From: "Underhill, Scott" <Scott.Underhill@aecom.com>
To: "John Spellman" <jtspellm@gw.dec.state.ny.us>
CC: "Blazicek, Tracy" <tlblazicek@nyseg.com>
Date: 6/14/2010 4:10 PM
Subject: Mechanicville NAPL Monitoring Summary 2010
Attachments: NYSEG Mechanicville NAPL Monitoring Summary June 2010.pdf

John,

Attached is the letter report summarizing the NAPL monitoring activities from March through May 2010 at the NYSEG Mechanicville -Central Avenue former MGP site. Please contact Tracy or me if you have any questions.

Thank you,

Scott

Scott Underhill, PE

Project Engineer

Environment

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June 14, 2010 **SENT VIA ELECTRONIC MAIL**

Mr. John Spellman
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-7014

Subject: NAPL Monitoring Summary 2010
NYSEG Mechanicville-Central Avenue Former Manufactured Gas Plant Site
Site #: 5-46-033

Dear Mr. Spellman,

On behalf of New York State Electric and Gas Corporation (NYSEG), AECOM has prepared this letter to summarize non aqueous phase liquids (NAPL) monitoring activities performed at the NYSEG Mechanicville Central Avenue Former Manufactured Gas Plant (MGP) site (Site) in Mechanicville, NY.

Excavation and offsite disposal of soils at the Site was completed in June 2009. Soils were excavated to bedrock where NAPL-impacted bedrock fractures were observed prior to backfilling. A total of five NAPL recovery test wells (TW-1, TW-2I, TW-2S, TW-3 and TW-4) and six bedrock monitoring wells (MW-15IR, MW-22IR, MW-29IR, MW-44I, MW-45I and MW-46I) were installed in July/August 2009 as part of the remediation of NAPL in bedrock. A NAPL recovery system was installed in August 2009 and operated through November 2009 to determine the effectiveness of the post-source removal NAPL recovery.

A letter summarizing the results of the long-term NAPL recovery was sent to the New York State Department of Environmental Conservation (NYSDEC) on January 26, 2010. The long-term NAPL recovery tests indicated NAPL recovery from the installed recovery wells was not practicable for operation of an automated NAPL recovery system. The January 26, 2010 letter recommended continued monitoring – consisting of NAPL gauging only – of the Site bedrock wells for an additional three month period.

During a conference call on March 2, 1010 between NYSDEC, NYSEG and AECOM, continued observation of NAPL accumulations in the Site bedrock wells was agreed upon in addition to observing NAPL blebs appearing on the Anthony Kill. The objective of the monitoring was to get an estimate of NAPL accumulation in the bedrock wells and to understand the relationship between groundwater elevation and frequency of NAPL blebs in the Anthony Kill.

This letter report summarizes the results of the NAPL monitoring at the site during the three month period from March 2010 to May 2010.

Field Activities

Weekly monitoring of the wells and Anthony Kill began March 5, 2010. Per the March 2, 2010 conference call, eight wells (in which NAPL was observed historically) were monitored for the presence of NAPL: MW-1D, TW-1, TW-2I, TW-3, MW-30D, MW-42D, MW-44I, and MW-45I. Gauging of the NAPL consisted of lowering a weighted cotton string into the well and then

measuring the thickness of NAPL based on staining. Measurements were typically rounded to the closest inch.

Beginning March 18, 2010 29 monitoring wells were gauged for depth to water on a weekly basis using a water level meter. These measurements were to relate the groundwater elevation to the frequency of the NAPL blebs in the Anthony Kill Creek. Figure 1 shows the location of the monitoring wells use for NAPL gauging and groundwater level measurements.

In addition, the Anthony Kill Creek was observed each week to determine the frequency of NAPL blebs. The blebs were observed only at one location (approximately 2 feet by 2 feet) as shown on the Figure 1. The frequency of the NAPL blebs and the water level in the creek were recorded in Table 1 to determine whether a correlation exists.

The weekly monitoring concluded on May 27, 2010 with 13 weeks of well monitoring and Anthony Kill observations and ten data sets of groundwater elevations.

