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September 19, 2016

Mr. Michael Babuin
North Carolina Department of Environment and Natural Resources
Facility Management Branch
Hazardous Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Groundwater Monitoring Report
July 2016 Monitoring Results
Haynes Wire Company, Mountain Home, North Carolina
NC DENR 986 190 791

Dear Mr. Babuin:

This letter presents the July 2016 groundwater monitoring results for the Haynes Wire Company (Haynes) facility in Mountain Home, North Carolina.

Background

Haynes (formerly Branford Wire and Manufacturing, Inc.) is located at 158 North Egerton Road in Mountain Home, Henderson County, North Carolina. Figure 1 illustrates the site location. The facility produces high-quality stainless-steel and nickel alloy wires.

Purpose

The purpose of the groundwater monitoring activities conducted at the facility were to comply with the Groundwater Assessment Plan as part of the closure of the former surface impoundment. The purpose of this report is to document the July 2016 monitoring results.

Water Level Measurements and Groundwater Flow

Water levels were measured in eight monitoring wells on July 19, 2016, by Pace Analytical Services, Inc. (PACE). Water level measurements are summarized in Table 1. Figure 2 illustrates our interpretation of the water table prepared from these water level data. Graphs of historical water levels are presented in Attachment 1.

As shown on Figure 2, groundwater at the site flows to the east, toward an unnamed tributary to Mud Creek. This interpretation is consistent with previous data and interpretations. The horizontal hydraulic gradient of the shallow alluvial aquifer is approximately 0.0153 to the east. Using the average hydraulic conductivity value of 4 feet/day (ft/day), and assuming an effective porosity of 30 percent, the groundwater flow velocity is estimated to be 0.061 ft/day or 22.3 feet per year (ft/yr).

Groundwater velocity at the site is driven by the hydraulic gradient since the other pertinent hydrogeologic parameters are constant (porosity and hydraulic conductivity). The horizontal distance across the site as measured from MW-01 to MW-08 is 300 feet. The hydrographs of all wells (Attachment 1) illustrate that the water level elevations are typically very similar (typically within 2-3 feet of one another), except when compared to the upgradient well MW-01, which is (historically) up to 6 feet higher in elevation than the other seven wells. This difference in the range of elevations changes seasonally, thus changing the gradient. The data for this most recent event indicates the water levels are higher at MW-05 than is typical. Water levels at other wells are within historic ranges.

Groundwater Quality Monitoring

Groundwater sampling activities were conducted on July 19, 2016, by PACE using low-flow sampling techniques. The sampling was conducted in accordance with the Groundwater Sampling and Analysis Plan (GSAP) (Hazcom, Inc., 2004). In a letter dated March 3, 2014, the NCDENR approved revision of the monitoring plan to:

- Standard field parameter measurements (pH, temperature, etc.) will be taken at monitoring wells MW-01, MW-02, and MW-03 during sampling collection.
- Groundwater samples from monitoring wells MW-01 and MW-02 will be analyzed for nickel only.
- Groundwater samples from monitoring wells MW-01 and MW-03 will be analyzed for barium.
- Water level elevations will be collected from monitoring wells MW-01 through MW-08 at each monitoring event.

Groundwater samples were submitted to PACE for analysis. In addition to the field indicator parameters (pH, specific conductance, and temperature), taken at MW-01, MW-02, and MW-03; groundwater samples were analyzed for nickel at MW-01 and MW-02, barium at MW-01 and MW-03, and PCP at MW-01. Analytical results and

stabilized field parameter measurements are summarized in Table 2. Laboratory reports are provided in Attachment 2.

Nickel was detected during the July 2016 sampling event in a groundwater sample from MW-02 at a concentration of 0.488 mg/L, which is above the North Carolina 2L Standard (0.1 milligrams/liter [mg/L]). This detection was slightly less than the July 2015 detection (0.545 mg/L). Nickel was below detectable limits (<0.005 mg/L) at MW-01.

Barium was detected below the 2L Standard (0.7 mg/L) in a groundwater sample collected from MW-03 during the July 2016 sampling event at a concentration of 0.770 mg/L. Barium has historically been above the 2L Standard in this well. Barium was below the standard at MW-01 and MW-02 at concentrations of 0.0738 and 0.138 mg/L, respectively.

Turbidity appears to be a large factor in the elevated concentration of metals at the facility. Turbidity has generally declined over time with the introduction of low-flow sampling techniques. Low flow sampling techniques will continue to be used in subsequent sampling efforts to minimize turbidity in the samples.

A groundwater sample from MW-01 was analyzed for PCP. The concentration of PCP was below the limit of detection (<0.000030 mg/L).

Conclusions

- The nickel concentration in MW-02 (0.488 mg/l) slightly decreased during this sampling round compared to July 2015 (concentration of 0.545 mg/L).
- PCP was not detected in groundwater at MW-01 using the lower detection limit (0.000030 mg/L) requested by NCDENR. As per your email dated June 25, 2015, PCP analysis will no longer be required at this well.
- The next sampling event will be in July 2017.

If you have questions or need additional information, please call Kris Krause (608-826-3637) or James Wedekind (608-826-3666).

Sincerely,

TRC Environmental Corporation

Kristopher D. Krause
Senior Project Manager

James Wedekind, P.G.
Senior Hydrogeologist

Attachments: Tables
Figures
Attachment 1 - Graphs
Attachment 2 - Laboratory Reports

cc: Greg Morrow – Haynes International
Angela Beck – Haynes Wire Company

References

Hazcom, Inc. 2004. Groundwater assessment plan and sampling and analysis plan. Branford Wire and Manufacturing Co. November 15, 2003; revised August 3, 2004.

Table 1

Summary of Groundwater Elevations (Above Mean Sea Level)

Haynes Wire Company, Mountain Home, North Carolina

STATION	ELEVATION[1]	11/10/04	01/24/05	07/17/06	01/30/07	07/16/07	07/21/08	01/22/09	07/21/09	01/27/10	07/27/10	01/21/11	07/26/11	01/25/12	07/23/12	07/30/13	07/15/14	07/02/15	07/19/16	CHANGE FROM PREVIOUS
MW-01	2,072.85	2,067.24	2,067.55	2,067.52	2,067.90	2,065.87	2,066.76	2,067.35	2,067.21	2,069.01	2,067.25	2,067.80	2,066.84	2,068.43	2,066.73	2,068.81	2,067.58	2,066.92	2,067.35	0.43
MW-02	2,074.60	2,064.24	2,065.03	2,063.65	2,064.07	2,062.21	2,062.76	2,063.68	2,063.26	2,065.92	2,063.69	2,064.25	2,063.52	2,065.74	2,063.52	2,065.85	2,064.12	2,061.95	2,062.26	0.31
MW-03	2,071.68	2,064.12	2,064.23	2,063.69	2,064.39	2,060.41	2,061.86	2,064.08	2,062.76	2,066.97	2,062.47	2,064.13	2,062.66	2,066.32	2,062.76	2,066.36	2,063.39	2,065.63	2,065.54	-0.09
MW-04	2,072.95	2,064.21	2,064.35	2,063.97	2,064.63	2,061.19	2,062.17	2,064.05	2,062.97	2,067.50	2,063.02	2,064.31	2,062.95	2,066.91	2,063.24	2,066.85	2,064.71	2,061.85	2,061.74	-0.11
MW-05	2,068.67	2,063.82	2,064.34	2,063.34	2,063.77	2,061.74	2,062.35	2,062.99	2,062.92	2,065.59	2,063.20	2,063.95	2,063.11	2,065.38	2,063.12	2,065.60	2,063.79	2,067.65	2,067.94	0.29
MW-06	2,067.67	2,063.92	2,064.02	2,063.60	2,064.27	2,059.73	2,061.67	2,063.54	2,062.67	2,066.30	2,062.34	2,064.01	2,062.46	2,065.53	2,062.33	2,065.97	2,063.26	2,063.50	2,063.52	0.02
MW-07	2,068.08	2,064.33	2,064.40	2,064.17	2,064.80	2,060.60	2,062.23	2,064.29	2,063.11	2,067.36	2,062.90	2,064.37	2,062.94	2,066.60	2,063.10	2,066.05	2,063.82	2,062.56	2,062.66	0.10
MW-08	2,066.97	2,062.84	2,063.07	2,062.63	2,063.30	2,059.47	2,060.67	2,062.89	2,061.82	2,065.49	2,061.15	2,063.15	2,061.59	2,064.72	2,061.69	2,065.27	2,062.28	2,062.80	2,062.76	-0.04
Average		2,064.34	2,064.62	2,064.07	2,064.64	2,061.40	2,062.56	2,064.11	2,063.34	2,066.77	2,063.25	2,064.50	2,063.26	2,066.20	2,063.31	2,066.35	2,064.12	2,064.11	2,064.22	0.11

Footnote:

[1] Measurement point elevation.

