

Interim Measures 2010 Annual Report
Former Sludge Bin Storage Area,
Rod & Wire Mill

Severstal Sparrows Point, LLC
Sparrows Point,
Maryland

January 2011



200 Orchard Ridge Drive, Suite 101, Gaithersburg, MD 20878 • (301) 258-9780

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1.0 SUMMARY

During 2010, Severstal 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 2010 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 5,135,229 gallons of water was extracted from the two Former Sludge Bin Storage Area groundwater pumping wells (RW15-PZM020 and RW10-PZM020) during 2010. This compares to 6,801,611 gallons extracted in 2009. The average total pumping rate for 2010 was 14,069 gallons per day (gpd), or 9.8 gallons per minute (gpm). A total of 211 pounds (lbs) of cadmium and 11,835 lbs of zinc were removed and treated during 2010. This compares to 281 lbs of cadmium and 14,055 lbs of zinc removed in 2009. The decrease in

mass removal of cadmium in 2009 compared to 2010 is due to a combination of reduced cadmium concentrations in groundwater at the pumping wells and a reduction of the volume of extracted groundwater. The reduction in the mass of zinc is due to reduced extracted groundwater.

Groundwater elevation data indicate groundwater drawdown with a radius of influence that captures the contamination plume in the intermediate groundwater zone (approximately 20 to 30 feet below the ground surface) at the average annual 2010 pumping rate of 5.0 gallons per minute (gpm) for recovery well RW15-PZM020 and 4.8 gpm for recovery well RW10-PZM020. 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 2010 suggests some improvement in groundwater quality as compared to 2009.

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 2010 cadmium concentrations are also similar to prior years. An exception is RW06-PZM001 where the 2010 4th quarter cadmium concentration (24 mg/l) was unreasonably higher than historically has been observed and is considered to be a non-representative outlier to be monitored going forward.

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 2010 zinc concentrations are also similar to prior years. An exception is RW06-PZM001 where the 2010 4th quarter zinc concentration (160 mg/l) was unreasonably higher than historically has been observed and is considered to be a non-representative outlier to be monitored going forward.

The Proposed Operating Plan for 2011 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 2010

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 2010 water-level measurements for routine operations were manually measured semi-annually (April and October 2010) in all existing monitoring wells. A summary of the April and 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 3-1 through 3-5. The first three of these six figures represent the April 2010 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 last two of these six figures represent the October 2010 data for the shallow and deep water bearing zones. October data for the intermediate zone are not contoured due to an October water level measurement uncertainty at RW15-PZM020.

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

Figures 3-1 and 3-4 present the groundwater elevation contour maps for the shallow water table zone, corresponding to the April and October 2010 time periods, respectively, when the underlying zone (intermediate pumping zone) was being pumped.

Figure 3-1 (April) indicates elevated groundwater centered at RW10-PZM004, roughly coincident with one of the intermediate zone pumping wells (RW10-PZM020). The elevated water table may be related to the movement and infiltration of surface water. As a result of the elevated water table at RW10-PZM004, the shallow zone groundwater movement in the area north and east of RW10-PZM004 (proximity of the Rod & Wire Mill Site) is inferred to be north-northeastward (away from Bear Creek). West of RW10-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 RW10-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-PZM000 both the cadmium and zinc concentrations in shallow groundwater are predominantly trace or non-detect (see Section 3.2 chemistry discussion).

Figure 3-4 presents the shallow groundwater table contour map based on the October 2010 water table elevations. Shallow groundwater flow directions inferred from Figure 3-4 near RW10-PZM004 (and the intermediate zone pumping well) are similar to those described above for April 2010, except that the area of westward flow is proximate to the location of TS04-PDM004.

Intermediate Pumping Zone

Figure 3-2 presents groundwater elevations within the intermediate pumping zone in April 2010 when this zone was being pumped.

Figure 3-2 indicates significant drawdown surrounding the two pumping wells (RW15-PZM020 and RW10-PZM020) that comprise the groundwater recovery system. 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

Figures 3-3 and 3-5 present the groundwater elevation contour maps for the deep water bearing zone, corresponding to the April and October 2010 time periods, respectively, when the overlying zone (intermediate pumping zone) was being pumped.

Figure 3-3 (April) indicates a northwesterly decrease in water levels, inferring northwestward groundwater flow within the deep water bearing zone. Pumping the intermediate zone does not appear to affect the deep water bearing zone. Figure 3-5 (October) indicates a similar situation as observed in April, except that ‘northwesterly’ has become ‘westerly’.

Comparison of 2010 head potentials between the deep and intermediate groundwater zones at locations RW10 and RW19 showed lower head potentials in the intermediate versus deep zone. The significant difference in the head potentials between the intermediate and deep zones indicates confinement of the lower zone at these locations.

3.1.2 Comparison of Water Levels in 2009 and 2010

The 2010 water levels (2nd quarter and 4th quarter) were compared to the 2009 2nd and 4th quarter water levels and the following observations are made:

- Shallow water bearing zone—2nd and 4th quarter water levels are very similar between 2009 and 2010.
- Intermediate pumping zone—2nd quarter water levels are very similar between 2009 and 2010.
- Deep water bearing zone—2nd and 4th water levels are very similar between 2009 and 2010.

Overall, the above observations indicate that the groundwater flow directions and the influence of pumping are similar between 2009 and 2010.

3.1.3 Evaluation of Pump and Treat System Effectiveness

In 2010, a total of 5,135,229 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 6,801,611 gallons that were pumped and treated in 2009. The average pumping rate for the pump and treat system for 2010 was 14,069 gpd, or 9.8 gpm. Pumping rates of approximately 5.0 gpm were achieved in recovery well RW15-PZM020 and 4.8 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 3-5, discussed above.

A total of 211 pounds (lbs) of cadmium and 11,835 lbs of zinc were removed and treated from the Rod & Wire Mill area in 2010. This compares to treated amounts of 281 lbs of cadmium and 14,055 lbs of zinc in 2009.

The decrease in mass removal of cadmium in 2009 compared to 2010 is due to a combination of reduced cadmium concentrations in groundwater at the pumping wells and a reduction of the volume of extracted groundwater. The reduction in the mass of zinc is due to reduced extracted groundwater.

- **Treated water volume (gal):**

- RW10-PZM020: 2,816,310 (2009); 2,514,802 (**2010**)
- RW15-PZM020: 3,985,301 (2009); 2,620,427 (**2010**)

The averaged April and October metals concentrations were:

- **Average Cadmium and Zinc Concentrations:**

- RW10-PZM020:
 - Cd: 9.9 ppm (2009); 9.3 ppm (**2010**)
 - Zn: 545 ppm (2009); 515 ppm (**2010**)
- RW15-PZM020:
 - Cd: 1.5 ppm (2009); 0.715 ppm (**2010**)
 - Zn: 37.5 ppm (2009); 47 ppm (**2010**)

- **Treated mass (lbs):**

- RW10-PZM020:
 - Cd: 233 (2009); 195 (**2010**)
 - Zn: 12,808 (2009); 10,807 (**2010**)

- RW15-PZM020:
 - Cd: 48 (2009); 16 (2010)
 - Zn: 1,247 (2009); 1,028 (2010)

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 3-6. The sampling occurred during the following months of 2010:

- April 2010
- October 2010

Appendix A presents groundwater monitoring documentation for the 2nd and 4th quarters, consisting of water level measurements and purge records. The samples were collected using low-flow peristaltic pumps after stabilization of field parameters, and were then submitted to the laboratory for analysis for total cadmium and zinc in accordance with the November 1999 DCQAP. The field parameters were pH, conductivity, temperature, dissolved oxygen, and oxidation-reduction potential.

Tables 3-2 and 3-3 present the data from 2010 for total cadmium and zinc, respectively. The tables also show semi-annual data from 2000 through 2009. A comparison of the 2010 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 2010 cadmium concentrations are also similar to prior years. An exception is RW06-PZM001 where the 2010 4th quarter cadmium concentration (24 mg/l) was unreasonably higher than historically has been observed and is considered to be a non-representative outlier to be monitored going forward.

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 2010 zinc concentrations are also similar to prior years. An exception is RW06-PZM001 where the 2010 4th quarter zinc concentration (160 mg/l) was unreasonably higher than historically has been observed and is considered to be a non-representative outlier to be monitored going forward.

All of the analytical results from the most recent sampling event (4th quarter 2009) are depicted in plan view at the well locations in Figures 3-7 through 3-12. These figures indicate that the highest cadmium and zinc concentrations are in monitoring wells located near and east-northeast of pumping well RW10-PZM020.

3.3 2010 Operations and Maintenance

Daily pumping records for the groundwater pump and treat system from January through December 2010 are provided in Appendix B. A summary of isolated operational outages which occurred in 2009 is provided in Appendix C. Overall, the groundwater treatment system operated as intended.

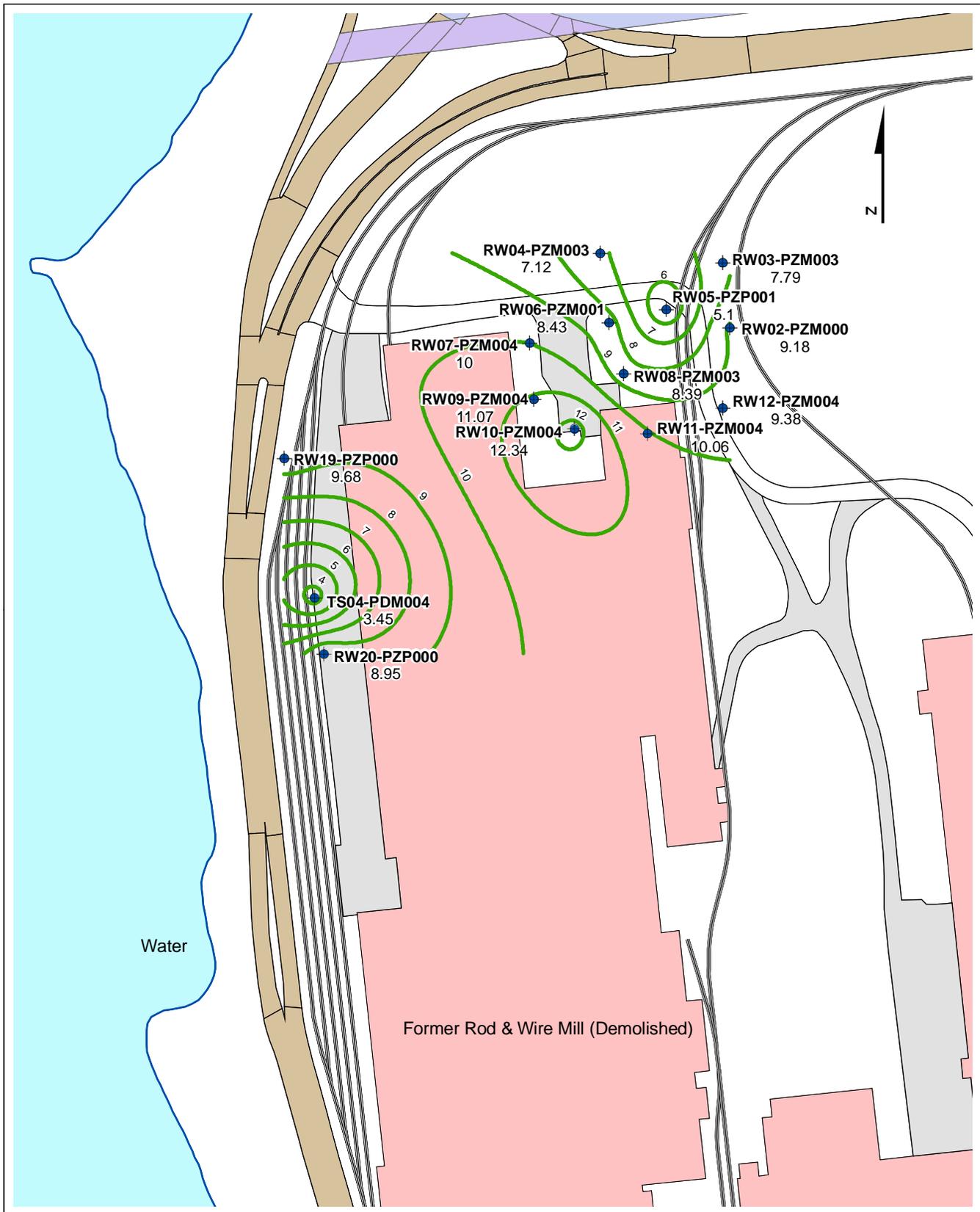
4.0 PROPOSED OPERATING PLAN FOR 2011

The Proposed Operating Plan for 2011 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 2011. 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

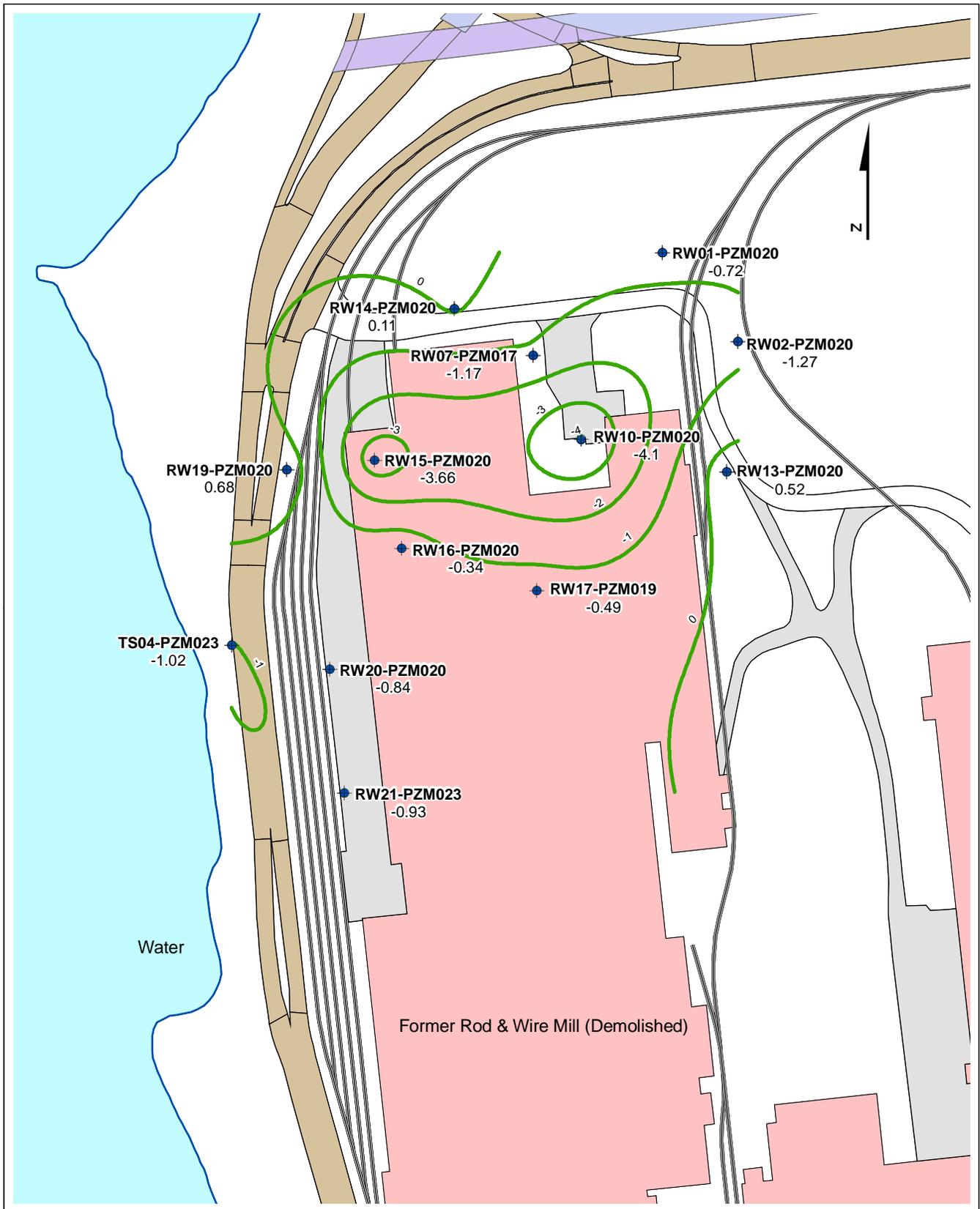


Legend

- ◆ Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour



Figure 3-1
 Shallow Well Water Level Elevation
 Contour Map, April 2010
 Former Rod & Wire Mill
 Severstal Universal, Sparrows Point, MD



Legend

- ◆ Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

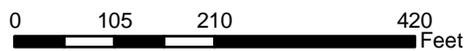
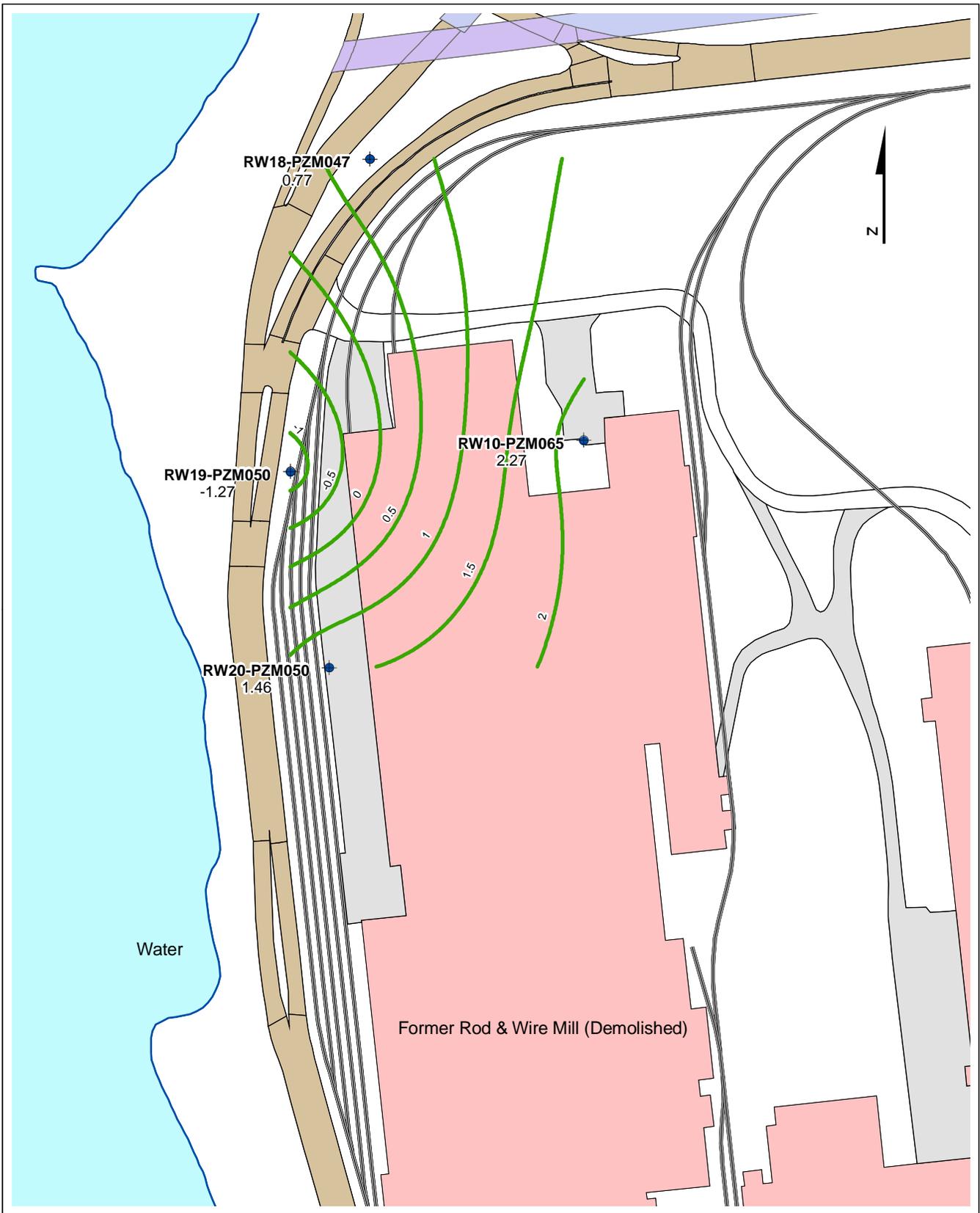


Figure 3-2
Intermediate Well Water Level Elevation
Contour Map, April 2010
Former Rod & Wire Mill
Severstal Universal, Sparrows Point, MD

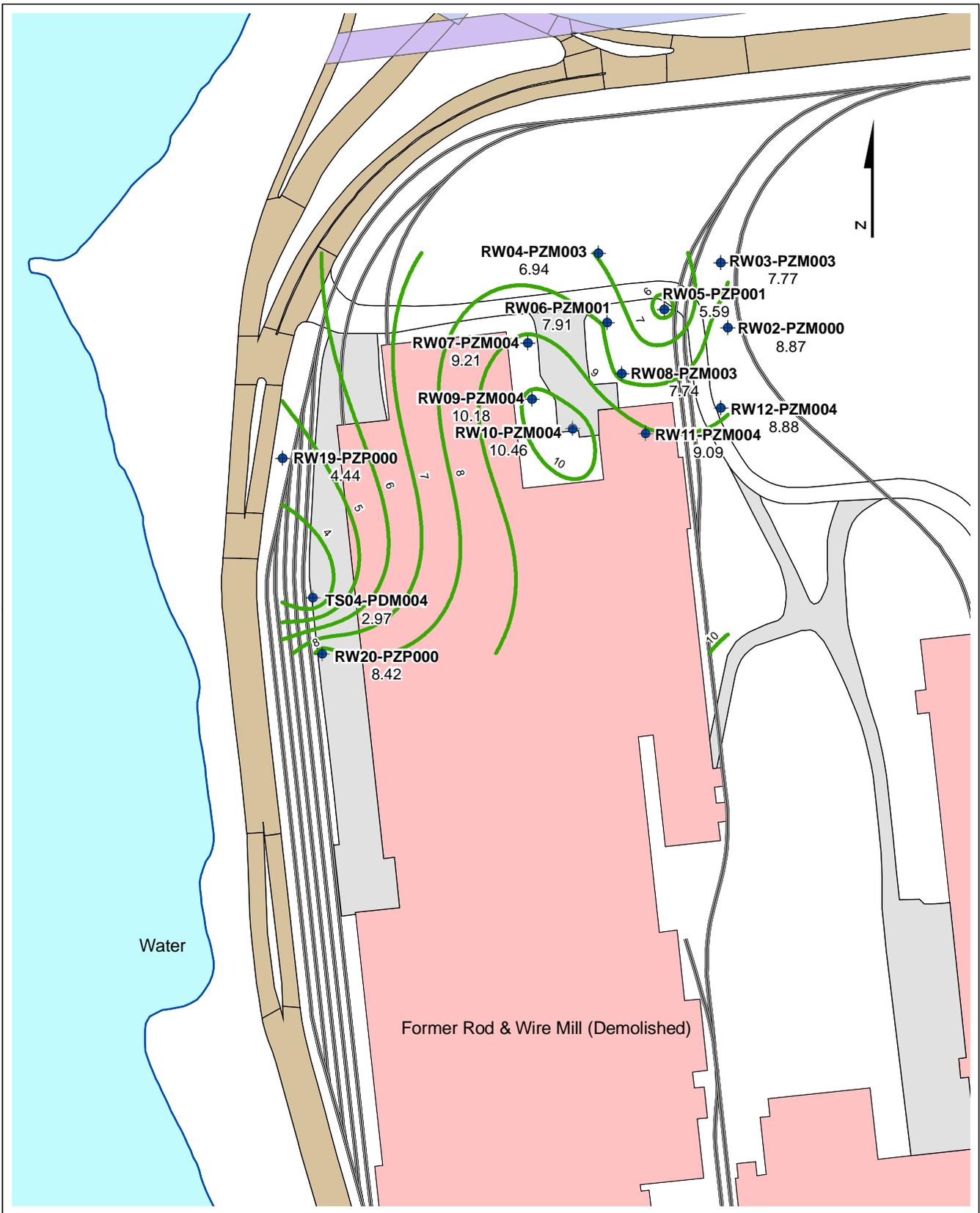


Legend

- ◆ Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour



Figure 3-3
 Deep Well Water Level Elevation
 Contour Map, April 2010
 Former Rod & Wire Mill
 Severstal Universal, Sparrows Point, MD



