

LINN Energy

Linn Operating, Inc.

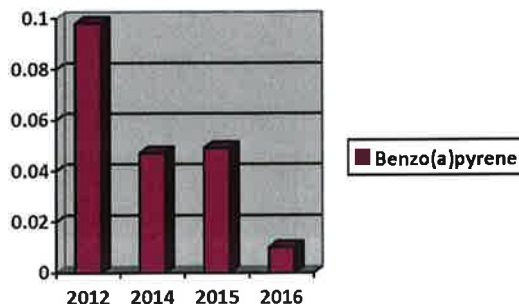
Piceance Asset

Parachute, Colorado

May 16, 2017

M15 595 Landfarming Plan – Facility ID #443343

- History
 - Four wells were drilled and completed on the M15 595 well pad in 2010. Diesel based drilling mud was used on these wells. These wells were drilled with a pit less system. Drill cuttings were treated on site with portland cement and stockpiled on site.
- Current Status
 - Spoil material that is being treated on site by land farming is from drilling and completion operations. The well pad has previously had a partial interim reclamation performed with an allowance for approximately 2,583 cubic yards of material to be landfarmed. This material fails COGCC Table 910-1 for TPH. Landfarming started in 2011; results of annual soil samples report the highest reading of TPH at 3,100; the lowest at 266. Composite samples for benzo(a)pyrene failed from 2012 – 2015. However, the 2016 composite sample passed at 0.00995. This material was treated three times in 2016 (May 12, August 11, Nov. 16).
 - In 2017, the landfarmed material has been spread out to a depth of approximately 12”– 14” and has been tilled twice with a Kubota farm tractor pulling a chisel point plow. Fulvic acid is the only amendment being added during each tilling.
 - On April 19, 2017, a composite sample was taken of the landfarmed material. Lab results showed a rise in Benzo(a)pyrene from 0.0095 to 0.0311 and TPH dropped from 623 to 468.8. Discrete samples will be taken in the summer of 2017. Landfarming operations will continue one every 10- 14 days until lab results confirm that 910-1 standards are met.
 - If discrete sample analysis confirm that 910-1 standards have been met, the spoil will be buried with a minimum of 3’ of cover in 2017 to complete the interim reclamation of this pad.



- Treatment - 2017
 - Spoil will be turned over by an excavator four to six times (depending on weather and snow conditions) in the warm months during 2017. The soil will be turned over with the frequency established in the plan as a minimum or with a higher frequency if possible. The soil will be spread out to increase exposure to the atmosphere and sunlight as much as possible on the production pad.
 - Pre-treatment samples taken in the early spring will determine the amount of amendments that will be added to the spoil based on an analysis of nutrients present in the spoils.
 - Amendments
 - Based on analysis, phosphorus and/or nitrogen fertilizers may or may not be added during each tilling operation to address the TPH and/or benzo(a)pyrene.
- Samples and lab tests
 - Phase I - Composite sample will be taken from 8 locations on the spoil pile in early summer and analyzed.
 - If composite sample passes, discrete samples will be taken to confirm the composite samples.
 - If discrete samples pass, spoil will be buried per COGCC rules.
 - If discrete samples fail, landfarming will continue.
 - If composite sample fails, landfarming will continue.
 - Phase II - Composite sample will be taken from 8 locations on the spoil pile in late fall and analyzed.
 - Procedure will be the same as Phase I
- Continuation
 - Based on the historical lab results of composite samples of the landfarm treatments, it is possible that discrete sampling data will indicate that the COGCC Table 910-1 standards will be met on all contaminants by the fall in 2017 and landfarming operations will cease.