

23
CHARLES (RUS) PURCELL
CONSULTANT

WM DOCKET CONTROL
CENTER

Dr. John Trapp
USNRC
Div. Waste Management, NMSS
Washington, D.C. 20555

'85 FEB 15 10:52
February 8, 1985

Re: Contract #AT-(49-24)-1600

Dear John:

This letter constitutes my formal submittal of review comments on the following Environmental Assessments(EA): Yucca Mountain Site, Paradox Basin sites, and the Gulf Coast Salt Dome sites. The comments are identical to those presented in Silver Spring at meetings during the week of January 14, 1985. Also included are NRC literature review forms used in preparing for the EA reviews.

I recieved the Yucca Mountain EA on December 30, 1984 and the remainder of the EA's on the eighth of January 1985. As planned, I was in your Silver Spring office on the fifteenth of January with my formal comments. Therefore, these comments must be considered cursory, at best, because of the time constraints imposed during this review period.

If you have any questions, please don't hesitate to call.

Sincerely,

Rus

Charles (Rus) Purcell
Consultant

WM Record File

103

WM Project 10, 11, 16

Docket No. _____

PDR

LPDR B, N, S

Distribution:

TRAPP

(Return to WM, 623-SS)

B503010147 B50208
PDR WASTE
WM-10
PDR

BWIP 1199
NUWSI 58
SALT 938

VACHERIE DOME SITE, LOUISIANA, DRAFT
ENVIRONMENTAL ASSESSMENT REVIEW (1/15/85)

Charles (Rus) Purcell - Consultant

1) Chapter 3, Section 3.2.3 Stratigraphy, page 3-19, paragraph 6

- The age of the anomalous sand is important in helping determine the time of latest collapse of the sediments over the dome. Suggest more studies are necessary to more precisely determine the age of the anomalous sand unit (see comment No. 4, this review).

2) Chapter 3, Section 3.2.5.1 Faulting, page 3-26, paragraph 6

- Because of the poor quality of Figure 3-9, it is impossible to examine the relation between the overdome faults and Quaternary deposits. Has a detailed ~~investigation~~ ^{study} been performed to investigate the age of these faults?

3) Chapter 3, Section 3.2.5.4 Uplift and Subsidence, page 3-29, whole section

- The discussion of dissolution (p. 3-35) alludes to ongoing dissolution and displacement above the dome through the Quaternary. There is no discussion of ~~the~~ local subsidence in this section.

4) Chapter 3, Section 3.2.5.7 Dissolution, page 3-35, paragraph 6

- Regarding the "anomalous sand," this section calls it "thought to be Pliocene, but it may be completely or partially Quaternary." On page 3-19, Stratigraphy Section, the anomalous sand is called "probably Pliocene or Miocene in age," and deposited in late Tertiary and the other possibly extends it into the Holocene. Clarification is necessary (see comment No. 1, this review).

depressions. One interpretation limits it to Tertiary

5) Chapter 5, Section 5.2.1.1 Regional Subsidence and Uplift, page 5-39, paragraph 3

- The probability of regional subsidence and uplift is not low. Section 3.2.5.4 states that uplift has occurred in Quaternary time.

6) Chapter 6, Section 6.3.1.5 Erosion, page 6-106, paragraph 1

- Suggest a preliminary probability analysis should be performed.

7) Chapter 6, Section 6.3.1.6 Dissolution, page 6-108, paragraph 6

- The problem with the age of the anomalous sand is mentioned, but still used to complete the analysis. Conservative or not, further investigations are necessary to add credibility to the analysis.
- The age of the Quaternary is listed as 1.6 my while Figure 3-3 shows it at 1.8 my. Please clarify.

8) Chapter 6, Section 6.3.1.6 Dissolution, page 6-108, paragraph 7

- This discussion states there is Quaternary dissolution and subsidence.
Refer to No. 4, this review.

Overall Comments:

comment

- 1) The problem with the age of the "Anomalous Sand" and its application to studying dissolution and subsidence need further study.
- 2) The overall Quaternary History and investigation of Quaternary deposits needs further study. How does this area relate to the geodetic survey data at Richton Dome?

