Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
P.O. Box 98608
Las Vegas, NV 89193-8608

DEC 06 1994

Larry R. Hayes
Technical Project Officer
for Yucca Mountain
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ISSUANCE OF SURVEILLANCE RECORD YMP-SR-94-063 RESULTING FROM YUCCA MOUNTAIN QUALITY ASSURANCE DIVISION (YMQAD) SURVEILLANCE OF U.S. GEOLOGICAL SURVEY (USGS) AND THE SCIENCE APPLICATIONS INTERNATIONAL CORPORATION (SAIC)/TECHNICAL AND MANAGEMENT SUPPORT SERVICES (T&MSS) PORTION 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-94-063 conducted by the YMQAD at the USGS facilities in Denver, Colorado, September 21-30, 1994, and at the CRWMS M&O/SAIC/T&MSS facilities in Las Vegas, Nevada, October 24-25, 1994.

The purpose of the surveillance was to evaluate technical data management activities.

One Corrective Action Request (CAR) was issued as a result of this surveillance. Response to the CAR, which was transmitted via separate letter, is due by the date indicated in Block 13 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, the open CAR 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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If you have any questions, please contact either Robert B. Constable at 794-7945 or Richard L. Maudlin at 794-7290.

A. E. Spence

Richard E. Spence, Director
Yucca Mountain Quality Assurance Division

YMQAD:RBC-1031

Enclosure:
Surveillance Record YMP-SR-94-063

cc w/encl:
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R. W. Clark, HQ (RW-3.1) FORS
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R. R. Loux, NWPO, Carson City, NV
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D. A. Bechtel, Clark County Comprehensive, Las Vegas, NV
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Eureka County Board of Commissioners,
Yucca Mountain Information Office, Eureka, NV
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Jason Pitts, Lincoln County, Pioche, NV
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OFFICE OF
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

[1]ORGANIZATION/LOCATION:	[2]SUBJECT:	[3]DATE:
United States Geological Survey (USGS), Denver, CO. SAIC/T&MSS Portion of Management & Operations (M&O) Contractor	Technical Data Management Process	September 26 through September 30, 1994 and October 24 through October 25, 1994

[4]SURVEILLANCE OBJECTIVE:
See Page 2

[5]SURVEILLANCE SCOPE:
Evaluate the activities associated with acquired and developed data and how this data is submitted, traced, used and qualification status is maintained

[6]SURVEILLANCE TEAM:
Team Leader:
Richard L. Maudlin
Additional Team Members:
Jim Blaylock

[7]PREPARED BY:
Richard L Maudlin 9/24/94
Surveillance Team Leader Date

[8]CONCURRENCE:
N/A
QA Division Director Date

SURVEILLANCE RESULTS

[9]BASIS OF EVALUATION/DESCRIPTION OF OBSERVATIONS:
See pages 2 through 5

[10]SURVEILLANCE CONCLUSIONS:
See pages 5 through 7

[11]COMPLETED BY:
11/28/94
Surveillance Team Leader Date

[12]APPROVED BY:
11-30-94
QA Division Director Date

ENCLOSURE

Block 4 (continued) SURVEILLANCE OBJECTIVE:

The objective of this surveillance was to:

1. Verify that technical data management activities provide for the identification and status of technical data in such a manner that traceability can be maintained.

2. Verify traceability of data for selected data sets.

3. Evaluate technical data management activities in general, and make recommendations for program improvement.

4. Using the Requirements Traceability Network (RTN), a review is to be conducted of the implementation of Supplement III, Subsections III.2.3 through III.2.4 of the QARD, as applicable.

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

SURVEILLANCE INITIATION

In response to a recommendation made in Surveillance Record YMP-SR-94-033 this surveillance was conducted by the Yucca Mountain Quality Assurance Division (YMQAD) on technical data management activities during the periods of September 26 through September 29, 1994 and October 24 through 25, 1994 and included the United States Geological Survey (USGS) and the Science Applications International Corporation /Technical & Management Support Services (SAIC/T&MSS) contractor. This surveillance focused on the technical data management activities of each participant and data traceability issues including identification, qualification status, and traceability of referenced data and related documentation, as applicable. It should be noted that this surveillance is complimentary to YMQAD Surveillance YMP-SR-94-052

In preparation for the surveillance, interviews of technical data management personnel were conducted and reviews of applicable documents performed. The surveillance team then interviewed personnel and reviewed objective evidence at USGS and the SAIC/T&MSS portion of the Management and Operating (M&O) Contractor.

SURVEILLANCE PREPARATION

The Yucca Mountain Project (YMP) Technical Data Manager, who is responsible to the Assistant Manager for Suitability and Licensing for the technical data management program, was interviewed to obtain an overall understanding of the data management system. The Yucca Mountain Site Characterization Technical Data Catalog, revised annually and with quarterly updates, is the means by which the Department of Energy (DOE) identifies available data to the Nuclear Regulatory Commission (NRC). This catalog identifies the data by Data Tracking Number (DTN), title, whether the data is acquired or developed, the qualification status, brief description of the data, and location of the data in the data management system (Participant Data

Archives [PDA], Central Records Facility [CRF], or Technical Data Base [TDB]). The Yucca Mountain Site Characterization Technical Data Catalog is also used by participants to identify and request data. The YMP Technical Data Manager approves the release of any Yucca Mountain Site Characterization technical data to parties outside the YMP (NRC, State, etc.).

SURVEILLANCE ACTIVITIES:

The surveillance activities followed the following format:

- Interview with Quality Assurance (QA) representatives, as applicable, regarding the effectiveness of Technical Data Management Program.
- Interview(s) with the technical data administrators/coordinators regarding their role and the function of the PDA.
- Review of selected data sets with the technical data coordinators using Automated Technical Data Tracking System (ATDTS), records management system, and technical data or copies of the technical data submittal maintained in the PDA. Verification of the identification and qualification status of the selected data sets were verified by the surveillance team including, as applicable, identification and qualification status of any identified source data for the data set.
- Interviews with Principle Investigators (PIs) and/or Technical Leads (TLs) on their understanding of and experiences with the technical data management system and any areas where improvements could be made.
- Interviews with Technical Project Officers (TPOs) or other responsible management, as applicable, to summarize surveillance results and to discuss the TPO's perspectives on technical data management.

United States Geological Survey

Interviews with the USGS Quality Assurance representative identified that there is a lack of understanding of the different terms used in the data management program (i.e., Qualified Data).

Nine data sets and seven correspondence packages were selected and interviews were performed with the Technical Data Coordinator and one PI. The samples included both qualified and unqualified data as indicated by the ATDTS and associated Technical Data Information Forms (TDIFs). The Data Coordinator and the PIs interviewed seemed to have a good understanding of how data is controlled within the USGS organization. However, the procedures which USGS is using, (i.e.; AP SIII.3Q and USGS-QMP-3.04) to control data do not provide the level of detail which describes the processes by which USGS controls data. This condition was documented on Corrective Action Request (CAR) YM-95-003 Refer to block 10 of this report). During the review of data, it was observed that data is being identified as "qualified", however, all of the final checks and independent reviews have not been completed. The only way that a user would know that all of the required checks and reviews had not been completed is a note in

the comment section of the TDIF. A question arises in using this practice, in that, the use of the data may not be flagged to indicate that all of the required reviews have not been completed and that the use of this data is contingent on the acceptably of the data subsequent to the final checks and reviews. (Refer to Recommendation 1)

Discussions with the Technical Data Coordinator and one PI revealed a need for better understanding on how the data management system works and the tools provided for data input to the TDB. Some of the concerns expressed by the Data Coordinator and PI include, but are not limited to: the data user experiences extreme difficulty to access specific data within the TDB, Parameter Dictionary is not user friendly (i.e.; too much room for interpretation), increased need for improved interface between the DOE and the data community, no clear definition as to where data is to reside (i.e.; TDB, CRF, or PDA), data community lacks consistent understanding of terms, development of data procedures is too slow, project data system is not user friendly (i.e.; requires the scientist to go to other participants rather than to data management personnel), definition of "Qualified Data is ambiguous, no formal mechanism for releasing data to other participants, data user can discount current qualified data and use unqualified data if it fits the need, there is no defined process on how users are notified when data is refined and interpreted (i.e.; CRF, PDA), and data developers and data users need to be more involved in data management meetings and program development. (Refer to recommendation 2)

The TPO's primary concern was the documented process for handling "real time" data. That is data which is being passed to another participant as fast as it is being acquired. How are we to track this data to assure total traceability (Refer to recommendation 3). Of a secondary concern was the scheduling of data to be submitted into the data management system. There appears to be no real defined system which prescribes when and were data is to be submitted. Also, it was pointed out that the data management system is not very user friendly (i.e.; lack of understanding by the users).

SAIC/T&MSS

The only data being acquired by SAIC/T&MSS is that data from the meteorological monitoring program. The personnel interviewed were the technical personnel responsible for data acquisition and reporting, and the technical data administrator. The line of questioning asked during the interviews was similar to that used during interviews with USGS personnel. Due to the limited data activity within SAIC/T&MSS, the questioning was only applicable to that work. TDIFs for the data being gathered by SAIC/T&MSS are being completed with the assistance of the M&O Technical Data Coordinator. It was pointed out that data is only forwarded to the TDB upon request by the TDB Coordinator. The normal processing of data is to the Local Records Center (LRC) and then to the CRF. In many instances, requests for data are acquired directly from the data gathers who provide

the specific information requested and may provide interpretations of the data as necessary. The control of the data provided in this manner rests solely with the data generator. As of this time, no real concerns were expressed by SAIC/T&MSS personnel regarding the data management process.

SAIC/T&MSS has qualified existing data involving data acquired from the period December 1985 through December 1991. The evaluation was done using the Five Year Meteorological Monitoring Program Summary Report for the periods noted. All of the documentation related to the evaluation of the data was reviewed. The results indicated that the qualification results lacked sufficient detail which assures that all of the applicable elements of 10CFR60, Sub-Part G, which is implemented through the QARD, were considered. Prior to completion of this report, SAIC/T&MSS personnel prepared and submitted for review, additional information which supported the process they had used. The information provided demonstrated the methodology as was described during the discussions.

Since SAIC/T&MSS is in a transition mode of becoming a teaming partner with the M&O, the TPO was not interviewed during this process.

Block 10 (continued) SURVEILLANCE CONCLUSIONS:

The results of the surveillance revealed that the participants are attempting to implement a process for the acquisition, control and transmittal of data within their respective organizations as they interpret and understand the data management system. The major concern is that there is not a common understanding among the participants as to how this is accomplished. This is partly due to the lack of detailed requirements and communications between those acquiring/developing the data, managing the data, and the users of the data.

One CAR has been issued and 3 recommendations were made as a result of this surveillance.

CAR:

Responsible Organization	CAR Number	Description
YMSCO/USGS	YM-95-003	Procedures do not adequately detail the processes used by USGS for the control of data.

Recommendations:

1. An evaluation should be performed to determine a method that will flag the use of "Qualified Data" which has not received all of the required checks and independent reviews and cannot be fully relied upon until the checks and reviews have been completed.

2. Evaluate the data management system and procedures to provide for clarification regarding the following:

   - Provide a system that will allow users to access specific information in the TDB without being provided all data within the TDB related to that parameter or activity.

   - Evaluate and revise the Parameter Dictionary as necessary to associate the attributes with the specific parameters. Users of this document do not fully understand how to make this association. Also the user must go through the entire set of attributes for each parameter selected and this is a very labor intensive task.

   - Evaluate the need for group meetings between the DOE technical staff and participant technical staff to provide for an opportunity to allow for interpretation and understanding of the data management process.

   - Review and provide clear direction on where the final location for the storage and access of data is to reside. Since the TDB appears to be the central focal point for controlled access to data, this should be given major consideration.

