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May 4, 2018

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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 for Well Permit to Install Additional Vertical Sparging Wells for Biosparging System Expansion
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. (a wholly owned subsidiary of Jacobs) has prepared this well permit request to install thirteen new vertical sparging wells at the Lewis Drive Site in Belton, Anderson County, South Carolina (Site ID #18693) to expand the coverage of the existing biosparging remediation system. The proposed vertical sparging expansion was agreed to in a meeting with the South Carolina Department of Health and Environmental Control (SCDHEC) on March 7, 2018. The proposed sparging wells will be installed at or above the bedrock level to treat the groundwater in this zone. This correspondence is being submitted as an addendum to the Corrective Action Plan (CAP) that was submitted to SCDHEC on September 1, 2016. Plantation is planning to conduct the work as early as June 2018.

Proposed Scope of Work

The following activities will be performed:

- Install 5 vertical sparging wells (VAS-47 through VAS-51) to extend the remedial zone of influence of the Cupboard Creek Protection Zone sparging curtain to the northwest across Lewis Drive beyond monitoring well MW-17 as shown on **Figure 1**. A well spacing of 30 feet will be used due to the relatively limited saturated thickness; each sparging well will be installed to the maximum depth possible at each location (top of bedrock surface). Depths are expected to range from approximately 13 to 30 feet bgs based on previous well installations in this area. The sparge wells will be constructed in accordance with South Carolina Well Standards R.61-71.

Once completed, the locations and elevations of these monitoring wells will be determined by a surveyor licensed in the state of South Carolina.

- Install 8 vertical sparging wells (VAS-51 through VAS-59) to extend the remedial zone of influence of the Brown's Creek Protection Zone sparging curtain southwest toward monitoring well MW-11 as shown on **Figure 1**. A well spacing of 40 feet will be used due to the greater available saturated thickness in this area than near Cupboard Creek. Each sparging well will be installed to the maximum depth possible at each location. Depths are expected to range from approximately 15 to 75 feet bgs based on previous well installations in this area. The sparge wells will be constructed in accordance with South Carolina Well Standards R.61-71. Once completed, the locations and elevations of these monitoring wells will be determined by a surveyor licensed in the state of South Carolina.

Well installation tasks are described in more detail in the following sections.

Well Installation and Development

The vertical sapolite sparging wells will be constructed as follows to match the 46 existing sparge wells:

- The wells will be installed using hollow-stem auger drilling methods.
- The vertical sparging wells will be constructed of 2-inch-diameter Schedule 40 PVC riser with 0.006-inch slotted Schedule 40 well screen. The 2.5-foot well screens will be installed at varying depths as deep as practical (anticipated to be 13 to 30 feet bgs at Cupboard Creek and 15 to 75 feet bgs at Brown's Creek) with a 1-foot sump at the base of each well.
- The annular space around the well screen will be filled with a fine sand filter pack, to extend approximately 1 foot above the top of the well screen.
- A 5-foot-thick bentonite seal will be installed above the filter pack, and the vertical sparging wells will be sealed with cement-bentonite grout to approximately 2 feet bgs.
- Each vertical sapolite sparging well will be piped individually back to existing spare piping to the sparging system compound, allowing each well to be controlled individually.

Well Surface Completions

The sparge wells will finished below grade to enable connection to the biosparge system.

Well Development

The wells will be developed by the well driller using one or more of the following techniques:

- Airlift
- Surge block and well pump

The wells will be developed until the water produced is clear and free of sediment.

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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

- Figure 1 - Proposed Sparge Well Locations

Cc (via e-mail):

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