

Atlantic Richfield Company

Paul G. Johnson
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July 9, 2019

Jessica LaClair
Project Manager
New York State Department of Environmental Conservation
Division of Environmental Remediation
625 Broadway, 12th Floor
Albany, New York 12233-7016

RE: Monthly Progress Report, June 2019
Former Anaconda Plant (a.k.a. Harbor at Hastings Site) Site No. 3-60-022
Hastings-On-Hudson, New York

Dear Ms. LaClair:

Enclosed is the June 2019 Monthly Progress Report for the Former Anaconda Plant (a.k.a. Harbor at Hastings Site), New York State Department of Environmental Conservation (NYSDEC) Site No. 3-60-022, Hastings-on-Hudson, New York. This progress report has been prepared in accordance with Section XI of the AMENDED ORDER ON CONSENT and ADMINISTRATIVE SETTLEMENT between Atlantic Richfield Company and NYSDEC, dated November 6, 2013. The time period covered is June 1, 2019 through June 30, 2019.

If you have any questions or comments on this submittal, please feel free to contact me at 630-731-4463.

Sincerely,



Paul G. Johnson
Operations Project Manager

Enclosure

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cc: Maureen Schuck, New York State Department of Health
Francis Frobeld, Hastings-On-Hudson
Mark Chertok, Hastings-On-Hudson
Karl Coplan, Pace/Riverkeeper
Martha Gopal, Sovereign Consulting Inc.
File

ecc: Jacquelyn Nealon, New York State Department of Health
Kevin Farrar, New York State Department of Environmental Conservation
Benjamin Conlon, Esq. New York State Department of Environmental Conservation,
Office of General Counsel
Jim Lucari, BP
Michael Daneker, Arnold & Porter

**FORMER ANACONDA WIRE AND CABLE PLANT SITE
(a.k.a. HARBOR AT HASTINGS SITE) OU1
NYSDEC SITE 360022
MONTHLY PROGRESS REPORT 169**

PREPARED BY: Atlantic Richfield Company
Paul Johnson

REPORTING PERIOD: June 1, 2019 through June 30, 2019

1. PROGRESS MADE THIS REPORTING PERIOD:

- DNAPL gauging and recovery was performed on June 3rd and June 4th, 2019. HARW-5 was gauged and pumped as required by the August 2011 Design Basis Memorandum.

2. UNANTICIPATED PROBLEM AREAS AND RECOMMENDED SOLUTIONS

- None this reporting period.

3. PROBLEMS RESOLVED

- None this reporting period.

4. DELIVERABLES SUBMITTED / RECEIVED

- June 4, 2019, Atlantic Richfield to NYSDEC: *Hastings May 2019 Monthly Progress Report*.
- June 5, 2019, Atlantic Richfield to NYSDEC: *Revised Removal Limits for OU-1 and OU-2; Response to Comments*.

5. UPCOMING EVENTS / ACTIVITIES PLANNED

- The next three DNAPL gauging and recovery events are tentatively scheduled to occur the weeks of August 5th, September 2nd, and October 7th, 2019. The July 2019 event has been cancelled due to anticipated extreme heat and associated health and safety risks. An event will be conducted in November in order to meet the required 10 events per calendar year.
- Continue the Water Tower LNAPL IRM activities, as allowable, in accordance with the IRM Work Plan (Fluor Daniel GTI, December 1997), Fluor Daniel GTI correspondence to the NYSDEC dated May 18, 1998 and Atlantic Richfield correspondence with the NYSDEC on September 2, 2010. The upcoming LNAPL IRM

events are tentatively scheduled to occur the week of August 5th, 2019, and the week of October 7th, 2019 in accordance with the schedule modification request, from monthly to quarterly, sent by Atlantic Richfield to NYSDEC on June 4, 2012, and the approval letter received from NYSDEC dated April 2, 2013.

6. KEY STAFFING

- Sovereign Consulting Inc.
- Parsons Environment and Infrastructure Group, Inc. (OM&M)
- Parsons Environment and Infrastructure Group, Inc. (Security)

7. PERCENTAGE COMPLETE

- DNAPL gauging and recovery – ongoing
- LNAPL IRM – ongoing

8. DATA

- Final data not generated during this reporting period.

9. CITIZEN PARTICIPATION ACTIVITIES

- None this reporting period.

