



Department of Energy
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Yucca Mountain Site Characterization Office
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OCT 0 5 1995

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ISSUANCE OF SURVEILLANCE RECORD YMP-SR-95-042 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION'S (YMQAD) SURVEILLANCE OF THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM MANAGEMENT AND OPERATING CONTRACTOR (CRWMS M&O) (SCPB: N/A)

Enclosed is the record of Surveillance YMP-SR-95-042 conducted by the YMQAD at the Lawrence Berkeley National Laboratory (LBNL) facilities in Berkeley, California, September 5-8, 1995.

The purpose of the surveillance was to verify that LBNL is ready to implement their own Quality Assurance (QA) Program and the Quality Assurance Requirements and Description Document, DOE/RW-0333P, Revision 4, requirements for the applicable QA Program Elements that were selected.

One Deficiency Report (DR), YMQAD-95-D-014, and one Performance Report (PR), YMQAD-95-P-014, were issued as a result of this surveillance. Response to the DR and PR, which were transmitted via separate letter, is due by the date indicated in Block 13 of the DR and PR.

This surveillance is considered completed and closed as of the date of this letter. A response to this surveillance record and any documented recommendations is not required. However, the open DR will continue to be tracked until it is closed to the satisfaction of the quality assurance representative and the Director, YMQAD.

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OCT 05 1995

If you have any questions, please contact either Mario R. Diaz at 794-7974 or Amelia I. Arceo at 794-7737.

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:MRD-101

Enclosure:
Surveillance Record
YMP-SR-95-042

cc w/encl:

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- R. W. Clark, HQ (RW-3.1) FORS
- T. A. Wood, HQ (RW-14) FORS
- C. J. Henkel, NEI, Washington, DC
- ~~J. G. Spraul, NRC, Washington, DC~~
- W. L. Belke, NRC, Las Vegas, NV
- R. R. Loux, NWPO, Carson City, NV
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- Mifflin and Associates, Las Vegas, NV
- S. L. Bolivar, LANL, Los Alamos, NM
- G. S. Bodvarsson, LBNL, Berkeley, CA
- S. J. Levy, LBNL, Berkeley, CA
- R. E. Monks, LLNL, Livermore, CA
- J. D. Christensen, Kiewit/PB, Las Vegas, NV
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- R. P. Ruth, M&O, Las Vegas, NV
- T. H. Chaney, USGS, Denver, CO
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*Jack Spraul -
(This came to
Las Vegas Office)
Rabe*

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

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

¹ORGANIZATION/LOCATION:
Lawrence Berkeley National
Laboratory (LBNL), Berkeley,
California

²SUBJECT: LBNL transition of work to their
own Quality Assurance (QA) Program

³DATE: 9/5-8/95

⁴SURVEILLANCE OBJECTIVE: To verify that LBNL is ready to implement their own QA Program and the Quality Assurance Requirements and Description document (QARD), (DOE/RW-033P), Revision 4, requirements for the selected QA Program Elements.

⁵SURVEILLANCE SCOPE:
The scope of this surveillance includes QA Program Elements 1, 2 (Training), 5, 6, 12, 17 and Supplements I, II and III. QA Program Element 4 was added during the surveillance.

⁶SURVEILLANCE TEAM:
Team Leader:
Amelia I. Arceo
Additional Team Members:
James E. Clark

⁷PREPARED BY:
Amelia I. Arceo
Amelia I. Arceo 8/31/95
Surveillance Team Leader Date

⁸CONCURRENCE:
N/A
QA Division Director Date

SURVEILLANCE RESULTS

⁹BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

See Page(s) 2 - 13

¹⁰SURVEILLANCE CONCLUSIONS:

See Page(s) 13 - 14

¹¹COMPLETED BY:
Amelia I. Arceo
Amelia I. Arceo 9/28/95
Surveillance Team Leader Date

¹²APPROVED BY:
Paula Lee
for QA Division Director 10-4-95
Date

Block 9 (continued) BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

On September 5 through 8, 1995, a surveillance was performed at the LBNL in Berkeley, California to verify that LBNL is ready to implement their own QA Program and the QARD for the selected QA Program Elements 1, 2 (Training only), 5, 6, 12, 17 and Supplements I, II and III. QA Program Element 4 was added during the surveillance, when it was discovered during the review of a scientific notebook that procurements were in progress.