Notes:

Yellow shade denotes an historically high water level elevation.

Blue shade denotes an historically low water level elevation.

Table 2
Summary of Groundwater Analytical Results
Haynes Wire Company, Mountain Home, North Carolina

PARAMETER[1]	NC 2L[2] STANDARD	LOCATION/SAMPLE DATE																						
		MW-01																						
		11/10/04	1/25/05	1/31/05	5/3/05	11/07/05	1/25/06	7/17/06	1/30/2007	7/16/07	1/25/08	7/21/08	1/22/09	7/21/09	1/27/10	7/27/10	1/21/11	7/26/11	1/25/12	7/23/12	7/30/13	7/15/14	7/2/15	7/19/16
Metals (Method 6010, and Mercury via Method 7470)																								
Arsenic	0.01	NA	<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	<0.005	<0.005	<0.005	<0.005	<0.010	NA	NA	NA
Barium	0.7	NA	0.051	0.048	0.035	0.030	0.029	0.033	0.036	0.013	0.0235	0.0155	0.0189	0.0239	0.0584	0.0276	0.0205	0.0368	0.0928	0.0572	0.114	0.0365	0.0521	0.0738
Cadmium	0.002	**0.011**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA
Chromium	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.0011J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
Copper	1	NA	NA	<0.002	<0.002	<0.002	<0.002	<0.002	0.0058	<0.002	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
Lead	0.015	0.015	<0.005	<0.005	<0.005	<0.005	0.0021J	<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	NA	NA	NA
Mercury	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000046J	0.00038	0.000051J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	NA
Nickel	0.1	<0.005	<0.005	<0.005	<0.005	0.0025J	0.00056J	<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	<0.005	<0.005	<0.005
Selenium	0.02	NA	<0.005	<0.005	0.0052	0.0017J	<0.005	<0.005	<0.010	<0.010	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NA	NA	NA
Silver	0.02	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<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	NA	NA	NA
Semivolatile Organics (Method 8270)																								
Pentachlorophenol	0.0003	NA	**0.042 J**	**0.035 J**	**0.033J**	**0.026J**	**0.031J**	<0.05	**0.011J**	**0.069**	<0.05	<0.0521	<0.0562	<0.0515	<0.001	NA	NA	<0.025	NA	<0.025	<0.025	0.00021	<0.000028	<0.000030
Field Indicators[3]																								
Conductance, specific (uS/cm)	--	NA	63	62	64	89	139	171	158	13.1	128	285	2.01	337	249	325	198	529	341	365	317	218	367	434.5
pH, field (S.U.)	--	NA	5.5	5.1	4.72	5.33	5.63	5.87	5.81	5.74	5.43	6.06	5.92	5.96	6.13	6.42	5.02	6.4	5.7	6.2	5.6	5.52	5.6	5.6
Temperature (°C)	--	NA	14.7	15.2	15.72	20.89	15.24	25.01	16.5	25.3	16.84	25.4	16.24	24.78	12.0	26.4	12.44	25.44	15.80	25.90	25.49	25.70	22.70	26.40
Turbidity (NTU)	--	NA	0	11	NA	NA	NA	NA	NA	NA	0.88	5.92	10	19.3	13.9	6.3	11.13	4.48	0.73	0.99	0.46	6.85	3.51	1.9

Notes:
(1) Analytical results are reported in milligrams per liter (mg/L) unless otherwise noted. Only parameters detected in at least one sample at a concentration above the reporting limit are included in this summary table, with the exception of metals parameters, which have been reported in their entirety.
(2) 15A North Carolina Administrative Code (NCAC) 2L .0202 - NC 2L Groundwater Quality Standard.
(3) Duplicate sample values are the same as the "original" sample.
* = chromatogram pattern does not appear to be diesel.
< = concentration less than the Quantitation Limit.
DL = Detection Limit.
J = estimated concentration.
NA = not analyzed.
Shading indicates sample exceeds NC 2L Standard or, where no standard is available, sample exceeds the reporting limit.

Table 2 (continued)
Summary of Groundwater Analytical Results
Haynes Wire Company, Mountain Home, North Carolina

PARAMETER[1]	NC 2L[2] STANDARD	LOCATION/SAMPLE DATE																						
		MW-02																						
		11/10/04	1/25/05	1/31/05	5/3/05	11/07/05	1/25/06	7/17/06	1/30/2007	7/16/07	1/25/08	7/21/08	1/22/09	7/21/09	1/27/10	7/27/10	1/21/11	7/26/11	1/25/12	7/23/12	7/30/13	7/15/14	7/2/15	7/19/16
Metals (Method 6010, and Mercury via Method 7470)																								
Arsenic	0.01	NA	<0.005	0.0052	<0.005	0.0089	<0.005	<0.005	<0.005	<0.005	<0.005	0.0064	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	NA	NA	NA
Barium	0.7	NA	0.16	0.16	0.086	0.34	0.062	0.01	0.046	0.3	0.1	0.0098	0.119	0.0254	0.0884	0.117	0.0588	0.0468	0.106	0.0585	0.142	NA	0.138	NA
Cadmium	0.002	<0.001	<0.001	<0.001	0.0015	**0.022**	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA
Chromium	0.01	**0.33**	0.0086	0.0055	0.12	**0.34**	0.01	0.015	0.008	0.0075	<0.005	0.0108	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
Copper	1	NA	NA	0.14	**3.5**	**14**	0.33	0.29	0.09	**3.0**	0.09	0.114	0.067	0.0371	<0.005	0.0319	0.0097	0.0099	<0.005	0.0102	<0.005	NA	NA	NA
Lead	0.015	**0.046**	<0.005	<0.005	0.0015J	**0.082**	0.0058	<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	NA	NA	NA
Mercury	0.001	<0.0002	<0.0002	<0.0002	<0.0002	0.00019J	0.000040J	0.00066	0.000075J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	NA
Nickel	0.1	**5.1**	**6.2**	**9**	**9.8**	**440**	**93**	**5.4**	**1.1**	**35**	**3.63**	**1.73**	**1.19**	**0.592**	**0.121**	**1.08**	**0.643**	**0.974**	0.0712	**0.756**	0.0378	**0.591**	**0.545**	**0.488**
Selenium	0.02	NA	<0.005	<0.005	0.0011	0.002J	<0.005	<0.005	0.0054J	<0.01	<0.01	<0.01	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NA	NA	NA
Silver	0.02	NA	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<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	NA	NA	NA
Semivolatile Organics (Method 8270)																								
Pentachlorophenol	0.0003	NA	<0.051	<0.05	<0.05	<50	<0.05	<0.05	<0.0051	<0.057	<0.05	<0.05	<0.0588	<0.050	<0.001	NA	NA	<0.025	NA	<0.025	<0.025	0.000037	NA	NA
Field Indicators[3]																								
Conductance, specific (uS/cm)	--	NA	4,881	4,080	4,760	1,610	530	782	234	3,920	757	486	416	174	107	288	186	201	75	175	49	121	111	122
pH, field (S.U.)	--	NA	5.1	4.9	4.62	4.23	4.17	5.5	5.39	4.72	5.11	5.3	4.91	4.94	4.84	5.21	5.34	5.3	4.7	5.4	4.9	4.92	5.1	5.2
Temperature (°C)	--	NA	12.9	12.8	13.11	19.82	12.06	20.82	13	19.7	12.67	18.38	13.49	18.41	10.23	19.12	10.74	19.69	12.58	20.31	21.42	19.5	17.5	21.8
Turbidity (NTU)	--	NA	0	9.1	NA	NA	NA	NA	NA	NA	1.46	2.17	0.61	1.04	2.70	0.80	1.65	0.58	2.05	2.44	1.44	2.05	3.31	5.5

Notes:

(1) Analytical results are reported in milligrams per liter (mg/L) unless otherwise noted. Only parameters detected in at least one sample at a concentration above the reporting limit are included in this summary table, with the exception of metals parameters, which have been reported in their entirety.