LIST OF ACRONYMS

<i>Acronym</i>	<i>Description</i>
NYSDEC	New York State Department of Environmental Conservation
LNAPL	Light Non-Aqueous Phase Liquid
DNAPL	Dense Non-Aqueous Phase Liquid
OU	Operable Unit
IRM	Interim Remedial Measure
O&M	Operations and Maintenance

LIST OF REFERENCES

FLUOR Daniel GTI, 1997. *Draft Interim Remedial Measure Work Plan – Separate Phase Liquid Recovery*. December.

TABLE I
JUNE DNAPL PUMPING SUMMARY (WEEK OF 6/3/2019)
ATLANTIC RICHFIELD
1 RIVER STREET
HASTINGS-ON-HUDSON, NEW YORK

Well ID	Date Gauged/ Pumped	Installation Angle (deg)	Pre-Pumping Uncorrected Apparent Height (inches)	Pre-Pumping Corrected Apparent Height (inches)	Post-Pumping Uncorrected Apparent Height (inches)	Post-Pumping Corrected Apparent Height (inches)	Total Fluids Removed (gallons) ⁴	Total DNAPL Removed (gallons) ⁶	Post-Purging Distance of DNAPL Surface Below MS/Fill Interface (ft) ⁵
HARW-1	6/3/2019 ¹	0	0	0	NA**	NA**	NA**	NA**	NA**
HARW-2	6/3/2019 ²	0	15.0	15.0			NA**	NA**	3.5
	NA** ³				NA**	NA**			
HARW-3	6/3/2019 ²	16.5	5.0	4.8			NA**	NA**	3.9
	NA** ³				NA**	NA**			
HARW-4	6/3/2019 ²	24.5	12.0	10.9			NA**	NA**	3.2
	NA** ³				NA**	NA**			
HARW-5	6/3/2019 ²	23.5	36.0	33.0			84.0	7.6	4.2
	6/4/2019 ³				1.0	0.9			
HARW-6	6/3/2019 ²	14.0	6.0	5.8			NA**	NA**	4.1
	NA** ³				NA**	NA**			
HARW-7	6/3/2019 ²	0	9.0	9.0			NA**	NA**	4.0
	NA** ³				NA**	NA**			
HARW-8	6/3/2019 ²	0	10.0	10.0			NA**	NA**	3.9
	NA** ³				NA**	NA**			
HAOW-12A	6/3/2019 ²	0	14.0	14.0			NA**	NA**	4.0
	NA** ³				NA**	NA**			

Total Gallons of DNAPL Removed: 7.6

Notes:

¹DNAPL not present, pumping not completed in this well

²Pre-pumping gauge date

³Post-pumping gauge date.

⁴Total gallons of fluid (DNAPL and groundwater) removed from well based on measurement in container.

⁵Represents the distance of the post-purging DNAPL material interface from the top of the MS/Fill interface.

⁶Unless otherwise noted, this column refers to the total volume of DNAPL removed based calculation of volume based on well diameter and height of DNAPL in the well.

*DNAPL is present but is under 6-inches and discontinuous.

**Volume in the well is less than threshold required to perform DNAPL pumping procedures.

Apparent Height: refers to the distance between the DNAPL surface and the bottom of the well sump which includes all fluids (groundwater and DNAPL) in the matrix.