The QA Program Elements evaluated are described below:

QA PROGRAM ELEMENT 1 - ORGANIZATION

Evaluation of this element was done through interviews with cognizant personnel and review of pertinent documents relative to organizational independence, authority and responsibilities, delegation of work and resolution of disputes (QARD Sections 1.2.1, 1.2.2, 1.2.3, 1.2.4, and 1.2.5). Quality Implementing Procedure (QIP)-1.0, Revision 0, "Organization Structure," was concurrently reviewed to evaluate the inclusion and implementation of applicable QARD requirements.

QIP-1.0, Revision 0, provides a detailed description of the Yucca Mountain Project (YMP)-LBNL organizational responsibilities and authorities for achieving and maintaining quality. The key position responsible for QA is the QA Manager. This position is at the same level as the line managers, Group Leaders and Principal Investigators (PI), who are responsible for carrying out assigned YMP-LBNL tasks satisfying technical and quality requirements subject to the QARD. The QA Manager reports functionally to the Project Manager, is independent of cost and schedule, has no responsibilities unrelated to QA that would prevent full attention to QA matters, and has the organizational freedom to effectively communicate with other Group Leaders and PIs. The QA Manager and QA Specialist, who appears to be working part time in QA, make up the QA Staff which is sufficient at this time; however, when full QA Program implementation starts, this staff would not be sufficient (See Recommendation 1). It was not verified that the QA Management position is occupied by an individual with appropriate knowledge and experience in management and QA, because the Position Description for the QA Manager did not specify minimum experience requirement. LBNL informed the surveillance team during the pre-surveillance meeting on September 9, 1995 that there were "rough spots" (deficiencies) in Qualifications/Position Descriptions (See Training below for details).

The Project Manager, Group Leader for Performance Assessment, PI for Software Code Development, and PI for Surface Activities were cognizant of the provisions for addressing quality disputes progressively to a higher level of management for resolution. They have not delegated any of their responsibilities and are not intending to do so in the future. They further stated that they have open communications with the QA Manager and that they consult the QA Manager on QA issues informally, since their organization is small.

The QA Manager is cognizant of the requirement that work may be delegated but he retains the overall responsibility for the delegated work. He had delegated signature authority to a member of his staff. Modification 1 to QIP-1.0, Revision 0, was issued to clarify the requirement that when delegation of responsibility is done, "such delegation shall be done in writing."

OBJECTIVE EVIDENCE REVIEWED:

- Steve Levy's letter dated 7/20/95, Subject: Delegation of Signature Authority to Don Mangold for dates 7/24-28/95
- G. S. Bodvarsson letter dated 8/31/95, Subject: Assignment of Steve Levy as Acting QA Manager
- Position Description for QA Manager
- Resume of Steve Levy

SUMMARY:

Except for the position description deficiency mentioned above and detailed under TRAINING below, implementation of this QA program element is satisfactory.

QA PROGRAM ELEMENT 2 - TRAINING

LBNL training implementation was evaluated using QARD Section 2.2.11 and Subsections A through J. QIP-2.1, Revision 0, "Qualifying Personnel," was concurrently reviewed to evaluate the inclusion and implementation of applicable QARD requirements.

