



Department of Energy

Washington, DC 20585

QA: L

JUN 27 1997

R. W. Craig, Technical Project Officer
for Yucca Mountain Site
Characterization Project
U.S. Geological Survey
1261 Town Center Drive
Building 12, Room 1249, M/S 423
Las Vegas, NV 89134

ISSUANCE OF SURVEILLANCE RECORD USGS-SR-97-034 RESULTING FROM
THE OFFICE OF QUALITY ASSURANCE (OQA) SURVEILLANCE OF THE
U.S. GEOLOGICAL SURVEY (USGS)

Enclosed is the record of Surveillance USGS-SR-97-034 conducted by the OQA of the USGS in
Denver, Colorado, On May 28-29, 1997.

The purpose of the surveillance was to verify compliance to requirements specified in documents
implemented by the USGS for Software Configuration management.

There were no Corrective Action Requests, Deficiency Reports, or Performance Reports issued
as a result of the surveillance. One deficiency was identified and corrected during the
surveillance.

This surveillance is considered completed and closed as of the date of this letter. A response to
this surveillance record is not required.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or
Emily S. Reiter at (702) 794-5013.

James Blaylock
Donald G. Horton, Director
Office of Quality Assurance

OQA:JB-1776

Enclosure:
Surveillance Record USGS-SR-97-034

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L. H. Barrett, DOE/HQ (RW-1) FORS
R. A. Milner, DOE/HQ (RW-2) FORS
J. O. Thoma, NRC, Washington, DC
W. L. Belke, NRC, Las Vegas, NV
R. R. Loux, NWPO, Carson City, NV
S. W. Zimmerman, NWPO, Carson City, NV
Jim Regan, Churchill County Commission, Fallon, NV
D. A. Bechtel, Clark County, Las Vegas, NV
Susan Dudley, Esmeralda County, Goldfield, NV
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B. R. Mettam, County of Inyo, Independence, CA
Mifflin and Associates, Las Vegas, NV
T. H. Chaney, USGS, Denver, CO
D. J. Sinks, OQA/USGS, Denver, CO
A. M. Whiteside, OQA/USGS, Denver, CO
M. J. Clevenger, M&O/LANL, Los Alamos, NM
D. C. Mangold, M&O/LBNL, Berkeley, CA
R. E. Monks, M&O/LLNL, Livermore, CA
F. J. Schelling, M&O/SNL, Albuquerque, NM, M/S 1325
R. E. Armstrong, M&O, Las Vegas, NV
R. W. Clark, DOE/OQA, Las Vegas, NV

OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

Surveillance No. USGS -SR-97-034

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

1. ORGANIZATION/LOCATION: U. S. Geological Survey (USGS) Denver, Colorado	2. SUBJECT: Software Configuration Accounting	3. DATE: May 29-30, 1997
4. SURVEILLANCE OBJECTIVE: Review the USGS Software Configuration Management Process		
5. SURVEILLANCE SCOPE: To determine adequacy and effectiveness of the process used for software configuration identification, control, and status accounting managed by the USGS Yucca Mountain Project Branch.		6. SURVEILLANCE TEAM: Team Leader: Emily S. Reiter Additional Team Members: N/A
7. PREPARED BY: <i>Emily S. Reiter</i> Emily S. Reiter Surveillance Team Leader	5/19/97 Date	8. CONCURRENCE: <i>James Blaylock</i> Donald G. Horton Director, OQA
5/19/97 Date		

SURVEILLANCE RESULTS

9. BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS: <p>On May 29-30, 1997, a surveillance was performed of the USGS at their Denver, Colorado, facility. The purpose of the surveillance was to evaluate selected portions of QMP-3.03, Revision 6, relating to configuration identification, configuration control, and status accounting for software baselines. The surveillance consisted of personnel interviews and review of documentation. An exit meeting was held with the USGS on May 30, 1997, to review surveillance results.</p> <p>Review of the software configuration management process was performed in accordance with the procedure requirements listed below:</p> <p style="text-align: center;">YMP-USGS QMP-3.03, Revision 6, Scientific Investigation and Design Control, Section 3, Software</p> <p>See Pages 2-4</p>	
10. SURVEILLANCE CONCLUSIONS: <p>Based on the review of objective evidence and interviews with the USGS personnel, it was determined that the adequacy and effectiveness of implementation of the quality assurance program requirements for software configuration management is satisfactory.</p> <p>Deficient Conditions: One deficiency was identified and corrected during the surveillance relating to configuration identification. This deficiency was considered isolated in nature.</p> <p>Recommendations: None</p>	
11. COMPLETED BY: <i>Emily S. Reiter</i> Surveillance Team Leader	6/26/97 Date
12. APPROVED BY: <i>James Blaylock</i> Director, OQA	6/26/97 Date

Block 9 (Continued) BASIS FOR EVALUATION/DESCRIPTION OF OBSERVATIONS:**Configuration Identification:**

Paragraph 5.6 - "Each version of software and revision of associated software items under software configuration management shall have a unique identification number to serve as a reference between items, baselines, and software output."

Software configuration management forms and YMP-USGS software documentation and baseline element chronology reports (see objective evidence) were reviewed and found to be in compliance with the above procedural requirements.

