
12/1/2012	3,821	7,342	11,163	7.8
12/2/2012	3,991	7,449	11,440	7.9
12/3/2012	4,947	9,011	13,958	9.7
12/4/2012	3,949	7,191	11,140	7.7
12/5/2012	3,371	6,140	9,511	6.6
12/6/2012	3,914	7,247	11,161	7.8
12/7/2012	3,937	7,430	11,367	7.9
12/8/2012	3,906	7,380	11,286	7.8
12/9/2012	3,798	7,178	10,976	7.6
12/10/2012	4,562	8,628	13,190	9.2
12/11/2012	3,865	7,310	11,175	7.8
12/12/2012	4,032	5,188	9,220	6.4
12/13/2012	3,710	3,910	7,620	5.3
12/14/2012	3,913	4,206	8,119	5.6
12/15/2012	3,548	3,874	7,422	5.2
12/16/2012	3,610	3,903	7,513	5.2
12/17/2012	2,750	2,974	5,724	4.0
12/18/2012	3,672	4,070	7,742	5.4
12/19/2012	4,094	4,482	8,576	6.0
12/20/2012	3,444	3,743	7,187	5.0
12/21/2012	3,344	3,429	6,773	4.7
12/22/2012	3,124	3,125	6,249	4.3
12/23/2012	3,168	3,164	6,332	4.4
12/24/2012	3,408	3,403	6,811	4.7
12/25/2012	2,417	2,412	4,829	3.4
12/26/2012	3,053	3,049	6,102	4.2
12/27/2012	2,524	2,554	5,078	3.5
12/28/2012	1,452	1,175	2,627	1.8
12/29/2012	3,052	2,475	5,527	3.8
12/30/2012	952	756	1,708	1.2
12/31/2012	4,641	3,185	7,826	5.4
Total	**107,969**	**147,383**	**255,352**	**5.7**
Annual Total	**1,499,534**	**1,481,883**	**2,981,417**	

APPENDIX C

Explanation of Treatment System Down-time

2012 Operational Notes for the Rod and Wire Mill Interim Measure Treatment System

8/11-8/14 CADMIUM SYSTEM DOWN TO REPAIR LEAK ON CAUSTIC RECIRC LINE.

10/9-10/24 CADMIUM SYSTEM DOWN TO REPLACE CAUSTIC FEED PUMP AND ASSOCIATED PIPING.

12/28 CADMIUM SYSTEM DOWN 18 HOURS.DUE TO PLUGGED CAUSTIC FEED LINE.

12/30 CADMIUM SYSTEM DOWN 16 HOURS.DUE TO PLUGGED CAUSTIC FEED LINE

APPENDIX A

Water Levels, Purge Records

and

Microbac Laboratory Data[1]

[1] Laboratory data is only included in the CD digital version of this report

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW07 PZM017 Tag: BA-81-4132

Date of Purging: 4/24/12 Start Time: 12:30 Finish Time: 13:00 Weather: 48°

Date of Collection: 4/24/12 Time of Collection: 12:45

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.92
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.90

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	16.2	16.2	16.4	16.4	16.4	16.4
pH	2.71	2.71	3.37	4.89	4.88	4.88
Specific Conductance (umhos/cm)	3540	3880	3450	3356	3360	3350
Dissolved Oxygen (mg/l)	4.77	4.65	4.18	3.57	3.55	3.55
Oxidation Reduction (eH)	687.0	707.2	574.7	457.6	435.6	435.6

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor NONE

Color Clear

Rate of Purge 160 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 24 / 12. (Tech – TM)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW07 PZM 004 Tag: BA-94 5711

Date of Purging: 4/24/12 Start Time: 12:05 Finish Time: 12:25 Weather: 48 F

Date of Collection: 4/24/12 Time of Collection: 12:20

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	9.33
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.26

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	14.8	14.7	14.7	14.6	14.6	14.6
pH	10.00	10.28	10.09	9.46	9.46	9.48
Specific Conductance (umhos/cm)	449	439	454	485	485	485
Dissolved Oxygen (mg/l)	5.59	5.55	5.34	5.62	5.62	5.62
Oxidation Reduction (eH)	187.9	210.8	219.4	254.6	254.6	254.5

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor None

Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 24 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 14 PZM 020 Tag: BA-94-5708

Date of Purging: 4/24/12 Start Time: 11:40 Finish Time: 12:00 Weather: 48 F
Date of Collection: 4/24/12 Time of Collection: 11:55

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.58
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.62

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	17.0	16.8	16.8	16.8	16.8	16.8
pH	5.77	5.86	5.89	5.87	5.87	5.87
Specific Conductance (umhos/cm)	2930	3020	3040	3020	3020	3020
Dissolved Oxygen (mg/l)	3.38	2.33	2.35	2.04	2.03	2.03
Oxidation Reduction (eH)	241.1	212.3	212.6	205.3	206.1	206.1

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 04 PZM 003 Tag: BA-81-2491

Date of Purging: 4/24/12 Start Time: 11:15 Finish Time: 11:25 Weather: 48°
Date of Collection: 4/24/12 Time of Collection: 11:30

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	5.11
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.97

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	14.5	14.5	14.4	14.5	14.5	14.5
pH	6.89	6.94	6.94	6.90	6.90	6.90
Specific Conductance (umhos/cm)	975	1030	1038	1070	1070	1070
Dissolved Oxygen (mg/l)	2.02	2.02	2.10	1.97	1.98	1.97
Oxidation Reduction (eH)	201.6	168.7	163.1	163.7	163.7	163.6

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor
Color

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW03 PZM 003 Tag: BM 81 - 2492

Date of Purging: 4/24/12 Start Time: 10:20 Finish Time: 10:40 Weather: 48°
Date of Collection: 4/24/12 Time of Collection: 10:35

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.00
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	3.91

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	13.0	12.9	13.1	13.2	13.2	13.2
pH	5.35	5.25	5.21	6.20	5.19	5.19
Specific Conductance (umhos/cm)	1703	1705	1701	1699	1700	1700
Dissolved Oxygen (mg/l)	4.23	3.60	3.00	3.04	3.11	3.11
Oxidation Reduction (eH)	335.1	350.9	359.2	360.9	362.5	362.1

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor None
Color ~~Brown~~ light Brown

Rate of Purge _____ **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling ____/____/____. (Tech –)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW 01 PZM 020 Tag: BA-81 : 4133

Date of Purging: 4/24/12 Start Time: 1045 Finish Time: 11:05 Weather: 48 F
Date of Collection: 4/24/12 Time of Collection: 11:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.27
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.21

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	15.0	15.1	15.3	15.3	15.2	15.2
pH	5.65	5.62	5.61	5.61	5.63	5.63
Specific Conductance (umhos/cm)	1012	1013	963	969	967	968
Dissolved Oxygen (mg/l)	4.28	4.16	3.72	3.79	3.80	3.80
Oxidation Reduction (eH)	386.5	395.9	402.5	403.3	403.3	403.3

