

Kubeczko, Dave

From: Kubeczko, Dave
Sent: Thursday, August 30, 2012 12:28 PM
To: Kubeczko, Dave
Subject: Resend of Petroleum Resource Management Corporation, Sheehan 2 #4-2 Pad, Tract 37 Sec 2 T10N R89W, Moffat County, Form 2A #400299920 Review

Categories: Orange - Operator Correspondence, Brown - 2A Review Email to Operator

Scan No 2034494 CORRESPONDENCE 2A#400299920

From: Kubeczko, Dave
Sent: Thursday, August 16, 2012 12:48 PM
To: 'petromgt@comcast.net'
Cc: 'Rick Obernolte'; 'JOHN CARMONY'
Subject: Resend of Petroleum Resource Management Corporation, Sheehan 2 #4-2 Pad, Tract 37 Sec 2 T10N R89W, Moffat County, Form 2A #400299920 Review

Duncan,

There is one more condition of approval (COA) that was discussed during the onsite that forgot to add to the list:

COA 58 - Berms or other containment devices shall be constructed to be sufficiently impervious to contain any spilled or released material around crude oil, condensate, and/or produced water storage tanks, including temporary facilities. The berms will consist of corrugated steel and an impervious poly (or similar) liner will be installed to the top of the steel berm and beneath the tanks.

If you have any questions regarding this email, please do not hesitate to call me at (970) 309-2514 (cell), or email.
Thanks.

Dave

From: Kubeczko, Dave
Sent: Thursday, August 16, 2012 9:33 AM
To: 'petromgt@comcast.net'
Cc: 'Rick Obernolte'; 'JOHN CARMONY'
Subject: Petroleum Resource Management Corporation, Sheehan 2 #4-2 Pad, Tract 37 Sec 2 T10N R89W, Moffat County, Form 2A #400299920 Review

Duncan,

I have been reviewing the Sheehan 2 #4-2 Pad **Form 2A** (#400299920). As discussed during the COGCC/CPW Onsite Consultation conducted on August 2, 2012, COGCC will attach the following conditions of approval (COAs) based on the data Petroleum Resource Management Corporation has submitted on or attached to the Form 2A prior to passing the Oil and Gas Location Assessment (OGLA) review.

1. **Water Resources (Section 14):** Form 2A indicates the distance to the nearest surface water is 900 feet. During the onsite, an irrigation ditch was identified (will water) located approximately 200 feet to the north of the proposed well. COGCC's rules state that the distance to the nearest surface water should reflect intermittent, as well as, perennial streams. COGCC guidelines require designating all locations with close proximity to surface water a **sensitive area** and requiring the following conditions of approval (COAs):

COA 23 - Operator must ensure 110 percent secondary containment for any volume of fluids (excluding freshwater) contained at well site during drilling and completion operations; including, but not limited to, construction of a berm or diversion dike, diversion/collection trenches within and/or outside of berms/dikes, site grading, or other comparable measures (i.e., best management practices (BMPs) associated with stormwater management) sufficiently protective of nearby surface water. Any berm constructed at the well pad location will be stabilized, inspected at regular intervals (at least every 14 days), and maintained in good condition.

COA 5 - Operator must implement best management practices to contain any unintentional release of fluids, including any fluids conveyed via temporary surface or buried pipelines. Additional containment shall be required where temporary pumps and other necessary equipment or chemicals are located.

2. **Water Resources (Section 14):** Form 2A indicates the depth to groundwater to be 600 feet bgs for a well located 1000 feet away from the proposed pad. COGCC guidelines require designating all locations with close proximity to water well a **sensitive area** and requiring the following conditions of approval (COAs):

COA 1 - Location is in a sensitive area due to close proximity to a water well; therefore, either a closed loop system must be used, or the drilling pit must be lined.

COA 9 - Baseline Groundwater Testing: Prior to drilling, operator shall sample the two (2) closest domestic water wells or springs within a one (1) mile radius of the proposed oil and gas location. If possible, the water wells or springs selected should be on opposite sides of the oil and gas location not exceeding a one (1) mile radius. If water wells or springs on opposite sides of the oil and gas location cannot be identified, then the two (2) closest wells or springs within a one (1) mile radius of the oil and gas location shall be sampled. The sample location shall be surveyed in accordance with Rule 215.

Initial baseline testing shall include: field observations (turbidity, odor, sample location description); laboratory analyses will include pH; alkalinity; specific conductance; major cations/anions (chloride, fluoride, sulfate, sodium); total dissolved solids (TDS); nutrients (nitrates, nitrites); benzene, toluene, ethylbenzene, total xylenes (BTEX); gasoline range organics (GRO); diesel range organics (DRO); total petroleum hydrocarbons (TPH); polyaromatic hydrocarbons (PAH's [including benzo(a)pyrene]); and metals (arsenic, barium, calcium, chromium, iron, magnesium, selenium). Sampling shall be performed by qualified individuals using methods consistent with commonly accepted environmental sampling procedures. Field observations such as pH, temperature, specific conductance, odor, water color, sediment, bubbles, and effervescence shall also be included.

After 90 days, but less than 180 days of completion of the first proposed well a "post-completion" test shall be performed for the same analytical parameters listed above and repeated one (1), three (3) and six (6) years thereafter. If the well is a non-producing well, then the one (1), three (3) and six (6) year samples will not be required. If no significant changes from the baseline have been identified after the third test (i.e. the six-year test), no further testing shall be required. Additional "post-completion" test(s) may be required if changes in water quality are identified during follow-up testing. The Director may require further water well sampling at any time in response to complaints from water well owners.

If free gas or a methane concentration level greater than 1 mg/l is detected in a water quality testing well, gas compositional analysis, and stable isotopes of both the carbon and hydrogen isotopes of methane shall be performed to determine gas type (thermogenic, biogenic or a mixture).

Copies of all test results described above shall be provided to the Director and the landowner where the water quality testing well is located within three (3) months of collecting the samples used for the test. The analytical data and surveyed well locations shall also be submitted to the Director in an electronic data deliverable format.

Operator may conduct baseline groundwater sampling in accordance with the Colorado Oil and Gas Association (COGA) Voluntary Baseline Groundwater Quality Sampling Program (updated November 15, 2011).

3. **General:** The following conditions of approval (COAs) will also apply:

COA 90 - Notify COGCC Oil and Gas Location Assessment (OGLA) Specialist for Western Colorado (Dave Kubeczko; email dave.kubeczko@state.co.us) and the COGCC Field Inspection Supervisor for Northwest Colorado (Shaun Kellerby; email shaun.kellerby@state.co.us) 48 hours prior to start of construction of the

well pad, start of construction of the pit (if different), pit liner installation, and start of fracing operations (via Form 42).

COA 44 - The access road will be constructed as to not allow any sediment to migrate from the access road to nearby surface water or any drainages leading to surface water.

COA 25 - If the well is to be hydraulically stimulated, flowback and stimulation fluids must be sent to tanks, separators, or other containment/filtering equipment before the fluids can be placed into any pipeline, storage vessel, or pit located on the well pad or into tanker trucks for offsite disposal. The flowback and stimulation fluid tanks, separators, or other containment/filtering equipment must be placed on the well pad in an area with additional downgradient perimeter berming. The area where flowback fluids will be stored/reused must be constructed to be sufficiently impervious to contain any spilled or released material.

COA 38 - The moisture content of any drill cuttings in a cuttings pit, trench, or pile shall be as low as practicable to prevent accumulation of liquids greater than de minimis amounts. At the time of closure, if the drill cuttings are to remain onsite, they must also meet the applicable standards of table 910-1.

COA 39 - No portion of any pit that will be used to hold liquids shall be constructed on fill material, unless the pit and fill slope are designed and certified by a professional engineer, subject to review and approval by the director prior to construction of the pit. The construction and lining of the pit shall be supervised by a professional engineer or their agent. The entire base of the pit must be in cut.

COA 61 - Because of proximity of the well pad to the nearby surface water irrigation ditch to the north and the drainage to the east, operator will grade the well pad surface to slope towards the south, away from the edges of the fill slopes. There should either be a retention trench or retention ponds along the southern pad boundary within the bermed area. In addition, tertiary containment will be required at the well pad location consisting of two lateral collection trenches/ditches along the northwest and northeast sides of the pad (outside of the well pad berm/ditches). The trenches will be graded to flow into one or two oversized rock-filled catchment basins located near the west-southwest corner and/or the east-northeast corner of the well pad. This basins will be surrounded by straw waddle and/or silt fencing.

COA 92 - At the time of pit closure, operator must submit disposal information via a Form 4 Sundry Notice to Dave Kubeczko (Dave Kubeczko; email dave.kubeczko@state.co.us). The disposal method will need to be approved prior to operator starting pit closure. Provide photographs of the pit subsequent to liner removal along with a minimum of one confirmation soil sample from beneath the pit (analyzed for pH, SAR, major cations/anions (chloride, fluoride, sulfate, sodium); total dissolved solids (TDS); benzene, toluene, ethylbenzene, total xylenes (BTEX); gasoline range organics (GRO); diesel range organics (DRO); and metals (arsenic, barium, calcium, chromium, iron, magnesium, selenium). Documentation shall be submitted via either a Form 15 Pit Report or Form 27.

Based on the information provided in the Form 2A by Petroleum Resource, COGCC will attach these COAs to the Form 2A permit, Petroleum Resource does not need to respond, unless you have questions or concerns with details in this email. If you have any questions regarding this email, please do not hesitate to call me at (970) 309-2514 (cell), or email. Thanks.

Dave

David A. Kubeczko, PG
Oil and Gas Location Assessment Specialist

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