

# Atlantic Richfield Company

**Nick Peterson**

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November 1, 2023

Jessica LaClair

Project Manager

New York State Department of Environmental Conservation

Division of Environmental Remediation

625 Broadway, 12<sup>th</sup> Floor

Albany, New York 12233-7016

**RE: Monthly Progress Report, October 2023**

**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 October 2023 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 October 1, 2023, through October 31, 2023.

If you have any questions or comments on this submittal, please feel free to contact me at (281) 886-4350.

Sincerely,



Nick Peterson

Liability Manager

Enclosure



A BP affiliated company

cc: Village Manager Mary Beth Murphy, Hastings-On-Hudson  
Mark Chertok, Hastings-On-Hudson  
Karl Coplan, Pace/Riverkeeper  
File

ecc: David Tromp, Section Chief, Bureau D, Section A, NYSDEC DER  
David Harrington, Director, Bureau D, NYSDEC DER  
Melissa Doroski, New York State Department of Health  
Julia Kenney, New York State Department of Health  
Justin Stenerson, Esq., Assistant Regional Attorney, Region 3, NYSDEC  
Mayor Nicola Armacost, Hastings-On-Hudson  
Trustee Morgan Fleisig, Hastings-On-Hudson  
Village Manager Mary Beth Murphy, Hastings-On-Hudson  
Nat Federici, P.E., Westchester County Department of Environmental Facilities  
Rachel Noe, Westchester County  
Jim Lucari, BP  
Michael Daneker, Arnold & Porter  
Martha Gopal, Sovereign Consulting Inc.

**FORMER ANACONDA WIRE AND CABLE PLANT SITE  
(a.k.a. HARBOR AT HASTINGS SITE) OU1  
NYSDEC SITE 360022  
MONTHLY PROGRESS REPORT 221**

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**PREPARED BY:** Atlantic Richfield Company  
Paul Johnson

**REPORTING PERIOD:** October 1, 2023 through October 31, 2023

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**1. PROGRESS MADE THIS REPORTING PERIOD:**

- DNAPL gauging and recovery was performed on October 2, 2023 and October 3, 2023. HARW-5 was gauged and pumped as required by the August 2011 Design Basis Memorandum.
- Progress continued on these on-going design-related activities:
  - Draft Open Space options provided to Village of Hastings-on-Hudson June 8, 2023; awaiting response.
  - Old Marina / Kinnally Cove stability evaluation for dredging.
  - OU-1 and OU-2 material handling evaluation.
  - Northwest Extension Area (NEA) bulkhead design.
  - The design team continues to engage West Chester County Department of Environmental Facilities regarding underground utilities.
  - SPDES Permit Equivalent Application.
  - Other design elements are progressing.
  - Biological Assessment / Not Likely to Adversely Affect Documentation and Essential Fish Habitat Reports (NMFS). On hold until WQM Plan is closer to final.
  - Nationwide Permit 38 Pre-Construction Notification. On hold until WQM Plan is closer to final.
  - Joint Permit Application. On hold until WQM Plan is closer to final.
  - Draft Permit Matrix - Arcadis provide response to NYSDEC comments August 18, 2023, NYSDEC responded August 31, 2023, under review.
  - Water Quality Monitoring Plan - Provided memo and tables to NYSDEC. Introductory call with Manoara Begum and other DEC representatives September 6, 2023. Follow-up call to be scheduled.
  - TSCA Risk-Based Disposal Action Application - Call with USEPA TSCA held June 28 and August 17, 2023. Agreed revisions to application on hold until further design is completed. October call cancelled by USEPA.
  - Draft ecoSPEARS proposal provided to NYSDEC September 28, 2023; review call pending.

## **2. UNANTICIPATED PROBLEM AREAS AND RECOMMENDED SOLUTIONS**

- None this reporting period.

## **3. PROBLEMS RESOLVED**

- None this reporting period.

## **4. DELIVERABLES SUBMITTED / RECEIVED**

- October 5, 2023, Atlantic Richfield to NYSDEC: *Hastings September 2023 Monthly Progress Report*.

## **5. UPCOMING EVENTS / ACTIVITIES PLANNED**

- Scheduling of subsequent gauging and recovery events will be dependent on the developing COVID-19 situation and AR will continue to communicate with NYSDEC regarding schedule. The tentative schedule is outlined below.
- The next three DNAPL gauging and recovery events are tentatively scheduled to occur the weeks of November 6, 2023, January 1, 2024, and February 5, 2024.
- 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 next LNAPL IRM event is tentatively scheduled to occur the week of January 1, 2024 in accordance with the schedule modification request, from monthly to quarterly, sent by Atlantic Richfield to NYSDEC on June 4, 2012; the approval letter received from NYSDEC dated April 2, 2013; and the approval letter received from NYSDEC dated May 23, 2023.

