

memorandum

QA: N/A

DATE: OCT 01 1999

REPLY TO
ATTN OF: RW-1 (L. H. Barrett/202-586-6850)SUBJECT: FISCAL YEAR (FY) 1999 QUALITY ASSURANCE MANAGEMENT
ASSESSMENT (QAMA) REPORTTO: YMSCO/PM (J. R. Dyer)
RW-40 (D. E. Shelor)

Enclosed is the FY 1999 QAMA Report. I am pleased that the QAMA team found the Office of Civilian Radioactive Waste Management (OCRWM) Quality Assurance program to be effective and that progress was noted in several areas.

The report summarizes the results of the FY 1999 QAMA for all locations and provides the results of the assessment conducted on OCRWM at Headquarters and Yucca Mountain Site Characterization Office (YMSCO). The FY 1999 QAMA resulted in one recommendation that requires a response from YMSCO.

The FY 1999 QAMA team closed 9 of the 15 recommendations identified by the FY 1998 QAMA. A response to the open recommendations is required by YMSCO as discussed in the report.

Your action plan response, including designation of responsible individuals for each open item, and dates by which actions will be completed, should be prepared in accordance with QAP 2.7, *Management Assessment*. Please submit your response by October 29, 1999.

Please keep me informed on the status of the FY 1999 and the open FY 1998 action plans as they are completed. It is important that your action plans stay current and are tracked to closure. In this regard, the QAMA team will be following up on the progress on these actions on a regular basis throughout FY 2000.

Please call Ram Murthy at (702) 794-5549 if you have any questions or require additional information regarding this matter.


for Lake H. Barrett, Acting Director
Office of Civilian Radioactive
Waste Management

Enclosure:
QAMA Final Report FY 1999

OCT 01 1999

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Office of Civilian Radioactive Waste Management



Quality Assurance Management Assessment

FY 1999

*U.S. Department of Energy
Washington, D.C. 20585*

Office of Civilian Radioactive Waste Management

Final Report

September 3, 1999

Office of Civilian Radioactive Waste Management

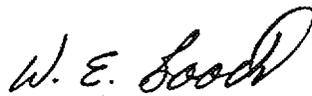
Office of the Director
Lake H. Barrett
Acting Director

FY 1999
QUALITY ASSURANCE MANAGEMENT ASSESSMENT
of the
OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

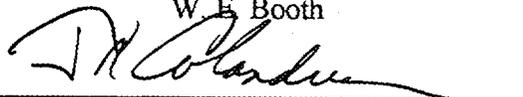
Prepared by
Quality Service Associates, Inc.
for the
Office of Civilian Radioactive Waste Management

FINAL REPORT

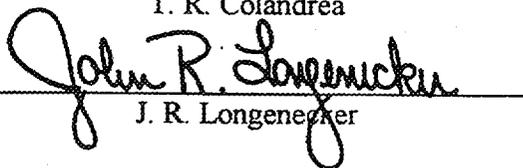
Assessment Team Concurrence



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FY 1999 OCRWM Quality Assurance Management Assessment Final Report Executive Summary

The FY 99 integrated Quality Assurance Management Assessment (QAMA) was initiated on December 3, 1998, by the Director, Office of Civilian Radioactive Waste Management (OCRWM) with the approval and issuance of the FY 99 QAMA Plan.

During the remainder of the fiscal year, OCRWM and its six (6) major participants were assessed according to QA Program requirements. At the conclusion of each assessment, the assessment team briefed senior management of the assessed organization on the results of the assessment. The briefing was followed by a written "interim" report identifying areas needing improvement.

Collectively, the interim reports, along with this report, represent the results of the FY 99 integrated QA Management Assessment. This body of this report (section 4.0) only covers the OCRWM (HQ and YMSCO) portion of the QA Management Assessment and provides specific recommendations for OCRWM (DOE) management attention.

This executive summary summarizes the results of the assessments conducted at all locations and identifies those key issues and findings that should be brought to the attention OCRWM's senior management.

Summary and conclusions of the assessment team:

- OCRWM's overall Quality Assurance Program is adequate and effective. Good progress has been made to correct previously identified findings and deficiencies.
- The OCRWM Audit and Surveillance Program is highly effective and should be used as a model for other DOE programs and projects.
- The recently formed Project Operations Review Board (PORB) appears to be quite effective in expediting decision making for key technical and programmatic issues and for facilitating integration of YMSCO activities. However, as the role of PORB evolves, DOE should be watchful to assure that its mission stays clearly focused on key program issues, and does not deal with issues that should be addressed by line management.

Key Issues and Findings of the FY 99 QAMA for all locations:

- A more proactive approach is needed to track and address problems and issues reported by internal and external oversight groups and self assessments to ensure that these conditions can be tracked through closure by responsible management. See section 4.0 of this report and the M&O interim report for details.
- The complexities and uncertainties associated with the development of the Process Model Reports and Analysis Model Reports, and the qualification of data and related computer codes that support the Site Recommendation call for close oversight by YMSCO management. See the M&O interim report for details.
- Although there has been excellent progress establishing an effective nuclear regulatory culture on the project, there are still “pockets of resistance” (particularly at remote locations) inhibiting full implementation. See the M&O and Livermore interim reports for details.
- Clear performance metrics have been slow to develop in key functional program areas such as Records Management and Corrective Action. Prompt completion of these metrics is essential to assess the effectiveness of improvement initiatives underway. See section 5.3 of this report and the M&O interim report for details.
- Although some improvement was noted, the QAMA team still observed a lack of ownership by some YMSCO staff regarding the key issues and problems being addressed by the M&O. This lack of accountability, coupled with the absence of metrics for improvement, indicates a need for stronger leadership by mid-level YMSCO management. There is a need to expedite the permanent YMSCO organization. See section 5.2 and 5.5 of this report for details.
- There remains a need to improve the performance of the Records Management Program. See section 5.6 of this report and the M&O interim report for details.