Monitoring Results

The results from NAPL monitoring at the select eight wells, elevation of water in the Anthony Kill Creek, and frequency of the NAPL blebs observed in the Creek from March 5, 2010 to May 27, 2010 are included in Table 1. The results of groundwater monitoring at on-site and select off-site wells from March 18, 2010 to May 27, 2010 are included in Table 2.

No significant NAPL was observed in any of the eight selected monitoring wells during this monitoring period. The thickness of NAPL observed in these wells varied from non-detect to 3 inches. The three wells with measureable NAPL thickness of 2 to 3 inches were TW-1, TW-2I, and MW-45I. However, no NAPL accumulation was observed in any of the monitoring wells. Variations of NAPL thicknesses may be attributed to measuring technique and variations in the density of the NAPL (the specific gravity of NAPL is close to 1). No NAPL was recovered from any wells during this period.

The frequency of NAPL blebs varied between 6 blebs/hour (April 22, 2010) and 142 blebs/hour (May 27, 2010) during this monitoring period (Table 1). No clear correlation could be established between the frequency of the NAPL blebs and groundwater elevation (Figure 2). For the same water elevation in the Anthony Kill (72.7 feet), the frequency of blebs varied from 42 blebs/hour (April 22, 2010) to 120 blebs/hour (May 13, 2010). In addition, on April 9, 2010 when the Anthony kill was 1.3 feet higher than on April 22, 2010, approximately the same numbers of blebs were observed: 46 blebs/hour and 42 blebs/hour.

Some error is associated with the counting of blebs as the presence of the sheen can only be seen from limited areas depending on stream flow, sunlight and other background reflections. The sheens are typically only 2 to 4 inches in diameter and disperse within a few seconds of reaching the water surface.

The frequency of the NAPL blebs increased after early May when temperatures increased. On May 20, 2010, a glass jar was placed over the area where NAPL blebs were released from the sediment. Air/gas bubbles were observed in the glass jar when the NAPL blebs were released. The NAPL blebs are therefore released in gas bubbles, likely generated from microbial activity in the fractured bedrock, and dissipate in the sheen when the bubbles reach the water surface. Sediment in this area is less than six inches thick.

The groundwater elevation fluctuations varied less than 1 foot for most of the wells while the Anthony Kill elevation varied by 2.5 feet (Figure 2). Groundwater and surface water elevations were higher in March due to snow melt and spring rains and then declined due to lack of precipitation in late April and May. Figure 2 shows groundwater elevations in MW-22IR, TW-2S and TW-4 and surface water elevations in the Anthony Kill. The Anthony Kill is a receiving stream since the elevation of the creek is over 5 feet lower than the adjacent bedrock groundwater elevations.

Conclusions and Recommendations

No significant amount of NAPL was observed in any of the wells during this sampling period, with a maximum thickness of 3 inches (0.25-ft) measured. The lack of NAPL accumulation does not make any active long-term recovery feasible at the site.

The NAPL blebs in the Anthony Kill are isolated to a single location at a location where a bedrock fault was observed during remedial construction. The NAPL blebs appear to have a correlation to temperature and may be caused by microbial activities in the sediment/bedrock fracture at this location. No further action is required for the NAPL blebs.

A Site Management Plan will be developed recommending quarterly NAPL gauging of wells and manual recovery of NAPL from any wells with more than 0.6-ft of measured NAPL. A Site Management Plan will be submitted to the NYSDEC for review in August 2010.

Should you have any questions or require additional information in the meantime, please do not hesitate to call Scott Underhill at (518) 396-7638 or Tracy Blazicek at (607) 762-8839.

