

A1756

LPDR

WM-10 (2)

WM-11 (2)

WM-16 (2)

✓
426.1 WK/87/03/25

- 1 -

Dr. Malcolm D. Siegel
 Division 6431
 Sandia National Laboratories
 Albuquerque, NM 87185

MAR 30 1987

Dear Dr. Siegel:

SUBJECT: CONTRACT NO. 50-19-03-01/FIN A-1756, "GEOCHEMICAL SENSITIVITY
 ANALYSIS"

I have reviewed the February 1987 monthly progress report for the above contract, dated March 15, 1987. Based on my review of this report, progress to date is satisfactory. I have a minor comment on Attachment 1, the description of the ASD NUREG. Using symbols such as ΔG° and ΔH looks funny to me. Aren't ΔG° and ΔH_f the standard conventions? I have read the draft report on the surface-complexation modeling, and I enclose a list of some typographical errors I encountered (enclosure 1).

I enclose a copy of the letter and Pu thermodynamic data I sent to Dr. David Garvin at NBS for evaluation on the CATCH system (enclosure 2). I also enclose a copy of the letter and articles he sent to me describing the CATCH system (enclosure 3). I have not heard back from him yet.

Regarding your trip to Washington, I suggest you fly out Monday, April 27, give a project overview Tuesday morning, and be available for discussions Tuesday afternoon and Wednesday. Wednesday is our HLW site team meeting day, so you can attend one or more of the meetings.

The action taken by this letter is considered to be within the scope of the current contract FIN A-1756. No changes to costs or delivery of contract products is authorized. Please notify me immediately if you believe this letter would result in changes to costs or delivery of contracted products.

Sincerely,

IS/

Walton R. Kelly
 Geochemistry Section
 Geotechnical Branch
 Division of Waste Management
 Office of Nuclear Material Safety
 and Safeguards

Enclosures:
 As stated

WM-RES
 WM Record File
 A1756
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WM Project 10, 11, 16
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Enclosure 1

Typographical errors in NUREG/CR-4807:

- p. 1, line 4: should read "broad range", not "broad the range".
- p. 5, 2nd line from bottom: correct spellings are "Tripathi" and "Langmuir".
- p. 14, Table 2-1: under "Minor and Trace Minerals" heading, "ilmenite" is misspelled. Footnote (1) should read "Pasco".
- p. 16, Table 2-2: "ilmenite" is misspelled.
- p. 19, line 12: there should be a comma after "used".
- p. 32, 4th line from bottom: "electrolyte" is misspelled.
- p. 42, Table 3-3: under "Method" heading for "I.R.", should be "other methods".
- p. 43, line 7: should be "diverge".
- p. 46, Figure 4-1: the Cd₂ Molalities for the top two rows of figures have been partially chopped off.
- p. 65 and 68: blank area on p. 65 should be filled with material from p. 68.
- p. 84, line 2: should be "data are".
- p. 84, line 4: should be "strengths were".
- p. 89, Section C.2, line 7: should be "equatorial".
- p. 91, line 4: is "uni-univalent" a word?
- p. 93, line 3: "Plummer and Busenberg" reference shouldn't have a comma after it.
- p. 96, 5th line from bottom: "for example" should have a comma after it.

Enclosure 2

426.1 WRK/87/03/06

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MAR 9 - 1987

Dr. David Garvin
Chemistry B348
Chemical Thermodynamics Data Center
National Bureau of Standards
Gaithersburg, MD 20899

Dear Dr. Garvin:

Enclosed please find "Reaction Blocks" for 13 reactions (15 measurements) involving plutonium. Not being a thermodynamicist, I must admit to a certain uneasiness in evaluating the data. I have only submitted data that have been assigned uncertainties by the investigators themselves or by other evaluators; I do not know how to properly assign uncertainties myself. For the reactions involving aqueous species alone, most results were reported as β 's. I have taken the logarithm of these values and calculated ΔG° from the relation $\Delta G^\circ = -1.364 \log K$. I hope this is the proper procedure.

Thank you very much for your guidance and assistance in this matter. Please call me (427-4571) if you need any clarifications on the enclosed material. I look forward to hearing from you again.

Sincerely,

Walton R. Kelly
Geochemistry Section
Geotechnical Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure:
As stated

426.1 WK/87/03/25

- 2 -

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LETTER TO: Dr. Malcolm D. Siegel
Division 6431
Sandia National Laboratories
Albuquerque, NM 87185

FROM: Walton R. Kelly
Geochemistry Section
Geotechnical Branch
Division of Waste Management

SUBJECT: CONTRACT NO. 50-19-03-01/FIN A-1756, "GEOCHEMICAL
SENSITIVITY ANALYSIS"

DATE: 87/03/ **MAR 30 1987**

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CONCURRENCES

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