

# CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES

## NONCONFORMANCE REPORT

page 1 of 3

Project No. 20-1508-461

NCR No. 97-04

### PART 1: DESCRIPTION OF NONCONFORMANCE

Contrary to the requirement of QAP-002, paragraph 4.2.1, Technical Review Criteria for Technical Correctness (i.e., calculation verifications and technical interpretations) were not identified for IM-5708-461-760. The report contained the results of extensive Calculations and analyses.

Initiated by: R.D. Brient

*R.D. Brient*

Date: 8/18/97

### PART 2: PROPOSED DISPOSITION AND CORRECTIVE ACTION

Response Due: ~~8/29/97~~ (L. McKague)

*9/2/97* *5em (10 working days)*

Disposition: IM 20-5708-461-760 (1995 Eruption of Cerro Negro Volcano, Nicaragua, and Risk Assessment for Future Eruptions) contained a number of tables containing numerical information. Not all the information was based on numerical calculations.

Continued on attached sheet.

#### Basis of Disposition:

A review of scientific notebook and a check of formulas used in the spreadsheet would be sufficient to verify calculations were performed correctly.

#### Action to correct nonconformance:

Review of scientific notebook and spreadsheet in QA control by peer.

Target date for completion: 9/30/97

Proposed by: H. Lawrence McKague

Date: 9/2/97

### PART 3: APPROVAL

Element Manager:

*H. Lawrence McKague*

Date: 9/2/97

Director of QA:

*Samuel Maldonado*

Date: 9/3/97

#### Comments/Instructions:

*MIKE MIKLAS was identified by L. McKague as the individual who will review the appropriate scientific notebook and spreadsheet as noted above.*

### PART 4: CLOSE OUT

#### Comments:

*Memo dated 9/26/97 from M. Miklas to B. Mabeito verified calculations. NCR 97-04 closed.*

Verified by:

*Samuel Maldonado*

Date: 9/26/97

#### Distribution:

*L. McKague  
R. Brient  
B. Sagar  
EMS  
M. Miklas  
H. Garcia*

Disposition (cont'd)

Tables 1 and 2 contained both measured and calculational data. The calculations were performed in commercial software programs, either Excel (spreadsheet) or Sigma Plot (statistical package). Formulas used in spreadsheet were taken from the peer reviewed published literature. All spreadsheet calculations were supplied as part of the QA package sent to the QA file.

Table 3 - Measured data

Table 4 - Analytical data

Table 5 - Parametric data

Table 6 - Calculated using Sigma Plot and methodology outlined in report.

Summary: Most calculations were routine and performed using commercial software. Some calculations were based on analysis of data in CNWRA GIS ARC/INFO database.

MEMORANDUM

**TO:** Bruce Mabrito

**FROM:** Michael P. Miklas, Jr. *MPM*  
*09/24/97*

**SUBJECT:** Check of formulas and verification of calculations in IM 20-5708-461-760: 1995 Eruption of Cerro Negro Volcano, Nicaragua, and Risk Assessment for Future Eruption as per QAP-14.

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On the days of September 22 and 23 of 1997, I conducted a review of the formulas and calculations used in the Excel spreadsheet which supported the development of tables 1 and 2 in the IM 20-5708-461-760 deliverable. Appropriate files and descriptions contained in the supporting scientific notebook for the deliverable were obtained from Dr. Britt Hill. The spreadsheet files were evaluated on my desktop computer using the Excel program. Each formula in the files supporting tables 1 and 2 in the deliverable was checked and the results of the spreadsheet calculations made by exercising the formulas were compared to results using a handheld calculator. Two verifications were done for each different formula.

The results of the Excel spreadsheet calculations which were used to build tables 1 and 2 in IM 20-5708-461-760 were compared with calculations using the same formulas on a handheld calculator. The results from the spreadsheet matched those of the handheld calculator.