Yours sincerely,

Scott Underhill

Scott Underhill, P.E.
Project Manager
scott.underhill@aecom.com

cc: T. Blazicek, NYSEG

FIGURES

MW-36I
MW-36D
MW-37I
MW-37D
MW-20D
LOCATION OF NAPL BLEBS ON WATER SURFACE
MW-35I
MW-34D
ANTHONY KILL
NORTH CENTRAL AVENUE
MW-41D
GROVE STREET
MW-32D
TW-4
MW-15IR
MW-22IR
TW-3
MW-29IR
TW-2S
TW-2I
MW-14
MW-14S
MW-14D
MW-17I
MW-17D
BLOCK / BRICK STRUCTURE
MW-46I
MW-2
MW-2I
MW-44I
MW-25D
MW-25I
FERRIS LANE
MW-45I
MW-12S
MW-13
MW-12
TW-1
MW-30D
MW-30S
MW-17
MW-18
WILLIAM STREET
MW-19I
WEST WAY
JAMES STREET
MW-1I
MW-1
MW-1D
MW-10D
MW-10
MW-10I
MW-33D
MW-38D
MW-38I
MW-40D
ELECTRIC SUB-STATION
BURKE STREET
MW-42D
MW-39D
FRANCES STREET
EAST WAY
MW-43D
MW-31S
MW-31D
CANAL S
N STREET

LEGEND

- MW-12S — MONITORING WELL LOCATION
- WELL USED FOR NAPL GAUGING
- WELL USED FOR GROUNDWATER REPORTING
- WELL NOT ACCESSIBLE (PAVED OVER MAY 27, 2010)
- APPROXIMATE LOCATION OF FRACTURES
- EXTENT OF 2009 SOIL REMOVAL LIMITS

0' 40' 80' 160'

