Analytical results of x-ray diffraction studies on tuff beds from core of the following five NPRA wells:

U. S. Navy Simpson Core Test No. 27 (167', & 309)
U. S. Navy Simpson Core Test No. 30 (170', & 293-298')
U. S. Navy North Simpson Test No. 1 (2407-2408')
U. S. Navy Fish Creek Test No. 1 (825', 830', & 1646')
U. S. Navy Umiat Test No. 1 (495-498', & 507-508')

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DATE: 19 November 1989

SUBJECT: NPRA core X-ray and K-Ar data

It was good to visit with you last week. First, please accept my sincere apologies for not getting these results to you sooner. This memo provides a summary of analytical results of x-ray diffraction and 40Ar/39Ar geochronology studies on tuff beds from several NPRA cores from the Simpson, North Simpson, Fish Creek, and Umiat wells. Enclosed please find x-ray diffraction spectra on the <2 micron fraction of 10 samples of the bentonitic tuffs. The spectra are for air dried (designated NARSA...) and ethylene glycol solvated (designated NARSG...) samples and were generated with a SINTAG PAD V X-ray diffractometer (Mike Kelton, analyst) with the following operating conditions: 45 kV, 40 mA, Cu Ka radiation, solid state crystal detector, 1 degree/min=scan rate, 0.03 degree=step size. The sample names give the well name (eg. SIMP), core number (eg. 27), and depth or depth range (eg. 167).

Also enclosed are K-Ar analytical results (Tom Bills, analyst) on biotite concentrates from two tuff samples (Umiat-#1-510.5' and Umiat-#11-488'). These two samples were the only two for which we were able to separate enough sufficiently pure and unaltered biotite for conventional K-Ar work.

I thank you for your cooperation in permitting these analyses and we look forward to future cooperative endeavors.

Sincerely Yours,

Steve

Steven C. Bergman  
Principal Research Geologist

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NARSG001.RD / SIMP/27-167/42 GLY.

Intensity (1 div = 350.2 counts/sec)

2-Theta (degrees)