

RESPONSE TO COMMENTS AND CONDITIONS OF APPROVAL (COAs) FOR APPROVED FORM 27

Axia Energy LLC

Bulldog 5-31-H Drilling and Multi-Well Pit-FACILITY ID 429725, NWNE SEC 6 T7N R90W

Remediation Number 2232665 and Spill Tracking Number 2231734

Axia is providing this Form 4 to accommodate the COAs included in the approved Form 27.

Pending review and approval by the COGCC of the responses that follow, Axia also formally requests authorization to begin repairs to the pit liner at Bulldog 5-31-H Drilling and Multi-Well Pit-FACILITY ID 429725.

COMPLETIONS PIT & LINERS

COA-1-Provide a report of the “thorough investigation” detailing how the investigation was conducted, locations and depth of samples that were collected, constituents that were analyzed. The report should include a summary table of the analytical results in addition to the complete analytical report. There should be discussion on the rationale for determining the sample locations. Was this based on visual and or the use of a photo ionization detector (PID)?

It is unclear about the sampling locations and whether discrete samples were collected or if the samples were combined into one sample for each of the Sample Sites.

AXIA Response to COA-1

Provide text detailing how the investigation was conducted (including but not limited to:

- 1) Locations and depth of samples that were collected,
The locations and depths of samples are detailed on the attached Figure 1. These locations correspond to the details and data in the Sampling Summary Tables 1 and 2.
- 2) Constituents that were analyzed.
The soils collected for sampling were analyzed according to the criteria in Table 910-1. The details of the analysis are included in the attached lab reports.
- 3) Discussion on the rationale for determining the sample locations,
Was this based on visual and or the use of a photo ionization detector (PID)?
The four locations were chosen based on visual cues. They were spaced along the area where the liner had burned down to the water line of the pit. PID readings were also taken to augment data available via visual cues.

Include a summary table of the analytical results in addition to the complete analytical report:

The Sampling Summary Tables 1 & 2 and complete analytical report are attached to this document.

COA-2 The COGCC will require discrete samples and not combined samples for analysis of the 910-1 constituents.

AXIA Response to COA-2

All soil samples collected were discrete; none were combined prior to submittal to the laboratory for analysis. The reference (in the work plan) to the three soil samples for the original Sampling Sites #1, #2, and #3 were required by the laboratory for analysis, they were not combined. The individual (discrete) sample locations are identified in the attached summary table. The exceedances for arsenic within samples 1 and 2 are above the COGCC Table 910-1 concentration level but below naturally occurring arsenic concentrations (sample #3) and thus can be attributed to natural occurrence. If necessary, at the time of pit closure Axia will request a waiver of the COGCC 910-1 value for arsenic.

UNLOADING TANK/MANIFOLD/CONTAINMENT

Axia states that a thorough investigation of potential contamination was completed with no significant indication of fluid release to the ground surface. During the January 3, 2013, COGCC inspection, there was visual staining of oil/condensate on the ground near the 300 bbl tank, secondary containment, and area immediately to the northwest of where the 300 bbl tank was lying outside of the secondary containment.

It is unclear whether the five (5) samples have already been collected or are proposed to be collected.

COA-3 The COGCC will be requiring discrete samples and not combined samples for analysis of the 910-1 constituents.

COA-4 Provide a report of the “thorough investigation” detailing how the investigation was conducted, locations and the depth of samples that were collected, constituents that were analyzed. The report should include a summary table of the analytical results in addition to the complete analytical report. There should be discussion on the rationale for determining the sample locations. Was this based on visual and or the use of a photo ionization detector (PID)?

AXIA Response to COA-3

All samples collected were discrete; none were combined prior to submittal to the laboratory for analysis. The individual (discrete) samples are identified in the attached summary tables.

AXIA Response to COA-4

- 1) Locations and depth of samples that were collected,
The locations and depths of samples are detailed on the attached Figure 1. These locations correspond to the details and data in the Sampling Summary Tables 1 and 2.
- 2) Constituents that were analyzed.
The soils collected for sampling were analyzed according to the criteria in Table 910-1. The details of the analysis are included in the attached lab reports.
- 3) Discussion on the rationale for determining the sample locations,
Was this based on visual and or the use of a photo ionization detector (PID)?

The four locations were chosen based on visual cues. The area where the tank used to sit was small enough that the four samples were spaced based on where the containment used to be. PID readings were also taken to augment data available via visual cues.

COGCC ADDITIONAL COMMENTS FROM FORM 27 APPROVAL:

Immediately after the incident, the COGCC requested that Axia collect a sample of the fluids in the pit in addition to collecting a sample of fluids from the leak detection system. During the January 3, 2013 inspection, it stated to the COGCC that there were fluids in the leak detection as a result of the compromised upper liner.

COA-5 Provide a discussion of the analytical results of these sampling events.

AXIA Response to COA-5

Data contained in the attached Table 2, Water Quality Summary confirms that liquids from the (compromised) primary containment had migrated to the secondary containment area. Review and analysis of the same sample results confirms that the liquid collected from the leak detection sump showed concentrations (of Table 910-1 criteria) that were significantly less than the fluids taken directly from the pit. The differences between the two samples relative to concentrations of various chemicals may be attributable to the fact that when (and where) the primary containment was compromised, the fluids in the impoundment had been diluted via the introduction of a significant volume of fresh water. This would also support Axia's assertion that the duration and quantity of fluid migrated from the primary containment to the secondary containment was very limited.

To assure that no liquids had migrated past the secondary containment, Axia gathered a soil sample at the pit sump below both liners. The sample analysis came back negative for any contamination (see #2 in Summary Table 2). In order to take the sample Axia had to cut both liners and then patch both in order to prevent any snowmelt or precipitation from contacting the soil. The summary table and complete analytical report(s) are attached to this submittal.

The BULLDOG #5-31h-790 COMPLETION PIT – VOLUME IN PIT 1-7-13 table indicates that fluids to the pit came from several different sources including: fresh water, pond water, water from Booco Pond, water from Booco Pond to frac pit, water transferred from #20, Flowback from #20 to #5, Flowback water, water from #26 to #5, transfer water.

COA- 6 Provide a detailed description of the sources (i.e. what is truly meant by fresh water, pond water, etc). Does Axia have chemical signatures of the above mentioned fluid sources? There should be some explanation for the condensate accumulation in the pit prior to the incident.

AXIA Response to COA-6

Table 3, BULLDOG #5-31h-790 COMPLETION PIT – VOLUME IN PIT 1-7-13 Rev 1 reflects updates to provide additional detail regarding the sources of water delivered to the pit. Freshwater is supplied to the Booco Pond from 2 (two) private wells. Information related to these wells is attached to this submittal. Axia does not have chemical signatures for the fresh water delivered to the pit from the Booco Pond.

Chemical analysis data specific to the sources of the frac fluids and a characterization of the fluids in the pit is attached to this submittal. The pit fluids characterization data was a composite of liquids delivered to the pit including fresh water, frac water and flowback/produced water which correlates to the data contained in Table 3, BULLDOG #5-31h-790 COMPLETION PIT – VOLUME IN PIT 1-7-13 Rev 1 .

The condensate accumulation is most likely from residual condensate on flow back/produced water from the #20 and #26 wells. This accumulation would typically be skimmed of (as with any oil sheen) during regular operation and maintenance of the pit. At the time of the incident, there was approximately 10-12” of ice and snow covering the pit. Prior to the ice/snow on the pit, there was not any visual indication of condensate (oil sheen) on the pit.

ADDITIONAL ACTIVITIES REQUIRED PRIOR TO COGCC APPROVAL LINER REPAIR

Sampling map and analysis of soil samples determined the extent (approximate total area) of the contamination. As per the approved work plan and based on the data from the sampling results, soils have been removed to the extent required and segregated prior to final disposal. The contaminated soil will be stored in a bermed location on a 12 ml liner until final disposal at the Moffat County Landfill. Process details related to identification and removal of the contaminated soils are as follows:

The burned edge of the liner was pulled back to completely expose the contaminated area. Approximately 12 inches of soil was removed from the surface. A small area of the partially burned liner adjacent to the main burn area was cut away and removed. Approximately 12 inches of soil was removed in this area as well. The contaminated soil was removed to a bermed and lined containment on site. A visual inspection and field screening was performed for the excavated area. No staining was observed and the PID readings collected from six different locations were all found to be 0.0 ppm. Six confirmation samples were then collected from the excavated areas. No odor or staining was observed in any of the sampling locations.

Follow-on testing has been done to confirm all contaminated soils have been removed. The data relevant to those samples are included in the attached summary table along with the complete analytical report.

Soils will be disposed of at Moffat County Landfill after they have been analyzed. The contaminated soil may be diluted or mixed to an acceptable level per the landfill disposal requirements prior to delivery to the landfill.