U.S. Department of Energy
Office of Inspector General
Office of Audit Services

Audit Report

The Office of Civilian Radioactive Waste Management's Corrective Action Program

DOE/IG-0736

August 2006

Department of Energy
Washington, DC 20585

August 16, 2006

MEMORANDUM FOR THE SECRETARY

FROM: Gregory H. Friedman
Inspector General

SUBJECT: INFORMATION: Audit Report on "The Office of Civilian Radioactive Waste Management's Corrective Action Program"

BACKGROUND

The Department of Energy's Office of Civilian Radioactive Waste Management (OCRWM) is preparing to seek a Nuclear Regulatory Commission (NRC) license to construct a permanent repository at Yucca Mountain, Nevada for the disposal of high-level radioactive waste and spent nuclear fuel. As part of this complex process, the Department is required by the NRC to implement a quality assurance program for the data, software and models supporting the license application. To meet this requirement, the Department, among a number of steps, implemented a Corrective Action Program to identify and resolve all potential conditions adverse to quality that may be reported by Department and contractor employees and external stakeholders.

In July 2002, the Department acknowledged weaknesses in its Corrective Action Program, including the existence of multiple systems and burdensome processes for identifying, tracking and resolving deficiencies, as well as, delays in completing effective corrective actions. To address these weaknesses, OCRWM committed to establishing a single system to manage all conditions that could affect the license application process and to instruct employees on its use. Since the implementation of the new Corrective Action Program in October 2003, over 5,600 conditions have been reported for the Yucca Mountain Project.

In October 2005, the Acting Director, OCRWM, requested that we conduct an audit to determine whether the Corrective Action Program was achieving its goal of identifying, tracking and resolving all identified potential conditions adverse to quality that could affect the license application process. His request was based on the importance of quality assurance and the Corrective Action Program to the ultimate success of the Project.

RESULTS OF AUDIT

The Corrective Action Program was not effectively managing and resolving conditions adverse to quality at the Yucca Mountain Project. Specifically:

- Over 100 potential conditions were not being managed in the Corrective Action Program system, but should have been;

- More than half of the most significant planned corrective actions had not been implemented in a timely manner; and,

- Corrective actions were not always effective. We found that conditions continued to recur even after management reported that appropriate corrective actions had been taken.

OCRWM's Corrective Action Program officials did not always: (1) support employee participation in the process; (2) make needed improvements to the system and procedures; (3) review the effectiveness of corrective actions; and, (4) utilize the system's trend analysis capabilities to identify repeat occurrences and generic issues. Additionally, the resolution of conditions was not always timely because, as we were told by site managers, some corrective actions proved to be more complicated than anticipated and, in some cases, competing budgetary priorities delayed necessary remedial activities.

As a result, potential conditions that could affect the ongoing design and analysis work may go unresolved, delaying issuance by the NRC of the license to begin construction and operation of the repository. Such a delay could have a significant financial impact on the cost of storing and handling Departmental defense waste, and, for the government's liability for not accepting commercial spent nuclear fuel on the prescribed timeframe.

We made several recommendations to further assist management in ensuring that the Corrective Action Program meets its goals. These included holding managers accountable for implementing the program requirements; conducting effectiveness reviews to validate corrective actions; and, establishing realistic estimates of the time and budgetary resources required to complete planned actions.

MANAGEMENT REACTION

OCRWM officials recognized that the Corrective Action Program did not meet all of its goals and had, during the course of our field work, initiated an aggressive plan of action to improve the program. Management accepted the recommendations and provided an extensive series of steps to ensure that the Corrective Action Program was more effectively implemented. These actions, which include (1) adding organizational performance measures; (2) revising system procedures; (3) conducting additional effectiveness reviews; and, (4) modifying trending practices, are responsive to the audit report recommendations. Management's comments and planned corrective actions are included in their entirety in Appendix 3.

Attachment

cc: Deputy Secretary
Under Secretary for Energy
Under Secretary for Science
Chief of Staff
Director, Office of Civilian Radioactive Waste Management

REPORT ON THE OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT'S CORRECTIVE ACTION PROGRAM

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CORRECTIVE ACTION PROGRAM

Background

Under the Department of Energy's (Department's) Corrective Action Program (CAP), the Yucca Mountain Project staff was instructed to report potential conditions adverse to quality (hereafter referred to as conditions) or safety into the Program database. Potential conditions include all failures, deficiencies, defective items, safety issues, and nonconformances with Quality Assurance requirements, which could affect the quality of the supporting technical information. As an alternative, employees who wish their identity to remain confidential can report potential conditions through the Employee Concerns Program (ECP). However, all conditions reported in the ECP and other tracking systems that are adverse to quality, must also be entered into the CAP database and assigned to a line management organization to develop and implement timely corrective actions. The benefit of a single tracking system is that deficiencies can be screened for significance, common cause analyses can be performed, and trending analyses can be used to identify repeat occurrences and potential significant problems.