AECOM

NAPL MONITORING SUMMARY

MONITORING WELL LOCATIONS MARCH - JUNE 2010

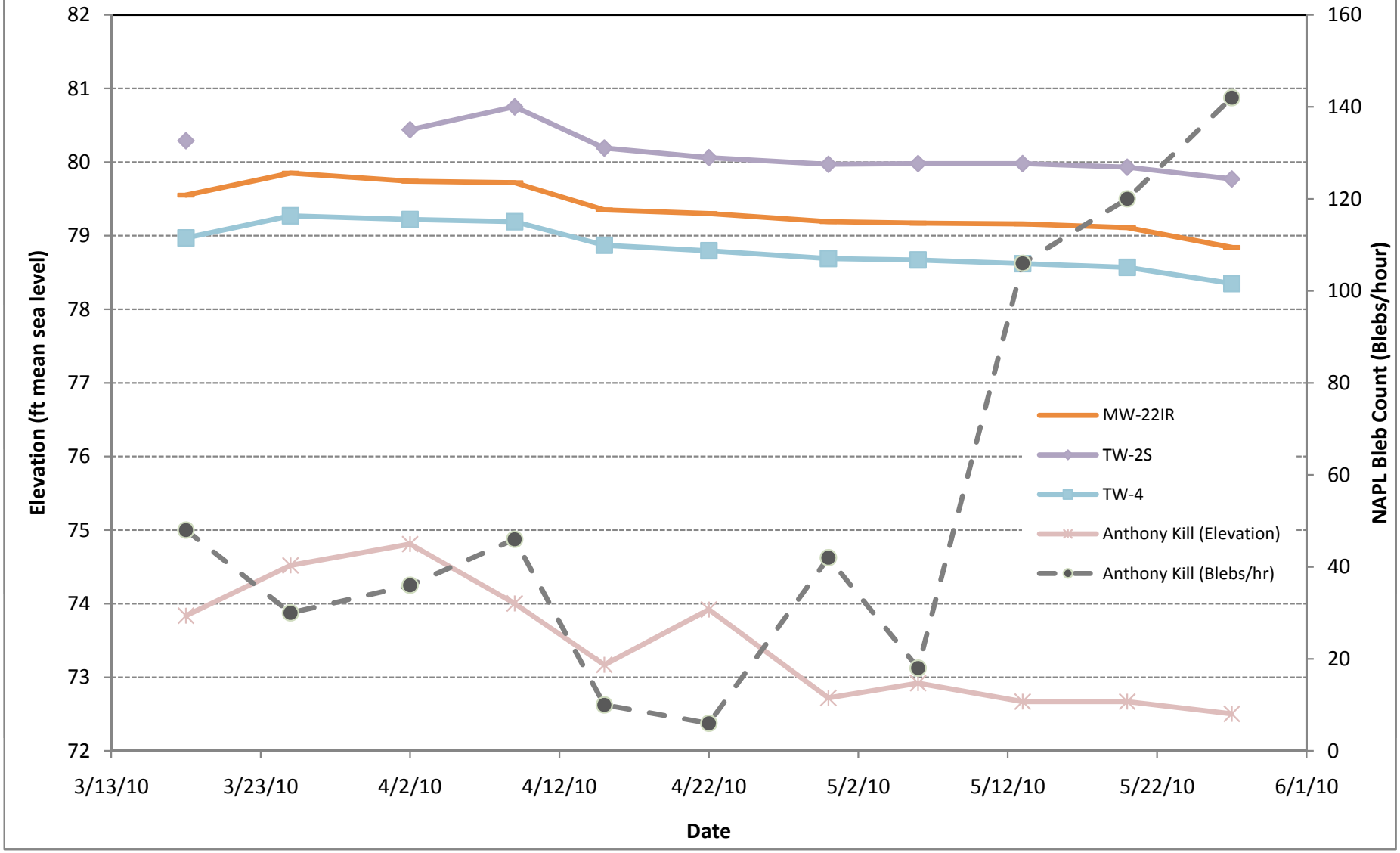
NEW YORK STATE ELECTRIC AND GAS
MECHANICVILLE, NEW YORK

FILE NAME:	DRN	PROJECT NO.	DATE	FIGURE NO.
	—	60135689	JUNE 2010	1

Plotted By: MeisterK
Layout-Sheet Name: NAPL
Plot File Date Created: Jun/11/2010 7:30 AM

Filename: L:\WORK\94560\CADD\POST-REMEDIATION\94560-POST-REMEDIATION-MW.DWG

Figure 2
Groundwater/Anthony Kill Elevations and NAPL Bleb Observations



TABLES

Table 1
Summary of Weekly NAPL Observations

	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)
Date	3/5/2010	3/12/2010	3/18/2010	3/25/2010	4/2/2010	4/9/2010	4/15/2010
MW-1D	0	0	<1	0	NM	<1	NM
TW-1	1	<1	<1	<1	<1	1	<1
TW-2I	2	1	1	2	2	2	3
TW-3	0	0	0	0	0	0	0
MW-30D	<1	0	<1	0	0	1	<1
MW-42D	<1	0[2]	0	<1	<1	1.7	<1
MW-44I	<1	0	0	<1	0	<1	0
MW-45I	<1	<1	<1	<1	<1	<1	<1
Anthony Kill Observations							
Anthony Kill Water Elevation[3]	75.4	74.0	73.8	74.5	74.8	74.0	73.2
Blebs Counted	0	0	24	15	36	23	5
Time spent watching river (min)	30	30	30	30	60	30	30
Bleb Frequency (blebs/hour)	0	0	48	30	36	46	10

	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)	NAPL Thickness (Inches)
Date	4/22/2010	4/30/2010	5/6/2010	5/13/2010	5/20/2010	5/27/2010
MW-1D	NM	NM	NM	0	0	0
TW-1	<1	3	2	2	1	1
TW-2I	<1	<1	<1	<1	<1	1
TW-3	<1	0	0	0	0	0
MW-30D	0	NM	0	0	0	0
MW-42D	<1	0	0	0	0	0
MW-44I	0	0	0	0	0	0
MW-45I	1	<1	2	<1	2	3
Anthony Kill Observations						
Anthony Kill Water Elevation[3]	73.9	72.7	72.9	72.7	72.7	72.5
Blebs Counted	3	21	9	106	120	71
Time spent watching river (min)	30	30	30	60	60	30
Bleb Frequency (blebs/hour)	6	42	18	106	120	142

Notes:
1) NAPL Thickness determined using weighted string.
2) Obstruction in well prohibited accurate reading.
3) Rip Rap Elevation along Anthony Kill Bank is 76 ft msl.
4) NM - Not Measured

