

PDR
5/13/92

15 February, 1992

Dr. William Hinze
ACNW
U. S. Nuclear Regulatory Commission
Mailstop P-315
Washington, DC 20555

MAR 1992
FEB 1992

Dear Bill,

The purpose of this letter is to report to the ACNW on a meeting which was organized by the Center for Nuclear Waste Regulatory Analyses. The purpose of this meeting was to discuss integration of Center activities being undertaken in the area of volcanism and tectonics of the Yucca Mountain region. The meeting was held in the Center offices in San Antonio on 13 February, 1992.

The meeting was a full day one devoted to Center work as described in the Project Plan for Volcanic Systems of the Basin and Range. The project is being carried out under the Geologic Setting Program Element of the Center. John Russell is the Project Manager and Gerry Stirewalt is the Principal Investigator for this research project.

Specifically, the discussion centered on Task 1 of the project which is entitled "Review of Literature and Other Sources of Data on Cenozoic Volcanism and Tectonism in the Basin and Range Province." A clear objective was to bring together all the major players involved in this task in particular the relevant Center staff, appropriate NRC staff, and Center consultants in volcanology and tectonics.

I enclose copies of the following meeting materials/documents: a list of persons attending; the meeting Agenda; and, a list of "GS Consultants." While my name is included on this latter list, I am not formally involved in this research project. Additionally, I believe that Alan Morris' name was inadvertently omitted from the list.

I offer below a few specific observations and comments which seem particularly appropriate:

- The meeting was quite informal and followed the items given on the Agenda. In addition and not listed on the Agenda, Ronald Martin of the Center staff made a brief presentation on chaos, non-linear dynamics, and phase space in connection with possible application to Yucca Mountain.
- It is clear that the group of consultants will play a very large role in the project, at least at this stage, and that the Center is relying very heavily upon them. The Center staff does not

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February 15, 1992

page 2

include a person with a clear and strong petrological/high temperature geochemical/volcanological expertise or with a Basin and Range tectonics background. According to Gerry Stirewalt and Wes Patrick, the Center is seeking to appoint staff to cover at least some of these areas.

- In this context alone, the meeting was essential so that the consultants understand both their roles and specific tasks. I surmise that the consultants have heretofore only been peripherally involved and did not understand well what was expected.
- Gerry Stirewalt and Steve Young are the central Center technical staff on this project.
- It seems clear from the meeting that the Center is examining other approaches such as chaos type theoretical considerations for the purposes of assessing patterns of prediction of future magmatism in the Yucca Mountain area.
- According to Linda Kovach, the project which was the centerpiece of discussion is one of four presently envisioned in the magmatism area. The others concern: the magma "plumbing" systems; the eruptive processes; and, mantle sources as inferred from heat flow, etc. The details or specifics were neither discussed nor readily apparent.
- the Center seems to have added to its computer capabilities since the ACNW review last June. Ronald Martin gave a computer demonstration on some non-periodic dynamics problems. It seems that they are well equipped in the essential computer tools.

If you or any other ACNW members have questions about (or would like amplification on) any aspects of this communication, the meeting, or the research project, I would be happy to address them (or provide it).

Sincerely,



Kenneth A. Foland
ACNW Consultant

encl.

AGENDA

February 13, 1992

MEETING TO DISCUSS INTEGRATION OF ACTIVITIES BEING UNDERTAKEN BY THE CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES IN VOLCANISM AND TECTONICS

San Antonio, Texas

8:30	am	Introduction to CNWRA program	J. Russell
8:45	am	Introduction to Volcanism Research Project	G. Stirewalt
9:00	am	Tectonics of the region including Yucca Mountain	B. Wernicke
9:45	am	Yucca Mountain geology and volcanic stratigraphy	L. McKague
10:30	am	Tentative breakdown of activities for assistance from consultants	G. Stirewalt
12:00	noon	Lunch and discussion of tentative activities assignments	All
1:00	pm	Open discussion: Proposed changes to tentative activities assignments, suggestions on data sources	All
4:00	pm	Wrap-up discussion: Final assignment of activities, schedule for submission of deliverables, additional meetings	G. Stirewalt S. Young J. Russell
6:00	pm	Adjourn	

