



U.S. Department of Energy
Office of Inspector General
Office of Inspections and Special Inquiries

Inspection Report

Quality Assurance Weaknesses in the
Review of Yucca Mountain Electronic Mail
for Relevancy to the Licensing Process




Department of Energy

Washington, DC 20585

November 9, 2005

MEMORANDUM FOR THE SECRETARY

FROM:


Gregory H. Friedman
Inspector General

SUBJECT:

INFORMATION: Inspection Report on “Quality Assurance Weaknesses in the Review of Yucca Mountain Electronic Mail for Relevancy to the Licensing Process”

BACKGROUND

The Nuclear Regulatory Commission process for granting a license for the Department of Energy’s Yucca Mountain nuclear waste repository requires that the Department publicly disclose on a website all documents, including e-mails, relevant to the process. As a result, the Department’s Office of Civilian Radioactive Waste Management (OCRWM), which is responsible for the repository, took action to have approximately 10 million archived e-mails associated with Yucca Mountain reviewed for relevancy to the licensing process.

OCRWM’s Administrative Procedure 16.1 Q, “Condition Reporting and Resolution,” which is applicable to Federal and contractor employees working on Yucca Mountain matters, requires that “conditions adverse to quality” be identified, investigated, reported, and resolved. The purpose of this inspection was to determine if the process for conducting the relevancy review of the archived e-mails assured that such conditions were promptly identified, investigated, reported, and resolved.

This inspection was conducted in conjunction with an Office of Inspector General criminal investigation into alleged falsification of Yucca Mountain data. This report does not address the criminal investigation.

RESULTS OF INSPECTION

We found that the process for reviewing the archived e-mails did not fully assure that quality assurance issues were promptly identified, investigated, reported and resolved. Specifically:

- There was no evidence that OCRWM requirements for identifying and addressing conditions adverse to quality were considered during the relevancy review; and,
- Among the approximately 10 million e-mails that had already been reviewed for relevancy to the licensing process, we found e-mails that identified possible conditions adverse to quality at Yucca Mountain. However, these e-mails had not been identified by Yucca Mountain personnel as requiring further review for quality assurance conditions.

In response to the significant attention being given to possible quality assurance issues contained in Yucca Mountain e-mails, OCRWM initiated an effort to conduct certain “key word” searches



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of the approximately 1,089,000 e-mails deemed relevant to the licensing process. According to OCRWM, the search was intended to identify willful non-compliance with or a cavalier attitude toward quality assurance requirements. Only a small sampling was done of the e-mails deemed not relevant to the licensing process.

We identified references to possible conditions adverse to quality in the e-mails deemed to be relevant, as well as those determined to be not relevant. Thus, we concluded that OCRWM should expand its quality assurance-related search effort to include a more comprehensive review of the approximately 10 million archived e-mails. Such action will serve to assure that all issues relating to quality are appropriately addressed.

We made several recommendations related to our findings and conclusions.

MANAGEMENT REACTION

In responding to a draft of this report, management accepted the report recommendations and stated it will prepare corrective action plans to address our concerns. Management's comments, which are provided in their entirety in Appendix C of the report, were responsive to our recommendations.

Attachment

cc: Deputy Secretary
Under Secretary for Energy, Science and Environment
Chief of Staff
Director, Office of Civilian Radioactive Waste Management
Director, Office of Internal Review (CF-1.2)

QUALITY ASSURANCE WEAKNESSES IN THE REVIEW OF YUCCA MOUNTAIN ELECTRONIC MAIL FOR RELEVANCY TO THE LICENSING PROCESS

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Overview

INTRODUCTION AND OBJECTIVES

In 2002, Congress approved construction of a geological waste repository in Yucca Mountain, Nevada, to dispose of spent nuclear fuel and radioactive waste. Prior to construction, the Nuclear Regulatory Commission (NRC) must grant the Department of Energy (DOE) a license to build the facility. As part of the licensing process, DOE is required to publicly disclose all documents relevant to the licensing process, including electronic mail (e-mail), by posting them on DOE's public website. The website is accessible through the NRC-sponsored Licensing Support Network (LSN). The DOE Office of Civilian Radioactive Waste Management (OCRWM) is responsible for all aspects of the Yucca Mountain Project (Yucca), including the licensing application process.

In June 2004, OCRWM submitted approximately 689,000 e-mails to the NRC that had been reviewed by their authors and determined to be relevant to the licensing process. These were part of a group of approximately 6 million archived e-mails authored by individuals still associated with Yucca. In August 2004, the NRC determined that DOE had not met its regulatory obligation to make all relevant documentary material available. Specifically, DOE had not reviewed a group of approximately 4 million archived e-mails authored by individuals no longer affiliated with Yucca to determine whether the e-mails were relevant to the licensing process. In September 2004, OCRWM formed the LSN Archival E-mail Review Team to review these additional e-mails to determine their relevancy to the licensing process. The Review Team work was assigned to contractor personnel, a number of whom were specifically retained for this purpose.

