

July 24, 2018

Delivered via FedEx Overnight Delivery

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, South Carolina 29201



Subject: Response to Comments in SCDHEC Letter Titled, "Reviews of Requests for Injection Wells, Pumping of Monitoring Wells and Monthly Status Reports", dated June 26, 2018
Plantation Pipe Line Company
Lewis Drive Remediation Site
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 a wholly owned subsidiary of Jacobs Engineering Group Inc. (Jacobs), has prepared this response to comments received from the South Carolina Department of Health and Environmental Control (SCDHEC) in your letter date-stamped June 26, 2018. Each SCDHEC comment is presented below, followed by Plantation's response.

Request for Well Permit to Install Additional Vertical Sparging Wells

Comment 1: *The Department suggests that additional monitoring wells be proposed west of the requested sparging wells in the area between MW-36 and MW-21 to measure the effectiveness of the supplemental sparging in the area of Cupboard.*

Response: Plantation believes that no additional monitoring wells are necessary to measure the effectiveness of the supplemental sparging in the subject Cupboard Creek area. Current monitoring well MW-21 serves this purpose. One additional monitoring well (MW-55) is proposed to be installed west of monitoring well MW-36 to establish a clean perimeter, since dissolved petroleum concentrations have been detected in MW-36 (see Figure 1).

Comment 2: *In regard to the proposed supplemental sparging in the area of Brown's Creek, the Department requests Plantation Pipe Line specify which wells are intended to monitor the effectiveness of the supplemental sparging, as those wells will be need to be able to determine the effectiveness in the proposed sparging zone of 15 to 75 feet.*

Attached please find the Underground Injection Control Permit for the installation of additional sparging wells.

Response: The existing well network, including monitoring wells (MW-11, MW-15, MW-15B, MW-34, MW-39, and MW-40) and recovery wells (RW-4, RW-5, RW-6, and RW-7) will be used to determine the effectiveness of the supplemental sparging. Decreasing dissolved concentrations and product thicknesses in these down-gradient and side-gradient wells should indicate the effectiveness of the supplemental sparging. Receipt of the Underground Injection Control Permit is appreciated.

Request to Pump Select Monitoring Wells

Comment 3: *The Department requests clarification regarding the proposal to pump select monitoring wells. The title of the document leads the reader to understand pumping of wells is requested whereas the body of the document requests purging of designated monitoring wells used to monitor the effectiveness of the remediation system. Specifically, the text states that each well will be purged until a minimum of three to five well volumes have been removed or until pumped dry. As purging is a standard procedure prior to groundwater sampling, the Department has no issues regarding purging immediately prior to groundwater sampling as long as care is taken to minimize volatilization of constituents to ensure groundwater samples representative of the aquifer are collected. Purging to dryness is not recommended unless aquifer conditions warrant. During our March 7, 2018 meeting, pumping select monitoring wells was proposed by Kinder Morgan as a possible remediation option in addition to sparging. If the request is meant to use monitoring wells as recovery wells, product recovery testing at each well should be conducted, providing data is collected at uniform and frequent intervals until an accurate recovery rate is determined at each well location. Based upon the outcome of the testing, sampling intervals following pumping can be determined.*

Response: There are numerous aspects of Comment 3 that Plantation does not understand. None of the wells proposed for purging contain product. To clarify the pumping aspect of our letter, Plantation plans to purge these wells as outlined in the referenced letter and noted in SCDHEC's comment.

March and April Monthly Status Reports

Comment 4: *The future activities section of the March and April Monthly Status Reports discusses placing or moving skimmers and/or socks within groundwater monitoring wells. As stated in the May 8 Review Document (Coleman to Aycock), "The Department does not concur with removal of product from monitoring wells, as the purpose of monitoring wells is to monitor the effectiveness of the corrective action system. All skimmers or absorbent socks must be removed from monitoring wells." Additionally the March and April Monthly Status Reports activities section discusses abandonment of 1-inch piezometers. As stated in the May 8 Review Document (Coleman to Aycock), "As these piezometers have value as a resource to monitor the free phase petroleum levels in key areas and are beneficial as a measure of comparison due to their existence near the initiation of site assessment, the Department does not concur with the removal of all piezometers. The Department requires that TW-55, TW-59, TW-60, TW-64, TW-66, TW-67, TW-73, TW-96 remain intact as they are incorporated within the approved CAPA for monitoring. The Department also requests that TW-28, TW-41, TW-42, TW-45, TW-46, TW-59, and TW-94 remain intact for routine free product gauging and groundwater elevation measurement due to their location and/or importance regarding free product.*

Response: All skimmers and absorbent socks were removed from the monitoring wells on June 7, 2018. Please note that Plantation disagrees with not removing product from monitoring wells. We believe this is a standard practice in South Carolina and is a standard industry practice.

Regarding leaving the piezometers, Plantation disagrees with SCDHEC's position for the reasons explained in previous correspondence (letter dated June 6, 2018). The piezometers were installed during the initial response phase of work solely to delineate the lateral extent of free product. Although the piezometers were useful to indicate presence or absence of free product, capillary action in these narrow 1-inch piezometers exaggerates the actual free product thickness in the formation and yields inaccurate groundwater elevation measurements. Using gauging data from these features results in inaccurate and misleading potentiometric surface and free product maps. A sufficient network of 2-inch monitoring wells now covers the site to effectively monitor remediation system effectiveness, free-phase product thickness, groundwater elevations, and dissolved

hydrocarbons in groundwater, therefore the piezometers are no longer necessary and should not be retained. If SCDHEC insists that the piezometers be retained, Plantation requests that SCDHEC respond with a technical argument countering the rationale that Plantation has presented as justification to abandon the piezometers. Moving forward, Plantation will not be conducting any monitoring of the groundwater in the piezometers.

