

Distribution

S/T
 WMRP r/f
 NMSS r/f
 CF
 REBrowning
 PAltomare
 MJBeII
 LBHigginbotham
 MRKnapp
 LBarrett
 HJMiller
 JLinehan
 JKennedy **LPDR**
 RJWright
 RJohnson
 RBoyle
 SCoplan
 CGlenn & r/f
 PDR

102

SEP 12 1984 - 01

102.2/CG/84/09/11

- 1 -

Mr. Elmer H. Baltz
 Geologic Division Coordinator, NNWSI
 United States Department of the Interior
 Geological Survey
 Box 25046 Mailstop 913
 Denver Federal Center
 Denver, Colorado 80225

Dear Mr. Baltz:

This letter is to confirm the specific data identified by the NRC staff in last week's USGS-NRC conference call to be reviewed during the Geology Data Review to be held September 17-28 at Yucca Mountain, Menlo Park, and Denver. The attached list includes specific well logs and trenches for review as well as data selected from the "Index of USGS Geologic, Geophysical, Seismologic and Surveying Data for NNWSI, Draft, August 1984". While the attached list indicates the data of greatest interest, our review of the data may lead to a need to examine other data in the inventory. It is our expectation that such data would also be available for our review.

"ORIGINAL SIGNED BY"

Seth Coplan, Section Leader
 NTS Project Section
 Repository Projects Branch
 Division of Waste Management
 Office of Nuclear Material
 Safety and Safeguards

WM Record File

102.2

WM Project 11

Docket No. ✓

PDR ✓

LPDR ✓

Distribution:

(Return to WM, 623-SS)

8410030258 840912
 PDR WASTE
 WM-11 PDR

102/84/102

OFC : WMRP:bb	: WMRP <u>SC</u>	: WMGT <u>PR</u>	: WMRP <u>PR</u>	:	:
NAME : CGlenn <u>CG</u>	: SCoplan	: BRice	: PJustus	:	:
DATE : 9/12/84	: 9/17/84	: 9/12/84	: 9/12/84	:	:

379

Enclosure 1

DATA REQUESTS

A. WELL LOGS:

USW G1, H5, G2, G3, H4, and UE25P-1
(Perhaps H6)

B. TRENCHES:

1. CF2 and CF3
CF1, 8, and 10B

2. 11 and/or 13, 14, 17 and Rock Creek Fault Trenches

C. CORE:

H5 - Surface down to host rock
host rock, and 100' on either side

UE25P-1	Paint Brush Canyon Fault and associated breccia zone.	Approx. 50'
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	Fanglomerate Interval	Approx. 50'
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	Fran Ridge Fault	Approx. 50'
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	Devonian Dolomite	Approx. 50'
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H3 - Host Rock		Approx. 100' maybe 50'
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	Non-welded tuff immediately below host rock	Approx. 50'
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G1 - Host Rock		Approx. 100'
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	Non-welded tuff below host rock	Approx. 50'
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	Non-welded tuff below the water table	Approx. 50'
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G2 - Host Rock	Approx. 100'
Non Welded Tuff below Host Rock	Approx. 50'
Low Angle extension fault	Approx. 50'
Flows and Flow Breccias at N 1500 meters depth.	Approx. 100'
WT2 - Host Rock	Approx. 100'
G3 - Host Rock	Approx. 100'
Non-welded tuff below host rock	Approx. 50'

Enclosure 2

USGS DATA INDEX

REGIONAL GEOLOGY

Principal Investigator: Michael D. Carr

File Location: Menlo Park, Bldg. 7, Room 7268

<u>Category</u>		<u>Description</u>
1. Fault map of site vicinity	o	Compilation showing ages of faults from published maps
2. Regional geologic data	o	Thin sections

USGS DATA INDEX

REGIONAL GEOLOGY

Investigator: James C. Yount

File Location: Menlo Park, Bldg. 7, Room 4243

<u>Category</u>		<u>Description</u>
3. Neotectonics	o	Trench logs, photos, fabric data, scarp-profile data, and miscellaneous maps

USGS DATA INDEX

REGIONAL GEOLOGY

Investigator: David L. Hoover

File Location: Denver West Bldg. 11, Room 236

<u>Category</u>		<u>Description</u>
4. Quaternary map of Yucca Mtn area	o	Aerial photos and compiled map
5. Quaternary history of Yucca Mtn area	o	Fortymile wash profile data and summarized climatic data

USGS DATA INDEX

REGIONAL GEOLOGY

Investigator: WC Swadley

File Location: Menlo Park, Bldg. 7, Room 7268

<u>Category</u>		<u>Description</u>
6. Surficial deposits of NTS region	o	Geologic maps, aerial photos, and general field data
7. Quaternary faulting	o	Trench diagrams, scarp profiles, and photographs in area of Yucca Mountain

