



## Petroleum Development Corporation

April 15, 2009

Mr. Chris Canfield  
Environmental Protection Specialist – NW Region  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Ste. 801  
Denver, CO 80203

Re: Chevron 22D-17 Pad  
NESW Section 17 - T6S - R96W  
Garfield County, Colorado

Dear Mr. Canfield:

Pursuant to new Rule 907.f. (effective 4/1/09), Petroleum Development Corporation (PDC) respectfully submits to the Colorado Oil and Gas Conservation Commission (COGCC) the following E&P waste management plan to conduct onsite remediation of frac sands and flow back sludge currently contained in a 500 barrel frac tank at the subject location (see Figure 1). The location is the former pad for the Chevron 22D-17 well (API 05-045-14738) drilled to determine deep injection zone potential. The well has been previously plugged and abandoned.

PDC is the operator of the lease and Chevron is the surface owner. A temporary lined containment cell (approx. 20 x 30 x 3 foot) is being constructed by PDC so that frac sands and flow back sludge can be removed from a five hundred barrel frac tank prior to returning the tank to the supplier. The cell will consist of an earthen berm covered with 30 mil polyethylene liner. This containment cell has been sized to hold approximately 112% of the actual frac tank contents, thus creating sufficient freeboard within the lined containment cell for anticipated precipitation events.

The sand and sludge material will be removed from the frac tank using an 80 barrel HydroVac truck and will be emptied into the lined containment cell, free liquids will be removed, and the residual sludge material will be allowed to dry. After the material has been placed inside the lined containment cell, representative baseline soil samples will be collected for laboratory analyses. A LTE representative will collect a minimum of four grab samples from the lined containment. These grab samples will be collected from beneath the sludge surface. The grab samples will be combined into one representative composite sample. The sample will be submitted to a accredited contract laboratory for analysis of Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX), Metals, Electrical Conductivity (EC), and pH using standard Environmental Protection Agency (EPA) methods. All field observations and sample locations will be documented by LTE personnel.

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Upon receipt of the laboratory report, concentrations of the analytes will be reviewed and the appropriate remedial option will be chosen. Remedial options are set forth below:

- Option #1 would be to land treat the impacted material within the containment cell. The effectiveness of this option could be further enhanced by applying a liquid microbial product designed to break down the residual hydrocarbons through bacterial degradation and digestion; or
- Option #2 would be to dry the material in the temporary containment cell so that it can be transported for offsite disposal. This approach will automatically be taken should laboratory results indicate that onsite land treatment would not be effective in reducing contaminant concentrations to the acceptable concentrations and levels set forth in Table 910-1.

If onsite land treatment of the impacted material is feasible, the land treatment requirements for oily soils as set forth in Rule 907.e.(2) will be followed. Material within the cell will be monitored periodically to determine remedial progress. Once field screening results suggest contaminant levels at or below Table 910-1 values, representative soil samples will be collected for laboratory analyses. Upon confirmation that the remediated material is within COGCC standards, the contents of the containment cell will be emptied and incorporated onsite.

Based on the amount of transportation time, lack of easily accessible disposal facilities, and the expected additional equipment costs, PDC recommends the first option. As a result, PDC requests COGCC approval of this E&P waste management plan. Unless notified by the COGCC, PDC will proceed with the proposed workplan.

Should you have any further questions, please call me at (303) 831-3904.

Respectfully submitted,



Randall Ferguson  
Environmental Supervisor

Attachments

Cc: John Nussbaumer – PDC  
Nathan Anderson – PDC  
Scott Ghan – LT Environmental