The FY 99 QAMA resulted in one recommendation for OCRWM. See section 4.0 of this report. Nine (9) of the fifteen (15) FY 98 recommendations have been closed. The QAMA team is providing additional recommendations prior to closing the identified issues. See section 5.0 of this report.

1.0 Introduction

The Director, OCRWM, is responsible for conducting an annual independent management assessment of OCRWM's Quality Assurance Program to determine its adequacy and effectiveness. This requirement stems from a commitment in OCRWM's QARD. The commitment implements the requirements of Title 10, Code of Federal Regulations, Parts 60, 71 and 72, for licensee management to regularly review the status and adequacy of the Quality Assurance Program.

The QAMA was conducted in accordance with the requirements of the Quality Assurance Management Assessment Plan dated December 3, 1998, and QAP 2.7, *Management Assessment*. QAP 2.7 prescribed the training requirements and quality assurance process to be followed during the assessment to ensure compliance with OCRWM's QARD. The two principal objectives of the QAMA are to: (1) evaluate the status, adequacy and implementation effectiveness of the OCRWM QA Program and (2) identify areas where improvement is needed.

The QAMA Plan defined the management requirements and technical approach for conducting an integrated assessment of OCRWM and the affected organizations it funds. The integrated approach calls for the QAMA to be conducted by a single organization. This approach has three important features: (1) it permits close examination of organizational interfaces, (2) it provides a consistent overview and a broad perspective of how well the QA Program is functioning throughout OCRWM and (3) it is cost effective.

The OCRWM and its major program participants, as identified in Appendix A, were evaluated during the assessment. These organizations perform work within the scope of OCRWM's QARD. The assessment date and responsible assessment team leader are also identified.

At the conclusion of each assessment, the assessment team briefed senior management of the assessed organization on the results of the assessment. The briefing was followed by a written "interim" report identifying areas needing improvement.

The purpose of the briefings and interim reports were to provide management with immediate feedback on the effectiveness of the quality assurance program so that improvement actions could be promptly initiated where needed.

Collectively, the seven interim reports, along with this report, represent the results of the FY 99 integrated QA Management Assessment. The body of this report only covers the OCRWM (HQ and YMSCO) portion of the QA Management Assessment and provides specific recommendations for OCRWM (DOE) management attention.

2.0 Scope and Applicability

The QA Management Assessment was applicable to OCRWM and the affected organizations (major participants) that it funds as identified in Appendix A.

The assessment evaluated: (1) the adequacy and effectiveness of the OCRWM's Quality Assurance Program, (2) the adequacy of resources and personnel provided to achieve and assure quality, and (3) potential quality problems that could affect mission success. The assessment also evaluated specific items as requested by OCRWM and affected organization senior management.

The results of the OCRWM assessment are identified in Section 4.0 of this report. The results of each organization assessed are identified in the interim reports for each applicable organization.

The assessment also determined the status of the recommendations presented in the FY 1998 Quality Assurance Management Assessment. The status of the OCRWM recommendations is presented in Section 5.0. The status of the FY 98 recommendations for each affected organization is identified in the applicable interim reports.

Members of the QAMA team are identified in Appendix B.

QAMA recommendations identified in FY 99 for each affected organization are listed in Appendix C.

Personnel interviewed during the FY 99 assessment are identified in Appendix D.

3.0 Technical Approach

3.1 Overview

Informal checklists identifying specific attributes to be assessed were prepared by the QAMA team. These checklists provided guidance to the team for identifying and evaluating major quality assurance program issues.

Interviews of program personnel were conducted. The team selected individuals to interview from both management and staff positions. The interviews solicited information, opinions and conclusions from each individual regarding their experience in executing the Quality Assurance Program. Information obtained during the interviews was evaluated and used to formulate conclusions.

The assessment evaluated the status of commitments resulting from the FY 98 QAMA recommendations to the extent possible.

Conclusions reached by the QAMA Team regarding the adequacy and effectiveness of the Quality Assurance Program were based on an analysis of the data obtained from applicable document reviews, interviews and observations of work-in-progress.

The assessment was conducted according to the process specified in QAP 2.7, *Management Assessment*, revision 4.

3.2 Functions and Topics Evaluated

The assessment team evaluated progress made to address the fifteen (15) recommendations identified in the FY 1998 OCRWM QAMA final report. The following functions related to OCRWM were also evaluated: quality assurance program, trend analysis, corrective action, QA transition, audits and surveillances, records management, procedures management, lessons learned, nuclear culture initiative, training, QA/line management communications, organization, QA-related interactions between OQA and the NRC and State of Nevada, documenting key decisions, commitment management program, and timeliness of deficiency report closure.