## **6. KEY STAFFING**

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

<b><i>Acronym</i></b>	<b><i>Description</i></b>
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**  
**OCTOBER DNAPL PUMPING SUMMARY (WEEK OF 10/2/2023)**  
**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) <sup>4</sup>	Total DNAPL Removed (gallons) <sup>6</sup>	Post-Purging Distance of DNAPL Surface Below MS/Fill Interface (ft) <sup>5</sup>
HARW-1	10/2/2023 <sup>1</sup>	0	0	0	NA**	NA**	NA**	NA**	NA**
HARW-2	10/2/2023 <sup>2</sup>	0	8.0	8.0			NA**	NA**	4.0
	NA** <sup>3</sup>				NA**	NA**			
HARW-3	10/2/2023 <sup>2</sup>	16.5	7.0	6.7			NA**	NA**	3.8
	NA** <sup>3</sup>				NA**	NA**			
HARW-4	10/2/2023 <sup>2</sup>	24.5	10.0	9.1			NA**	NA**	3.3
	NA** <sup>3</sup>				NA**	NA**			
HARW-5	10/2/2023 <sup>2</sup>	23.5	35.0	32.1			63.0	7.4	4.2
	10/3/2023 <sup>3</sup>				1.0	0.9			
HARW-6	10/2/2023 <sup>2</sup>	14.0	5.0	4.9			NA**	NA**	4.2
	NA** <sup>3</sup>				NA**	NA**			
HARW-7	10/2/2023 <sup>2</sup>	0	8.0	8.0			NA**	NA**	4.0
	NA** <sup>3</sup>				NA**	NA**			
HARW-8	10/2/2023 <sup>2</sup>	0	15.0	15.0			NA**	NA**	3.5
	NA** <sup>3</sup>				NA**	NA**			
HAOW-12A	10/2/2023 <sup>2</sup>	0	3.0	3.0			NA**	NA**	4.9
	NA** <sup>3</sup>				NA**	NA**			

**Total Gallons of DNAPL Removed: 7.4**

Notes:

<sup>1</sup>DNAPL not present, pumping not completed in this well

<sup>2</sup>Pre-pumping gauge date

<sup>3</sup>Post-pumping gauge date.