   - Develop a list of standard terms that are used and accepted within the scientific community and disseminate this list to all who are involved with data acquisition, development, and/or use.

   - Review the system for the development of procedures related to data management and the control of data to determine what may be done to improve the timeliness of procedure development, and issue.

   - Review the data management system to determine the cause of the lack of understanding in implementation by the participants and develop the necessary procedures which clearly define the total process and the interfaces between data developers, the data management system, and the data users.

   - Further define what constitutes "Qualified Data". The data community needs to understand that "Qualified Data" means that the data has been through all of the required checks and independent reviews as required by the participants QA procedures. It is extremely important for users of "Qualified

Data" to understand that there may provisions associated with this data which may require further action by the participant who acquired that data and use is with contingencies which require further action.

- Provide a documented process for the release of data that has not been submitted to the TDB. If the TDB is determined to be the clearing house for data and all users are required to use the TDB, then transmittal of data between participants should be carefully controlled since the same controls don't exist for the participants as for the TDB data management system.

- Serious consideration needs to be given for the application of "unqualified data" which was previously acquired and has since been superseded by new and more current "qualified data". Controls need to be provided which prohibit the use of data in this manner because the previously acquired data fits the users needs and the more current data does not.

- Since data submitted to the CRF or the PDA do not follow the same process as the data submitted to the TDB relating to the notification of the user regarding updates to the data, the users who acquire data from the PDA or the CRF may not be made aware of changes or updates in data information. This further supports the need for one central focal point for submittal and distribution of data.

- Improvements need to be made in data management meetings to assure that there is intimate involvement by data developers and users in the decision process regarding the data management process. The lack of understanding of the overall data management system by the participants clearly indicates a breakdown in communications between the data management system personnel and participant personnel.

3. Establish a documented system for the control of "real time" data. In this type of circumstance, the system needs to assure traceability of the data source to the data user, since this data will not have been processed and entered into the ATDTS.

Attachment 1:

USGS

Personnel Contacted:

T. Chaney	QA Manager
M. Mustard	Hydrologist
P. McKinley	Data Management Coordinator
A. Whiteside	QA Implementation Advisor
L. Hayes	Technical Project Officer
G. Heitland	Data Management Specialist
R. Spangler	Principle Investigator

Objective Evidence:

Technical Data Sets Reviewed:

DATA TRACKING NO: GS920508312272.005
DATA TRACKING NO: GS940108312312.001
DATA TRACKING NO: GS931008314221.011
DATA TRACKING NO: GS940208315131.001
DATA TRACKING NO: GS940108314221.002
DATA TRACKING NO: GS931008315214.031
DATA TRACKING NO: GS940108315214.001
DATA TRACKING NO: GS931283117462.008
DATA TRACKING NO: GS910508312312.005

Correspondence:

Document No. GS.94.A.000710	04/12/94
Memo T. Chaney to T Mendezvigo	04/08/94
Document No. GS.94.A.001046	04/15/94
Document No. GS.94.A.100204	03/11/94
Document No. GS.94.A.100212	01/03/94
Document No. GS.94.A.100147	01/24/94
Document No. GS.94.A.100090	12/02/93

SAIC/T&MSS

Personnel Contacted:

L. Croft	Environmental Field & Program Division Manager
P. Fransioli	Meteorologist
G. Prowell	Meteorologist
D. Brees	Meteorologist
D. Ambos	Meteorologist
D. VanBibber	QA Liaison
J. Statler	Technical Data Administrator

Objective Evidence:

Meteorological Monitoring Program Summary Report dated 12/85 - 12/91
QMP-02-08, Revision 1
Interoffice Correspondence dated 11/03/94 (LV.REP.PFM.11/94-005
Interoffice Memorandum dated 02/19/93 (LDC:JEC:ebr:M93-002)
DATA TRACKING NO: TM000000000001.037
Interoffice Memorandum dated 06/29/93 (LDC:GHP:M93-014)
Interoffice Memorandum dated 10/20/92 (LDC:GHP:ebr:M92-4388)