4.0 Results and Recommendations

This section presents the results of the FY 99 QA Management Assessment of OCRWM conducted at Headquarters and YMSCO.

Issue Management

The FY 99 QAMA interim report of the M&O indicated that improvement was needed in the adequate and timely resolution of problems or issues other than formal deficiencies. The issues being referred to are recommendations provided by internal and external oversight groups, QA audits, peer review groups, self-assessments, and other problems or issues not identified on formal QA documentation (Deficiency/Corrective Action Reports). See the FY 99 QAMA M&O interim report for details.

The QAMA team identified a similar situation at YMSCO, although not to the same extent because the Project Operations Review Board (PORB) addresses major technical and programmatic issues. However, recommendations provided by internal and external oversight groups, QA audits, peer review groups, self-assessments, and other action items are not in all cases brought forward to the PORB. These problems¹ or issues seldom get management attention and tend to linger without being fully analyzed for significance, corrected, and closed. Correspondence is usually issued describing the plan to resolve the problem, but management does not consistently follow up to ensure the corrective actions were taken as planned and the problems were adequately resolved.

The QAMA team recognizes that many of these problems are not significant when compared to those identified in Corrective Action Reports. However, the QAMA team is concerned that some of the reported problems could be precursors to more significant programmatic or technical problems. Any reported problem, whether self-identified or not, should be evaluated for significance by management and promptly corrected.

There are several action item tracking systems on the project that can facilitate management follow up. Reported problems should be entered into one of these tracking systems so that they can be tracked through closure by responsible management.

Recommendation No. 1: *A process should be developed by YMSCO such that management can effectively monitor and track issues and problems (other than formal deficiencies) to ensure that they are thoroughly understood, adequately addressed, and closed in a timely manner.*

¹ Recommendations or findings from oversight organizations, QA audits, self-assessments, project reviews, ISM verifications, and other assessments that are outside the scope of AP-16.1Q.

5.0 Status of the FY 98 Recommendations

A major focus of the FY 99 QAMA was to determine the progress made by OCRWM to effectively address the FY98 QAMA recommendations. This section provides the results of the QAMA team's assessment of the actions taken to address the fifteen (15) recommendations identified in the FY 98 QAMA final report. The QAMA team will monitor any open issues during the FY 2000 QAMA.

- 5.1 Recommendation No. 98-1:** *OCRWM management should proactively deploy and maintain a nuclear regulatory culture that defines the specific beliefs, behaviors, and assumptions required of the team to support OCRWM's objective for a successful license application. Key actions include: (1) direct the existing task force to develop an action plan that defines the critical actions needed to implement an effective nuclear regulatory culture; (2) assign specific responsibilities to carry out the action plans; (3) provide the necessary resources to implement the plan; (4) review implementation progress on a regular basis during weekly staff meetings, program reviews, etc., to assure that progress is being made; and (5) reward individuals and organizations who lead the way in implementing the culture change.*

Progress: YMSCO management has demonstrated excellent leadership to improve the nuclear regulatory culture. Adequate resources have been provided to the M&O to carry out the Nuclear Culture Initiative. The key elements of the Nuclear Culture Initiative are (1) Accountability, (2) Quality Assurance, (3) Sound Infrastructure, (4) Self Assessment, (5) Safety, and (6) Problem Identification and Resolution. There has been good acceptance of the principles and elements of nuclear regulatory culture at most of the upper levels of YMSCO management. Most key managers have received a training course explaining the key elements of an effective nuclear regulatory culture. These managers understand the principles and appear to exhibit the desired behaviors. The YMSCO Project Manager and Deputy Project Manager continue to communicate the desired behaviors of the nuclear regulatory culture and regularly provide reinforcement. Specific progress made by the M&O in implementing a nuclear regulatory culture is identified in the FY 99 M&O interim QAMA report. The Nuclear Culture Steering Committee is currently developing metrics for measuring the nuclear culture and the Committee plans to assess its status in FY 2000.

Issues: The FY 99 QAMA M&O interim report identified that the regulatory culture among employees was not benchmarked by the M&O at the onset of the nuclear culture initiative, thus making it difficult to measure progress today. Secondly, metrics were not established by the M&O to assess the effectiveness of

the actions being taken. Also, the M&O has not been successful in implementing the Personnel Performance Management System at the USGS and other laboratories. Furthermore, the QAMA team identified “pockets of resistance” that still inhibit full implementation of an effective nuclear regulatory culture particularly at remote locations.

Recommended Actions: None in addition to those currently being taken by YMSCO. See section 3.1 of the M&O interim report for QAMA recommendations offered to the M&O.

Status: Recommendation No. 1 is considered closed for OCRWM based on the progress made by YMSCO. The effectiveness of the actions being taken by the M&O to improve the nuclear regulatory culture will be tracked and evaluated by the assessment team as a part of following up on the FY 99 M&O interim QAMA report.

- 5.2 **Recommendation No. 98-2:** *When communicating its new organization, OCRWM should clearly define its role and relationship with the M&O with respect to whether it is an overseer, manager, or integrator, taking into account OCRWM's responsibility as the potential licensee.*

Progress: During the first quarter of FY 99, YMSCO management held several briefings, all hands meetings, and project managers' meetings to communicate the new YMSCO organization and DOE/M&O interface protocols. QAP 1.1 is being revised to reflect the new YMSCO organization and other changes. The Project Management Plan has been recently revised to better define staff roles and responsibilities and is scheduled to be issued soon.