In the opening meeting, LBNL advised the Team of "rough spots" in implementing QIP-2.1, primarily represented by incomplete qualification files and untimely completion of training assignments. The deficient conditions were confirmed during review of seven (7) qualification files, as a sample of the 49 YMP-LBNL staff. Minimum education and experience requirements to comply with QARD 2.2.11.D were not consistently documented in Position Descriptions, precluding subsequent compliance with QARD requirements 2.2.11.E (personnel must meet minimum requirements), and 2.2.11.F (minimum education and experience must be verified). LBNL issued Deficiency Report (DR) LBL-95-D-001 to document this deficiency. It was indeterminate whether staff had completed required training prior to performing work, because some training assignments were dated as late as one month after the effective date of the YMP-LBNL QA program. LBNL issued DR LBL-95-D-002 to document this deficiency.

The training and qualification records were collected and maintained as required in the QA Manager's office. The records were readily accessible and retrievable, yet appropriately controlled in a locked cabinet in the QA Manager's locked office.

CONDITIONS CORRECTED DURING THE SURVEILLANCE:

1. There was no evidence that the YMP-LBNL QA Manager had concurred with the Position Descriptions as specified in QIP-2.1, Revision 0, Paragraph 3.1.2; however, this is not a QARD requirement and it was removed from the procedure by Modification 1 before close of the surveillance.
2. QIP-2.1, Revision 0, Paragraph 3.3.6, was changed during the surveillance to more definitively specify when supervisors must evaluate and assess the need for additional indoctrination and training. Paragraph 3.3.3 was modified during the surveillance to add "prior to performing the task" to more effectively implement the QARD requirement.
3. Qualification files documented that all personnel selected in the sample had received appropriate indoctrination with the exception of G. S. Bodvarsson, who conducted the briefings as the Project Manager. Mr. Bodvarsson's name was added to the attendance roster during the surveillance by notation to indicate his presence as instructor.

OBJECTIVE EVIDENCE REVIEWED:

- Position Descriptions of: G. S. Bodvarsson, Steve Flexser, Peter Lau, Steven Levy, Peter Persoff, Torquil Smith, Joe Wang
- "Overview of the LBL QA Program for YMP Activities" forms for the staff listed above
- "Classroom Training Statement" and "Reading Assignment" forms for the staff listed above

SUMMARY:

The overall status of Training implementation is rated marginal due to uncertainties in training status, and the obvious impact on procurements resulting from lack of training (see PROCUREMENT below).

QA PROGRAM ELEMENT 4 - PROCUREMENT

Evaluation of QARD, Section 4.0, was not scheduled or performed because the Team was informed in the scoping stage that no procurements were made or planned. However, it was discovered in the review of a scientific notebook that two separate purchases of measuring devices were initiated after the effective date (7/21/95) of QARD Requirements Traceability Network Matrix acceptance. The procurement of a mini-permeameter was considered "non-quality affecting" by the Team because it is a standard commercial grade device whose traceability and calibration control would begin upon LBNL's internal calibration. The other procurement included a Calibration Mass set intended to be a calibration standard for balances used in quality affecting work.

Technical and QA reviews as required by QARD, Section 4.2.2.E, were not performed on either procurement, mainly because the initiator and the approver were not aware of the QARD requirement. Neither party had been assigned to read QIP-4.0, Revision 0, "Contract Development." The QA Manager was unaware of the procurements.

DR YMQAD-95-D-014 was written on the calibration mass procurement, citing the lack of required reviews and the issuance of a quality affecting procurement to a supplier not on the Qualified Supplier List.

OBJECTIVE EVIDENCE REVIEWED:

- Permeability Experiment Notebook, YMP-LBNL-TT-1 (Tetsu Tokunaga)
- Purchase Requisition #1730-83
- Purchase Requisition #1730-81/ Purchase Order #6409792

SUMMARY:

Implementation of this QARD Section 4.0 was not sufficiently evaluated, due to time constraints, to determine the effectiveness, but it was evident that better controls are needed.