YUCCA MOUNTAIN SITE, NEVADA RESEARCH AND
DEVELOPMENT AREA, DRAFT ENVIRONMENTAL *ASSESSMENT*
REVIEW (1/15/85)

Charles (Rus) Purcell - Consultant

- 1) Chapter 3, Section 3.2 Geologic Conditions, page 3-5, paragraph 1
 - The Geologic Conditions Section should include a detailed discussion of the Quaternary deposits and the Quaternary geologic evolution of the site area, *geomorphology, paleoclimates, erosion and erosion rates.* ^{including}
- 2) Chapter 3, Section 3.2.1 Stratigraphy and Volcanic History of the Yucca Mountain Area, page 3-6, paragraph 2
 - Caliche is the result of soil forming processes and should be considered a soil zone. Clarification needed.
- 3) Chapter 3, Section 3.2.4.2 Metals, page 3-23, paragraph 3
 - The preliminary nature of the data on mercury, lead, zinc, and uranium suggests more work is necessary to be able to draw the given conclusion.
- 4) Chapter 4, Section 4.2.1.1.1 Geology, page 4-23, paragraph 1
 - The last sentence implies that with future information there could be activities that would significantly impact the geologic conditions at the site. These impacts should be predictable at this stage in the site investigations.
- 5) Chapter 4, Section 4.2.1.1.3 Land Use, page 4-24, paragraph 1
 - Are arrangements planned to eliminate Air Force use of the airspace over and adjacent to the proposed site? This would greatly reduce the potential hazard to the site.
- 6) Chapter 4, Section 4.2.1.1.4 Surface Soils, page 4-24, paragraph 2
 - The description of acres disturbed by "exploratory hole access roads" implies a set-up like spokes on a wheel. Are these acreages derived from actual plans? And, if so, a map of the locations would be helpful.
- 7) Chapter 4, Section 4.2.1.1.4 Surface Soils, page 4-24, paragraph 3
 - What steps will be taken to reclaim the disturbed area? What is planned if the present, ongoing studies show reclamation in arid regions to be ineffective?

8) Chapter 6, Section 6.3.1.5 Erosion, page 6-210, paragraph 3

- Incision rates presented are based on a total of only three reported measurements. If more data are available they need to be presented. If no additional data is available, more studies are necessary. An erosion rate based only on three measurements can, at best, be considered very speculative, and not adequate to base decisions concerning the integrity of the proposed site.

9) Chapter 6, Section 6.3.1.5 Erosion, page 6-214, paragraph 1

- The proposed characterization studies do not mention the need to concentrate on developing an accurate erosion rate to refine the estimates in this report. Suggest such studies be included.

Overall Comment:

- The overall analysis of the Quaternary History presented in this EA seems to be based on the views of the primary author and one or two main references (predominated by personal communications). More typically, in reporting highly interpretive geologic histories, numerous authors are cited and their various hypotheses discussed.
- Because of the importance of Quaternary Geology in assessing the adequacy of the proposed repository, this subject matter needs to be expanded and data discrepancies and/or inadequacies need to be clarified.

~~10) Chapter 6,~~

10) Chapter 6, Section 6.3.1.5 Erosion, page 205, Table 6-29.

- The response to Favorable Condition (2) states that a maximum of 22m of overburden could be removed in 10,000 years. If you apply this rate to Favorable Condition (3), 2200m of overburden could be removed in 1 million years and as stated in their conclusion, it would be 4400m. With the repository at 230 m, it would be within 10m in 1 million years and through the repository level in 2 million years.

DAVIS CANYON SITE, UTAH, DRAFT ENVIRONMENTAL
ASSESSMENT REVIEW (1/15/85)

Charles (Rus) Pincell - Consultant

1) Chapter 3, Section 3.2.5.1 Faulting, page 3-40, paragraph 2.

- The northwest trending subsurface faults are reported to cut part of the Paradox Fm. How are they related to the proposed repository level?

2) Chapter 3, Section 3.2.8 Mineral Resources, page 3-81, paragraph 3.

- The potential for hydrocarbon exploration in the lower part of the Paradox Fm., below the proposed repository level, presents a possible hazard to site safety. How will this be address?

3) Chapter 5, Section 5.2.1 Geologic Conditions, page 5-35, paragraph 6 (last).