Legend

- ◆ Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour

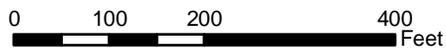
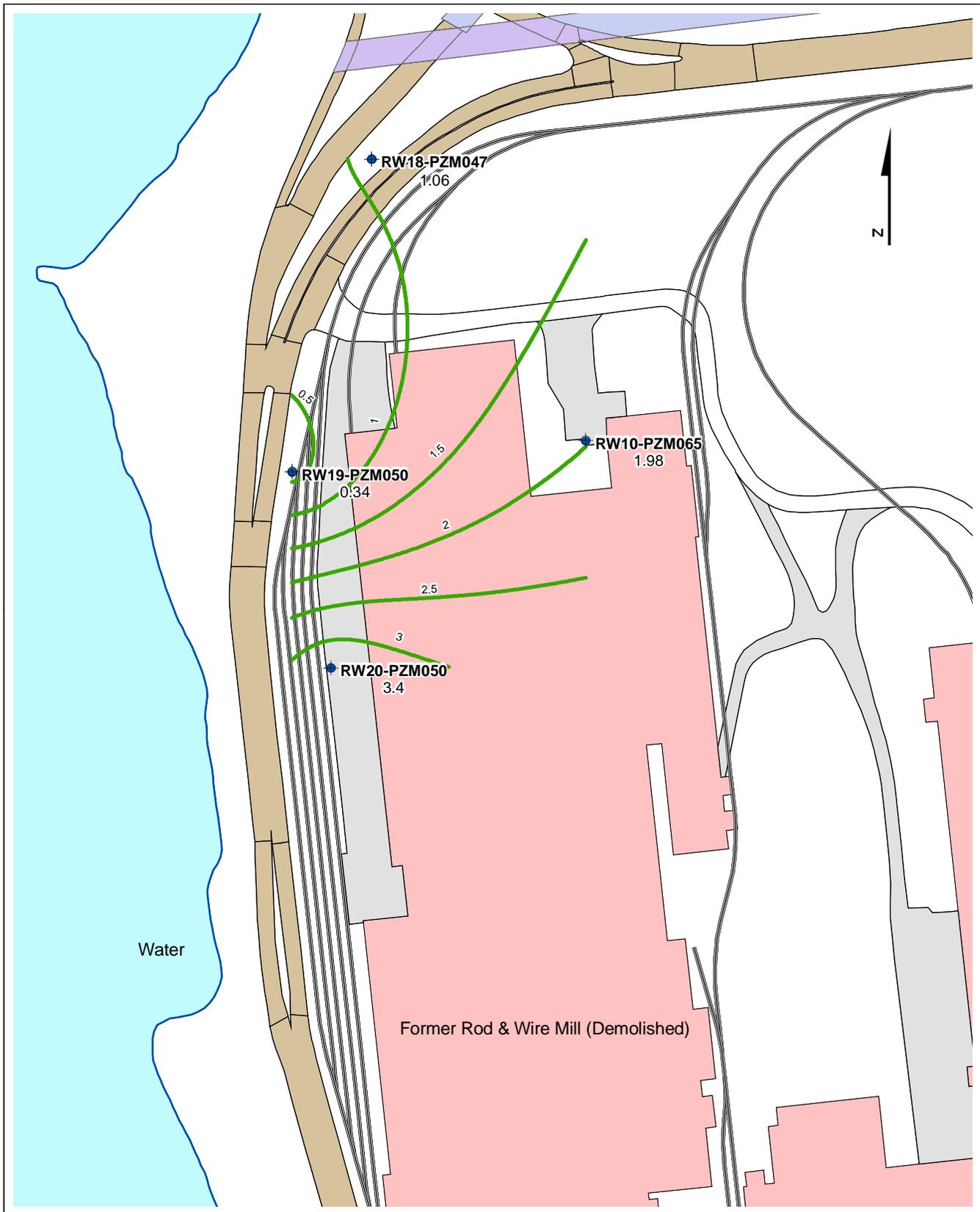


Figure 3-4
 Shallow Well Water Level Elevation
 Contour Map, October 2010
 Former Rod & Wire Mill
 Severstal Universal, Sparrows Point, MD

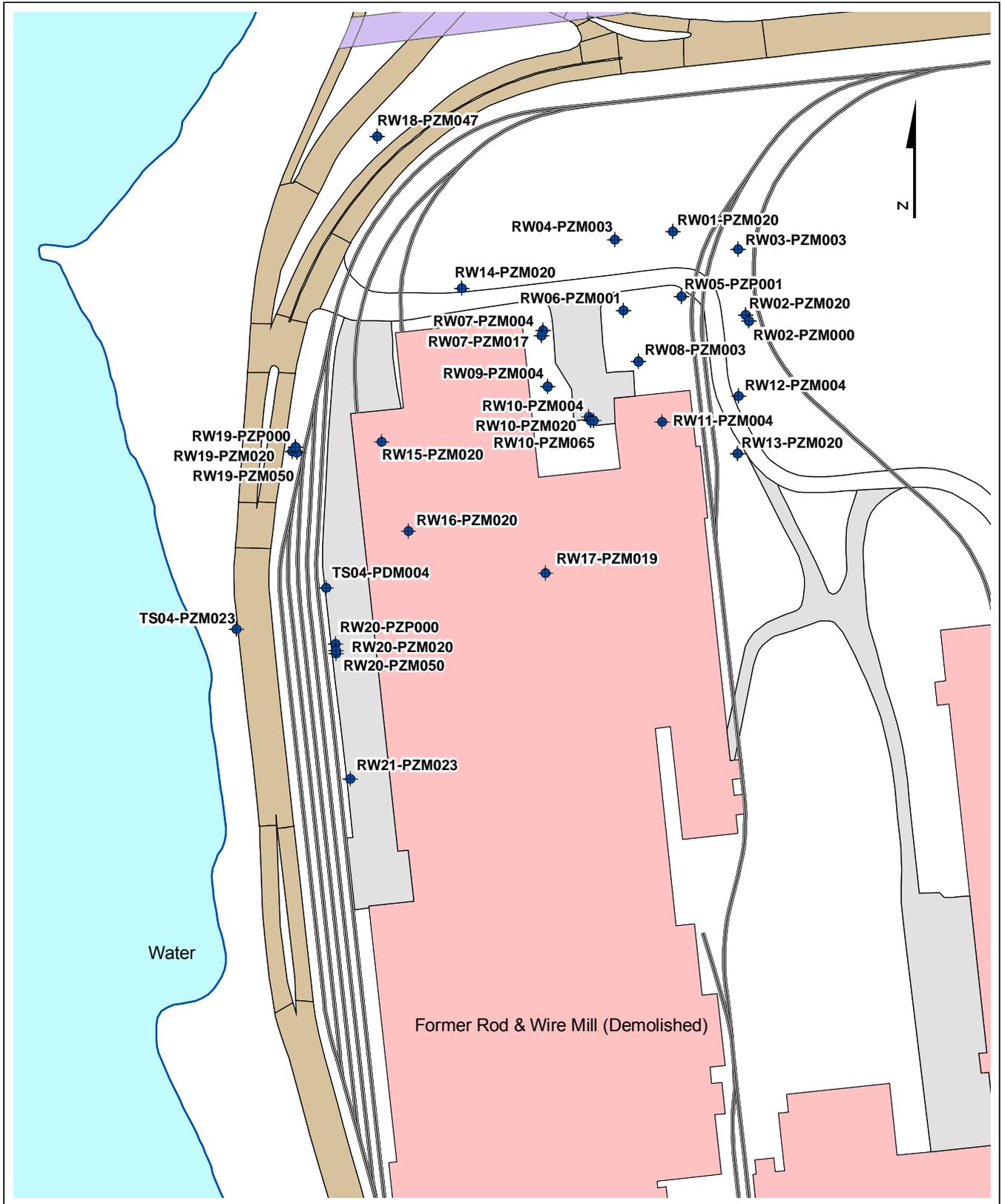


Legend

- ◆ Test Stations (Well ID - Elevation in feet)
- Shore Line
- Railroads
- Groundwater Contour



Figure 3-6
 Deep Well Water Level Elevation
 Contour Map, October 2010
 Former Rod & Wire Mill
 Severstal Universal, Sparrows Point, MD



Legend

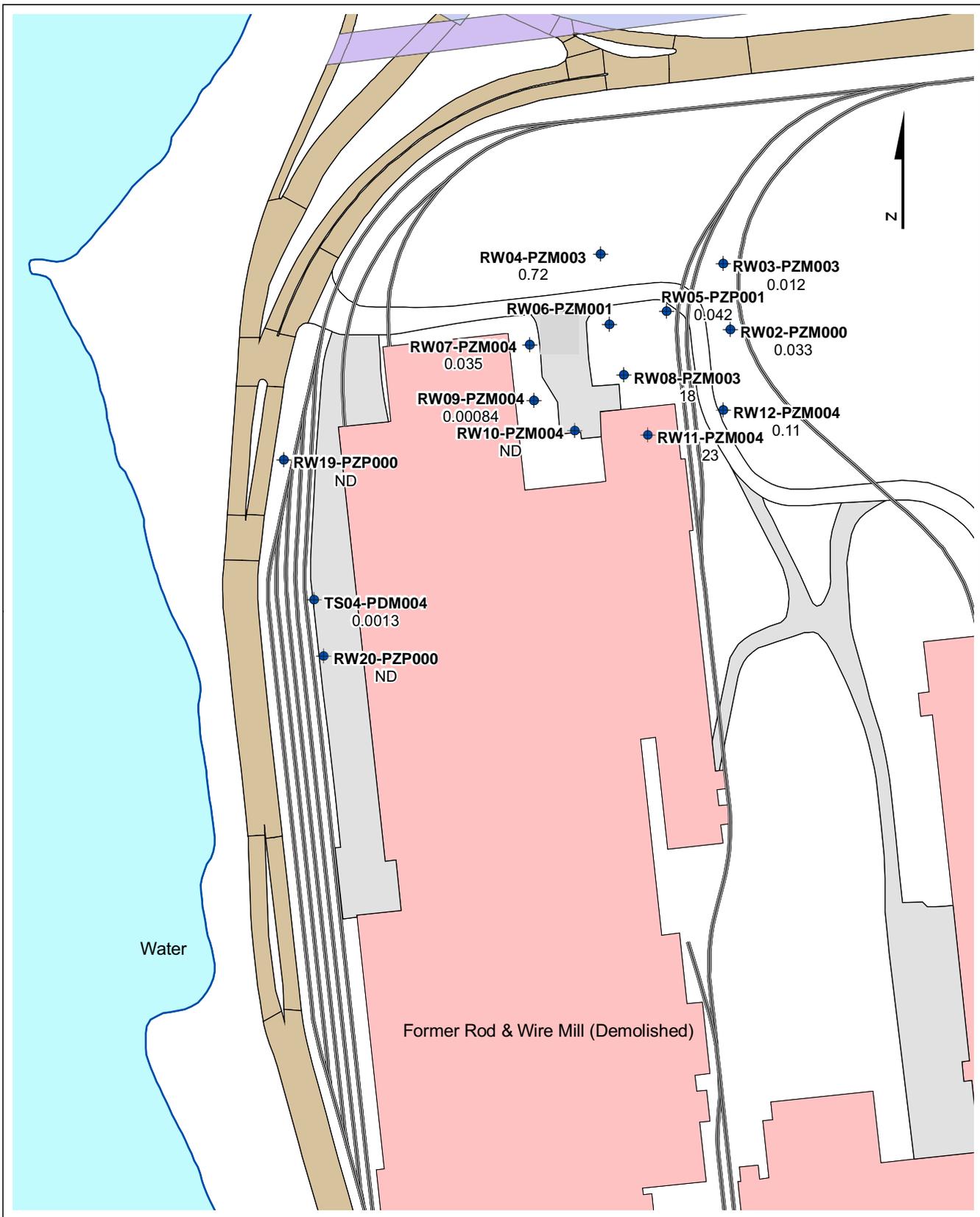
Rod and Wire Mill 2010 Report Data Event