**QA PROGRAM ELEMENT 5 - IMPLEMENTING DOCUMENTS
QA PROGRAM ELEMENT 6 - DOCUMENTS CONTROL**

Evaluation of these elements were through interviews with cognizant personnel and reviews of pertinent documents relative to the following QARD requirements:

- work is performed according to controlled implementing documents (Section 5.2).
- implementing documents include quantitative or qualitative acceptance criteria sufficient for determining that activities were satisfactorily accomplished (Section 5.2.2D)
- identification of lifetime or nonpermanent QA records generated by the implementing document (Section 5.2.2H)
- implementing documents are reviewed, approved and controlled (Section 5.2.3)
- implementing documents are reviewed for adequacy, correctness, and completeness (Section 6.2.3)
- review criteria are established before performing the review (Section 2.2.9A)
- reviews are performed by individuals other than the originator (Section 2.2.9C)
- reviewers are technically competent in the area being reviewed (Section 2.2.9D)
- mandatory comments resulting from the review are documented and resolved before approving the document (Section 2.2.9F)
- Documents used to perform work shall be distributed to, and used at, the work location (Section 6.2.5A)

QIP-5.0, Revision 0, "Preparing QIPs - Quality Implementing Procedures;" QIP-5.1, Revision 0, "Preparing TIPS - Technical Implementing Procedures;" QIP-6.0, Revision 0, "Document Control;" and QIP-6.1, Revision 0, "Document Review," were concurrently reviewed to evaluate the inclusion and implementation of applicable QARD requirements.

A total of 17 QIPs were issued as controlled documents and one Technical Implementing Procedure (TIP) was approved but not yet distributed as of the date of the surveillance.

Two implementing procedures (QIP 2.1, Revision 0, "Qualifying Personnel," and QIP 12.1, Revision 0, "Documenting the Usage of Measuring and Test Equipment,") were reviewed to verify implementation of QIP-5.0, Revision 0. TIP-KK-1.0, Revision 0, "Borehole Scanner Survey," was reviewed to verify implementation of QIP-5.1, Revision 0. Review comments were documented on the Document Review/Comment Resolution (DRCR) forms for the TIP; however, no DRCR forms were completed for the reviews done on the QIPs. The QA Manager revealed that no DRCR forms were completed for the reviews done on the all the 17 QIPs since the reviews occurred prior to the 7/21/95 effective date of QIP-5.0, Revision 0. The reviewers wrote their comments on the draft procedures being reviewed, and they did not sign and date their reviews; hence, comments were not traceable to the reviewers, and the resolution of mandatory comments could not be verified. This deficiency was identified in Performance Report (PR) YMQAD-95-P-014.

The required Document Title, Document Identification Number, Appropriate Approvals and Effective Date; Reviewer Qualification Verification Statements for each reviewer; QA Review Criteria; and Technical Review Criteria were verified for the three in-process record packages reviewed.

It was verified that four DCARs submitted by managers to the Document Control (DC) office resulted in adding names to the document distribution list.

Seven persons on the recipient list were verified to have the controlled copies of the documents marked with a red stamp and unique recipient number.

Controlled Document Instructions (CDIs) were completed by the DC person and returned by the recipients prior to the due date.

Seventeen "Document Distribution Report by Holders" were retrieved from the Controlled Document Information System on 9/7/95.

CONDITIONS CORRECTED DURING THE SURVEILLANCE:

1. QIP-5.0, Revision 0, Modification 1, was issued during the surveillance to delete Paragraph 3.2 Acceptance Criteria requirement in QIPs, since it is not required for QIPs, to add "Document" to Paragraphs 3.3.2 and 3.3.4 "Review/Comment Resolution Form," and to identify the lifetime and nonpermanent QA Records in Paragraph 4.0.