USGS DATA INDEX

REGIONAL GEOLOGY

Investigator: Wilfred J. Carr

File Location: Denver West Bldg. III, Room 367

<u>Category</u>
8. Sketches of several trenches
9. Profiles of several fault scarps

10. Isotopic-age sample data
11. Quaternary-fault map compilation data
12. Miscellaneous geologic mapping
13. Compilation of site-vicinity map for Site Characterization Report
14. G.E. Program contract report on Death Valley-Furnace Creek fault zone
15. W. Gawthrop contract report on relocation of earthquake epicenters in SW Great Basin

USGS DATA INDEX

REGIONAL GEOLOGY

Investigator: John W. Whitney

File Location: Denver West, Bldg. II, Room 325

<u>Category</u>	<u>Description</u>
16. Quaternary Faulting	<ul style="list-style-type: none"> o Compilation of air photo lineaments o Map showing compilation of faults around Yucca Mtn.

USGS DATA INDEX

SITE GEOLOGY

Principal Investigator: Richard W. Spengler

File Location: Denver West, Bldg. II, Room 203

<u>Category</u>	<u>Description</u>
1. Drill holes	<ul style="list-style-type: none"> o Palomagnetic and foliation data

USW G-1 and G2

USW G3/GU3

USW H-1 through H-6

2. Drill holes UE25b-1, USW G-4

3. Drill hole

- o Updated versions of lithologic logs
- o Geophysical and x-ray data from hydrologic drill holes

UE25p1

4. General fracture data
5. Drill hole USW G-1

- o TV-camera observation
- o Oriented-core data
- o Original and revised fracture compilation
- o Televiewer log

6. Acoustic-log data

7. Drill hole USW G-2

- o TV observations

8. Drill hole USW-G3/GU3

- o Fracture data from core

9. Drill hole USW-G4

- o Petrographic studies and fracture studies

10. Drill hole USW-G1

- o Projection of shear fracture data to surface

11. Drill hole H4

- o TV camera observations
- o Acoustic logs

12. Drill hole USW H-5

- o TV camera observations
- o Acoustic logs

13. Yucca Mtn

- o General stratigraphic information
- o Attitudes of stratigraphic units
- o Surface fracture study (F and S)

- | | | |
|---------------------------------|---|---------------------------|
| 14. Lithophysae | o | Field studies |
| 15. Drill holes | o | Physical properties data |
| 16. Yucca Mountain | o | Trench data |
| | o | Surface geology |
| | o | Photogrammetry |
| | o | Aeromagnetics |
| | o | Radioisotope study |
| | o | Exploratory shaft |
| 17. Drilling | o | Schedule |
| | o | Criteria |
| | o | Histories |
| | o | Programs |
| 18. Drill holes | o | Directional data |
| | o | Fluid losses |
| 19. Drill holes USW G-1 and G-4 | o | Oriented-core data sheets |

USGS DATA INDEX

SITE GEOLOGY

Investigator: C. C. Barton

File Location: Geologic Data Center, Mercury, Nevada,

USGS Office, map case

CategoryDescription

- | | | |
|-----------------------------------|---|------------------------------|
| 20. Pavement studies of fractures | o | Unbound data sheets and maps |
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USGS DATA INDEX

SITE GEOLOGY

Investigator: Robert B. Scott

File Location: Denver West Bldg. II, Room 208

<u>Category</u>		<u>Description</u>
21. Fractures	o	Data on fractures in drill holes USW H-4 and H-5
22. Hydrofracs	o	Data on drill hole USW G-3
23. Isotopic data	o	Data on drill hole USW GU-3/G-3
24. Measured stratigraphic sections at Yucca Mtn	o	Prow Pass, Tiva Canyon, and Topopah Spring Members
25. Slickenside data	o	Results from Yucca Mtn mapping
26. Stratigraphic description	o	Subunits of Tiva Canyon Member
27. Drill hole USW GU-3/G3	o	Core index
	o	Criteria letter
	o	Daily operations
	o	Drilling program and reports
	o	Fracture data from video camera
28. Fracture data	o	From cores of drill holes USW GU-3/G-2, G-3, G-4
29. Ash flow tuffs	o	Chemistry of tuffs at Yucca Mtn
30. Yucca Mtn geology	o	Aerial photographs of Yucca Mtn geology
31. Rock samples	o	From drill holes USW G-3/GU-3, USW G-1

- o Thin section and petrographic data

USGS DATA INDEX

SITE GEOLOGY

ZEOLITE IN TUFF

Investigator: Richard A. Sheppard

File Location: Denver Federal Center, Bldg, 25, Room J1618

Various data sets under development to understand the distribution, genesis, and significance of the zeolite, mordenite, in tuffs of Yucca Mtn. Includes x-ray diffraction mineralogy of samples from core from drill holes USW-G-1, G2, G4, and UE25b-1H; optional microscopy of thin sections and grain mounts; scanning electron microscopy; and electron microprobe analysis.

USGS DATA INDEX

REGIONAL GEOPHYSICS

GRAVITY AND MAGNETICS

Principal Investigator: Howard W. Oliver

File Location: Menlo Park, Bldg. 2, Room 2274

<u>Category</u>		<u>Description</u>
1. Gravity field data	o	Paper
2. Magnetic field data	o	Paper
3. Station location and elevation control data		
4. Terrain correction data		
5. Rock sample data		

USGS DATA INDEX
REGIONAL GEOPHYSICS
SEIMIC REFRACTION

Principal Investigator: Walter D. Mooney

File Location: Menlo Park, Bldg. 8, Rooms 8175, 7B32

<u>Category</u>		<u>Description</u>
1. Topographic and orthophoto maps	o	Seismic-recorder and shotpoint location
2. Surveying readings and measurements	o	List of laser-surveyed location with field notes
3. Field data sheets	o	Field notes containing: Blue Sheets-recorder locations Green Sheets-lat. and long. Map measurements
	o	White Sheets-chronometer readings of seismic-recorders
4. Bibliography	o	Publication of Analytical Results: USGS Open-File Report 83-588, Copy of calibration specifications

USGS DATA INDEX
SITE GEOPHYSICS
BOREHOLE GEOPHYSICS

Principal Investigator: Douglas Muller

File Location: Denver West Bldg. II, Rooms 112 and 113

<u>Category</u>	<u>Description</u>
1. Geophysical logs	o Paper copies of commercial logs
2. Data files	o Supporting data for geophysical log data reports--drilling histories, deviation surveys, core data, geologic data, and miscellaneous data. Located in room 113
3. Computer plots	o Preliminary and final plots of computer log data for data reports

USGS DATA INDEX

SITE GEOPHYSICS

Borehole Geophysics

Investigator: Don L. Healy

File Location: Denver West Bldg. II, Room 112 and 114

<u>Category</u>	<u>Description</u>
4. Borehole gravity meter (BHGM) surveys	o Strip charts of beam velocities
5. Free-air gradient (FAG) surveys	o Field sheets
	o Earth tides chart
	o Tables of inner zone
	o Terrain correction data
	o Reduction notes
	o Computer printouts of FAG calculations

USGS DATA INDEX

SITE GEOPHYSICS

PETROPHYSICS

Principal Investigator: Lennart Anderson

File Location: Denver West Bldg. II, Room 119

<u>Category</u>	<u>Description</u>
1. Rock property analysis of core samples obtained from Yucca Mtn. boreholes UE25G-1, UE-25-p-1; USW G-3 and G-4	o natural bulk density, natural state and saturated resistivity, induced polarization, compressional sonic velocity, magnetic susceptibility and remanent magnetization

USGS DATA INDEX

SITE GEOPHYSIS

REFRACTION AND REFLECTION

Principal Investigator: Hans D. Ackerman

File Location: Denver West Bldg. II, Room 125

<u>Category</u>	<u>Description</u>
1. Reflection data	o Well log data o Reports on data collected
2. Refraction data	o Velocity analysis from well logs at Yucca Mtn o Well velocities from check shots and

lithologic logs, maps,
field sheets

3. Deep refraction

- o Beatty processing
- o Crater Flats processing

USGS DATA INDEX

SITE GEOPHYSIS

MAGNETIC PROPERTIES OF TUFF

Principal Investigator: Joseph G. Rosenbaum

File Location: Denver West Bldg., II, Rm., 130

<u>Category</u>	<u>Description</u>
1. Rock and paleomagnetic data from drill holes in Yucca Mountain area	<ul style="list-style-type: none"> o Remanent magnetization and susceptibility data o Copies of orientation data for oriented core runs o Curie temperature determinations o Drill holes USW G-1, G-2, GU-3, G-3
2. Rock and Paleomagnetic data from surface outcrops in Yucca Mountain area	<ul style="list-style-type: none"> o Field notes for sampling locations o Maps showing locations of sampling sites o Remanent magnetization and susceptibility data

