

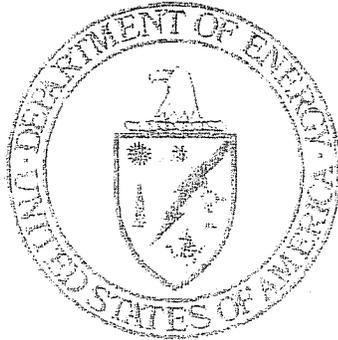
## **Exhibit A**

**ORDER**

DOE 1325.1A

6-18-81

# **DEPARTMENT OF ENERGY CORRESPONDENCE MANUAL**



DOE 1325.1A  
6-18-81

26. COORDINATION.

- a. It is the Department's policy to avoid both over coordination within an organization and under coordination between organizations. The need to be informed is not synonymous with the need to coordinate. Do not refer correspondence for coordination to organizations which merely need to be informed. Circulate the reading file or distribute information copies to meet this requirement. (See page I-5, paragraph 6c.)
- b. Refer to Chapter VI, "Coordination," for concurrence policies and procedures, including guidance as to which office is responsible for retyping correspondence when changes and/or errors are made.
- c. When coordination is required, enter the routing symbol of each organization in the appropriate block in the right margin of the Official File Copy, (yellow grid, DOE 1325.10). Concurring officials will write legibly their first two initials and their surnames and the date in the appropriate blocks of the Official File Copy. (See page I-17, Figure I-5.)
- d. When coordination has been obtained and a *minor* error is found causing the correspondence to be retyped, the words *Previous Coordination Valid* may be written on the yellow grid, to which the original grid is attached. (See page I-16, paragraph 24c.) The *ladder* of the new grid is folded under so that coordination on the old grid may be readily seen. As previously stated, a diagonal line is drawn through the body of the correspondence on the old grid.

27. ASSEMBLY FOR SIGNATURE. When correspondence is ready for review and signature, arrange it and the accompanying papers in convenient order. Keep together all items belonging with the original of the correspondence, all items belonging with the information copies, and all items belonging with the official file. Assemble materials in the basic groups as shown on page I-19, and clip them separately for easy review. Do not staple the originals since signature blocks and/or dates may have to be typed in after the initial assembly.

CHAPTER VI  
COORDINATION

1. GENERAL.

- a. Procedures. Action offices are responsible for coordinating correspondence. Coordination of outgoing correspondence shall be held to a minimum. Only those organizations having a vital or substantive interest in the subject of the correspondence will be requested to coordinate. Coordination will not be requested merely for courtesy or information reasons; it is sufficient to send information copies of the completed correspondence to these offices. Concurrences, comments, and/or nonconcurrences shall be given without delay. Unless a longer deadline is initially specified or an extension is granted by the controlling or preparing (*action*) office, the coordinating office must act on the correspondence within 2 days. If there is no response by the deadline date, concurrence will be assumed.
- b. Typing Responsibilities. The ACTION OFFICE is responsible for editorial and stenographic correctness of the correspondence. The coordinating office will NOT make any editorial changes unless failure to do so causes the correspondence to be incorrect, unresponsive, or misleading. When typographical errors are discovered, they will be noted on a separate piece of paper and corrected by the originating office. When revisions are made, retyping is the responsibility of the COMMENTING OFFICE, after clearing the change with the originating office and any previous coordinators. The office retyping the correspondence is also responsible for furnishing copies to originating and coordinating organizations. Only when the originating office has made a substantive error in its response will it be responsible for the retyping. This applies to all Departmental outgoing correspondence.
- c. Correspondence for DOE Principals. Correspondence to be signed by the Secretary, Deputy Secretary, or Under Secretary must be forwarded through the Office of the Executive Secretariat.
- d. Coordination. Correspondence of a substantive nature and involving congressional and/or public affairs matters will be coordinated with the appropriate officials in the Office of the Assistant Secretary for Congressional, Intergovernmental, and Public Affairs prior to signature and dissemination. Correspondence impacting on any other organization or functional area also should be coordinated with the affected organization. All coordinators receive a carbon copy of the correspondence, as outlined in Chapter I.

Vertical line denotes change.

- e. Coordinators. Correspondence requiring formal coordination with Departmental Elements will be coordinated with the heads of such elements. Exceptions may be made when there are delegations to subordinate elements in the specific subject matter being coordinated. Responses may be made by anyone within each organization who has been given the authority to act for the head of the organization.

## 2. DEFINITIONS.

- a. Nonconcurrences are directed to the entire concept of the response and not to how the response is written. Nonconcurrences may not be for editorial reasons.
- b. Concurrences indicate agreement with the concept of the response and how it is written.
- c. Concurrences with Comments indicate agreement with the concept of the response but should be revised to avoid an incorrect, unresponsive, or misleading statement.

## 3. ACTION OFFICE RESPONSIBILITIES.

- a. Predrafting Conference. If time allows, by telephone or personal visit, confer with the member of each coordinating office who will be signing the concurrence copy. These people should be at the lowest practicable level of organizational cognizance. Discuss the proposed correspondence with these staff members on an informal basis. Get their ideas, answer their questions, and resolve their doubts. The benefits of doing this are:
  - (1) The person to whom the final piece of correspondence will be routed for formal coordination will be known, thus reducing routing delays.
  - (2) The comments may result in a better, more complete, and more thoroughly considered piece of correspondence.
  - (3) All objections will have been considered before the correspondence is finally typed, thus reducing the need for subsequent revision, and possibly avoiding a nonconcurrence.
- b. Forwarding for Clearance.
  - (1) Urgent Correspondence. Prepare a carbon or photocopy of the yellow Official File Copy for each coordinating office, as well as copies of all essential backup material, such as the incoming letter. Keep such material to a minimum. Make copies only of those documents that are essential for understanding the correspondence.

This is not necessarily all documents used for composing the correspondence. Send or hand-carry these copies to each coordinating office simultaneously. Retain the originals, and when replies are received, record them on the yellow Official File Copy, attaching the signed carbon or photocopy as backup.

- (2) Routine Correspondence. Circulate the original of the Official File Copy after entering the routing symbol of each coordinating office in the appropriate block of the ladder. This is done if time permits, if the backup material is voluminous, and/or it appears that coordination is a routine formality. When there are several coordinators, it may be necessary for each office to hand-carry the document in order to meet the deadline date for response.
- c. Control Sheet (Controlled Correspondence Only). Enter the date sent and routing symbols of each coordinating office on the sheet controlling the correspondence. Do not send this sheet to coordinating offices. Control clerks should be notified when responses are received. (See Chapter VII.)
  - d. Time Limits. Coordinating offices are normally allowed 2 full workdays to concur or nonconcur. If the correspondence is sent via regular Departmental mail services, allow 1 full day en route each way. Thus, 4 full workdays should be allocated for obtaining clearances. If no word is received from the coordinating offices within that time, presume their concurrence and begin processing for final transmission. Whenever possible, additional time should be allotted for larger documents and for those documents involving complex matters.
    - (1) In some instances, the coordinating office may advise that it needs additional time to evaluate the correspondence. If at all possible, allow the extra time. (Note the extension in the appropriate section of the control sheet, if one has been used.) When answering an incoming letter, it may be necessary to send an acknowledgment to the author advising of the delay, as outlined in Chapters I and II. If the correspondence must be sent without delay, advise the coordinating office that an extension cannot be granted.
    - (2) In cases where prompt transmittal is essential, *hand-carry* the correspondence. Since this coordinating method is wasteful in time and workforce, it should be reserved for only the *most urgent* correspondence.

(3) Telephone concurrences may be obtained in crucial circumstances where the action and coordinating offices are some distance apart. Read the correspondence to the coordinating party and request oral approval. Indicate this approval on the Official File Copy of the correspondence and note that it was obtained via telephone.

- e. Resolve or adopt all nonconcurrences and comments made by commenting offices before transmitting the correspondence. If comments cannot be adopted or nonconcurrences resolved, refer the matter to the next level of supervision using a staff paper in accordance with the provisions of Chapter II. The staff paper should clearly define the comment(s) and/or nonconcurrency(s) not adopted or resolved and the reasons for such nonadoption or nonresolution.
- f. As stated in Chapter I, a carbon copy of the response will be provided each coordinating office.

#### 4. COORDINATING OFFICE RESPONSIBILITIES.

- a. Time Limits. Normally only 2 full workdays from date of receipt in the coordinating office is allowed for concurrence, comment, or nonconcurrency. If this time limit is not met without advising the action office that additional time is required, the action office may presume concurrence and proceed accordingly. Consequently, the highest priority will be given to processing correspondence submitted for clearance.
- b. Extension of Time Limit. In some cases, it may be impossible to fully research and evaluate the correspondence within the 2-day limit. When this happens, telephone or visit the action office to advise of the circumstances. Estimate how long coordination will take, and request an extension on the time limit. In some cases, it may be necessary to concur and/or comment by telephone and follow up by signing off on the correspondence and returning it by messenger service.
- c. Concurrence. If the correspondence in question is acceptable, this is indicated in the section provided on the concurrence copy by the signer clearly writing his or her first two initials, surname, and the date. Promptly return it to the action office by whatever means necessary to meet the deadline date for coordination.
- d. Nonconcurrency. If at all possible, disagreements should be resolved during the predrafting conference as outlined in paragraph 3. If they are not, state the differences and the reasons therefor in a memorandum, indicate nonconcurrency on the concurrence copy of the correspondence, and return both to the action office.

- e. Editorial Comments. As stated in paragraph 1b of this chapter, the commenting office is limited to certain types of editorial comments; i.e., those which if not made would cause the correspondence to be incorrect, unresponsive, or misleading. Therefore, do not make other editorial changes, other than to point out mistakes in spelling or grammar by noting them on a separate piece of paper. Do not *nit pick* unless valuable, substantive contributions will be made.
  
- f. Concurrence with Comments. After clearing the comment with the originating office and any previous commenters, the commenting office will retype the correspondence to incorporate the change(s). The commenting office will provide the copies noted on the grid by cc: and include the *Retyped:* identification line, as well as all previous identification lines, as outlined in Chapter I. All copies of both the original and retyped correspondence will be returned to the office circulating it for coordination.
  
- g. Unnecessary Concurrence Requests. Sometimes correspondence may be received for coordination when it is not necessary. If this happens, write "no comment" on the concurrence copy, sign, and return it to the action office. This will put the action office on notice not to send future correspondence of a similar nature for coordination.

## **Exhibit B**

*Carl Getty*

# memorandum

NN1.881121.0037

DATE: NOV 18 1988

REPLY TO: RW-20  
ATTN OF:

SUBJECT: Concurrence on the Site Characterization Plan Overview for the Yucca Mountain Site

TO: Carol M. Borgstrom, EH-25

Attached for final concurrence is the Site Characterization Plan Overview for Yucca Mountain, Nevada, scheduled for release in December 1988. This Overview consists of brief summaries of important topics covered in the Site Characterization Plan.

The Overview will also be used at the public update meetings and public hearings scheduled for February and March 1989.

In order for us to maintain the issuance schedule for the Overview, we would appreciate your concurrence by noon, Tuesday, November 22, 1988. Therefore, your concurrence is requested on the attached concurrence sheet. Technical staff from OCRWM, as well as YMPO, have reviewed the SCP Overview for conformance with the Site Characterization Plan.

Your cooperation in the review and concurrence process is greatly appreciated.

*S. H. Kale*

Stephen H. Kale  
Office of Facilities Siting and  
Development

Attachment

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- CO: LIVINGSTON
- CO: VOEGELE - SAIC
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- CO: WILMOT
- CO: \_\_\_\_\_
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- CO: \_\_\_\_\_

FILED IN WMPO  
11-21-88

RECORD COPY

NOV 18 1988

RW-20

Concurrence on the Site Characterization Plan Overview for the Yucca Mountain Site

David Blee, CP-2

Attached for final concurrence is the Site Characterization Plan Overview for Yucca Mountain, Nevada, scheduled for release in December 1988. This Overview consists of brief summaries of important topics covered in the Site Characterization Plan.