2. TIP- KK-1.0, Revision 0, "Borehole Scanner Survey" did not have the acceptance criteria for determining that activities were satisfactorily accomplished as required by QIP-5.1, Revision 0. Modification Number 1 to TIP- KK-1.0, Revision 0 was completed during the surveillance to include the acceptance criteria.
3. The draft TIP-KK-1.0, Revision 0, was not in the in-process records package file as required by procedure QIP 5.1, Revision 0. The draft was added to the in-process records package during the surveillance.
4. Identification of the lifetime and nonpermanent QA Records as required by the QARD were not specified in the three implementing procedures reviewed. This was identified as a generic problem, so all the controlled documents (17 QIPs and one TIP) were revised during the surveillance to include the identification of the lifetime and nonpermanent QA Records requirement.
5. Compliance with QIP-6.0, Revision 0, "Document Control," Paragraph 3.1.2 requirement to include the Document Title, Document ID Number, Appropriate Approvals, Effective Date and Impacted Documents were verified, except for the Impacted Documents. Since this requirement was self imposed, Modification 1 to QIP- 6.0, Revision 0, was issued during the surveillance to delete the requirement.
6. The QIP-6.0, Revision 0, Paragraph 3.4.4 requirement regarding "three partial changes" was deleted in the issuance of Modification 1. This was a redundant requirement which was already identified in QIP-5.0, Revision 0, Paragraph 3.5.2 and QIP-5.1, Revision 0, Paragraph 3.5.3.
7. Document Control Action Requests (DCARs) were not completed by the originator for the first 10 recipients of the controlled documents as required by QIP 6.0, Revision 0. The DC person based his distribution on a list which was not traceable to the originator. The required DCARs were completed for the 10 recipients during the surveillance.
8. QIPs were available at locations where work is performed except in the DC Area where the DC person was using an uncontrolled set of procedures. This was corrected during the surveillance by the issuance of a controlled set of QIPs to the DC person (himself).
9. The QIP-6.1, Revision 0, Paragraph 3.2 , requirement that states, "The Project Manager shall establish technical review criteria...." was verified being completed by PIs, not by the Project Manager. Modification 1 was issued during the surveillance which changed the requirement to read "Reviewers shall consider the review criteria established by the appropriate manager or referenced in the applicable procedure."

OBJECTIVE EVIDENCE REVIEWED:

- In-process Records Packages for QIP-2.0, Revision 0; QIP-12.0, Revision 0; and TIP-KK-1.0, Revision 0
- Modifications issued to the 17 QIPs and one TIP
- QA Review Criteria for TIP-KK-1.0, Revision 0, attached to QA Reviewer - Steve Levy's DRCR dated 8/18/95
- Technical Review Guide for TIP-KK-1.0, Revision 0, attached to Technical Reviewer - L. Meyer's DRCR dated 8/18/95
- Reviewer Qualification Verification Statements for Steve Levy dated 8/18/95 and Larry Meyer dated 8/22/95 reviewers of TIP-KK-1.0, Revision 0
- DRCRs for TIP-KK-1.0, Revision 0, Modification 1, completed by Steve Levy and Larry Meyer on 9/8/95
- QA Review Criteria for QIP-2.1, Revision 0, Modification 1 attached to QA Reviewer - Don Mangold's DRCR dated 9/7/95
- Technical Review Guide for QIP-2.1, Revision 0, Modification 1 attached to Technical Reviewer - Ernie Majer's DRCR dated 9/7/95
- First 10 recipients of controlled documents:

Antunez, E.	Bodvarsson, G.
Daley, T.	Fink, M.
Freifeld, B.	Hobart, D.
Levy, S.	Lippert, D.
Majer, E.	Mangold, D.
- DCARs - Addition to Controlled Distribution List:

Mack Kennedy	Sherry Seybold
Jiamin Wan	Jane Long
- Recipients who completed CDIs:

Antunez, E.	Bodvarsson, G.
Daley, T.	Fink, M.
Freifeld, B.	Hobart, D.
Kennedy, B.	Levy, S.
Lippert, D.	Majer, E.
Mangold, D.	Seybold, S..
White, P.	Spence, R.
- Seven recipients verified to have the controlled copies of the documents:

Antunez, E.	Bodvarsson, G.
Fink, M.	Freifeld, B.
Levy, S.	Mangold, D.
Seybold, S.	

