



**Department of Energy**  
 Office of Civilian Radioactive Waste Management  
 Yucca Mountain Site Characterization Office  
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WBS 9.1.2  
 QA

JUN 02 1994

Robert M. Nelson, Jr., Project Manager, YMSCO, NV

ISSUANCE OF SURVEILLANCE RECORD YMP-SR-94-035 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) SURVEILLANCE OF THE YUCCA MOUNTAIN SITE CHARACTERIZATION OFFICE (YMSCO) AND PARTICIPANTS (SCP: N/A)

Enclosed is the record of Surveillance YMP-SR-94-035 conducted by the YMQAD at the YMSCO and participants' facilities in Las Vegas, Nevada, March 3-April 27, 1994.

The purpose of the surveillance was to assess the effectiveness of implementation of the Tracers, Fluids, and Materials Management Plan.

Five Corrective Action Requests (CAR) were issued as a result of this surveillance. Response to these CAR, which were transmitted via separate letter, is due by the date indicated in Block 11 of the CAR.

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, any open CAR will continue to be tracked until it is closed to the satisfaction of the quality assurance representative and the Director, YMQAD.

If you have any questions, please contact either Robert B. Constable at (702) 794-7945 or John R. Doyle at (702) 794-7986.

*Robert B. Constable* for

Richard E. Spence, Director  
 Yucca Mountain Quality Assurance Division

YMQAD:RBC-3725

Enclosure:  
 Surveillance Record YMP-SR-94-035

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

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

<sup>1</sup>ORGANIZATION/LOCATION:  
 YMSCO, M&O, RSN, USGS,  
 REECO, SAIC, EG&G, YMS FCO  
 and their offices in Las Vegas,  
 Nevada

<sup>2</sup>SUBJECT:  
 Tracers, Fluids, and Materials (TFM)  
 Management Plan, YMP/91-23, Revision 2 and  
 Corrective Action for Corrective Action  
 Request (CAR) YM-94-027

<sup>3</sup>DATE: 3/3 through 4/27/94

<sup>4</sup>SURVEILLANCE OBJECTIVE:

To assess the effectiveness of the TFM Management Plan, YMP/91-23, Revision 2 and to verify corrective action implementation for CAR YM-93-027

<sup>5</sup>SURVEILLANCE SCOPE:

Verify effectiveness of TFM Management Plan assessing affected organizations and their interfaces with YMSCO.

<sup>6</sup>SURVEILLANCE TEAM:

Team Leader:

John R. Doyle

Additional Team Members:

Patout Cotter

<sup>7</sup>PREPARED BY:

John R. Doyle 3/2/94  
 Surveillance Team Leader Date

<sup>8</sup>CONCURRENCE:

Robert B. Swickable 3-2-94  
 QA Division Director Date

SURVEILLANCE RESULTS

<sup>9</sup>BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:

See Page(s) 2 through 5

<sup>10</sup>SURVEILLANCE CONCLUSIONS:

See Page(s) 6 through 8

<sup>11</sup>COMPLETED BY:

John R. Doyle 5/27/94  
 Surveillance Team Leader Date

<sup>12</sup>APPROVED BY:

Robert B. Swickable 6.1.94  
 QA Division Director Date

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

On March 3 through April 27, 1994, a surveillance was performed of the Yucca Mountain Site Characterization Office (YMSCO) Management and Operating (M&O) Contractor, Raytheon Services Nevada (RSN), United States Geological Survey (USGS), Reynolds Electrical and Engineering Company, Inc. (REECo), Science Applications International Corporation (SAIC), Technical and Management Support Services (T&MSS) and Edgerton, Germeshausen and Grier (EG&G) at the Yucca Mountain Site Field Operations Center (FOC) and their offices in Las Vegas, Nevada.

Below are activities selected to assess the effectiveness of the implementation of the TFM Management Plan YMP/91-23, Revision 2 of affected organizations and their interfaces with YMSCO and to verify corrective action implementation for Corrective Action Request (CAR) YM-94-027.