If you have any further questions or concerns, please call me at (919) 760-1777, or Mr. Jerry Aycock/Plantation at (770) 751-4165.

Regards,

CH2M HILL Engineers, Inc.

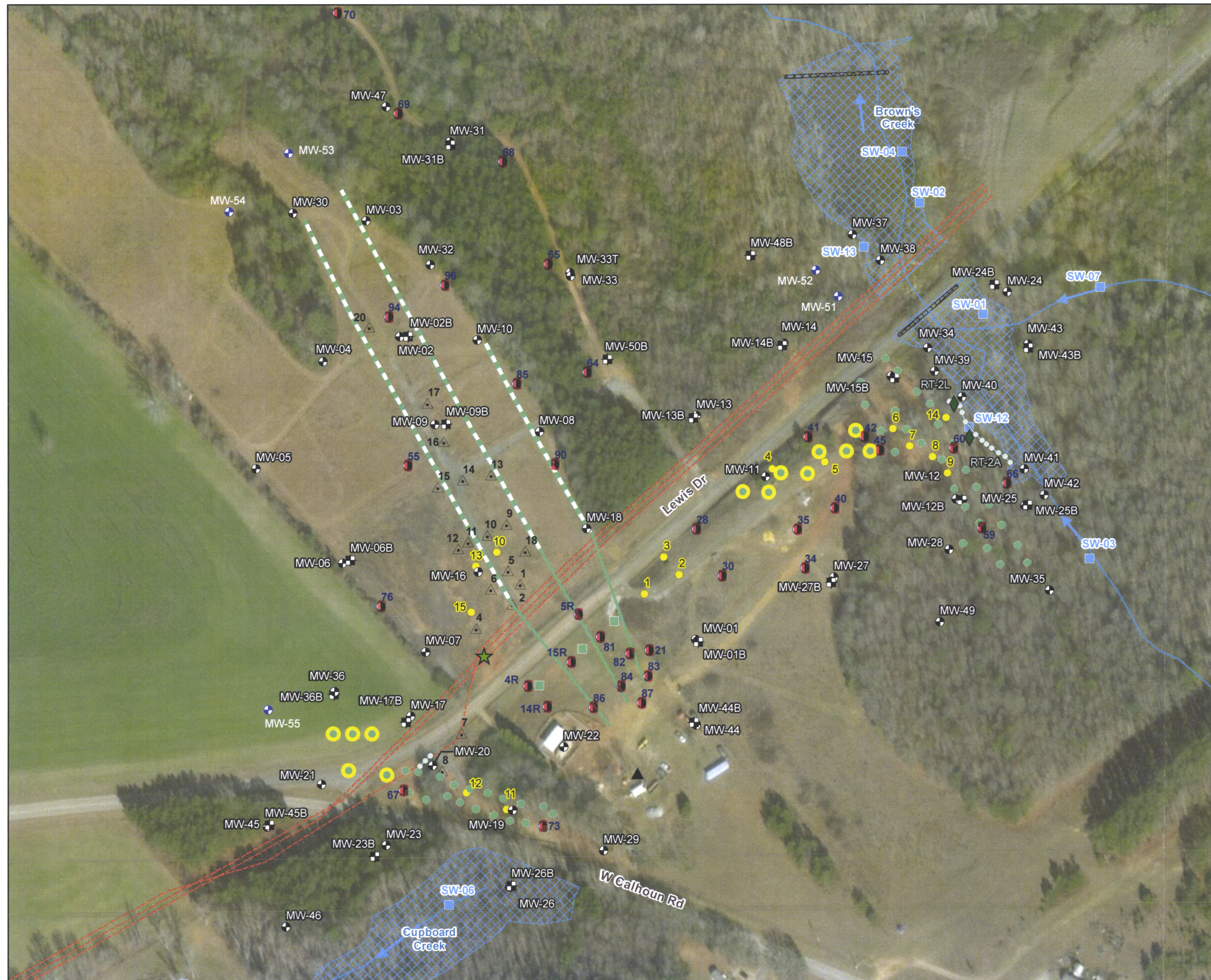


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Program Manager

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File

Attachments:

Figure 1 Proposed Biosparging System Expansion Layout



- LEGEND**
- ★ Release Point
 - ⊕ Monitoring Well
 - ⊞ Bedrock Monitoring Well
 - ◆ Seep Location
 - △ Recovery Sump
 - ⊕ Proposed Monitoring Well
 - Piezometer ("R" indicates Replacement) To Abandon
 - Recovery Well (4-inch diameter)
 - Proposed Vertical Sparging Well
 - Vertical Bedrock Sparging Well
 - Vertical Saprolite Sparging Well
 - Surface Water Sampling Location
 - ▲ Septic Tank
 - Recovery Trench Extraction Point
 - Recovery Trench
 - Surface Water Flow Direction
 - Horizontal Sparging Well Riser
 - Horizontal Sparging Well Screen
 - - - Pipeline
 - ~ National Hydrography Dataset Stream
 - ▭ Delineated Wetland
 - ▭ Beaver Dam

Base Map Sources:
 *ESRI World Imagery Layer, 2017
 *United States Geological Survey (USGS) National Hydrography Dataset (NHD)

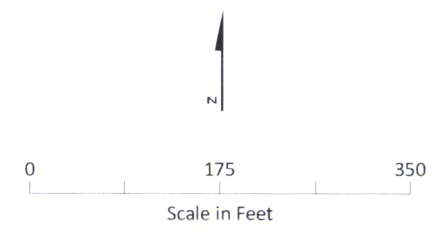


Figure 1. Proposed Biosparging System Expansion Layout
 Lewis Drive Remediation Site
 Belton, South Carolina
 Site ID #18693 "Kinder Morgan Belton Pipeline Release"

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