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Ms. Bobbi Coleman
South Carolina Department of Health and Environmental Control
Assessment Section, UST Management Division
Bureau of Land and Waste Management
2600 Bull Street
Columbia, SC 29201



Subject: Request to pump select monitoring wells
Lewis Drive Release
Plantation Pipe Line Company
Belton, South Carolina
Site ID #18693, "Kinder Morgan Belton Pipeline Release"

Dear Ms. Coleman,

On behalf of Plantation Pipe Line Company (Plantation), CH2M HILL Engineers, Inc. (CH2M now part of Jacobs) has prepared this letter to present a plan to pump select monitoring wells that may currently be outside the capture zones of the biosparging treatment system.

Biosparging at the site since March 2017 has resulted in marked sitewide decreases in product thicknesses and groundwater hydrocarbon concentrations. However, we have identified five groundwater sampling locations which exhibit stable or increasing trends of dissolved hydrocarbon concentrations despite biosparging (**Table 1**):

- MW-34 and MW-40 in the Brown's Creek Remediation Zone
- MW-17B in the Hayfield Remediation Zone
- MW-23 and MW-46 in the Cupboard Creek Remediation Zone (**Figure 1**).

The locations of these wells are shown on **Figure 1**. Plantation intends to purge these wells and monitor responses to evaluate why concentrations have not markedly changed in the groundwater samples collected from these wells. The water levels during purging and contaminant hydrocarbon concentrations after purging can help determine if the wells are screened in the treatment zones of the biosparging system, and provide data to plan future expansion of the biosparging systems. Following the June 2018 quarterly monitoring events, groundwater will be pumped from the selected wells and samples will be collected during the subsequent monitoring events. The water level responses and analytical results will be evaluated and used to determine future pumping frequency, the pumping well network, and if the pumping will continue.

Proposed Scope of Work

The following activities will be performed:

- The wells included in **Tables 1 and 2** and shown on **Figure 1** will be purged using a submersible pump. Each well will be purged until a minimum of 3 to 5 well volumes have been removed or until it is pumped dry. Water levels will be monitored during purging with an oil/water interface probe and recorded on a purge log.
- Purge water will be contained in 55-gallon drums and then transferred to one of the onsite poly tanks for later disposal.
- The submersible pump will be decontaminated between each well in accordance with the Revised Quality Assurance Project Plan (QAPP) dated February 9, 2018.

Plantation intends to conduct this work as early as May 2018, between scheduled groundwater monitoring events. If you have any further questions or concerns, please contact me at 919-760-1777 or Mr. Jerry Aycock with Plantation at 770-751-4165.

Regards,
CH2M HILL Engineers, Inc.



William M. Waldron, P.E.
Program Manager

Attachments

- Table 1 – Analytical Results for Groundwater, Historical
- Table 2 – Well Construction Details
- Figure 1 – Groundwater Analytical Results in Residuam Aquifer, December 2017

Cc (via e-mail):

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Table 1. Analytical Results for Groundwater, Historical
 Plantation Pipe Line Company
 Lewis Drive Remediation Site, Belton, South Carolina
 Site ID #18693 "Kinder Morgan Belton Pipeline Release"

Location	Sample ID	Gauging Date	Depth to Water	Sample Date	Analyte:	Benzene	Ethylbenzene	Toluene	Total Xylenes	1,2-DCA	MTBE	Naphthalene
					Units							
MW-17B	MW-17B-030116			3/1/2016	µg/L	6,480	488	11,900	2,870	5	742	104
	MW-17B-120116			12/1/2016	µg/L	9,370	761	16,900	4,500	100 U ^b	954	112
	MW-17B-031317			3/13/2017	µg/L	7,350	770	14,100	4,510	200 U ^b	944	1,000 U ^b
	MW-17B-032017			3/20/2017	µg/L	10,700	1,360	21,400	7,910	323	1,210	1,000 U ^b
	MW-17B-033117			3/31/2017	µg/L	9,190	900	17,500	5,910	100 U ^b	1,200	500 U ^b
	MW-17B-033117FD			3/31/2017	µg/L	9,190	956	18,200	6,330	100 U ^b	1,210	500 U ^b
	MW-17B-040617			4/6/2017	µg/L	7,780	833	14,900	5,330	200 U ^b	991	1,000 U ^b
	MW-17B-062817			6/28/2017	µg/L	11,200	704	21,600	5,650	200 U ^b	1,150	1,000 U ^b
	MW-17B-090817			9/8/2017	µg/L	11,400	1,240	23,900	8,460	20 U ^b	1,330	201
	MW-17B-120717	12/4/2017	17.05	12/7/2017	µg/L	10,600	1,060	14,900	9,210	10 U ^b	1,140	178
	MW-17B-030718	3/5/2018	14.8	3/7/2018	µg/L	8,830	1,110	20,200	8,220	50 U ^b	960	250 U ^b
	MW-17BD-030718	3/5/2018	14.8	3/7/2018	µg/L	8,700	1,080	19,400	7,770	50 U ^b	983	250 U ^b
	MW-23	MW-23-072715			7/27/2015	µg/L	5 U ^b	5 U	7.5	10 U	5 U ^b	5 U
MW-23D-072715				7/27/2015	µg/L	5 U ^b	5 U	5 U	10 U	5 U ^b	5 U	5 U
MW-23-012016				1/20/2016	µg/L	1 U	1 U	1 U	2 U	1 U	1 U	1 U
MW-23-120216				12/2/2016	µg/L	450	5 U	14.6	336	5 U ^b	46.4	5.9
MW-23-031317				3/13/2017	µg/L	709	5 U	23.1	548	5 U ^b	127	25 U ^b
MW-23-032017				3/20/2017	µg/L	642	10 U	12.7	579	10 U ^b	108	50 U ^b
MW-23-032017-FD				3/20/2017	µg/L	620	10 U	12.0	548	10 U ^b	110	50 U ^b
MW-23-033117				3/31/2017	µg/L	685	10 U	16.5	624	10 U ^b	130	50 U ^b
MW-23-040617				4/6/2017	µg/L	432	1 U	6.6	254	1 U	76.5	5 U
MW-23-062817				6/28/2017	µg/L	131	10 U	10 U	117	10 U ^b	19.1	5 U
MW-23-071717				7/17/2017	µg/L	1.2	1 U	1 U	3 U	1 U	1 U	5 U
MW-23-080117				8/1/2017	µg/L	132	1 U	6.2	252	1 U	48.1	5 U
MW-23-090717				9/7/2017	µg/L	1,110	9.25	43.1	999	5 U ^b	141	25 U ^b
MW-23-100417		10/3/2017	11.52	10/4/2017	µg/L	703	10 U	17.5	515	10 U ^b	90.1	50 U ^b
MW-23-100417-DUP		10/3/2017	11.52	10/4/2017	µg/L	543	2.65	11.5	424	1 U	69.2	5 U
MW-23-110817		11/7/2017	11.1	11/8/2017	µg/L	788	10 U	21.5	580	10 U ^b	118	50 U ^b
MW-23-120617		12/4/2017	11.13	12/6/2017	µg/L	693	10 U	17.0	408	10 U ^b	99.5	50 U ^b
MW-23-010918	1/8/2018	11.02	1/9/2018	µg/L	127	10 U	10 U	137	10 U ^b	69.6	50 U ^b	
MW-23-020618	2/5/2018	9.76	2/6/2018	µg/L	1.1	1 U	1 U	3 U	1 U	33.8	5 U	
MW-23-030618	3/5/2018	8.27	3/6/2018	µg/L	1 U	1 U	1 U	3 U	1 U	17.5	5 U	
MW-26-040618	4/5/2018	7.52	4/6/2018	µg/L	1 U	1 U	1 U	3 U	1 U	32	5 U	
MW-34	MW-34-031517			3/15/2017	--	978	33.0	143	218	10 U ^b	157	50 U ^b
	MW-34-032017			3/20/2017	µg/L	801	10.0 U	113	305	10 U ^b	149	50 U ^b
	MW-34-033117			3/31/2017	µg/L	728	10.0 U	81.4	224	10 U ^b	152	50 U ^b
	MW-34-040617			4/6/2017	µg/L	860	1.7	58.6	181	1 U	123	5 U
	MW-34-050317			5/3/2017	µg/L	287	2.62	27.2	130	1 U	124	5 U
	MW-34-062817			6/28/2017	µg/L	167	4.59	9.3	39.2	1 U	68.3	5 U
	MW-34-071717			7/17/2017	µg/L	137	5.83	19.8	69.5	1 U	73.8	5 U
	MW-34-080117			8/1/2017	µg/L	517	10 U	31.7	110	10 U ^b	98.3	50 U ^b
	MW-34-090817			9/8/2017	µg/L	1,430	6.01	98.0	264	1 U	191	7.33

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 Plantation Pipe Line Company
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 Site ID #18693 "Kinder Morgan Belton Pipeline Release"