1. Are the TFM Management Plan requirements for the evaluation, control and reporting of TFMs specified in implementing procedures?
2. Do personnel responsible for implementation have a clear understanding of TFM control and their responsibilities?
3. Have the responsibilities for coordination of the TFM Plan and database management, which had been transferred from Los Alamos National Laboratory (LANL) to the M&O and EG&G, been implemented?
4. Are the proposed use of TFMs evaluated in conjunction with the performance of Determination of Importance, Waste Isolation and Test Interference Evaluations, and have limits/controls been specified?
5. Are the measuring and reporting of TFM quantities for Exploratory Studies Facility (ESF) and Surface Based Testing (SBT) activities controlled in accordance with the TFM Plan?
6. Do Job Packages (JPs) and Test Planning Packages (TPPs) specify TFM limits and controls?
7. Is the TFM Database maintained current and is this information disseminated to affected organizations?

During the course of this surveillance, the surveillance team interviewed selected personnel that evaluate, use and report, or are involved with procedures that implement the TFM Management Plan.

The following personnel were contacted during the surveillance:

Claudia M. Newbury, YMSCO  
James W. Beckett, EG&G/EM  
Albin Brandstetter, M&O  
Robert F. Wemheuer, M&O  
Arthur T. Watkins, M&O  
William B. Distel, M&O/ WC  
J. Rickey Joyce, REECO  
Wesley C. Pugmire, REECO  
David M. Wonderly, REECO  
John D. Lindsey, RSN  
Richard W. Wright, RSN  
Ron Helms, SAIC  
Heidi L. Lohn, SAIC  
Ronald P. Nance, SAIC  
Steven C. Smith, SAIC  
Daniel J. Soeder, USGS

Joanna L. Wiggins, EG&G  
Elaine C. Ezra, EG&G/EM  
James Houseworth, M&O  
Peter S. Hastings, M&O/Duke  
Norma E. Bigger, M&O/WC  
Jerry C. Fulkerson, REECO  
Westley C. Nordin, REECO  
Robert R. Rommell, REECO  
Donald M. Cunningham, RSN  
Julie A. Linn, RSN  
John W. Estella, SAIC  
Richard A. Kettell, SAIC  
Craig A. Matthews, SAIC  
Ron Helms, SAIC  
R. James Niggemeyer, SAIC

Legend:

Energy Measurements (EM)

Woodward Clyde (WC)

Documentation reviewed, among which included , USGS Tracer Gas Reports, Tracers, Fluids, and Materials Users Requests, REECO TFM Reports, JPs and TPPs to provide objective evidence of implementation is listed below:

1. REECO Tracers, Fluids and Materials Report No. R-94-005.
2. REECO Yucca Mountain Project Water Accountability Reports dated January 27, 1994, January 28, 1994, February 1, 1994 and February 2, 1994.
3. USGS Unsaturated Zone Drilling Data Reports for boreholes USW-SD-12; March 16 through 24, 1994 and NRG 7/7A; February 15 through March 2, 1994.
4. LANL Tracers, Fluids and Materials User Request No. R-94-001 dated October 5, 1993.
5. REECO Yucca Mountain Project Water Accountability Report for Underground Construction dated March 21 through 25, 1994.
6. LANL TFM Activity and Job Package Approval Report LA-13-LV-094-048

7. TPP 92-16, "UZ-14 Drilling and Testing," February 1994
8. TPP 93-09, "Borehole USW-SD-12 Drilling and Testing," February 1994
9. JP 94-03, "Preparation of Access Drilling and Testing of Boreholes UE-25 NRG-2C & D (Also known as UE-25 NRG 2c & d)"
10. JP 94-04, "Drilling and Testing of Borehole USW-SD-12"

Procedures, plans and other documentation reviewed during the course of the surveillance for TFM implementation are identified below:

1. Administrative Procedure (AP)-5.21Q, Revision 4, effective date November 11, 1993, "Field Work Activation"
2. AP-5.32, Revision 4, effective date December 9, 1993, "Test Planning Package Development and Implementation"
3. Yucca Administrative Procedure (YAP)-2.3Q, Draft A/O, dated February 25, 1994, "Field Work Planning Authorizations and Control"
4. YMP/91-23, Revision 2, dated December 1993, "Tracers, Fluids and Materials Management Plan"
5. Quality Assurance Procedure (QAP)-3-9, Revision 3, effective date October 30, 1993, "Design Analysis"
6. AP-5.1Q, Revision 3, Interim Change Notice (ICN) 1, effective date May 20, 1993, "Control and Transfer of Technical Data on the Yucca Mountain Site Characterization Project"
7. Quality Management Procedure (QMP)-04-03, Revision 0, ICN 3, effective date 9/16/93, "Technical Directives"
8. Transmittal No. 1A-02,-356-CND, dated March 14, 1994, "Water Accountability Report, Area 25, Row Water Line, Compaction," JP 92-20
9. Transmittal No. CND-SMT-335, dated February 15, 1994, "Water Accountability Report, Area 25, Dust Control, Drill Pad and Access Road, Drilling Department," JP 94-04
10. Nevada Line Procedure (NLP)-3-16, Revision 0, effective date September 20, 1993, "Development of Test Interface Evaluations"

11. NLP-3-17, Revision 0, effective date October 1, 1993, "Development of Waste Isolation Evaluations"
12. NLP-2-0, first draft (printed March 30, 1994), "Determination of Importance Evaluations"
13. Letter, RSED:SMN-1631, dated January 25, 1994, Implementation of Changes in the Tracer, Fluids and Materials Evaluation Process
14. Letter RSED:CMN-1858, dated February 9, 1994, Changes to the Tracer, Fluids, and Materials Management Process Resulting from Corrective Action Request YM-93-027.
15. Letter RSED:CMN-2665, dated March 10, 1993, Response to Corrective Action Request YM-93-027
16. CAR YM-93-027, dated December 28, 1992, Failure to Implement Procedures for the Control of Tracer, Fluids and Materials (TFM) in accordance with the "TFM Management Plan"
17. Letter LV.SED.PSH.3/94-030, dated March 8, 1994, DIE Consolidation Progress and TFM Quality Progress Report
18. Materials Control Procedure MC-07.6, Revision 0, effective date February 18, 1994, "Tracer, Fluids, and Materials Reports"
19. QAP-2-3, Revision 7 (draft), "Classification of Permanent Items"
20. QAP-2-3, Revision 6, effective date February 15, 1994, "Classification of Permanent Items"
21. YAP-SIII.3Q, Revision 0, effective date March 14, 1994, "Control and Transfer of Technical Data"
22. YAP-SIII.2, Revision 0, effective date March 7, 1994, "Technical Information Flow to and from the YMSCO TDB"
23. YAP-2.3Q, Draft A, February 25, 1994 SJL, "Field Work Planning, Authorization and Control"
24. USGS Technical Procedure HP-07, Revision 2, effective March 22, 1993, "Method to Inject Gas to Drilling Air"

**(Block 10 Continued) SURVEILLANCE CONCLUSIONS:**

Below is a synopsis of the results of the surveillance of the activities identified in Block 9 to validate effectiveness of implementation of the TFM Management Plan:

**ACTIVITY No. 1**

Implementing procedures of affected organizations were reviewed to determine that requirements of the TFM Management Plan were addressed for the control of TFMs. As a result of this review it was found that only one organization, REECo, has issued a procedure to address their responsibilities for reporting TFMs. The M&O has prepared draft procedures and draft revisions to address their responsibilities, but as of April 21, 1994, the drafts have not been issued. RSN, SAIC, and USGS have not revised, drafted or issued procedures to address their TFM responsibilities. EG&G is waiting for clarification of M&O and site requirements for reporting prior to preparation of a line procedure. YMSCO procedures were revised, but they have not fully addressed the requirements of the TFM Plan.

The above adverse condition has been identified on CAR YM-94-033.