NA: Not Applicable

TABLE II
SUMMARY OF DNAPL MEASUREMENTS
NYSDEC #A-0-022
1 RIVER STREET
HASTINGS-ON-HUDSON, NEW YORK

MW-12	Date	Depth to Product (ft)	Product Apparent Pre-pumping (ft)	Product Apparent Post-pumping (ft)	Approximate Volume of Product Recovered (gallons)¹	Days Elapsed Between Measurements	Measurement Tool Used	Recovery Procedure Used
	Cumulative 12/20/2016 - 7/22/2018				5.0			
		TOTAL VOLUME RECOVERED TO DATE FROM HAOW-12A (GALLONS)			49.7			
	Cumulative 3/20/2009 - 12/10/2016							
	1/16/2017	42.0	-	-	49.7	-	DMT ⁺	-
	2/20/2017	42.3	1.4	ENHAF, grouting of pumpup not completed due to adverse weather conditions	37	-	DMT ⁺	-
	3/8/2017	42.3	1.3	ENHAF, grouting of pumpup not completed due to adverse weather conditions	49	-	DMT ⁺	-
	4/3/2017	42.2	1.4	-	28	-	DMT ⁺	-
	5/1/2017	42.1	1.5	-	28	-	DMT ⁺	-
	6/5/2017	42.3	1.3	-	35	-	DMT ⁺	-
	7/10/2017	42.3	1.3	-	35	-	DMT ⁺	-
	8/1/2017	42.3	1.3	-	28	-	DMT ⁺	-
	9/11/2017	42.5	1.1	-	35	-	DMT ⁺	-
	10/9/2017	42.3	1.3	-	28	-	DMT ⁺	-
	11/6/2017	42.3	1.3	-	28	-	DMT ⁺	-
	12/1/2017	42.3	1.3	-	28	-	DMT ⁺	-
	1/8/2018	42.2	1.4	ENHAF, pumping not required to be completed (10 event requirement met)	-	-	-	-
	2/5/2018	42.3	1.3	ENHAF, grouting of pumpup not completed due to adverse weather conditions	91	-	DMT ⁺	-
	3/5/2018	42.3	1.3	-	28	-	DMT ⁺	-
	4/2/2018	42.0	1.6	-	28	-	DMT ⁺	-
	5/7/2018	41.9	1.7	-	35	-	DMT ⁺	-
	6/5/2018	42.5	1.1	-	29	-	DMT ⁺	-
	7/5/2018	42.2	1.4	-	34	-	DMT ⁺	-
	8/6/2018	42.3	1.3	-	28	-	DMT ⁺	-
	9/10/2018	42.3	1.3	-	35	-	DMT ⁺	-
	10/1/2018	41.9	1.7	-	21	-	DMT ⁺	-
	11/5/2018	42.9	0.8	-	35	-	DMT ⁺	-
	12/10/2018	42.2	1.4	-	35	-	DMT ⁺	-
	1/4/2019	42.9	0.7	-	21	-	DMT ⁺	-
	2/4/2019	42.3	1.3	-	35	-	DMT ⁺	-
	3/11/2019	42.4	1.2	-	35	-	DMT ⁺	-
	4/1/2019	42.6	1.0	-	35	-	DMT ⁺	-
	5/6/2019	42.5	1.1	-	35	-	DMT ⁺	-
	6/3/2019	42.4	1.2	-	28	-	DMT ⁺	-
	TOTAL VOLUME RECOVERED TO DATE FROM HAOW-12A (GALLONS)				49.7			
MAR-01	Cumulative 9/23/2010 - 12/10/2018				0.0			
	1/16/2017	No product detected	0.0	-	-	-	DMT ⁺	-
	2/20/2017	No product detected	0.0	-	-	37	DMT ⁺	-
	3/8/2017	No product detected	0.0	-	-	49	DMT ⁺	-
	4/3/2017	No product detected	0.0	-	-	28	DMT ⁺	-
	5/1/2017	No product detected	0.0	-	-	28	DMT ⁺	-
	6/5/2017	No product detected	0.0	-	-	35	DMT ⁺	-
	7/10/2017	No product detected	0.0	-	-	35	DMT ⁺	-
	8/7/2017	No product detected	0.0	-	-	28	DMT ⁺	-
	9/11/2017	No product detected	0.0	-	-	35	DMT ⁺	-
	10/9/2017	No product detected	0.0	-	-	28	DMT ⁺	-
	11/6/2017	No product detected	0.0	-	-	28	DMT ⁺	-
	12/1/2017	No product detected	0.0	-	-	28	DMT ⁺	-
	1/8/2018	No product detected	0.0	-	-	-	-	-
	2/5/2018	No product detected	0.0	-	-	91	DMT ⁺	-
	3/5/2018	No product detected	0.0	-	-	28	DMT ⁺	-
	4/2/2018	No product detected	0.0	-	-	28	DMT ⁺	-
	5/7/2018	No product detected	0.0	-	-	35	DMT ⁺	-
	6/5/2018	No product detected	0.0	-	-	29	DMT ⁺	-
	7/5/2018	No product detected	0.0	-	-	34	DMT ⁺	-
	8/6/2018	No product detected	0.0	-	-	28	DMT ⁺	-
	9/10/2018	No product detected	0.0	-	-	35	DMT ⁺	-
	10/1/2018	No product detected	0.0	-	-	21	DMT ⁺	-
	11/5/2018	No product detected	0.0	-	-	35	DMT ⁺	-
	12/10/2018	No product detected	0.0	-	-	35	DMT ⁺	-
	1/4/2019	No product detected	0.0	-	-	21	DMT ⁺	-
	2/4/2019	No product detected	0.0	-	-	35	DMT ⁺	-
	3/11/2019	No product detected	0.0	-	-	35	DMT ⁺	-
	4/1/2019	No product detected	0.0	-	-	35	DMT ⁺	-
	5/6/2019	No product detected	0.0	-	-	35	DMT ⁺	-
	6/3/2019	No product detected	0.0	-	-	28	DMT ⁺	-
	TOTAL VOLUME RECOVERED TO DATE FROM MAR-01 (GALLONS)				0.0			