The Overview will also be used at the public update meetings and public hearings scheduled for February and March 1989.

In order for us to maintain the issuance schedule for the Overview, we would appreciate your concurrence by noon, Tuesday, November 22, 1988. Therefore, your concurrence is requested on the attached concurrence sheet. Technical staff from OCRWM, as well as YMPO, have reviewed the SCP Overview for conformance with the Site Characterization Plan.

Your cooperation in the review and concurrence process is greatly appreciated.

Stephen H. Kale  
Office of Facilities Siting and  
Development

Attachment

Identical letter sent to:

Carol Borgstrom, EH-25 and  
William Dennison, GC-11

NN1.881121.0038

CONCURRENCES	
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INITIALS/SIG	JL
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## **Exhibit C**

*Office of Repository Development*

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*Management Plan for Development of the  
Yucca Mountain License Application*

*YMP/04-01*

*Revision 1*

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*July 2004*

*U.S. Department of Energy  
Office of Civilian Radioactive Waste Management  
Las Vegas, Nevada*

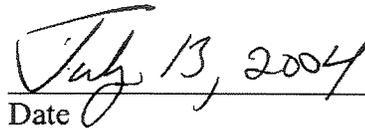
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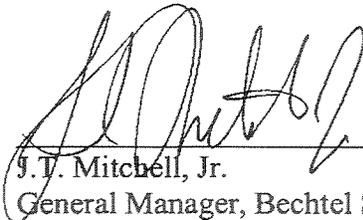
Approval:



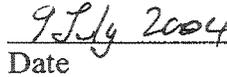
W.J. Arthur, III  
Office of Civilian Radioactive Waste Management  
Deputy Director, Office of Repository Development



Date



J.T. Mitchell, Jr.  
General Manager, Bechtel SAIC Company, LLC



Date



## CHANGE HISTORY

<u>Revision Number</u>	<u>Interim Change No.</u>	<u>Effective Date</u>	<u>Description of Change</u>
0	0	03/29/2004	Initial issue. Supersedes PLN-MGR-RL-000001, <i>Management Plan for Development of the Yucca Mountain License Application</i> .
1	0	N/A	Made changes to processes and related responsibilities for development of the License Application during and after technical team review. Clarified roles and responsibilities of U.S. Department of Energy headquarters related to License Application development.

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## EXECUTIVE SUMMARY

This document describes the License Application development and review responsibilities of the U.S. Department of Energy, including the Office of Civilian Radioactive Waste Management, the Office of Repository Development, and the Office of General Counsel. It also identifies the more limited responsibilities of the Office of Environmental Management, including the National Spent Nuclear Fuel Program, as well as those of the Office of Environment, Safety and Health; the Office of Security; the Naval Reactors; and the U.S. Geological Survey. It also describes the development and review responsibilities of the contractor, Bechtel SAIC Company, LLC, and those of the major national laboratories that support the contractor. The philosophy incorporated into this plan distinguishes the U.S. Department of Energy as the technically qualified applicant, assisted by the contractor, and the Office of Repository Development as the license holder of record. The U.S. Department of Energy is the organization responsible for construction and operation of the repository. The Office of Repository Development is the lead U.S. Department of Energy organization for the preparation, review, and approval of the License Application. It is planned, but subject to final approval, that the Office of Civilian Radioactive Waste Management Deputy Director, Office of Repository Development, will sign the License Application. Within the U.S. Department of Energy Office of Repository Development, the Office of License Application and Strategy staff will coordinate the integration of U.S. Department of Energy comments and represent the U.S. Department of Energy at comment resolution meetings.

This management plan describes the License Application development and review process for both the U.S. Department of Energy and for Bechtel SAIC Company, LLC, and it outlines the responsibilities and controls used during the development and approval process. It establishes that the Licensing department within Bechtel SAIC Company, LLC, will be responsible for oversight of the License Application development process to accomplish the task of producing a document that is technically accurate, consistent with the requirements contained in 10 CFR Part 63, responsive to the *Yucca Mountain Review Plan*, and suitable for U.S. Nuclear Regulatory Commission docketing. This management plan also clarifies the detailed process by which all sections of the License Application will be reviewed and approved, provides the signature and approval authorities of key individuals, and identifies the transition of License Application responsibility to ensure that all regulatory, legal, and contractual requirements are achieved.

This management plan describes the role of the U.S. Department of Energy Office of Repository Development and charges the position of Nuclear Engineer within the Postclosure and License Acquisition Division of the Office of License Application and Strategy with responsibility for day-to-day interactions with the Licensing department within Bechtel SAIC Company, LLC, and with overall development and coordination of the License Application.

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## ACRONYMS AND ABBREVIATIONS

BSC	Bechtel SAIC Company, LLC
DOE	U.S. Department of Energy
EH	Office of Environment, Safety and Health–DOE (routing symbol)
EM	Office of Environmental Management–DOE (routing symbol)
GC	Office of General Counsel–DOE (routing symbol)
LA	License Application
NMSS	Nuclear Material Safety and Safeguards
NR	Naval Reactors–DOE (routing symbol)
NRC	U.S. Nuclear Regulatory Commission
NSNFP	National Spent Nuclear Fuel Program
OCRWM	Office of Civilian Radioactive Waste Management
OLAS	Office of License Application and Strategy
ORD	Office of Repository Development
PLAD	Postclosure and License Acquisition Division
QA	quality assurance
QARD	Quality Assurance Requirements and Description
RW	Office of Civilian Radioactive Waste Management–DOE (routing symbol)
SAR	Safety Analysis Report
SO	Office of Security–DOE (routing symbol)
USGS	U.S. Geological Survey

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## 1. INTRODUCTION

A U.S. Nuclear Regulatory Commission (NRC) license for the disposal of high-level radioactive waste in a repository at Yucca Mountain, Nevada, is required under the provisions of 10 CFR Part 63. The NRC authority to regulate a high-level radioactive waste repository originates from the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974; and the Nuclear Waste Policy Act of 1982, as amended.

The U.S. Department of Energy (DOE), as the applicant, will submit the License Application (LA) to the NRC with the goal of obtaining a license to receive and possess source, special nuclear, and byproduct material at a repository at the Yucca Mountain site. In order to be the license holder of record, the DOE must demonstrate a core technical competence to the satisfaction of the NRC. The competency of the DOE technical team reflects the proficiency required to implement the functional organizational structure that is described in draft sections of the Safety Analysis Report (SAR), including SAR Section 5.3.1. For the purposes of this management plan, the various portions of the LA—General Information sections, SAR chapters, and portions thereof—will all be referred to as sections.

The LA submittal, in accordance with the requirements found in 10 CFR 2.101 and 10 CFR 63.21, consists of a letter describing the purpose of the LA, enclosures, attachments that contain general information and a SAR, and four sets of full-sized drawings. The general information portion of the LA is intended to provide an overview of the engineering design concept for the repository and will demonstrate an understanding of what aspects of the Yucca Mountain site and its environs influence repository design and performance. The general information portion, as required by 10 CFR 63.21(b), will include the following:

- A general description of the repository
- Proposed schedules for construction, as well as for receipt and emplacement of wastes
- A description of the security measures for physical protection of high-level radioactive waste<sup>1</sup>
- A description of the material control and accounting program to meet the requirements of 10 CFR 63.78
- A description of work conducted to characterize the Yucca Mountain site.

The SAR portion of the LA, as required by 10 CFR 63.21(c), will present technical discussions and descriptions that form the basis for the risk-informed, performance-based judgments that will be provided to demonstrate compliance with the regulations. The SAR will include but not be limited to the following:

- A description of the Yucca Mountain site

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<sup>1</sup>Detailed information related to the physical protection program and to the material control and accounting program will be withheld from public access and submitted to the NRC under separate cover, in compliance with 10 CFR 73.21 and 10 CFR 2.790(d).

- A preclosure safety analysis
- A description of the design of the structures, systems, and components important to safety and a description of the natural and engineered barriers important to waste isolation
- A description of the plans to maintain the ability to retrieve and provide alternative storage for radioactive wastes
- A description of plans for permanent closure, decontamination, and decommissioning
- A performance assessment that demonstrates multiple barriers, describes scenario analysis and probability, discusses the model abstraction process, and demonstrates compliance with postclosure public health and environmental standards
- A description of the programs designed to resolve safety questions
- A description of the performance confirmation program
- A description of other administrative and programmatic requirements, such as the quality assurance (QA) program, to be applied to the structures, systems, and components important to safety and to the natural and engineered barriers important to waste isolation
- A description, initially in terms of a functional organization, demonstrating lines of authority for safe construction and operations.

This management plan establishes controls for the development, review, approval, and issuance of the LA.

## 2. SCOPE

The scope of work associated with this management plan is to manage the process for preparation, review, approval, acceptance by the Office of Repository Development (ORD) and other project participants, and subsequent production and submittal of the LA to the NRC. The content of the initial submittal is to be sufficient to allow the NRC to determine that the application is complete and acceptable for docketing and for subsequent technical review pursuant to 10 CFR 2.101(f). It is expected that the LA will be revised on a routine basis to provide responses to NRC requests for additional information, as well as to update and expand upon information contained in the initial submittal. Revisions to the LA will be filed in accordance with 10 CFR 63.22. Consistent with 10 CFR 63.24, the LA, along with the environmental impact statement, will be updated and filed with the NRC in anticipation of receiving a license from the NRC.

This management plan outlines the LA preparation and review responsibilities. The LA is not subject to the requirements of the *Quality Assurance Requirements and Description* (QARD)

(DOE 2004), although preparation and review of the draft LA and its individual sections will be subject to appropriate management and document quality controls.

Work packages have been developed to describe the work related to development of the LA in more detail. These work packages can be found in the multiyear planning system under Contract Work Breakdown Structure 1.5.01.2.2 and DOE Work Breakdown Structures 1.2.22.3.01, 1.2.22.4.01, 1.2.22.4.02, 1.2.22.4.03, 1.2.22.4.04, and 1.2.22.5.01. The work packages are arranged by LA section, as well as content, in accordance with planning concepts. The work packages and their associated activity schedules will be modified, as necessary, to reflect changes in the LA structure.

This management plan is also intended to assist and guide authors during development and review of text and graphics for the LA by:

- Describing management controls implemented to ensure that the LA is completed on schedule and is acceptable for docketing
- Including the review process and technical reviews as described in Section 4.4 and as shown in Figure 1
- Explaining the process to be used by the authors to determine the appropriate type and level of information to be included in the LA
- Providing a process and guidance for document development, review, and comment resolution (Section 4)
- Providing a description of the project management controls to be used in the development of the LA, including project organization and management (Section 3), quality requirements (Section 5.1), records associated with LA development (Section 5.2), and schedules and milestones (Section 4.2).

### **3. PROJECT ORGANIZATION AND MANAGEMENT**

This section addresses the responsibilities for the DOE and Bechtel SAIC Company, LLC (BSC), in developing and approving the LA. For the purposes of this management plan, BSC includes the national laboratories supporting the project, as well as the U.S. Geological Survey (USGS).

#### **3.1 DOE LA DEVELOPMENT STAFF AND RESPONSIBILITIES**

The DOE is assisted by the contractor, BSC, in carrying out the responsibilities associated with LA production.

### **3.1.1 OCRWM Deputy Director, ORD**

The Office of Civilian Radioactive Waste Management (OCRWM) Deputy Director, ORD, who is also the Chief Nuclear Officer within the ORD, has direct responsibility for the development, content, review, and validation of the LA.