- Test Stations (Well ID)
- Shore Line
- Railroads



Figure 3-6
Locations of Wells

Former Rod & Wire Mill
Severstal Universal, Sparrows Point, MD



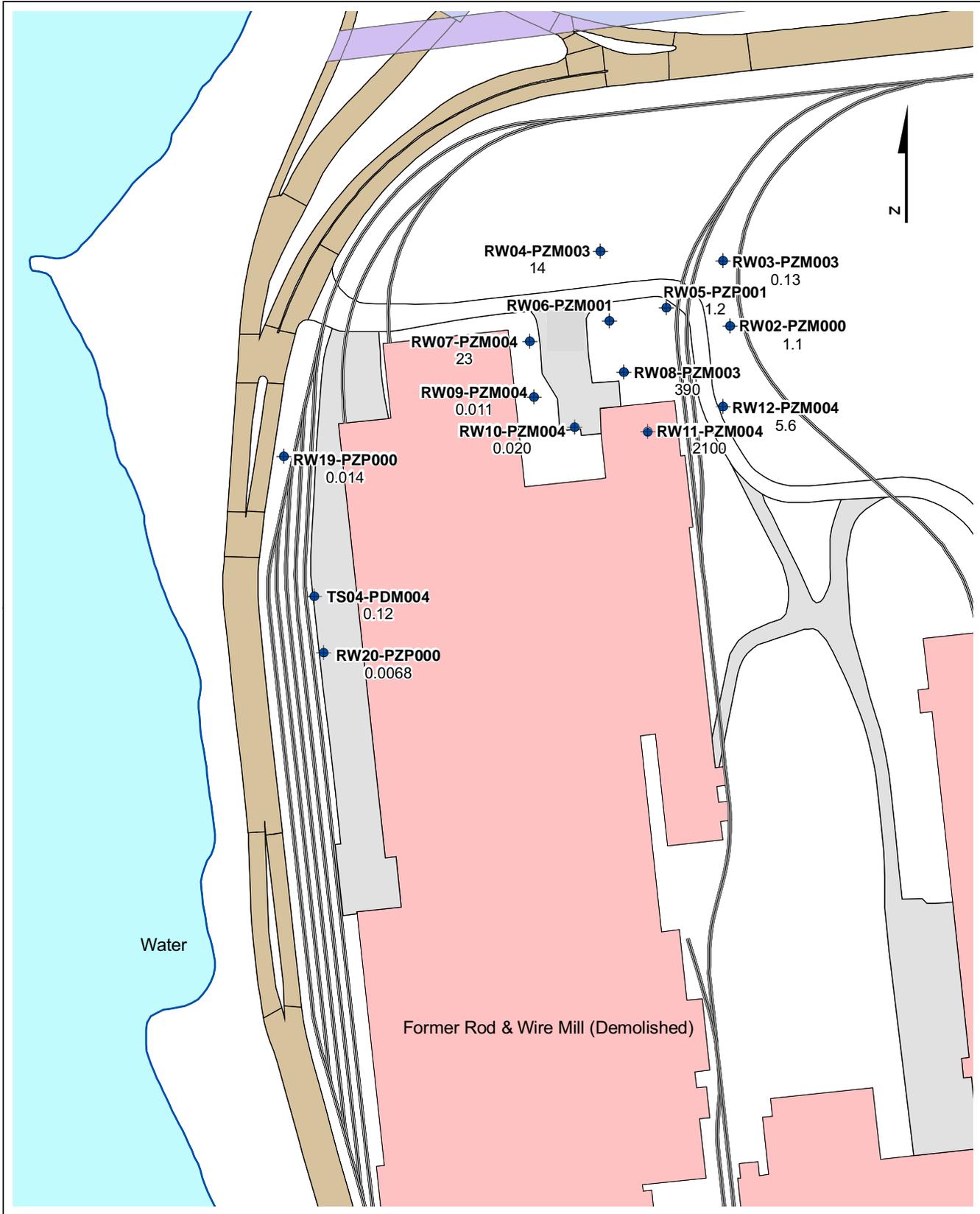
Legend

- ◆ Test Stations (Well ID)
- Shore Line
- Railroads



Rod and Wire Mill 2010 Report Data Event
(Concentrations in mg/L; ND = Not Detected)

Figure 3-7
Cadmium Concentrations in Shallow
(Water Table) Groundwater
October 2010
Former Rod & Wire Mill
Severstal Universal, Sparrows Point, MD



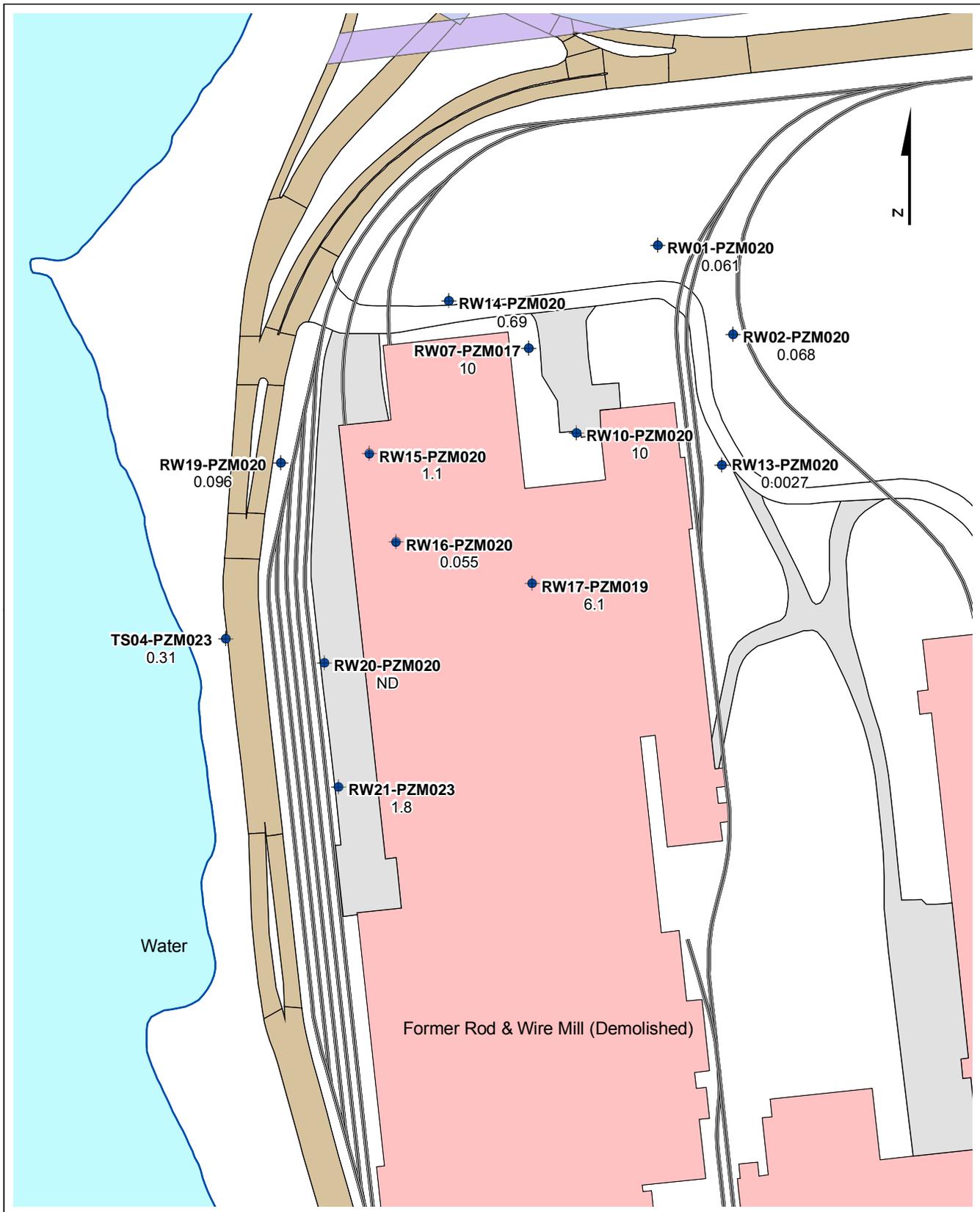
Legend

- ◆ Test Stations (Well ID)
- Shore Line
- Railroads

Rod and Wire Mill 2010 Report Data Event
(Concentrations in mg/L; ND = Not Detected)



Figure 3-8
Zinc Concentrations in Shallow
(Water Table) Groundwater
October 2010
Former Rod & Wire Mill
Severstal Universal, Sparrows Point, MD