Table 2
Groundwater Elevations March - May 2010

		March 18, 2010		March 25, 2010		April 2, 2010		April 9, 2010		April 15, 2010		April 22, 2010		April 30, 2010		May 6, 2010		May 13, 2010		May 20, 2010		May 27, 2010	
Well	MP Elevation	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water	Depth to Water	Elevation of Water
MW- 1	90.84	7.75	83.09	7.55	83.29	7.52	83.32	7.69	83.15	NM	NM	7.80	83.04	7.90	82.94	7.91	82.93	7.93	82.91	7.98	82.86	8.07	82.77
MW- 1I	90.62	7.90	82.72	7.75	82.87	7.73	82.89	NM	NM	NM	NM	8.00	82.62	8.13	82.49	8.20	82.42	8.22	82.40	8.21	82.41	8.37	82.25
MW- 1D	90.46	NM	NM	NM	NM	NM	NM	7.79	82.67	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW- 2	90.79	5.20	85.59	5.05	85.74	5.14	85.65	NM	NM	5.40	85.39	5.55	85.24	5.79	85.00	5.85	84.94	5.89	84.90	6.03	84.76	6.23	84.56
MW- 10	91.66	8.93	82.73	8.95	82.71	8.77	82.89	8.99	82.67	NM	NM	9.20	82.46	9.35	82.31	9.35	82.31	9.35	82.31	9.41	82.25	9.51	82.15
MW- 10I	92.21	10.30	81.91	10.95	81.26	10.03	82.18	10.05	82.16	NM	NM	10.35	81.86	10.45	81.76	10.50	81.71	10.50	81.71	10.51	81.70	10.61	81.60
MW- 10D	92.73	9.10	83.63	9.60	83.13	9.86	82.87	9.99	82.74	NM	NM	10.20	82.53	10.33	82.40	10.42	82.31	10.48	82.25	11.64	81.09	10.56	82.17
MW- 12	95.95	14.10	81.85	13.90	82.05	13.93	82.02	14.01	81.94	NM	NM	14.20	81.75	14.25	81.70	14.30	81.65	14.40	81.55	14.37	81.58	14.69	81.26
MW- 12S	95.97	13.55	82.42	13.50	82.47	13.54	82.43	13.64	82.33	NM	NM	13.85	82.12	13.97	82.00	14.00	81.97	14.03	81.94	14.03	81.94	14.13	81.84
MW- 13	96.04	OBS	OBS	14.10	81.94	14.13	81.91	14.23	81.81	NM	NM	14.40	81.64	14.51	81.53	14.55	81.49	14.55	81.49	14.58	81.46	14.68	81.36
MW- 14	96.95	15.80	81.15	15.50	81.45	15.50	81.45	16.23	80.72	NM	NM	15.81	81.14	15.90	81.05	15.90	81.05	15.90	81.05	15.93	81.02	16.04	80.91
MW- 14S	96.91	16.40	80.51	15.20	81.71	16.19	80.72	13.39	83.52	NM	NM	16.40	80.51	16.47	80.44	16.48	80.43	16.47	80.44	16.52	80.39	16.61	80.30
MW- 14D	96.66	13.50	83.16	13.60	83.06	NM	NM	NM	NM	NM	NM	13.58	83.08	13.65	83.01	13.75	82.91	13.90	82.76	13.89	82.77	13.95	82.71
MW- 15IR	87.47	3.50	83.97	6.30	81.17	6.92	80.55	6.31	81.16	6.60	80.87	6.70	80.77	6.89	80.58	6.86	80.61	6.98	80.49	7.00	80.47	7.31	80.16
MW- 17	93.53	12.55	80.98	12.75	80.78	12.85	80.68	5.79	87.74	NM	NM	12.70	80.83	12.68	80.85	12.75	80.78	NM	NM	12.64	80.89	12.68	80.85
MW- 17I	93.10	13.30	79.80	13.25	79.85	13.21	79.89	15.59	77.51	NM	NM	13.40	79.70	13.47	79.63	13.37	79.73	NM	NM	13.46	79.64	NM	NM
MW- 17D	93.29	2.85	90.44	4.20	89.09	4.68	88.61	13.30	79.99	NM	NM	6.90	86.39	7.24	86.05	7.68	85.61	NM	NM	8.51	84.78	NM	NM