- How can siting a repository cause "local, minor subsidence and/or uplift" if not by removing underlying materials? (clarified in next paragraph)

4) Chapter 5, Section 5.2.1, Geologic Conditions, page 5-36, paragraph 5.

- The probability of regional uplift or subsidence is not low.

5) Chapter 6, Section 6.3.1.5 Erosion, page 6-100, paragraph 5.

- Suggest the tabulated data be included in the EA.

6) Chapter 6, Section 6.3.1.8 Human Interference and Natural Resources, page 6-113, Whole Section.

- The section really lacks substantial data for impact analysis. Need additional data to make economic forecasts to adequately address impacts. Comparisons with areas with greater resources don't eliminate the impact to the local resources.

7) Chapter 6, Section 6.3.1.8 Human Interference and Natural Resources, page 6-114, paragraph 7.

- This discusses the impact of the local mines on the repository. What about the discussion of the impact of the repository on the mining.

8) Chapter 6, Section 6.3.1.8, Human Interference and Natural Resources, page 6-114, paragraph 8.

- The conclusion states the potentially adverse condition is not present, however, page 6-122, paragraph 2 states, deep boreholes associated with potash would pass through the repository level and could have serious impacts on the repository performance. Does this data change the conclusion?

LAVENDER CANYON SITE, UTAH, DRAFT
ENVIRONMENTAL ASSESSMENT REVIEW
(1/15/85)

Charles (Rus) Purcell - Consultant

1) Chapter 3, Section 3.2.5.1 Faulting, page 3-42, paragraph 2

- The northwest trending subsurface faults are reported to cut part of the Paradox Fm. How are they related to the proposed repository level?

2) Chapter 3, Section 3.2.8, Mineral Resources, page 3-85, paragraph 3

- The potential for hydrocarbon exploration in the lower part of the Paradox Fm, below the proposed repository level, presents a possible hazard to site safety. How will this be addressed?

3) Chapter 5, Section 5.2.1 Geologic Conditions, page 5-35, paragraph 2.

- How can siting a repository cause "local, minor subsidence and/or uplift" if not by removing underlying materials? (clarified in next paragraph)

4) Chapter 5, Section 5.2.1 Geologic Conditions, page 5-35, paragraph 6.

- The probability of regional uplift or subsidence is not low.

5) Chapter 6, Section 6.3.1.5 Erosion, page 6-108, paragraph 1.

- Suggest the tabulated data be included in the EA.

6) Chapter 6, Section 6.3.1.8, Human Interference and Natural Resources, page 6-119, Whole Section.

- The section really lacks substantial data for impact analysis. Need additional data to make economic forecasts to adequately address impacts. Comparisons with areas with greater resources don't eliminate the impact to the local resources.

7) Chapter 6, Section 6.3.1.8 Human Interference and Natural Resources, page 6-121,
paragraph 9.

- This discusses the impact of the local mines on the repository. What about the discussion of the impact of the repository on the mining.

8) Chapter 6, Section 6.3.1.8 Human Interference and Natural Resources, page 6-123,
paragraph 7.

- The conclusion states the potentially adverse condition is not present, however, ~~on~~ page 6-122, paragraph 2, states - deep boreholes associated with potash would pass through the repository level and could have serious impacts on the repository performance. Does this data change the conclusion?

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Late Quaternary Geomorphic History of the Silver Lake Area, Eastern Mojave Desert, California: An Example of the Influence of Climatic Change on Desert Piedmonts. 1984; Wells and others, GSA Annual Meeting Field Trip 14 Guidebook.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-3-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the NNWSI.

BRIEF SUMMARY OF DOCUMENTS: *Discussion on interpretation of Late Quaternary Geomorphic History and Paleoenvironmental reconstructions in an area near the NTS.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: Profiles and ages of young fault scarps, north-central Nevada: 1977,
Wallace, R.W., GSA Bull. v. 88, p. 1267-1281.

REVIEWER: Rus Purcell

DATE REVIEW COMPLETED: 12-3-84

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Applicable to the NNWSI site.

BRIEF SUMMARY OF DOCUMENTS: Discussion of the theoretical approach to
evaluating fault scarps and their relative ages.

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Quaternary Deposits in the Paradox Basin: Biggar, Harben, and Gillam, Rocky Mtn. Assoc. of Geologists, 1981 Field Conference.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-16-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the Paradox Basin Sites.

