PETROLEUM MANAGEMENT, INC.

Environmental Services Division

2138 Priest Bridge Ct., Suite 200 ♦ Crofton, Maryland 21114
Phone: (410) 354-0200 ♦ Fax: (410) 721-1390

October 7, 2019

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

RE: Corrective Action Plan
Wiley H. Bates Middle School
701 Chase Street, Annapolis
Facility ID# 3200

Interim Work Plan

Dear Ms. Bull:

In reference to the Correction Action Plan Approval dated June 11, 2019, the directed 60-day period of bi-weekly EFR events at the site will end on October 8, 2019. With a 45-day period for EFR Evaluation and Reporting and possibly 60-days to secure funding and implementation of the next phase of corrective action, Petroleum Management, Inc., its Consultants and Anne Arundel County Public Schools have discussed this "processing window" period and would like to present the following Interim Work Plan to continue during this period:

Continued Enhanced Fluid Recovery (EFR)

In consideration of continued LPH recovery and cost of bi-weekly EFR events, it is proposed that EFR events continue on a weekly basis during this interim period. The target well locations for the continuing EFR event will be the areas of persisting LPH at MW-1, MW-2 and MW-3. Prior to each weekly EFR event, all monitoring wells in the target area (including all wells with no prior LPH accumulation) will be gauged with an oil/water interface probe to determine any LPH existence and thickness.

During each EFR event, all wells subject to EFR will be connected to an extraction tube (stinger) that will extend no further than 12" below the LPH layer with the stinger attachment made to the top of the well casing with an air-tight seal. Each targeted EFR well will be manifolded to a vacuum truck line that will subject each well with sufficient vacuum to pull the LPH layer from the water surface. Each EFR attachment will have a clear sight-glass and valve to observe and adjust the recovery rate. Duration of each EFR event will be 2 continuous hours. Upon completion of the EFR event, the tank on the vacuum truck will be left undisturbed for 1-hour to allow for phase separation of the oil/water mixture. After this settling and separation period, the tank will be gauged with an oil/water interface probe to determine the recovered LPH thickness and then converted to gallons using the tank's calibration chart.

Recordings on the attached gauging and recovery table will continue with data reviewed and incorporated into the design of the next phase of corrective action.

Continued Well Sampling & Groundwater Analysis

In the absence of any LPH accumulation, all monitoring wells completed in the identified dissolved phase impact area (MW-4, MW-5, MW-6, MW-7, MW-8, MW-10, TF-1 and TF-2) will be gauged, purged and sampled for groundwater analysis on a quarterly basis (every 3-months). Each groundwater sample retained will be submitted for laboratory analysis of TPH-DRO and TPH-GRO (EPA method 8015) and Total VOC (EPA method 8260). Following each quarterly sampling event, a completion report and summary of current and prior analysis results will be prepared for submittal to MDE. The initial quarterly sampling event was completed on August 8, 2019, with the next scheduled event to take place in November 2019.

LPH Mitigation at Storm Drain Outfall to Spa Creek

Anne Arundel County Public Schools (AACPS) will continue to have Miller Environmental Group (MEG) deploy, monitor and replace absorbent booms and sweeps at the storm drain outfall to Spa Creek twice a week (Tuesday and Thursday) and after each rain event. AACPS will also provide for a visual inspection and report of outfall conditions twice a week and after each rain event.

In attempts to identify any possible LPH migration from beneath the air shaft and MW-1 area into the storm drain piping leading down gradient to the Spa Creek outfall, it is suggested that appropriately sized, hydrophobic absorbent boom material be placed in the piping run at Inlet No. 22, Inlet No. 4 (leading to the air shaft drain) and again in the piping immediately adjacent the air shaft (via newly installed clean-out risers) as a means to detect any LPH that may be penetrating the existing piping under the air shaft. These additional monitoring areas will be inspected on the same schedule as the outfall area.