• 17 Document Distribution Report by Holders:

Antunez, E.	Bodvarsson, G.
Daley, T.	Fink, M.
Freifeld, B.	Hobart, D.
Kennedy, B.	Lau, P.
Levy, S.	Lippert, D.
Long, J.	Majer, E.
Mangold, D.	Seybold, S..
Spence, R.	Wan, J.
White, P.	

SUMMARY:

Implementation of QA Program Elements 5 and 6 is rated marginal due to the deficiency identified in PR YMQAD-95-P-014 and the several deficiencies noted in this report that were corrected during the surveillance.

QA PROGRAM ELEMENT 12 - CONTROL OF MEASURING & TEST EQUIPMENT (M&TE)

QARD Sections 12.2.1.A, B, C, F, and E; 12.2.2; and 12.2.6 were selected to spot evaluate the status of YMP-LBNL controls for M&TE. QIP-12.0 was concurrently reviewed to evaluate the inclusion and implementation of applicable QARD requirements.

The lists of M&TE are maintained in "Calibration Logbooks" kept by each PI. The Surveillance Team reviewed the Calibration Logbooks of two staff scientists, and the list of M&TE maintained by a third staff scientist in a larger scope Scientific Notebook. The notebooks contained information in a format sufficiently implementing the requirements for documenting the calibration intervals, methods and data, the uniqueness of identification, and traceability to processes monitored or tested with the devices.

The Surveillance Team could not evaluate controls on a Mass Spectrometer and an Atomic Absorption unit used to support the work of Staff Scientist Mack Kennedy because the scientist/operator Kuni Nishiizumi was not at the laboratory during the surveillance period. These items will be checked during the next scheduled audit.

CONDITIONS CORRECTED DURING THE SURVEILLANCE:

- 1 Two pumps and a transducer were omitted from the M&TE lists, and a PRINCO barometer was not uniquely identified. In addition, there was inconsistency in the specified calibration frequency for two PRINCO barometers used for the same purpose by two staff scientists in different locations. These deficiencies were corrected during the surveillance.

2. Procedures QIP-12.0, Revision 0 and QIP-SIIL0, Revision 0, "Scientific Investigation," were modified during the surveillance to clearly authorize the use of "notebook procedures" for calibrating equipment. Provisions were added mostly in QIP-SIIL0 to improve controls on content, format and reviews of notebook procedures.
3. QIP-12.0, Revision 0 was modified to specify YAP-15.1Q, Revision 2 "Control of Nonconformances," as the method for controlling out-of-calibration devices. Paragraph 3.2.3 had incorrectly referenced AP-16.1Q, Revision 0, "Performance/Deficiency Reporting," and AP-16.2Q, Revision 0, "Corrective Action and Stop Work."
4. QIP-12.0, Revision 0 was modified to correct Paragraph 3.4.1 which allowed, without justification, the use of standards having "equal" accuracy to calibrate equipment.

OBJECTIVE EVIDENCE REVIEWED:

- "Calibration Log for Fracture Flow Experiment," YMP-LBNL-KP-1 (Peter Persoff)
- "Fracture Flow Experiment Notebook," YMP-LBNL-KP-2 (Peter Persoff)
- "Applicability of Laboratory Data to Repository Transport Calculations," YMP-LBNL-JSW-1.2 (Tetsu Tokunaga)
- "Calibration Log for Permeability Experiment," YMP-LBNL-TT-2 (Tetsu Tokunaga)
- "Actinide Solubility Tests," YMP-LBNL-DEH-1 (Dave Hobart)
- Solubility Samples SE-01-DEH through SE-05-DEH (Dave Hobart)
- "Cosmogenic Nuclides," YMP-LBNL-BMK-1 (B. Mack Kennedy)

SUMMARY:

Control of M&TE is rated marginal due to the several failures to identify and list M&TE devices in the equipment logbooks, and the necessity to make barometer calibration frequencies consistent at three years, during the surveillance.