MW- 18	93.54	12.00	81.54	11.75	81.79	11.88	81.66	12.77	80.77	NM	NM	12.10	81.44	12.25	81.29	12.04	81.50	NM	NM	12.28	81.26	12.34	81.20
MW- 21	90.82	5.20	85.62	5.10	85.72	5.16	85.66	NM	NM	5.40	85.42	5.50	85.32	5.77	85.05	5.87	84.95	5.90	84.92	6.03	84.79	6.34	84.48
MW- 22IR	87.05	7.50	79.55	7.20	79.85	7.31	79.74	7.33	79.72	7.70	79.35	7.75	79.30	7.86	79.19	7.88	79.17	7.89	79.16	7.94	79.11	8.21	78.84
MW- 25S	96.03	14.55	81.48	14.45	81.58	14.36	81.67	14.41	81.62	NM	NM	14.62	81.41	14.70	81.33	14.69	81.34	14.72	81.31	14.74	81.29	14.82	81.21
MW- 25I	88.74	14.85	73.89	14.70	74.04	14.60	74.14	14.71	74.03	NM	NM	14.85	73.89	15.00	73.74	14.99	73.75	15.03	73.71	15.02	73.72	15.11	73.63
MW- 29IR	86.42	8.00	78.42	7.55	78.87	7.73	78.69	7.78	78.64	8.10	78.32	8.20	78.22	8.28	78.14	8.23	78.19	8.30	78.12	8.32	78.10	8.48	77.94
MW- 30S	95.62	13.70	81.92	13.40	82.22	13.40	82.22	12.59	83.03	NM	NM	13.90	81.72	14.10	81.52	14.11	81.51	14.20	81.42	14.21	81.41	14.32	81.30
MW- 30D	95.76	13.70	82.06	13.70	82.06	NM	NM	NM	NM	NM	NM	NM	NM	14.16	81.60	NM	NM	NM	NM	NM	NM	NM	NM
MW- 32D	90.14	54.80	35.34	54.85	35.29	54.65	35.49	54.65	35.49	NM	NM	54.45	35.69	54.32	35.82	54.26	35.88	NM	NM	54.04	36.10	53.91	36.23
MW- 33D	93.83	8.95	84.88	10.00	83.83	10.63	83.20	11.01	82.82	NM	NM	11.40	82.43	11.58	82.25	11.72	82.11	NM	NM	11.84	81.99	11.96	81.87
MW- 34D	93.67	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW- 35I	80.43	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW- 40D	93.95	11.50	82.45	11.50	82.45	11.24	82.71	11.17	82.78	NM	NM	11.48	82.48	11.60	82.35	11.61	82.34	11.68	82.27	11.64	82.31	11.81	82.14
MW- 42D	93.45	NM	NM	NM	NM	10.87	82.58	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW- 44I	87.37	5.20	82.17	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW- 45I	88.83	4.80	84.03	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW- 46I	87.93	8.90	79.03	8.60	79.33	8.68	79.25	8.71	79.22	9.00	78.93	9.10	78.83	9.20	78.73	9.22	78.71	9.25	78.68	9.31	78.62	9.54	78.39
TW- 1	89.33	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
TW- 2S	86.34	6.05	80.29	8.55	77.79	5.90	80.44	5.59	80.75	6.15	80.19	6.28	80.06	6.37	79.97	6.36	79.98	6.36	79.98	6.41	79.93	6.57	79.77
TW- 2I	86.25	MN	MN	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
TW- 3	87.15	7.65	79.50	7.30	79.85	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
TW- 4	87.17	8.20	78.97	7.90	79.27	7.95	79.22	7.98	79.19	8.30	78.87	8.38	78.80	8.48	78.69	8.50	78.67	8.55	78.62	8.60	78.57	8.82	78.35
Anthony Kill	75.92	2.08	73.84	1.40	74.52	1.11	74.81	1.92	74.00	2.75	73.17	2.00	73.92	3.20	72.72	3.00	72.92	3.25	72.67	3.25	72.67	3.42	72.50

Notes:
1) NM - Not Measured
2) OBS - Obstruction in well