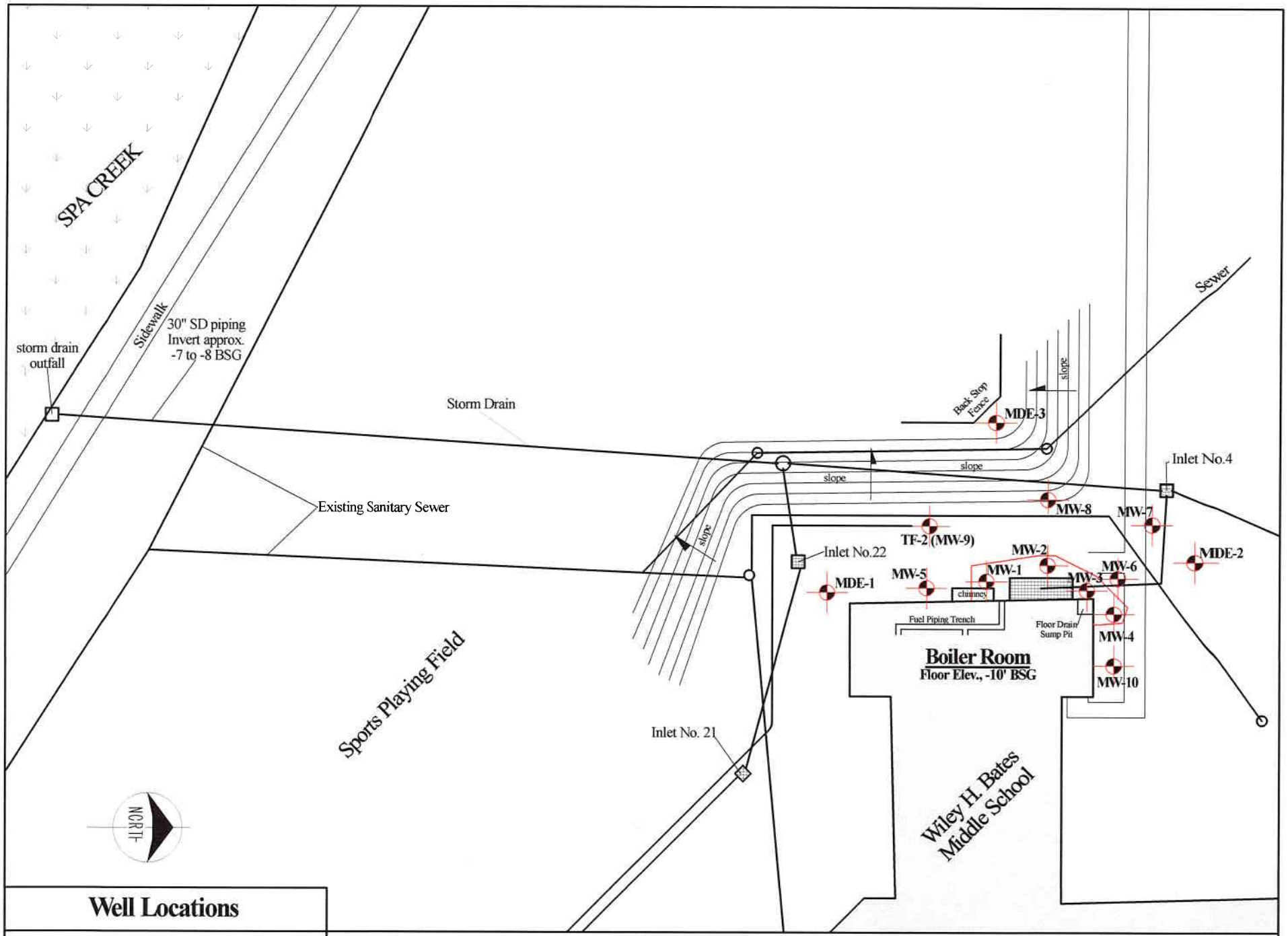
With approval by MDE, this Interim Work Plan can begin immediately and follow without interruption after the next scheduled EFR event on October 8, 2019. Please review this proposed Interim Work Plan for acceptance by the Administration. If there are any questions or concerns in regards to this scope, please contact the Project Manager to discuss or make any appropriate changes.

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



Well Locations

Petroleum Management, Inc.
5218 Curtis Avenue
Curtis Bay, MD 21226
410-354-0200

Job Name:	Wiley H. Bates Middle School				
Location:	701 Chase Street, Annapolis, MD 21401				
Drawn By:	WSA	**Scale:**	1" = 50'	**Date:**	10-4-19

Bates Middle School

Well	Date	DTW (ft)	DTP (ft)	LPH Th. (ft)	EFR (in min)	Fluid Recovered (gal) Water	LPH	Total Fluids
MW-1		27.81	14.32	13.49	180			
MW-2	8/8/2019	15.81	14.08	1.73	90	756	53	809
MW-3		14.96	14.02	0.94	60			
MW-1		26.45	14.41	12.04	130			
MW-2	8/13/2019	15.41	14.10	1.31	120	925	50	975
MW-3		14.88	14.08	0.80	126			
MW-1		23.45	14.78	8.67	133			
MW-2	8/15/2019	15.44	14.22	1.22	120	870	26	896
MW-3		14.54	14.23	0.31	123			
MW-1		26.99	14.53	12.46	112			
MW-2	8/20/2019	16.54	15.21	1.33	120	731	37	768
MW-3		14.72	14.19	0.53	120			
MW-1		22.30	14.90	7.40	120			
MW-2	8/22/2019	15.51	14.30	1.21	120	358	41	399
MW-3		14.50	14.26	0.24	120			
MW-1		25.64	14.60	11.04				
MW-2	8/27/2019	15.51	14.26	1.25		546	24	670
MW-3		14.54	14.21	0.33				
MW-1		24.66	14.68	9.98	119			
MW-2	8/30/2019	15.49	14.32	1.17	120	546	24	670
MW-3		14.44	14.29	0.15				
MW-1		23.47	14.90	8.57	120			
MW-2	9/3/2019	15.56	14.35	1.21	120	600	23	623
MW-3		14.39	14.29	0.10	120			
MW-1		20.35	15.30	5.05	120			
MW-2	9/5/2019	15.62	14.39	1.23	31	339	9	348
MW-3		14.40	14.35	0.05	30			
MW-1		23.91	14.96	8.95	120			
MW-2	9/10/2019	15.57	14.38	1.19	122	512	18	530
MW-3		14.53	14.35	0.18	120			
MW-1		19.91	15.35	4.56	120			
MW-2	9/12/2019	15.44	14.42	1.02	120	472	13	485
MW-3		14.43	14.37	0.06	120			
MW-1		22.18	15.21	6.97	120			
MW-2	9/17/2019	15.81	14.40	1.41	120	472	13	485
MW-3		14.40	14.38	0.02	120			
MW-1		18.97	15.61	3.36	60			
MW-2	9/19/2019	15.56	14.46	1.10	60	507	24	531
MW-3		14.49	14.42	0.07	121			
MW-1		21.49	15.27	6.22	120			
MW-2	9/24/2019	15.61	14.44	1.17	132	760	27	786
MW-3		14.49	14.41	0.08	34			
MW-1		19.20	15.68	3.52	120			
MW-2	9/26/2019	15.45	14.53	0.92	120	1,201	33	1,234
MW-3		14.53	14.46	0.07	120			
					running totals:	9,595	415	10,209