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling ____/____/____. (Tech –)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW12 PZM 004 Tag: BA-94-5704

Date of Purging: 4/24/12 Start Time: 9:00 Finish Time: 9:20 Weather: 48 °F
Date of Collection: 4/24/12 Time of Collection: 9:15

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	7.25
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.20

	5	6	9	12	15	Sample Reading
Number of minutes purged	"	"	"	"	"	15
Temperature (°C)	13.3	13.3	13.6	13.5	13.5	13.5
pH	6.24	6.25	5.91	5.67	5.66	5.66
Specific Conductance (umhos/cm)	661	662	1073	1076	1075	1075
Dissolved Oxygen (mg/l)	3.86	3.79	3.52	3.51	3.51	3.51
Oxidation Reduction (eH)	235.7	262.1	296.3	301.5	301.5	301.5

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor
Color

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW13 PZM 020 Tag: BA-94-5709

Date of Purging: 4/24/12 Start Time: 8:30 Finish Time: 8:50 Weather: 48°F
Date of Collection: 4/24/12 Time of Collection: 8:45

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good	✓	Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.90
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.86

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	15.3	15.4	15.4	15.4	15.4	15.4
pH	5.11	5.83	5.90	5.90	5.91	5.91
Specific Conductance (umhos/cm)	2210	2640	2640	2630	2630	2630
Dissolved Oxygen (mg/l)	3.96	3.91	2.99	2.98	2.98	2.98
Oxidation Reduction (eH)	488.1	258.3	150.4	191.3	191.6	191.4

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling ____/____/____. (Tech –)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 02 PZM 020 Tag: BO-81-4134

Date of Purging: 4/24/12 Start Time: 9:30 Finish Time: 9:50 Weather: 48°F
Date of Collection: 4/24/12 Time of Collection: 9:45

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.72
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	15.68

						Sample Reading
Number of minutes purged	0	3	6	9	12	
Temperature (°C)	15.1	15.5	15.1	15.1	15.1	15.1
pH	5.12	5.15	5.15	5.16	5.16	5.16
Specific Conductance (umhos/cm)	113000	11140	11020	10980	10760	10770
Dissolved Oxygen (mg/l)	3.16	2.67	2.62	2.62	2.55	2.54
Oxidation Reduction (eH)	318.7	292.8	283.4	281.5	275.0	275.1

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor
Color

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling ____/____/____. (Tech –)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW02 PZM 000 Tag: BA-81-4138

Date of Purging: 4/24/12 Start Time: 9:55 Finish Time: 10:15 Weather: 48 F
Date of Collection: 4/24/12 Time of Collection: 10:10

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.24
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.15

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	13.9	13.7	13.7	13.7	13.4	13.6
pH	7.10	7.13	7.09	7.10	7.08	7.05
Specific Conductance (umhos/cm)	823	829	832	832	836	838
Dissolved Oxygen (mg/l)	7.23	6.84	6.78	6.79	6.78	6.77
Oxidation Reduction (eH)	277.6	329.1	353.0	353.0	352.1	352.1

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling 4 / 24 / 12. (Tech – TH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 19 12m 050 Tag: BM 81-4978

Date of Purging: 4/25/12 Start Time: 12:00 Finish Time: 12:18 Weather: 51 °F

Date of Collection: 4/25/12 Time of Collection: 12:15

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.15
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.13

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	16.9	16.7	16.7	16.5	16.5	16.5
pH	6.09	6.51	6.53	6.60	6.50	6.50
Specific Conductance (umhos/cm)	283	281	281	281	281	281
Dissolved Oxygen (mg/l)	7.07	7.06	7.81	7.81	7.81	7.81
Oxidation Reduction (eH)	390.7	419.9	421.8	421.6	421.8	421.8

Purging Equipment

Peristaltic Pump ✓

Bladder Pump

Well Observation

Odor NONE

Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12. (Tech – TH)

HQN:groundsg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW21 PZM 023 Tag: BA - 94 - 5706

Date of Purging: 4/25/12 Start Time: ~~10:25~~ 11:25 Finish Time: 11:45 Weather: 51 °F

Date of Collection: 4/25/12 Time of Collection: ~~10:40~~ 11:40

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.13
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.03

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	16.5	16.6	16.6	16.2	16.2	16.3
pH	2.33	2.33	2.36	2.55	2.55	2.55
Specific Conductance (umhos/cm)	9740	9640	10570	10390	10390	10390
Dissolved Oxygen (mg/l)	8.74	7.80	4.71	3.99	3.99	3.99
Oxidation Reduction (eH)	~~728.7~~ 728.7	688.7	621.1	621.3	621.3	621.3

Purging Equipment

Peristaltic Pump ✓

Bladder Pump

Well Observation

Odor

Color

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12 . (Tech – TP)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW20 PZM 050 Tag: BM 81 #983

Date of Purging: 4/20/12 Start Time: 11:00 Finish Time: 11:16 Weather: 51 °F

Date of Collection: 4/25/12 Time of Collection: 11:15

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.21
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	10.09

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	16.2	16.3	16.3	16.3	16.3	16.3
pH	11.44	11.45	11.45	11.45	11.45	11.45
Specific Conductance (umhos/cm)	388	388	387	387	387	387
Dissolved Oxygen (mg/l)	11.06	9.97	9.32	9.32	9.31	9.31
Oxidation Reduction (eH)	240.1	237.2	236.9	236.8	236.9	236.9

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor NONE

Color CLEAR

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 11 PZM 004 Tag: _____

Date of Purging: 4/25/12 Start Time: 8:30 Finish Time: 8:50 Weather: 51°

Date of Collection: 4/25/12 Time of Collection: 8:45

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	5.90
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	5.86

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	14.6	14.6	14.3	14.3	14.3	14.3
pH	3.75	3.81	3.85	4.12	4.12	4.12
Specific Conductance (umhos/cm)	9470	9471	9475	9475	9475	9475
Dissolved Oxygen (mg/l)	6.50	6.53	6.51	6.53	6.53	6.53
Oxidation Reduction (eH)	516.9	516.1	516.1	516.4	516.4	516.4

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling ____/____/____. (Tech –)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 09 P2M 004 Tag: 3A-94-5701

Date of Purging: 4/25/12 Start Time: 7:00 Finish Time: 7:20 Weather: 49°
Date of Collection: 4/25/12 Time of Collection: 7:15

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good	✓	Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.87
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.85

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	14.9	14.9	14.5	14.6	14.5	14.5
pH	11.59	11.55	11.55	11.53	11.53	11.53
Specific Conductance (umhos/cm)	527	527	530	530	535	535
Dissolved Oxygen (mg/l)	5.01	5.01	5.15	5.15	5.15	5.15
Oxidation Reduction (eH)	478.2	478.0	478.0	476.2	476.2	476.2