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

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

<sup>6</sup>Unless 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 #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) <sup>3</sup>	Days Elapsed Between Measurement Readings	Measurement Tool Used	Recovery Procedure Used
MW-12	Cumulative 10/9/2006 - 7/29/2010	-	-	-	5.0	-	-	-
	TOTAL VOLUME RECOVERED TO DATE FROM MW-12 (GALLONS)				5.0			
HAOW-12A	Cumulative 3/2/2009 - 12/6/2021	-	-	-	49.7	-	DMT <sup>4</sup>	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions					-	-
	2/7/2022	43.0	0.6	-	-	35	DMT <sup>4</sup>	-
	3/7/2022	43.2	0.4	-	-	28	DMT <sup>4</sup>	-
	4/4/2022	43.1	0.5	-	-	28	DMT <sup>4</sup>	-
	5/2/2022	43.2	0.4	-	-	28	DMT <sup>4</sup>	-
	6/7/2022	43.2	0.4	-	-	36	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions					-	-
	8/1/2022	43.1	0.5	-	-	55	DMT <sup>4</sup>	-
	9/6/2022	43.0	0.6	-	-	36	DMT <sup>4</sup>	-
	10/3/2022	42.6	1.0	-	-	27	DMT <sup>4</sup>	-
	11/7/2022	43.3	0.3	-	-	35	DMT <sup>4</sup>	-
	12/5/2022	43.4	0.2	-	-	28	DMT <sup>4</sup>	-
	1/3/2023	43.4	0.3	-	-	29	DMT <sup>4</sup>	-
	2/6/2023	43.4	0.3	-	-	34	DMT <sup>4</sup>	-
	3/6/2023	43.3	0.3	-	-	28	DMT <sup>4</sup>	-
	4/3/2023	43.3	0.3	-	-	28	DMT <sup>4</sup>	-
	5/1/2023	43.3	0.3	-	-	28	DMT <sup>4</sup>	-
	6/5/2023	43.3	0.3	-	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions					-	-
	8/7/2023	43.4	0.2	-	-	63	DMT <sup>4</sup>	-
	9/5/2023	43.3	0.3	-	-	29	DMT <sup>4</sup>	-
	10/2/2023	43.4	0.3	-	-	27	DMT <sup>4</sup>	-
	TOTAL VOLUME RECOVERED TO DATE FROM HAOW-12A (GALLONS)				49.7			
HARW-1	Cumulative 9/29/2010 - 12/6/2021	-	-	-	0.0	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions					-	-
	2/7/2022	No product detected	0.0	-	-	35	DMT <sup>4</sup>	-
	3/7/2022	No product detected	0.0	-	-	28	DMT <sup>4</sup>	-
	4/4/2022	No product detected	0.0	-	-	28	DMT <sup>4</sup>	-
	5/2/2022	No product detected	0.0	-	-	28	DMT <sup>4</sup>	-
	6/7/2022	No product detected	0.0	-	-	36	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions					-	-
	8/1/2022	No product detected	0.0	-	-	55	DMT <sup>4</sup>	-
	9/6/2022	No product detected	0.0	-	-	36	DMT <sup>4</sup>	-
	10/3/2022	No product detected	0.0	-	-	27	DMT <sup>4</sup>	-
	11/7/2022	No product detected	0.0	-	-	35	DMT <sup>4</sup>	-
	12/5/2022	No product detected	0.0	-	-	28	DMT <sup>4</sup>	-
	1/3/2023	No product detected	0.0	-	-	29	DMT <sup>4</sup>	-
	2/6/2023	No product detected	0.0	-	-	34	DMT <sup>4</sup>	-
	3/6/2023	No product detected	0.0	-	-	28	DMT <sup>4</sup>	-
	4/3/2023	No product detected	0.0	-	-	28	DMT <sup>4</sup>	-
	5/1/2023	No product detected	0.0	-	-	28	DMT <sup>4</sup>	-
	6/5/2023	No product detected	0.0	-	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions					-	-
	8/7/2023	No product detected	0.0	-	-	63	DMT <sup>4</sup>	-
	9/5/2023	No product detected	0.0	-	-	29	DMT <sup>4</sup>	-
	10/2/2023	No product detected	0.0	-	-	27	DMT <sup>4</sup>	-
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-1 (GALLONS)				0.0			