**ACTIVITY No. 2**

Affected organization's personnel were interviewed to determine their practice for controlling and reporting of TFMs. Overall, most personnel did not have a clear understanding of their responsibilities for the controls of TFMs. Drilling support personnel, RSN, USGS, and REECo were not aware of the reporting requirements, but were cognizant of the use of tracers and controls of materials and fluids. REECo construction and engineering personnel were aware of the controls and reporting requirements, but did not have a clear understanding of the overall process nor the interactive nature of the database. The control measures associated with M&O evaluations and reporting were still under discussion/revision.

The above adverse condition has been identified on CAR YM-94-033.

**ACTIVITY No. 3**

Review of documentation and interviews with personnel disclosed that a Technical Directive (TD) had not been issued for the TFM activity performed by LANL, a TD had not been issued for the M&O to perform TFM coordination, nor had a TD been issued for EG&G database maintenance and reporting.

The above adverse condition has been identified on CAR YM-94-035.

**ACTIVITY No. 4**

Determination of Importance Evaluations (DIEs), Waste Isolation Evaluations (WIEs) and Test Interference Evaluations (TIEs) were to be reviewed to verify compliance with the TFM Management Plan and implementing procedures. No evaluations have been performed since the February 1, 1994 transition from LANL to the M&O. As of April 17, 1994, the new procedure which is to address TFM coordination and DIEs, NLP-2-0, has been drafted, but not issued. The revised procedures, NLP-3-16 and NLP-3-17, which address WIEs and TIEs, also have been drafted, but not issued.

The above adverse condition has been identified on CAR YM-94-033.

**ACTIVITY No. 5**

Verification that the use of TFMs are being measured and reported and that the database is being updated for ESF and SBT activities was performed. Water used to control dust is being reported and entered into the database. Evaluations have not been performed to date. Tracer use associated with drilling air is being reported to the state, but is not being sent to EG&G for input into the TFM Database. Fluids and materials associated with SBT are reported on RSN Daily Operations Reports, but also are not being sent to the TFM Database. Fluids and materials associated with construction activities are being submitted by REECO to the M&O DIE Group for evaluation and transmittal to EG&G. Fluids and materials associated with rock bolting, grout cement and resin, were not being reported.

This adverse condition has been reported on CAR YM-94-037.

**ACTIVITY No. 6**

TPPs and JPs were reviewed to determine that TFM controls and limits were specified. The review disclosed that most of the TPPs and JPs did not consistently specify controls and limits of TFMs. Some specify controls for tracers, but do not specify controls or limits for fluids and materials. Some TPPs and JPs reference the TFM Plan for controls and limits.

This above condition has been reported on CAR YM-94-038.

**ACTIVITY No. 7**

EG&G TFM database management activities were reviewed to verify compliance with the TFM Management Plan. As of April 17, 1994, the TFM database prepared by LANL has not been entered into the GENESIS database. It is presently being held in a hold file until it has been Quality Control (QC) checked. Availability of database information to participants in

hard copy format has not been finalized and the software for the read-only file for the Field Operations Center is in the testing stage. Discussions with EG&G personnel identified that TFMs are not controlled as "technical data" because they are not identified as "technical data" in the Technical Parameter Dictionary.

The adverse condition, identification of TFMs as technical data, has been documented on CAR YM-94-036.

#### **SURVEILLANCE SUMMARY:**

It was determined during the course of the surveillance that the YMSCO is ineffective in the implementation of the TFM Management Plan. The field implementation of the process appears to be inadequate. Reporting of TFMs is partially accomplished, some affected organizations are reporting TFM usage, others are not reporting TFM usage or are unaware of the reporting requirements. The procedural mechanisms to delineate the planning and interface implementation of the TFM Management Plan are not explicit or appear to be non-existent.

In addition, during the course of this surveillance, corrective action necessary for closure of CAR YM-93-027 could not be satisfactorily verified. Changes in the roles of the original participants and the addition of subsequent involved organizations, and as such it was determined to close CAR YM-93-027 and issue the aforementioned CARs to better address the present situations and concerns.