TABLE II
SUMMARY OF CNAIR MEASUREMENTS
CONDUCTED AT
1 RIVER STREET
HAISTINGS-ON-HUDSON, NEW YORK

MARK 2	Date	Depth to Product (ft)	Product Apparent Height - Pre Pumping (ft)	Product Apparent Height - Post Pumping (ft)	Approximate Volume of Product Recovered (gallons) *	Days Elapsed Between Measurements (days)	Measurement Tool Used	Recovery Procedure Used
MARK 2	Continuation 3/25/2010 - 12/10/2016	36.0	4.0	0.7	8.7	37	CNAI ⁺	double displacement pump
	2/20/2017	36.3	CNAIR, grapping or pumping not completed due to adverse weather conditions	-	-	47	CNAI ⁺	double displacement pump
	3/6/2017	36.0	2.0	0.4	5.1	26	CNAI ⁺	double displacement pump
	4/6/2017	36.4	1.6	-	-	28	CNAI ⁺	double displacement pump
	5/1/2017	36.0	4.0	0.17	10.0	33	CNAI ⁺	double displacement pump
	6/5/2017	36.0	4.0	0.17	10.0	33	CNAI ⁺	double displacement pump
	7/15/2017	36.2	1.9	0	4.2	35	CNAI ⁺	double displacement pump
	8/1/2017	36.3	0.5	-	-	34	CNAI ⁺	double displacement pump
	8/11/2017	36.3	0.5	-	-	34	CNAI ⁺	double displacement pump
	10/20/2017	36.9	3.1	0.2	7.6	29	CNAI ⁺	double displacement pump
	11/20/2017	39.0	1.0	-	-	28	CNAI ⁺	double displacement pump
	12/6/2017	-	CNAIR, grapping or pumping not completed due to adverse weather conditions (15 second measurement not taken)	-	-	-	-	-
	1/26/2018	-	CNAIR, grapping or pumping not completed due to adverse weather conditions	-	-	-	-	-
	2/9/2018	34.3	5.7	0.08	14.6	91	CNAI ⁺	double displacement pump
	3/5/2018	36.8	1.3	-	-	28	CNAI ⁺	double displacement pump
	4/2/2018	36.9	2.1	0	6.1	29	CNAI ⁺	double displacement pump
	5/1/2018	36.8	1.3	-	-	30	CNAI ⁺	double displacement pump
	6/5/2018	36.6	3.4	0.17	6.5	29	CNAI ⁺	double displacement pump
	7/9/2018	36.5	1.5	-	-	34	CNAI ⁺	double displacement pump
	8/6/2018	37.5	2.5	0.3	5.7	28	CNAI ⁺	double displacement pump
	9/10/2018	38.4	1.6	0.08	6.3	35	CNAI ⁺	double displacement pump