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) <sup>3</sup>	Days Elapsed Between Measurement Readings	Measurement Tool Used	Recovery Procedure Used
HARW-2	Cumulative 9/29/2010 - 12/6/2021	-	-	-	880.0	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions				-	-	-
	2/8/2022	37.8	2.3	0.33	5	36	DMT <sup>4</sup>	double diaphragm pump
	3/7/2022	39.0	1.0	-	-	27	DMT <sup>4</sup>	-
	4/4/2022	38.3	1.8	-	-	28	DMT <sup>4</sup>	-
	5/3/2022	38.0	2.0	0.08	5	29	DMT <sup>4</sup>	double diaphragm pump
	6/7/2022	39.3	0.8	-	-	35	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/1/2022	38.3	1.8	-	-	55	DMT <sup>4</sup>	-
	9/7/2022	37.8	2.2	0.08	5.4	37	DMT <sup>4</sup>	double diaphragm pump
	10/3/2022	39.8	0.3	-	-	26	DMT <sup>4</sup>	-
	11/7/2022	39.1	0.9	-	-	35	DMT <sup>4</sup>	-
	12/5/2022	38.8	1.2	-	-	28	DMT <sup>4</sup>	-
	1/3/2023	38.0	2.0	0.17	4.8	29	DMT <sup>4</sup>	double diaphragm pump
	2/6/2023	39.4	0.6	-	-	34	DMT <sup>4</sup>	-
	3/6/2023	38.8	1.2	-	-	28	DMT <sup>4</sup>	-
	4/3/2023	38.7	1.3	-	-	28	DMT <sup>4</sup>	-
	5/1/2023	38.0	2.0	0.00	5.2	28	DMT <sup>4</sup>	double diaphragm pump
	6/5/2023	39.2	0.8	-	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/7/2023	38.3	1.7	-	-	63	DMT <sup>4</sup>	-
	9/5/2023	38.0	2.0	0.42	4.1	29	DMT <sup>4</sup>	double diaphragm pump
	10/2/2023	39.3	0.7	-	-	27	DMT <sup>4</sup>	-
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-2 (GALLONS)				909.5			
HARW-3	Cumulative 10/14/2010 - 12/6/2021	-	-	-	28.6	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions				-	-	-
	2/7/2022	38.4	0.6	-	-	35	DMT <sup>4</sup>	-
	3/7/2022	38.4	0.6	-	-	28	DMT <sup>4</sup>	-
	4/4/2022	38.5	0.5	-	-	28	DMT <sup>4</sup>	-
	5/2/2022	38.8	0.2	-	-	28	DMT <sup>4</sup>	-
	6/7/2022	38.4	0.6	-	-	36	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/1/2022	38.4	0.6	-	-	55	DMT <sup>4</sup>	-
	9/6/2022	38.5	0.5	-	-	36	DMT <sup>4</sup>	-
	10/3/2022	38.3	0.7	-	-	27	DMT <sup>4</sup>	-
	11/7/2022	38.4	0.6	-	-	35	DMT <sup>4</sup>	-
	12/5/2022	38.3	0.7	-	-	28	DMT <sup>4</sup>	-
	1/3/2023	38.5	0.5	-	-	29	DMT <sup>4</sup>	-
	2/6/2023	38.4	0.6	-	-	34	DMT <sup>4</sup>	-
	3/6/2023	38.3	0.7	-	-	28	DMT <sup>4</sup>	-
	4/3/2023	38.3	0.7	-	-	28	DMT <sup>4</sup>	-
	5/1/2023	38.5	0.5	-	-	28	DMT <sup>4</sup>	-
	6/5/2023	38.5	0.5	-	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/7/2023	38.4	0.6	-	-	63	DMT <sup>4</sup>	-
	9/5/2023	38.6	0.4	-	-	29	DMT <sup>4</sup>	-
	10/2/2023	38.4	0.6	-	-	27	DMT <sup>4</sup>	-
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-3 (GALLONS)				28.6			



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) <sup>3</sup>	Days Elapsed Between Measurement Readings	Measurement Tool Used	Recovery Procedure Used
HARW-4	Cumulative 10/14/2010 - 12/6/2021	-	-	-	219.0	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions						
	2/7/2022	38.2	0.8	-	-	35	DMT <sup>4</sup>	-
	3/7/2022	37.6	1.4	-	-	28	DMT <sup>4</sup>	-
	4/4/2022	37.5	1.5	-	-	28	DMT <sup>4</sup>	-
	5/2/2022	37.8	1.3	-	-	28	DMT <sup>4</sup>	-
	6/7/2022	37.3	1.8	-	-	36	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions						
	8/1/2022	37.4	1.6	-	-	55	DMT <sup>4</sup>	-
	9/6/2022	37.2	1.8	-	-	36	DMT <sup>4</sup>	-
	10/3/2022	37.0	2.0	0.17	4.8	27	DMT <sup>4</sup>	double diaphragm pump
	11/7/2022	38.0	1.0	-	-	35	DMT <sup>4</sup>	-
	12/5/2022	38.0	1.0	-	-	28	DMT <sup>4</sup>	-
	1/3/2023	38.2	0.8	-	-	29	DMT <sup>4</sup>	-
	2/6/2023	38.0	1.0	-	-	34	DMT <sup>4</sup>	-
	3/6/2023	38.6	0.4	-	-	28	DMT <sup>4</sup>	-
	4/3/2023	38.3	0.7	-	-	28	DMT <sup>4</sup>	-
	5/1/2023	38.2	0.8	-	-	28	DMT <sup>4</sup>	-
	6/5/2023	38.2	0.8	-	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions						
	8/7/2023	38.4	0.6	-	-	63	DMT <sup>4</sup>	-
	9/5/2023	38.2	0.8	-	-	29	DMT <sup>4</sup>	-
	10/2/2023	38.2	0.8	-	-	27	DMT <sup>4</sup>	-
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-4 (GALLONS)				223.8			
HARW-5	Cumulative 7/18/2011 - 12/6/2021	-	-	-	1257.1	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions						
	2/8/2022	37.3	3.0	0.17	7.4	36	DMT <sup>4</sup>	double diaphragm pump
	3/7/2022	38.6	1.8	-	-	27	DMT <sup>4</sup>	double diaphragm pump
	4/4/2022	36.8	3.5	0.08	8.9	28	DMT <sup>4</sup>	double diaphragm pump
	5/2/2022	38.7	1.6	-	-	28	DMT <sup>4</sup>	-
	6/7/2022	36.7	3.6	0.17	8.9	36	DMT <sup>4</sup>	double diaphragm pump
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions						
	8/1/2022	36.6	3.7	0.08	9.4	55	DMT <sup>4</sup>	double diaphragm pump
	9/7/2022	38.2	2.1	0.08	5.2	37	DMT <sup>4</sup>	double diaphragm pump
	10/3/2022	39.0	1.3	-	-	26	DMT <sup>4</sup>	-
	11/8/2022	37.1	3.3	0.25	7.8	36	DMT <sup>4</sup>	double diaphragm pump
	12/5/2022	37.5	2.8	0.08	7.2	27	DMT <sup>4</sup>	double diaphragm pump
	1/4/2023	38.2	2.1	0.08	5.2	30	DMT <sup>4</sup>	double diaphragm pump
	2/6/2023	38.3	2.0	0.08	5.0	33	DMT <sup>4</sup>	double diaphragm pump
	3/6/2023	38.3	2.0	0.04	5.1	28	DMT <sup>4</sup>	double diaphragm pump
	4/3/2023	38.3	2.0	0.00	5.2	28	DMT <sup>4</sup>	double diaphragm pump
	5/1/2023	39.2	1.1	-	-	28	DMT <sup>4</sup>	-
	6/5/2023	37.5	2.8	0.08	7.2	35	DMT <sup>4</sup>	double diaphragm pump
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions						
	8/7/2023	37.2	3.1	0.08	7.8	63	DMT <sup>4</sup>	double diaphragm pump
	9/5/2023	39.0	1.3	-	-	29	DMT <sup>4</sup>	-
	10/3/2023	37.4	2.9	0.08	7.4	28	DMT <sup>4</sup>	double diaphragm pump
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-5 (GALLONS)				1354.8			