BRIEF SUMMARY OF DOCUMENTS: *Discusses data on Quaternary History and estimated incision rates for the Paradox Basin sites.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Tectonic Evolution of the Paradox Basin, Utah & Colorado, : Baars and Stevenson, Rocky Mtn. Assoc. of Geologists, 1981 Field Conference.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-16-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the Paradox Basin Sites

BRIEF SUMMARY OF DOCUMENTS: *Discusses the general tectonic evolution of the Paradox Basin - Colorado Plateau in southeastern Utah. Colorado lineament.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Current thinking on Riverine Processes and Geologic History as related to human settlement in the southeast: 1981, R.T. Saucier, Geoscience and man V. XXII.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-16-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Applicable to the Gulf Coast Salt Dome sites.

BRIEF SUMMARY OF DOCUMENTS: *General discussion of Fisk's concepts and how they relate to some current ideas.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Possible geomorphic influence of Vacherie Salt Dome on the Quaternary fluvial geomorphology of Bashaway creek: 1980, Engstrom, W.N, Inst. for Environmental studies, LSU, File Report OR 02.4.1*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-16-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Applicable to Vacherie Dome site.

BRIEF SUMMARY OF DOCUMENTS: *A general discussion of the Quaternary deposits of Bashaway Creek and their possible association with Vacherie Dome.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Mineralogy of Pleistocene Terrace deposits, Louisiana: 1978, Donellan M.S.,
and Ferrell, R.E., Gulf Coast Assoc. of Geol. Soc., v. 28.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-16-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Potentially applicable to Vacherie Dome.

BRIEF SUMMARY OF DOCUMENTS: *General discussion of certain mineralogic characteristics
that may be helpful in terrace correlations.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Aerial Imagery for Mapping Morphological Changes and Surficial Soils in the Lower Mississippi River Valley: 1979, Clemence, S.P. and D.J. Barr, AEG Bull. V. XVI, No. 4.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-17-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Potentially applicable to Gulf Coast Salt Dome sites.

BRIEF SUMMARY OF DOCUMENTS: *General discussion of time change analyses with various forms of aerial photographs along the lower Mississippi River.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Quaternary Chronology, Paleoclimate, Depositional Sequences, and Eustatic Cycles: 1982, Beard J.H., J.B. Sangree and L.A. Smith, AAPG Bull. v 66, No. 2, p. 158-169.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-17-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Applicable to Gulf Coast Salt Dome sites.

BRIEF SUMMARY OF DOCUMENTS: *General discussion about potential effects from glacial periods over the last 2.5 to 3.0 million years.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Characteristics of Surface Faults in the Paradox Basin, : Kitcho, Rocky Mtn Assoc. of Geologists, 1981 Field Conference.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-17-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data Applicable to the Paradox Basin Sites

BRIEF SUMMARY OF DOCUMENTS: *Discussion of main faults in the Paradox Basin study area. For example, Lockhart fault, Shay, Bridger Jack, and Salt Creek grabens, and the needles.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Geologic Characterization Report for the Paradox Basin Study Region, Utah Study Areas, Vol. 1, Regional Overview: Woodward-Clyde Consultants, ONWI 290, 1982.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-17-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the Paradox Basin Sites.

BRIEF SUMMARY OF DOCUMENTS: *General discussions of the physiography, geomorphology, Quaternary geology, stratigraphy, structure and energy and mineral resources of the Paradox Basin study area.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: Dating Quaternary Fault Scarps Formed in Alluvium Using Morphologic Parameters; Mayer, Quaternary Research V. 22, No. 3, 1984. --

REVIEWER: Rus Purcell

DATE REVIEW COMPLETED: 12-18-84

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data possibly applicable to the NNWSI.

BRIEF SUMMARY OF DOCUMENTS: Basic discussion of the evolution of Quaternary fault scarps and the variables involved in scarp morphology.

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *An Examination of the Geology and Seismology Associated with Area 410 at the Nevada Test Site: Hannon and McKague, LLNL, UCRL-51830, May, 1975.*

REVIEWER: Rus Purcell

DATE REVIEW COMPLETED: 12-18-87

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the NNWSI.