USGS DATA INDEX

SITE GEOPHYSICS

TUFF STRENGTH

Principal Investigator: James Byerlee

File Location: Menlo Park Bldg. 8, Room 8-B04

<u>Category</u>		<u>Description</u>
1. Initially intact samples		
a) Topopah Springs Member of the Paint Brush Tuff	o	Stress-strain data
b) Bullfrog Member of the Crater Flat Tuff	o	Stress-strain data
2. Sawcut Samples		
a) Topopah Springs Member of the Paint Brush Tuff	o	Stress-strain data
b) Bullfrog Member of the Crater Flat Tuff	o	Stress-stain data

USGS DATA INDEX

SITE GEOPHYSIS

IN SITU STRESS MEASUREMENTS

Principal Investigator: Jack Healy

File Location: Menlo Park, Bldg. 8, Room 8190

<u>Category</u>		<u>Description</u>
1. Pressure-time records from hydrofracture test	o	Chart paper, field notes
2. Pressure-time records from hydrofracture tests	o	Field data and notes (pressure gage records)
3. Televiewer photos	o	Original pictures
	o	Geophysical logs
	o	Core descriptions

USGS DATA INDEX

GEOCHRONOLOGY

Investigator: C. A. Bush

File Location: Denver Federal Center, Bldg. 15, Room 107

<u>Category</u>	<u>Description</u>
1. Gamma Ray spectrometry	<ul style="list-style-type: none"> o Gamma-spectrometry computer interpretation data o Tables of radioelement concentration and ratios o Final reports

USGS DATA INDEX

SEISMOLOGY

TUFF SEISMIC P-RESIDUAL STUDY

Principal Investigators: Mahadeva Iyer and John Evans

File Location: Menlo Park, Bldg. 8, Room 8211

<u>Category</u>	<u>Description</u>
1. Field documentation recorder operation (4 books)	<ul style="list-style-type: none"> o Field rates describing o Field maps showing location of portable stations
2. Notebooks	<ul style="list-style-type: none"> o General information notebook o "WAT" hardcopy notebook, final visual records of

- 3. Software
 - o seismograms and picks
 - o "Distazkes" printed output binder
- 4. Computer files
 - o Program listings binder
 - o Pick times (archive of pick time files)

USGS DATA INDEX

SEISMOLOGY

SEISMICITY OF SOUTHERN GREAT BASIN

Principal Investigator: A. M. Rogers

File Location: Room 436, 1711 Illinois, Golden, Colorado

<u>Category</u>	<u>Description</u>
1. Earthquake catalogs	<ul style="list-style-type: none"> o Historical catalog through July 1978 o SGB Network catalog from August 1978 to the present o Network catalog including events from 114.5° to 118.0° W. and from 35.6° N. to 38.5° N.
2. Earthquake computer codes	<ul style="list-style-type: none"> o Real-time event detection of PDP 11/34 o Event location, focal mechanism, code-wave analysis, spectral analysis codes and data o Attenuation program and data o Velocity inversion programs

- 3. Earthquake first-motion data
 - o P-wave first motions have been computer-plotted for about 80 percent of the local SGB eqs from Jan. 1982 to the present
- 4. Yucca Mountain events
 - o Information on blasting on Yucca Mtn. has been obtained to distinguish small blasts from legitimate earthquake near the proposed repository site

USGS DATA INDEX

GEODETIC SURVEYS

Principal Investigator: Will Prescott

File Location: Menlo Park, Bldg. 8, Room 8226

<u>Category</u>	<u>Description</u>
1. Geodetic surveys by laser ranging	<ul style="list-style-type: none"> o Network diagram for NTS surveys o Horizontal strain rates versus time o Line lengths versus time o Field data sheets for all line length observations (time, instrument readings, aircraft meteorologic data)

USGS DATA INDEX

STRAIN MEASUREMENTS

Principal Investigator: Tom Bray

File Location: Denver Federal Center, Bldg. 25, Room 1454-C

<u>Category</u>	<u>Description</u>
1. Level line	o Field leveling data o Instrument collimation data o Abstract o Mark descriptions
2. Quadrilaterals	o Distance records o Leveling data o Vertical angle records o Instrument Calibration data
3. Summary	o A summary of the 1983, 1983-84 quadrilateral and level-line results

USGS DATA INDEX

CORE LIBRARY

Investigators in charge: Gary L. Dixon and M. H. Hait

File Location: Geologic Data Center, Mercury, Nevada

<u>Category</u>	<u>Description</u>
1. Drill holes	Note: See Enclosure 1, Specific interval requests

Location: File #7, Bldg. 158

USW G-1, G2, and G3

UE25p1

USW H4, H5, and Perhaps H6

2. Geophysical Logs

- o Records physical Properties Rock Material being logged. Examples: Caliper, density, temperature log, etc.

3. Photographs

Note: See Enclosure 1, specific interval requests for cores.