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) <sup>3</sup>	Days Elapsed Between Measurement Readings	Measurement Tool Used	Recovery Procedure Used
HARW-6	Cumulative 7/19/2011 - 12/6/2021	-	-	-	0.0	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions				-	-	-
	2/7/2022	40.2	0.6	-	-	35	DMT <sup>4</sup>	-
	3/7/2022	40.2	0.6	-	-	28	DMT <sup>4</sup>	-
	4/4/2022	40.1	0.7	-	-	28	DMT <sup>4</sup>	-
	5/2/2022	40.1	0.7	-	-	28	DMT <sup>4</sup>	-
	6/7/2022	40.6	0.3	-	-	36	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/1/2022	40.6	0.3	-	-	55	DMT <sup>4</sup>	-
	9/6/2022	40.1	0.7	-	-	36	DMT <sup>4</sup>	-
	10/3/2022	40.0	0.8	-	-	27	DMT <sup>4</sup>	-
	11/7/2022	40.2	0.6	-	-	35	DMT <sup>4</sup>	-
	12/5/2022	40.7	0.1	-	-	28	DMT <sup>4</sup>	-
	1/3/2023	40.6	0.2	-	-	29	DMT <sup>4</sup>	-
	2/6/2023	40.6	0.2	-	-	34	DMT <sup>4</sup>	-
	3/6/2023	40.5	0.3	-	-	28	DMT <sup>4</sup>	-
	4/3/2023	40.4	0.4	-	-	28	DMT <sup>4</sup>	-
	5/1/2023	40.4	0.4	-	-	28	DMT <sup>4</sup>	-
	6/5/2023	40.2	0.6	-	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/7/2023	40.0	0.8	-	-	63	DMT <sup>4</sup>	-
	9/5/2023	40.7	0.1	-	-	29	DMT <sup>4</sup>	-
	10/2/2023	40.4	0.4	-	-	27	DMT <sup>4</sup>	-
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-6 (GALLONS)				0.0			
HARW-7	Cumulative 7/18/2011 - 12/6/2021	-	-	-	593.3	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions				-	-	-
	2/7/2022	40.2	1.8	-	-	35	DMT <sup>4</sup>	-
	3/7/2022	39.6	2.4	0.1	6.1	28	DMT <sup>4</sup>	double diaphragm pump
	4/4/2022	41.7	0.3	-	-	28	DMT <sup>4</sup>	-
	5/2/2022	41.4	0.6	-	-	28	DMT <sup>4</sup>	-
	6/7/2022	40.9	1.1	-	-	36	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/1/2022	40.0	2.0	0.0	5.2	55	DMT <sup>4</sup>	double diaphragm pump
	9/6/2022	41.8	0.3	-	-	36	DMT <sup>4</sup>	-
	10/3/2022	41.3	0.8	-	-	27	DMT <sup>4</sup>	-
	11/7/2022	41.1	0.9	-	-	35	DMT <sup>4</sup>	-
	12/5/2022	40.9	1.1	-	-	28	DMT <sup>4</sup>	-
	1/4/2023	40.0	2.0	0.3	4.4	30	DMT <sup>4</sup>	double diaphragm pump
	2/6/2023	41.5	0.5	-	-	33	DMT <sup>4</sup>	-
	3/6/2023	41.1	0.9	-	-	28	DMT <sup>4</sup>	-
	4/3/2023	41.0	1.0	-	-	28	DMT <sup>4</sup>	-
	5/1/2023	40.7	1.3	-	-	28	DMT <sup>4</sup>	-
	6/5/2023	40.6	1.4	-	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions				-	-	-
	8/7/2023	40.0	2.0	0.2	4.8	63	DMT <sup>4</sup>	double diaphragm pump
	9/5/2023	41.6	0.4	-	-	29	DMT <sup>4</sup>	-
	10/2/2023	41.3	0.7	-	-	27	DMT <sup>4</sup>	-
	TOTAL VOLUME RECOVERED TO DATE FROM HARW-7 (GALLONS)				613.8			