BRIEF SUMMARY OF DOCUMENTS: *General discussion of the geology and seismicity around the NTS.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Variation of Physical Properties of Alluvium in an Arid Basin, Wagoner and McKague, LLNL, UCRL-90672 Preprint, April 1984.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-19-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the NNWSI.

BRIEF SUMMARY OF DOCUMENTS: *General discussion of certain properties of alluvium in Yucca Flat from borehole data.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Correlation Characteristics of Surficial Deposits with a Description of Surficial Stratigraphy in the Nevada Test Site Region: Hoover, Swadley and Gordon, U.S.G.S. Open-File Report 81-512, 1981.*

REVIEWER: Rus Purcell

DATE REVIEW COMPLETED: 12-19-84

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the NNWSI.

BRIEF SUMMARY OF DOCUMENTS: *General description of the Quaternary stratigraphic units and associated characteristics in the NTS.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: Terrace Stratigraphy in the Tunica Hills of Louisiana, by Alford, Kolb & Holmes,
Quaternary Research, Vol. 19, No. 1, 1983.

REVIEWER: Rus Purcell

DATE REVIEW COMPLETED: 12-20-84

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the Gulf Coast Salt Domes.

BRIEF SUMMARY OF DOCUMENTS: Discussion of the terrace data in the Tunica Hills area - trying to decide whether one or two distinct terraces are present.

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Comments on "Terrace Stratigraphy in the Tunica Hills of Louisiana" by Alford, Kolb, and Holmes, : Quaternary Research, V. 22, No. 1, July 1984.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-20-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data applicable to the Gulf Coast Salt Domes.

BRIEF SUMMARY OF DOCUMENTS: *Further discussion of Alford's Tunica Hills paper.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Paleohydrologic Regimes in the Southwestern Great Basin, 0 - 3.2my Ago, Compared with other long Records of "Global" Climate: Quaternary Research V. 22, No. 1 July 1984.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-21-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Data potentially applicable to the NTS.

BRIEF SUMMARY OF DOCUMENTS: *General discussion tying potential paleohydrologic regimes to global ice-sheet histories as interpreted from ¹⁸O in marine sediments.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGD DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Soils and Geomorphology: P.W. Birkeland, Oxford University Press, 1984*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-21-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

General data applicable to all repository studies.

BRIEF SUMMARY OF DOCUMENTS: *General text on relationship between soils and geomorphology with emphasis on climate-soil relationships.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *Morphologic Dating of fluvial terrace scarp and fault scarp near West Yellowstone, Montana: D.B. Nash, GSA Bull. v. 95, p. 1413-1425, 1984.*

REVIEWER: *Rus Purcell*

DATE REVIEW COMPLETED: *12-22-84*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Potentially applicable to surface scarps at NNWS1.

BRIEF SUMMARY OF DOCUMENTS: *General discussion of dating terrace and fault scarp and their progressive morphologic development with time.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

PHOTOCOPYED BY THE NATIONAL ARCHIVES

1984 RELEASE UNDER E.O. 14176

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: seismic reflection, gravity, and aeromagnetic studies of geologic structure in the Gibson Dome area, southwestern Paradox Basin; C.A. Kitcho, Woodward Clyde Consultants, 1983.

REVIEWER:

Rus Purcell

DATE REVIEW COMPLETED: 12-23-84

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Applicable to the Paradox Basin proposed repository sites.

BRIEF SUMMARY OF DOCUMENTS: General discussion of the subsurface geologic structure interpreted from geophysical data in the Gibson Dome area.

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED:

WMEG AND WMGT DOCUMENT REVIEW SHEET*

FILE NUMBER:

DOCUMENT: *A summary of geologic studies through Jan. 1, 1983, of a potential high-level radioactive waste repository site at Yucca Mountain, southern Nye County, NV: U.S.G.S., open-file report 84-792.*

REVIEWER: *Aus Purcell*

DATE REVIEW COMPLETED: *1-14-85*

DATE APPROVED:

SIGNIFICANCE TO NRC WASTE MANAGEMENT PROGRAM:

Applicable to NNews1.

BRIEF SUMMARY OF DOCUMENTS: *Reviewed geomorphology section only. General discussion of geomorphic characteristics of the NTS.*

PROBLEMS, DEFICIENCIES OR LIMITATIONS OF REPORT:

ACTION TAKEN:

ACTION RECOMMENDED: