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APPROVALS

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NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON

Governor

Joanna Prukop

Cabinet Secretary

Mark E. Fesmire, P.E.

Director

Oil Conservation Division

October 23, 2006

Mr. Chris Biagi
Devon Energy Corporation
20 North Broadway
Oklahoma City, Oklahoma 73102-8260

**RE: AVALON HILLS 7 FED. COM #3 DELINEATION REPORT
SECTION 7, TOWNSHIP 21 SOUTH, RANGE 27 EAST, EDDY COUNTY,
NEW MEXICO
2R0056**

Dear Mr. Biagi:

The New Mexico Oil Conservation Division (OCD) has reviewed the *Avalon Hills 7 Fed. Com #3 Delineation Report* submitted by Devon Energy Corporation (Devon) on September 8, 2006. This report included a Remediation Protocol for the remediation and final closure of the Avalon Hills site.

OCD has the following general comments on Devon's investigation and proposed remediation plan. OCD accepts that Devon made a credible attempt to characterize the fluids released during the blowout event. However, because of the difficult site conditions, not all of the information that normally would be required was obtained. Therefore, Devon must take collect additional data during the remediation phase to determine the radius of influence.

In addition, OCD is requiring Devon to submit a ground water monitoring program (*Remediation Plan*) pursuant to OCD Rule 116D that it will implement to demonstrate that it has achieved the appropriate closure standards. Devon has proposed that it will pump and dispose of contaminated ground water from Monitor Well 1 (MW-1) only and that it will only continue remediation efforts until it has achieved a chloride concentration of 1000 mg/l. This, as proposed, is not acceptable. Devon must document the background concentration of chlorides at the site more precisely degree than what is documented in its *Delineation Report*. Also, Devon must continue its remediation efforts until the BTEX concentration in the pumped ground water meets the ground water standards specified at OCD Rule 19B. It is not clear from the proposed *Remediation Protocol* exactly how Devon will dispose of the recovered ground water; however, please note that there is no need to treat the recovered ground water to any particular standard

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before disposing of it in an injection well. Devon should revise its *Remediation Protocol* appropriately.

Because Devon was not able to advance the boreholes to 200 feet below grade as originally discussed, the detailed geology and hydrogeology of the site is not well known. OCD is requiring Devon to collect additional data during the pumping operations. Devon must propose a ground water monitoring program that will collect water level data from the other monitor wells to document the radius of influence around MW-2.

OCD approves Devon's *Remediation Protocol* with the following conditions:

1. Devon shall revise the *Remediation Protocol* to specify how the produced water will be disposed of. As noted above, if the produced water is to be disposed of in an injection well, then there is no reason to treat it to reduce the BTEX concentrations.
2. Devon shall revise its submittal to address the background concentration of chlorides. If Devon can document that the background concentration of chlorides at the site exceeds 250 mg/l, then OCD will allow Devon to use the background concentration as the remediation standard. Please revise the submittals appropriately.
3. Devon shall revise Section 5.0 of its *Remediation Protocol* to state that it will continue to pump and analyze the contaminated ground water in batches of 500 gallons until it has achieved compliance with the ground water standards specified at OCD Rule 19B. As noted above, Devon must document the background conditions more precisely before OCD will accept a chlorides standard that exceeds 250 mg/l. Devon must also analyze the produced ground water for BTEX and chlorides at least weekly for the first month and at least monthly until it has remediated the ground water.

Devon must submit a ground water monitoring program plan to the OCD Santa Fe Office within 30 days of its receipt of this letter. The plan must specify that Devon will monitor the water levels at the adjacent monitor wells to determine the radius of influence and shall propose a schedule for doing so. The plan must also specify sampling and analytical procedures and a quarterly schedule for both a general summary report on the progress of Devon's remediation efforts, as well as data reporting, to include the volume of ground water pumped and the concentrations of the chlorides and BTEX.

Devon's revisions to its *Remediation Protocol* and the ground water monitoring program plan are due within 30 days of its receipt of this letter. Devon should submit one paper copy and one electronic copy of all workplans and/or reports. Please note that the previously submitted

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electronic copy was not completely legible. If you have any questions, please contact me at (505) 476-3488.

Sincerely,

A handwritten signature in cursive script that reads "Glenn von Gonten". The signature is written in black ink and is positioned above the printed name.

Glenn von Gonten
Senior Hydrologist

cc: Larry Johnson, OCD Hobbs District