Location	Sample ID	Gauging Date	Depth to Water	Sample Date	Analyte: Units	Benzene	Ethylbenzene	Toluene	Total Xylenes	1,2-DCA	MTBE	Naphthalene
	MW-34-100417	10/3/2017	2.76	10/4/2017	µg/L	919	10 U	36.8	157	10 U ^b	151	50 U ^b
	MW-34-100417-DUP	10/3/2017	2.76	10/4/2017	µg/L	846	1.49	40.8	186	1 U	148	5 U
	MW-34-110817	11/7/2017	2.48	11/8/2017	µg/L	338	10 U	15.3	140	10 U ^b	266	50 U ^b
	MW-34-120617	12/4/2017	2.52	12/6/2017	µg/L	169	10 U	29.7	69.9	10 U ^b	218	50 U ^b
	MW-34-010918	1/8/2018	2.48	1/9/2018	µg/L	147	10 U	13.1	79.8	10 U ^b	246	50 U ^b
	MW-34-020618	2/5/2018	2.27	2/6/2018	µg/L	249	10 U	19.2	88.3	10 U ^b	191	50 U ^b
	MW-34-030818	3/5/2018	2.23	3/8/2018	µg/L	696	7.35	51.6	180	1 U	229	5.84
	MW-34-040618	4/5/2018	2.25	4/6/2018	µg/L	619	2.22	31.9	150	1 U	281	7.77
MW-40	MW-40-120716			12/7/2016	µg/L	6,730	588	7,460	3,390	50 U ^b	373	64.8
	MW-40-031417			3/14/2017	µg/L	11,600	1,280	16,100	7,260	50 U ^b	691	250 U ^b
	MW-40-032017			3/20/2017	µg/L	12,300	1,330	19,600	7,500	200 U ^b	654	1,000 U ^b
	MW-40-033117			3/31/2017	µg/L	13,300	1,500	19,500	8,070	100 U ^b	727	500 U ^b
	MW-40-040617			4/6/2017	µg/L	10,400	1,180	16,200	6,570	200 U ^b	650	1,000 U ^b
	MW-40-062817			6/28/2017	µg/L	9,250	1,030	19,200	6,540	500 U ^b	590	2,500 U ^b
	MW-40-071717			7/17/2017	µg/L	11,400	1,210	25,300	7,430	500 U ^b	727	2,500 U ^b
	MW-40-080117			8/1/2017	µg/L	12,000	1,120	23,200	8,070	500 U ^b	631	2,500 U ^b
	MW-40-090817			9/8/2017	µg/L	14,300	1,250	28,700	9,250	20 U ^b	716	219
	MW-40-100417	10/3/2017	1.95	10/4/2017	µg/L	13,800	1,000 U ^b	28,800	9,530	1,000 U ^b	1,000 U ^b	5,000 U ^b
	MW-40-110817	11/7/2017	2.11	11/8/2017	µg/L	13,500	1,000 U ^b	23,000	9,290	1,000 U ^b	1,000 U ^b	5,000 U ^b
	MW-40-120617	12/4/2017	3.43	12/6/2017	µg/L	14,300	1,000 U ^b	22,300	10,100	1,000 U ^b	1,000 U ^b	5,000 U ^b
	MW-40-010918	1/8/2018	2.72	1/9/2018	µg/L	12,400	773	22,300	10,200	200 U ^b	497	1,000 U ^b
	MW-40-020618	2/5/2018	2.75	2/6/2018	µg/L	11,100	777	20,300	9,350	200 U ^b	373	1,000 U ^b
	MW-40-030818	3/5/2018	2.44	3/8/2018	µg/L	8,450	498	14,500	7,580	50 U ^b	337	250 U ^b
	MW-40-040618	4/5/2018	2.32	4/6/2018	µg/L	6,710	212	8,350	5,460	100 U ^b	423	500 U ^b
MW-46	MW-46-120617	12/4/2017	9.48	12/6/2017	µg/L	4.97	1 U	1 U	7.74	1 U	85.5	5 U
	MW-46-030618	3/5/2018	6.33	3/6/2018	µg/L	173	1.76	16.5	29.5	1 U	129	7.21
RBSL ^a :					µg/L	5.0	700	1,000	10,000	5.0	40	25

Notes:

^a RBSL = Risk-based screening levels identified in South Carolina Underground Storage Tank Management Division Programmatic Quality Assurance Program Plan, Revision 3.1, Table D1 "RBSLs for Groundwater", February 2016

^b The analyte was analyzed for, but was not detected above the laboratory reporting/quantitation limit. However, the laboratory reporting/quantitation limit is above the screening criteria. The actual absence or presence of this analyte between the screening criteria and the laboratory reporting/quantitation limit can not be determined.

Samples analyzed by EPA Methods SW 8260B and 8011

Bold indicates the analyte was detected above the method detection limit.

Gray shading indicates the analyte exceeded RBSLs.

µg/L = microgram(s) per liter

1,2-DCA = 1,2-dichloroethane

ID = identification

MTBE = methyl tertiary butyl ether

U = analyte was not detected above the reported sample quantitation limit

Table 2. Well Construction Details*Plantation Pipe Line Company**Lewis Drive Remediation Site, Belton, South Carolina**Site ID #18693 "Kinder Morgan Belton Pipeline Release"*

Well ID	Measured Depth to Bottom (ft BTOC)	Top of Screen or Open Borehole Interval (ft BTOC)	Bottom of Screen or Open Borehole Interval (ft BTOC)	Length of Screen or Open Borehole Interval (ft)	Depth to Water (ft BTOC) March 5, 2018	Height of water column (ft)	1 well volume (gal)	3 well volumes (gal)	5 well volumes (gal)
MW-17B	27.5	17.0	27.0	10.0	14.8	12.7	2.07	6.21	10.4
MW-23	23.5	7.91	22.9	15.0	8.27	15.2	2.48	7.45	12.4
MW-34	7.86	5.36	7.86	2.50	2.25	5.61	0.91	2.74	4.57
MW-40	13.2	7.18	12.2	5.00	2.32	10.9	1.77	5.31	8.85
MW-46	17.1	12.1	17.1	5.00	6.36	10.7	1.74	5.23	8.71