	10/1/2018	38.3	2.7	-	-	35	CNAI ⁺	double displacement pump
	11/5/2018	40.0	0.0	-	-	35	CNAI ⁺	double displacement pump
	12/10/2018	38.0	2.0	0.08	5	35	CNAI ⁺	double displacement pump
	1/14/2019	38.8	1.3	-	-	35	CNAI ⁺	double displacement pump
	2/14/2019	38.0	1.5	0.08	5	21	CNAI ⁺	double displacement pump
	3/14/2019	38.4	1.5	-	-	21	CNAI ⁺	double displacement pump
	4/1/2019	36.8	1.5	-	-	35	CNAI ⁺	double displacement pump
	5/6/2019	36.8	3.2	0.25	7.6	35	CNAI ⁺	double displacement pump
	6/2/2019	36.8	1.3	-	-	28	CNAI ⁺	double displacement pump
		TOTAL VOLUME RECOVERED TO DATE FROM MARK 2 (GALLONS)			214.9			
MARK 3	Continuation 10/11/2010 - 12/10/2018	37.4	1.6	-	25.3	-	CNAI ⁺	-
	2/20/2017	37.4	1.6	-	-	37	CNAI ⁺	-
	3/6/2017	37.9	1.1	-	-	49	CNAI ⁺	-
	4/2/2017	37.6	1.4	-	-	28	CNAI ⁺	-
	5/1/2017	37.7	1.3	-	-	35	CNAI ⁺	-
	6/5/2017	37.7	1.3	-	-	35	CNAI ⁺	-
	7/10/2017	37.3	1.7	-	-	35	CNAI ⁺	-
	8/7/2017	37.6	1.4	-	-	28	CNAI ⁺	-
	9/11/2017	37.2	1.8	-	-	35	CNAI ⁺	-
	10/1/2017	37.3	1.3	-	-	35	CNAI ⁺	-
	11/5/2017	37.7	1.3	-	-	28	CNAI ⁺	-
	12/6/2017	-	CNAIR, pumping not required to be completed (110 second measurement not taken)	-	-	-	-	-
	1/6/2018	37.4	1.8	-	-	91	CNAI ⁺	-
	2/9/2018	37.2	1.8	-	-	28	CNAI ⁺	-
	3/5/2018	37.5	1.5	-	-	29	CNAI ⁺	-
	4/2/2018	37.5	1.5	0.3	3.3	35	CNAI ⁺	double displacement pump
	5/7/2018	38.6	0.4	-	-	35	CNAI ⁺	-
	6/5/2018	38.7	0.3	-	-	29	CNAI ⁺	-
	7/9/2018	38.7	0.4	-	-	35	CNAI ⁺	-
	8/6/2018	38.6	0.4	-	-	28	CNAI ⁺	-
	9/10/2018	38.6	0.4	-	-	35	CNAI ⁺	-
	10/1/2018	38.6	0.4	-	-	21	CNAI ⁺	-
	11/5/2018	38.8	0.2	-	-	35	CNAI ⁺	-
	12/10/2018	38.8	0.3	-	-	35	CNAI ⁺	-
	1/14/2019	38.7	0.3	-	-	21	CNAI ⁺	-
	2/14/2019	38.7	0.3	-	-	35	CNAI ⁺	-
	3/11/2019	38.6	0.4	-	-	21	CNAI ⁺	-
	4/1/2019	38.8	0.3	-	-	35	CNAI ⁺	-
	5/6/2019	38.8	0.3	-	-	35	CNAI ⁺	-
	6/2/2019	38.6	0.4	-	-	28	CNAI ⁺	-
		TOTAL VOLUME RECOVERED TO DATE FROM MARK 3 (GALLONS)			26.6			

