

August 21, 2000

Dr. H. Larry McKague, Manager
Geology/Geophysics Program Element
Center for Nuclear Waste Regulatory Analyses
6220 Culebra Road, Building 189
San Antonio, Texas 78238-5166

SUBJECT: ACCEPTANCE OF "IMAGING AN ACTIVE NORMAL FAULT IN ALLUVIUM BY HIGH-RESOLUTION MAGNETIC AND ELECTROMAGNETIC SURVEYS"
(INTERMEDIATE MILESTONE 20.01402.471.041)

Dear Dr. McKague:

I received the subject report in the form of a journal article by P.C. LaFemina, C.B. Connor, J.A. Stamatakos, and D.A. Farrell. You sent it to me by letter, dated August 4, 2000. This work is the result of cooperative effort by staff with expertise in neotectonics, igneous activity, and geophysical surveying techniques.

The principal results show that geophysical techniques applied to imaging near-surface (i.e., buried) contacts of alluvium, tuff, basaltic lava flows, and the Southern Crater Flat fault (SCFF) [located between the Bare Mountain and Solitario Canyon faults] significantly improved the assessment of seismic hazard from the SCFF that previously relied upon the paleoseismic technique of trench mapping. The results represent an independent U.S. Nuclear Regulatory Commission study of seismic hazard, based upon fault slip rate analysis. In this case, the results show that the paleoseismic method underestimated slip rate by an order of magnitude (i.e., from about .002 mm/yr to about .02 mm/yr). Additionally, this report demonstrates the usefulness of the magnetic and electromagnetic techniques in the Crater Flat-Yucca Mountain area. This report evolved from an Administrative Item (report) to an Intermediate Milestone (IM) (journal article) at no extra cost to the Element. The IM was completed on the due date.

The deliverable was reviewed for programmatic and technical adequacy and found acceptable. It fulfills the OPS PLANS for FY2000. The report may be discussed at public meetings, may be published, and may be placed in the Public Document Room.

Specific comments to improve the clarity of the manuscript will be sent separately. This paper exemplifies the synergism at the Center for Nuclear Waste Regulatory Analyses, derived in this instance, from cooperation among a volcanologist and hydrologist with geophysical surveying expertise, a tectonic-paleomagnetism expert, and a structural geologist.

H.L. McKague

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If you have any questions about this review, please contact me at 301-415-6745 or by e-mail at psj@nrc.gov.

Sincerely,

/ra/

Philip S. Justus, Manager
Geology/Geophysics Program Element
High-Level Waste Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards

cc: J. Linehan
B. Meehan
B. Caudle