The CAP process also provides for the assignment of a significance level to the condition, ranging from Level A to Level D, depending on the actual or potential consequences of the condition. Level "A" condition reports, the most significant, include conditions, which if uncorrected could have a serious effect on safety, or serious effects on the performance of the repository, such as the ability to isolate waste. Level "D" condition reports are the least significant. Of the approximately 5,600 condition reports in the Corrective Action Program system, 14 were Level A; 783 were Level B; and, approximately 4,800 were Level C or D.

Management of the Corrective Action Program

The CAP is not meeting all its goals for identifying, tracking and resolving all conditions adverse to quality or safety that could effect the license application process. Specifically, we found conditions that had been reported in other tracking systems, in line management self-assessment reports, and by external review groups that had not been included in the CAP system, but should have been. Further, corrective actions developed to respond to these conditions were not always timely and/or effective in resolving the problems identified.

Completeness

In keeping with OCRWM's commitment to establish a single system to manage problems that could affect the license application process, OCRWM and its management and operating contractor, Bechtel SAIC Company, LLC (Bechtel), required that any potential condition reported in any of its 16 other tracking systems be recorded and managed in the CAP database. This included potential conditions reported by line management through self-assessment reviews and external review groups. Despite this requirement, we found at least 102 potential deficiencies that had not been included in the CAP system.

- We identified 90 potential conditions, reported between October 2003 and November 2005, in other tracking systems, such as the ECP and the Work Order Request Systems, which were not in the CAP database. For example, in 2004, an employee reported through the ECP the presence of radon gas during boring operations in the tunnel. Although both a potential condition adverse to quality and a potential employee safety and health issue, the concern had not been included in the CAP system. This condition was subsequently closed under the ECP even though a final determination regarding the validity of the concern had not been made.

  In responding to a draft of this report, officials commented that this allegation only concerned the tunnel boring operations in the 1990's. Since there was no regulatory requirement at that time and currently no scientific evidence associated with the potential synergistic effects of exposure to radon and silica, this concern was not identified as a condition in CAP. An OCRWM official advised that it is waiting for the results of international scientific studies regarding the combined effects of radon and silica to identify if there is a health risk concern.

  We acknowledge that the main tunnel boring operations were completed in the 1990's. However, since more than 50 emplacement tunnels off the main tunnel have yet to be bored, we continue to

believe that this allegation should be managed in CAP until the determination has been made on its health risk to workers.

- About 25 percent (12 of 51) of self-assessment reports we reviewed identified conditions that should have been reported in the CAP database, but were not. For example, an October 2005 self-assessment report identified the need for improved software capabilities to meet new Federal requirements on radiation dosage analyses for workers and the general public. Even though these analyses directly affect the license application, the condition was not entered into the CAP system to initiate appropriate corrective action. Management recently purchased new software needed to meet the new requirement.

Also, externally identified issues, such as findings and recommendations from Office of Inspector General and Government Accountability Office reports were not being managed within the CAP system. These reports addressed inadequate quality assurance plans for incentive expectations and lingering quality problems with data, models, and software and continuing management weaknesses.

Since none of these conditions had been entered into the CAP, they were not subject to screening, cause analysis, and trending to identify repeat occurrences and potential significant problems. We noted that at least 50 of the 71 conditions reported in other tracking systems, but not included in CAP, were determined to be valid; however, only 23 of these were closed with corrective actions.

Timeliness of Corrective Actions

OCRWM procedures require that condition reports be assigned to line management to develop a plan and schedule for corrective actions and that corrective actions be implemented within the timeframe established in the plan. However, OCRWM did not meet expectations for Levels A and B conditions. Specifically, 6 of the 8 Level A conditions closed between April 2001 and July 2004 required an additional 11 to 495 days beyond the original completion date to implement planned corrective actions.

For example, a Level A condition report, addressing a lack of documentation for validating technical analysis and model reports, required a total of 495 days beyond what was originally scheduled to implement the corrective actions.

