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May 29, 1984

WM Record Title

106

WM Project 16

Docket No.

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Distribution:

R. W. WILSON
(Return to WM, 623-SS)

22 JUN 1984

John J. Linehan, Section Leader
Salt Section
Repository Projects Branch
Division of Waste Management, MS 623-SS
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Linehan:

SUBJECT: TRANSMITTAL OF DOE-SRPO REVIEW OF ONWI DRAFT REPORT

As discussed in the telephone conversation on May 24, 1984 between Tilak Verma and John Trapp of NRC and Gordon Appel of SRPO, please find attached for your information SRPO's review of the draft report, "Seismic Reflection, Gravity, and Aeromagnetic Studies of Geologic Structure in the Gibson Dome Area, Southwestern Paradox Basin," by C.A. Kitcho, Woodward-Clyde Consultants.

Sincerely,

Jo Ann Sherwin
Jo Ann Sherwin
Chief

Site Evaluation
Salt Repository Project Office

SRPO:GJA:2638B

Enclosure:
As Stated

cc: L. Casey, SRPO
J. Trapp, NRC
T. Verma, NRC

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Department of Energy
Chicago Operations Office
Salt Repository Project Office
505 King Avenue
Columbus, Ohio 43201-2693

April 6, 1984

Stanley Goldsmith
Manager
Office of Nuclear Waste Isolation
505 King Avenue
Columbus, Ohio 43201

Dear Mr. Goldsmith:

SUBJECT: SRPO TECHNICAL REVIEW (QAP 7.1) OF DRAFT REPORT (ONWI-1121): SEISMIC REFLECTION, GRAVITY, AND AEROMAGNETIC STUDIES OF GEOLOGIC STRUCTURE IN THE GIBSON DOME AREA, SOUTHWESTERN PARADOX BASIN, BY C.A. KITCHO, WOODWARD-CLYDE CONSULTANTS

This letter transmits SRPO Site Evaluation's review of the subject report (Attached Memo: G. Appel to File 1.3.8.4; including QAP 7.1, Attachments A and B). The review provides both general and specific comments which require your response, according to SRPO QA Procedure 7.1. SRPO requests that ONWI provide responses to the comments by April 30, 1984. This due date can be extended by contacting G. Appel of my staff at (614) 424-5916.

In addition, the following recommendations are made with regard to the future disposition of the contents of the subject report.

- 1) The report should be substantially revised to present only the interpretation of the geophysical data, on an appropriate series of maps. A map should be provided for each horizon currently shown on the schematic seismic sections. Each map should show the location of structures which affect a particular surface, their attitude, the amount of interpreted vertical displacement, and the location of the seismic lines. The discussion should be limited to the content of the text currently presented in sections 1.0 through 4.0.
- 2) It is further recommended that ONWI and Woodward-Clyde Consultants seriously consider the need to publish even an abbreviated version of this document, as a formal ONWI report. This information could be included as an appendix to a report of broader scope or submitted as a letter report to document the examination and interpretation of the proprietary information.

Stanley Goldsmith
Page 2

Your proposal regarding the future disposition of the report should be provided with the responses to the attached review comments. Questions concerning the contents of this letter or the review comments should be addressed to G. Appel of my staff.

Sincerely,

Gordon Appel for J.S.

Jo Ann Sherwin
Chief
Site Evaluation
Salt Repository Project Office

SRPO:GJA:ksw

Enclosure:
Subject memo to file

cc: G. Appel, SRPO - with enclosure
R. Lahoti, SRPO - without enclosure
G. Fein, ONWI - "
W. Newcomb, ONWI - with enclosure
S. Nelson, ONWI - "

GS# 412-84



Department of Energy
Chicago Operations Office
Salt Repository Project Office
505 King Avenue
Columbus, Ohio 43201-2693

April 6, 1984

TO: File - QA - 1.3.8.4

FROM: Gordon Appel

Gordon Appel

SUBJECT: REVIEW OF DRAFT ONMI REPORT (CYCLE NO. 0-1121) "SEISMIC REFLECTION, GRAVITY, AND AEROMAGNETIC STUDIES OF GEOLOGIC STRUCTURE IN THE GIBSON DOME AREA, SOUTHWESTERN PARADOX BASIN", BY C.A. KITCHO, WOODWARD-CLYDE CONSULTANTS

My review of the subject report under SRPO QA Procedure 7.1 is provided below. Attachments A and B to SRPO QAP 7.1 are appended to this memo.