The OCRWM Deputy Director, ORD, will attest to the completeness and accuracy of the LA. It is planned, but subject to final approval, that the OCRWM Deputy Director, ORD, will sign the LA.

### **3.1.2 Director of the OLAS**

The Director of the Office of License Application and Strategy (OLAS) is responsible to the OCRWM Deputy Director, ORD, for successful, on-time development of the LA. This responsibility is delegated to the Postclosure and License Acquisition Division (PLAD) Director. The PLAD Nuclear Engineer works with BSC Licensing on a day-to-day basis in developing and coordinating LA sections. The Director of the OLAS is also responsible for:

- Developing the licensing strategy
- Ensuring that personnel assigned to develop and review the LA are properly trained and qualified
- Developing budgets to support licensing
- Validation of the LA
- Reviewing the LA.

### **3.1.3 LA Management Council**

The LA Management Council serves as the staff-level DOE group responsible for the following activities:

- Providing technical reviews
- Ensuring consistency with other DOE programs and policies
- Ensuring that the program interests of the DOE organization are appropriately addressed in the LA

The LA Management Council is chaired by the ORD and is comprised of the OCRWM Office of Systems Analysis and Strategy Development; the Office of General Counsel (GC); the Office of Environmental Management (EM); the Office of Security (SO); Naval Reactors (NR); and the Office of Environment, Safety and Health (EH). By agreement of the LA Management Council, the membership of the council can be changed as needed without requiring revision of this management plan.

## **3.2 BSC LICENSING STAFF RESPONSIBILITIES**

### **3.2.1 BSC Licensing Manager**

BSC Licensing has overall responsibility within BSC for producing a complete and accurate LA that can be delivered to the DOE and subsequently docketed. BSC Licensing is also responsible for planning and implementing the activities associated with LA development. The functions in this plan associated with the BSC Licensing Manager may be performed by the BSC Licensing Manager or by the designated BSC Licensing LA point of contact.

The BSC Licensing Manager:

- Works with the ORD to develop the strategies and goals that guide and control BSC Licensing direction and communicates those to BSC Licensing
- Coordinates with the OLAS those regulatory activities necessary to ensure timely submittal of the LA to the NRC, based on strategies and goals developed for BSC Licensing
- Provides status updates to ORD and BSC management
- Leads the identification, planning, and integration of activities associated with LA schedules and cost performance monitoring
- Provides recommendations to the OLAS regarding interactions with the NRC and other agencies, as appropriate
- Is responsible for comment resolution approval for BSC.

### **3.2.2 BSC LA Coordinator**

The BSC LA Coordinator is responsible for the day-to-day coordination of BSC activities associated with LA.

The BSC LA Coordinator:

- Serves as overall day-to-day coordinator of the production of the LA
- Assigns responsibilities within BSC to ensure that the LA is complete, technically accurate, consistent with supporting documents, and produced on schedule, in accordance with the project integration schedule
- Monitors cost and schedule variances associated with the development, submittal, and review phases of the LA and initiates corrective actions, as required
- Serves as the primary interface between BSC and ORD personnel assigned tasks associated with development of the LA

- Establishes and maintains a detailed schedule for development of the LA and for activities that provide inputs to the LA
- Identifies and communicates LA requirements to the BSC project staff in a clear and timely manner
- Monitors progress of the development of the LA and initiates corrective actions, as necessary
- Establishes appropriate schedules for development of draft text and completion of reviews
- Participates in reviews and meetings and assists with the resolution of comments, as needed, to ensure the development of a coordinated document.

### **3.3 KEY PERSONNEL AND ORGANIZATIONAL RESPONSIBILITIES**

The responsibilities of key support staff and other organizations supporting the LA development process are outlined in the sections that follow.

#### **3.3.1 LA Authors**

LA authors are the principal individuals who generate the text, tables, and figures for the LA. LA authors are assigned based on their areas of expertise and based on work within their line organizations, in accordance with LA text outlines and in accordance with requirements and schedules established mutually by BSC Licensing and the line organizations for completing the work. Much of the guidance used by authors when developing the LA can be found on the LA storyboards. The LA storyboards are electronic databases located on Lotus Notes that are used to facilitate preparation of the LA.

LA authors:

- Work with BSC Licensing representatives to define the information to be presented in draft LA sections
- Review previous project documentation related to LA development and review sample SARs, as appropriate, to promote an understanding of the scope of the LA to be written
- Assign work, as needed, to supporting authors to complete assigned LA sections
- Adhere to the LA Writer's Guide and other related guidance provided and maintained as references on the LA storyboards, unless directed otherwise by the PLAD Nuclear Engineer and the BSC LA Coordinator
- Adhere to the LA Graphics Design Guidance and Standards on the LA storyboards

- Provide technically valid and defensible references, including Document Input Reference System numbers and appropriate section, figure, or table numbers for statements of fact, numbers, and design details provided in the LA text
- Review the data and information contained in assigned LA sections against the identified source information prior to submittal to BSC Licensing for review to ensure that the data and information contained in the LA are accurate, logical, and reasonably supported by the source and that the appropriate source section, figure, or table number is cited
- Ensure that LA sections address the *Yucca Mountain Review Plan* (NRC 2003) acceptance criteria and that the LA sections clearly describe how those sections meet the acceptance criteria
- Ensure that source documents have been submitted to the OCRWM Records Processing Center for indexing and maintenance or, if the source document has not yet been submitted, provide status of the document via an LA Open Item or an LA Validation Item (Section 4.3)
- Ensure validity of cross-references made in the text
- Conduct informal reviews of assigned sections within the line organization, as appropriate, before those sections are submitted to BSC Licensing for licensing review and subsequent technical team review
- Work with the appropriate BSC Licensing representative to resolve comments from the licensing review and to revise the text, as appropriate, to ensure that it is still consistent with source documents
- In conjunction with line management and BSC Licensing, identify LA Open Items, LA Validation Items, and LA Action Items in the text (Section 4.3)
- Work with BSC Licensing, as necessary, to resolve comments from the joint chapter reviews and to revise the text, as appropriate, to ensure that it is still consistent with source documents
- Identify commitments in accordance with established processes (Section 4.3).

### **3.3.2 LA Review Coordinators**

The team and joint chapter reviews of the LA are conducted in accordance with the process provided in this management plan. BSC Licensing provides overall coordination of the reviews, and a separate review coordinator is designated for the BSC Licensing organization as a participant in the reviews. BSC Licensing works with the assigned LA review coordinators in all organizations, including the USGS, national laboratories, EM, EH, SO, OCRWM (RW), and NR, in supporting the formal document reviews. For the technical team and joint chapter reviews (Figure 2), BSC assigns a lead for each chapter or section, as appropriate, who is responsible for

ensuring the appropriate BSC personnel review the LA and who is responsible for ensuring resolution of comments related to that chapter or section. For the technical team review and joint chapter reviews, each participating organization provides an LA review coordinator to represent the entire organization. If necessary, each coordinator may be represented by a different designee in each of the joint chapter reviews.

The review coordinators for both team and joint chapter reviews:

- Serve as overall comment coordinators for their respective departments or organizations
- Assign the document review to the appropriate personnel
- Evaluate review comments and eliminate those that are redundant, contradictory, or not relevant to the assigned review criteria
- Ensure that one consolidated set of review comments and specific recommendations for comment resolution for the department or organization represented is provided via the LA storyboards or as directed by the BSC LA Coordinator.

Comments for team and joint chapter reviews should consist of specific recommendations for changes to the text, tables, and figures. Comments from the DOE Las Vegas and headquarters organizations will be submitted through the DOE coordinator.

Comments should be submitted via the appropriate LA storyboard for the technical team review or as directed by the BSC LA Coordinator.

Comments for the joint chapter reviews will be provided as directed by the BSC LA coordinator to be resolved in a meeting with other commentors. Each organization's comments will be forwarded by the organization's review coordinator to the other review coordinators in advance of the comment resolution meeting. The outcome of the comment resolution meeting will be a master markup of the subject section. Each of these master markups is controlled by the ORD Coordinator and will be provided to BSC for production.

## **4. LA DEVELOPMENT**

### **4.1 OVERVIEW**

The audience for the LA is the NRC. The LA is being developed in accordance with the requirements found in 10 CFR 63.21 and is responsive to the *Yucca Mountain Review Plan* (NRC 2003), which was established to ensure quality, uniformity, and consistency of the NRC review of the LA. The text of the LA presents the safety case and conclusions in clear language, supported by appropriate tables and figures. The LA text, tables, and figures will be extracted from approved project documents and analyses.

## **4.2 LA DEVELOPMENT MANAGEMENT**

### **4.2.1 Schedules for Drafting Sections**

The schedules for production of specific section drafts, the review process, final production, approval, and submittal to the NRC are contained in the Project Control schedule. The schedules implement the applicable multiyear planning system Work Breakdown Structures for the LA. BSC Licensing interfaces with the technical organizations to coordinate timely development of products to support the LA. A general overview of the process is contained in Figure 2. The dates and durations shown in Figure 2 are estimates; the actual schedule may vary and will be reflected in postings to the LA storyboards.

### **4.2.2 Controlling Processes**

The LA is being developed by BSC for the DOE under the specifications of this management plan. This plan provides a consistent approach to development of the various sections of the LA and helps ensure consistency with related provisions of the latest revision of the *Yucca Mountain Project Licensing Strategy* (ORD 2003). LA authors will identify source information used in the LA text, tables, and figures following Section 5.1 of AP-3.15Q, *Managing Technical Product Inputs*. LA reviews will be conducted in accordance with the process provided in this management plan and in associated desk guides, as appropriate.

Applicable guidance documents (e.g., desk guides, the LA Writer's Guide) provide details that are applied in support of this plan, including:

- Use of the LA storyboards
- Review processes
- Comment resolutions
- Editing processes
- Graphics standards
- Writer's guidance
- Referencing standards and practices
- Review criteria.

Following these guidance documents helps to ensure that the LA is consistent in language and appearance and that it meets the requirements for content and validation.

### **4.2.3 Qualification of the LA Development Team Members**

LA development personnel are trained according to preestablished training matrices, which are based upon their job descriptions. No additional qualification requirements are applicable for activities performed as part of LA development and review. Indoctrination for specified LA-related tasks is provided to other personnel, as appropriate, to ensure that draft LA sections address regulatory requirements.

#### **4.2.4 Metrics**

To monitor the progress of the development of the LA, metrics are used to provide management with an ongoing status, as well as the ability to foresee challenges related to quality and schedule. Metrics are also provided for:

- The actual progress of the development of the LA versus the scheduled progress
- Forecasted activities versus scheduled activities
- Progress of the closure of LA Open Items.

These metrics are updated monthly and are rolled up with the information incorporated into the ORD Manager's Operating Review meeting. They are also included on the LA storyboards.

BSC Licensing will provide status information to the ORD with increasing frequency as the activities related to LA development increase. Figure 3 is an example of a report that provides information on LA development progress and issues. Electronic distribution of status information is generally acceptable (e.g., status charts posted to the LA storyboards).

#### **4.2.5 LA Completeness and Accuracy**

10 CFR 63.10 requires that information provided by the licensee be complete and accurate in all material respects. The development steps and multiple reviews described in this plan, which are conducted by technical organizations and by management in BSC, the ORD, and related organizations, will ensure that the LA presents the safety case completely and accurately and that the information provided and the conclusions reached address the acceptance criteria in the *Yucca Mountain Review Plan* (NRC 2003). During development and review, authors and reviewers will attest to completeness and accuracy for themselves and as representatives of their respective organizations.

#### **4.2.6 LA Management Council**

The LA Management Council will meet as needed to:

- Review progress on preparation and review of the LA
- Review project licensing positions
- Resolve resource issues regarding participation in the joint chapter reviews.