(2) 15A North Carolina Administrative Code (NCAC) 2L .0202 - NC 2L Groundwater Quality Standard.

(3) Duplicate sample values are the same as the "original" sample.

* = chromatogram pattern does not appear to be diesel.

< = concentration less than the Quantitation Limit.

DL = Detection Limit.

J = estimated concentration.

NA = not analyzed.

Shading indicates sample exceeds NC 2L Standard or, where no standard is available, sample exceeds the reporting limit.

Table 2 (continued)
Summary of Groundwater Analytical Results
Haynes Wire Company, Mountain Home, North Carolina

PARAMETER[1]	NC 2L[2] STANDARD	LOCATION/SAMPLE DATE																							
		MW-03																							
		11/10/04	1/25/05	1/31/05	5/3/05	11/07/05	1/25/06	7/17/06	1/30/2007	7/16/07	1/25/08	7/21/08	1/22/09	7/21/09	1/27/10	7/27/10	1/21/11	7/26/11	1/25/12	7/23/12	7/30/13	7/15/14	7/2/15	7/19/16
Metals (Method 6010, and Mercury via Method 7470)																									
Arsenic	0.01	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0031J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.010	NA	NA	NA
Barium	0.7	NA	**1.2**	**1.4**	**1.2**	**1.8**	**0.9**	**1.4**	**1.3**	**1.6**	**1.59**	**1.59**	**1.29**	**1.22**	0.377	**1.12**	**0.974**	**1.21**	0.299	**1.1**	0.0589	**0.878**	0.647	**0.770**
Cadmium	0.002	<0.001	<0.001	<0.001	0.0043	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NA	NA	NA
Chromium	0.01	<0.002	<0.002	<0.002	0.0056	<0.002	0.0016J	<0.002	0.0021J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
Copper	1	NA	NA	<0.002	0.0024	0.0021	<0.002	<0.002	0.00055J	0.00063J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
Lead	0.015	0.0072	0.0054	0.0074	<0.005	0.0057	0.0078	0.0066	<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	NA	NA	NA
Mercury	0.001	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.000034J	0.00022	0.000086J	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	NA	NA	NA
Nickel	0.1	0.02	0.018	0.022	0.017	0.066	0.036	0.022	0.012	**0.016**	0.0234	0.0229	0.0206	0.0264	<0.005	0.0209	0.0218	0.0153	<0.005	0.0134	0.0051	NA	0.0052	NA
Selenium	0.02	NA	<0.005	<0.005	0.016	0.0034J	0.0037J	<0.005	<0.01	0.0068J	<0.01	0.0201	<0.01	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NA	NA	NA
Silver	0.02	NA	<0.002	<0.002	0.0016J	<0.002	<0.002	<0.002	0.0011J	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	NA	NA	NA
Semivolatile Organics (Method 8270)																									
Pentachlorophenol	0.0003	NA	<0.05	<0.05	<0.05	<51	<0.05	<0.052	<0.052	<0.062	<0.05	<0.058	<0.0625	<0.061	<0.001	NA	NA	<0.025	NA	<0.025	<0.025	NA	NA	NA
Field Indicators[3]																									
Conductance, specific (uS/cm)	--	NA	589	694	660	717	735	899	765	1,040	811	894	591	596	198	521	534	502	108	464	182	378	343	286.9
pH, field (S.U.)	--	NA	6.1	6.3	6.21	6.26	6.15	6.25	6.22	6.13	6.13	6.06	5.99	5.85	6.12	6.12	5.98	6.1	5.6	6.2	6	5.82	6.1	6.2
Temperature (°C)	--	NA	12.8	12.1	12.98	20.49	11.46	18.92	12.8	19.9	12.31	17.97	13.41	19.16	9.22	18.82	11.86	19.65	12.19	19.9	20.4	18.3	18.7	22.3
Turbidity (NTU)	--	NA	5.0	28	NA	NA	NA	NA	NA	NA	38	8.64	14.6	13.9	5.35	16.3	8.58	8.83	3.96	13.9	2.39	3.00	2.98	6.50

Notes:

(1) Analytical results are reported in milligrams per liter (mg/L) unless otherwise noted. Only parameters detected in at least one sample at a concentration above the reporting limit are included in this summary table, with the exception of metals parameters, which have been reported in their entirety.

(2) 15A North Carolina Administrative Code (NCAC) 2L .0202 - NC 2L Groundwater Quality Standard.

(3) Duplicate sample values are the same as the "original" sample.

* = chromatogram pattern does not appear to be diesel.

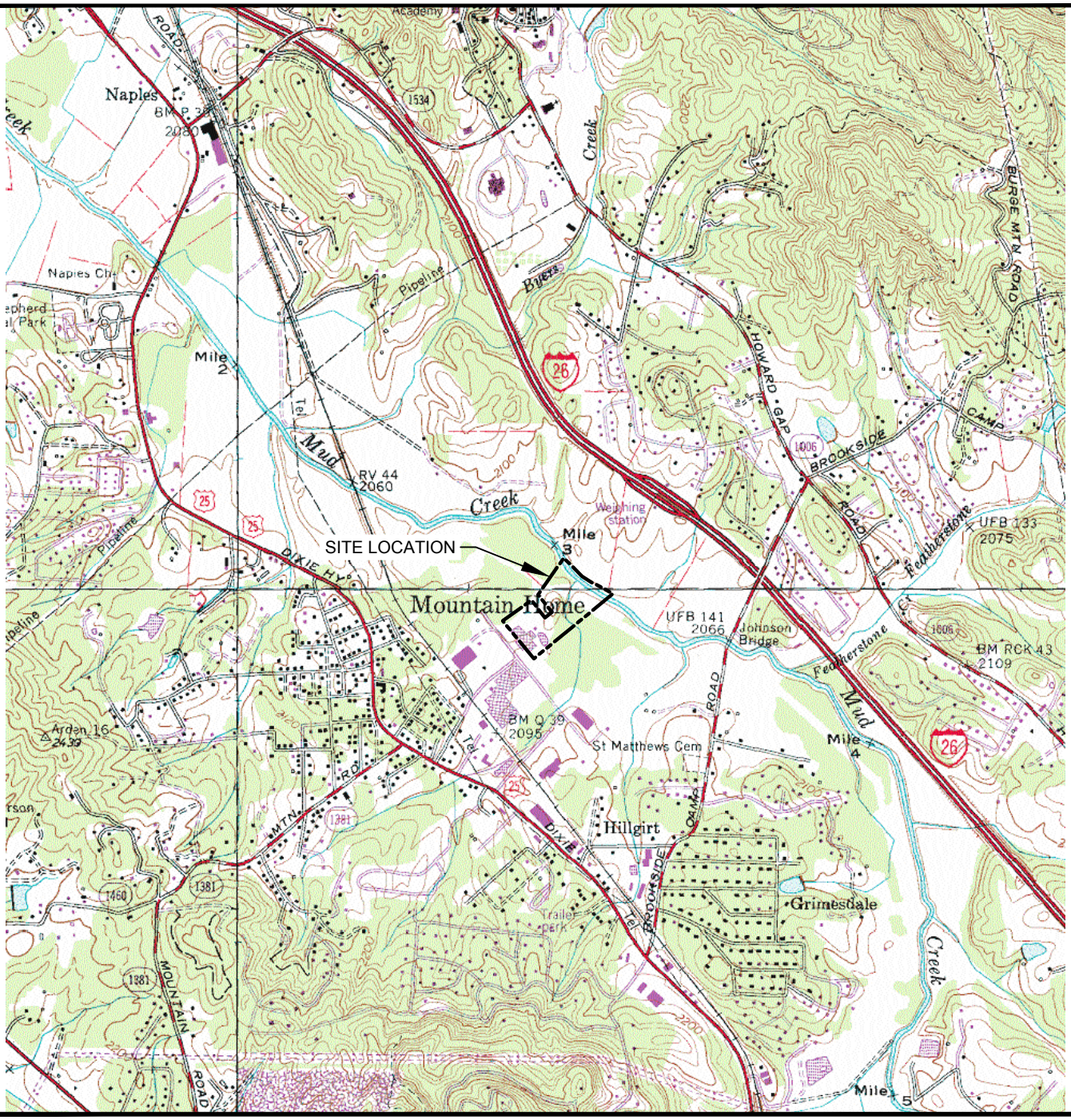
< = concentration less than the Quantitation Limit.