Configuration Control:

Paragraph 5.6.2 - "For each baseline element upon approval by the appropriate team chief, an updated copy of the Software Configuration Management (SCM) form is forwarded to the QA Manager for status accounting."

The SCM forms (see objective evidence) and the Status Accounting Log were reviewed and found to be in compliance with the above procedural requirements.

Paragraph 5.6.2 - "Once all baseline elements are approved, software is released in accordance with section 5.2.2.4.

- YMP USGS QA Manager notifies technical contact.
- After release of the software the primary user shall use the software as stated on the requirements specification.
- Where V&V cannot be met prior to release of the software, the portions of software that have not been validated and verified shall be identified and controlled, and written justification of the reason documented.

Documents (see objective evidence) associated with the approval of baseline elements, QA Manager notification, and software use as stated on the requirements specification were reviewed and found to be in compliance with the above procedural requirements. The USGS has not released software where V&V cannot be met.

Paragraph 5.6.2 - "The Principal Investigator is responsible for submitting completed records to the RPC in accordance with QMP-17.01."

Completed QA record packages (see objective evidence) were reviewed and found to be in compliance with the above procedural requirements.

Block 9 (Continued) BASIS FOR EVALUATION/DESCRIPTION OF OBSERVATIONS

Status Accounting:

Paragraph 5.6.3 - "The QA Manager shall maintain a status accounting system which includes:

- Listing of approved software baseline elements
- Unique identifiers
- Status of proposed changes to baseline elements
- Brief chronology of software items

Documents (see objective evidence) associated with the USGS software status accounting system were reviewed and found to be compliance with the above procedural requirements with the exception of one deficiency that was corrected during the surveillance. The YMP-USGS Software Documentation and Baseline Element Chronology Report was missing the revision number of the associated QMP and the version of software used for INCONVERT.PAS. The USGS Software QA Specialist corrected the report by entering the required revision numbers of the associated QMP and the version identification of the software prior to completion of the surveillance. The omissions were considered isolated and require no further action.

OBJECTIVE EVIDENCE

The following documents were reviewed during the course of the surveillance:

- YMP-USGS Software Configuration Management System Report, dated 5/28/97
- QARD DOE/RW-0333P, Revision 6, dated 3/3/97
- QARD DOE/RW-0333P Requirements Matrix dated 5/28/97
- YMP-USGS QMP-3.03, Revision 6, Modification 2, dated 10/2/96
- YMP-USGS Software Documentation and Baseline Element Chronology Report, dated 5/28/97
- YMP-USGS Software Configuration Management System SIF Report, dated 5/28/97
- YMP-USGS Operations and Maintenance Software Report, dated 5/28/97
- TOUGH 2.v.1.11 YMP-USGS Review/Comment Resolution Forms for TOUGH ESP0013.01, MODFLOWP, NHP0082.04, dated 11/27/96
- YMP-USGS Data Manuscript Review/Comment Resolution Form for MARKOV, dated 9/96
- Software Configuration Management Forms for TOUGH 2, standard version, 1.11, dated 9/30/96, MARKOV, dated 9/26/96, MODFLOWP, version v.2.3, YCINT, version v.1.2, BEALEP, version v.1.6, RESANP, version v.1.3, dated 12/18/96 for distributed software, NYP0082.03, MODFLOW, version v.1638, dated 5/29/96
- Software Identification Form for ESP0015.01, TOUGH 2, standard version 1.11, dated 9/30/97, CID-ESP0010.01, MARKOV, version 1.0, dated 7/15/96, MODFLOW, dated 5/29/96
- QMP 3.03, Revision 6, Software Qualification for the Program MARKOV, dated 9/96

OBJECTIVE EVIDENCE (Continued)

- USGS Memorandum from Chaney to Tucci, Subject: Distribution of Released Software MODFLOWP, NHP0082.04, RESANP, ESP0011.01, BEALEP, ESP0013.01 and YCINT, ESP5.11, dated 12/19/96
- Software Requirements specifications for MODFLOWP, v.2.3, used for Site Saturated Zone Hydrosynthesis and Modeling, dated 11/27/96
- Software Validation Report for MODFLOW dated 3/19/96, CID YMP-USGS NHP0082.03
- Software User documentation and review for MODFLOW, dated 3/19/96
- Software requirements specification for MODFLOW
- Design description for MODFLOW, dated 3/19/96
- Software Record Package submittals for: ESP0014.02 FRACMAN, RPC BATCH # MOY 970204-03, 1/31/97; ESP0015.01, TOUGH 2, RPC # MOY 961022-01, 10/18/96; NSP0010.01, MARKOV, RPC # MOY 970116-01, 1/13/97; NHP0082.03 MODFLOW, RPC # MOL.19961107.0013, 6/17/96; ESP0001.01, MAFIC, RPC # MOL.19961122.0404, 7/29/96; HIP0040.01, PEST, RPC # MOL.19961202.0172, 8/19/96; GSP0032.01, DIFFGIBBS, RPC # MOL.19940818.0084, 5/19/94

PERSONNEL CONTACTED DURING THE SURVEILLANCE:

Thomas H. Chaney, USGS QA Manager
Cynthia Miller-Corbett, USGS Software QA Specialist
Suzi O'Brien, USGS QA Implementation Specialist
Ardell M. Whiteside, QA On-Site Representative