QA PROGRAM ELEMENT 17- QA RECORDS

YMP-LBNL advised that no implementation of records processing had occurred. Through interview of the newly designated Records/Technical Data Manager, it was confirmed that a records package of LBNL procedures was being assembled and was at the stage where the "preparation" steps of QIP-17.0, Revision 0, "Submitting Records to the YMP-LBL Records Processing," were being checked. Therefore, implementation of Records controls could not be evaluated at this time.

OBJECTIVE EVIDENCE REVIEWED:

- Incomplete records packages for LBNL QIPs and TIPS

SUPPLEMENT I - SOFTWARE

YMP-LBNL advised that no implementation of YMP-LBNL-QIP-S1.0, Revision 0, "General Software Quality Assurance," had occurred. Software has up to 6 months after the initial effective date (7/21/95) of this QIP in order to proceed through the life cycle, achieve released status and be placed under software configuration management. The Software Identification Form for TOUGH2, Version 1.11 completed by Karsten Pruess on 8/7/95 and Software Used on YMP Projects-Preliminary Log which listed the Code Name and Version Number TOUGH2, Version 1.11, were the only documentation generated under this QIP. Through interviews with Donald Mangold, Software QA Specialist and Karsten Pruess, PI-Performance Assessment Modeling it was verified that no work was done to the TOUGH2, Version 1.11, code after November 11, 1994; therefore, implementation of this QA Program could not be evaluated at this time.

OBJECTIVE EVIDENCE REVIEWED:

- Software Identification Form for TOUGH2, Version 1.11, 8/7/95
- Software Used on YMP Projects-Preliminary Log, 8/8/95

SUPPLEMENT II - SAMPLE CONTROL

QARD Supplement III.2.2.B and III.2.7 were selected to representatively evaluate sample controls. The LBNL procedure QIP-SII.0, Revision 0, "Documenting Sample Control" was concurrently reviewed to evaluate the inclusion and implementation of applicable QARD requirements to control samples.

YMP-LBNL generally receives core and rock samples previously marked by either the Sample Management Facility or other non-LBNL scientists in the field. LBNL is usually the last custodian in the sample chain-of-custody since no sample analyses are downstream of LBNL's actions.

The rock samples viewed were identified with permanent black ink marker. Replicas (clear molds of natural-fracture rock cross-section samples) are prepared to facilitate fluid dispersion studies. Sample identification was appropriately transferred to the replicas tested. Other samples cut to size to fit special testing apparatus had the original identification effectively transferred to the pieces. All references found in notebooks exactly matched the identification numbers on samples.

In one study the scientist generated lab samples testing the solubility of selenium in simulated J-13 water. The samples were labeled appropriately with a code for unique identification and sample test tubes were marked with permanent black ink.

OBJECTIVE EVIDENCE REVIEWED:

- Natural fracture samples YM-1, YM-3, YM-4 (Peter Persoff)
- USGS Core samples U12P-05 G11 and U12P-SF SH2 (Tetsu Tokunaga)
- Selenium Solubility Samples SE-01-DEH through SE-05-DEH (Dave Hobart)

SUMMARY:

No discrepancies were discovered during the evaluation of this area. Therefore, LBNL is rated satisfactory in implementation of sample controls.

SUPPLEMENT III - SCIENTIFIC INVESTIGATION

QARD Supplement III.2.1.C was used to evaluate the adequacy of scientific planning control and III.2.2.B was used to evaluate controls on scientific notebooks. QIP-SIII.0, Revision 0, was concurrently reviewed to determine the adequacy of implementation of applicable QARD requirements.

Planning documents had been prepared and approved earlier in the fiscal year. The upper level documents were referenced in the scientific notebook, eliminating the need for planning detail. The scientific notebooks contained the appropriate information specified in QARD Supplement III.2.2.B.