Similarly, for the 96 Level B conditions closed during 2005, 57 were not completed on time. For example, one Level B condition was originally scheduled to be completed in October 2003, however, the corrective actions were postponed several times beyond the originally scheduled completion date, and are now scheduled to be completed in February 2007 – a total of 1,200 days later than originally planned.

As of November 2005, we found that the implementation of corrective actions for one Level B and five Level C condition reports were delayed over 1,000 days from the date identified. These involved operability issues of site safety systems such as emergency lighting, firewater systems, and emergency communication systems in the tunnel. We also noted that management frequently revised scheduled completion dates and measured timeliness from the revised dates.

Effectiveness of Corrective Actions

Corrective actions were not always effective in resolving conditions adverse to quality. An indicator that corrective actions are not effectively addressing the conditions is whether previously reported problems recur. During the audit, we identified at least 16 conditions that continued to be reported by employees, even though officials reported that corrective actions had been taken to resolve these conditions. We found that the planned corrective actions, in most of these cases, had not been fully effective. OCRWM management acknowledged the need for improvement in this area and advised that it has begun to take action to address recurring problems. Examples of three of the recurring problems follow.

- Problems related to the flow down of design and control requirements to Bechtel's technical design documents were reported over 150 times between January 2004 and July 2005. Although this condition continued to be reported during the

period, OCRWM officials concluded that corrective actions had been taken and closed the condition reports. However, due to the significance of this condition and its impact on technical documents, a "work suspension" order was issued in December 2005. Currently, management is taking action to address this concern.

- Between February 2004 and May 2005, a problem concerning the recurrence of editorial, technical, and procedural non-compliance errors in technical reports issued to the Nuclear Regulatory Commission (NRC) was reported 31 times. These reports described the geologic, hydrologic, physical, and chemical processes of the repository. Although the corrective action plans were reported to have resolved these problems and nearly all had been closed, the problems continued to recur and had not been corrected at the time of this audit. We noted that the NRC previously rejected OCRWM documents due to the numerous editorial and technical errors.

- Another recurring problem pertained to the verification of employees' education and experience to ensure they were qualified to work on licensing documents, such as the post closure engineering documents. These documents contained analysis and modeling of the geologic, hydrologic, physical, and chemical processes of the repository. We noted that this condition had been reported over 34 times, although corrective actions were reported to have been taken. Due to the significance of this problem, management recently issued a condition report to ensure that the necessary corrective actions were addressed.

System to Implement An Effective Program

The CAP system was not used to track and manage all deficiencies primarily because management officials did not always (1) support employee participation in the corrective action process; (2) make needed improvements to the system procedures and software to facilitate its use; (3) conduct reviews to assess the effectiveness of the scheduled corrective actions; and, (4) fully utilize its trending analysis capabilities. We noted that the

complexity of some planned actions and budgetary constraints also impacted OCRWM's ability to correct problems identified.

Employee Participation in the Corrective Action Program

OCRWM and Bechtel management encouraged employees through newsletters and the intranet to self-identify and report all conditions into the CAP database; however, some employees were reluctant to participate in the process. This finding was confirmed by a March 2006 OCRWM self-assessment report which acknowledged that some supervisors encouraged a "find and fix" approach to correct problems rather than enter issues into CAP. Additionally, the report acknowledged that these employees feared that there could be negative consequences (personal, business, and organizational repercussions) for identifying issues.

Although the data does not indicate a pervasive problem, we found 51 instances of employees' reluctance to report issues in the CAP due to fear of negative repercussions. These concerns had, however, been filed through the ECP. Additionally, two employees raised concerns to us during the audit about reporting issues in the CAP system. One employee stated that after he raised concerns or identified deficiencies, his manager instructed him not to enter the issues into the CAP system. The other employee stated that he was instructed by a manager to only report specific violations to approved requirements, even though Department policy required that all deficiencies be reported, regardless of whether approved requirements or interim guidance were violated.

Input into the Corrective Action Program

Potential conditions in some other tracking systems were not included in the CAP database because of inadequate procedures and software problems. Specifically, 10 of the 16 other systems, such as the Document Action Request and Work Order Request Systems, did not instruct employees to enter potential condition reports into the CAP. With regard to the ECP, however, procedures required that conditions also be entered into the CAP, but in many cases, the conditions simply were not entered as required.

Despite access to a hotline designed to assist with using the software, both managers and employees expressed frustration with the CAP system software and avoided using it to either report or resolve problems. For example, some employees cited problems with finding the condition reports in the system and the numerous levels of reviews needed to resolve the issues. Also, some responsible individuals did not have access to information in the CAP system to take the corrective actions assigned to them. Furthermore, two Department managers told us that because the system was not "user-friendly", they preferred to resolve conditions outside of the CAP system.

Validation of Corrective Actions

Bechtel did not always perform effectiveness reviews on closed corrective actions to ensure the reported conditions were corrected. Since early 2005, Bechtel's policy required effectiveness reviews for all closed Level A and selected Level B condition reports. To their credit, management had completed effectiveness reviews for 7 of the 8 Level A condition reports that had been closed. The effectiveness review for the remaining Level A condition report is in progress. However, we found at least 52 Level B condition reports that had been closed since that time, yet management had not performed any effectiveness reviews of the corrective actions taken for these conditions. We also noted that Bechtel sometimes closed corrective actions based on plans to address the problems at some future date; however, Bechtel did not validate that the planned actions were ever completed. For example, we found that Bechtel closed three condition reports – 2 Level C's and 1 Level D – to future planned corrective actions to develop procedures for the Quality Assurance Requirements Document; however, after the condition reports were closed, the procedures were still not developed, nor had Bechtel validated the status of the planned action.

Trending Concerns

Although some trending capabilities existed within CAP, particularly for the more significant condition reports, OCRWM and contractor line managers did not adequately trend all deficiencies. Specifically, while OCRWM's procedure requires that all Level A, B, and C condition reports be trended to identify repeat occurrences, generic issues, and vulnerabilities at a low level before significant

problems resulted, Level D condition reports were not included as part of the trending process since they were considered recommendations or opportunities for improvements. Consequently, managers were not able to review all reported deficiencies to determine if a larger problem existed or if a problem was being reported repeatedly. Furthermore, the ability to trend the timeliness of corrective actions was limited because management frequently revised scheduled completion dates and measured timeliness from the revised dates.

All conditions should be trended since some of the major recurring problems, such as those related to the flow down of design and control requirements to technical documents, had been included in Level D condition reports. In a recent review, OCRWM self-identified that managers were not using the trending tools available to them and that managers tended to react to condition reports in isolation rather than conducting trend analyses that could anticipate problems and facilitate a proactive approach to resolving issues. During our audit, management agreed that this is a significant problem and that trending analyses needed improvement. Efforts are now underway to revise its reports and procedures.

Complex Actions and Budgetary Constraints

On-site managers indicated that complicated corrective action plans and competing priorities for limited budgetary resources, to a limited extent, also impacted OCRWM's ability to implement timely corrective actions. For example, nine major corrective actions, involving the installation of emergency lighting and firewater systems in the tunnels – Level B and Level C conditions, respectively, and the repair to open slots in tunnel walkways – a Level D condition – were not completed as planned because corrective actions were more complex than initially expected. As a result, these actions were placed on hold until a safety analysis could be completed to determine the extent of required corrective actions. These corrective actions were then further delayed due to competing priorities for funds. As of March 2006, six years after the first deficiency was raised, corrective actions to tunnel lighting were starting to take place and other corrective actions were scheduled for completion in 2007.

Impact on Yucca Mountain Project

Failure to effectively use the CAP to manage potential quality and safety conditions could ultimately delay issuance of the license to begin construction and operation of the repository. Delays in completing construction of the repository could have significant financial consequences since the annual cost of storing and handling Departmental defense waste destined for Yucca Mountain is substantial. Additionally, the government's liability for not beginning to take commercial spent fuel from nuclear utilities could be substantial. Unreported and unresolved quality assurance conditions could also impact the safety and performance of the repository.

RECOMMENDATIONS

We recommend that the Director of OCRWM:

1. Ensure managers are held accountable for implementing the policies and procedures of the Corrective Action Program, including reporting all conditions potentially adverse to quality and safety;

2. Improve the Corrective Action Program to make it more user-friendly and facilitate broader employee participation;

3. Revise procedures of other related systems to require that conditions potentially adverse to quality identified in those systems are also entered into the Corrective Action Program, as required;

4. Conduct effectiveness reviews to validate corrective actions, including condition reports closed to future planned corrective actions;

5. Improve trending capabilities for management to anticipate and mitigate deficiencies; and,

6. Ensure that corrective action plans are based on realistic estimates of the time and budgetary resources required to complete planned actions.

