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April 3, 1981

Mr. Allen Owen
Coastal States Energy Company
411 West 7200 South
Suite 200
Midvale, Utah 84047

#3
RE: Sedimentation Pond Access Road
Slope Stability Analysis
Convulsion Canyon Mine
ACT/041/002

Dear Mr. Owen:

Attached please find a recommendation from the Office of Surface Mining concerning the Slope Stability Analysis pursuant to a violation recently abated by this Division.

Since the Office of Surface Mining recommends that the operator address three issues, the Division requests that the operator support the conclusions of the stability report as follows:

1. That the applicant support the use of a 26° angle of internal friction, and the use of 350 psf for cohesion. The United States Department of Interior, Bureau of Reclamation, publication: Design of Small Dams gives average properties for ML/CL materials as follows:

- | | | |
|----|----------------------------|-----------------------|
| 1. | Angle of internal friction | $\phi = 31.7^{\circ}$ |
| 2. | Cohesion | $C_0 = 1,325$ psf |
| 3. | Cohesion (saturated) | $C_{sat} = 73$ psf |

It is recognized that these results were obtained at maximum dry densities, 109 pounds per cubic foot, at the proctor maximum dry densities and optimum water content, $\gamma = 109$ pcf and optimum water content of 16.8% for C_0 and saturating for C_{sat} . These tests were triaxial tests for the average values, undrained, accounting for pore pressure.

2. The applicant support the factor of safety by discussing the sensitivity of the factor of safety for the slope to compaction/placement.

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3. The applicant support the calculated factor of safety by committing to maintaining the slope in a drained condition.

It is the Division's opinion that the report acknowledged these aspects in interpreting the calculated global factor of safety and that a probability of a massive slope failure without the introduction of water is remote. However, the Office of Surface Mining comments are pertinent and since this is a "Federal" mine the applicant should respond.

Sincerely,



LELAND C. SPENCER
RECLAMATION ENGINEER

LCS/te

cc: Bill Gordon
Dames & Moore
250 East Broadway, Suite 200
Salt Lake City, Utah 84111

John E. Hardaway, O.S.M.