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling 4 / 25 / 12. (Tech – TL)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW06 P2M 001 Tag: BA-81-7935

Date of Purging: 4/25/12 Start Time: 8:00 Finish Time: 8:20 Weather: _____

Date of Collection: 4/25/12 Time of Collection: 8:15

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	3.05
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	3.00

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	14.7	14.5	14.5	14.1	14.1	14.1
pH	6.19	6.22	6.20	6.18	6.17	6.17
Specific Conductance (umhos/cm)	785	789	781	781	781	781
Dissolved Oxygen (mg/l)	4.83	4.26	4.26	4.27	4.29	4.28
Oxidation Reduction (eH)	479.8	479.9	479.1	489.1 (7)	479.1	479.1

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 160 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW08 PZM 003 Tag: BA 81 2488

Date of Purging: 4/25/12 Start Time: 7:30 Finish Time: 7:50 Weather: 49°F

Date of Collection: 4/25/12 Time of Collection: 7:45

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.73
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.70

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	14.4	14.4	14.1	14.1	14.1	14.1
pH	4.12	4.11	4.05	4.05	4.05	4.05
Specific Conductance (umhos/cm)	1647	1645	1644	1644	1645	1645
Dissolved Oxygen (mg/l)	4.05	4.08	4.04	4.03	4.00	4.01
Oxidation Reduction (eH)	547.1	548.4	547.1	547.1	547.1	547.1

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor None

Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW RD PZM 019 Tag: BA 94 5710

Date of Purging: 4/25/12 Start Time: 9:00 Finish Time: 9:20 Weather: 55°

Date of Collection: 4/25/12 Time of Collection: 9:15

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.22
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.18

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	15.9	15.1	16.2	16.2	16.2	16.2
pH	2.75	5.71	5.72	5.75	5.75	5.75
Specific Conductance (umhos/cm)	3450	5350	5600	5620	5620	5620
Dissolved Oxygen (mg/l)	8.68	4.44	4.00	3.84	3.84	3.84
Oxidation Reduction (eH)	602.5	251.3	247.1	243.6	243.6	243.6

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor NONE

Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12. (Tech – TM)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW16 PZM 020 Tag: BM94-5707

Date of Purging: 4/25/12 Start Time: 9:30 Finish Time: 9:50 Weather: 51°F
Date of Collection: 4/25/12 Time of Collection: 9:45

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.91
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.87

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	16.4	16.4	16.5	16.5	16.5	16.5
pH	4.39	4.38	4.40	5.67	5.77	5.78
Specific Conductance (umhos/cm)	1047	1048	1045	5710	5760	5760
Dissolved Oxygen (mg/l)	5.09	5.12	5.25	5.23	5.26	5.27
Oxidation Reduction (eH)	412.0	414.9	419.5	273.8	257.3	257.4

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor
Color

Rate of Purge 160 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling ____/____/____. (Tech –)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW20P2M 000 Tag: BM 81 4591

Date of Purging: 4/25/12 Start Time: 10:10 Finish Time: 10:30 Weather: 55°
Date of Collection: 4/25/12 Time of Collection: 10:25

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	3.32
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	5.30

						Sample Reading
Number of minutes purged	0	3	6	9	12	
Temperature (°C)	16.0	15.8	15.6	15.3	15.3	15.3
pH	7.85	8.06	8.92	8.31	8.32	8.32
Specific Conductance (umhos/cm)	210	211	214	229	229	225
Dissolved Oxygen (mg/l)	6.13 ~~2359~~	6.05	5.40	4.41	4.40	4.40
Oxidation Reduction (eH)	235.9	244.9	209.1	190.5	190.5	190.5

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling 4 / 25 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW 20 P2M 020 Tag: BA-81-4182

Date of Purging: 4/25/12 Start Time: 10:30 Finish Time: 11:00 Weather: 51°F
Date of Collection: 4/25/12 Time of Collection: 10:45

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.91
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.82

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	16.2	15.9	15.8	15.7	15.7	15.7
pH	2.82	2.94	2.95	2.97	2.97	2.97
Specific Conductance (umhos/cm)	4150	4160	4190	4180	4190	4180
Dissolved Oxygen (mg/l)	4.16	4.11	3.18	2.85	2.85	2.85
Oxidation Reduction (eH)	460.2	473.1	491.5	500.7	500.7	500.7

Purging Equipment
Peristaltic Pump ✓
Bladder Pump

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014
Readings were performed on date of sampling 4 / 25 / 12. (Tech -TM)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 18 P2M 047 Tag: BM 81 4555

Date of Purging: 4/25/12 Start Time: 13:20 Finish Time: 13:40 Weather: 51°F

Date of Collection: 4/25/12 Time of Collection: 13135

Well Status:

Good	✓	Grout	
Good		Casing	No Cap No I.D
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.96
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	15.90

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	16.5	16.3	16.1	16.1	16.1	16.1
pH	6.81	6.83	6.70	6.73	6.73	6.73
Specific Conductance (umhos/cm)	422	456	459	459	455	455
Dissolved Oxygen (mg/l)	2.59	2.61	3.99	3.36	3.36	3.36
Oxidation Reduction (eH)	433	437	476	474	477	477

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor _____

Color _____

Rate of Purge 150 **milliliters / minute**

Comments: No Cap No I.D Ranged 4/23/12 may affect.

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12 . (Tech – JA)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW19 P2MW000 Tag: BA 81 4980

Date of Purging: 4/25/12 Start Time: 12:40 Finish Time: 13:10 Weather: 51° F

Date of Collection: 4/25/12 Time of Collection: 12:55

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.90
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.85

	0	3	6	9	12	Sample Reading
Number of minutes purged						
Temperature (°C)	16.2	15.1	15.1	15.1	15.1	15.1
pH	9.68	9.98	10.09	10.09	10.09	10.09
Specific Conductance (umhos/cm)	240	240	244	244	244	244
Dissolved Oxygen (mg/l)	9.57	10.01	10.05	10.05	10.04	10.05
Oxidation Reduction (eH)	276.1	277.1	277.6	277.7	277.6	277.6

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor NONE

Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12. (Tech – TM)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW19 PZM 020 Tag: BA - 81 4979

Date of Purging: 4/25/12 Start Time: 12:20 Finish Time: 12:38 Weather: 51°F

Date of Collection: 4/25/12 Time of Collection: 12:35

Well Status:

Good	✓	Grout	
Good	✓	Casing	
Good		Lock	
Good		Obstructions	

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.26
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.21

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	16.7	16.7	16.9	17.0	17.0	17.0
pH	6.76	6.86	6.13	5.53	5.53	5.53
Specific Conductance (umhos/cm)	1803	1812	10290	10280	10280	10290
Dissolved Oxygen (mg/l)	9.56	9.36	7.46	4.06	4.06	4.06
Oxidation Reduction (eH)	417.0	417.7	388.9	314.6	314.6	314.6

Purging Equipment

Peristaltic Pump ✓

Bladder Pump

Well Observation

Odor NONE

Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:

Reference SOP Field-014

Readings were performed on date of sampling 4 / 25 / 12. (Tech – TN)

HQN:groundisg.doc.white

Microbac Laboratories, Inc.