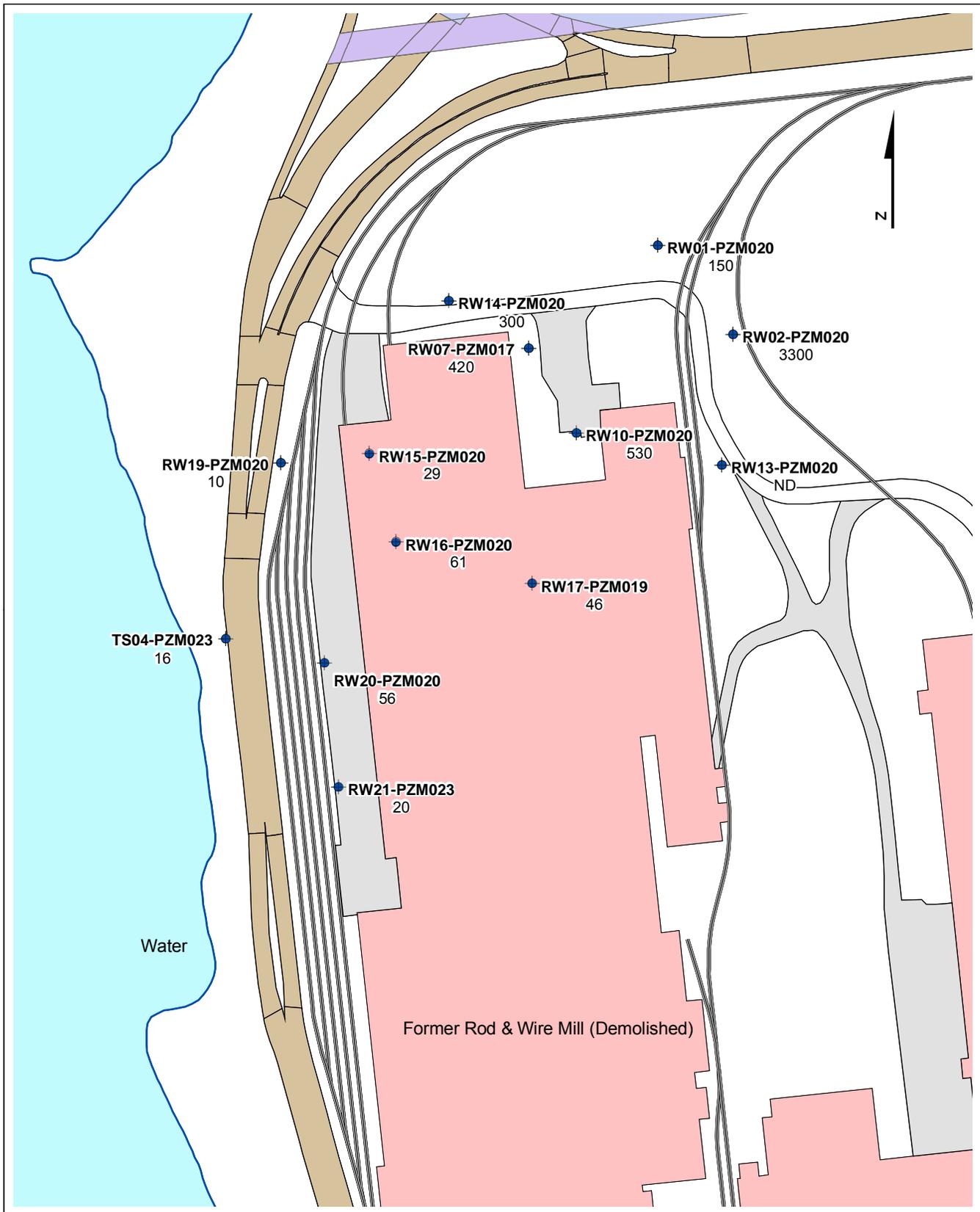
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- ◆ Test Stations (Well ID)
- Shore Line
- Railroads



Rod and Wire Mill 2010 Report Data Event
(Concentrations in mg/L; ND = Not Detected)

Figure 3-9
Cadmium Concentrations in
Intermediate Groundwater
October 2010
Former Rod & Wire Mill
Severstal Universal, Sparrows Point, MD



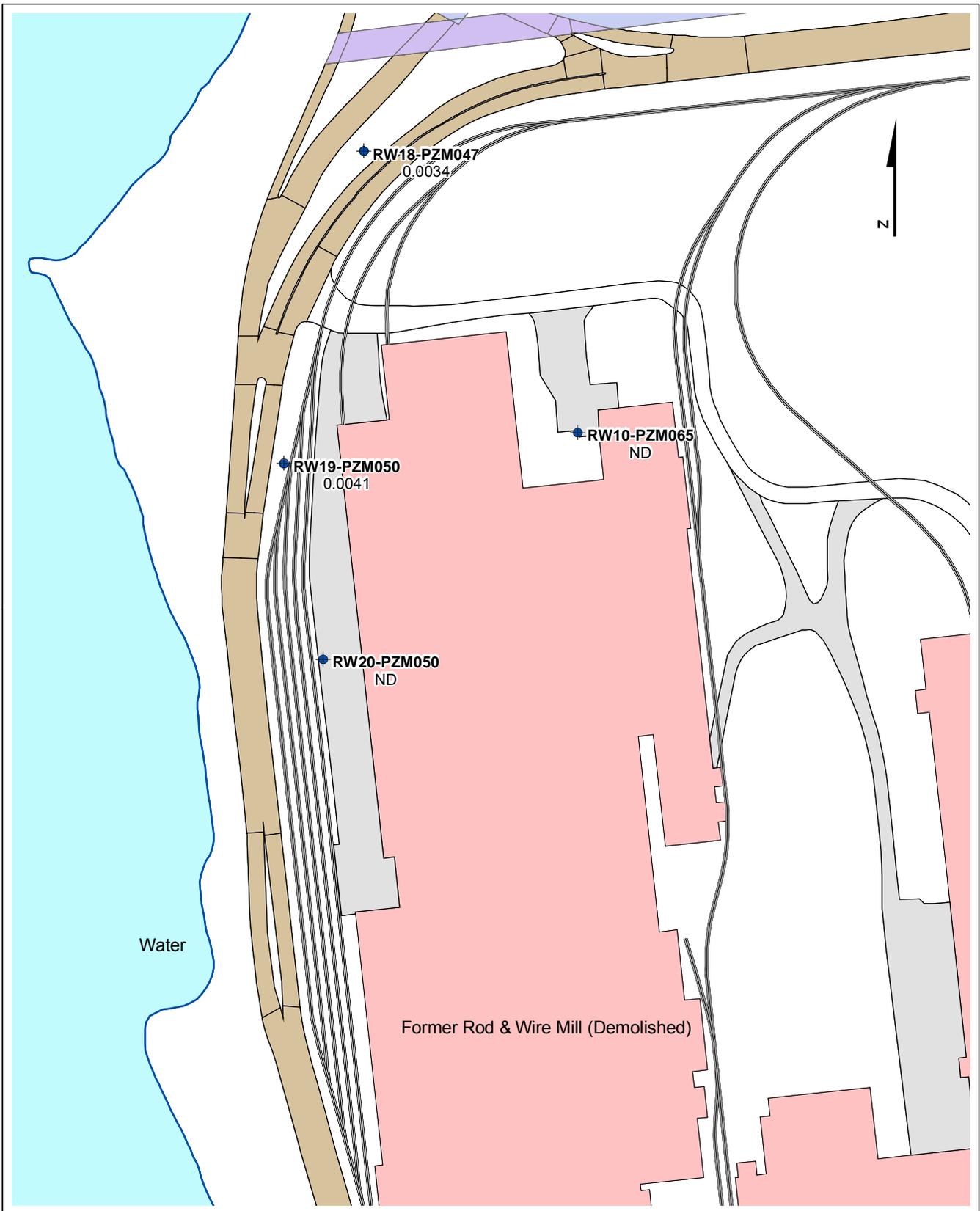
Legend

- ◆ Test Stations (Well ID)
- Shore Line
- Railroads

Rod and Wire Mill 2010 Report Data Event
 (Concentrations in mg/L; ND = Not Detected)

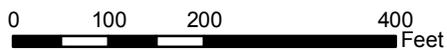


Figure 3-10
 Zinc Concentrations in
 Intermediate Groundwater
 October 2010
 Former Rod & Wire Mill
 Severstal Universal, Sparrows Point, MD



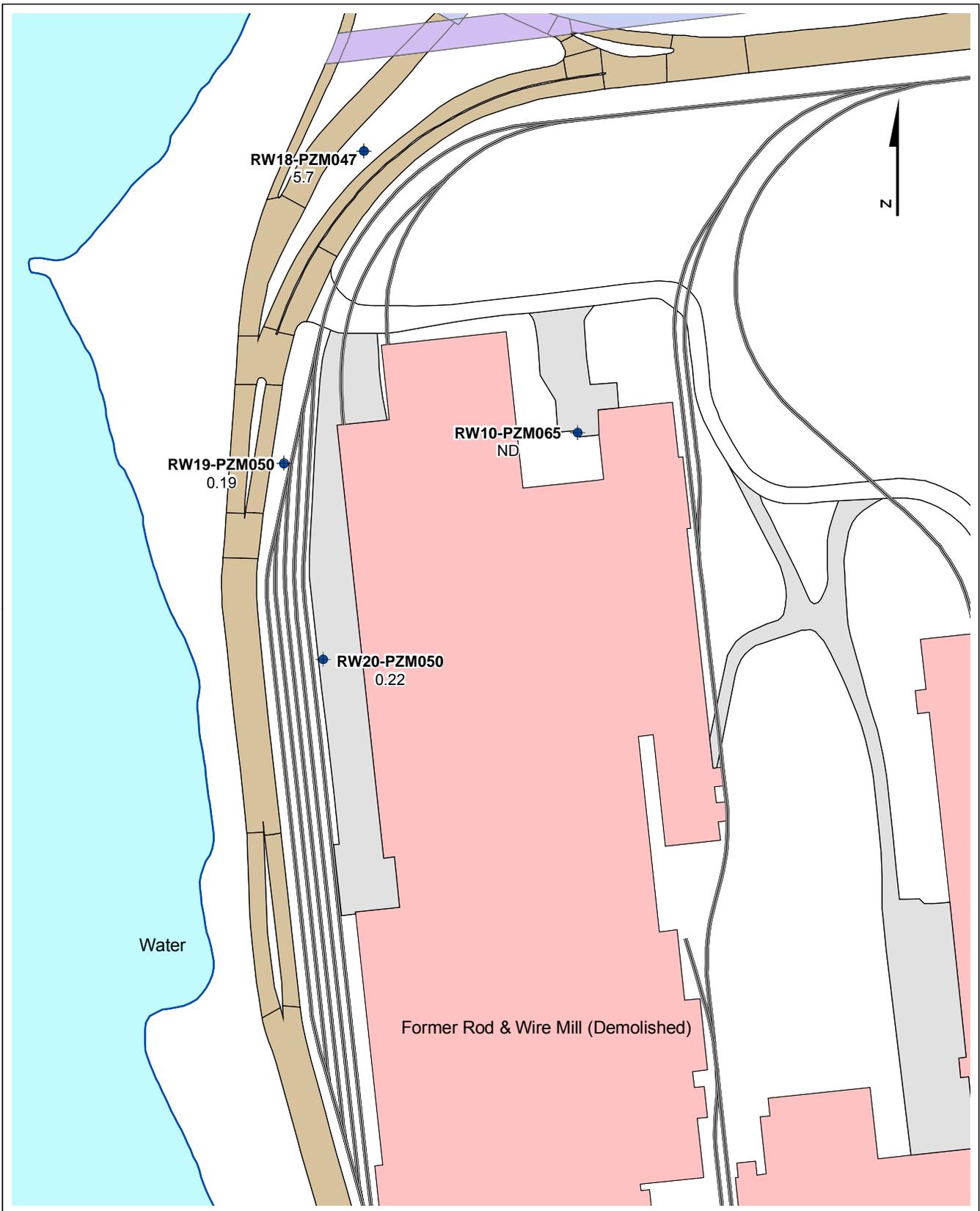
Legend

- ◆ Test Stations (Well ID)
- Shore Line
- Railroads



Rod and Wire Mill 2010 Report Data Event
 (Concentrations in mg/L; ND = Not Detected)

Figure 3-11
 Cadmium Concentrations in
 Deep Groundwater
 October 2010
 Former Rod & Wire Mill
 Severstal Universal, Sparrows Point, MD



Legend

- ◆ Test Stations (Well ID)
- Shore Line
- Railroads



NOTES: Rod and Wire Mill 2010 Report Data Event
(Concentrations in mg/L; ND = Not Detected)

Figure 3-12
Zinc Concentrations in
Deep Groundwater
October 2010
Former Rod & Wire Mill
Severstal Universal, Sparrows Point, MD

