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OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

QUALITY ASSURANCE AUDIT PLAN

FOR AUDIT USGS/LANL-ARP-98-03

OF THE

**CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM
MANAGEMENT AND OPERATING CONTRACTOR**

AT

**U.S. GEOLOGICAL SURVEY
DENVER, COLORADO**

AND

**LOS ALAMOS NATIONAL LABORATORY
LOS ALAMOS, NEW MEXICO**

DECEMBER 1-10, 1997

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ENCLOSURE

1.0 SCOPE

This audit of the Civilian Radioactive Waste management System Management and Operating Contractor (CRWMS M&O) at U.S. Geological Survey (USGS) and Los Alamos National Laboratory (LANL) will be conducted by a team of auditors and Technical Specialists (TS) from the Office of Quality Assurance (OQA). The audit will be a performance-based audit of selected processes and technical activities as specified below.

The performance-based audit will focus on processes and controls related to USGS activities supporting Work Breakdown Structure (WBS) 1.2.3.3.1.1.4, "Regional Hydrological System Synthesis and Modeling, Milestone SP23OM3 Regional Saturated-Zone Synthesis Report;" and WBS1.2.3.3.1.3.3, "Saturated-Zone Hydrologic System Synthesis and Modeling, Milestone SP23NM3, Site Saturated-Zone Synthesis Report." In addition, the processes and controls related to LANL activities supporting WBS1.2.3.4.1.5.1, "Retardation Sensitivity Analysis, Milestone SP25CM3A Saturated-Zone Radionuclide Transport Model;" and the Quality Assurance (QA) Program Elements directly related to Milestone deliverables.

2.0 AUDIT SCHEDULE

Pre-Audit Team/Observer Meeting (USGS)	8:00 a.m., December 1, 1997 Denver, CO
Pre-Audit Conference (USGS)	8:30 a.m., December 1, 1997
Audit Activities (USGS)	9:00 a.m. - 4:00 p.m. December 1, 1997
	8:00 a.m. - 3:00 p.m. December 2-5, 1997
Post-Audit Conference (USGS)	3:30 p.m., December 5, 1997 Denver, CO
Pre-Audit Conference (LANL)	8:00 a.m., December 8, 1997 Los Alamos, NM
Audit Activities (LANL)	9:00 a.m. - 4:00 p.m. December 8, 1997
	8:00 a.m. - 4:00 p.m. December 9, 1997
	8:00 a.m. - 12:00 p.m. December 10, 1997

Post-Audit Conference (LANL)

2:30 p.m., December 10, 1997
Los Alamos, NM

There will be daily Audit Team/Observer meetings at 4:00 p.m. to review audit progress. Additionally, there will be Audit Team Leader/Observer/USGS/LANL management meetings at 8:15 a.m., after the commencement of the Audit, to communicate audit progress, discuss findings, potential deficiencies and establish liaison. These meetings will be held at locations provided by USGS and LANL, respectively.

3.0 REQUIREMENTS TO BE AUDITED AND APPLICABLE REFERENCES

The requirements to be audited will be contained in the performance-based checklist. These checklists will be developed from USGS/LANL approved and issued program procedures, technical procedures, participant planning sheets, study plans and the performance objectives established and agreed upon with USGS/LANL.

The conduct of the audit will be guided by the documents (latest revision) listed below:

- Quality Assurance Procedure 18.2, "Internal Audit Program"
- Administrative Procedure (AP) 16.1Q, "Performance/Deficiency Reporting"
- AP 16.2Q, "Corrective Action and Stop Work"

4.0 ACTIVITIES TO BE AUDITED

The audit team will conduct a performance-based audit of activities supporting the following:

- WBS1.2.3.3.1.1.4, "Regional Hydrological System Synthesis and Modeling, Milestone SP23OM3 Regional Saturated-Zone Synthesis Report"
- WBS1.2.3.3.1.3.3, "Saturated-Zone Hydrologic System Synthesis and Modeling, Milestone SP23NM3 Site Saturated-Zone Synthesis Report (USGS)"
- WBS1.2.3.4.1.5.1, "Retardation Sensitivity Analysis, Milestone SP25CM3A Saturated-Zone Radionuclide Transport Model (LANL)"

Specially, the Milestone Reports and their associated data inputs will be evaluated for the critical process steps identified below:

1. Data source and control.
2. Data analyzed with appropriate reviews and entered into database and checked for accuracy.
3. Software Control.
4. Numerical model.

5. Model codes.
- 6.. Flow model calibrations.
7. Model output reporting.
8. Independent reviews and resolution of comments.
9. Qualified reviewers.
10. Control of data update and changes.
11. Genesis input.

A performance-based audit evaluates products and associated processes to determine the degree to which they meet program requirements and management commitments and expectations. This evaluation of process effectiveness and product acceptability will be based upon:

- Satisfactory completion of the critical process steps
- Acceptable results and quality of the end product
- Documentation that substantiates quality of products
- Performance of trained and qualified personnel
- Implementation of applicable QA Program elements

5.0 AUDIT TEAM MEMBERS

Donald J. Harris, OQA, Las Vegas, NV, Audit Team Leader
Lawrence W. McGrath, OQA, Las Vegas, NV, Audit Team Leader In Training
Michael A. Goyda, OQA, Las Vegas, NV, Auditor
Keith M. Kersch, CRWMS M&O, Las Vegas, NV, Technical Specialist
Floyd H. Dove, Booz Allen & Associates, Las Vegas, NV, Technical Specialist
James Blaylock, OQA, Las Vegas, NV, Auditor

6.0 AUDIT CHECKLISTS

The following checklist will be used during the audit:

USGS/LANL-ARP-98-03-01, "Performance-Based Checklist"