Gascoyne Division
Bethlehem Steel Corporation
Elevations @ the Former Rod & Wire Mill Area

	Well Designation	Total Depth (ft.)	Depth to Water (ft.)
1	RW01-PZM020	30	11.90
2	RW02-PZM000	10	6.70
3	RW02-PZM020	30	12.41
4	RW03-PZM003	15	5.72
5	RW04-PZM003	15	6.24
6	RW05-PZM001	10	[redacted]
7	RW06-PZM001	10	7.73
8	RW07-PZM004	14	8.36
9	RW07-PZM017	30	12.46
10	RW08-PZM003	14	6.14
11	RW09-PZM004	14	7.83
12	RW10-PZM004	14	3.80
13	RW10-PZM020	30	7.61
14	RW10-PZM065	70	4.36
15	RW11-PZM004	14	7.25
16	RW12-PZM004	14	8.36
17	RW13-PZM020	30	12.47
18	RW14-PZM020	30	13.02
19	RW15-PZM020	32	9.61
20	RW16-PZM020	30	12.41
21	RW17-PZM019	29	8.46
22	RW18-PZM047	60	10.44
23	RW19-PZM020	30	13.91
24	RW19-PZM050	60	14.47
25	RW19-PZM000	10	8.66
26	RW20-PZM020	32	12.49
27	RW20-PZM050	60	15.37
28	RW20-PZM000	10	8.77
29	RW21-PZM023	33	14.40
30	TS04-PDM004	15	10.11
31	TS04-PPM007	17	[redacted]
32	TS04-PZM023	33	10.53
33			

Note:
1. Groundwater elevations were performed on

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW 13 P2M 020 Tag: BA 94 5709

Date of Purging: 10/23/12 Start Time: ~~10~~ 12:25 Finish Time: 1245 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 1240

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	12.47
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	12.38

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.0	18.2	18.2	18.2	18.2	18.2
pH	5.61	5.83	5.83	5.83	5.83	5.83
Specific Conductance (umhos/cm)	2.25	2.79	2.81	2.81	2.81	2.81
Dissolved Oxygen (mg/l)	2.90	2.18	1.97	1.97	1.97	1.97
Oxidation Reduction (eH)	1129	1130	1130	1130	1130	1130

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW 11 PZM1 004 Tag: BA 94 5703

Date of Purging: 10/23/12 Start Time: 12:00 Finish Time: 12:20 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 12:15

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	7.25
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.20

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	21.6	21.6	21.7	21.7	21.7	21.7
pH	3.68	3.68	3.71	3.71	3.74	3.75
Specific Conductance (umhos/cm)	8.66	8.66	7.84	7.84	6.97	6.97
Dissolved Oxygen (mg/l)	4.12	4.12	3.74	3.74	3.21	3.21
Oxidation Reduction (eH)	440	440	442	442	441	441

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW 21 PZM 023 Tag: BA-94-5706

Date of Purging: 10/23/12 Start Time: 8:30 Finish Time: 8:55 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 8:45

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.40
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.32

	0	3	6	9	12	Sample Reading
Number of minutes purged						15
Temperature (°C)	17.7	17.7	17.7	17.7	17.7	17.7
pH	3.67	4.94	5.40	5.40	5.41	5.41
Specific Conductance (umhos/cm)	10.38	10.38	10.31	10.31	10.31	10.31
Dissolved Oxygen (mg/l)	3.94	3.99	3.99	3.99	3.99	3.99
Oxidation Reduction (eH)	561	561	565	~~566~~ 566	565	565

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12 . (Tech – JH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW 20 PZM 050 Tag: BA 81 4983

Date of Purging: 10/23/12 Start Time: 9:10 Finish Time: 9:30 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 9:25

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	15.37
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	15.30

	0	3	6	9	12	Sample Reading
Number of minutes purged						15
Temperature (°C)	18.1	18.1	18.2	18.1	18.1	18.1
pH	10.11	10.12	10.09	10.09	10.09	10.09
Specific Conductance (umhos/cm)	243	245	242	241	241	241
Dissolved Oxygen (mg/l)	5.00	5.03	5.40	5.20	5.20	5.20
Oxidation Reduction (eH)	379	369	360	360	360	360

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 20 P2M 000 Tag: BA 94 4981

Date of Purging: 10/23/12 Start Time: 9:35 Finish Time: 9:55 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: ~~9:55~~ 9:50

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.77
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.70

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	20.8	20.9	20.9	20.9	20.9	20.9
pH	7.30	6.95	6.94	6.93	6.93	6.93
Specific Conductance (umhos/cm)	393	423	425	424	424	424
Dissolved Oxygen (mg/l)	4.19	3.11	2.91	2.90	2.90	2.90
Oxidation Reduction (eH)	984	980	980	980	980	980

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 20 P2M 020 Tag: 13A 94 4982

Date of Purging: 10/23/12 Start Time: 10:00 Finish Time: 1020 Weather: 55·60
Date of Collection: 10/23/12 Time of Collection: 10:15

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	12.49
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	12.43

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.5	18.4	18.4	18.4	18.4	18.4
pH	4.01	5.06	5.06	5.06	5.06	5.06
Specific Conductance (umhos/cm)	5.06	4.01	4.01	4.01	4.01	4.01
Dissolved Oxygen (mg/l)	2.17	2.00	2.00	2.00	2.00	2.00
Oxidation Reduction (eH)	1033	1033	1033	1033	1033	1033

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color CLEAR

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: TS04 PSM 004 Tag: No Tag

Date of Purging: 10/23/12 Start Time: 1030 Finish Time: 1050 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 1045

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.11
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	10.01

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	20.1	20.2	20.2	20.2	20.2	20.2
pH	6.55	6.59	6.66	6.67	6.67	6.67
Specific Conductance (umhos/cm)	531	532	561	561	561	561
Dissolved Oxygen (mg/l)	4.67	4.60	4.44	4.44	4.44	4.44
Oxidation Reduction (eH)	515	513	513	513	513	513

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW 05 12M 004 Tag: BA 94 5701

Date of Purging: 10/23/12 Start Time: 13:45 Finish Time: 14:05 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 14:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	7.85
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.77

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	22.0	22.2	22.1	22.1	22.1	22.1
pH	10.14	10.81	10.81	10.80	10.80	10.80
Specific Conductance (umhos/cm)	~~396~~	522	528	527	527	527
Dissolved Oxygen (mg/l)	3.34	2.99	3.08	3.08	3.08	3.08
Oxidation Reduction (eH)	884	881	883	882	882	882

