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PERMIT DETERMINATION MEMORANDUM

To: Bev McKeone
From: Jerry Williams
Date: March 4, 2016
Subject: PD15-095, Baker Hughes Oilfield Operations, Inc. (033-00260)

Baker Hughes Oilfield Operations, Inc. submitted PD16-019 on February 17, 2016. PD16-019 was submitted to request a determination for a drilling fluids blending facility. Baker Hughes had submitted PD15-095 for the same facility on November 10, 2015. However, the submittal was deficient and a "No Decision" letter was issued on December 9, 2015.

The Baker Hughes Clarksburg Drilling Fluids Facility is a storage, blending, and distribution facility for Synthetic-Based Drilling Mud (SBM), Oil-Based Drilling Mud (OBM), and related materials. Liquid materials are received in tank trucks and unloaded into storage tanks prior to being transferred via an enclosed piping system to the mix tanks for blending. Solid materials are brought on site in sacks, barrels, buckets, and tank trucks. Materials transferred on site in the sacks, barrels, and buckets are drop loaded into the Next-Drill Mix Tank (MT-001) during the blending of the product for both OBM and SBM. The site utilizes an enclosed mix tank to create the proprietary drilling mud. The mixing process includes the liquid loading of brine water, fresh water, and diesel fuel into the 500 bbl mixing tank (MT-001) for SBM and the 250 bbl mixing tank (MT-002) for OBM. Solid materials, including barite and other additives, are drop loaded through a hopper into the mix tank. The Next-Base fluid is stored within 500 barrel frac tanks (NB-001 – NB-004) prior to being transferred into the Next-Drill Mix Tank. Fresh water (FW-001) and brine water (BW-001) are stored onsite in 250 barrel tanks. Two (2) 325 hp John Deere Tier IV diesel engines (ICE-001) are used to power the mixing tanks. Next-Drill is transferred to 500 barrel frac tanks (ND-001 – ND-0015). Next-Drill is also stored onsite 630 barrel enclosed tanks (ND-019 – ND-022). OBM is transferred and stored in 500 bbl frac tanks (OBM-1 – OBM-3). Not all solids and liquids stored onsite are utilized in the blending process. Some materials are transferred from their storage tank directly to a tank truck for offsite delivery (LR-1, LR-2). Barite transported onto the site in tank trucks (LR-2) is unloaded to two (2) bulk silos through an enclosed piping system. Emissions from the transfer of bulk solid materials are controlled using a filter system that utilizes a filter sock. This system controls emissions from solid material transfers to and from the bulk storage silos. Barite is used in the OBM to increase the weight of the mud. Barite can be loaded to tank trucks so that customers can increase the weight of the OBM mud on the well pad, as needed.

Baker Hughes provided EPA Certificate of Conformity's for the two (2) proposed engines. As long as these engines are operated in a certified manner as stated in 40CFR60 Subpart IIII, no performance testing is required.

Emissions from this proposed facility were calculated by Baker Hughes. Emissions consist of two (2) diesel-fired engines, storage tanks (working and breathing), particulate matter drop loading, liquid loading, liquids blending, particulate barite loading, VOC fugitives (valves, pumps, flanges, pressure relief valves), and haul roads. The total facility PTE for the Clarksburg Facility is shown in the following table:

Pollutant	Maximum Hourly Emissions (lb/hr)	Maximum Annual Emissions (tons/year)
Nitrogen Oxides	0.43	1.88
Carbon Monoxide	3.73	16.32
Volatile Organic Compounds	5.62	6.83
Particulate Matter-10/2.5	1.43	4.56
Sulfur Dioxide	1.32	5.78
Formaldehyde	<0.01	0.01
Total HAPs	0.01	0.06
Carbon Dioxide Equivalent	747	3,271

The discrepancy between the hourly and annual VOC emissions is due to loading (hourly and annual).

45CSR13 Section 2.24 defines a "Stationary source" as any building, structure, facility, installation, or emission unit or combination thereof, excluding any emissions unit which meets or falls below the criteria delineated in Table 45-13B, which:

- Is subject to any substantive requirement of an emission control rule promulgated by the Secretary.
- Discharges or has the potential to discharge more than six (6) pounds per hour and ten (10) tons per year, or has the potential to discharge more than 144 pounds per calendar day, of any regulated air pollutant.
- Discharges or has the potential to discharge more than two (2) pounds per hour or five (5) tons per year of hazardous air pollutants considered on an aggregated basis.
- Discharges or has the potential to discharge any air pollutant(s) listed in Table 45-13A in the amounts shown in Table 45-13A or greater.
- An owner or operator voluntarily chooses to be subject to a construction or modification permit pursuant to this rule, even though not otherwise required to do so.

45CSR7 Section 2.20 defines a "Manufacturing Process" as any action, operation or treatment, embracing chemical, industrial or manufacturing efforts, and employing, for example, heat treating furnaces, by-product coke plants, core-baking ovens, mixing kettles, cupolas, blast furnaces, open hearth furnaces, heating and reheating furnaces, puddling furnaces, sintering plants, electric steel furnaces, ferrous and non-ferrous foundries, kilns, stills, driers, crushers, grinders, roasters, and equipment used in connection therewith and all other methods or forms of

manufacturing or processing that may emit smoke, particulate matter or gaseous matter. The proposed facility is a blending facility and it is my opinion that it does not meet the definition of a "manufacturing process" under 45CSR7.

In conclusion, a permit is not required for the proposed facility based upon the submitted permit determination which indicates that the proposed facility is below the emission thresholds and does not trigger a substantive requirement of any State or Federal air quality regulation.