Summary of Review

The value of publishing this report in its present form is problematical. It is understood that the direct interpretations of the geophysical data presented in the report should be used in WCC's assessment of the structure and configuration of the Paradox Basin. However, the restrictions on the presentation of the actual data do not allow the reader to assess the validity of individual interpretations. It is my opinion that it is not appropriate to publish a report, the express purpose of which is to present individual interpretations, without affording the reader with the means to assess their foundation. The use of such data and the resulting interpretation in a report of broader scope (i.e., ONMI-485 or an SCP) which identifies certain data and/or interpretations as being derived from proprietary sources seems justifiable. In its present form, much of the report appears superfluous, because it consists of interpretations presented without illustrating their basis. The most obvious examples of this are the schematic seismic sections in Appendix A. They do not illustrate the basis for the interpretations, and the interpreted structures could be more efficiently shown on maps (e.g. Figure 4-1).

General Comments

- 1) The usefulness of the schematic seismic lines included in Appendix A is not apparent. The figures provide no data and do not provide any information that could not be portrayed much more effectively and succinctly on a series of maps such as Figure 4-3.

- 2) Is there a reason why the gravity and aeromagnetic data are not provided, at least in the form of contoured maps? Without presenting the gravity data in a contoured format, it is difficult to support the statement made on page 38 concerning your knowledge of the "signature" of the dissolution basin. Also, since the fit of calculated gravity to observed gravity data is so poor, why is it presented at all? Is it a problem with the gravity survey data that was used? The explanation of this discrepancy provided on page 30 is not entirely understandable.

- 3) Was the information provided in the following USGS Open File Report used in the studies?

OF 83-0359. Regional magnetic and gravity features of the Gibson Dome area and surrounding region, Paradox Basin, UTAH: A preliminary report, by T.G. Hildenbrand and R.P. Kucks, 35 p.

If it was not used, provide an explanation.

- 4) For the purposes of SRPO review of this document provide verification of the following.
 - a) QA technical review of the subject report;
 - b) QA technical review of the seismic line selection guidelines;
 - c) QA technical review of Seismic and Gravity subcontractor's work plans; and,
 - d) QA certification of WCC's Geographic Information System and QA technical review of the process to input data into the system.

Copies of the appropriate QA sign-off sheets for each of the above items will be acceptable as a response.

- 5) In the text, the amount of stratigraphic separation across faults is referred to as "displacement". However, on figures and in tables this parameter is specified as "throw", ("The vertical component of net slip.", AGI Glossary of Geology). Is "throw" the appropriate term to apply, or is the parameter listed on the figures and in the tables more accurately described as the vertical stratigraphic separation in the plane of the cross section? Also, a more precise term than displacement should be used in the text.

Specific Comments

- 1) Page 3 - Clarify whether the data restrictions apply to the gravity and aeromagnetic data as well as the seismic data.
- 2) Page 6, paragraph 2 - What percentage of available data were considered suitable for this study?
- 3) Page 14, paragraph 2 - In the last sentence of this paragraph and on Table 4-1 it is stated that "all faults are normal faults".

The following list identifies faults that are shown as reverse faults in the report's illustrations.

	Fault	Figure
1)	W	A-2
2)	V	A-2
3)	O	A-26
4)	ZZ	A-32
5)	R	A-33
6)	D	A-35
7)	FFF	A-38
8)	E	A-41

Obviously, there is a contradiction here. Provide an explanation and/or rectify the errors.

- 4) Page 17, paragraph 3 - In the text, fault FF on seismic line 36 is identified as having a displacement of 50 feet. On figure A-36 the "throw" on this fault is shown as 150 feet. Resolve this discrepancy.
- 5) Page 18, paragraph 2 - The second sentence does not make sense.
- 6) Page 18, paragraph 2 - The sentence stating that, "Gibson Dome marks the limits of folding caused by flowage..." needs to be qualified. Interpretation of 3 seismic data with a resolution of 50 feet cannot unequivocally demonstrate this conjecture.
- 7) Page 29, paragraph 3 - It is unclear from this paragraph what the relevance of the faults on Flat Iron Mesa is with regard to interpretations regarding Shay Graben.

- 8) Page 30, paragraph 3 - If the fit between the computed and observed gravity curves is poor (and for an identifiable reason), why are we presenting the information?
- 9) Page 38/39 - Explain what "regional compression and/or a "syncline" in the units under the evaporites have to do with the formation of Gibson Dome.
- 10) Figure 5-1 - Lockhart is misspelled.
- 11) Figures 4-1 through 4-4 - The direction and amount of dip should be shown for each fault. If at all possible this should be shown where each seismic line crosses a fault.

SRPO:CJA:ksv

CS# 413-84