



48/Still, Abrams, Stablein

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

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Reply to:  
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Suite 319  
Las Vegas, Nevada 89119  
Tel: (702) 388-6125  
FTS: 598-6125

TO: Nancy Still, Charlotte Abrams, and King Stablein  
FROM: Paul T. Prestholt, Sr. On-Site Licensing Representative  
DATE: October 24, 1986  
SUBJECT: Trip Report on NRC Appendix 7 Meeting, August 26,  
Denver, CO

Please find enclosed the above-referenced Report  
received in the Las Vegas office.

PTP:nan

*Paul*

WM Record File	WM Project	<u>11</u>
<u>102</u>	Docket No.	
	PDR	<input checked="" type="checkbox"/>
	LPDR	<input checked="" type="checkbox"/>
Distribution:	<u>Still</u>	<u>JTB</u>
<u>REB MJB</u>	<u>Lineman</u>	
<u>JB RDM</u>	<u>Stablein</u>	
(Return to WM, 623-SS)	<u>Justus</u>	<input checked="" type="checkbox"/>
<u>Wastler</u>	<u>Coplan</u>	
<u>Etana</u>	<u>Kennedy</u>	

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Science Applications International Corporation

L86-GEO-MDT-120

September 17, 1986

Maxwell B. Blanchard, Chief  
Regulatory and Site Evaluation Branch  
Waste Management Project Office  
U. S. Department of Energy  
Nevada Operations Office  
P.O. Box 14100  
Las Vegas, NV 89114

Subject: Trip Report on NRC Appendix 7 Meeting, August 26, Denver, CO

Dear Max:

This report supplements that prepared by Terry Grant (see enclosure). Terry has adequately covered the discussions held between the NRC and NNWSI Project personnel with the exception of the Tuesday afternoon meeting on the calcite-silica deposits that occur in Trench 14 and elsewhere in the vicinity of Yucca Mountain. The Tuesday afternoon meeting was attended by John Stuckless, Paul Prestholt, Charlotte Abrams, Jerry Szymanski, Bob Raup, Bill Dudley, and Michael Teubner. The NRC is extremely interested in the calcite-silica deposits that occur in fault zones and wants to be informed of any studies planned to assess their origin. John Stuckless provided a very good background to the present geologic information, and the present status of ongoing studies. He discussed the scientific proposals that are being developed, and indicated that the proposals would be technically reviewed by an External Peer Review group. John Stuckless indicated that the following technical areas would be addressed in the proposals: natural analogs, mineralogy, geochemistry, fluid inclusions, geochronology, tracer and stable isotopes, paleontological studies, and hydrological investigations. Some of the more significant comments that were made during the discussion included the following:

- o It is the present opinion of the USGS, based upon the available geologic information, that the calcite-silica deposits are of a pedogenic origin, probably derived from a perched water table or water from surface runoff as opposed to a hot springs origin.
- o A map would be developed of all calcite-silica deposits located in faults in the vicinity of Yucca Mountain.
- o Some prototype biological studies (examining fossilized organic matter) would be performed by Forrester.
- o John Stuckless indicated that preliminary results from the studies presented in the scientific proposals should be available 12 to 18 months after the work is initiated.
- o C. Abrams has apparently reviewed the current geologic information on the calcite-silica deposits and thinks that the scientific basis for a pedogenic origin is not well founded.

101 Convention Center Dr., Ste. 407, Las Vegas, NV 89109 (702) 295-1204

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Maxwell B. Blanchard  
September 17, 1986  
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- o P. Prestholt believes that the presence of the calcite-silica deposits and their possible origins could be a major flaw in the Project's unsaturated zone considerations.
- o J. Szymanski thinks that these deposits may not be of pedogenic origin, but are the result of hot ascending solutions and thus may significantly alter the present understanding of ground-water flow within the NTS region, and that the NNWSI Project may need to develop alternative approaches to site characterization.
- o J. Szymanski expects that the External Peer Review group will review the scientific proposals, the available geologic information, and possible origins of these deposits; he anticipates that the results of the External Peer Review will be used to debate the origin with the NRC. The NRC, however, does not think it will be in a position to debate the origin; it would like to review the scientific proposals, and expects that a statement will be made by the Project concerning the origin and licensing implications of these deposits.
- o R. Raup believes that the presence of the calcite-silica deposits may be causing more concern than is justified based upon the present geologic information and known hydrogeologic mechanisms that could have caused the deposits.
- o In response to a question from R. Raup regarding the ranking of individual studies discussed in the scientific proposals, J. Stuckless indicated that it would be difficult to rank individual studies, as many of the studies are independent of each other and will be used to provide additional support to other activities.

If you have any questions concerning this meeting, please call me on 5-1741.

Sincerely,

SCIENCE APPLICATIONS  
INTERNATIONAL CORPORATION



Michael D. Teubner  
Senior Geohydrologist

MDT:lab

Enclosure:  
As stated