MANAGEMENT COMMENTS

Management concurred with our recommendations and developed planned actions to ensure that the Corrective Action Program is effectively implemented. Management has already initiated or plans to, among other things:

- Increase managers' accountability by integrating new performance measures for organizations to identify deficiencies and respond in a timely manner to planned corrective actions;

- Implement improvements to the Corrective Action Program system based on user recommendations;

- Provide training to all employees on the Corrective Action Program and its requirements to facilitate broader employee participation;

- Review procedures from other related systems for reference to the processing of conditions adverse to quality; and,

- Conduct effectiveness reviews to validate the effectiveness of corrective actions.

Management's comments, including its corrective action plan, are included in their entirety in Appendix 3.

AUDITOR COMMENTS

Management's comments and planned actions are responsive to our recommendations.

Appendix 1

OBJECTIVE

The objective of this audit was to determine whether the Corrective Action Program was achieving its goal of identifying, tracking, and resolving all conditions that could affect the license application process.

SCOPE

The audit was performed between October 2005 and May 2006, at the Office of Repository Development and Bechtel SAIC Company, LLC in Las Vegas, Nevada. The scope was limited to the activities associated with the Corrective Action Program from October 2003 through April 2006.

METHODOLOGY

To accomplish our audit objective, we:

- Obtained and reviewed applicable Department of Energy orders and the Code of Federal Regulations; prior audits, and, contract documents;
- Assessed compliance with the Government Performance and Results Act of 1993;
- Interviewed appropriate program and contract personnel; and,
- Analyzed employee concern files and corrective action program documentation, including: condition reports, corrective action plans, trending reports, and, effectiveness reviews.

The audit was conducted in accordance with generally accepted Government auditing standards for performance audits and included tests of internal controls and compliance with laws and regulations to the extent necessary to satisfy the audit objective. Because our review was limited, it would not necessarily have disclosed all internal control deficiencies that may have existed at the time of our audit. We relied on computer processed data to accomplish our audit objective. We performed limited tests on the Corrective Action Program system data and determined that it could be relied on to achieve the audit objective. OCRWM established performance measures under the Government Performance and Results Act of 1993 and passed them down to Bechtel through the

Corrective Action Program. While we identified deficiencies with the administration of the Corrective Action Program, we found the Department complied with the Government Performance and Results Act of 1993.

We discussed the results of the audit with the Office of Civilian Radioactive Waste Management on May 4, 2006. Management waived the exit conference.

Appendix 2

PRIOR REPORTS

Office of Inspector General

- *Quality Assurance Weaknesses in the Review of Yucca Mountain Electronic Mail for Relevancy to the Licensing Process* (DOE/IG-0708, November 2005). The review identified potential quality assurance issues that had not been entered into the Corrective Action Program. The Nuclear Regulatory Commission (NRC) process for granting a license for the repository required that the Department of Energy (Department) publicly disclose on a website all documents, including emails, relevant to the process. The inspection found emails among the 10 million that identified possible conditions and therefore should have been reviewed for entry into the Corrective Action Program. As a result, the Office of Civilian Radioactive Waste Management (OCRWM) took action to have approximately 10 million archived emails reviewed for relevancy to the licensing process.

- *Use of Performance Based Incentives by the Office of Civilian Radioactive Waste Management (*DOE/IG-0702, September 2005). The audit report identified that since 2001, OCRWM paid approximately $4 million in incentive fees, or approximately ten-percent of the fees paid, even though Bechtel delivered poor quality work and missed deadlines. In administering the contract, OCRWM did not establish an adequate quality assurance plan, as required by the Department's Acquisition Regulations. Further, OCRWM did not update the quality assurance plan when incentive expectations changed nor had it documented its rationale for incentive fee payments. The Office of Inspector General recommended that OCRWM establish a performance evaluation and management plan with clearly defined standards, including acceptable quality levels for incentives and fee reductions when performance expectations were not met.

Government Accountability Office

- *Yucca Mountain – Quality Assurance at DOE's Planned Nuclear Waste Repository Needs Increased Management Attention (*March 2006, GAO-06-313). The Government Accountability Office (GAO) reported that the Department continues to face substantial quality assurance problems and other challenges that could further delay the license application process. GAO cited ineffective Department management tools to address these challenges. GAO recommended that the Department reassess their coverage of quality assurance management tools to: allow effective monitoring of issues; incorporate a project wide trending analyses; establish quality guidelines for trend evaluation reports; develop consistent performance indicators; and, focus on the significance of issues.