In March 2005, the Office of Inspector General's Office of Investigations opened a criminal investigation into allegations involving Yucca-related quality assurance issues raised in certain e-mails authored by an individual formerly associated with Yucca. Subsequently, the Office of Inspector General's Office of Inspections and Special Inquiries initiated a separate inspection to examine internal controls associated with the quality assurance process at Yucca.

As part of the inspection, we examined the adequacy of the review process for the approximately 10 million archived e-mails. Specifically, OCRWM procedures identify a "condition adverse to

quality” as a state of non-compliance with a Quality Assurance Program requirement or a Quality Assurance Program implementing document requirement. The procedures include specific requirements for identifying, investigating, reporting, and resolving such conditions. We examined whether the relevancy review assured that conditions adverse to quality at Yucca were promptly included in this process. This report does not address the separate criminal investigation.

OBSERVATIONS AND CONCLUSIONS

We found that the process for reviewing the approximately 10 million archived e-mails did not fully assure that conditions adverse to quality were promptly identified, investigated, reported, and resolved. Specifically:

- There was no evidence that OCRWM requirements for identifying and addressing conditions adverse to quality were considered during the relevancy review; and,
- Among the approximately 10 million e-mails that had already been reviewed for relevancy to the licensing process, we found e-mails that identified possible conditions adverse to quality at Yucca. However, these e-mails had not been identified by Yucca personnel as requiring further review for possible quality assurance conditions. For example, one e-mail stated “It’s not strange when OQA [Office of Quality Assurance] just discovered that QA software requirements were being ignored.”

Appendix A provides examples of e-mails containing possible conditions adverse to quality at Yucca. These examples were drawn by Office of Inspector General personnel from both the e-mails deemed relevant and those deemed not relevant to the licensing process.

We discussed these e-mails with two responsible Yucca officials to determine what, if any, actions they would take in response to the e-mails. Consistent with OCRWM procedures, both officials indicated that the contents of the e-mails would have caused them to conduct further investigation to determine whether there was a condition that needed to be reported and addressed.

In response to the significant attention being given to possible quality assurance issues contained in Yucca e-mails, OCRWM initiated an effort to conduct certain “key word” searches of those e-mails already deemed relevant to the licensing process by their

authors or the LSN Archival E-mail Review Team. This group of e-mails totaled approximately 1,089,000. According to OCRWM documentation, its key word search was intended to identify willful non-compliance with or a cavalier attitude toward quality assurance requirements. As currently structured, e-mails deemed not relevant to the licensing process will receive no further scrutiny, which could result in possible conditions adverse to quality remaining undetected.¹

As indicated previously, the relevancy review process had not identified any possible conditions adverse to quality. Yet, we identified possible conditions adverse to quality in e-mails that had, in fact, already been reviewed for relevancy to the licensing process. Further, a number of these e-mails had been deemed not relevant to the licensing process.

Consequently, we believe that OCRWM should expand its quality assurance-related search effort. This effort should include a more comprehensive review of the approximately 10 million archived e-mails to assure that all conditions adverse to quality are appropriately identified, investigated, reported, and resolved.

¹ Draft documentation provided by OCRWM officials indicated that a sample of 695 e-mails deemed not relevant was subjected to review for potential willful noncompliance with the Quality Assurance Program or a pervasive cavalier attitude toward quality assurance.

Details of Findings

REVIEW OF E-MAILS FOR INCLUSION IN THE LSN

We found that the process for reviewing the approximately 10 million archived e-mails did not fully assure that conditions adverse to quality were promptly identified, investigated, reported, and resolved. Specifically, there was no evidence that OCRWM requirements in this regard were considered during the relevancy review process.

OCRWM's Administrative Procedure 16.1 Q, "Condition Reporting and Resolution," establishes the processes to ensure that "conditions" related to Yucca work activities were promptly identified. The Procedure is applicable to all Federal and contractor personnel working on Yucca matters, including contractor personnel retained solely for conducting the relevancy review.

In Administrative Procedure 16.1 Q, a "condition adverse to quality" is defined as a state of non-compliance with a Quality Assurance Program requirement or a Quality Assurance Program implementing document requirement. According to the Procedure, the condition must be entered into OCRWM's Corrective Action Program (CAP) system as soon as practical after identification. The Procedure recognizes that some investigation may be required and states that "the condition shall be entered into the CAP system as soon as there is reasonable confidence that the issue exists and that it can be characterized in a Condition Report." The CAP system is the primary mechanism for reporting and resolving identified problems.