Issues: QAMA interview results indicate that senior YMSCO managers understand their roles and relationship with the M&O. However at the lower management and team leader level, there are still some questions regarding DOE's responsibility and authority for managing functions and products. In other cases, there are differing interpretations of the policy that has been communicated by YMSCO Project Management. These cases of confusion or interpretation are the exception rather than the rule, but nevertheless still exist in some key/lead positions.

Recommended Actions: Roll-out of the Project Management Plan should be accompanied by a comprehensive training and communication program for all YMSCO personnel to ensure that responsibilities and authorities are fully understood. It will be particularly important for the newly selected key managers at YMSCO to clearly articulate their expectations to their subordinates.

Management should ensure that subordinates take ownership and accountability for accomplishing assigned tasks and duties and achieving expected high standards. The following management practices² can help establish an environment of ownership and accountability:

- Clearly communicating expectations for performance.
- Providing resources to accomplish assigned tasks.
- Ensuring personnel possess the required knowledge and experience to accomplish assigned tasks.
- Periodically monitoring performance.
- Appropriately recognizing success.
- Establishing an attitude that does not accept performance shortfalls.

Management should determine the causes and take appropriate action to remedy situations where individuals or groups do not perform to expectations.

Status: Recommendation No. 2 will remain open until the assessment team can evaluate the implementation effectiveness of the recently revised Project Management Plan such that all YMSCO personnel fully understand the scope and extent of their responsibilities and authorities.

- 5.3 Recommendation No. 98-3:** *OCRWM management should ensure that future award fee criteria measure and reward M&O performance in developing quality products as well as in developing and implementing cost-effective management systems that consistently meet program needs. In addition, all members of the team, including DOE managers and staff, should have clear performance metrics and performance incentives tied to mission success. These metrics should be included in DOE and M&O employee appraisals to create a strong incentive for teamwork and mission success. DOE should assure that evaluation of performance is objective and measurable.*

Progress: During the past year, OCRWM has placed strong emphasis on measuring the quality of the deliverables received from the M&O through line management oversight and evaluations by the Program Assessment Team. The Performance Evaluation and Measurement Plan for Period 13 communicated OCRWM's performance objectives, measures, and expectations to the M&O for the products it produces. There is clear evidence that OCRWM is using these criteria to measure the M&O's performance. Generic performance metrics have also been placed in OCRWM staff performance appraisals.

Issues: Although metrics for products (deliverables) have been established, there

² INPO 92-002, Guidelines for the Organization and Administration of Nuclear Power Stations

is little evidence that clear performance metrics and performance incentives have been established or utilized for key programmatic functions such as records management or corrective action. Without clear metrics for these functions, functional performance is unlikely to improve. A good example is in the area of records management, where system performance is still deficient due to the lack of clear definition of the desired end state and performance metrics to achieve a successful records management system.

Recommended Actions: In addition to individual products, YMSCO should ensure that key programmatic functions such as records management and corrective action have well-defined performance metrics that are closely tied to OCRWM mission success. Progress against these metrics should be measured in a definitive way and evaluated by YMSCO management on a regular basis. In particular, YMSCO should assure that the PEMP 14 for the M&O contains clear metrics for key programmatic functions as well as products that can be flowed down to each part of the organization and each individual.

Status: Recommendation No. 3 will remain open until the assessment team can evaluate the effectiveness of the on-going actions being taken to apply clear and definitive metrics to measure the effectiveness of key programmatic functions.

- 5.4 **Recommendation No. 98-4:** *YMSCO management should give priority for the development of a resource-loaded plan with clear milestones and assignments through repository opening. Clear direction to the M&O regarding the level of detail needed in this plan should also be provided.*

Progress: Tangible progress has been made in this area. For example, OCRWM is preparing a revised Project Management Plan and efforts are underway to closely integrate the project cost, schedule, and technical baselines. Also, the M&O is preparing a resource-loaded schedule. These documents should be completed by the end of fiscal year 1999.

Issues: Experience has shown that management plans do not have a good history of complete implementation over a long period of time.

Recommended Actions: In issuing the governing documents, YMSCO should establish responsibilities and priorities for key tasks, flow these down to all levels of the organization, and hold DOE and M&O staff accountable for meeting their responsibilities. YMSCO should also assure that the project planning documents are maintained as the official project baseline, with appropriate change control. A firm prohibition against working around the project baseline should be established and enforced by OCRWM. The QAMA team recommends that YMSCO conduct

a self assessment to verify compliance with, and adequacy of, the Project Management Plan and related documents at an appropriate time in FY 2000.

Status: Recommendation No. 4 will remain open until the assessment team can assess the results of the recommended self assessment at YMSCO.

- 5.5 Recommendation No. 98-5:** *DOE line managers, team leaders, and key personnel should give priority attention to ensuring that key issues are promptly and effectively resolved by the M&O. Each responsible DOE individual should establish clear and measurable goals (e.g., percentage retrievability of records) for the expected improvements over the next year in those areas that have been identified as needing improvement.*

Progress: The purpose of this FY 98 recommendation was for YMSCO Project Management to instill ownership and accountability in the DOE line organization for the problems being addressed by the M&O. There has been some improvement in this area over the past year, but the failure to define and resolve issues in a timely manner remains a weakness of the M&O. The QAMA team believes that more involvement (ownership) by the YMSCO line organization would help to correct this problem.