- *Yucca Mountain – Persistent Quality Assurance Problems Could Delay Repository Licensing and Operation* (April 2004, GAO-04-460). GAO identified lingering quality problems with data, models, and software and continuing management weaknesses. The Department developed a corrective action plan in 2002 to fix recurring problems with the accuracy of such data; however, GAO found that the plan lacked objective measurements and timeframes for determining success. GAO recommended the Department develop a new corrective action plan to ensure that recurring problems were corrected. GAO noted that without the Department making improvements in their quality assurance program, recurring problems could affect the license application process.

Department of Energy
Washington, DC 20585

QA: NA

July 31, 2006

MEMORANDUM FOR GEORGE W. COLLARD
ASSISTANT INSPECTOR GENERAL
FOR PERFORMANCE AUDITS
OFFICE OF INSPECTOR GENERAL

FROM: PAUL M. GOLAN
PRINCIPAL DEPUTY DIRECTOR
OFFICE OF CIVILIAN RADIOACTIVE
WASTE MANAGEMENT

SUBJECT: Response to Office of Inspector General (OIG) Draft Audit Report, Office of Civilian Radioactive Waste Management's (OCRWM) Corrective Action Program (CAP) (A06LV037)

The purpose of this memorandum is to provide the OCRWM response to your review of the CAP. Last year, the OCRWM requested that the OIG perform an independent assessment of the CAP to identify areas that required management attention. The OCRWM accepts the recommendations from the OIG and has attached specific responses with planned action due dates and commits to conduct a follow-on verification three to six months after completion of the corrective actions to ensure that the actions were effective. Additionally, all actions described in the enclosure will be entered into our CAP system. As part of OCRWM's planned actions, we will look for key indicators, as defined by the Institute of Nuclear Power Operations, including:

- Backlogs of open corrective actions that are increasing
- Safety Conscious Work Environment survey results and trends

We will monitor these key indicators and take appropriate action to ensure that the CAP is more effectively implemented and the results of OCRWM's verification activities will be provided to your office.

In addition to the specific responses, I am providing the following information to clarify or expand upon some of the topics addressed in the report.

- The OCRWM has implemented a "Four Pillars" approach as an effective means to organize, manage, and communicate SCWE activities. These four pillars include: –Pillar 1 - Management Support; Pillar 2 – Effective Normal Problem Resolution Processes (which include the CAP and the Differing of Professional Opinion process); Pillar 3 – Effective Alternative Problem Resolution Processes (which include the OCRWM and Bechtel SAIC

Company, LLC Employee Concerns Programs [ECP]); and Pillar 4 – Effective Methods to Detect and Prevent Retaliation. The "Four Pillar" approach is used in high-performing nuclear utility organizations as an additional means to encourage an organization to self-identify and corrects deficiencies.

- The report states that all issues must be reported in the CAP, which may not be consistent with the OCRWM SCWE approach for all circumstances. Employees have the right and responsibility to raise issues to management for resolution, and issues identifying "Conditions Adverse to Quality" (CAQ) are to be documented in the CAP. Employees are also encouraged to identify CAQ independent of line management. OCRWM and contractor employees are encouraged to use the CAP system for technical and operational issues, the ECP for issues involving harassment, intimidation, retaliation, or discrimination, and their corporate human resource department for personnel issues. The OCRWM realizes, in some cases, employees may also feel reluctant to inform management or use the CAP, and thus may rely on Pillar 3. The ECP provides an avenue for employees to raise concerns in a confidential and anonymous manner and ensures that such concerns are investigated and appropriately mitigated. CAQ, identified as part of the ECP investigations, are required by procedure AP-32.1 to be entered into the CAP system by the concerned employee or the OCRWM Concerns Program.

- The report discusses a radon issue raised through the ECP. The concern alleged that silica dust and other health hazards such as radon might have adverse synergistic effects and, therefore, may have detrimentally impacted workers' health during Tunnel Boring Machine operations in the 1990s. There are several points of clarification regarding this concern. First, the wording in the report suggests that this could be an ongoing issue, when in fact all tunnel boring operations ended in 1998; and second, since there was no regulatory requirement and currently no scientific evidence associated with potential synergistic effects of exposure to radon and silica, this concern was not identified as a CAQ. However, as part of the investigation and corrective actions to address this concern, the OCRWM is tracking progress in an ongoing study on the synergistic effects of radon and silica. The OIG report should clarify that this allegation only concerned the tunnel boring machine operation in the 1990s.

OCRWM notes that the draft Inspector General's memorandum for the Secretary indicates that the CAP is meant to implement OCRWM's quality assurance program. The CAP is an important component of the implementation of the quality assurance program, but not the only component. OCRWM's quality assurance program consists of requirements, line ownership, acceptance and quality of work products, as well as regularly scheduled audits, surveillances and self-assessment and the tracking of identified deficiencies by line organizations.

If you have any questions in this regard, please contact Gene E. Runkle at (202) 586-6973.

OPC:GER-1250

Attachment

Responses to the Office of Inspector General (OIG)
Draft Audit Report, Office of Civilian Radioactive Waste Management's
Corrective Action Program (A06LV037)

INSPECTOR GENERAL RECOMMENDATION 1
Ensure managers are held accountable for implementing the policies and procedures of the Corrective Action Program, including reporting all conditions potentially adverse to quality and safety.

MANAGEMENT RESPONSE: Concur

The Office of Civilian Radioactive Waste Management (OCRWM) recognizes the importance of a Corrective Action Program (CAP) and is working to fully integrate the CAP into daily work activities throughout the Program. The level of engagement and use of the CAP by managers will be measured on a quarterly basis beginning in October 2006. The performance measures will include (a) the number and level of condition reports (CR) reported by each organization within OCRWM and BSC, (b) the average age of the CR reported by each organization, (c) the timeliness of completion of required actions as measured from the date of initiation, and (d) the effectiveness of the program to correct deficiencies the first time they are entered by identifying an issue as a repeat occurrence when it is identified again after corrective actions have been completed. This office will conduct a management inquiry with BSC to seek to understand and correct issues and behaviors that are driving effectiveness of the CAP.

The Management Review Committee (MRC) will monitor and assess performance and managers will be held accountable for identifying and correcting conditions adverse to quality. The strengthened MRC is chaired by the OCRWM Yucca Mountain Site Operations Office Director and attended by the Principal Deputy Director, OCRWM, and Bechtel/SAIC (BSC) Deputy General Manager.. On an annual basis, Institute of Nuclear Power Operations (INPO) criteria in INPO 05-005 will be used to validate the effectiveness of the MRC as well as the overall CAP process and OCRWM and BSC will conduct a bi-annual self assessment of the CAP and its effectiveness.

Date to complete actions: October 31, 2006
Date to verify effectiveness: January 31, 2007

INSPECTOR GENERAL RECOMMENDATION 2
Improve the CAP to make it more user-friendly and facilitate broader employee participation.

MANAGEMENT RESPONSE: Concur.

OCRWM has undertaken comprehensive steps to further improve the access and functionality of the CAP. This effort began in March 2006 by seeking recommendations for improvements from system users and cause analysts. Management evaluated these recommendations, and actions are

currently being taken to make the existing CAP system and processes to address this issue. These actions include:

- Simplifying process and screens for users to initiate condition reports in the system
- Simplifying process and screens for management review and approval of actions
- Reducing the number of steps to close out "no action required" CRs (reduced steps from nine to five)
- Increasing the speed of screen generations to address user frustrations with having to wait for items to load
- Consolidating multiple input fields to reduce the number of fields a user needs to address while still ensuring that the system captures key issues
- Fixing problems with software including:
  - Delegation of Authority sub-process fixed to work properly (speed issue)
  - Attachments no longer being "dropped"
  - Key Helpers and Memo Fields will now function properly on all user machines (including those with newer configurations)
- Removing requirements for, and eliminated, non-value added input fields
- Organizational changes to allow greater access to CAP items for the people that need to work them (DOE implemented this change in advance of this release as part of its reorganization in May 06)
- Expanding the "My Ownership" tab to allow managers within the responsible organization to access the items assigned to that group (as opposed to only allowing a single manager to access a given item through this tab).

Improvements to software actions are currently underway and process changes resulting from the software modifications and other process improvements are incorporated into procedure AP-16.1Q Revision 9 ICN 0, *Condition Reporting and Resolution*, which was approved on June 15, 2006. An implementation date of July 31, 2006, for the procedure and software changes was selected to allow communication with users, address any areas of continued concern, enable briefings and training to be conducted in focused user groups, and provide for a seamless transition of the process changes.

Implementation of the above described system and process enhancements will provide for a more user-friendly CAP system and will facilitate broader employee participation. In accordance with AP 16.1Q, employees are required to use the CAP system to identify conditions, adverse to quality and management is expected to ensure the effectiveness of the overall CAP system.

Date to complete actions: July 31, 2006
Date to verify effectiveness: October 31, 2006

INSPECTOR GENERAL RECOMMENDATION 3

Revise procedures of other related systems to require that conditions potentially adverse to quality identified in those systems are also entered into the Corrective Action Program, as required.

MANAGEMENT RESPONSE: Concur.

Conditions adverse to quality (CAQ) must be entered into the CAP in accordance with procedure AP-16.1Q. New employees receive mandatory training that covers the AP-16.1Q requirement on CAQ and CAP. In addition, all project employees completed mandatory training regarding CAQ, CAP, and the new email template requiring emails sent by an OCRWM Lotus Notes user to indicate whether a message to be sent involves a condition adverse to quality. This training was completed and verified in May 2006.

BSC staff previously reviewed procedures of other related systems to check for a reference to AP-16.1Q concerning CAQ. Two procedures (Software Problem Reporting and Employee Concerns Program) contain a reference to AP-16.Q. BSC will re-review the balance of the procedures of related systems and, where appropriate, include a reference to AP-16.1Q regarding CAQ. This review and the required revision of procedures will be completed by September 30, 2006.

Date to complete actions: September 30, 2006
Date to verify effectiveness: January 31, 2007

INSPECTOR GENERAL RECOMMENDATION 4
Conduct effectiveness reviews to validate corrective actions, including condition reports closed to future planned corrective actions.

MANAGEMENT RESPONSE: Concur.

OCRWM will conduct effectiveness reviews to validate the effectiveness of the CAP as required in procedure AP-16.1Q. This procedure requires an effectiveness review be performed on all Level A CRs and those Level B CRs that include a Root Cause Analysis. OCRWM will also consider performing effectiveness reviews on a sample basis for Level B CRs that are based on apparent cause analysis. The procedure will be revised to indicate that CRs may only be closed if all corrective actions are completed or if not possible, a new CR will be generated to track the remaining corrective actions to completion.

In order to ensure that line management fulfills requirements, the MRC will track and monitor the status of required effectiveness reviews on at least a monthly basis. In addition, the MRC will review completed effectiveness reviews for adequacy and completeness. Further, the MRC will perform, after the first six months and at least annually thereafter, a comprehensive review of all CRs with completed Root Cause analyses to determine the adequacy of the effectiveness review process. Additionally, line management will complete effectiveness reviews using nuclear industry standardized criteria. Also, as discussed in Recommendation 1, OCRWM and BSC will conduct a bi-annual self assessment of the CAP and its effectiveness.

Date to complete actions: January 31, 2007
Date to verify effectiveness: March 31, 2007

INSPECTOR GENERAL RECOMMENDATION 5
Improve trending capabilities for management to anticipate and mitigate deficiencies.

MANAGEMENT RESPONSE: Concur

Trend evaluation processes have been modified to include the identification of monitoring, emerging, and adverse trends and to require the development of a CAP condition report for the emerging and adverse trends. A revision to the trend procedure is in process that incorporates techniques and practices used by the nuclear industry. The revision will integrate the trend reporting system and expand trend working group activities to include DOE and contractor organizations and management. This revision will also provide for the issuance of improved quarterly trend reports. This comprehensive trend data will provide a tool for management to focus and monitor corrective actions for effectiveness. New quarterly trend data will be available beginning the fourth quarter of 2006.

Date to complete actions: November 30, 2006
Date to verify effectiveness: May 30, 2007

INSPECTOR GENERAL RECOMMENDATION 6
Ensure that corrective action plans are based on realistic estimates of the time and budgetary resources required completing planned actions.

MANAGEMENT RESPONSE: Concur.

On April 19, 2006, the OCRWM CAP MRC Charter, Revision 13, was approved. Between April 19, 2006, and July 1, 2006, the MRC has implemented several actions to ensure that corrective action plans are based on realistic use of resources. The MRC now reviews and approves Level A and B corrective action plans, and will provide criteria to facilitate consistent determinations of Level A and Level B condition report designations. The MRC also identifies and resolves barriers to permit timely resolution of existing and emerging corrective action issues, which includes the responsibility and authority to resolve schedule and resources issues. This review of the Level A and Level B conditions provides the MRC with the ability to appropriately apply resources to the more demanding conditions or adjust corrective action plans as needed.

Date to complete actions: July 31, 2006
Date to verify effectiveness: October 31, 2006

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