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

	Date	Product Apparent	Product Apparent	Approximate Volume of Product	Days Elapsed Between	Measurement Tool	Recovery Procedure Used
		Height - Pre-pumping (ft)	Height - Post-pumping (ft)	Recovered (gallons) <sup>3</sup>	Measurement Readings	Used	
HARW-8	Cumulative 7/19/2011 - 12/6/2021	-	-	41.3	-	-	-
	1/3/2022	DNAPL pumping not completed due to COVID-19 restrictions			-	-	-
	2/7/2022	42.2	0.8	-	35	DMT <sup>4</sup>	-
	3/7/2022	41.9	1.1	-	28	DMT <sup>4</sup>	-
	4/4/2022	41.8	1.3	-	28	DMT <sup>4</sup>	-
	5/2/2022	41.7	1.3	-	28	DMT <sup>4</sup>	-
	6/7/2022	41.7	1.3	-	36	DMT <sup>4</sup>	-
	7/4/2022	DNAPL pumping not completed due to adverse weather conditions			-	-	-
	8/1/2022	41.5	1.5	-	55	DMT <sup>4</sup>	-
	9/6/2022	41.4	1.6	-	36	DMT <sup>4</sup>	-
	10/3/2022	41.3	1.8	-	27	DMT <sup>4</sup>	-
	11/8/2022	41.0	2.0	0.5	36	DMT <sup>4</sup>	double diaphragm pump
	12/5/2022	42.4	0.6	-	27	DMT <sup>4</sup>	-
	1/3/2023	42.8	0.3	-	29	DMT <sup>4</sup>	-
	2/6/2023	42.3	0.8	-	34	DMT <sup>4</sup>	-
	3/6/2023	42.2	0.8	-	28	DMT <sup>4</sup>	-
	4/3/2023	42.1	0.9	-	28	DMT <sup>4</sup>	-
	5/1/2023	42.1	0.9	-	28	DMT <sup>4</sup>	-
	6/5/2023	42.0	1.0	-	35	DMT <sup>4</sup>	-
	7/3/2023	DNAPL pumping not completed due to adverse weather conditions			-	-	-
	8/7/2023	42.0	1.0	-	63	DMT <sup>4</sup>	-
	9/5/2023	41.8	1.2	-	29	DMT <sup>4</sup>	-
	10/2/2023	41.8	1.3	-	27	DMT <sup>4</sup>	-
TOTAL VOLUME RECOVERED TO DATE FROM HARW-8 (GALLONS)				45.2			

TOTAL VOLUME RECOVERED TO DATE FROM ALL WELLS (GALLONS)

3230.4

**Notes:**

**MW-12**

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

HARW-1

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

HARW-5

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

HAOW-12A

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

HARW-2

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

HARW-6

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

HARW-3

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

HARW-7

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

HARW-4

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

<sup>1</sup> Reserved

<sup>2</sup> Reserved

<sup>3</sup> 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).

<sup>4</sup> 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.