Issues: The QAMA team still observed a lack of ownership by some YMSCO staff regarding the key issues and problems being addressed by the M&O. This lack of accountability, coupled with the absence of metrics for improvement, indicates a need for stronger leadership by mid-level YMSCO management.

Recommended Actions: The recommended actions provided in section 5.2 above also apply to this section.

Status: Recommendation No. 5 will remain open until the assessment team sees more improvement within the DOE line organization, particularly at the lower management levels, to help the M&O correct programmatic deficiencies.

- 5.6 Recommendation No. 98-6:** *The YMSCO individual responsible for the Records Management Program needs to ensure that timely and effective actions are taken to improve the records management system to the extent that the system adequately supports the licensing process. As part of this effort, consideration should be given to conducting an industry peer review of the OCRWM records management system to: (a) identify any control features contained in successful records management systems that are lacking in the OCRWM approach and (b) establish specific performance metrics for measuring the effectiveness of the OCRWM records management system.*

Progress: The OCRWM response to this recommendation identified a number of actions that would be taken during FY99 to improve the Records Management System (RMS). Of particular interest to the QAMA team were the following proposed actions because they appeared to hold the most promise with respect to providing OCRWM with the same benefits as the peer review recommended by the QAMA team in last year's report (i.e., to identify control features lacking in the OCRWM RMS approach and to establish specific performance metrics for measuring the effectiveness of the OCRWM RMS):

- (a) *"Several fact finding visits are planned in FY99 by OCRWM records management personnel to other nuclear facilities and other highly regulated government agencies such as the Food and Drug Administration to identify controls and capabilities that might be beneficial to incorporate in the OCRWM records management system. DOE believes that these actions will address identified QAMA issues such that the industry peer review recommended in the QAMA will not be necessary."*
- (b) *"An independent evaluation and assessment of the OCRWM Records Management System (RMS) is planned for FY1999. This evaluation will be performed by Booze-Allen & Hamilton staff from outside the Program, and will provide comments and recommendations to DOE on areas for improvement in the RMS."*

Discussions with OQA management indicated that they are developing near-term plans to conduct an audit of QA records retrieval. This audit will be beneficial in determining the extent to which the OCRWM RMS is able to retrieve specific QA records from the Records Processing Center in a timely and complete manner.

Issues: The QAMA team noted a lack of progress in implementing two actions that had the greatest potential for meeting the objectives of the industry peer review recommended in the FY 99 QAMA report.

Specifically, with regard to the fact-finding visits planned by OCRWM, the QAMA team was informed that the only visit made was to a utility to discuss the broader subject of technical information management. This visit did not "address identified QAMA actions" (i.e., with respect to identifying control features lacking in the OCRWM RMS approach and establishing specific performance metrics for measuring the effectiveness of the OCRWM RMS). In like manner, the independent evaluation and assessment of the OCRWM RMS by Booze-Allen & Hamilton staff from outside the Program did not take place (a Statement of Work regarding this evaluation/assessment was prepared in the March 1999 time frame

but the effort did not progress beyond that point).

As a result, another year was lost in identifying and correcting the problems experienced with the OCRWM RMS.

Recommended Actions: OCRWM should conduct an industry peer review of the OCRWM records management system (RMS) in order to: (a) identify any control features contained in successful records management systems that are lacking in the OCRWM approach and (b) establish specific performance metrics for measuring the effectiveness of the OCRWM records management system. Personnel that have experience in the management of geologic data/records should be considered for participation in this review.

Status: Recommendation No. 6 will remain open until the assessment team can evaluate the effectiveness of the actions taken to improve the records management system.

Recommendation No. 98-7: *Each DOE line manager, team leader, and key individual should ensure that timely and effective integration takes place in the products for which they have responsibility. Senior DOE management should ensure that each individual fully understands that the M&O has the first line responsibility for integration and that DOE is responsible for ensuring that integration is taking place and is effective.*

Progress: The establishment of the Project Operations Review Board (PORB) is considered to be a significant accomplishment in the facilitation of integration. The PORB coupled with the revised Project Management Plan should resolve any integration problems at the YMSCO level.

Issues: The Project Management Plan and related flow down documents have not been released as of the date of the assessment.

Recommended Actions: The QAMA team recommended that YMSCO Project Management conduct a self assessment on the implementation of the Project Management Plan. See recommendation No. 98-4. The self assessment should include an attribute to assess the effectiveness of integration.

Status: Recommendation No. 7 will remain open until the assessment team can assess the results of the recommended self assessment.

5.7 **Recommendation No. 98-8:** *In preparation for moving the Project from the science phase to the engineering phase, YMSCO management should: (a) elevate*

the role of engineering to make it commensurate with its importance to mission success, and (b) establish and fill key engineering positions throughout the Project with qualified personnel who have engineering experience on first-of-a-kind NRC-licensed projects or with first-of-a-kind engineering on complex technology projects.

