

**From:** Spray, Karen  
**To:** ["Mike Clark"](#)  
**Bcc:** [Fischer, Alex](#)  
**Subject:** RE: Reports Requested  
**Date:** Thursday, October 27, 2011 9:23:00 AM

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Mike:

Based upon the analytical data submitted for the Ellison 33-5 #29-1 (05-007-06274) and FGU Candelaria 10U#3, the drill cuttings at both locations fail to meet COGCC Table 910-1 standards for the following constituents.

Constituent	Ellison 33-5 #29-1	FGU Candelaria 10U#3	Table 910-1 Standard
SAR	22.0	37.1	<12
Arsenic (mg/kg)	2.53	4.64	0.39
Benzene (mg/kg)	NA	0.185	0.17

In order to bury the cuttings onsite the following actions need to be taken:

**Benzene** – Aeration/landfarming of the cuttings should reduce the remaining benzene in the Candelaria cuttings. Once complete, please resample and resubmit data demonstrating the cuttings are below the required standard

**Arsenic** – If site specific background (off location) samples demonstrate that the cuttings arsenic concentrations are within 15% of the highest background sample for each location, then burial can be accomplished without a variance request to the Director. We would suggest that several background samples be collected at each location to best make this assessment. Please note the location of background samples using GPS coordinates on a map and submit with the data. We must have site specific background data from each location to make this assessment.

**SAR** – If SAR remains the only elevated constituent, the cuttings can be buried onsite IF buried a minimum of 3 feet below the ground surface to keep the material out of any potential rooting zone. If vegetative re-growth problems were encountered in the future COGCC would reserve the right to require the cuttings be re-excavated and appropriately addressed.

COGCC would expect to see the following submitted. 1) Additional benzene testing of the Candelaria cuttings demonstrating it is within the COGCC standard, 2) Background arsenic testing from both locations to include maps showing GPS locations of background sample locations – the highest background for arsenic would need to be w/in 15% of the cuttings arsenic concentration at each location to allow for burial. If both of these are met the high SAR cuttings could be buried onsite if Petrox commits to burial of the cuttings a minimum of 3 feet below ground surface.

Petrox may also choose to remove the cuttings for offsite disposal in accordance with all local, state, and federal regulations.

Please let me know which direction you choose to proceed. I know you want/need to get the pits

closed prior to winter.

Regards,

Karen

*Karen L. Spray, PG*

**SW Environmental Protection Specialist**

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**From:** Mike Clark [mailto:mike.petroxcbm@gmail.com]

**Sent:** Monday, October 24, 2011 4:46 PM

**To:** Spray, Karen

**Subject:** Fwd: Reports Requested

----- Forwarded message -----

From: **Mike Clark** <[mike.petroxcbm@gmail.com](mailto:mike.petroxcbm@gmail.com)>

Date: Mon, Oct 24, 2011 at 3:24 PM

Subject: Reports Requested

To: "Spray, Karen" <[Karen.Spray@co.gov](mailto:Karen.Spray@co.gov)>

Karen,

Attached for the COGCC files are the Domestic water analysis for the Bates and Wagner residences which offset the Ellison 29-1 well located in Section 29, Township 33 North and Range 5 West. Also attached is the Table 910 results for the closed loop drill cuttings for the Candelaria 10U#3 and Ellison 29-1 laterals. The Candelaria 10U#3 well which is an offset to the FGU 9U#4 well has the same elevated arsenic levels which is the result of elevated background soil levels found in the FGU9U#4.

The Ellison 29-1 cuttings are for the straight and build sections. The cuttings from the lateral coal section drilled with Brine water were disposed of at the Archuleta County Landfill.

Petrox is requesting permission to bury the cuttings on the wellpad and will become a permanent part of the pad. See attached Sundry Notices and Technical Pages for your

approval.

Thanks  
Mike Clark