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MEMORANDUM FOR: John Bradbury
Geotechnical Branch
Division of Waste Management, NMSS

FROM: Claudia Hackbarth
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SUBJECT: MARCH 1985 PROGRESS REPORT FOR FIN B0290

The March 1985 progress report for FIN B0290 raised several questions in my mind, some of which we have previously discussed but not resolved.

Once again, Tc sorption onto basalt appears to be extremely sensitive to minute amounts of oxygen. The sensitivity of basalt in the laboratory implies that fresh, reactive basalt is highly unlikely to exist under repository conditions. Therefore, is it cost-effective to continue to fund work on a material irrelevant to repository performance? Perhaps the contractor should be instructed to measure sorption onto realistic materials such as aged basalt and/or basalt secondary minerals.

The monthly report indicates that rock samples are being characterized by x-ray diffraction. Could samples of basalt powder be compared before and after sorption experiments? This would test for the appearance and/or disappearance of phases over the course of the experiment, and might lead to better understanding of the hydrothermal sorption experimental results.

Next, under the tuff section, the rationale for controlling ground-water pH using CO₂ gas is not clear. Will this technique change ground-water chemistry and/or solubility and speciation of actinides?

Finally, the report states that tuff from the Topopah Spring formation has been crushed and ground. Since this technique will expose unrealistically fresh, reactive surfaces, why do it?

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Because of the parallels between B0290 and our project B0462, I look forward to your answers on these questions.

Claudia

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