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW14 P2M 020 Tag: BA 94 5708

Date of Purging: 10/23/12 Start Time: 14:10 Finish Time: 1430 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 14:25

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.02
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	12.87

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.0	18.4	18.3	18.3	18.3	18.3
pH	6.10	5.93	5.88	5.87	5.86	5.86
Specific Conductance (umhos/cm)	3.20	3.06	3.00	3.01	3.00	3.01
Dissolved Oxygen (mg/l)	2.53	2.34	2.14	2.14	2.13	2.13
Oxidation Reduction (eH)	1450	1450	1450	1450	1450	1450

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:_____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 04 PZM 003 Tag: BM 81 2491

Date of Purging: 10/23/12 Start Time: 14:40 Finish Time: 15:00 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 1455

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	6.24
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.20

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	20.1	20.1	20.1	20.1	20.1	20.1
pH	6.88	6.87	6.88	6.88	6.85	6.85
Specific Conductance (umhos/cm)	707	706	705	705	705	705
Dissolved Oxygen (mg/l)	1.97	1.99	1.97	1.97	1.98	1.98
Oxidation Reduction (eH)	297	297	296	296	296	296

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW12 DEM004 Tag: BA 94 5709

Date of Purging: 10/22/12 Start Time: 12:55 Finish Time: 13:15 Weather: 55-60
Date of Collection: 10/23/12 Time of Collection: 13:10

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.15

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	19.9	20.10	19.9	19.9	19.8	19.9
pH	6.10	5.77	5.48	5.47	5.47	5.47
Specific Conductance (umhos/cm)	712	1129	1431	1501	1502	1502
Dissolved Oxygen (mg/l)	2.85	2.63	2.38	2.54	2.53	2.53
Oxidation Reduction (eH)	367	366	365	365	365	365

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 23 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW15 PZM020 Tag: 3hen24

Date of Purging: 10/25/12 Start Time: 1415 Finish Time: 1435 Weather: 55-60
Date of Collection: 10/25/12 Time of Collection: 1430

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	9.61
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.50

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	17.0	17.0	17.0	17.0	17.0	17.0
pH	5.98	5.73	5.73	5.73	5.73	5.73
Specific Conductance (umhos/cm)	1030	1030	1030	1030	1030	1030
Dissolved Oxygen (mg/l)	1.20	1.00	1.00	1.00	1.00	1.00
Oxidation Reduction (eH)	104	104	104	104	104	104

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color CLEAR

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12. (Tech – TH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW02 PZM 020 Tag: BH 81 4134

Date of Purging: 10/25/12 Start Time: 10:10 Finish Time: 10:30 Weather: 55 - 60
Date of Collection: 10/25/12 Time of Collection: 10:25

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	12.41
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	12.31

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	17.0	17.0	16.9	16.8	16.9	16.9
pH	5.18	5.18	5.20	5.20	5.20	5.20
Specific Conductance (umhos/cm)	10.61	10.61	10.76	10.76	10.76	10.76
Dissolved Oxygen (mg/l)	3.61	3.61	2.57	2.53	2.83	2.53
Oxidation Reduction (eH)	1230	1230	1230	1230	1230	1230

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12. (Tech – TH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW01 PZM 020 Tag: BA 81 4133

Date of Purging: 10/25/12 Start Time: 8:30 Finish Time: 8:50 Weather: 55-60
Date of Collection: 10/25/12 Time of Collection: 8:45

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	11.90
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	10.45

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	17.4	17.4	17.4	17.4	17.4	17.4
pH	5.59	5.60	5.60	5.61	5.61	5.61
Specific Conductance (umhos/cm)	1616	1616	1615	1615	1615	1615
Dissolved Oxygen (mg/l)	4.42	4.42	4.40	4.40	4.41	4.41
Oxidation Reduction (eH)	930	931	931	930	931	931

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor _____
Color _____

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW03 P2M003 Tag: BA 81 2492

Date of Purging: 10/25/12 Start Time: 9:10 Finish Time: 9:30 Weather: 55 - 60
Date of Collection: 10/25/12 Time of Collection: 9:25

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	5.72
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	5.14

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.4	18.5	18.5	18.5	18.5	18.5
pH	5.67	5.64	5.39	5.38	5.37	5.37
Specific Conductance (umhos/cm)	1592	1602	1602	1600	1601	1601
Dissolved Oxygen (mg/l)	3.10	2.91	2.60	2.60	2.60	2.60
Oxidation Reduction (eH)	576	578	576	575	576	576

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12 . (Tech – TH)

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW02 P2M1000 Tag: BM 81 4738

Date of Purging: 10/25/12 Start Time: 945 Finish Time: 10:05 Weather: 60 - 55
Date of Collection: 10/25/12 Time of Collection: 10:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	6.70
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.48

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.6	18.6	18.6	18.6	18.6	18.6
pH	6.10	6.11	6.12	6.13	6.13	6.13
Specific Conductance (umhos/cm)	866	867	867	867	867	867
Dissolved Oxygen (mg/l)	4.18	4.10	4.06	4.06	4.06	4.06
Oxidation Reduction (eH)	631	630	631	631	631	631

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge _____ **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: Severstal Site: ROD & WIRE
Well I.D.: RW07 PZM004 Tag: BASF 5711

Date of Purging: 10/25/12 Start Time: 1040 Finish Time: 1100 Weather: 55-60
Date of Collection: 10/25/12 Time of Collection: 1055

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.98

	0	3	6	9	12	Sample Reading 15
Number of minutes purged						
Temperature (°C)	19.4	19.4	19.5	19.5	19.5	19.5
pH	7.89	7.89	7.89	7.89	7.89	7.89
Specific Conductance (umhos/cm)	937	948	954	954	954	954
Dissolved Oxygen (mg/l)	2.50	2.41	2.39	2.39	2.39	2.39
Oxidation Reduction (eH)	1071	1070	1070	1070	1070	1070

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor _____
Color _____

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12. (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 08 P2M 003 Tag: BA 812488

Date of Purging: 10/25/12 Start Time: 12:50 Finish Time: 13:10 Weather: 55-60
Date of Collection: 10/25/12 Time of Collection: 13:05

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	6.14
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	6.02

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	20.3	20.2	20.2	20.2	20.2	20.2
pH	4.96	4.96	4.95	4.95	4.95	4.95
Specific Conductance (umhos/cm)	1660	1663	1663	1663	1663	1663
Dissolved Oxygen (mg/l)	2.80	2.37	2.37	2.37	2.37	2.37
Oxidation Reduction (eH)	488	488	487	487	487	487

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:_____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12. (Tech – TN)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW 06 P2M 001 Tag: BA 81 7535

Date of Purging: 10/25/12 Start Time: 13:20 Finish Time: 1340 Weather: _____
Date of Collection: 10/25/12 Time of Collection: 13:35