We determined that the guidance issued for the review of documents for inclusion in the LSN did not address Administrative Procedure 16.1 Q. The guidance, which was issued on May 5, 2003, by DOE's General Counsel, provided direction on how to determine relevancy and required that any documents (including paper copies, electronic documents, e-mails, etc.) potentially relevant to licensing-related activities be segregated and retained for LSN processing. Responsible Yucca officials confirmed that the relevancy review did not consider the provisions of Administrative Procedure 16.1 Q.

OCRWM reviewed the approximately 10 million Yucca e-mails using the guidance developed by General Counsel. Of the approximately 6 million e-mails reviewed for relevancy by their authors, approximately 689,000 were determined to be relevant. The remaining 4 million e-mails were reviewed by the LSN

Archival E-mail Review Team, and approximately 400,000 were determined to be relevant.

We found that no conditions adverse to quality were entered into the CAP system as a direct result of the relevancy reviews of the approximately 10 million e-mails. Further, there was only one instance where a reviewer raised concerns about the substantive content of e-mails generated by one author. In November 2004, a member of the LSN Archival E-mail Review Team identified a series of e-mails that called into question the author's integrity, especially regarding the software the author was tasked to create. The subject matter contained in the e-mails was not entered into the CAP system by the Review Team member. The Review Team member brought these e-mails to the attention of the Yucca management and operating contractor, which held the e-mails for more than four months without taking any action even though these e-mails suggested deliberate acts to falsify quality assurance records.

An April 19, 2005, assessment performed by OCRWM's Office of Performance Management and Improvement found that the management and operating contractor had failed to enter into the CAP system the conditions in the e-mails as reported by the Review Team member. This finding confirmed the applicability of the requirements in Administrative Procedure 16.1 Q to information contained in the Yucca e-mails and their review for relevancy to the licensing process. Subsequently, one "condition" was entered into the CAP system regarding the series of e-mails that had been questioned by the LSN Archival E-mail Review Team member. Ultimately, these e-mails, which were formally acknowledged by the Department on March 16, 2005, as indicating possible falsification of documentation related to the Yucca project, became the basis for the criminal investigation mentioned previously in this report.

OCRWM officials stated to us that they had not anticipated that the e-mails being reviewed for inclusion in the LSN might contain matters affecting quality assurance. Although quality assurance was an overarching OCRWM requirement and Administrative Procedure 16.1 Q should have been applicable to the e-mail reviews, OCRWM officials acknowledged that the guidance provided to reviewers focused only on making relevancy determinations. Our findings were consistent with this acknowledgement; in short, there was no evidence to suggest that reviewers were specifically made aware that the requirements of Administrative Procedure 16.1 Q applied to their work.

**POSSIBLE
CONDITIONS
ADVERSE TO
QUALITY**

In addition to the original e-mails that were the basis for opening the criminal investigation and other e-mails authored by the same person, the Office of Inspector General found e-mails by other authors that identified possible conditions adverse to quality at Yucca. However, these e-mails had not been identified by Yucca personnel as requiring further review for possible quality assurance conditions. For example, one e-mail stated “It’s not strange when OQA just discovered that QA software requirements were being ignored.” Appendix A provides additional examples Office of Inspector General personnel drew from both the e-mails deemed relevant and those deemed not relevant to the licensing process.

We discussed the e-mails listed in Appendix A with responsible Yucca officials to determine what, if any, actions they would have taken based on the contents of the e-mails. Consistent with the requirements of OCRWM Administrative Procedure 16.1 Q, the officials indicated that the contents of the e-mails would have caused them to conduct further investigation to determine whether there was a condition that needed to be reported and addressed.

As a result of the significant attention being given to possible quality issues contained in Yucca e-mails, OCRWM initiated an effort to conduct certain key word searches of the approximately 1,089,000 e-mails that had been deemed relevant to the licensing process through review by their authors or the LSN Archival E-mail Review Team. According to OCRWM documentation, its key word search was intended to identify willful non-compliance with or a cavalier attitude toward quality assurance requirements. As currently structured, e-mails deemed not relevant will receive no further scrutiny. Consequently, possible conditions adverse to quality may not be detected.

As indicated previously, OCRWM’s formal relevancy review process had not identified any possible conditions adverse to quality. However, we identified such conditions in e-mails that had, in fact, already been reviewed for relevancy to the licensing process. Further, a number of these e-mails had been deemed not relevant to the licensing process.