Following the joint chapter reviews, the LA Management Council will assist the ORD in staff briefings of Program Secretarial Officers who express an interest in the LA. The scope of such briefings will encompass LA content related to the programmatic interests of those requesting briefings.

### **4.3 LA PREPARATION PROCESS**

BSC Licensing is the lead BSC organization for development of the LA. Because of the size of the LA, the variety of technical subjects covered, and the availability of personnel to write portions of it, personnel within the BSC Licensing organization, as well as personnel from other

project organizations, will author the LA. Input received from other organizations such as NR will be incorporated into the LA by the appropriate LA section author.

The LA storyboards are electronic tools that are maintained on Lotus Notes and that are used to facilitate LA document preparation and technical team reviews (Section 4.4). The LA storyboards provide timely access to text for authors and reviewers. They also serve as a mechanism by which reviews of the documents are performed and as a place where comments and resolutions are documented. Additionally, the LA storyboards are the mechanism whereby additional reference information can be shared with authors, such as the *Yucca Mountain Review Plan* (NRC 2003) and relevant federal regulations. Authors will develop text that is responsive to the *Yucca Mountain Review Plan* (NRC 2003) and that is in accordance with guidance provided by BSC Licensing on the appropriate type and level of information to be included in the LA. Exceptions to this guidance must be discussed with BSC Licensing and, if deemed significant, will be elevated to the BSC Licensing Manager and the Director of the OLAS, as appropriate, for a decision. Future updates to the *Yucca Mountain Review Plan* will be examined to identify any changes that need to be made as a result. LA sections drafted by other project organizations will have been internally reviewed within that organization before submittal to BSC Licensing for review.

The BSC LA Coordinator has developed guidance on the appropriate structure, format, and style to be used in the development of the LA. This information is provided in the LA Writer's Guide and the LA Style Sheet, as well as in other general guidance on document preparation to be used by authors. Deviations from this guidance may only be made as directed by the PLAD Nuclear Engineer and the BSC LA Coordinator. The LA Writer's Guide and the LA Style Sheet are available on the LA storyboards.

As LA text is developed, statements that impose future obligations will be identified with unique numeric designators, identified as LA Action Items and defined in Section 6, and will be tracked in the Commitment Management System after submittal of the LA. These LA Action Items are tracked in a Lotus Notes database. These LA Action Items will be evaluated, and any significant unscheduled or unfunded LA Action Items will be discussed with the appropriate DOE organization during review of the LA sections. When the DOE has accepted the LA, the LA Action Items created will be entered into the Commitment Management System.

Text, tables, and figures that are incomplete or not available at the time the associated LA section is drafted should each be identified by authors in the draft LA text as LA Open Items or LA Validation Items, as defined in Section 6. As with LA Action Items, LA Open Items and LA Validation Items each have a unique number and are tracked in the LA Action Item and Open Item database maintained on Lotus Notes and available through the LA storyboards. Progress on resolving LA Open Items and LA Validation Items will be monitored by BSC Licensing and will be reported to the PLAD Director on a periodic basis. Additional guidance on the identification, documentation, and tracking of LA Action Items, LA Open Items, and LA Validation Items is available on the LA storyboards. It is important that the technical basis for the LA is supported by appropriate, approved project documents so that it can be attested to as complete and accurate. Therefore, the source of the information in the LA text (whether cited as a reference or not) will be identified as the text is being developed. Although the LA is a non-Q document, the identification of source information in drafts that are being developed will follow the process

described in Section 5.1 of AP-3.15Q. Identification of this source information allows traceability of information presented in the LA back to the technical documents from which the information came and ensures that notification is provided in the event that either the LA or a source document changes. The detailed sources of the information provided in the draft LA sections for review will not necessarily be included in the final, printed version of the LA to be transmitted to the NRC. The LA will list the primary general references that are provided as sources where additional information related to the material in the LA can be found. The material that is incorporated by reference will be identified in the LA as well. These materials primarily include topical reports that have been approved by the NRC, as well as other large source documents that will not be included in the LA submittal. Additional guidance for authors regarding the provision of source information for statements of fact, numbers, and design details is available on the LA storyboards. Guidance on how to appropriately cite project documents, standards, regulatory guides, and other documents in the LA is also provided on the LA storyboards under License Application Reference Guidance.

#### **4.4 DOCUMENT REVIEW AND COMMENT RESOLUTION**

BSC Licensing staff will conduct a licensing review upon initial receipt of LA sections. Two additional reviews, a technical team review and a BSC and ORD joint chapter review, will be conducted prior to submittal of the LA to DOE headquarters. The elements of the LA review process are shown in Figures 1 and 2. The reviews of the individual sections of the LA, as well as the reviews of the compiled LA document, will be conducted in accordance with the process described in this management plan. BSC and the ORD, as well as NR, EM (including the National Spent Nuclear Fuel Program [NSNFP]), EH, SO, GC, and the USGS, will participate in both the technical team and joint chapter reviews. All organizations, including GC, are responsible for reviewing and providing an integrated set of comments for their respective organizations. GC will work with the ORD and with BSC to ensure that appropriate legal review and advice is provided in a timely and efficient manner throughout the entire process. GC will be represented by its own coordinator during the technical team and joint chapter reviews. Comments from the DOE organizations will be submitted to the ORD prior to passage to BSC to ensure comments are not redundant, are not conflicting, and are consistent with RW program needs.

Not all organizations will participate in the review of all LA sections. Reviewers for each section will primarily include those organizations potentially affected by the material in the section. Reviewers will also vary by section of the LA based on the expertise needed for the particular draft under review. A standard set of review criteria has been developed and compiled into a list by BSC Licensing for use in the LA reviews and is posted to the LA storyboards. However, the list may be supplemented with other criteria determined to be appropriate for a particular review.

##### **4.4.1 Licensing Reviews of the Draft LA Sections**

The licensing reviews of draft material take place before technical team review. BSC Licensing is responsible for ensuring that the draft LA sections are clearly written, complete, and responsive to the *Yucca Mountain Review Plan* (NRC 2003) and other guidance provided to the

authors. The DOE may also provide informal input on the drafts during this time through the PLAD Nuclear Engineer.

After the initial review by BSC Licensing, the original draft may be returned to the author for revision, including identification of additional materials or information needed to adequately support the section. Once an acceptable draft is developed, BSC Licensing submits it to production via the appropriate LA storyboard. When the edited draft is complete and acceptable, the file is posted to the LA storyboard for technical team review.

#### **4.4.2 Technical Team Review Process**

The technical team review of the LA sections is a formal, multidisciplinary review consisting of BSC, ORD, RW headquarters, GC, EM (including the NSNFP), NR, SO, EH, and USGS personnel, as agreed to by the DOE and by BSC Licensing. It is expected that reviewers will confine their comments to their respective scopes of expertise. Individuals independent of the author of the section are included in the review team, as appropriate. A kickoff meeting may be used prior to the technical team review to provide an overview of the material to be reviewed and to explain the purpose of the review. When conducted, these meetings also identify reviewers and review coordinators and their responsibilities, as well as review criteria. Additionally, these meetings provide information regarding the review schedule, review period, due date for comments, comment resolution period, and final concurrence on the sections being reviewed. Reviewers and authors are expected to adhere to the review schedule. Multiple LA sections may be in review concurrently.

##### **4.4.2.1 Technical Team Review**

Technical team reviews are intended to ensure that the sections of the LA present the safety case completely, are technically accurate, address the acceptance criteria in the *Yucca Mountain Review Plan* (NRC 2003), and do not adversely affect the DOE program interests. Technical team reviewers are responsible for providing comments on the draft material to their respective review coordinators, along with specific recommendations for resolving the comments. Review coordinators consolidate and integrate all comments provided to them by the reviewers from their organizations and post the comments to the appropriate LA storyboard or as directed by the BSC LA Coordinator. BSC personnel should provide their comments to the appropriate technical lead for consideration and are not required to post them to the LA storyboard. The review coordinator is responsible for ensuring that comments are appropriately designated as mandatory or nonmandatory. Mandatory comments are those that are required to ensure that the LA is technically accurate, that the interests of other departmental elements and NR are appropriately addressed, that the *Yucca Mountain Review Plan* (NRC 2003) is appropriately addressed, or that language that could have an unacceptable licensing consequence is corrected. Nonmandatory comments are those comments that express an editorial preference. The authors will reply to all mandatory comments. Comments may include the identification of missing information or the desire for additional information. Responses to nonmandatory comments are at the discretion of the author.

#### **4.4.2.2 Comment Resolution**

Authors, working with BSC Licensing, provide responses to review coordinators for mandatory comments. Review coordinators are then responsible for working with their reviewers to determine if the responses can be accepted. For any comment response that cannot be accepted, the review coordinator and the author attempt to negotiate an acceptable resolution. If comments cannot be resolved satisfactorily, the comment is elevated. The dispute is resolved in consultation with the review coordinator, the BSC LA Coordinator, and the PLAD Nuclear Engineer. If resolution still is not reached, the issue proceeds up the management chain to OLAS and BSC management and, as applicable, to management of the reviewing organization until agreement on the issue is reached by a representative of each of these lines of authority.

Following resolution of comments, the author is responsible for incorporating the changes into the draft document and submitting it to the production staff for processing.

#### **4.4.2.3 Document Processing**

The production team prepares a concurrence draft that will be reviewed and approved by BSC Licensing prior to being posted to the appropriate LA storyboard for technical team concurrence review.

#### **4.4.2.4 Technical Team Concurrence Review and Comment Resolution**

For any changes that are not editorial in nature, review coordinators review the concurrence draft to make sure the comments made by members of their organization have been addressed satisfactorily. For BSC personnel, comments should be provided to the appropriate technical lead for evaluation as to whether or not such comments should be incorporated. DOE mandatory comments on the concurrence draft are posted to the appropriate LA storyboard for authors to resolve. The closure of the comments on the storyboard will document their resolution. To facilitate concurrence, a comment resolution meeting may be held to address major changes from the version that went out for concurrence review, as well as any mandatory comments that remain open. The Technical Team Review Comment Resolution Signature Sheet (Figure 4) is provided as an option for reviewers to sign, following discussions at the comment resolution meetings to address any additional comments or to document concurrence with the section.

#### **4.4.2.5 Document Processing**

To support the subsequent management and joint chapter reviews, the production team will incorporate changes resulting from the concurrence review and comment resolution process into the document.

#### **4.4.3 Validation Review**

To help ensure the LA is complete and accurate, a validation review is performed prior to completion of joint chapter review. The validation review will be performed to ensure that the text, tables, and figures of LA sections are supported by approved project documents. This review will be conducted by a team of BSC personnel who will review the LA sections to confirm that suitable references to the supporting material have been made and that the

references use hidden text and include Document Input Reference System numbers, as appropriate. The team will also perform vertical slice reviews of a sample of the supporting documents for the LA to ensure that they support the information contained in the LA sections. Based on the results of the initial sample, the BSC Licensing Manager will determine if additional reviews need to be performed to provide confidence that the LA is complete and accurate.

The validation review will also verify that the LA Open Items, LA Validation Items, and LA Action Items associated with each LA section have been satisfactorily resolved or are adequately captured to accompany the joint chapter reviews.

#### **4.4.4 BSC and ORD Joint Chapter Reviews**

##### **4.4.4.1 Preparation of LA Sections**

Following completion of the BSC validation review of LA sections, each section will be prepared for the joint chapter reviews. Figure 2 depicts the general approach to chapter groupings for this review, although chapter arrangements may be modified.

