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Surveillance Report

QRS

IDENTIFICATION

Submitted By: Brient, Robert D.	**Date:** 06–OCT–09	**Report Number:** 2009–SR–0265

Division: 20 – GEOSCIENCES & ENGINEERING 01.03: QA	**Project Number:** 14002.01.021

Quality Program: GED (20) QAM

Associated Report: N/A

Surveillance Scope:

Confirmatory calculations performed in support of the license application review for a high–level radioactive waste repository at Yucca Mountain, NV

References:

QAP–014, Documentation and Verification of Scientific and Engineering Calculations

Starting Date: 02–SEP–09	**Ending Date:** 14–SEP–09

Person(s) Conducting Test/Exam/Procedure: R. Pabalan, R. Kazban, G. Ofoegbu

Satisfactory Findings:

Technical staff were queried to identify confirmatory calculations that had been performed since the previous surveillance of the same topic conducted in February 2009. Such calculations had been performed supporting drift degradation and near–field chemistry–related reviews of the license application.

Drift degradation calculations were recorded in scientific notebooks 850 and 872. Similar calculations performed prior to license application receipt had been verified during review of intermediate milestone deliverable IM20.14002.01.191.810. A verification of the calculations performed during the license application review was planned during the surveillance period, but had not been completed.

Thermodynamic calculations were performed in support of the staff review of near–field chemistry. The thermodynamic calculations, which are documented in scientific notebook 930E, pages 183–245, were independently verified by checking the accuracy of inputs and that the outputs were reasonable (verification attached).

Unsatisfactory Findings:

The version of OLIAnalyzer (3.0) used to perform the calculation was not under TOP–018 control, however, was subsequently qualified and validated. Nonconformance report 2009–NCR–0209 documented this issue.

Recommendations/Actions:

A follow–up surveillance report will document completion of calculation verification for the drift degradation analysis.

Equipment Calibration:

Not applicable

SwRI cc: Axler, Keith M (20), Chowdhury, Asadul H. (20), Dubreuilh, Philippe H (20), Kazban, Roman (20), Lenhard, Robert J (20), Mohanty, Sitakanta (20), Pabalan, Roberto T. (20), Patrick, Wesley C. (20), Pearcy, English C. (20), Sagar, Budhi (20), Stamatakos, John A. (20), Winterle, James R. (20), Wittmeyer, Gordon W. (20)

APPROVALS

Management Approval: Brient, Robert D.	**Date:** 06–OCT–09
QA Approval: Brient, Robert D.	**Date:** 06–OCT–09

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CALCULATION VERIFICATION WORKSHEET

Associated Document or Activity:		Project Number:
Revised thermodynamic simulations of evaporation of Yucca Mountain pore waters		14002.01.353

Assigned Verifier: J. Myers	Manager: E. Pearcy	Required Completion Date:

Location of Calculation(s): Scientific Notebook #: 930E   Page Number(s): 183–245

Location of Corresponding Data In Document (Table or Page #, When Applicable): inputs p185, p196, p201   outputs: p228, p227

	Identify the Calculation Tools Used and Over Checks Needed.	Document the Calculation Verification: Which Calculations Were Checked; How They Were Checked, Software Used for the Original Calculation (When Applicable), and Conclusions.
	Controlled Software: Check input for accuracy and output for reasonableness.	
	Uncontrolled Software: Check inputs, perform check calculations (copy of code shall be attached for QA records).	
X	Commercial Off-the-Shelf Software: Check inputs and outputs, check formulae.	I have reviewed the inputs and outputs of calculations of chemical speciation under Yucca Mountain repository conditions JRM 9/11/09 for the following pore water compositions and found the inputs to be accurate and the outputs to be reasonable: NRG-6/1582 ;
	Other Calculation(s): Check inputs and perform check calculations.	NGR-6/244.6 ; and NRG-6/217.9

Verification By: James R Myers   **Date:** 9/11/09

Form QAP–19 05/2007