CONDITIONS CORRECTED DURING THE SURVEILLANCE:

1. One notebook was incomplete in documentation, but the data had been gathered earlier and not yet transferred to new notebooks initiated after the effective date of the LBNL QA program. The data were transferred to the new notebook during the surveillance.
2. QIP-SIII.3, Revision 0, "Transferring Key Data to the Yucca Mountain Project Office," specified that a "Key Technical Data Traceability" form be prepared, but the form was missing from a seismic gravity data package being readied for submittal to the Automated Technical Data Tracking system. The form was prepared during the surveillance. There was no impact on the process because the next procedure step had not been performed.

OBJECTIVE EVIDENCE REVIEWED:

- "Fracture Flow Experiment Notebook," YMP-LBNL-KP-2 (Peter Persoff)
- "Applicability of Laboratory Data to Repository Transport Calculations," YMP-LBNL-JSW-1.2 (Tetsu Tokunaga)
- "Actinide Solubility Tests," YMP-LBNL-DEH-1 (Dave Hobart)
- "Cosmogenic Nuclides", YMP-LBNL-BMK-1 (B. Mack Kennedy)
- "P-Tunnel Test Plan" (Joe Wang)

SUMMARY:

Scientific Investigation controls are considered satisfactory. The data submittal portion could not be evaluated because of its partial implementation.

PERSONNEL CONTACTED:

The following YMP-LBNL personnel were contacted during the surveillance:

NAME	TITLE
Gudmundur Bodvarsson	Project Manager
Pat Bronnenberg	Personnel Representative-Human Resources
David E. Hobart	Staff Scientist-Actinide Chemistry
B. Mack Kennedy	Staff Scientist-Performance Assessment
Peter Lau	Records/Technical Data Manager
Steve Levy	QA Manager
Donald Mangold	Software QA Specialist
Ernie Majer	PI-Surface Geophysics
Peter Persoff	Staff Scientist-Site Characterization
Karsten Pruess	PI-Performance Assessment Modeling
Tetsu Tokunaga	Staff Scientist-Performance Assessment
Joseph Wang	Group Leader-Performance Assessment

Block 10 (continued) SURVEILLANCE CONCLUSIONS:

Significant progress has been made by YMP-LBNL in developing a new QA program for the elements evaluated during the surveillance. However, improvements are necessary to exert the positive control required for an effective QA Program.

Implementation of Supplements II (Sample Control) and III (Scientific Investigations), which are critical to LBNL's scientific responsibilities on the Yucca Mountain Project is rated satisfactory.

Implementation of QA Program Element 1 (Organization) is rated satisfactory except for the position description deficiency mentioned under Training.

Training implementation is rated marginal due to uncertainties in training status, and the obvious impact on procurements resulting from lack of training.

Implementation of QA Program Elements 5 (Implementing Documents) and 6 (Document Control) is rated marginal due to the deficiency identified in PR YMQAD-95-P-014 and the several deficiencies that were corrected during the surveillance.

QA Program Element 12 (Control of M&TE) is rated marginal due to the several failures to identify and list M&TE devices in the equipment logbooks, and the necessity to make

barometer calibration frequencies consistent at three years, during the surveillance.

Although QA Program Element 4 (Procurement) was not evaluated in-depth during the surveillance, it was included as a weak area due to the lack of control as documented in DR YMQAD-95-D-014.

QA Program Element 17 (QA Records) and Supplement I (Software) were not sufficiently implemented to make a determination of effectiveness.

RECOMMENDATIONS:

1. In the YMP-LBNL QA Program, the QA Manager has numerous responsibilities usually assigned to line organizations; e.g., collection and maintenance of staff qualification files, and the preparation of all QARD implementing documents. It is recommended that the QA Manager be sufficiently independent of quality achievement functions to allow objective and effective verification of QARD implementations.
2. The decision to withhold specific QARD training and reading assignments until a later date was a significant factor in the procurement violation documented by DR YMQAD-95-014. It is recommended that all YMP-LBNL personnel be briefed on or assigned training on applicable procedures before the need arises, since the use of certain elements of the QA program may again be necessary before anticipated.
3. It is recommended that QA Review Criteria and Technical Review Criteria with Standardized questions be added as attachments to the applicable QIP.