

GEOSCIENCE AND ENGINEERING DIVISION

NONCONFORMANCE REPORT

Project No. 20.06002.01.292.510

NCR No. 2006-05

PART 1: DESCRIPTION OF NONCONFORMANCE

The technical review and calculation verifications for **Report Q200509060001, Summary and Analysis of Subsurface Fracture Data from the Topopah Spring Tuff Upper Lithophysal Middle Nonlithophysal, Lower Lithophysal, and Lower Nonlithophysal Zones at Yucca Mountain, Nevada** were performed on September 16, 2005. Contrary to QAP-014, Revision 3, Change 0, paragraph 3.2.5, calculation errors identified by the Technical Reviewer (i.e., Table 4-1, Set 3, Mean Orientation) were not corrected in the delivered report.

Initiated by: R. Folck

Date: January 20, 2006

Action Required by: K. Smart

Response Due Date: February 3, 2006

PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION

Disposition: *Typographical errors noted in technical review were not corrected in version of report scanned into ELF. Support staff PDF version appears to be correct.*

Basis of Disposition: *Document is currently being revised to address comments by NRC staff and will be checked to ensure that corrections are made.*

Action to Correct Nonconformance:

Authors will review final document before submitted to QA.

Target date for completion: 2/15/06

Proposed by: K. Smart

Date: 1/26/06

*extended
to 2/14/06
2/15/06
3/12/06
LW*

PART 3: APPROVAL

Manager: K. Smart

Date: 2/1/06

Director of QA: R. Folck

Date: 2/3/06

Comments/Instructions:

PART 4: CLOSE OUT

Comments: *Revised report was verified as having corrections incorporated & was submitted to NRC on 3/21/06.*

Verified by: R. Folck

Date: 3/22/06

Distribution:

Original-CENTER QA Records

ORIGINATOR

PRINCIPAL INVESTIGATOR *Smart*

MANAGER *SMARTAKOS*

ASSISTANT DIRECTOR *WITMER*

Mark Ehnstrom

From: John Stamatakos [jstam@cnwra.swri.edu]
Sent: Wednesday, March 15, 2006 8:27 AM
To: Robert Brient; mark.ehnstrom@swri.org
Cc: Maria Padilla; Kevin Smart; amorris@cnwra.swri.edu; Gordon Wittmeyer
Subject: NCR 2006-05

Bob,

Last week Mark Ehnstrom asked that I re-examine the disposition of the corrective action in NRC No. 2006-05 to make sure that all aspects of the corrective action were properly administered. The NRC refers to the CNWRA review of the IM 06002.01.292.510, "Summary and Analysis of Subsurface Fractures from the Topopah Spring Tuff Upper Lithophysal, Middle Nonlithophysal, Lower Lithophysal, and Lower Nonlithophysal Zones at Yucca Mountain, Nevada. "

Background

This report was authored by Kevin Smart, Danielle Wyrick, Paul Landis and Deborah Waiting. Alan Morris completed the technical review. David Ferrill completed the Programmatic review. The initial report was delivered to the NRC on September 2, 2005. NRC accepted the report but had several suggested revisions and also requested that we submit the report as a CNWRA numbered report. After the initial report was submitted to the NRC in September, we discovered errors in several data tables presented in the report. These errors were noted by the technical review and Kevin remembers making the necessary corrections to the mark-ups, but for some reason the corrections were not made to the deliverable.

The nature of the errors are common to structural geology. Geologists measure orientation of planar data, like fractures, in terms of "strike" and "dip". Strike is defined as the bearing of the line of intersection of the geologic plane (in this case fractures) and a horizontal surface. Because strike is a line measured as a compass direction, it can be denoted by either end of the strike line, which are 180 degrees apart. There are several conventions that we use to determine which end of strike we record (e.g., right hand rule). In this case, Alan Morris noted in the technical review that some of the strike orientations were not correctly recorded according to the adopted convention used in this report.

In the NCR, Randy Folk referred to these as "calculation errors." I would suggest here that these errors are more accurately described as typographical. The errors did not, in any way, affect any subsequent analyses in the report nor did the presence of the errors alter the report's conclusions. Kevin Smart, in his response to the NRC, also described the error as typographical. I think his description is consistent with the nonconformance described in the NRC.

Status

Alan Morris examined the entire QA package again, including the revised report (now in blue CNWRA report format) and the NCR. He has concluded that all noted errors were corrected in

3/15/2006

this final version of the report and that the disposition of the NCR is correct. He also notes, however, that the version of the report currently in ELF still contains the errors. Based on Alan's comments, I request that the NCR be closed and that the correct version of the report be uploaded into ELF.

Thanks,

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