



PETROLEUM MANAGEMENT, INC.
Environmental Services Division

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May 11, 2020

Maryland Department of the Environment
Oil Control Program
Attn: Susan Bull
1800 Washington Blvd., Suite 620
Baltimore, MD 21230

**RE: Final EFR Evaluation Report
Wiley H. Bates Middle School
701 Chase Street, Annapolis
Facility ID# 3200**

Dear Ms. Bull,

In cooperation with HP Environmental, Inc. (HPE), Petroleum Management, Inc. (PMI) has completed all scheduled Enhanced Fluid Recovery (EFR) events specified in the *Corrective Action Plan Approval* dated June 11, 2019 and the interim EFR events as specified in the *Corrective Action Plan Approval* dated March 10, 2020.

Over the course of the last 9 months of scheduled EFR events, a log of pre- & post- EFR well gauging measurements and recovery totals has been maintained. As indicated in the attached EFR Summary Table, measurable thickness of liquid-phase hydrocarbons (LPH) has declined, most notably at MW-3, followed by MW-2 and MW-1. LPH at MW-3 has declined to non-detect levels consistently from week to week since November 13, 2019 and MW-3 is now included as part of the quarterly well sampling events. Review of the finalized EFR Summary Table concludes a total liquid recovery of 34,769.43 gallons with a total LPH recovery of 908.07 gallons.

Upon completion of the final EFR event on April 29, 2020, permanently installed submersible skimmer pumps and associated recovery system has been installed at MW-1 and MW-2 to continue with LPH recovery efforts. With the skimmer pumps and recovery system now installed, a monthly log of recovered LPH and system monitoring will now continue to document progress of the system.

Please review all reports now submitted and respond accordingly with any comment or concern as we continue to move forward in compliance with the *Corrective Action Plan* approved March 10, 2020.

Thank you for your attention to this case.


W. Scott Alexander
Environmental Projects Manager

Enc.

cc: *Mr. Christopher Williams*
Environmental Issues Program Manager
Anne Arundel County Public Schools
9034 Fort Smallwood Rd.
Pasadena, MD 21122

Bates Middle School
EFR Summary

Date	Well ID	Initial Time	Initial Gauge LPH Thickness (ft.)	Exit Time	Exit Gauge LPH Thickness (ft.)	Total Liquid Recovery (gallons)	Total LPH Recovery (gallons)
8/8/2019	MW-1		14.32 Depth to Liquid- 27.81 Depth to Water-		13.49 16.23		
	MW-2	9:00	14.08 15.81	14:50	1.73 15.18	809	53
	MW-3		14.02 14.96		0.94 14.87		
8/13/2019	MW-1		14.41 Depth to Liquid- 26.45 Depth to Water-		12.04 14.10 1.31		
	MW-2		15.41		15.41		
	MW-3		14.08 14.88		0.80 14.88		
8/15/2019	MW-1		14.78 Depth to Liquid- 23.45 Depth to Water-		8.67 14.22 1.22		
	MW-2	8:50	15.44		15.44		
	MW-3		14.23 14.54		0.31 14.54		
8/20/2019	MW-1		14.53 Depth to Liquid- 26.99 Depth to Water-		12.46 14.22 1.22		
	MW-2	7:20	15.21 16.54	15:50	1.33 16.54		
	MW-3		14.19 14.72		0.53 14.72		
8/22/2019	MW-1		14.90 Depth to Liquid- 22.30 Depth to Water-		7.40 14.30 1.21		
	MW-2	8:02	15.51	15:40	1.21		
	MW-3		14.26 14.50		0.24 14.50		
8/27/2019	MW-1		14.60 Depth to Liquid- 25.64 Depth to Water-		11.04 14.26 1.25		
	MW-2	7:20	15.51	14:15	1.25		
	MW-3		14.21 14.54		0.33 14.54		
8/30/2019	MW-1		14.68 Depth to Liquid- 24.66 Depth to Water-		9.98 14.32 1.17		
	MW-2	7:40	15.49		1.17		
	MW-3		14.29 14.44		0.15 14.44		
9/3/2019	MW-1		14.90 Depth to Liquid- 23.47 Depth to Water-		8.57 14.35 1.21		
	MW-2	7:12	15.56	2:44	1.21		
	MW-3		14.29 14.39		0.10 14.39		
9/5/2019	MW-1		15.30 Depth to Liquid- 20.35 Depth to Water-		5.05 14.39 1.23		
	MW-2	6:30	15.62	2:50	1.23		
	MW-3		14.35 14.40		0.05 14.40		
9/10/2019	MW-1		14.96 Depth to Liquid- 23.91 Depth to Water-		8.95 14.38 1.19		
	MW-2	6:50	15.57	2:05	1.19		
	MW-3		14.35		0.16		

	14.11	14.40		14.40		14.40		14.40	
MW-1	14.51	15.15	Depth to Liquid-	14.41		14.41		14.41	
	20.44	17.21	Depth to Water-	15.56		15.56		15.56	
MW-2	14.20	14.61	12:45	15.98		15.98		15.98	
	14.39	14.72		14.59		14.59		14.59	
MW-3	14.02	14.41		14.81		14.81		14.81	
	14.02	14.41		14.37		14.37		14.37	
MW-1	14.41	15.56	Depth to Liquid-	14.41		14.41		14.41	
	18.79	15.98	Depth to Water-	15.56		15.56		15.56	
MW-2	14.15	14.59	13:00	14.81		14.81		14.81	
	14.31	14.37		14.37		14.37		14.37	
MW-3	13.99	14.37		15.21		15.21		15.21	
	13.99	14.37		16.35		16.35		16.35	
MW-1	14.50	15.11	Depth to Liquid-	14.51		14.51		14.51	
	19.91	16.35	Depth to Water-	14.51		14.51		14.51	
MW-2	14.19	14.51	13:55	14.59		14.59		14.59	
	14.29	14.30		14.30		14.30		14.30	
MW-3	14.00	14.30		15.11		15.11		15.11	
	14.00	14.30		16.35		16.35		16.35	
MW-1	14.51	15.11	Depth to Liquid-	14.51		14.51		14.51	
	19.61	16.35	Depth to Water-	14.51		14.51		14.51	
MW-2	14.03	14.10	13:15	14.23		14.23		14.23	
	14.50	14.23		14.25		14.25		14.25	
MW-3	13.99	14.25		14.25		14.25		14.25	
	13.99	14.25		14.72		14.72		14.72	
MW-1	13.97	14.72	Depth to Liquid-	13.97		13.97		13.97	
	19.90	15.91	Depth to Water-	19.90		19.90		19.90	
MW-2	13.50	13.90	12:35	13.50		13.50		13.50	
	13.64	14.01		13.64		13.64		13.64	
MW-3	13.95	14.31		13.95		13.95		13.95	
	13.95	14.31		13.95		13.95		13.95	
MW-1	13.91	18.20	Depth to Liquid-	13.91		13.91		13.91	
	18.81	18.20	Depth to Water-	18.81		18.81		18.81	
MW-2	13.45	14.02	9:50,	13.45		13.45		13.45	
	13.54	14.02	12:00,	13.54		13.54		13.54	
MW-3	13.88	14.14	12:45	13.88		13.88		13.88	
	13.88	14.14		13.88		13.88		13.88	
Cumulative Recovery Totals:									
							34765.43	908.07	Total LPH Recovery
							(gallons)	(gallons)	(gallons)

*Note: EFR events concluded on 4/29/20 with installation and start-up of permanent skimmer pumps at MW-1 and MW-2 in accordance with approved CAP (March 10, 2020).