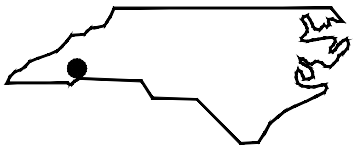
DL = Detection Limit.

J = estimated concentration.

NA = not analyzed.

Shading indicates sample exceeds NC 2L Standard or, where no standard is available, sample exceeds the reporting limit.





STATE LOCATION

0 2000 4000

SCALE IN FEET

N

SOURCE: BASE MAP FROM FRUITLAND, HENDERSONVILLE, HORSESHOE AND SKYLAND, NORTH CAROLINA, 7.5 MINUTE USGS QUADRANGLE.

TRC
708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

PROJECT:

HAYNES WIRE COMPANY
MOUNTAIN HOME, NORTH CAROLINA

TITLE:

SITE LOCATION MAP

DRAWN BY:	R. NOLDEN
CHECKED BY:	J. WEDEKIND
APPROVED BY:	K. KRAUSE
DATE:	SEPTEMBER 2016
PROJ. NO.:	260443.0000.0000
FILE:	260443.0000.01.dwg

FIGURE 1

8.5x11 --- ATTACHED XREFS: --- ATTACHED IMAGES: MountainHome;
DRAWING NAME: J:\Haynes Wire Company\260443 - 2016 GW Reporting\0000\ 260443.0000.01.dwg --- PLOT DATE: August 24, 2016 - 1:45PM --- LAYOUT: FIGURE 1

8.5x11 --- ATTACHED XREFS: --- ATTACHED IMAGES:
DRAWING NAME: J:\Haynes Wire Company\260443 - 2016 GW Reporting\0000\ 260443.0000.02.dwg --- PLOT DATE: August 25, 2016 - 10:07AM --- LAYOUT: FIGURE 2

LEGEND

MW-02 (2061.95) ● ALLUVIAL AQUIFER MONITORING WELL LOCATION WITH WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)

MW-05 (2067.65) ⊙ BEDROCK MONITORING WELL LOCATION WITH WATER TABLE ELEVATION IN FEET ABOVE MEAN SEA LEVEL (MSL)

2066 WATER TABLE CONTOUR WITH WATER ELEVATION IN FEET ABOVE MSL.

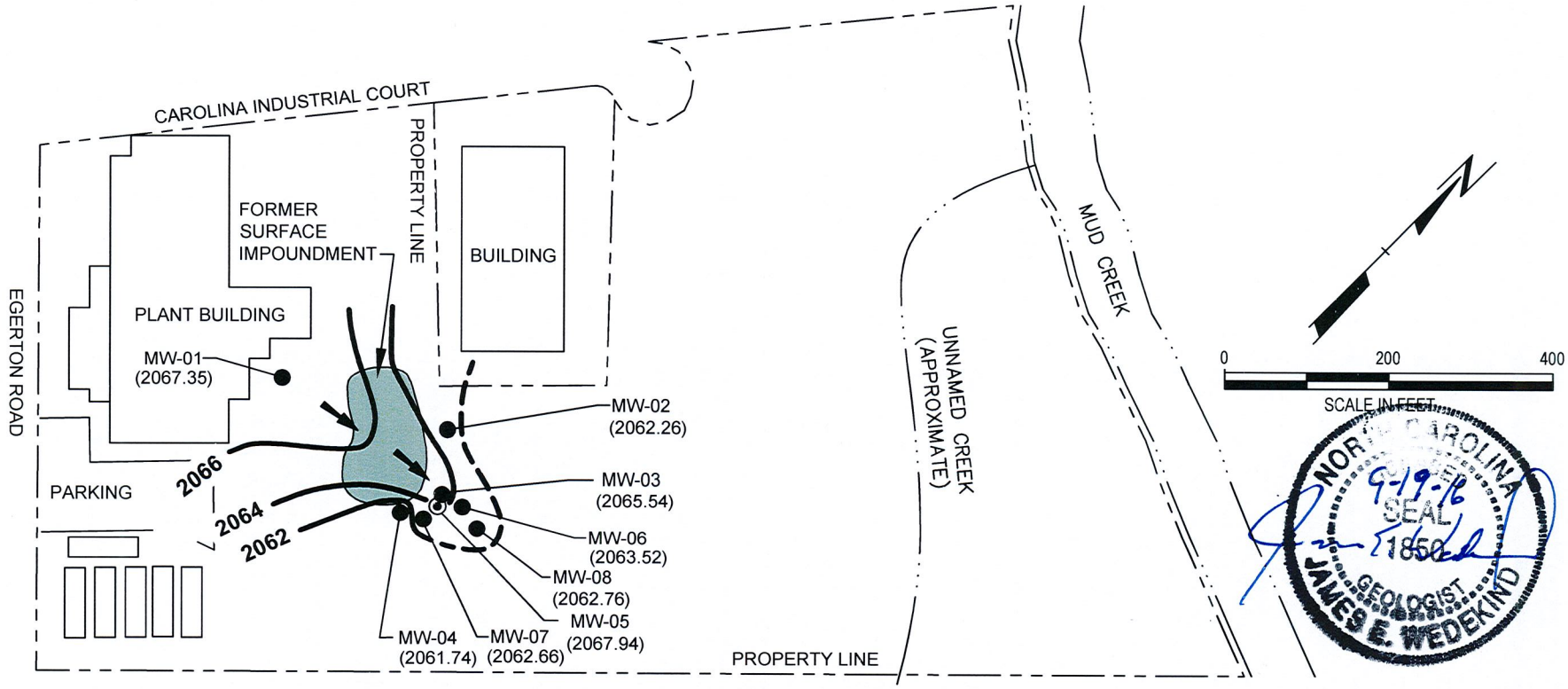
ESTIMATED DIRECTION OF GROUNDWATER FLOW

CREEK

PROPERTY LINE (APPROXIMATE)

NOTES

1. BASE MAP AND WELL LOCATIONS PROVIDED BY IBS ENVIRONMENTAL SERVICES.
2. WATER ELEVATION FROM WELL MW-05 AND MW-08 WERE NOT USED IN PREPARATION OF THIS MAP.
3. WATER LEVEL MEASUREMENTS SUPPLIED BY PACE ANALYTICAL.



TRC
650 Suffolk Street
Suite 200
Lowell, MA 01854
Phone: 978.970.5600

PROJECT:

HAYNES WIRE COMPANY
MOUNTAIN HOME, NORTH CAROLINA

TITLE:

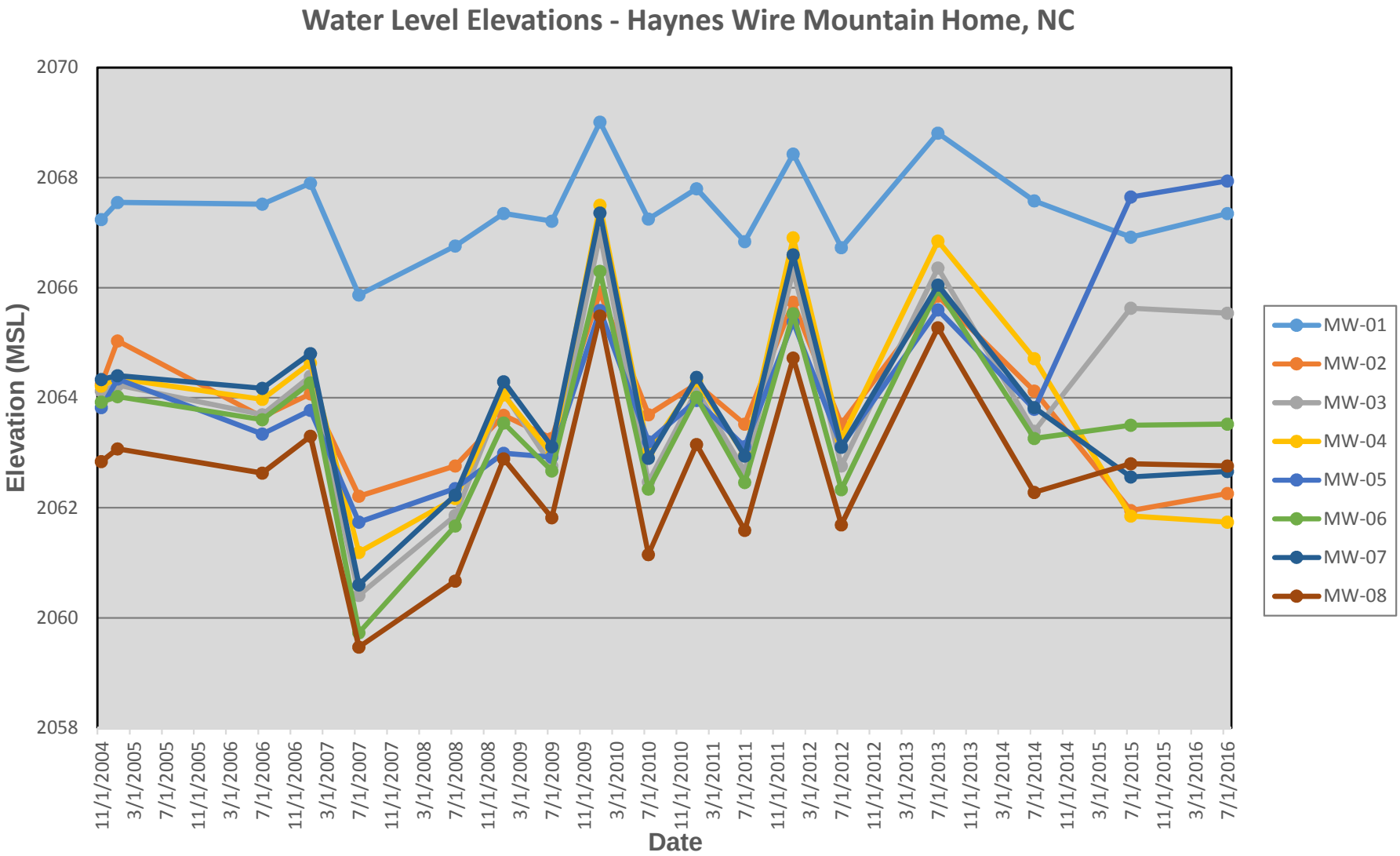
WATER TABLE CONFIGURATION
JULY 19, 2016

DRAWN BY:	R. NOLDEN
CHECKED BY:	J. WEDEKIND
APPROVED BY:	K. KRAUSE
DATE:	SEPTEMBER 2016
PROJ. NO.:	260443.0000.0000
FILE:	260443.0000.02.dwg

FIGURE 2

Attachment 1

Graphs


Water Level Elevations - Haynes Wire Mountain Home, NC
Elevation (MSL)
2070
2068
2066
2064
2062
2060
2058
11/1/2004
3/1/2005
7/1/2005
11/1/2005
3/1/2006
7/1/2006
11/1/2006
3/1/2007
7/1/2007
11/1/2007
3/1/2008
7/1/2008
11/1/2008
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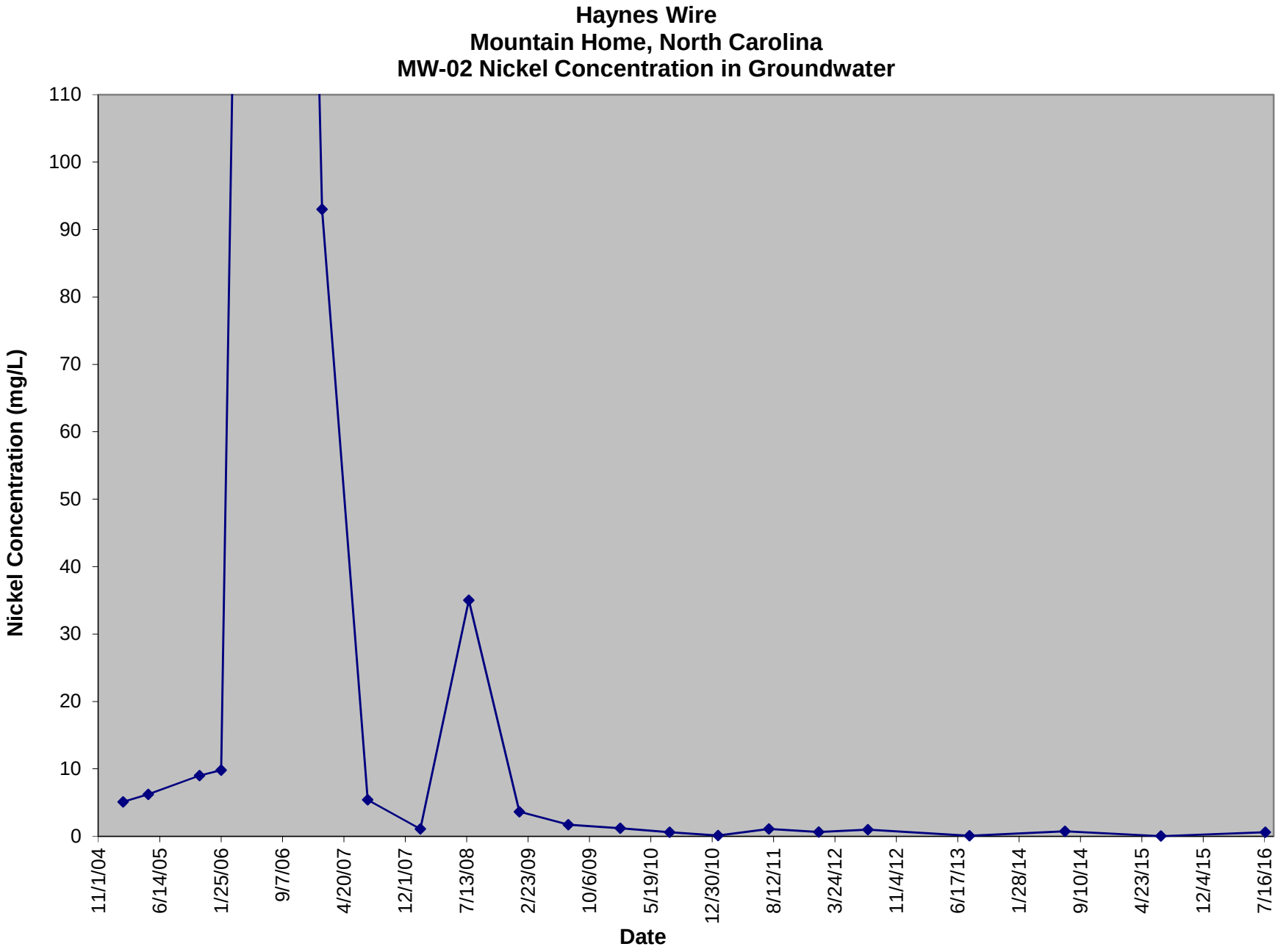
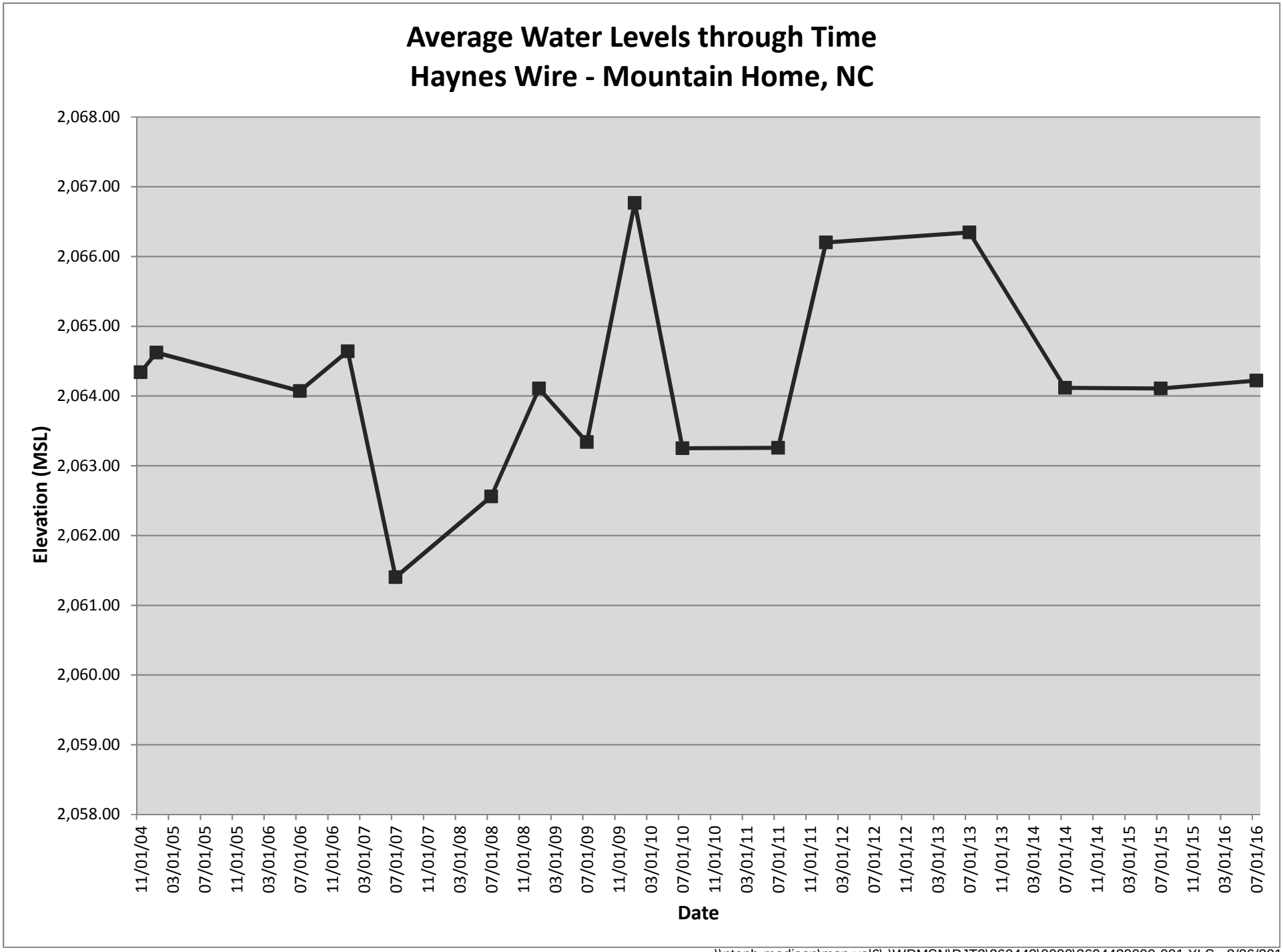
3/1/2013
7/1/2013
11/1/2013
3/1/2014
7/1/2014
11/1/2014
3/1/2015
7/1/2015
11/1/2015
3/1/2016
7/1/2016
Date
MW-01
MW-02
MW-03
MW-04
MW-05
MW-06
MW-07
MW-08