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	7.73
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.64

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	20.2	20.0	20.0	20.0	20.0	20.0
pH	5.81	5.74	5.71	5.71	5.71	5.71
Specific Conductance (umhos/cm)	919	913	913	913	913	913
Dissolved Oxygen (mg/l)	3.80	3.22	3.20	3.20	3.20	3.20
Oxidation Reduction (eH)	1550	1550	1550	1550	1550	1550

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor _____
Color _____

Rate of Purge _____ **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well **I.D.**: RW07 PZM 017 Tag: BA 814132

Date of Purging: 10/25/12 Start Time: 11:10 Finish Time: 11:~~20~~ 30 Weather: 55-60

Date of Collection: 10/25/12 Time of Collection: 11:25

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	12.46
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	12.31

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	17.7	17.6	17.6	17.6	17.6	17.6
pH	3.83	4.03	4.20	4.20	4.20	4.20
Specific Conductance (umhos/cm)	3.24	3.23	3.23	3.23	3.23	3.23
Dissolved Oxygen (mg/l)	2.78	2.65	2.60	2.60	2.60	2.60
Oxidation Reduction (eH)	927	925	926	926	926	926

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:_____

Reference SOP Field-014

Readings were performed on date of sampling 10 / 25 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well **I.D.**: RW10 PZM 020 Tag: sheet 27

Date of Purging: 10/25/12 Start Time: 1350 Finish Time: 1410 Weather: 55-60
Date of Collection: 10/25/12 Time of Collection: 1405

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2 4
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	7.61
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	7.55

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.4	18.4	18.0	18.0	18.0	18.0
pH	5.34	5.34	5.35	5.35	5.35	5.35
Specific Conductance (umhos/cm)	3.97	3.97	3.95	3.95	3.95	3.95
Dissolved Oxygen (mg/l)	3.22	3.22	3.20	3.20	3.20	3.20
Oxidation Reduction (eH)	408	408	408	408	408	408

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 10 / 25 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: TSO4 PZM 023 Tag: NO TAG ON STREET LEVEL

Date of Purging: 11/2/12 Start Time: 8:30 Finish Time: 850 Weather: 55-50 WIND
Date of Collection: 11/2/12 Time of Collection: 845

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.53
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.61

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.5	18.3	18.3	18.0	17.9	17.9
pH	6.44	6.40	6.38	6.38	6.38	6.38
Specific Conductance (umhos/cm)	2166	2166	2163	2163	2163	2163
Dissolved Oxygen (mg/l)	4.01	4.01	3.96	3.96	5.96	3.96
Oxidation Reduction (eH)	140	140	140	140	140	140

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color DARK

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: TSO4 PZM 023 Tag: NO TAG ON STREET LEVEL

Date of Purging: 11/2/12 Start Time: 8:30 Finish Time: 850 Weather: 55-50 WINDY
Date of Collection: 11/2/12 Time of Collection: 845

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.53
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.61

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.5	18.3	18.3	18.0	17.9	17.9
pH	6.44	6.40	6.38	6.38	6.38	6.38
Specific Conductance (umhos/cm)	2166	2166	2163	2163	2163	2163
Dissolved Oxygen (mg/l)	4.01	4.01	3.96	3.96	5.96	3.96
Oxidation Reduction (eH)	140	140	140	140	140	140

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color DARK

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 10 PZM 065 Tag: No Tag on ground

Date of Purging: 11/2/12 Start Time: 1115 Finish Time: 1135 Weather: 50-55

Date of Collection: 11/2/12 Time of Collection: 1130

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.24

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.7	18.7	18.5	18.5	18.5	18.5
pH	8.90	8.90	7.01	6.34	6.34	6.30
Specific Conductance (umhos/cm)	844	840	977	978	978	978
Dissolved Oxygen (mg/l)	2.26	2.20	1.41	1.40	1.40	1.40
Oxidation Reduction (eH)	300	301	297	297	297	297

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 12. (Tech – TG)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: TSO4 PZM 023 Tag: NO TAG ON STREET LEVEL

Date of Purging: 11/2/12 Start Time: 8:30 Finish Time: 850 Weather: 55-50 WINDY
Date of Collection: 11/2/12 Time of Collection: 845

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.53
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.61

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.5	18.3	18.3	18.0	17.9	17.9
pH	6.44	6.40	6.38	6.38	6.38	6.38
Specific Conductance (umhos/cm)	2166	2166	2163	2163	2163	2163
Dissolved Oxygen (mg/l)	4.01	4.01	3.96	3.96	3.96	3.96
Oxidation Reduction (eH)	140	140	140	140	140	140

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color DARK

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TH)

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Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 10 PZM 065 Tag: No Tag on ground

Date of Purging: 11/2/12 Start Time: 1115 Finish Time: 1135 Weather: 50-55

Date of Collection: 11/2/12 Time of Collection: 1130

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.24

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.7	18.7	18.5	18.5	18.5	18.5
pH	8.90	8.90	7.01	6.34	6.34	6.30
Specific Conductance (umhos/cm)	844	840	977	978	978	978
Dissolved Oxygen (mg/l)	2.26	2.20	1.41	1.40	1.40	1.40
Oxidation Reduction (eH)	300	301	297	297	297	297

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 12. (Tech – TG)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RLO 18 P2M 047 Tag: BA 81 4995

Date of Purging: 11/2/12 Start Time: 1045 Finish Time: 11:05 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 11:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.44
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.44

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.1	17.9	17.8	17.8	17.8	17.8
pH	6.50	6.48	6.33	6.30	6.30	6.30
Specific Conductance (umhos/cm)	501	500	504	505	505	505
Dissolved Oxygen (mg/l)	3.91	3.90	3.90	3.88	3.88	3.88
Oxidation Reduction (eH)	320	319	319	317	317	317

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge ✓ **milliliters / minute**

Comments: NO CAPS

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech – TA)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: TSO4 PZM 023 Tag: NO TAG ON STREET LEVEL

Date of Purging: 11/2/12 Start Time: 8:30 Finish Time: 850 Weather: 55-50 WIND
Date of Collection: 11/2/12 Time of Collection: 845

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.53
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.61

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.5	18.3	18.3	18.0	17.9	17.9
pH	6.44	6.40	6.38	6.38	6.38	6.38
Specific Conductance (umhos/cm)	2166	2166	2163	2163	2163	2163
Dissolved Oxygen (mg/l)	4.01	4.01	3.96	3.96	3.96	3.96
Oxidation Reduction (eH)	140	140	140	140	140	140

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color DARK

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 10 PZM 065 Tag: No Tag on ground

Date of Purging: 11/2/12 Start Time: 1115 Finish Time: 1135 Weather: 50-55

Date of Collection: 11/2/12 Time of Collection: 1130

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.24

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.7	18.7	18.5	18.5	18.5	18.5
pH	8.90	8.90	7.01	6.34	6.34	6.30
Specific Conductance (umhos/cm)	844	840	977	978	978	978
Dissolved Oxygen (mg/l)	2.26	2.20	1.41	1.40	1.40	1.40
Oxidation Reduction (eH)	300	301	297	297	297	297