TABLE II
SUMMARY OF FINAL MEASUREMENTS
CONDUCTED ON 12/22/2016
1 RIVER STREET
HASTINGS-ON-Hudson, NEW YORK

DATE	Depth to Product (ft)	Product Apparent Height - Pre-pumping (ft)	Product Apparent Height - Post-pumping (ft)	Approximate Volume of Product Recovered (gallons)	Days Elapsed Between Measurement Readings	Measurement Tool Used	Recovery Procedure Used
HAWK-2							
Continuum 10/14/2016 - 12/10/2016	39.3	1.7	-	20.3	37	DMT+	-
2/20/2017	39.5	1.5	-	-	49	DMT+	-
3/6/2017	39.5	1.5	-	-	49	DMT+	-
5/1/2017	40.3	0.8	-	-	27	DMT+	double displacement pump
6/5/2017	40.3	0.8	-	-	35	DMT+	-
7/10/2017	39.9	1.1	-	-	35	DMT+	-
8/2/2017	39.9	1.1	-	-	29	DMT+	-
8/13/2017	39.6	1.2	-	-	26	DMT+	-
10/5/2017	39.6	1.2	-	-	26	DMT+	-
11/6/2017	39.4	1.6	-	-	29	DMT+	-
12/4/2017							
ENHPL pumping not required to be completed (15 event requirement met)							
2/5/2018	39.3	1.2	-	-	91	DMT+	-
3/5/2018	39.9	1.1	-	-	29	DMT+	-
4/2/2018	39.3	1.7	-	-	29	DMT+	-
5/8/2018	39.8	2.2	0.1	5.4	36	DMT+	double displacement pump
6/2/2018	40.2	0.2	-	-	34	DMT+	-
7/6/2018	40.6	0.2	-	-	26	DMT+	-
8/6/2018	40.6	0.3	-	-	35	DMT+	-
8/10/2018	40.5	0.5	-	-	21	DMT+	-
10/2/2018	40.5	0.5	-	-	35	DMT+	-
11/2/2018	40.4	0.6	-	-	35	DMT+	-
12/10/2018	40.4	0.6	-	-	35	DMT+	-
1/14/2019	40.4	0.6	-	-	21	DMT+	-
2/14/2019	40.4	0.6	-	-	35	DMT+	-
3/13/2019	40.3	0.6	-	-	35	DMT+	-
4/1/2019	39.8	1.2	-	-	23	DMT+	-
5/6/2019	40.0	1.0	-	-	35	DMT+	-
6/3/2019	40.0	1.0	-	-	28	DMT+	-
TOTAL VOLUME RECOVERED TO DATE FROM HAWK-2 (GALLONS)				318.8			
HAWK-3							
Continuum 7/18/2011 - 12/10/2016	35.2	4.1	0.2	893.2	37	DMT+	double displacement pump
1/11/2017	37.2	3.1	0.1	8.7	48	DMT+	double displacement pump
3/6/2017	37.2	3.1	0.1	8.7	29	DMT+	double displacement pump
4/4/2017	35.3	5.0	0.0	12.9	29	DMT+	double displacement pump
6/25/2017	34.3	6.0	0.0	15.7	29	DMT+	double displacement pump
8/23/2017	35.3	5.0	0.1	13.2	34	DMT+	double displacement pump
7/11/2017	35.0	5.3	0.1	13.2	27	DMT+	double displacement pump
8/7/2017	35.3	5.0	0.3	12.6	35	DMT+	double displacement pump
8/11/2017	34.6	5.7	0.3	14.1	29	DMT+	double displacement pump
10/6/2017	35.6	4.7	0.0	12.2	29	DMT+	double displacement pump
12/10/2017	36.0	4.7	0.0	11.3	29	DMT+	double displacement pump
ENHPL pumping not required to be completed (15 event requirement met)							
1/8/2018	34.6	5.5	4.0	3.9	52	DMT+	double displacement pump
2/6/2018	35.3	4.0	0.3	8.8	29	DMT+	double displacement pump
4/2/2018	36.3	5.2	0.1	13.5	35	DMT+	double displacement pump
5/6/2018	35.1	5.2	0.2	9.6	28	DMT+	double displacement pump
7/6/2018	35.8	4.5	0.1	11.5	34	DMT+	double displacement pump
8/2/2018	35.6	4.6	0.1	11.7	34	DMT+	double displacement pump
8/10/2018	35.7	4.6	0.1	5.0	22	DMT+	double displacement pump
10/2/2018	39.3	2.0	0.1	10.2	34	DMT+	double displacement pump
11/2/2018	38.3	3.0	0.1	10.2	36	DMT+	double displacement pump
12/1/2018	38.3	3.0	0.1	8.4	35	DMT+	double displacement pump
1/21/2019	38.1	2.2	0.1	5.4	21	DMT+	double displacement pump
3/14/2019	36.6	3.7	0.1	9.4	35	DMT+	double displacement pump
4/2/2019	36.3	2.0	0.1	5.0	22	DMT+	double displacement pump
5/2/2019	36.3	2.0	0.1	5.0	35	DMT+	double displacement pump
6/4/2019	37.3	3.0	0.1	7.6	29	DMT+	double displacement pump
TOTAL VOLUME RECOVERED TO DATE FROM HAWK-3 (GALLONS)				1021.3			