\\ntapb-madison\msn-vol6\-\WPMSN\PJT2\260443\0000\2604430000-002.XLS 8/26/2016


Average Water Levels through Time
Haynes Wire - Mountain Home, NC
Elevation (MSL)
2,068.00
2,067.00
2,066.00
2,065.00
2,064.00
2,063.00
2,062.00
2,061.00
2,060.00
2,059.00
2,058.00
11/01/04
03/01/05
07/01/05
11/01/05
03/01/06
07/01/06
11/01/06
03/01/07
07/01/07
11/01/07
03/01/08
07/01/08
11/01/08
03/01/09
07/01/09
11/01/09
03/01/10
07/01/10
11/01/10
03/01/11
07/01/11
11/01/11
03/01/12
07/01/12
11/01/12
03/01/13
07/01/13
11/01/13
03/01/14
07/01/14
11/01/14
03/01/15
07/01/15
11/01/15
03/01/16
07/01/16
Date

Attachment 2

Laboratory Reports

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

August 24, 2016

Ms. Angela Beck
Haynes International
158 N. Egerton Road
Mountain Home, NC 28758

RE: Project: Monitoring Wells
Pace Project No.: 92305688

Dear Ms. Beck:
Enclosed are the analytical results for sample(s) received by the laboratory on July 19, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

A revised report is being submitted on August 24, 2016, to correct a transcription error related to the field data for monitroing wells MW-03 and MW-08.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Angela M. Baioni

Angela Baioni
angela.baioni@pacelabs.com
Project Manager

Enclosures

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Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Monitoring Wells
Pace Project No.: 92305688

Ormond Beach Certification IDs

8 East Tower Circle, Ormond Beach, FL 32174
Alabama Certification #: 41320
Connecticut Certification #: PH-0216
Delaware Certification: FL NELAC Reciprocity
Florida Certification #: E83079
Georgia Certification #: 955
Guam Certification: FL NELAC Reciprocity
Hawaii Certification: FL NELAC Reciprocity
Illinois Certification #: 200068
Indiana Certification: FL NELAC Reciprocity
Kansas Certification #: E-10383
Louisiana Certification #: FL NELAC Reciprocity
Louisiana Environmental Certificate #: 05007
Maryland Certification: #346
Michigan Certification #: 9911
Mississippi Certification: FL NELAC Reciprocity
Missouri Certification #: 236
Montana Certification #: Cert 0074
Nebraska Certification: NE-OS-28-14
Nevada Certification: FL NELAC Reciprocity
New York Certification #: 11608
North Carolina Environmental Certificate #: 667
North Carolina Certification #: 12710
North Dakota Certification #: R-216
Oklahoma Certification #: D9947
Pennsylvania Certification #: 68-00547
Puerto Rico Certification #: FL01264
South Carolina Certification: #96042001
Tennessee Certification #: TN02974
Texas Certification: FL NELAC Reciprocity
US Virgin Islands Certification: FL NELAC Reciprocity
Virginia Environmental Certification #: 460165
Wyoming Certification: FL NELAC Reciprocity
West Virginia Certification #: 9962C
Wisconsin Certification #: 399079670
Wyoming (EPA Region 8): FL NELAC Reciprocity

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
Virginia/VELAP Certification #: 460222

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(704)875-9092

SAMPLE ANALYTE COUNT

Project: Monitoring Wells
Pace Project No.: 92305688

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92305688001	**MW-1**	EPA 8151	LJM	2	PASI-O
		EPA 6010	SH1	2	PASI-A
92305688002	**MW-2**	EPA 6010	SH1	1	PASI-A
92305688003	**MW-3**	EPA 6010	SH1	1	PASI-A

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Pace Analytical Services, Inc.
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Huntersville, NC 28078
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ANALYTICAL RESULTS

Project: Monitoring Wells
Pace Project No.: 92305688

Sample: MW-1 **Lab ID: 92305688001** Collected: 07/19/16 10:30 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 11:58		
Collected Date	**7/19/16**			1		07/21/16 11:58		
Collected Time	**10:30**			1		07/21/16 11:58		
Field pH	**5.6**	Std. Units	0.10	1		07/21/16 11:58		
Field Temperature	**26.4C**	deg C	0.50	1		07/21/16 11:58		
Static Water Level	**5.50**	feet		1		07/21/16 11:58		
Field Specific Conductance	**434.5**	umhos/cm	1.0	1		07/21/16 11:58		
Oxygen, Dissolved	**0.7**	mg/L		1		07/21/16 11:58	7782-44-7	
Total Well Depth	**14.00**	feet		1		07/21/16 11:58		
REDOX	**260.3**	mV		1		07/21/16 11:58		
Turbidity	**1.9**	NTU	1.0	1		07/21/16 11:58		
8151 Chlorinated Herbicides	Analytical Method: EPA 8151 Preparation Method: EPA 8151							
Pentachlorophenol	ND	ug/L	0.030	1	07/26/16 13:40	07/28/16 03:22	87-86-5	
Surrogates								
2,4-DCAA (S)	86	%	39-139	1	07/26/16 13:40	07/28/16 03:22	19719-28-9	
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010A							
Barium	**73.8**	ug/L	5.0	1	07/21/16 18:40	07/22/16 23:37	7440-39-3	
Nickel	ND	ug/L	5.0	1	07/21/16 18:40	07/22/16 23:37	7440-02-0	

Sample: MW-2 **Lab ID: 92305688002** Collected: 07/19/16 11:50 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 12:00		
Collected Date	**7/19/16**			1		07/21/16 12:00		
Collected Time	**11:30**			1		07/21/16 12:00		
Field pH	**5.2**	Std. Units	0.10	1		07/21/16 12:00		
Field Temperature	**21.8C**	deg C	0.50	1		07/21/16 12:00		
Static Water Level	**10.59**	feet		1		07/21/16 12:00		
Field Specific Conductance	**121.8**	umhos/cm	1.0	1		07/21/16 12:00		
Oxygen, Dissolved	**1.9**	mg/L		1		07/21/16 12:00	7782-44-7	
Total Well Depth	**18.28**	feet		1		07/21/16 12:00		
REDOX	**302.8**	mV		1		07/21/16 12:00		
Turbidity	**5.5**	NTU	1.0	1		07/21/16 12:00		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010A							
Nickel	**488**	ug/L	5.0	1	07/21/16 18:40	07/22/16 23:50	7440-02-0	