Progress: YMSCO has made significant progress in obtaining and/or placing people with engineering backgrounds in key positions although some of the key people are in an “acting” capacity until formal selections are made. The FY 99 *Workforce Plan* recognized “the existence of a shortage of engineering expertise required to meet the challenges facing the Program” and provides a comprehensive plan for obtaining highly qualified personnel in critical positions. The Plan outlines several strategies and methods for obtaining the required human resources, one of which is “Actively recruit highly qualified candidates from outside the Federal Government, particularly from within the nuclear power industry.” Implementation of the FY 99 YMSCO Workforce Plan should provide the required depth of engineering expertise needed for the Program as it prepares for the Site Recommendation Report.

Issues: None as of the date of the assessment. The QAMA team will follow up to assess implementation of the Workforce Plan during the FY 2000 QAMA.

Recommended Actions: Key YMSCO positions should be filled with permanent DOE staff as soon as possible.

Status: Recommendation No. 8 is considered closed based on the actions being taken by YMSCO management to permanently fill the open positions.

- 5.8 Recommendation No. 98-9:** *OCRWM management should take actions necessary to ensure that major OCRWM program participants are implementing cost-effective lessons-learned programs, and that the lessons-learned from other programs such as WIPP are analyzed and effectively applied as appropriate.*

Progress: YMSCO has made significant progress developing and implementing a lessons learned program for the Yucca Mountain Project. This progress is supplemented by the progress made in this area by the M&O as identified in the M&O FY 99 Interim QAMA Report. The Office of Licensing and Regulatory Compliance recently released a procedure to better manage lessons learned, AP-REG-001, *Managing Lessons Learned*. The procedure establishes the functional positions of Lessons Learned Manager, Lessons Learned Program Coordinator, and Lessons Learned Coordinator(s) and assigns specific responsibilities to those positions. The procedure also establishes the infrastructure for

individuals/organizations to search/retrieve the Lessons Learned applicable to their activities. The procedure applies to all individuals within OCRWM, the M&O, and the U.S. Geological Survey. The QAMA team recognizes that this program/procedure is relatively new and has not had the benefit of implementation by the entire organization

Issues: None.

Recommended Actions: None.

Status: Recommendation No. 9 is considered closed based on the release of the new lessons learned procedure and the progress made by the M&O in the area of lessons learned.

- 5.9 **Recommendation No. 98-10:** *OQA should: (a) place particular emphasis on conducting performance-based audits and surveillances in the future; (b) eliminate the routine practice of conducting annual compliance-based audits of each organization, (c) address any remaining compliance-based elements during the performance-based audits (to the extent that these elements need to be evaluated within an organization), and (d) revise the QARD to accomplish this approach if necessary.*

Progress: The assessment team concurs with the OQA Director's decision to stay with the current approach of compliance-based audits supplemented by performance-based audits of key work products for the foreseeable future.

Issues: The assessment team did not identify any concerns with the approach being taken on the audit program.

Recommended Actions: None.

Status: Recommendation No. 10 is considered closed. The assessment team will continue to assess the effectiveness of the QA audit and surveillance program during forthcoming QAMAs.

- 5.10 **Recommendation No. 98-11:** *Senior OCRWM management should provide the direction and follow-through to ensure that appropriate OCRWM managers and staff attend the NRC Licensing Process training course.*

Progress: The Licensing Training course and its implementation across the Program is a success. At the time of the assessment over 99 DOE employees attended the training session. This is a significant percentage of the entire

OCRWM federal work force. The FY 99 M&O QAMA Interim Report stated that “The *Regulatory and Licensing Training Program* was evaluated and course attendees were interviewed by the assessment team. In addition, the QAMA team participated in one training session to observe it first-hand. Interviews indicated that the course material and the instructors were excellent, the material was relevant, and the instructors were well prepared, knew the material, and delivered a meaningful presentation. Several attendees (Principal Investigators and their staff) commented to the assessment team a recognition that it will be important to demonstrate compliance with quality assurance procedures during licensing hearings.

Issues: None.

Recommended Actions: None.

Status: Recommendation No. 11 is considered closed based on the excellent progress made with the Licensing Training Program.

- 5.11 Recommendation No. 98-12:** *The OCRWM individual responsible for the training program needs to restore a sense of urgency between the parties in reaching agreement on QA-related training/qualification issues and ensure that they are addressed in a timely and effective manner.*

Progress: Meetings were held between the various parties (e.g., M&O training, OCRWM training, and OQA) and agreement was reached on AP-2.1Q, *Indoctrination and Training of Personnel*, and AP-2.2Q, *Verification of Education and Experience of Personnel*. These procedures were issued in June 1999.

Issues: The assessment team did not identify any concerns with the actions taken to improve QA-related training and qualification.

Recommended Actions: None in addition to those currently being taken.

Status: Recommendation No. 12 is considered closed based on the release of the two procedures. The assessment team will evaluate the effectiveness of the revised approaches to indoctrination and training of personnel and the verification of education and experience during the FY 2000 QA Management Assessment.

- 5.12 Recommendation No. 98-13:** *The Director, OQA should review the audit process, seek customer feedback as to the value and effectiveness of audits, and determine how the audit process could be improved. The Director, OQA should*

also continually promote teamwork, and good communications to eliminate any disagreement regarding the validity of deficiencies.

Progress: The Office of Quality Assurance seeks customer feedback after the performance of each audit. Office of Quality Assurance Customer Feedback forms are left with the audited organization during the exit meetings. Some of the feedback questions contained in these forms include, “Was the purpose, scope, and methodology clearly defined?”, “Were contacts and lines of communication clearly established?”, and “Did the audit team provide you with valuable insight as to improvement of your product/process?”.