TABLE II
SUMMARY OF PUMP MEASUREMENTS
AT
1000 WEST 10TH STREET
1 RIVER STREET
HASTINGS-ON-HUDSON, NEW YORK

DATE	Depth to Product (ft)	Product Apparent Height - Pre-pumping (ft)	Product Apparent Height - Post-pumping (ft)	Approximate Volume of Product Recovered (gallons)	Days Elapsed Between Measurement Readings	Measurement Tool Used	Recovery Procedure Used
HAIRY 5							
Comcast 7/18/2011 - 12/10/2016	40.0	0.8	-	-	37	DMT*	-
3/26/2017	40.0	0.8	-	-	48	DMT*	-
4/26/2017	40.0	0.8	-	-	28	DMT*	-
5/1/2017	40.1	0.7	-	-	28	DMT*	-
6/5/2017	40.3	0.5	-	-	35	DMT*	-
7/16/2017	40.2	0.6	-	-	35	DMT*	-
8/23/2017	40.3	0.5	-	-	35	DMT*	-
9/11/2017	40.0	0.8	-	-	35	DMT*	-
10/9/2017	39.9	0.9	-	-	28	DMT*	-
11/2/2017	39.8	1.0	-	-	28	DMT*	-
12/20/2017	-	-	-	-	-	-	-
1/20/2018	-	-	-	-	-	-	-
2/5/2018	40.0	0.8	-	-	91	DMT*	-
3/5/2018	40.7	0.1	-	-	28	DMT*	-
4/2/2018	40.1	0.8	-	-	28	DMT*	-
5/23/2018	40.1	0.8	-	-	29	DMT*	-
6/5/2018	40.1	0.7	-	-	34	DMT*	-
7/6/2018	39.9	0.9	-	-	28	DMT*	-
8/6/2018	40.1	0.8	-	-	35	DMT*	-
9/10/2018	40.1	0.8	-	-	35	DMT*	-
10/2/2018	40.1	0.8	-	-	35	DMT*	-
11/5/2018	40.7	0.1	-	-	35	DMT*	-
12/10/2018	40.1	0.7	-	-	35	DMT*	-
1/4/2019	40.1	0.7	-	-	31	DMT*	-
2/4/2019	40.1	0.7	-	-	31	DMT*	-
3/13/2019	40.3	0.5	-	-	35	DMT*	-
4/1/2019	40.3	0.5	-	-	35	DMT*	-
5/6/2019	40.3	0.5	-	-	35	DMT*	-
6/3/2019	40.3	0.5	-	-	28	DMT*	-
TOTAL VOLUME RECOVERED TO DATE FROM HAIRY 5 (GALLONS)				6.0			
HAIRY 7							
Comcast 7/18/2011 - 12/10/2016	37.3	4.8	0.1	12.2	37	DMT*	double displacement pump
2/20/2017	41.0	1.0	-	-	48	DMT*	-
3/5/2017	40.5	1.5	-	-	28	DMT*	-
4/26/2017	40.5	1.5	0.2	1.0	28	DMT*	double displacement pump
6/5/2017	40.8	1.5	-	-	35	DMT*	-
7/1/2017	40.0	2.0	0.2	4.8	35	DMT*	double displacement pump
8/7/2017	41.5	0.5	-	-	28	DMT*	-
9/17/2017	40.3	1.8	-	-	35	DMT*	-
10/23/2017	40.3	1.8	-	-	28	DMT*	-
11/6/2017	37.7	4.3	0.0	11.3	28	DMT*	double displacement pump
12/20/2017	-	-	-	-	-	-	-
1/20/2018	-	-	-	-	-	-	-
2/5/2018	39.3	3.5	-	-	91	DMT*	-
3/5/2018	38.5	3.5	0.3	8.3	27	DMT*	double displacement pump
4/2/2018	41.0	1.0	-	-	27	DMT*	-
5/2/2018	40.0	2.0	0.1	5.0	36	DMT*	double displacement pump
6/5/2018	41.9	0.1	-	-	35	DMT*	-
7/23/2018	41.5	0.1	-	-	28	DMT*	-
8/7/2018	39.4	2.6	0.1	6.5	29	DMT*	double displacement pump
9/10/2018	41.0	1.0	-	-	34	DMT*	-
10/2/2018	40.0	2.0	0.1	5.0	27	DMT*	double displacement pump
11/2/2018	40.8	2.2	0.1	5.0	36	DMT*	-
12/11/2018	41.1	0.9	-	-	34	DMT*	double displacement pump
1/14/2019	41.1	1.2	-	-	21	DMT*	-
2/4/2019	40.8	1.2	-	-	35	DMT*	-
3/17/2019	40.3	1.7	-	-	35	DMT*	-
4/23/2019	41.1	0.9	0.1	6.3	35	DMT*	double displacement pump
5/6/2019	41.1	0.9	-	-	35	DMT*	-
6/3/2019	41.3	0.8	-	-	28	DMT*	-
TOTAL VOLUME RECOVERED TO DATE FROM HAIRY 7 (GALLONS)				55.3			