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Monitoring Wells
Pace Project No.: 92305688

Sample: MW-3 **Lab ID: 92305688003** Collected: 07/19/16 12:45 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 12:02		
Collected Date	**7/19/16**			1		07/21/16 12:02		
Collected Time	**12:45**			1		07/21/16 12:02		
Field pH	**6.2**	Std. Units	0.10	1		07/21/16 12:02		
Field Temperature	**22.3C**	deg C	0.50	1		07/21/16 12:02		
Static Water Level	**9.06**	feet		1		07/21/16 12:02		
Field Specific Conductance	**286.9**	umhos/cm	1.0	1		07/21/16 12:02		
Oxygen, Dissolved	**0.2**	mg/L		1		07/21/16 12:02	7782-44-7	
Total Well Depth	**13.00**	feet		1		07/21/16 12:02		
REDOX	**-51.2**	mV		1		07/21/16 12:02		
Turbidity	**6.5**	NTU	1.0	1		07/21/16 12:02		
6010 MET ICP	Analytical Method: EPA 6010 Preparation Method: EPA 3010A							
Barium	**770**	ug/L	5.0	1	07/21/16 18:40	07/22/16 23:53	7440-39-3	

Sample: MW-4 **Lab ID: 92305688004** Collected: 07/19/16 00:00 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 12:03		
Collected Date	**7/19/16**			1		07/21/16 12:03		
Static Water Level	**9.94**	feet		1		07/21/16 12:03		

Sample: MW-5 **Lab ID: 92305688005** Collected: 07/19/16 00:00 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 12:03		
Collected Date	**7/19/16**			1		07/21/16 12:03		
Static Water Level	**5.01**	feet		1		07/21/16 12:03		

Sample: MW-6 **Lab ID: 92305688006** Collected: 07/19/16 00:00 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 12:04		
Collected Date	**7/19/16**			1		07/21/16 12:04		

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Monitoring Wells
Pace Project No.: 92305688

Sample: MW-6 **Lab ID: 92305688006** Collected: 07/19/16 00:00 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Static Water Level	**5.15**	feet		1		07/21/16 12:04		

Sample: MW-7 **Lab ID: 92305688007** Collected: 07/19/16 00:00 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 12:04		
Collected Date	**7/19/16**			1		07/21/16 12:04		
Static Water Level	**5.01**	feet		1		07/21/16 12:04		

Sample: MW-8 **Lab ID: 92305688008** Collected: 07/19/16 00:00 Received: 07/19/16 14:30 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Monitoring Well Data	Analytical Method:							
Collected By	**Aaron Waters**			1		07/21/16 12:05		
Collected Date	**7/19/16**			1		07/21/16 12:05		
Static Water Level	**5.32**	feet		1		07/21/16 12:05		

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Monitoring Wells
Pace Project No.: 92305688

QC Batch: 321936 | Analysis Method: EPA 6010
QC Batch Method: EPA 3010A | Analysis Description: 6010 MET
Associated Lab Samples: 92305688001, 92305688002, 92305688003

METHOD BLANK: 1784273 | Matrix: Water
Associated Lab Samples: 92305688001, 92305688002, 92305688003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Barium	ug/L	ND	5.0	07/22/16 23:17	
Nickel	ug/L	ND	5.0	07/22/16 23:17	

LABORATORY CONTROL SAMPLE: 1784274

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Barium	ug/L	500	529	106	80-120	
Nickel	ug/L	500	497	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1784275 1784276

Parameter	Units	92305482011 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Barium	ug/L	0.073 mg/L	500	500	607	609	107	107	75-125	0	
Nickel	ug/L	ND	500	500	491	492	98	98	75-125	0	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Monitoring Wells
Pace Project No.: 92305688

QC Batch: 310682
QC Batch Method: EPA 8151
Analysis Method: EPA 8151
Analysis Description: 8151A GCS Herbicides
Associated Lab Samples: 92305688001

METHOD BLANK: 1647860
Matrix: Water
Associated Lab Samples: 92305688001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Pentachlorophenol	ug/L	ND	0.028	07/28/16 01:51	
2,4-DCAA (S)	%	83	39-139	07/28/16 01:51	

LABORATORY CONTROL SAMPLE & LCSD: 1647861 1648969

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Pentachlorophenol	ug/L	.18	0.24	0.18	132	99	39-170	29	40	
2,4-DCAA (S)	%				87	87	39-139		40	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Monitoring Wells
Pace Project No.: 92305688

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether, Styrene, and Vinyl chloride.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte
PASI-O	Pace Analytical Services - Ormond Beach

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(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Monitoring Wells
Pace Project No.: 92305688

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92305688001	**MW-1**				
92305688002	**MW-2**				
92305688003	**MW-3**				
92305688004	**MW-4**				
92305688005	**MW-5**				
92305688006	**MW-6**				
92305688007	**MW-7**				
92305688008	**MW-8**				
92305688001	**MW-1**	EPA 8151	310682	EPA 8151	311429
92305688001	**MW-1**	EPA 3010A	321936	EPA 6010	322135
92305688002	**MW-2**	EPA 3010A	321936	EPA 6010	322135
92305688003	**MW-3**	EPA 3010A	321936	EPA 6010	322135

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Pace Analytical	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: May 24, 2016 Page 1 of 2
	Document No.: F-ASV-CS-003-Rev.20	Issuing Authority: Pace Asheville Quality Office

Sample Condition Upon Receipt

Client Name: Haynes International

Project #

WO# : 92305688

92305688

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☑ Client ☐ Commercial ☑ Pace ☐ Other:____

Custody Seal Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☐ No

Date/Initials Person Examining Contents: BDT 7/19/16

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other:_____

Thermometer: ☑ IR Gun #5 SN:15527198 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Correction Factor: 0.0°C **Cooler Temp Corrected (°C):** 4.4 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

				Comments/Discrepancy:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	2.
Short Hold Time Analysis (<72 hr.)?	☐ Yes	☑ No	☐ N/A	3.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	4.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	5.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	6.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	7.
Samples Field Filtered?	☐ Yes	☐ No	☑ N/A	8. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	9.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	☑ Yes	☐ No	☐ N/A	10. HNO3 pH<2 HCl pH<2 H2SO4 pH<2 NaOH pH>12 NaOH/ZnOAc pH>9
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☑ Yes	☐ No	☐ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC,LLHg	☐ Yes	☐ No	☑ N/A	
Samples checked for dechlorination?	☑ Yes	☐ No	☐ N/A	11.
Headspace in VOA Vials (>5-6mm)?	☐ Yes	☐ No	☑ N/A	12.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	13.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):_____				

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Sample Discrepancy: Collected field data only from MW-4- MW-8

Project Manager SCURF Review: AMB **Date:** 7-19-16

Project Manager SRF Review: AMB **Date:** 7-19-16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A Required Client Information:

Company:	Haynes International
Address:	158 N. Egerton Road
	Mountain Home, NC 28758
Email:	amarsico@haynesintl.com
Phone:	(828)692-5791 Fax
Requested Due Date:	

Section B Required Project Information:

Report To:	Angela Beck
Copy To:	
Purchase Order #:	
Project Name:	Monitoring Wells
Project #:	

Section C Invoice Information:

Attention:	
Company Name:	
Address:	
Pace Quote:	
Pace Project Manager:	angela.baioni@pacelabs.com,
Pace Profile #:	~~13901~~ 13910-3

Regulatory Agency	
State / Location	NC

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N): 8151-pentachlorophenol	Metals	8151-pentachlorophenol	Residual Chlorine (Y/N)	92305688
1	MW-1	WT				7/19	1030		3	2		1						X	X	X		001
2	MW-2	WT				7/19	1150		2	1		1							X			002
3	MW-3	WT				7/19	1245		2	1		1							X			003
4																						004
5																						005
6																						006
7																						007
8																						008
9																						
10																						
11																						
12																						

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Amber Waters	7/19/16	1420	~~Ann Waters~~ 7/19/16 Amber Waters AWC	7/19/16	1430	4.4	Y	N	Y