LA Open Items, LA Validation Items, and LA Action Items will be clearly identified as part of the joint chapter reviews. LA Open Items that are expected to still be open at the time of joint chapter reviews will be reviewed on a periodic basis to ensure they are progressing to closure. For the purpose of meeting Performance-Based Incentive 1 (“Submission of a Complete Draft LA”), BSC will provide draft sections of the LA to the DOE as part of the joint chapter review process or as a hard copy of the entire document by July 26, 2004. Draft sections of the LA for the joint chapter review may include LA Open Items (as defined in Section 6) if the OCRWM Deputy Director, ORD, or a designee has agreed in advance. LA Validation Items may remain open at the time of the joint chapter review and will be used to ensure the source documents for the LA are completed to support the draft LA information. LA Open Items and LA Validation Items are expected to be closed by October 1, 2004, but the Director of the OLAS may approve exceptions to this expectation.

##### **4.4.4.2 Joint Chapter Reviews**

The LA sections identified in the appropriate chapter groups in Figure 2 will be provided to a review team of selected representatives of the DOE (GC, DOE headquarters, NR, EM, NSNFP, EH, and SO) and BSC. Based on subject matter contained in the sections, the PLAD Director and the BSC Licensing Manager will jointly determine the specific review organizations. The organizations represented on the LA Management Council will identify the staff members of their departmental elements who will participate in the joint chapter reviews. Joint chapter reviews exist to ensure that the document is complete, internally consistent, and ready for ORD signature. A consolidated set of comments will be prepared for each chapter group by the ORD, NR, and BSC. The ORD will consolidate the comments from GC, DOE headquarters, EM, NSNFP, EH, and SO.

#### **4.4.4.3 Resolution of Joint Comments**

Following the joint chapter reviews, representatives from the ORD, NR, and BSC will attend a joint meeting in Las Vegas, Nevada, to resolve comments identified during the reviews. Representatives from each review organization that took part in the joint chapter review will be given the opportunity to attend the joint meeting. These individuals will each have the authority to speak for their respective organizations regarding the resolution and acceptance of any comments related to their areas of technical expertise. Support personnel may be brought to the comment resolution meeting to address specific issues. In case of disputes, the PLAD Director and the BSC Licensing Manager, in consultation with the representative from the disputing organization, will resolve any disputes that are not resolved at lower levels. At the end of the joint meeting, signed concurrence will be obtained from representatives of each of the organizations that attended the meeting, as identified in Figure 5. This concurrence will indicate agreement with the completeness and accuracy of the joint chapter review draft, within each representative's area of technical expertise, as augmented by documented actions to be taken to resolve any outstanding issues.

#### **4.4.4.4 Document Processing**

After incorporation of comment resolutions, the production team will prepare the document for final concurrence.

#### **4.4.4.5 Final Concurrence**

Once the changes resulting from the BSC and ORD joint chapter reviews have been incorporated, including text modifications made as a result of the documented actions from the joint meetings, signature sheets (Figure 5) indicating concurrence with the resulting draft LA text will be obtained from the representatives of each organization taking part in the review.

The production team will incorporate the changes from the final concurrence review and will prepare the LA for DOE headquarters.

#### **4.4.5 Completeness Review**

Beginning as soon as relevant portions of the draft LA complete the joint chapter review process and no later than the DOE review and concurrence, the OCRWM Deputy Director, ORD, will conduct a completeness review of the draft LA. The purpose of this review is for the DOE to independently confirm the completeness and consistency within the LA prior to signing and submitting it to the NRC. The review will assess the completeness of the LA through a variety of methods; the consistency within the LA; the consistency between the LA and other project documents, such as the final environmental impact statement and the environmental report; compliance with 10 CFR Part 63 and the *Yucca Mountain Review Plan* (NRC 2003); and commitment status and closure.

The completeness review is a supplemental review that is not intended to duplicate previous reviews performed by the DOE and BSC, nor is it intended to identify alternative approaches to presenting the DOE licensing case. Instead, the draft LA will be compared to specific ORD management criteria that will focus on potential issues and gaps between NRC requirements and

perceived expectation. It will also identify any inconsistencies that may exist. The review will be conducted by senior experts and licensing specialists who have been generally independent from the development and review of the draft LA. It is anticipated that the review will take no longer than 2 weeks to conduct and that it will take 1 week to formulate and present recommendations to the OCRWM Deputy Director, ORD.

Because the draft LA is expected to be complete and is expected to have undergone thorough reviews prior to initiation of the completeness review, significant revisions to the draft LA are not anticipated. Rather, the completeness review results will support the basis for the readiness of the DOE to submit the LA on the current schedule. The results of this review may also be used to support DOE strategies and plans for the licensing process following submittal.

#### **4.4.6 Submittal to DOE Headquarters**

The ORD will submit the draft LA to DOE headquarters for review and concurrence. Any final comments resulting from this review will be resolved. The Director of OCRWM will approve the printing of the LA for submission to the NRC.

#### **4.4.7 LA Submittal Process**

##### **4.4.7.1 Final Production**

The production team will incorporate the changes from the final concurrence review and will prepare the LA for final signature.

##### **4.4.7.2 Signature of the OCRWM Deputy Director, ORD**

After incorporation of the comments from the final concurrence review, the LA is provided to the OCRWM Deputy Director, ORD. The OCRWM Deputy Director, ORD, is responsible for providing the final environmental impact statement, and NR is responsible for ensuring that the technical support document is complete.

The OCRWM Deputy Director, ORD, will transmit a signed authorization to BSC to print the LA for submittal to the NRC. It is planned, but still subject to final approval, that the Office of Civilian Radioactive Waste Management Deputy Director, Office of Repository Development, will sign the License Application.

##### **4.4.7.3 Printing**

BSC Licensing will coordinate printing, signing, and delivery of the LA following authorization by the OCRWM Deputy Director, ORD. The initial printing will produce sufficient copies to meet regulatory requirements; 50 hard copies and 50 optical disks are estimated to meet these requirements. Approximately 160 copies will be produced in the follow-up printing for additional distribution.

#### 4.4.7.4 Submittal of the LA to the NRC

The LA will be filed and distributed in accordance with 10 CFR 63.22, as revised on October 10, 2003 (68 FR 58815). The LA, along with the accompanying final environmental impact statement, will be signed and submitted to the NRC Director, Office of Nuclear Material Safety and Safeguards (NMSS), in triplicate hard copy and will include three sets of optical media storage (disks), in accordance with 10 CFR 63.22(a). The DOE will submit an additional 30 hard copies and disks in accordance with 10 CFR 63.22(b). Twenty of these copies will be used by the NRC in the manner described in 10 CFR 2.101(f)(2). After the application has been accepted for docketing and a docket number has been assigned, additional copies of the LA and the final environmental impact statement will be submitted, served, and distributed in accordance with 10 CFR 2.101(f)(5) and 10 CFR 63.22(b) and with the written directions of the Director of NMSS or the Director's designee. However, the LA will not be formally docketed until the additional copies requested in the Director's written instructions are received by the Director of NMSS, as stated in 10 CFR 2.101(f)(6). The date of docketing will be the date the Director receives the requested copies. Within 10 days after formal docketing, the DOE must submit to the Director of NMSS a written statement that distribution of the additional copies to federal, state, tribal, and local officials has been completed in accordance with those written instructions provided by the Director of NMSS. Distribution is deemed to be complete, according to 10 CFR 2.101(f)(6), as of the time the copies are deposited in the mail or with a carrier prepaid for delivery to the designated addressees.

#### 4.4.7.5 Submittal of Plans to the NRC

Upon completion of the LA, the plans shown in Table 1 will be submitted to the NRC as reflected in the project schedule. As these plans provide information related to meeting specific review criteria of the *Yucca Mountain Review Plan* (NRC 2003) that will not be included in the LA itself, the process for development of these plans will be specified and will incorporate related direction from this management plan to ensure reviews and approvals similar to those required for the LA.

Table 1. Plans to Be Submitted to the NRC after Submittal of the LA

PLAN	SCHEDULED COMPLETION
Emergency Plan	June 2008
Physical Security Plan	June 2008
Material Control and Accountability Plan	June 2008
Safeguards and Security Training Plan	June 2008
Safeguards and Security Contingency Plan	June 2008

## 5. PROJECT MANAGEMENT AND CONTROLS

### 5.1 QA REQUIREMENTS

The LA is not subject to the requirements of the QARD, as previously determined by an activity evaluation performed in accordance with procedures in effect at that time. Preparation and review of the draft LA and its individual sections, however, are subject to appropriate management and document quality controls, as described in this management plan, to ensure transparency, traceability, accuracy, and correctness of the information presented (Sections 4.4.3 through 4.4.5). Preparation and review of the LA source documents classified as quality affecting will be subject to the requirements of the QARD and applicable procedural controls.

Like the LA itself, this management plan, which establishes the process governing development of the LA, is not quality affecting. Validity and accuracy of the LA are essential, however. Accordingly, many of the processes specified for development of the LA are consistent with the requirements in the procedures that implement the QARD.

### 5.2 RECORDS

The records listed in this section will be collected and submitted to the Records Processing Center in accordance with AP-17.1Q, *Records Management*, as individual records or will be included in appropriately assembled records packages.

#### 5.2.1 QA Records

There are no QA records resulting from this management plan.

#### 5.2.2 Non-QA Inclusionary Records

The following drafts are to be included:

- Technical team review draft
- Joint chapter review draft
- Final copy of the LA submitted to the NRC.

For each of the above drafts, the following review records are to be included:

- Mandatory review comments and responses posted to the LA storyboard
- Joint chapter review signature sheets with documented actions
- Final joint chapter review signature sheets.

The records will be printed and delivered for archival storage in hard-copy form.

### 5.2.3 Non-QA Exclusionary Records

There are no non-QA exclusionary records resulting from this management plan.

## 6. DEFINITIONS

**LA Action Items**—Items that require completion subsequent to the submittal of the LA but that are discussed in an LA section as information to be provided to the NRC.

**LA Open Items**—Items that meet both of the following conditions:

- Text, tables, or figures necessary to an LA section do not currently exist in a source document (i.e., either the work has not been done yet, or it has been done but not documented).
- There is not a reasonable anticipation that the current information in the LA will be consistent with the source document when finalized.

**LA Validation Items**—Items that meet either of the following conditions:

- Text, tables, or figures in an LA section are based on content already incorporated into some version of a source document. However, that source document needs to be finalized to validate that the information in the SAR is correct.
- Text, tables, or figures in a SAR section are based upon a reasonable anticipation of what will be included in a source document.

**Mandatory Comment**—Mandatory comments are those that are required to ensure that the LA is technically accurate, that the *Yucca Mountain Review Plan* (NRC 2003) is appropriately addressed, or that language that could have an unacceptable licensing consequence is corrected. Mandatory comments are used to alert the author of a safety hazard or of potential noncompliance with a requirement (e.g., a law, regulation, the QARD, procedure, policy, review criterion, commitment).

## 7. REFERENCES

### 7.1 DOCUMENTS CITED

DOE (U.S. Department of Energy) 2004. *Quality Assurance Requirements and Description*. DOE/RW-0333P, Rev. 14. Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20040331.0004.

NRC (U.S. Nuclear Regulatory Commission) 2003. *Yucca Mountain Review Plan, Final Report*. NUREG-1804, Rev. 2. Washington, D.C.: U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards. TIC: 254568.

ORD (Office of Repository Development) 2003. *Yucca Mountain Project Licensing Strategy*. YMP/02-01, Rev. 00, ICN 01. Las Vegas, Nevada: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20030430.0002.

## **7.2 CODES, STANDARDS, REGULATIONS, AND PROCEDURES**

Atomic Energy Act of 1954. 42 U.S.C. 2011 et seq. Readily available.

Energy Reorganization Act of 1974. 42 U.S.C. 5801 et seq. Readily available.

Nuclear Waste Policy Act of 1982. 42 U.S.C. 10101 et seq. Readily available.

10 CFR (Code of Federal Regulations) 2. Energy: Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders. Readily available.