TABLE II
SUMMARY OF DNAPL MEASUREMENTS
NYSDEC #3-60-022
1 RIVER STREET
HASTINGS-ON-HUDSON, NEW YORK

	Date	Depth to Product (ft)	Product Apparent Height - Pre-pumping (ft)	Product Apparent Height - Post-pumping (ft)	Approximate Volume of Product Recovered (gallons) *	Days Elapsed Between Measurement Readings	Measurement Tool Used	Recovery Procedure Used
HARW-8	Cumulative 7/19/2011 - 12/10/2016	-	-	-	18.0	-	-	-
	1/18/2017	40.8	2.2	0.2	5.2	37	DMT ¹	-
	2/7/2017	-	DNAPL gauging or pumping not completed due to adverse weather conditions				-	-
	3/6/2017	41.7	1.3	-	-	47	DMT ¹	-
	4/3/2017	42.5	0.5	-	-	28	DMT ¹	-
	5/1/2017	42.3	0.7	-	-	28	DMT ¹	-
	6/5/2017	42.3	0.7	-	-	35	DMT ¹	-
	7/19/2017	42.3	0.7	-	-	35	DMT ¹	-
	8/7/2017	42.1	0.9	-	-	28	DMT ¹	-
	9/11/2017	41.7	1.3	-	-	35	DMT ¹	-
	10/9/2017	42.2	0.8	-	-	28	DMT ¹	-
	11/6/2017	41.8	1.2	-	-	28	DMT ¹	-
	12/4/2017	-	DNAPL pumping not required to be completed (10 event requirement met)				-	-
	1/8/2018	-	DNAPL gauging or pumping not completed due to adverse weather conditions				-	-
	2/5/2018	41.7	1.3	-	-	91	DMT ¹	-
	3/5/2018	41.3	1.7	-	-	28	DMT ¹	-
	4/2/2018	41.1	1.9	-	-	28	DMT ¹	-
	5/8/2018	41.0	2.0	0.6	3.7	35	DMT ¹	double diaphragm pump
	6/5/2018	42.5	0.5	-	-	28	DMT ¹	-
	7/9/2018	42.5	0.5	-	-	34	DMT ¹	-
	8/6/2018	42.3	0.7	-	-	28	DMT ¹	-
	9/10/2018	42.1	0.9	-	-	35	DMT ¹	-
	10/1/2018	42.0	1.0	-	-	21	DMT ¹	-
	11/5/2018	42.1	0.9	-	-	35	DMT ¹	-
	12/10/2018	41.7	1.3	-	-	35	DMT ¹	-
	1/14/2019	41.5	1.5	-	-	35	DMT ¹	-
	2/4/2019	41.5	1.5	-	-	21	DMT ¹	-
	3/11/2019	41.3	1.7	-	-	35	DMT ¹	-
	4/2/2019	41.0	2.0	0.3	4.6	22	DMT ¹	double diaphragm pump
	5/6/2019	42.3	0.7	-	-	34	DMT ¹	-
	6/3/2019	42.2	0.8	-	-	28	DMT ¹	-
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-8 (GALLONS)				37.8			

TOTAL VOLUME RECOVERED TO DATE FROM ALL WELLS (GALLONS)

2792.3

Notes:

MW-12

Depth to Top of Screen: 33 ft
Depth to Bottom: 36 ft

HARW-12A

Depth to Top of Screen: 28.6 ft
Depth to Bottom: 43.6 ft

HARW-1

Depth to Top of Screen: 24 ft
Depth to Bottom: 42 ft

HARW-2

Depth to Top of Screen: 26 ft
Depth to Bottom: 40 ft

HARW-3

Angle from Vertical: 16.5°
Vertical Depth to Top of Screen: 25.4 ft
Vertical Depth to Bottom: 39 ft

HARW-4

Angle from Vertical: 24.5°
Vertical Depth to Top of Screen: 28.7 ft
Vertical Depth to Bottom: 41 ft

HARW-5

Angle from Vertical: 23.5°
Vertical Depth to Top of Screen: 27 ft
Vertical Depth to Bottom: 40.3 ft

HARW-6

Angle from Vertical: 14°
Vertical Depth to Top of Screen: 26.7 ft
Vertical Depth to Bottom: 40.8 ft

HARW-7

Depth to Top of Screen: 27.5 ft
Depth to Bottom: 42 ft

HARW-8

Depth to Top of Screen: 28.5 ft
Depth to Bottom: 43 ft

For historical reference to past DNAPL measurement events prior to January 2017, please refer to the January 2018 monthly report submitted to NYSDEC on 5 February 2018.

DMT = DNAPL Measurement Tool, consisting of a copper tubing handle, a spacer section to prevent the probe from contacting the sides of the well riser, and an all-thread rod probe to extend into the DNAPL.

¹ Reserved

² Reserved

³ Volume of product recovered by downwell pump is estimated by approximating the volume discharged to the drum and additional product in tubing and on pump.

Volume of product recovered by bailer is estimated using the bailer volume and number of times bailed.

Volume of product recovered by double diaphragm and positive displacement piston pumps are estimated by approximating the volume discharged to the drum or by using the pre- and post-pumping apparent height of product and the well dimensions (8" diameter well).

* All depth and thickness values for HARW-3, HARW-4 HARW-5 and HARW-6 are provided as vertical equivalents of the field measurements based on the angle of the installed well.