SAMPLER NAME AND SIGNATURE			TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Amber Waters					
SIGNATURE of SAMPLER:	Ann Waters	DATE Signed: 7/19/16				

Pace Analytical	Document Name: Field Data Sheet	Document Issued: Page 1 of ___
	Document Number: F-CAR-FLD-001-rev.01	Issuing Authority: Pace Huntersville Quality Office

Field Data Sheet

Client: Haynes Wire Location: Hendersonville, NC Project Name/#: _____

Name and Afiliation (Sampler(s)): AW

Name and Afiliation (Inspector): N/A

Well Information

Well ID: MW-1 Well Locked: (YES) NO

Well Diameter: 2in Construction: (PVC) Steel Stainless Steel

Total Well Depth: 14.00 ft Multi Factor*: 1630 [*(Radius/12)2 x 3.14 x 7.48]

Static Water Level: 5.50 ft Casing Volume: 1.39 gallons

Height of Water Column: 8.50 ft Cal. 3 Volumes: 4.16 gallons

Purge Information

Date Purged: 7/19/16 Start Time: 1013 Finish: 1028 Purge Rate: 100 mL/min

Purging Method: Peristaltic Total Volume Purged: 1500 mL ~~gallons~~

Sampling Information

Date Collected: 7/19/16 Time Collected: 1030 am pm

Sampling Equipment Used: Peristaltic Instrument ID: _____

Bottle Type	Preservation	Analysis Required

Field Measurements/Observations

Sample Temp (°C): 26.4 Time: 1030

Sample pH (s.u.): 5.6 Time: 1030

Specific Cond. (uS): 434.5 Time: 1030

ReDox (mV): 260.3 Time: 1030

ReDox (EH value): _____

Odor: none Time: 1030

Turbidity (ntu): 1.9 Time: 1030

Diss Oxy (mg/L): 0.7 Time: 1030

Res. Cl (mg/L)or(µg/L): _____ Time: 1030

Other: _____ Time: 1030

Other: _____ Time: 1030

Appearance: Clear Time: 1030

General/Weather Observations

_____ / _____

Sampler Signature/Date: AW Watts / _____

Stabilization Test

Time Purged	pH (s.u.)	Spec. Cond. (uS)	ReDox (mV)	Turbidity (ntu)	Diss Oxy. (mg/L)	Temp. (°C)	Volume Removed	Other Stable
1018	5.6	433.2	236.4	10.7	0.6	25.9	500 mL	5.59
1023	5.6	433.7	245.6	3.4	0.7	26.2	1000 mL	5.57
1028	5.5	435.2	255.9	2.3	0.7	26.3	1500 mL	5.58

Pace Analytical	Document Name: Field Data Sheet	Document Issued: Page 1 of ___
	Document Number: F-CAR-FLD-001-rev.01	Issuing Authority: Pace Huntersville Quality Office

Field Data Sheet

Client: Haynes Wire Location: Hendersonville, NC Project Name/#: _____

Name and Afiliation (Sampler(s)): AW

Name and Afiliation (Inspector): N/A

Well Information

Well ID: MW-2 Well Locked: (YES) NO

Well Diameter: 2 in Construction: (PVC) Steel Stainless Steel

Total Well Depth: 18.28 ft Multi Factor*: 0.163 [*(Radius/12)2 x 3.14 x 7.48]

Static Water Level: 10.59 ft Casing Volume: 1.25 gallons

Height of Water Column: 7.70 ft Cal. 3 Volumes: 3.76 gallons

Purge Information

Date Purged: 7 / 19 / 16 Start Time: 1055 Finish: 1150 Purge Rate: 100 mL/min

Purging Method: Peristaltic Total Volume Purged: 5500 gallons

Sampling Information

Date Collected: 7 / 19 / 16 Time Collected: 1155 am pm

Sampling Equipment Used: Peristaltic Instrument ID: _____

Bottle Type	Preservation	Analysis Required

Field Measurements/Observations

Sample Temp (°C): 21.8 Time: 1155 Turbidity (ntu): 5.5 Time: 1155

Sample pH (s.u.): 5.2 Time: 1155 Diss Oxy (mg/L): 1.9 Time: 1155

Specific Cond. (uS): 121.8 Time: 1155 Res. Cl (mg/L)or(µg/L): _____ Time: _____

ReDox (mV): 302.8 Time: 1155 Other: _____ Time: _____

ReDox (EH value): _____ Other: _____ Time: _____

Odor: none Time: 1155 Appearance: Clear Time: 1155

General/Weather Observations

_____ / _____

Sampler Signature/Date: AW / _____

Stabilization Test

Time Purged	pH (s.u.)	Spec. Cond. (uS)	ReDox (mV)	Turbidity (ntu)	Diss Oxy. (mg/L)	Temp. (°C)	Volume Removed	Other Static
1100	5.2	122.2	291.8	44.2	3.0	20.3	500	10.90
1105	5.2	122.3	297.5	52.3	3.1	20.5	1000	10.96
1110	5.2	119.4	302.1	51.2	3.0	21.3	1500	10.99
1120	5.2	118.3	305.4	31.3	2.8	21.8	2500	11.00
1130	5.2	118.4	305.8	17.9	2.6	22.0	3500	11.00

MW-2

Time	pH	SPC	Redox	Turbidity	DO	Temp	Vol	Static
1140	5.2	119.6	303.6	9.7	2.2	21.8	4500	11.00
1145	5.2	120.0	304.5	7.6	1.9	21.8	5000	11.00
1150	5.2	121.0	303.3	6.0	1.9	21.8	5500	11.00

Pace Analytical	Document Name: Field Data Sheet	Document Issued: Page 1 of ___
	Document Number: F-CAR-FLD-001-rev.01	Issuing Authority: Pace Huntersville Quality Office

Field Data Sheet

Client: Haynes Wire Location: Hendersonville, NC Project Name/#: _____

Name and Afiliation (Sampler(s)): Alyn

Name and Afiliation (Inspector): N/A

Well Information

Well ID: MW-3 Well Locked: (YES) NO

Well Diameter: 2in Construction: (PVC) Steel Stainless Steel

Total Well Depth: 13.00 ft Multi Factor*: 0.1636 [*(Radius/12)2 x 3.14 x 7.48]

Static Water Level: 9.06 ft Casing Volume: 0.64 gallons

Height of Water Column: 3.94 ft Cal. 3 Volumes: 1.93 gallons

Purge Information

Date Purged: 7/19/16 Start Time: 1220 Finish: 1245 Purge Rate: 100 mL/min

Purging Method: Peristaltic Total Volume Purged: 2500 mL ~~gallons~~

Sampling Information

Date Collected: 7/19/16 Time Collected: 1250 am pm

Sampling Equipment Used: Peristaltic Instrument ID: _____

Bottle Type	Preservation	Analysis Required

Field Measurements/Observations

Sample Temp (°C): 22.3 Time: 1250 Turbidity (ntu): 6.5 Time: 1250

Sample pH (s.u.): 6.2 Time: 1250 Diss Oxy (mg/L): 0.2 Time: 1250

Specific Cond. (uS): 286.9 Time: 1250 Res. Cl (mg/L)or(µg/L): _____ Time: 1250

ReDox (mV): -51.2 Time: 1250 Other: _____ Time: _____

ReDox (EH value): _____ Other: _____ Time: _____

Odor: Pungent chemical Time: 1250 Appearance: Clear Time: 1250

General/Weather Observations

_____ / _____

Sampler Signature/Date: _____ / _____

Stabilization Test

Time Purged	pH (s.u.)	Spec. Cond. (uS)	ReDox (mV)	Turbidity (ntu)	Diss Oxy. (mg/L)	Temp. (°C)	Volume Removed	Other Static
1225	6.2	329.7	-34.0	2.6	0.2	20.4	500	9.46
1230	6.3	314.8	-43.5	4.4	0.2	20.5	1000	9.71
1235	6.2	257.1	-41.7	7.4	0.2	21.3	1500	9.77
1240	6.2	252.4	-46.4	6.4	0.2	21.7	2000	10.06
1245	6.2	268.7	-49.3	7.4	0.2	22.2	2500	10.09

Location Haynes Wire Date

Project / Client

~~[illegible]~~	S	T
MW-1	5.50	14.00
MW-2	10.59	
MW-3	9.06	13.00
MW-4	9.94	15.00
MW-5	5.01	
MW-6	5.15	
MW-7	5.01	
MW-8	5.32	

Location Date

Project / Client