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State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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June 29, 1989

TO: Susan Linner, Permit Supervisor
SCL for

FROM: James Leatherwood, Reclamation Soils Scientist

RE: Condition 1, Amendment, Slurry Injection Wells, Castle Gate Coal Company, Castle Gate Mine, ACT/007/004-88H, Folder #2, Carbon County, Utah

SUMMARY

The Slurry Injection Well Amendment, Condition 1 response, received June 20, 1989, has been reviewed. The response fails to meet the intent of Condition 1, which is to characterize the physio-chemical effects of the injected slurry materials to the groundwater quality. Final approval is not recommended at this time. The operator must address and commit to the identification of the wasted slurry materials as defined under the RECOMMENDATION portion of this document.

ANALYSIS

The intent of Condition 1 is to characterize the physio-chemical effects of the wasted injected slurry materials to the groundwater quality. The analysis of the parameters defined in section 3.4-4(1) of the MRP would define this characterization. Another option, preferred by the operator, is to sample an aliquot of the groundwater during return flow operations. The groundwater will have had sufficient time to equilibrate with the wasted slurry. Return flow aliquot analysis would then be used to characterize the slurry materials physio-chemical effect to the groundwater system.

The analysis required by the Bureau of Water Pollution Control was evaluated to insure that proper analysis and sampling would be achieved. The approved permit by the Bureau of Water Pollution Control states that the return flow volume will be conducted on at least a quarterly basis and that samples will be taken for quality analysis during periods of pumping. The approved permit does not define the necessary constituents to be analyzed for the return flow samples only for the injection fluid. The injection

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fluid list of analysis parameters were reviewed against parameters currently required by the Division to characterize earthen materials. The list did not include sodium adsorption ratio, boron, or acid-base potential. In lieu of a water extract being sampled instead of a solid material (slurry solids) alkalinity would appropriately replace the acid-base potential analysis. The given approved injection fluid analysis in addition to sodium adsorption ratio, alkalinity, and boron would adequately reflect the ground water waste slurry chemical equilibrium conditions and would be amenable to the Divisions intent of Condition 1.

RECOMMENDATION

Final approval may be granted given a written commitment by the operator to sample the return flow from the recovery wellhead during periods of pumping for those parameters defined for the approved injection fluid analysis in addition to sodium adsorption ratio, boron, and alkalinity, whereby results from said analysis are reported to the Division in conjunction with the Bureau of Water Pollution Control reporting requirements.

cc. D. Darby
M. Deweese
BT51/86-87