In addition, OQA ensures that (1) deficiencies are fully understood by the recipient (management) prior to issuing formal documentation and (2) dialogue occurs between OQA and line organizations regarding proposed responses prior to formal submittal.

The QAMA team judged the OCRWM Audit Program to be highly effective.

Issues: None.

Recommended Actions: None.

Status: Recommendation No. 13 is closed based on the overall effectiveness of the OCRWM Audit Program.

- 5.13 **Recommendation No. 98-14:** *QATSS should undertake an initiative, with OQA participation, to achieve strengthened leadership, increased communications, clearer definition of roles and responsibilities, stronger team spirit, and greater unity of purpose.*

Progress: Communication within QATSS has improved significantly. The Quality Systems and Verification organizations have established a process that allows the QATSS line QA support organizations to coordinate M&O responses to deficiencies with the Verification Quality Assurance Representative and OQA, permitting a smooth transition and approval of deficiencies. QATSS managers attend each other’s staff meetings and M&O line organization meetings. The information gathered during these meetings is shared within QATSS as well as OQA. In addition, the Director, OQA established operating criteria that delineates OQA/QATSS responsibilities, expectations, and limitations regarding establishing OQA policy.

Issues: None.

Recommended Actions: None in addition to those currently being taken.

Status: Recommendation No. 14 is considered closed based on the progress made by QATSS to improve internal communication.

- 5.14 **Recommendation No. 98-15:** *The QATSS Program Manager should: (a) identify the QATSS customers, (b) meet with these customers to determine the effectiveness of the support provided, (c) determine long-term needs such as staffing requirements, skill mix, and organizational structure, and (d) develop strategies in conjunction with OQA to meet these needs.*

Progress: The QATSS Program Manager met with, and continues to meet with, key M&O managers to obtain their input regarding QATSS's performance and their future QA needs as a customer. The QATSS Program Manager holds a biweekly meeting with QATSS managers to discuss staffing mix, skill mix, and organizational structure. The results of these discussions are provided to the Director, OQA.

Issues: None.

Recommended Actions: None in addition to those currently being taken.

Status: Recommendation No. 15 is considered closed based on the progress achieved.

6.0 Responding to this Report

- 6.1 OCRWM's procedure QAP 2.7, *Management Assessment*, requires this report to contain specific instructions to management of the assessed organization for responding to the identified recommendations. The specific instructions to management are:
- a) Review the management assessment report and all recommendations,
 - b) Provide a response to the OCRWM Director that includes action plans to address the identified recommendations, and
 - c) Issue correspondence to the OCRWM Director when the action plans and commitments as identified in the approved responses have been completed.
- 6.2 In addition to responding to the FY 99 recommendation identified in section 4.0 of this report, a response to the "Recommended Actions" for the FY 98 recommendations that remain open is also required as identified in section 5.0. These are recommendation numbers 98-2, 98-3, 98-4, 98-5, 98-6, and 98-7.

Appendix A

Organizations Assessed in FY 99

Location	Date	Assessor
Livermore	January 25-27, 1999	TRC ¹
Berkeley	January 28-29, 1999	TRC ¹
Sandia	February 8-9, 1999	WEB ¹
Los Alamos	February 10-11, 1999	WEB ¹
USGS	March 1-3, 1999	WEB ¹ , JRL
M&O Construction	April 19-21, 1999	WEB, JRL ¹ , TRC
M&O Vienna	June 2, 1999	WEB, JRL ¹ , TRC
OCRWM - HQ	June 3, 1999	WEB, JRL ¹ , TRC
M&O Las Vegas	June 7-11, 1999	WEB, JRL, TRC ¹
YMSCO	June 21-25, 1999	WEB, JRL ¹ , TRC

¹ Team Leader

Appendix B

Assessment Team

Wayne E. Booth, Thomas R. Colandrea and John R. Longenecker made up the assessment team. Team Members may be contacted as necessary to facilitate resolution of recommendations.

Wayne E. Booth (WEB)	Program Manager	702-804-1330
Thomas R. Colandrea (TRC)	Senior QA Specialist	858-487-7510
John R. Longenecker (JRL)	Senior Management Specialist	858-792-6031

Each team member received the requisite indoctrination and training for conducting QA Management Assessments as required by the OCRWM Quality Assurance Program and QAP 2.7, *Management Assessment*.

Documentation of indoctrination and training, and personnel qualifications and experience are contained in the Quality Records Package for each individual.

Appendix C

Interim Report Recommendations

This appendix consolidates the recommendations from the seven interim QAMA reports issued in FY 1999.

Livermore:

Recommendation No. 1: Given the importance of a successful NRC license application to the success of the OCRWM program, it is recommended that LLNL management ensure that all LLNL personnel are fully implementing the QA program on a consistent basis. The following specific actions are suggested: (a) make QA program implementation and achievement of quality a top priority (e.g., make it as important as safety, technical achievement, budget limitations, and delivery dates); (b) establish and communicate to all concerned clear-cut, unequivocal standards of QA program performance which must be met; (c) reiterate and reinforce this policy and management's QA-related expectations from time to time (i.e., it is not a "one-shot-deal"); (d) make it clear that management will not tolerate any abuses of this policy or failure to effectively implement the QA program on a consistent basis; (e) measure performance against this policy; and (f) hold people accountable for consistent application of QA, and take strong action when there is noncompliance (e.g., refuse to fund work when QA policies are not adhered to; include quality/QA program implementation in performance reviews; etc.).