**POSSIBLE DIVISION OF EFFORT FOR COMPLETION OF TASK 1 (TENTATIVE
"CHAPTERS" OF THE LITERATURE REVIEW REPORT):**

- 1. PATTERNS OF CRUSTAL SCALE DEFORMATION IN THE BASIN AND RANGE FROM GEODETIC DATA [B. WERNICKE/A. MORRIS/S. YOUNG/G. STIREWALT/R. HOFMANN]**
- 2. PATTERNS OF REGIONAL-SCALE FAULT SYSTEMS IN THE BASIN AND RANGE [B. WERNICKE/A. MORRIS/S. YOUNG/G. STIREWALT/R. HOFMANN]**
- 3. SPATIAL, TEMPORAL, AND GEOCHEMICAL PATTERNS OF REGIONAL VOLCANISM AND MAGMATISM IN THE BASIN AND RANGE [W. LEEMAN/J. LUHR/B. MARSH]**
- 4. SPATIAL AND TEMPORAL PATTERNS OF REGIONAL STRUCTURAL/VOLCANIC-MAGMATIC ASSOCIATIONS IN THE BASIN AND RANGE [W. LEEMAN/J. LUHR/B. MARSH/B. WERNICKE/L. MCKAGUE/S. YOUNG]**
- 5. SPATIAL AND TEMPORAL PATTERNS OF STRUCTURAL/VOLCANIC-MAGMATIC ASSOCIATIONS IN THE VICINITY OF YUCCA MOUNTAIN [W. LEEMAN/B. MARSH/J. LUHR/L. MCKAGUE/G. STIREWALT]**
- 6. NON-LINEAR DYNAMICS IN ASSESSMENT OF PATTERNS OF VOLCANISM AND PREDICTION OF FUTURE VOLCANISM-MAGMATISM IN THE YUCCA MOUNTAIN AREA [R. MARTIN/K. MAHRER/B. MARSH/R. HOFMANN]**
- 7. OTHER APPROACHES FOR ASSESSMENT OF PATTERNS OF VOLCANISM AND PREDICTION OF FUTURE VOLCANISM-MAGMATISM IN THE YUCCA MOUNTAIN AREA [B. MARSH/R. MARTIN/K. MAHRER/R. HOFMANN]**

GS CONSULTANTS

NAME	ADDRESS	PHONE #	FAX #
+Dr. Kenneth A. Foland	Ohio State University Dept. of Geological Sciences 107 Mandanhall Laboratory 125 S. Oval Mall Columbus, Ohio 43210	(614) 292-1350	(614) 292-7688
Dr. William P. Leeman	Rice University Dept. of Geology & Geophysics 6100 South Main Room 106 Houston, Texas 77005	(713) 527-4892	(713) 285-5214
Dr. James F. Luhr	The Smithsonian Institution Dept. of Mineral Sciences NHB - 119 Washington DC 20560	(202) 357-4809	(202) 357-2476
Dr. Bruce D. Marsh	Johns Hopkins University Dept. Earth & Planetary Sciences 301 Olin Hall San Martin Drive Baltimore, Maryland 21218	(410) 516-7133	(410) 516-7933
Dr. H. Lawrence McKague	2642 Corte Vida Pleasanton, California 94566	(510) 846-9602	(510) 463-8466
	Dr. McKague's FAX # to be used ONLY in "absolute emergency" FAX located in McWhorter's Stationary store near his house. Cover <u>MUST</u> show McKague home phone, so store can call him.		
Dr. Brian P. Wernicke	CA Institute of Technology Division of Geological & Planetary Sciences 1201 East California Blvd. Mail Stop 170-25 Pasadena, California 91125	*(818) 356-6109	(818) 568-0935

+ACNW Consultant

*Office of Division Chair/subject to change

CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES MEETING ATTENDANCE

SUBJECT OF MEETING KICK-OFF MEETING ON VOL. RESEARCH PROJECT PLAN

DATE: 13 Feb 92 LOCATION: CNWRA office - SA

PERSON	ORGANIZATION	TITLE/FUNCTION.	TELEPHONE NUMBER
G. STEREWALI	CNWRA	PRIN. RESEARCHER	(703) 479-9129
John Russell	CNWRA	Mgr. C.S.	512/522-5193
Steve Young	CNWRA	Si. Res. Sci	(512) 522-5247
Ronald H. Marti	CNWRA	Res. Scientist	(512) 522-5541
Ken Martin	UTSA	Consultant	512 674-5650
Jim Luhn	Smithsonian	consultant	(100) 387-4509
Ken Mahner	SWRT Div 15	Prin. Scientist	(512) 522-5105
English PEARCY	CNWRA	Si. Res. Sci.	x-5540
LARRY McKEE	CONSULTANT	CONSULTANT	512-346-7602
John TRAPP	U. S. NRC	SR Lecturer	301-504-2509
PHILIP JUSTUS	U.S. NRC	Section Lk.	301 504 3460
Bill Murphy	CNWRA	Senior Res. Sci.	x 5263
Mike Miklas, Jr.	CNWRA	Senior Research Scientist	(512) 522-5207
Dave Turner	CNWRA	Res. Scientist	512 522-5134
Kenneth B. Hofmann	CNWRA	Si. Res. Sci.	512 522-5305
Brian P. Wernicke	Caltech	consultant	818-356-6123
Bruce D. Marsh	Johns Hopkins Univ.	Professor/Consultant	410-516-7133
Kenneth A. Foland	Ohio State Univ.	Professor/Consultant	614-292-1350
Linda A. Kovach	USNRC	Geochemist/Volc.	301-492-3869
William P. Leeman	Rice University	Professor/Consultant	713-527-4892