10 CFR 63. Energy: Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada. Readily available.

10 CFR 73. Energy: Physical Protection of Plants and Materials. Readily available.

AP-3.15Q, Rev. 4, ICN 2. *Managing Technical Product Inputs*. Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20030627.0002.

AP-17.1Q, Rev. 3, ICN 1. *Records Management*. Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20031117.0004.

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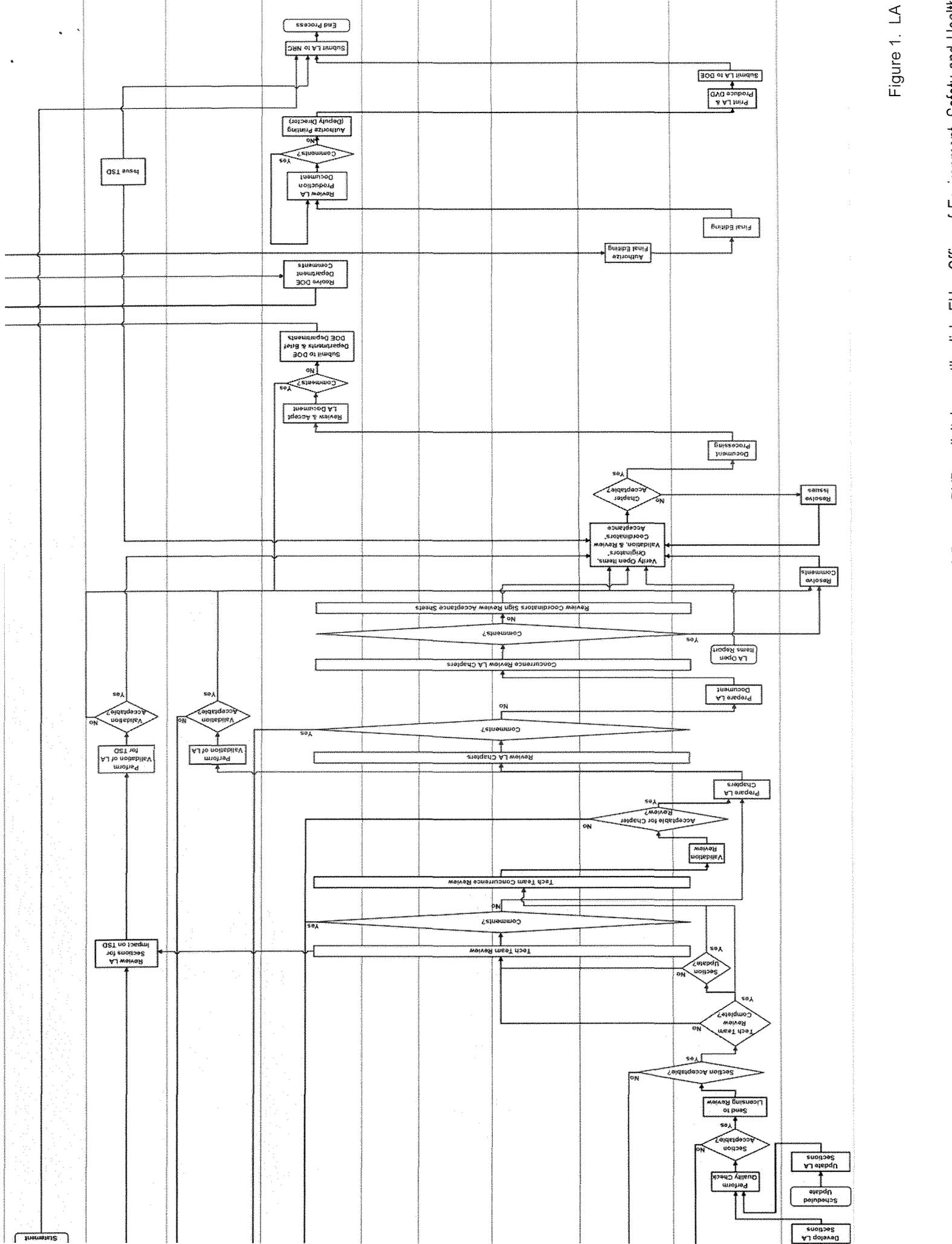


Figure 1. LA

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# LA Review Process

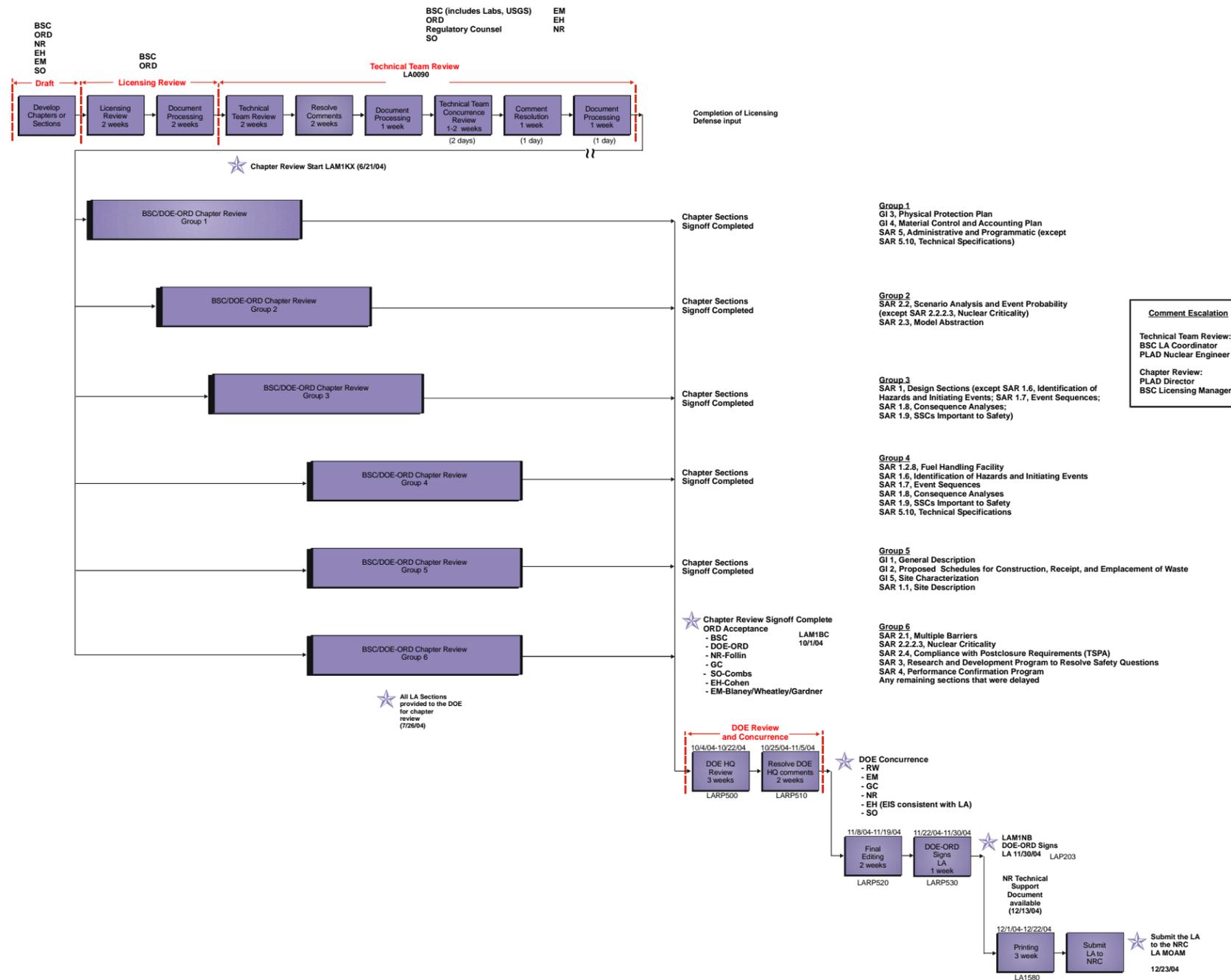


Figure 2. LA Review Process

NOTES: BSC = Bechtel SAIC Company, LLC; DOE = U.S. Department of Energy; EH = Office of Environment, Safety and Health–DOE (routing symbol); EIS = environmental impact statement; EM = Office of Environmental Management–DOE (routing symbol); GC = Office of General Counsel–DOE (routing symbol); GI = general information; HQ = Headquarters–DOE; LA = License Application; NR = Naval Reactors–DOE (routing symbol); NRC = U.S. Nuclear Regulatory Commission; ORD = Office of Repository Development; PLAD = Postclosure and License Acquisition Division; RW = Office of Civilian Radioactive Waste Management–DOE (routing symbol); SAR = Safety Analysis Report; SO = Office of Security–DOE (routing symbol); SSCs = structures, systems, and components; TSPA = Total System Performance Assessment; USGS = U.S. Geological Survey.

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# License Application Development Progress

Section	Title	Start / Team Review Interval		Review Start / Team Review		Start / Form Review / Revision		Review / Team Review / Revision		Start / Complete Review / Revision		Start / Complete Review / Revision	
		Start	Interval	Start	Interval	Start	Interval	Start	Interval	Start	Interval	Start	Interval
<b>GENERAL INFORMATION</b>													
1	GENERAL DESCRIPTION	06/14/04	06/14/04					07/12/04					
2	PROVISIONS RELATED TO CONSTRUCTION, BACKUP AND REPLACEMENT OF WASTE	06/14/04	06/14/04					07/12/04					
3	PHYSICAL PROTECTION PLAN	04/17/03	04/17/03					06/14/04					
4	MATERIAL CONTROL AND ACCOUNTING PROGRAM	01/28/03	01/28/03					06/14/04					
5	SITE CHARACTERIZATION	05/23/04	05/23/04					07/12/04					
<b>SAFETY ANALYSIS REPORT</b>													
<b>PERSONNEL SAFETY BEFORE PERMANENT CLOSURE</b>													
1.1	Site Description as it Pertains to Prelicense Safety Analysis	05/28/04	05/28/04					07/12/04					
1.2	Barrier Structures, Systems, and Components, Equipment and Operational Process Activities												
1.2.1	Surface Operations Overview	06/01/04	06/01/04					07/06/04					
1.2.2	General Surface Design Considerations	06/01/04	06/01/04					07/06/04					
1.2.3	Temperature Control Storage Facility	06/01/04	06/01/04					07/06/04					
1.2.4	Dry Transfer Facility	06/01/04	06/01/04					07/06/04					
1.2.5	Canister Handling Facility	06/01/04	06/01/04					07/06/04					
1.2.6	Apogee Facility	05/25/04	05/25/04					07/06/04					
1.2.7	Miscellaneous Fuel Facilities	05/25/04	05/25/04					07/06/04					
1.2.8	Fuel Handling Facility	06/14/04	06/14/04					07/19/04					
1.3	Infrastructure Structures, Systems, and Components and Operational Process Activities												
1.3.1	Subsurface Operations Overview	05/06/04	05/06/04					07/06/04					
1.3.2	General Subsurface Design Criteria, Methodology, and Loads	05/06/04	05/06/04					07/06/04					
1.3.3	Subsurface Facility - Non-Engagement Areas	05/25/04	05/25/04					07/06/04					
1.3.4	Subsurface Facility - Engagement Areas	05/25/04	05/25/04					07/06/04					
1.3.5	Subsurface Facility - Ventilation	05/24/04	05/24/04					07/06/04					
1.3.6	Subsurface Facility Closure	05/25/04	05/25/04					07/06/04					
1.4	Infrastructure Structures, Systems, Components, Equipment, and Operational Process Activities												
1.4.1	Electric Power	04/19/04	04/19/04					07/06/04					
1.4.2	Controls and Monitoring	04/13/04	04/13/04					07/06/04					
1.4.3	Fire Protection	04/13/04	04/13/04					07/06/04					
1.4.4	Plant Services	04/13/04	04/13/04					07/06/04					
1.4.5	Radioactive Waste Management System	04/13/04	04/13/04					07/06/04					
1.5	Waste Package												
1.5.1	Characteristics of Spent Nuclear Fuel and High Level Waste	05/24/04	05/24/04					07/06/04					
1.5.2	General Description of Waste Packages and Three Components	05/24/04	05/24/04					07/06/04					
1.6	Identification of Hazards Analysis and Initiating Events	06/14/04	06/14/04					07/19/04					
1.7	Event Sequences	06/14/04	06/14/04					07/19/04					
1.8	Consequence Analysis	06/14/04	06/14/04					07/19/04					
1.9	Inventories, Systems, and Components Important to Safety; Safety Controls; and Measures to Ensure Availability of the Safety System	06/14/04	06/14/04					07/19/04					
1.10	Moving the ALARA Requirement for Normal Operation and Category 1 Event Sequences	06/02/04	06/02/04					07/06/04					
1.11	Plans for Retrieval and Alternate Storage of Radioactive Waste	04/15/04	04/15/04					07/06/04					
1.12	Plans for Permanent Closure and Decommissioning, or Discontinuation and Dismantlement of Surface Facilities	04/22/04	04/22/04					07/06/04					
1.13	Equipment Qualification Program	04/22/04	04/22/04					07/06/04					
<b>2. REPOSITORY SAFETY AFTER PERMANENT CLOSURE</b>													
2.1	System Description and Demonstration of Multiple Barriers	06/01/04	06/01/04					06/28/04	07/05/04				
2.2	Seismic Analysis and Event Probability	06/01/04	06/01/04					06/28/04	07/05/04				
2.3	Evolution of Basin And Model Abstraction												
2.3.1	Climate and Infiltration	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.2	Uncontaminated Zone Flow	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.3	Water Seeping Into Drifts	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.4	Mechanical Degradation And Seismic Effects	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.5	In Drift Chemical Environment	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.6	Water Package And Drift Material Corrosion	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.7	Drift Environment, Water From Degradation and Solubility, and Transport Through the Engineered Barrier	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.8	Radionuclide Transport in the Uncontaminated Zone	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.9	Uncontaminated Zone Flow and Transport	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.10	Simplest Transport	06/01/04	06/01/04					06/28/04	07/05/04				
2.3.11	Volcanic Effects	06/01/04	06/01/04					06/28/04	07/05/04				
2.4	Demonstration of Compliance With the Provisions Public Health and Environmental Standards	06/01/04	06/01/04					07/19/04					
<b>3. RESEARCH AND DEVELOPMENT PROGRAM TO RESOLVE SAFETY QUESTIONS</b>													
<b>4. PERFORMANCE CONFIRMATION PROGRAM</b>													
<b>5. ADMINISTRATIVE AND PROGRAMMATIC REQUIREMENTS</b>													
5.1	Quality Assurance Program	02/28/03	02/28/03					06/14/04					
5.2	Research, Reports, Tests, and Inspections	06/18/04	06/18/04					06/14/04					
5.3	Printing and Certification of Personnel												
5.3.1	Organizational Structure of U.S. Department of Energy as it Pertains to Construction and Operation of the Repository	05/17/04	05/17/04					06/14/04					
5.3.2	Site Personnel Assigned Responsibilities for Safety and Operations at the Site	05/17/04	05/17/04					06/14/04					
5.3.3	Personnel Qualifications and Training Requirements	05/17/04	05/17/04					06/14/04					
5.4	Report Evaluation	06/12/04	06/12/04					06/14/04					
5.5	Plans for Startup Activities and Testing	06/09/04	06/09/04					06/14/04					
5.6	Plans for Conduct of Normal Activities Including Maintenance, Inspections, and Periodic Testing	06/09/04	06/09/04					06/14/04					
5.7	Emergency Planning	03/18/03	03/18/03					06/14/04					
5.8	Controls to Restrict Access and Regulate Land Use	05/21/04	05/21/04					06/14/04					
5.9	Use of the Geologic Repository Operator Area for Purposes Other than Disposal of Radioactive Waste	05/28/04	05/28/04					06/14/04					
5.10	Technical Specifications	06/02/04	06/02/04					07/19/04					
5.11	Radionuclide Protection Program	06/08/04	06/08/04					06/14/04					
	Mark completion progress												
	Completed												
	Within 5 days then or equal to working days of critical path												
	Currently forecast with "E" as negative float												

Figure 3. Team Review Development Progress

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Technical Team Review Comment Resolution Signature Sheet

LA chapter/SAR section: \_\_\_\_\_

Reviewer: \_\_\_\_\_  
Name Date

Organization: \_\_\_\_\_

In my judgment, the proposed resolutions to the mandatory comments of the technical team review, as entered on the LA storyboard or as discussed during the comment resolution process, are acceptable. In other cases, revised text was not available, but the proposed resolution appears acceptable. The text will have to be checked, however, during chapter review.

Figure 4. Technical Team Review Comment Resolution Signature Sheet

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## LA Joint Chapter Review Signature Sheet

The information contained in the section of the LA that has completed the BSC and ORD joint chapter review, as indicated below, has been reviewed by my organization, as applicable, as it relates to my area's responsibilities. With the exception of those specific items identified as documented actions (if any), the section is complete and accurate, LA Open Items have been closed, comments have been resolved, and the section is consistent with the documents originated in my department that have been identified to support the associated LA text, tables, and figures.

LA section: \_\_\_\_\_

BSC Licensing	Name	Date
NSNFP (as designated)	Name	Date
EM (as designated)	Name	Date
EH (as designated)	Name	Date
SO (as designated)	Name	Date
GC (as designated)	Name	Date
NR (as designated)	Name	Date
OLAS	Name	Date
Others	Name	Date

Figure 5. Joint Chapter Review Signature Sheet

NOTES: BSC = Bechtel SAIC Company, LLC; EH = Office of Environment, Safety and Health–DOE (routing symbol); EM = Office of Environmental Management–DOE (routing symbol); GC = Office of General Counsel–DOE (routing symbol); LA = License Application; OLAS = Office of License Application and Strategy; ORD = Office of Repository Development; SO = Office of Security–DOE (routing symbol).

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## **Exhibit D**

*Office of Repository Development*

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***Management Plan for Development of the  
Yucca Mountain License Application***

***YMP/04-01***

***Revision 1, ICN 1***

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***September 2004***

*U.S. Department of Energy  
Office of Civilian Radioactive Waste Management  
Las Vegas, Nevada*

---



Approval:

*W. J. Arthur, III*

W.J. Arthur, III  
Office of Civilian Radioactive Waste Management  
Deputy Director, Office of Repository Development

*September 2, 2004*

Date

*J.T. Mitchell, Jr.*

J.T. Mitchell, Jr.  
General Manager, Bechtel SAIC Company, LLC

*1 September 2004*

Date

WJB  
9/2/04



## CHANGE HISTORY

<u>Revision Number</u>	<u>Interim Change No.</u>	<u>Effective Date</u>	<u>Description of Change</u>
0	0	03/29/2004	Initial issue. Supersedes PLN-MGR-RL-000001, <i>Management Plan for Development of the Yucca Mountain License Application</i> .
1	0	N/A	Made changes to processes and related responsibilities for development of the License Application during and after technical team review. Clarified roles and responsibilities of U.S. Department of Energy headquarters related to License Application development.
1	1		Provided additional details on activities for completion of the License Application.

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## EXECUTIVE SUMMARY

This document describes the License Application development and review responsibilities of the U.S. Department of Energy, including the Office of Civilian Radioactive Waste Management, the Office of Repository Development, and the Office of General Counsel. It also identifies the more limited responsibilities of the Office of Environmental Management, including the National Spent Nuclear Fuel Program, as well as those of the Office of Environment, Safety and Health; the Office of Security; the Naval Reactors; and the U.S. Geological Survey. It also describes the development and review responsibilities of the contractor, Bechtel SAIC Company, LLC, and those of the major national laboratories that support the contractor. The philosophy incorporated into this plan distinguishes the U.S. Department of Energy as the technically qualified applicant, assisted by the contractor, and the Office of Repository Development as the license holder of record. The U.S. Department of Energy is the organization responsible for construction and operation of the repository. The Office of Repository Development is the lead U.S. Department of Energy organization for the preparation, review, and approval of the License Application. It is planned, but subject to final approval, that the Office of Civilian Radioactive Waste Management Deputy Director, Office of Repository Development, will sign the License Application. Within the U.S. Department of Energy Office of Repository Development, the Office of License Application and Strategy staff will coordinate the integration of U.S. Department of Energy comments and represent the U.S. Department of Energy at comment resolution meetings.

This management plan describes the License Application development and review process for both the U.S. Department of Energy and for Bechtel SAIC Company, LLC, and it outlines the responsibilities and controls used during the development and approval process. It establishes that the Licensing department within Bechtel SAIC Company, LLC, will be responsible for oversight of the License Application development process to accomplish the task of producing a document that is technically accurate, consistent with the requirements contained in 10 CFR Part 63, responsive to the *Yucca Mountain Review Plan*, and suitable for U.S. Nuclear Regulatory Commission docketing. This management plan also clarifies the detailed process by which all sections of the License Application will be reviewed and approved, provides the signature and approval authorities of key individuals, and identifies the transition of License Application responsibility to ensure that all regulatory, legal, and contractual requirements are achieved.

This management plan describes the role of the U.S. Department of Energy Office of Repository Development and charges the position of Nuclear Engineer within the Postclosure and License Acquisition Division of the Office of License Application and Strategy with responsibility for day-to-day interactions with the Licensing department within Bechtel SAIC Company, LLC, and with overall development and coordination of the License Application.

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## ACRONYMS AND ABBREVIATIONS

BSC	Bechtel SAIC Company, LLC
DOE	U.S. Department of Energy
EH	Office of Environment, Safety and Health–DOE (routing symbol)
EM	Office of Environmental Management–DOE (routing symbol)
GC	Office of General Counsel–DOE (routing symbol)
LA	License Application
NMSS	Nuclear Material Safety and Safeguards
NR	Naval Reactors–DOE (routing symbol)
NRC	U.S. Nuclear Regulatory Commission
NSNFP	National Spent Nuclear Fuel Program
OCRWM	Office of Civilian Radioactive Waste Management
OLAS	Office of License Application and Strategy
ORD	Office of Repository Development
PLAD	Postclosure and License Acquisition Division
QA	quality assurance
QARD	Quality Assurance Requirements and Description
RW	Office of Civilian Radioactive Waste Management–DOE (routing symbol)
SAR	Safety Analysis Report
SO	Office of Security–DOE (routing symbol)
USGS	U.S. Geological Survey

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## 1. INTRODUCTION

A U.S. Nuclear Regulatory Commission (NRC) license for the disposal of high-level radioactive waste in a repository at Yucca Mountain, Nevada, is required under the provisions of 10 CFR Part 63. The NRC authority to regulate a high-level radioactive waste repository originates from the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974; and the Nuclear Waste Policy Act of 1982, as amended.

The U.S. Department of Energy (DOE), as the applicant, will submit the License Application (LA) to the NRC with the goal of obtaining a license to receive and possess source, special nuclear, and byproduct material at a repository at the Yucca Mountain site. In order to be the license holder of record, the DOE must demonstrate a core technical competence to the satisfaction of the NRC. The competency of the DOE technical team reflects the proficiency required to implement the functional organizational structure that is described in draft sections of the Safety Analysis Report (SAR), including SAR Section 5.3.1. For the purposes of this management plan, the various portions of the LA—General Information sections, SAR chapters, and portions thereof—will all be referred to as sections.

