Title

CONTROL TECHNOLOGY FOR IN-SITU OIL SHALE RETORTS. MONTHLY PROGRESS REPORT FOR DECEMBER

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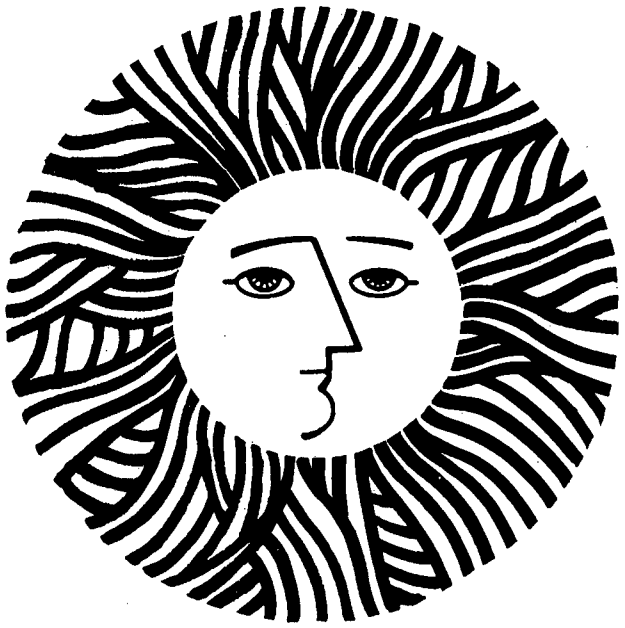

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January 12, 1981

TO: Charles Grua, Brian Harney, and Art Hartstein

FROM: Peter Persoff, Bill Hall, Mohsen Mehran, and Phyllis Fox

RE: Monthly Progress Report for December
Control Technology for In-Situ Oil Shale Retorts
LBID-333

TASK 3. BARRIER OPTIONS

Testing of Grouted Core Samples

Unconfined compressive strengths of grouted core samples have been measured for the second series of test grouts. For recipes and method of preparation see reports for October (LBID-309) and February (LBID-177). The results are shown in Table 1. Significant strength increase resulted from inclusion of 10% fly ash in the grout, especially Wyodak fly ash with 5% gypsum. However, the effect of fluidizer addition on strength is not clear.

Penetration of non-Newtonian Fluids Through Beds of Packed Particles

Apparatus for injecting slurries into variously shaped capillaries and packed particle beds has been fabricated and checked out. Sixteen test fluids (slurries of Lurgi spent shale, two types of portland cement, and two types of bentonite) were prepared and examined to select one for experimental work. We wanted a slurry that could be unambiguously characterized and would give repeatable and consistent flow curves with minimum thixotropic effects. A slurry of Wyo-ben bentonite and water with a lignosulfonate fluidizer was selected for further experiments.

TASK 5. LEACHING OPTIONS

Leaching of Organics from Spent Shale

Work continued on the statistical analysis of data to be used in the verification of the leaching and transport model. Another small column leaching experiment (Run 29) was begun. The column, packed with

Table 1. Unconfined compressive strength of grouted cores.

Grout	R-1	R-2	R-3	R-4	R-5
Water-solid ratio	0.697	0.748	0.718	0.691	0.635
Fluidizer	CZ-503 1/2 of 1%	CZ-503 1/4 of 1%	CZ-512 1/4 of 1%	CZ-512 1/4 of 1%	CZ-512 1/4 of 1%
Craig fly ash	none	none	none	none	10%
Wyodak fly ash with 5% gypsum	none	none	none	10%	none
Unconfined compressive strength, psi	93	77	59	203	130

spent shale from LETC run S-55, was operated under downflow conditions in a manner similar to previous runs. The purpose of the experiment was to extend the data base and to also verify repeatability of experimental and analytical procedures.

TASK 6. GEOHYDROLOGIC MODIFICATION

Dewatering and Reinvasion Calculations

Simulation of dewatering and reinvasion for tracts C-a and C-b were continued to produce the final draft of the report "An Investigation of Dewatering for the Modified In Situ Retort Process, Piceance Creek Basin, Colorado." This draft report has been sent out for review and will be published as an LBL report after inclusion of review comments.

Dr. Mohsen Mehran visited hydrologists at Rio Blanco, Occidental, and the Area Oil Shale Supervisor's Office to review and collect additional hydrogeologic data.

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