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 12. (Tech – TG)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RLO 18 P2M 047 Tag: BA 81 4995

Date of Purging: 11/2/12 Start Time: 1045 Finish Time: 11:05 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 11:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.44
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.44

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.1	17.9	17.8	17.8	17.8	17.8
pH	6.50	6.48	6.33	6.30	6.30	6.30
Specific Conductance (umhos/cm)	501	500	504	505	505	505
Dissolved Oxygen (mg/l)	3.91	3.90	3.90	3.88	3.88	3.88
Oxidation Reduction (eH)	320	319	319	317	317	317

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge ✓ **milliliters / minute**

Comments: NO CAPS

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech – TA)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 19 PZM 000 Tag: BA 81 -4980

Date of Purging: 11/2/12 Start Time: 1015 Finish Time: 10:35 Weather: 55-60
Date of Collection: 11/2/12 Time of Collection: 1030

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.66
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.41

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.0	18.0	18.0	17.8	17.8	17.8
pH	7.05	7.05	7.09	7.10	7.10	7.10
Specific Conductance (umhos/cm)	850	846	840	840	840	840
Dissolved Oxygen (mg/l)	2.91	2.90	2.90	2.88	2.88	2.85
Oxidation Reduction (eH)						

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: TSO4 PZM 023 Tag: NO TAG ON STREET LEVEL

Date of Purging: 11/2/12 Start Time: 8:30 Finish Time: 850 Weather: 55-50 WIND
Date of Collection: 11/2/12 Time of Collection: 845

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.53
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.61

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.5	18.3	18.3	18.0	17.9	17.9
pH	6.44	6.40	6.38	6.38	6.38	6.38
Specific Conductance (umhos/cm)	2166	2166	2163	2163	2163	2163
Dissolved Oxygen (mg/l)	4.01	4.01	3.96	3.96	5.96	3.96
Oxidation Reduction (eH)	140	140	140	140	140	140

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color DARK

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 10 PZM 065 Tag: No Tag on ground

Date of Purging: 11/2/12 Start Time: 1115 Finish Time: 1135 Weather: 50-55

Date of Collection: 11/2/12 Time of Collection: 1130

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.24

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.7	18.7	18.5	18.5	18.5	18.5
pH	8.90	8.90	7.01	6.34	6.34	6.30
Specific Conductance (umhos/cm)	844	840	977	978	978	978
Dissolved Oxygen (mg/l)	2.26	2.20	1.41	1.40	1.40	1.40
Oxidation Reduction (eH)	300	301	297	297	287	297

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 12. (Tech – TG)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RLO 18 P2M 047 Tag: BA 81 4995

Date of Purging: 11/2/12 Start Time: 1045 Finish Time: 1105 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 11:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.44
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.44

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.1	17.9	17.8	17.8	17.8	17.8
pH	6.50	6.48	6.33	6.30	6.30	6.30
Specific Conductance (umhos/cm)	501	500	504	505	505	505
Dissolved Oxygen (mg/l)	3.91	3.90	3.90	3.88	3.88	3.88
Oxidation Reduction (eH)	320	319	319	317	317	317

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge ✓ **milliliters / minute**

Comments: NO CAPS

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech – TA)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 19 PZM 000 Tag: BA 81 -4980

Date of Purging: 11/2/12 Start Time: 1015 Finish Time: 10:35 Weather: 55-60
Date of Collection: 11/2/12 Time of Collection: 1030

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.66
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.41

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.0	18.0	18.0	17.8	17.8	17.8
pH	7.05	7.05	7.09	7.10	7.10	7.10
Specific Conductance (umhos/cm)	850	846	840	840	840	840
Dissolved Oxygen (mg/l)	2.91	2.90	2.90	2.88	2.88	2.85
Oxidation Reduction (eH)						

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 15 PZM 050 Tag: BA 81 4978

Date of Purging: 11/2/12 Start Time: 9:50 Finish Time: 10:10 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 10:05

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.47
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.00

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	17.9	17.9	17.9	17.9	17.9	17.9
pH	5.55	5.55	5.53	5.52	5.52	5.52
Specific Conductance (umhos/cm)	9.46	9.40	9.40	9.41	9.41	9.41
Dissolved Oxygen (mg/l)	3.14	3.14	3.12	3.12	3.12	3.12
Oxidation Reduction (eH)	740	740	741	741	741	741

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments:_____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TM)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: TSO4 PZM 023 Tag: NO TAG ON STREET LEVEL

Date of Purging: 11/2/12 Start Time: 8:30 Finish Time: 850 Weather: 55-50 WIND

Date of Collection: 11/2/12 Time of Collection: 845

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.53
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.61

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.5	18.3	18.3	18.0	17.9	17.9
pH	6.44	6.40	6.38	6.38	6.38	6.38
Specific Conductance (umhos/cm)	2166	2166	2163	2163	2163	2163
Dissolved Oxygen (mg/l)	4.01	4.01	3.96	3.96	5.96	3.96
Oxidation Reduction (eH)	140	140	140	140	140	140

Purging Equipment

Peristaltic Pump ✓

Bladder Pump _____

Well Observation

Odor NONE

Color DARK

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 10 PZM 065 Tag: No Tag on ground

Date of Purging: 11/2/12 Start Time: 1115 Finish Time: 1135 Weather: 50-55

Date of Collection: 11/2/12 Time of Collection: 1130

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.24

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.7	18.7	18.5	18.5	18.5	18.5
pH	8.90	8.90	7.01	6.34	6.34	6.30
Specific Conductance (umhos/cm)	844	840	977	978	978	978
Dissolved Oxygen (mg/l)	2.26	2.20	1.41	1.40	1.40	1.40
Oxidation Reduction (eH)	300	301	297	297	297	297

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 12. (Tech – TG)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RLO 18 P2M 047 Tag: BA 81 4995

Date of Purging: 11/2/12 Start Time: 1045 Finish Time: 11:05 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 11:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.44
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.44

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.1	17.9	17.8	17.8	17.8	17.8
pH	6.50	6.48	6.33	6.30	6.30	6.30
Specific Conductance (umhos/cm)	501	500	504	505	505	505
Dissolved Oxygen (mg/l)	3.91	3.90	3.90	3.88	3.88	3.88
Oxidation Reduction (eH)	320	319	319	317	317	317

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge ✓ **milliliters / minute**

Comments: NO CAPS

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech – TO)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 19 PZM 000 Tag: BA 81 -4980

Date of Purging: 11/2/12 Start Time: 1015 Finish Time: 10:35 Weather: 55-60
Date of Collection: 11/2/12 Time of Collection: 1030