As noted previously, about 1,089,000 e-mails have been identified as relevant and will undergo a key word examination to identify possible quality assurance issues. However, based on the evidence developed during the inspection, we concluded that OCRWM should expand its search effort. This effort should include a more comprehensive review of the approximately 10 million archived

e-mails to assure that all conditions adverse to quality are appropriately identified, investigated, reported, and resolved.

We were informed that OCRWM is currently developing a searchable database of all existing Yucca e-mails. It appears that this database could provide the means for conducting a more comprehensive review of the approximately 10 million archived e-mails to assure that all conditions adverse to quality are addressed.

RECOMMENDATIONS

We recommend that the Director, OCRWM:

1. Expand the review of archived e-mails to include both those deemed relevant and those deemed not relevant to the licensing process, and ensure that conditions adverse to quality are appropriately identified, investigated, reported, and resolved under the CAP system.
2. Ensure that current and future e-mails are reviewed for possible conditions adverse to quality and that such conditions are appropriately addressed under the CAP system.
3. Ensure that all OCRWM/Yucca personnel are instructed in the appropriate application of the CAP system to all documentation related to Yucca Mountain.

**MANAGEMENT
COMMENTS**

In comments on our draft report, management accepted the report recommendations and stated it will prepare corrective action plans to address our concerns.

**INSPECTOR
COMMENTS**

We found management's comments to be responsive to our recommendations.

Appendix A

SAMPLE E-MAILS

The Office of Inspector General reviewed a sample of archived e-mails from both the group of e-mails deemed relevant and the group of e-mails deemed not relevant to the licensing process. This review identified a number of e-mails containing language that could indicate possible conditions adverse to quality. Some examples of these e-mails are as follows:

E-mail Subject: Re: QA Stuff

Text: “Remember in the report we said the results are QA even if the rainfall is not because this is simply one realization of what could happen. Our best guess. Screw’em. It’s a lovely, 85, sunny, warm breeze. It’s nice to be disconnected and not caring whether it’s QA or not. If you can’t give them QA then fine.”

E-mail Subject: Re: Question concerning the ISM PMR Rev01.

Text: “[redacted]—Per our discussion with the Subject Matter Expert, [redacted] has just advised a large group to violate the QA program . . . until the planned change to AP-3.15Q can be officially implemented.”

E-mail Subject: AMR U0010

Text: “It’s not strange when OQA just discovered that QA software requirements were being ignored.”

E-mail Subject: Scientific Notebook

Text: “. . . we may want to backdate the notebook to when we started putting things together.”

E-mail Subject: Re: Earth info

Text: “[redacted], we really need some methods (make up something 1 or 2 lines) and beginning and ending data collection date for the whole package. ASAP to be able to prepare the TDIF.”

Appendix B

SCOPE AND METHODOLOGY

The field work for this inspection was conducted between March 2005 and July 2005. We interviewed DOE and DOE contractor officials associated with Yucca. We reviewed relevant documentation, including OCRWM procedures, Condition Reports, Certification Plans, training manuals, briefing documents, requisition orders, subcontracts, DOE directives, memoranda, a prior Office of Inspector General report, and NRC's Memorandum and Order.

The Office of Inspector General's Office of Investigations obtained and reviewed e-mails authored by or associated with individuals formerly involved with Yucca who are the subjects of a criminal investigation. The e-mails were drawn from both the group of e-mails deemed relevant and the group of e-mails deemed not relevant to the licensing process.

This inspection was conducted in accordance with the "Quality Standards for Inspections" issued by the President's Council on Integrity and Efficiency.




Department of Energy

Washington, DC 20585

September 30, 2005

QA: N/A

MEMORANDUM FOR ALFRED K. WALTER
ASSISTANT INSPECTOR GENERAL FOR INSPECTIONS
AND SPECIAL INQUIRIES
OFFICE OF THE INSPECTOR GENERAL

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

SUBJECT Comments on the Inspector General's Draft Inspection Report,
"Internal Control Weaknesses Regarding Quality Assurance at
Yucca Mountain"

The Office of Civilian Radioactive Waste Management (OCRWM) accepts the recommendations of the report. OCRWM will develop a corrective action plan to expand the review of archived e-mails to ensure that conditions adverse to quality are appropriately identified and processed to the Corrective Action Program (CAP) system. Additionally, OCRWM will develop a corrective action plan to ensure that current and future e-mails are reviewed for possible conditions adverse to quality and that such conditions are appropriately addressed under the CAP system. OCRWM will also initiate employee training re-emphasizing the importance of adhering to Administrative Procedure 16.1Q and encouraging employees to report conditions adverse to quality to the CAP system. OCRWM will complete these actions no later than November 15, 2005.



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