



CENTER FOR NUCLEAR WASTE REGULATORY ANALYSES
QUALITY ASSURANCE
SURVEILLANCE REPORT

PROJECT NO.: 20.06002.01.031

REPORT NO.: 2003-010

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SURVEILLANCE SCOPE:

Surveillance on Unsaturated and Saturated Flow Under Isothermal Conditions

REFERENCE DOCUMENTS:

CNWRA Operations Plan Revision 17, Change 0; QAP-002 Review of CNWRA Documents, Reports and Papers; QAP-004 Surveillance Control Procedure

STARTING DATE: April 15, 2003

ENDING DATE: April 22, 2003

QA REPRESENTATIVE: Mark R. Ehnstrom

PERSONS CONDUCTING TEST/EXAM/ACTIVITY: J. Winterle, R. Fedors, and C. Dinwiddie

SATISFACTORY FINDINGS:

Surveillance activities were performed on activities associated with Unsaturated and Saturated Flow Under Isothermal Conditions (USFIC) KTI. The initial part of the surveillance was an interview with the Principal Investigator for USFIC, James Winterle. This interview identified the scientific and engineering software being used and the consultants who were assisting CNWRA personnel. Software currently being used includes BREATH, GSMODFLOW, MODFLOW96, GSMODPATH, KINEROS, and HYDRUS 2D. These programs, with the exception of GSMODPATH, are currently listed on the Master Directory of Scientific & Engineering Software. Only BREATH, GSMODFLOW and MODFLOW96 have completed validation testing. The other codes are scheduled for validation at a later date. The CNWRA operations plan also discussed "software validation test plans for codes to be used in support of the licensing review will be developed, and validation exercises will be conducted." The Validation Test Plan and Validation Test Plan Results for GSMODFLOW and MODFLOW96 were recently produced. Geologic test samples have been obtained from the Bishop Tuff site. The Sample Custody Log for Bldg. 57 was reviewed and identified the samples with the required information. Consultants currently being used for USFIC activities include David Woolheiser, Roger Smith, and Kelly Bradbury. Professional Personnel Qualification files for these individuals were reviewed and were found to be current. During discussions with both Mr. Winterle and Mr. Fedors, questions were asked about information provided the CNWRA from the DOE. The specific question was based on observations made over the last few years on USFIC data generated from the Lawrence Berkeley National Laboratory. Audits have determined that not in all cases is data (used as data inputs to AMRs and PMRs) fully qualified, or, that it has not been through a qualification process. Both Mr. Winterle and Mr. Fedors agreed that at the point in which the CNWRA receives data from the DOE, and performs analysis on the data, if there is any reason to exclude that data, that determination and decision would be directed by the NRC and transmitted to the CNWRA. During the past year a critical piece of measuring and test equipment had been used. This piece of equipment, a mini-permeameter, was rented and sent through the SwRI calibration laboratory. After each use, the permeameter is again sent through the calibration laboratory. These actions assure that during the time of use, the instrument is within calibration. Additionally, an alternate certified pressure transducer is used daily to adjust for minor amounts of instrument drift. This information can be used, and adjustments can be made in the software during the analysis of the data taken by the permeameter.

UNSATISFACTORY FINDINGS: None

NONCONFORMANCE REPORT NO.: N/A

Corrective Action Request No.: N/A

ATTACHMENTS: None

RECOMMENDATIONS/ACTIONS: During the review of software used during USFIC activities it was noticed that MODPATH was not listed on the CNWRA Master Directory of Scientific & Engineering Software. A different piece of code, MODFLOW, was qualified as part of the GMS code validation. MODFLOW was also separately validated as a stand alone code. The relationship between the two codes is that MODFLOW output data is used as input data for MODPATH. It is strongly recommended that since project

activities are increasingly using the GSMODPATH code, that it be placed on the CNWRA list of controlled software and that an evaluation be made to determine if validation of the GSMODPATH code is necessary. In another discussion relating to the control of measuring and test equipment it was found that there is no Technical Operating Procedure describing the operation of the mini-permeameter. The Manufacturer's Instruction for the operation of the instrument can be found in CNWRA Scientific Notebook #526. Further discussion regarding a CNWRA Technical Operating Procedure which describes the set-up and operation of permeameter should take place.

APPROVED: 
CENTER DIRECTOR OF QUALITY ASSURANCE

DATE: 4/24/2003

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ORIGINATOR: Ehnstrom

PRINCIPAL ENGINEER: N/A

ALL ELEMENT MANAGERS

P. Mackin, B. Sagar, J. Winterle, R. Fedors, C. Dinwiddie