Berkeley:

None.

Sandia:

None.

Los Alamos:

None.

USGS:

None.

M&O Construction:

None.

M&O (Vienna & Las Vegas):

Recommendation No. 1: The Process Model Report/Data Qualification effort should be managed as a separate project with an established budget, schedule, by an experienced M&O Project Manager with the responsibility and authority to allocate funds and manage people across organizational boundaries.

Recommendation No. 2: Perform an analysis of the document revision process within the M&O's Program Information Management Office and make changes to improve its timeliness and effectiveness. The following elements should be considered: (a) consolidate organizational responsibilities to eliminate redundancy and reduce the number of process steps and organizational hand-offs; (b) improve communications between PIM personnel and authors; (c) assign PIM people to work with key line organizations from inception; (d) develop a graded approach to the documents processed by PIM that is based on factors such as the importance of the document; and (e) provide upper management with metrics and feedback as to quality and timeliness of documents processed by PIM.

Recommendation No. 3: An "Issues Management" process should be developed by the M&O such that management can effectively monitor and track issues and problems to ensure that they are thoroughly understood, adequately addressed, and closed in a timely manner. The process should include the evaluation of recommendations provided by internal and external oversight groups, QA audits, peer review groups, self-assessments, and other problems or issues not identified by formal QA deficiency documentation.

In addition to these FY 99 recommendations, the following M&O FY 98 recommendations remain open:

Recommendation No.	Subject
98-1	Nuclear Regulatory Culture
98-2	Corrective Action
98-9	Records Management Program

Appendix D

Personnel Contacted

OCRWM	OCRWM (cont.)	M&O (cont.)
L. Barrett	S. Rouse	H. Benton
J. Blaylock	P. Russell	R. Berlien
F. Bugg	M. Senderling	S. Bodnar
R. Clark	D. Shelor	A. Burningham
J. Compton	D. Sinks	D. Calloway
E. Cooper	N. Slater	J. Clark
R. Craun	S. Smith	W. Clem
S. Dana	R. Spence	B. Cole
M. Diaz	D. Threatt	R. Craig
W. Dixon	R. Toth	J. Crane
R. Dyer	V. Trebulis	P. Dahl
J. Friend	M. Vanderpuy	G. Dials
A. Gil	A. Van Luik	C. Draffin
J. Graff	D. Warriner	G. Griffith
H. Greene	C. Weber	D. Gwyn
S. Gomberg	H. White	M. Harris
B. Hamilton-Ray	A. Whiteside	L. Hayes
C. Hampton	A. Williams	C. Heath
S. Harris	W. Williams	R. Howard
D. Horton	D. Zabransky	R. Justice
W. Hudson		R. Keele
V. Iorii	NRC	D. Keller
J. Jones	W. Belke	C. Kerrigan
C. Lukasik	C. Glenn	J. King
J. Mattimoe		J. Koll
J. Martin	State of Nevada	D. Lancaster
M. McDaniel	S. Zimmerman	M. Lugo
R. Murthy		L. Meyer
C. Newbury	M&O	L. Mitchell
E. Opelski	S. Adame	E. Moreno
J. Pelletier	F. Afshar	R. Morgan
S. Pollock	R. Andrews	L. Neddo
R. Powe	K. Bahattacharya	B. Packer
J. Replogle	J. Bailey	J. Peters
S. Riddle	L. Beatty	J. Pranzatelli
F. Rogers	D. Beckman	G. Reyes

M&O (cont.)

D. Rhodes
 W. Robinette
 T. Schwartz
 M. Shepherd
 D. Spence
 R. Stambaugh
 R. Stevens
 S. Stewart
 W. Stroupe
 A. Tayfun
 P. Turner
 J. VanBibber
 M. Voegele
 R. Wagner
 P. White
 D. Wilkins
 J. Younker

M&O Const.

J. Compton
 J. Devers
 R. Dresel
 E. Gardiner
 C. Garrett
 G. Heaney
 R. Law
 R. McDonald
 L. Mitchell
 R. Sandifer
 L. White
 W. Williams

Berkeley

N. Aden-Gleason
 G. Bodvarsson
 M. Cushey
 V. Fissekidou
 S. Link
 D. Mangold
 C. Tsang
 Y. Tsang

USGS

L. Anna
 T. Chaney
 M. Chornack
 R. Craig
 W. Dudley
 M. Kurzmack
 P. McKinley
 M. Mustard
 Z. Peterman
 M. J. Umari
 A. Yang

Los Alamos

P. Dixon
 J. Fabrykamartin
 T. Hirons
 C. Martinez
 F. Perry
 P. Reimus
 D. Vaniman

Sandia

R. Finley
 J. Gauther
 C. Ho
 R. MacKinnon
 A. Orrell
 C. Rautman
 J. Schelling
 M. Wilson

Livermore

B. Alegre
 T. Buscheck
 W. Clarke
 W. Dossey
 M. Fernandez
 G. Gdowski
 M. Kohler
 W. Lin
 D. McCright
 R. Monks
 C. Palmer
 N. Rosenberg
 R. Stout
 C. Wilder