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.66
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.41

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.0	18.0	18.0	17.8	17.8	17.8
pH	7.05	7.05	7.09	7.10	7.10	7.10
Specific Conductance (umhos/cm)	850	846	840	840	840	840
Dissolved Oxygen (mg/l)	2.91	2.90	2.90	2.88	2.88	2.85
Oxidation Reduction (eH)						

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 15 PZM 050 Tag: BA 81 4978

Date of Purging: 11/2/12 Start Time: 9:50 Finish Time: 10:10 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 10:05

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.47
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.00

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	17.9	17.9	17.9	17.9	17.9	17.9
pH	5.55	5.55	5.53	5.52	5.52	5.52
Specific Conductance (umhos/cm)	9.46	9.40	9.40	9.41	9.41	9.41
Dissolved Oxygen (mg/l)	3.14	3.14	3.12	3.12	3.12	3.12
Oxidation Reduction (eH)	740	740	741	741	741	741

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TM)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 19 PZM 020 Tag: BA 81 4979

Date of Purging: 11/2/12 Start Time: 9:15 Finish Time: 9:35 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 9:30

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.91
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.40

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.0	18.0	18.0	18.0	18.0	18.0
pH	6.30	6.35	6.30	6.30	6.30	6.30
Specific Conductance (umhos/cm)	1926	1920	1923	1921	1921	1921
Dissolved Oxygen (mg/l)	4.66	4.68	4.61	4.61	4.61	4.61
Oxidation Reduction (eH)	133	130	132	132	132	132

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: TSO4 PZM 023 Tag: NO TAG ON STREET LEVEL

Date of Purging: 11/2/12 Start Time: 8:30 Finish Time: 850 Weather: 55-50 WIND
Date of Collection: 11/2/12 Time of Collection: 845

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.53
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	9.61

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.5	18.3	18.3	18.0	17.9	17.9
pH	6.44	6.40	6.38	6.38	6.38	6.38
Specific Conductance (umhos/cm)	2166	2166	2163	2163	2163	2163
Dissolved Oxygen (mg/l)	4.01	4.01	3.96	3.96	5.96	3.96
Oxidation Reduction (eH)	140	140	140	140	140	140

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color DARK

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**

Well I.D.: RW 10 PZM 065 Tag: No Tag on ground

Date of Purging: 11/2/12 Start Time: 1115 Finish Time: 1135 Weather: 50-55

Date of Collection: 11/2/12 Time of Collection: 1130

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	4.36
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	4.24

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.7	18.7	18.5	18.5	18.5	18.5
pH	8.90	8.90	7.01	6.34	6.34	6.30
Specific Conductance (umhos/cm)	844	840	977	978	978	978
Dissolved Oxygen (mg/l)	2.26	2.20	1.41	1.40	1.40	1.40
Oxidation Reduction (eH)	300	301	297	297	297	297

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014

Readings were performed on date of sampling 11 / 2 / 12. (Tech – TG)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RLO 18 P2M 047 Tag: BA 81 4995

Date of Purging: 11/2/12 Start Time: 1045 Finish Time: 11:05 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 11:00

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	10.44
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.44

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.1	17.9	17.8	17.8	17.8	17.8
pH	6.50	6.48	6.33	6.30	6.30	6.30
Specific Conductance (umhos/cm)	501	500	504	505	505	505
Dissolved Oxygen (mg/l)	3.91	3.90	3.90	3.88	3.88	3.88
Oxidation Reduction (eH)	320	319	319	317	317	317

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge ✓ **milliliters / minute**

Comments: NO CAPS

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech – TA)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 19 PZM 000 Tag: BA 81 -4980

Date of Purging: 11/2/12 Start Time: 1015 Finish Time: 10:35 Weather: 55-60
Date of Collection: 11/2/12 Time of Collection: 1030

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	8.66
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	8.41

Number of minutes purged	0	3	6	9	12	Sample Reading 15
Temperature (°C)	18.0	18.0	18.0	17.8	17.8	17.8
pH	7.05	7.05	7.09	7.10	7.10	7.10
Specific Conductance (umhos/cm)	850	846	840	840	840	840
Dissolved Oxygen (mg/l)	2.91	2.90	2.90	2.88	2.88	2.85
Oxidation Reduction (eH)						

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor None
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech TH)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 15 PZM 050 Tag: BA 81 4978

Date of Purging: 11/2/12 Start Time: 9:50 Finish Time: 10:10 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 10:05

Well Status:

Good _____	Grout _____
Good _____	Casing _____
Good _____	Lock _____
Good _____	Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	14.47
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	14.00

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	17.9	17.9	17.9	17.9	17.9	17.9
pH	5.55	5.55	5.53	5.52	5.52	5.52
Specific Conductance (umhos/cm)	9.46	9.40	9.40	9.41	9.41	9.41
Dissolved Oxygen (mg/l)	3.14	3.14	3.12	3.12	3.12	3.12
Oxidation Reduction (eH)	740	740	741	741	741	741

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12 . (Tech – TM)

HQN:groundisg.doc.white

Report #_____

Microbac Laboratories, Inc.
Groundwater Monitoring Report

Client: **Severstal** Site: **ROD & WIRE**
Well I.D.: RW 18 PZM 020 Tag: BA 81 4979

Date of Purging: 11/2/12 Start Time: 9:15 Finish Time: 9:35 Weather: 55-50
Date of Collection: 11/2/12 Time of Collection: 9:30

Well Status:

Good _____ Grout _____
Good _____ Casing _____
Good _____ Lock _____
Good _____ Obstructions _____

Diameter of Well Casing (inches)	2
Depth Measurements Performed (PVC/Metal)	PVC
Depth to Water from Top of Casing (0.01 ft.) prior to purging	13.91
Depth to Bottom from Top of Casing (0.01 ft.)	----------
Depth of Water in the Well (gallon)	----------
Volume of water in the Well (gallon)	----------
Depth to Water from Top of Casing (0.01 ft.) after purging	----------
Depth to Water from Top of Casing (0.01 ft.) at time of sampling	13.40

Number of minutes purged	0	3	6	9	12	Sample Reading
Temperature (°C)	18.0	18.0	18.0	18.0	18.0	18.0
pH	6.30	6.35	6.30	6.30	6.30	6.30
Specific Conductance (umhos/cm)	1926	1920	1923	1921	1921	1921
Dissolved Oxygen (mg/l)	4.66	4.68	4.61	4.61	4.61	4.61
Oxidation Reduction (eH)	133	130	132	132	132	132

Purging Equipment
Peristaltic Pump ✓
Bladder Pump _____

Well Observation
Odor NONE
Color Clear

Rate of Purge 150 **milliliters / minute**

Comments: _____

Reference SOP Field-014
Readings were performed on date of sampling 11 / 2 / 12. (Tech – T4)

HQN:groundisg.doc.white