TABLES

Table 3-1
2010 Water Level Elevation Data

Well Number	Top-of-Casing Elevation (ft)	April 2010			October 2010		
		Date	Depth to Water (ft)	Water Level Elevation (ft)	Date	Depth to Water (ft)	Water Level Elevation (ft)
RW01-PZM020	12.72	4/26/2009	13.44	-0.72	10/25/2009	13.25	-0.53
RW02-PZM000	12.37	4/26/2009	3.19	9.18	10/25/2009	3.50	8.87
RW02-PZM020	13.00	4/26/2009	14.27	-1.27	10/25/2009	13.71	-0.71
RW03-PZM003	10.83	4/26/2009	3.04	7.79	10/25/2009	3.06	7.77
RW04-PZM003	11.09	4/26/2009	3.97	7.12	10/25/2009	4.15	6.94
RW05-PZP001	11.04	4/26/2009	5.94	5.10	10/25/2009	5.45	5.59
RW06-PZM001	12.17	4/26/2009	3.74	8.43	10/25/2009	4.26	7.91
RW07-PZM004	15.27	4/26/2009	5.27	10.00	10/25/2009	6.06	9.21
RW07-PZM017	12.95	4/26/2009	14.12	-1.17	10/25/2009	14.06	-1.11
RW08-PZM003	11.35	4/26/2009	2.96	8.39	10/25/2009	3.61	7.74
RW09-PZM004	15.22	4/26/2009	4.15	11.07	10/25/2009	5.04	10.18
RW10-PZM004	12.34	4/26/2009	0.00	12.34	10/25/2009	1.88	10.46
RW10-PZM020	12.46	4/26/2009	16.56	-4.10	10/25/2009	14.57	-2.11
RW10-PZM065	12.34	4/26/2009	10.07	2.27	10/25/2009	10.36	1.98
RW11-PZM004	15.35	4/26/2009	5.29	10.06	10/25/2009	6.26	9.09
RW12-PZM004	15.37	4/26/2009	5.99	9.38	10/25/2009	6.49	8.88
RW13-PZM020	14.62	4/26/2009	14.10	0.52	10/25/2009	13.95	0.67
RW14-PZM020	15.15	4/26/2009	15.04	0.11	10/25/2009	14.66	0.49
RW15-PZM020	12.70	4/26/2009	16.36	-3.66	10/25/2009	**	**
RW16-PZM020	13.84	4/26/2009	14.18	-0.34	10/25/2009	14.88	-1.04
RW17-PZM019	13.67	4/26/2009	14.16	-0.49	10/25/2009	14.70	-1.03
RW18-PZM047	15.68	4/26/2009	14.91	0.77	10/25/2009	14.62	1.06
RW19-PZM020	13.49	4/26/2009	12.81	0.68	10/25/2009	14.53	-1.04
RW19-PZM050	12.99	4/26/2009	14.26	-1.27	10/25/2009	12.65	0.34
RW19-PZM000	13.49	4/26/2009	3.81	9.68	10/25/2009	9.05	4.44
RW20-PZM020	13.47	4/26/2009	14.31	-0.84	10/25/2009	14.49	-1.02
RW20-PZM050	13.03	4/26/2009	11.57	1.46	10/25/2009	9.30	3.73
RW20-PZP000	12.82	4/26/2009	3.87	8.95	10/25/2009	4.40	8.42
RW21-PZM023	12.91	4/26/2009	13.84	-0.93	10/25/2009	13.74	-0.83
TS04-PDM004	13.71	4/26/2009	10.26	3.45	10/25/2009	10.74	2.97
TS04-PPM007*	10.22	NM	NM	NM	NM	NM	NM
TS04-PZM023	10.09	4/26/2009	11.11	-1.02	10/25/2009	10.83	-0.74

NM- No Measurement

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

Table 3-2
Summary of Cadmium Monitoring Data for 2010 and Comparison with Prior Years

New Well Designation	Former Well Designation	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		UNITS
		1st Q	3rd Q	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	
Shallow (Water Table) Monitoring Wells																								
RW02-PZM000	RW-3	0.3	0.48	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	mg/L
RW03-PZM003	RW-92	5.3	4.7	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	mg/L
RW04-PZM003	RW-91	0.44	3.4	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	mg/L
RW05-PZP001	RW-96	0.01	0.012	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	mg/L
RW06-PZM001	RW 94	0.66	2.8	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)	mg/L
RW07-PZM004	RW-7	0.0025	0.005	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	mg/L
RW08-PZM003	RW-88	30	28	34	30	33	27	36	29	32	26	30	23	25	16	20	19	19	20	21	18	18	18	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	mg/L
RW10-PZM004	RW-26	0.008	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	0.005	0.0032	0.00098	0.0005	0.00050	<0.00050	<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	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	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	0.005	0.00085	0.00033	0.0033	0.0033	<0.00050	<0.00050	mg/L
RW20-PZP000	RW-8			0.005	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	mg/L
TS04-PDM004	TS-04-PD			0.005	0.012	0.005	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	mg/L
TS04-PPM007	TS-04-PP			0.005	0.005	0.005	NS	NS	NS	NS	NS	NS	NS	mg/L										
Intermediate (Sand 2) Monitoring Wells																								
RW01-PZM020	RW-1	0.32	0.79	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	mg/L
RW02-PZM020	RW-2	1.3	0.55	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	mg/L
RW07-PZM017	RW-6	5.8	4.2	5.3	6.6	22	24	21	13	10	14	7.7	13	18	15	14	15	14	7.0	6.5	3.6	10	10	mg/L
RW10-PZM020	RW-27	3.2	2.8	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	mg/L
RW13-PZM020	RW-4	NA	NA	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	0.0003	0.0091	0.0110	0.0085	0.0032	0.0027	0.0027	mg/L
RW14-PZM020	New Well "A"			Note 1	1.7	1.8	0.43	2.1	1.6	1.9	2.3	1.8	2.0	1.8	1.6	1.3	1.3	1.0	0.42	0.83	0.90	0.69	0.69	mg/L
RW15-PZM020	RW-24R	0.22	NA	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	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	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	mg/L
RW19-PZM020	RW-12	NA	0.04	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	mg/L
RW20-PZM020	RW-9B	17	2.4	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	<0.00050	mg/L
RW21-PZM023	RW-32	0.02	NA	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	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	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	0.005	0.052	0.005	0.005	0.005	0.005	0.007	0.0003	0.0031	0.0025	0.0028	<0.00050	<0.00050	mg/L
RW18-PZM047	RW-22			0.005	0.003	0.005	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	mg/L
RW19-PZM050	RW-13			0.005	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	mg/L
RW20-PZM050	RW-10			0.005	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	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; one-half the detection limit has been entered.
 The blank cells represent data not collected.
 NS = Well destroyed. Not sampled.
 (a) Unreliable outlier.

Table 3-3
Summary of Zinc Monitoring Data for 2010 and Comparison with Prior Years

New Well Designation	Former Well Designation	2000		2001		2002		2003		2004		2005		2006		2007		2008		2009		2010		Unit
		1st Q	3rd Q	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							
Shallow (Water Table) Monitoring Wells																								
RW02-PZM000	RW-3	15	20	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	mg/L
RW03-PZM003	RW-92	220	190	250	240	160	170	250	200	240	190	210	150	170	37	170	120	140	130	150	110	140	0.13	mg/L
RW04-PZM003	RW-91	10	28	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	mg/L
RW05-PZP001	RW-96	0.26	4.8	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	mg/L
RW06-PZM001	RW-94	11	17	19	14	15	21	17	25	20	39	23.0	47	26	15	32	19	23	110	26	36	14	160 (a)	mg/L
RW07-PZM004	RW-7	0.07	0.06	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	mg/L
RW08-PZM003	RW-88	830	680	870	850	820	660	750	610	700	590	650	460	460	420	420	560	370	420	410	390	370	390	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	mg/L
RW10-PZM004	RW-26	4.9	6.2	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	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	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	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	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	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	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	mg/L
Intermediate (Sand 2) Monitoring Wells																								
RW01-PZM020	RW-1	83	310	330	27	89	150	140	74	58	110	170	140	100	160	100	150	130	120	140	150	94	150	mg/L
RW02-PZM020	RW-2	2000	2300	2200	48	13	2500	2800	3100	3300	3300	3200	2800	2700	2700	45	2900	1500	2200	2300	800	330	3300	mg/L
RW07-PZM017	RW-6	510	380	480	430	780	770	700	540	440	580	430	530	600	590	520	570	520	550	310	300	230	420	mg/L
RW10-PZM020	RW-27	390	320	410	600	480	580	540	630	550	630	690	210	560	600	580	520	510	530	540	550	500	530	mg/L
RW13-PZM020	RW-4	NA	NA	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	mg/L
RW14-PZM020	New Well "A"			Note 1	390	480	370	490	450	440	440	340	390	380	340	350	290	310	150	260	260	300	300	mg/L
RW15-PZM020	RW-24R	79	NA	490	330	170	120	150	190	170	150	91	52	120	47	39	33	34	33	47	28	65	29	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	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	mg/L
RW19-PZM020	RW-12	NA	2.5	3.4	0.91	13	14	1.8	6.0	13	24	26	24	20	24	19	22	17	14	14	17	11	10	mg/L
RW20-PZM020	RW-9B	320	200	180	190	160	62	97	150	160	130	150	120	130	120	130	83	52	2.0	120.0	0.16	2.0	56	mg/L
RW21-PZM023	RW-32	0.24	NA	Note 2	63	60	60	58	58	50	39	35	29	27	25	22	22	21	20	19	19	19	20	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	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	0.083	0.084	<0.0050	<0.0050	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	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	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	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; one-half the detection limit has been entered for statistical purposes.

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.

APPENDIX A
Water Levels, Purge Records
and
Microbac Laboratory Data¹

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

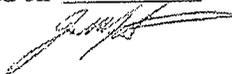
April, 2010
Microbac Laboratories, Inc.

Severstal
Elevations @ the Former Rod & Wire Mill Area

Well Designation	Total Depth (ft.)	Depth to Water (ft.)
RW01-PZM020	30	13.44
RW02-PZM000	10	3.19
RW02-PZM020	30	14.27
RW03-PZM003	15	3.04
RW04-PZM003	15	3.77
RW05-PZM001	10	5.94
RW06-PZM001	10	3.74
RW07-PZM004	14	5.27
RW07-PZM017	30	14.12
RW08-PZM003	14	2.96
RW09-PZM004	14	4.15
RW10-PZM004	14	Water above casing *
RW10-PZM020	30	16.56
RW10-PZM065	70	10.07
RW11-PZM004	14	5.29
RW12-PZM004	14	5.99
RW13-PZM020	30	14.10
RW14-PZM020	30	15.04
RW15-PZM020	32	16.36
RW16-PZM020	30	14.18
RW17-PZM019	29	14.16
RW18-PZM047	60	14.91
RW19-PZM020	30	12.81
RW19-PZM050	60	14.26
RW19-PZM000	10	3.81
RW20-PZM020	32	14.31
RW20-PZM050	60	11.67
RW20-PZM000	10	3.87
RW21-PZM023	33	13.84
TS04-PDM004	15	10.26
TS04-PZM023	33	11.11

Note:

1. Groundwater elevations were performed on 4-26-10



October, 2010

Microbac Laboratories, Inc.

Severstal

Elevations @ the Former Rod & Wire Mill Area

Well Designation	Total Depth (ft.)	Depth to Water (ft.)
RW01-PZM020	30	13.25
RW02-PZM000	10	3.50
RW02-PZM020	30	13.71
RW03-PZM003	15	3.06
RW04-PZM003	15	4.15
RW05-PZM001	10	5.45
RW06-PZM001	10	4.26
RW07-PZM004	14	6.06
RW07-PZM017	30	14.06
RW08-PZM003	14	3.61
RW09-PZM004	14	5.04
RW10-PZM004	14	1.88
RW10-PZM020	30	14.57
RW10-PZM065	70	10.36
RW11-PZM004	14	6.26
RW12-PZM004	14	6.49
RW13-PZM020	30	13.95
RW14-PZM020	30	14.66
RW15-PZM020	32	10.90
RW16-PZM020	30	14.88
RW17-PZM019	29	14.70
RW18-PZM047	60	14.62
RW19-PZM020	30	14.53
RW19-PZM050	60	12.65
RW19-PZM000	10	9.05
RW20-PZM020	32	14.49
RW20-PZM050	60	9.63
RW20-PZM000	10	4.40
RW21-PZM023	33	13.74
TS04-PDM004	15	10.74
TS04-PZM023	33	10.83

Note:

1. Groundwater elevations were performed on 10/25/10.
2. Levels measured from PVC casing.

APPENDIX B

Daily Pumping Records for the Groundwater Pump and Treat System

January, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
1/1/2010	11,377	7,148	18,525	12.9
1/2/2010	9,974	5,083	15,057	10.5
1/3/2010	14,166	7,009	21,175	14.7
1/4/2010	13,905	7,218	21,123	14.7
1/5/2010	14,031	7,306	21,337	14.8
1/6/2010	18,066	9,407	27,473	19.1
1/7/2010	14,030	7,566	21,596	15.0
1/8/2010	13,715	7,266	20,981	14.6
1/9/2010	13,904	7,250	21,154	14.7
1/10/2010	12,414	6,462	18,876	13.1
1/11/2010	14,114	7,353	21,467	14.9
1/12/2010	13,991	7,330	21,321	14.8
1/13/2010	13,953	7,231	21,184	14.7
1/14/2010	15,961	8,352	24,313	16.9
1/15/2010	13,729	7,205	20,934	14.5
1/16/2010	13,497	7,070	20,567	14.3
1/17/2010	13,337	6,952	20,289	14.1
1/18/2010	10,536	5,532	16,068	11.2
1/19/2010	13,510	7,196	20,706	14.4
1/20/2010	13,671	7,227	20,898	14.5
1/21/2010	12,624	6,100	18,724	13.0
1/22/2010	9,536	8,823	18,359	12.7
1/23/2010	14,205	6,575	20,780	14.4
1/24/2010	14,821	6,591	21,412	14.9
1/25/2010	15,188	3,455	18,643	12.9
1/26/2010	13,338	6,011	19,349	13.4
1/27/2010	14,905	6,758	21,663	15.0
1/28/2010	14,875	6,768	21,643	15.0
1/29/2010	14,865	6,649	21,514	14.9
1/30/2010	16,732	7,568	24,300	16.9
1/31/2010	14,507	6,648	21,155	14.7
Totals:	427,477	215,109	642,586	14.4

February, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
2/1/2010	13,960	6,336	20,296	14.1
2/2/2010	15,008	6,888	21,896	15.2
2/3/2010	10,994	4,886	15,880	11.0
2/4/2010	12,792	5,523	18,315	12.7
2/5/2010	14,265	6,760	21,025	14.6
2/6/2010	0	10,555	10,555	7.3
2/7/2010	0	13,267	13,267	9.2
2/8/2010	0	9,257	9,257	6.4
2/9/2010	0	9,701	9,701	6.7
2/10/2010	0	9,233	9,233	6.4
2/11/2010	0	10,788	10,788	7.5
2/12/2010	8,146	8,445	16,591	11.5
2/13/2010	12,010	7,608	19,618	13.6
2/14/2010	10,272	7,630	17,902	12.4
2/15/2010	13,208	8,376	21,584	15.0
2/16/2010	11,557	7,613	19,170	13.3
2/17/2010	11,638	7,800	19,438	13.5
2/18/2010	11,242	7,597	18,839	13.1
2/19/2010	8,702	5,935	14,637	10.2
2/20/2010	11,321	7,740	19,061	13.2
2/21/2010	11,384	7,935	19,319	13.4
2/22/2010	11,233	7,898	19,131	13.3
2/23/2010	14,450	10,149	24,599	17.1
2/24/2010	10,883	7,731	18,614	12.9
2/25/2010	11,155	7,959	19,114	13.3
2/26/2010	11,444	8,045	19,489	13.5
2/27/2010	9,683	6,786	16,469	11.4
2/28/2010	10,968	7,709	18,677	13.0
Totals:	256,315	226,150	482,465	12.0

March, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
3/1/2010	10,982	7,720	18,702	13.0
3/2/2010	10,969	7,774	18,743	13.0
3/3/2010	12,147	8,633	20,780	14.4
3/4/2010	10,855	7,711	18,566	12.9
3/5/2010	11,066	7,923	18,989	13.2
3/6/2010	10,254	7,237	17,491	12.1
3/7/2010	8,300	5,783	14,083	9.8
3/8/2010	10,831	7,649	18,480	12.8
3/9/2010	10,703	7,580	18,283	12.7
3/10/2010	10,656	7,633	18,289	12.7
3/11/2010	13,569	9,821	23,390	16.2
3/12/2010	10,259	7,495	17,754	12.3
3/13/2010	10,478	7,066	17,544	12.2
3/14/2010	11,037	7,472	18,509	12.9
3/15/2010	10,006	6,699	16,705	11.6
3/16/2010	10,783	7,362	18,145	12.6
3/17/2010	10,517	7,485	18,002	12.5
3/18/2010	10,402	7,582	17,984	12.5
3/19/2010	12,720	7,757	20,477	14.2
3/20/2010	11,456	6,452	17,908	12.4
3/21/2010	11,390	6,486	17,876	12.4
3/22/2010	12,215	7,122	19,337	13.4
3/23/2010	8,162	4,680	12,842	8.9
3/24/2010	11,831	6,723	18,554	12.9
3/25/2010	11,763	6,818	18,581	12.9
3/26/2010	11,027	6,764	17,791	12.4
3/27/2010	13,612	8,746	22,358	15.5
3/28/2010	11,261	6,988	18,249	12.7
3/29/2010	10,695	6,731	17,426	12.1
3/30/2010	10,943	7,014	17,957	12.5
3/31/2010	9,194	6,527	15,721	10.9
Totals:	340,083	225,433	565,516	12.7

April, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
4/1/2010	9,821	7,353	17,174	11.9
4/2/2010	9,291	7,475	16,766	11.6
4/3/2010	8,907	7,502	16,409	11.4
4/4/2010	9,420	8,249	17,669	12.3
4/5/2010	7,410	7,708	15,118	10.5
4/6/2010	8,451	7,668	16,119	11.2
4/7/2010	8,303	7,501	15,804	11.0
4/8/2010	5,979	5,770	11,749	8.2
4/9/2010	7,418	7,909	15,327	10.6
4/10/2010	7,275	8,043	15,318	10.6
4/11/2010	6,878	8,064	14,942	10.4
4/12/2010	7,766	10,445	18,211	12.6
4/13/2010	5,761	8,369	14,130	9.8
4/14/2010	6,257	8,544	14,801	10.3
4/15/2010	7,406	7,696	15,102	10.5
4/16/2010	6,551	7,317	13,868	9.6
4/17/2010	6,682	7,829	14,511	10.1
4/18/2010	6,841	8,190	15,031	10.4
4/19/2010	5,962	8,337	14,299	9.9
4/20/2010	5,983	9,092	15,075	10.5
4/21/2010	5,434	8,276	13,710	9.5
4/22/2010	1,922	9,364	11,286	7.8
4/23/2010	0	10,304	10,304	7.2
4/24/2010	0	7,778	7,778	5.4
4/25/2010	0	10,331	10,331	7.2
4/26/2010	0	10,119	10,119	7.0
4/27/2010	0	10,226	10,226	7.1
4/28/2010	0	13,000	13,000	9.0
4/29/2010	0	10,298	10,298	7.2
4/30/2010	0	10,347	10,347	7.2
Totals:	155,718	259,104	414,822	9.6

May, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
5/1/2010	0	10,205	10,205	7.1
5/2/2010	0	7,535	7,535	5.2
5/3/2010	0	10,297	10,297	7.2
5/4/2010	0	9,917	9,917	6.9
5/5/2010	0	10,416	10,416	7.2
5/6/2010	0	12,807	12,807	8.9
5/7/2010	0	10,161	10,161	7.1
5/8/2010	0	10,324	10,324	7.2
5/9/2010	0	10,055	10,055	7.0
5/10/2010	0	19,286	19,286	13.4
5/11/2010	0	9,776	9,776	6.8
5/12/2010	0	10,184	10,184	7.1
5/13/2010	0	10,417	10,417	7.2
5/14/2010	0	11,154	11,154	7.7
5/15/2010	0	10,211	10,211	7.1
5/16/2010	0	9,866	9,866	6.9
5/17/2010	0	10,439	10,439	7.2
5/18/2010	0	8,009	8,009	5.6
5/19/2010	0	9,156	9,156	6.4
5/20/2010	0	10,205	10,205	7.1
5/21/2010	0	10,169	10,169	7.1
5/22/2010	0	11,427	11,427	7.9
5/23/2010	0	10,212	10,212	7.1
5/24/2010	0	10,093	10,093	7.0
5/25/2010	0	10,322	10,322	7.2
5/26/2010	0	7,476	7,476	5.2
5/27/2010	0	10,133	10,133	7.0
5/28/2010	0	10,347	10,347	7.2
5/29/2010	0	10,077	10,077	7.0
5/30/2010	0	12,802	12,802	8.9
5/31/2010	0	10,099	10,099	7.0
Totals:	0	305,837	305,837	7.3

June, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
6/1/2010	0	10,398	10,398	7.2
6/2/2010	0	9,639	9,639	6.7
6/3/2010	0	9,578	9,578	6.7
6/4/2010	0	10,179	10,179	7.1
6/5/2010	0	10,238	10,238	7.1
6/6/2010	0	10,154	10,154	7.1
6/7/2010	0	11,568	11,568	8.0
6/8/2010	0	10,000	10,000	6.9
6/9/2010	0	8,485	8,485	5.9
6/10/2010	0	8,485	8,485	5.9
6/11/2010	0	7,511	7,511	5.2
6/12/2010	0	10,097	10,097	7.0
6/13/2010	0	10,376	10,376	7.2
6/14/2010	0	10,205	10,205	7.1
6/15/2010	0	12,563	12,563	8.7
6/16/2010	0	10,205	10,205	7.1
6/17/2010	0	8,197	8,197	5.7
6/18/2010	0	12,280	12,280	8.5
6/19/2010	0	9,436	9,436	6.6
6/20/2010	0	9,655	9,655	6.7
6/21/2010	0	9,601	9,601	6.7
6/22/2010	0	10,007	10,007	6.9
6/23/2010	0	11,199	11,199	7.8
6/24/2010	3,528	8,962	12,490	8.7
6/25/2010	8,088	5,314	13,402	9.3
6/26/2010	9,713	6,635	16,348	11.4
6/27/2010	9,359	5,982	15,341	10.7
6/28/2010	10,331	6,603	16,934	11.8
6/29/2010	10,476	6,619	17,095	11.9
6/30/2010	10,261	6,528	16,789	11.7
Totals:	61,756	276,699	338,455	7.8

July, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
7/1/2010	11,782	7,526	19,308	13.4
7/2/2010	10,526	6,739	17,265	12.0
7/3/2010	9,818	6,269	16,087	11.2
7/4/2010	10,485	9,659	20,144	14.0
7/5/2010	9,677	3,182	12,859	8.9
7/6/2010	10,250	6,547	16,797	11.7
7/7/2010	10,343	6,541	16,884	11.7
7/8/2010	10,302	6,644	16,946	11.8
7/9/2010	11,439	7,413	18,852	13.1
7/10/2010	10,155	6,576	16,731	11.6
7/11/2010	9,872	6,400	16,272	11.3
7/12/2010	10,446	6,779	17,225	12.0
7/13/2010	7,284	4,776	12,060	8.4
7/14/2010	7,323	7,477	14,800	10.3
7/15/2010	8,258	6,216	14,474	10.1
7/16/2010	6,171	7,947	14,118	9.8
7/17/2010	14,530	7,628	22,158	15.4
7/18/2010	11,543	6,119	17,662	12.3
7/19/2010	10,914	5,834	16,748	11.6
7/20/2010	12,311	5,524	17,835	12.4
7/21/2010	11,701	4,961	16,662	11.6
7/22/2010	12,734	5,342	18,076	12.6
7/23/2010	12,659	5,403	18,062	12.5
7/24/2010	12,609	5,399	18,008	12.5
7/25/2010	13,579	5,814	19,393	13.5
7/26/2010	12,490	5,345	17,835	12.4
7/27/2010	11,770	5,263	17,033	11.8
7/28/2010	12,289	5,431	17,720	12.3
7/29/2010	3,993	1,735	5,728	4.0
7/30/2010	0	0	0	0.0
7/31/2010	0	0	0	0.0
Totals:	307,253	176,489	483,742	10.8

August, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
8/1/2010	0	0	0	0.0
8/2/2010	0	0	0	0.0
8/3/2010	7,560	774	8,334	5.8
8/4/2010	0	0	0	0.0
8/5/2010	9,745	3,715	13,460	9.3
8/6/2010	11,524	4,482	16,006	11.1
8/7/2010	12,656	5,023	17,679	12.3
8/8/2010	10,301	4,116	14,417	10.0
8/9/2010	14,729	5,925	20,654	14.3
8/10/2010	14,650	5,895	20,545	14.3
8/11/2010	13,299	5,348	18,647	12.9
8/12/2010	10,367	4,359	14,726	10.2
8/13/2010	12,071	5,130	17,201	11.9
8/14/2010	9,090	3,894	12,984	9.0
8/15/2010	12,074	5,163	17,237	12.0
8/16/2010	12,359	5,299	17,658	12.3
8/17/2010	11,634	5,024	16,658	11.6
8/18/2010	14,916	6,441	21,357	14.8
8/19/2010	11,443	5,238	16,681	11.6
8/20/2010	11,648	5,338	16,986	11.8
8/21/2010	10,095	5,855	15,950	11.1
8/22/2010	8,982	5,762	14,744	10.2
8/23/2010	9,578	6,188	15,766	10.9
8/24/2010	9,401	6,179	15,580	10.8
8/25/2010	9,342	6,274	15,616	10.8
8/26/2010	10,348	6,994	17,342	12.0
8/27/2010	8,568	5,778	14,346	10.0
8/28/2010	8,768	6,323	15,091	10.5
8/29/2010	8,806	6,403	15,209	10.6
8/30/2010	6,473	4,859	11,332	7.9
8/31/2010	8,165	6,482	14,647	10.2
Totals:	298,592	148,261	446,853	10.0

September, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
9/1/2010	8,156	6,683	14,839	10.3
9/2/2010	7,903	6,610	14,513	10.1
9/3/2010	9,789	8,329	18,118	12.6
9/4/2010	9,750	5,140	14,890	10.3
9/5/2010	9,784	6,255	16,039	11.1
9/6/2010	8,379	5,441	13,820	9.6
9/7/2010	8,397	5,598	13,995	9.7
9/8/2010	8,925	6,048	14,973	10.4
9/9/2010	8,819	6,034	14,853	10.3
9/10/2010	8,758	6,053	14,811	10.3
9/11/2010	9,588	6,717	16,305	11.3
9/12/2010	8,603	6,139	14,742	10.2
9/13/2010	8,099	5,937	14,036	9.7
9/14/2010	8,581	6,402	14,983	10.4
9/15/2010	5,987	4,558	10,545	7.3
9/16/2010	7,895	6,157	14,052	9.8
9/17/2010	7,867	6,291	14,158	9.8
9/18/2010	7,931	6,373	14,304	9.9
9/19/2010	9,666	7,848	17,514	12.2
9/20/2010	7,687	6,314	14,001	9.7
9/21/2010	7,654	6,338	13,992	9.7
9/22/2010	7,694	6,346	14,040	9.8
9/23/2010	6,361	5,815	12,176	8.5
9/24/2010	6,812	6,528	13,340	9.3
9/25/2010	6,599	6,470	13,069	9.1
9/26/2010	6,420	6,422	12,842	8.9
9/27/2010	5,153	7,939	13,092	9.1
9/28/2010	584	9,012	9,596	6.7
9/29/2010	6,565	6,575	13,140	9.1
9/30/2010	7,005	6,146	13,151	9.1
Totals:	231,411	192,518	423,929	9.8

October, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
10/1/2010	5,030	4,291	9,321	6.5
10/2/2010	6,883	6,059	12,942	9.0
10/3/2010	6,577	6,172	12,749	8.9
10/4/2010	6,443	6,302	12,745	8.9
10/5/2010	8,420	7,801	16,221	11.3
10/6/2010	4,794	6,585	11,379	7.9
10/7/2010	4,940	5,011	9,951	6.9
10/8/2010	5,893	6,302	12,195	8.5
10/9/2010	5,562	5,965	11,527	8.0
10/10/2010	5,867	6,294	12,161	8.4
10/11/2010	6,118	5,925	12,043	8.4
10/12/2010	7,077	4,335	11,412	7.9
10/13/2010	9,098	5,137	14,235	9.9
10/14/2010	7,468	5,703	13,171	9.1
10/15/2010	7,335	5,302	12,637	8.8
10/16/2010	7,505	5,426	12,931	9.0
10/17/2010	5,782	3,666	9,448	6.6
10/18/2010	8,241	5,052	13,293	9.2
10/19/2010	8,012	4,995	13,007	9.0
10/20/2010	8,055	5,033	13,088	9.1
10/21/2010	9,949	6,314	16,263	11.3
10/22/2010	9,500	4,820	14,320	9.9
10/23/2010	8,979	5,016	13,995	9.7
10/24/2010	7,798	4,359	12,157	8.4
10/25/2010	7,271	4,556	11,827	8.2
10/26/2010	8,040	4,942	12,982	9.0
10/27/2010	7,969	4,925	12,894	9.0
10/28/2010	7,909	4,887	12,796	8.9
10/29/2010	6,650	4,029	10,679	7.4
10/30/2010	8,841	4,968	13,809	9.6
10/31/2010	8,054	4,029	12,083	8.4
Totals:	226,060	164,201	390,261	8.8

November, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
11/1/2010	8,514	4,333	12,847	8.9
11/2/2010	6,211	3,230	9,441	6.6
11/3/2010	8,605	4,525	13,130	9.1
11/4/2010	8,413	4,460	12,873	8.9
11/5/2010	8,238	4,413	12,651	8.8
11/6/2010	11,291	6,145	17,436	12.1
11/7/2010	7,517	4,147	11,664	8.1
11/8/2010	8,302	4,600	12,902	9.0
11/9/2010	7,716	4,326	12,042	8.4
11/10/2010	55	34	89	0.1
11/11/2010	7,200	4,500	11,700	8.1
11/12/2010	4,147	2,632	6,779	4.7
11/13/2010	6,919	5,051	11,970	8.3
11/14/2010	7,498	7,683	15,181	10.5
11/15/2010	6,550	5,014	11,564	8.0
11/16/2010	5,391	5,204	10,595	7.4
11/17/2010	2,373	7,762	10,135	7.0
11/18/2010	1,532	5,309	6,841	4.8
11/19/2010	2,075	7,527	9,602	6.7
11/20/2010	1,968	7,621	9,589	6.7
11/21/2010	2,160	7,492	9,652	6.7
11/22/2010	2,560	9,645	12,205	8.5
11/23/2010	5,176	5,671	10,847	7.5
11/24/2010	5,274	6,003	11,277	7.8
11/25/2010	4,998	5,938	10,936	7.6
11/26/2010	4,426	5,535	9,961	6.9
11/27/2010	4,497	6,141	10,638	7.4
11/28/2010	4,226	6,201	10,427	7.2
11/29/2010	3,850	6,355	10,205	7.1
11/30/2010	4,090	7,163	11,253	7.8
Totals:	161,772	164,660	326,432	7.6

December, 2010				
Date	Pumped Volume (gallons)			Total Rate (gpm)
	Well #24 (RW15)	Well #27 (RW10)	Total	MP 214
12/1/2010	3,319	6,076	9,395	6.5
12/2/2010	3,376	6,608	9,984	6.9
12/3/2010	3,619	7,408	11,027	7.7
12/4/2010	2,214	4,949	7,163	5.0
12/5/2010	2,908	6,765	9,673	6.7
12/6/2010	5,109	5,587	10,696	7.4
12/7/2010	7,140	4,284	11,424	7.9
12/8/2010	9,120	5,224	14,344	10.0
12/9/2010	7,487	3,891	11,378	7.9
12/10/2010	7,419	3,872	11,291	7.8
12/11/2010	7,667	4,079	11,746	8.2
12/12/2010	6,810	3,623	10,433	7.2
12/13/2010	4,749	5,185	9,934	6.9
12/14/2010	3,461	6,195	9,656	6.7
12/15/2010	3,260	6,501	9,761	6.8
12/16/2010	2,988	7,527	10,515	7.3
12/17/2010	1,023	2,964	3,987	2.8
12/18/2010	0	0	0	0.0
12/19/2010	0	0	0	0.0
12/20/2010	0	0	0	0.0
12/21/2010	0	0	0	0.0
12/22/2010	0	0	0	0.0
12/23/2010	5,287	4,608	9,895	6.9
12/24/2010	11,382	10,175	21,557	15.0
12/25/2010	8,719	7,860	16,579	11.5
12/26/2010	8,713	7,859	16,572	11.5
12/27/2010	4,150	7,870	12,020	8.3
12/28/2010	8,130	7,447	15,577	10.8
12/29/2010	8,640	7,920	16,560	11.5
12/30/2010	8,658	7,937	16,595	11.5
12/31/2010	8,642	7,927	16,569	11.5
Totals:	153,990	160,341	314,331	7.0
Annual Total:	2,620,427	2,514,802	5,135,229	--

APPENDIX C

Explanation of Treatment System Down-time

2010 Operational History Of The Rod and Wire Mill Interim Measure Treatment System

2/3/10 SYSTEM DOWN APPROX 2 HOURS TO CLEAN REACTOR.

2/9/10 SYSTEM DOWN DUE TO ph CONTROL PROBLEM.

2/6 -2/11 WELL 24 PUMP OUT OF SERVICE – FAULTY CARD

4/23 – 6/23 WELL 24 OUT OF SERVICE – REPLACED WELL PUMP

6/1/10 SYSTEM DOWN DUE TO CAUSTIC SYSTEM LEAK.

7/29/10 - 8/5/10 SYSTEM DOWN DUE TO LOSS OF CAUSTIC FEED PUMPS AND CAUSTIC TANK LEAK.

9/4/10 SYSTEM DOWN APPROX 2 HOURS TO CLEAN REACTOR.

10/12/10 SYSTEM DOWN APPROX 2 HOURS TO CLEAN REACTOR.

12/17/10 – 12/23/10 SYSTEM DOWN DUE TO CAUSTIC FEED SYSTEM LEAKS.