The LA submittal, in accordance with the requirements found in 10 CFR 2.101 and 10 CFR 63.21, consists of a letter describing the purpose of the LA, enclosures, attachments that contain general information and a SAR, and four sets of full-sized drawings. The general information portion of the LA is intended to provide an overview of the engineering design concept for the repository and will demonstrate an understanding of what aspects of the Yucca Mountain site and its environs influence repository design and performance. The general information portion, as required by 10 CFR 63.21(b), will include the following:

- A general description of the repository
- Proposed schedules for construction, as well as for receipt and emplacement of wastes
- A description of the security measures for physical protection of high-level radioactive waste<sup>1</sup>
- A description of the material control and accounting program to meet the requirements of 10 CFR 63.78
- A description of work conducted to characterize the Yucca Mountain site.

The SAR portion of the LA, as required by 10 CFR 63.21(c), will present technical discussions and descriptions that form the basis for the risk-informed, performance-based judgments that will be provided to demonstrate compliance with the regulations. The SAR will include but not be limited to the following:

- A description of the Yucca Mountain site

---

<sup>1</sup>Detailed information related to the physical protection program and to the material control and accounting program will be withheld from public access and submitted to the NRC under separate cover, in compliance with 10 CFR 73.21 and 10 CFR 2.790(d).

- A preclosure safety analysis
- A description of the design of the structures, systems, and components important to safety and a description of the natural and engineered barriers important to waste isolation
- A description of the plans to maintain the ability to retrieve and provide alternative storage for radioactive wastes
- A description of plans for permanent closure, decontamination, and decommissioning
- A performance assessment that demonstrates multiple barriers, describes scenario analysis and probability, discusses the model abstraction process, and demonstrates compliance with postclosure public health and environmental standards
- A description of the programs designed to resolve safety questions
- A description of the performance confirmation program
- A description of other administrative and programmatic requirements, such as the quality assurance (QA) program, to be applied to the structures, systems, and components important to safety and to the natural and engineered barriers important to waste isolation
- A description, initially in terms of a functional organization, demonstrating lines of authority for safe construction and operations.

This management plan establishes controls for the development, review, approval, and issuance of the LA.

## 2. SCOPE

The scope of work associated with this management plan is to manage the process for preparation, review, approval, acceptance by the Office of Repository Development (ORD) and other project participants, and subsequent production and submittal of the LA to the NRC. The content of the initial submittal is to be sufficient to allow the NRC to determine that the application is complete and acceptable for docketing and for subsequent technical review pursuant to 10 CFR 2.101(f). It is expected that the LA will be revised on a routine basis to provide responses to NRC requests for additional information, as well as to update and expand upon information contained in the initial submittal. Revisions to the LA will be filed in accordance with 10 CFR 63.22. Consistent with 10 CFR 63.24, the LA, along with the environmental impact statement, will be updated and filed with the NRC in anticipation of receiving a license from the NRC.

This management plan outlines the LA preparation and review responsibilities. The LA is not subject to the requirements of the *Quality Assurance Requirements and Description (QARD)*

(DOE 2004), although preparation and review of the draft LA and its individual sections will be subject to appropriate management and document quality controls.

Work packages have been developed to describe the work related to development of the LA in more detail. These work packages can be found in the multiyear planning system under Contract Work Breakdown Structure 1.5.01.2.2 and DOE Work Breakdown Structures 1.2.22.3.01, 1.2.22.4.01, 1.2.22.4.02, 1.2.22.4.03, 1.2.22.4.04, and 1.2.22.5.01. The work packages are arranged by LA section, as well as content, in accordance with planning concepts. The work packages and their associated activity schedules will be modified, as necessary, to reflect changes in the LA structure.

This management plan is also intended to assist and guide authors during development and review of text and graphics for the LA by:

- Describing management controls implemented to ensure that the LA is completed on schedule and is acceptable for docketing
- Including the review process and technical reviews as described in Section 4.4 and as shown in Figure 1
- Explaining the process to be used by the authors to determine the appropriate type and level of information to be included in the LA
- Providing a process and guidance for document development, review, and comment resolution (Section 4)
- Providing a description of the project management controls to be used in the development of the LA, including project organization and management (Section 3), quality requirements (Section 5.1), records associated with LA development (Section 5.2), and schedules and milestones (Section 4.2).

This plan is prepared in conjunction with the DOE headquarters “Plan of Action and Milestones” for final LA review, concurrence, and approval. This plan assumes an LA is delivered to DOE headquarters on or before October 4, 2004.

### **3. PROJECT ORGANIZATION AND MANAGEMENT**

This section addresses the responsibilities for the DOE and Bechtel SAIC Company, LLC (BSC), in developing and approving the LA. For the purposes of this management plan, BSC includes the national laboratories supporting the project, as well as the U.S. Geological Survey (USGS).

#### **3.1 DOE LA DEVELOPMENT STAFF AND RESPONSIBILITIES**

The DOE is assisted by the contractor, BSC, in carrying out the responsibilities associated with LA production.

### **3.1.1 OCRWM Deputy Director, ORD**

The Office of Civilian Radioactive Waste Management (OCRWM) Deputy Director, ORD, who is also the Chief Nuclear Officer within the ORD, has direct responsibility for the development, content, review, and validation of the LA.

The OCRWM Deputy Director, ORD, will attest to the completeness and accuracy of the LA. It is planned, but subject to final approval, that the OCRWM Deputy Director, ORD, will sign the LA.

### **3.1.2 Director of the OLAS**

The Director of the Office of License Application and Strategy (OLAS) is responsible to the OCRWM Deputy Director, ORD, for successful, on-time development of the LA. This responsibility is delegated to the Postclosure and License Acquisition Division (PLAD) Director. The PLAD Nuclear Engineer works with BSC Licensing on a day-to-day basis in developing and coordinating LA sections. The Director of the OLAS is also responsible for:

- Developing the licensing strategy
- Ensuring that personnel assigned to develop and review the LA are properly trained and qualified
- Developing budgets to support licensing
- Validation of the LA
- Reviewing the LA.

### **3.1.3 LA Management Council**

The LA Management Council serves as the staff-level DOE group responsible for the following activities:

- Providing technical reviews
- Ensuring consistency with other DOE programs and policies
- Ensuring that the program interests of the DOE organization are appropriately addressed in the LA

The LA Management Council is chaired by the ORD and is comprised of the OCRWM Office of Systems Analysis and Strategy Development; the Office of General Counsel (GC); the Office of Environmental Management (EM); the Office of Security (SO); Naval Reactors (NR); and the Office of Environment, Safety and Health (EH). By agreement of the LA Management Council, the membership of the council can be changed as needed without requiring revision of this management plan.

## **3.2 BSC LICENSING STAFF RESPONSIBILITIES**

### **3.2.1 BSC Licensing Manager**

BSC Licensing has overall responsibility within BSC for producing a complete and accurate LA that can be delivered to the DOE and subsequently docketed. BSC Licensing is also responsible for planning and implementing the activities associated with LA development. The functions in this plan associated with the BSC Licensing Manager may be performed by the BSC Licensing Manager or by the designated BSC Licensing LA point of contact.

The BSC Licensing Manager:

- Works with the ORD to develop the strategies and goals that guide and control BSC Licensing direction and communicates those to BSC Licensing
- Coordinates with the OLAS those regulatory activities necessary to ensure timely submittal of the LA to the NRC, based on strategies and goals developed for BSC Licensing
- Provides status updates to ORD and BSC management
- Leads the identification, planning, and integration of activities associated with LA schedules and cost performance monitoring
- Provides recommendations to the OLAS regarding interactions with the NRC and other agencies, as appropriate
- Is responsible for comment resolution approval for BSC.

### **3.2.2 BSC LA Coordinator**

The BSC LA Coordinator is responsible for the day-to-day coordination of BSC activities associated with LA.

The BSC LA Coordinator:

- Serves as overall day-to-day coordinator of the production of the LA
- Assigns responsibilities within BSC to ensure that the LA is complete, technically accurate, consistent with supporting documents, and produced on schedule, in accordance with the project integration schedule
- Monitors cost and schedule variances associated with the development, submittal, and review phases of the LA and initiates corrective actions, as required
- Serves as the primary interface between BSC and ORD personnel assigned tasks associated with development of the LA

- Establishes and maintains a detailed schedule for development of the LA and for activities that provide inputs to the LA
- Identifies and communicates LA requirements to the BSC project staff in a clear and timely manner
- Monitors progress of the development of the LA and initiates corrective actions, as necessary
- Establishes appropriate schedules for development of draft text and completion of reviews
- Participates in reviews and meetings and assists with the resolution of comments, as needed, to ensure the development of a coordinated document.

### **3.3 KEY PERSONNEL AND ORGANIZATIONAL RESPONSIBILITIES**

The responsibilities of key support staff and other organizations supporting the LA development process are outlined in the sections that follow.

#### **3.3.1 LA Authors**

LA authors are the principal individuals who generate the text, tables, and figures for the LA. LA authors are assigned based on their areas of expertise and based on work within their line organizations, in accordance with LA text outlines and in accordance with requirements and schedules established mutually by BSC Licensing and the line organizations for completing the work. Much of the guidance used by authors when developing the LA can be found on the LA storyboards. The LA storyboards are electronic databases located on Lotus Notes that are used to facilitate preparation of the LA.

LA authors:

- Work with BSC Licensing representatives to define the information to be presented in draft LA sections
- Review previous project documentation related to LA development and review sample SARs, as appropriate, to promote an understanding of the scope of the LA to be written
- Assign work, as needed, to supporting authors to complete assigned LA sections
- Adhere to the LA Writer's Guide and other related guidance provided and maintained as references on the LA storyboards, unless directed otherwise by the PLAD Nuclear Engineer and the BSC LA Coordinator
- Adhere to the LA Graphics Design Guidance and Standards on the LA storyboards

- Provide technically valid and defensible references, including Document Input Reference System numbers and appropriate section, figure, or table numbers for statements of fact, numbers, and design details provided in the LA text
- Review the data and information contained in assigned LA sections against the identified source information prior to submittal to BSC Licensing for review to ensure that the data and information contained in the LA are accurate, logical, and reasonably supported by the source and that the appropriate source section, figure, or table number is cited
- Ensure that LA sections address the *Yucca Mountain Review Plan* (NRC 2003) acceptance criteria and that the LA sections clearly describe how those sections meet the acceptance criteria
- Ensure that source documents have been submitted to the OCRWM Records Processing Center for indexing and maintenance or, if the source document has not yet been submitted, provide status of the document via an LA Open Item or an LA Validation Item (Section 4.3)
- Ensure validity of cross-references made in the text
- Conduct informal reviews of assigned sections within the line organization, as appropriate, before those sections are submitted to BSC Licensing for licensing review and subsequent technical team review
- Work with the appropriate BSC Licensing representative to resolve comments from the licensing review and to revise the text, as appropriate, to ensure that it is still consistent with source documents
- In conjunction with line management and BSC Licensing, identify LA Open Items, LA Validation Items, and LA Action Items in the text (Section 4.3)
- Work with BSC Licensing, as necessary, to resolve comments from the joint chapter reviews and to revise the text, as appropriate, to ensure that it is still consistent with source documents
- Identify commitments in accordance with established processes (Section 4.3).

### **3.3.2 LA Review Coordinators**

The team and joint chapter reviews of the LA are conducted in accordance with the process provided in this management plan. BSC Licensing provides overall coordination of the reviews, and a separate review coordinator is designated for the BSC Licensing organization as a participant in the reviews. BSC Licensing works with the assigned LA review coordinators in all organizations, including the USGS, national laboratories, EM, EH, SO, OCRWM (RW), and NR, in supporting the formal document reviews. For the technical team and joint chapter reviews (Figure 2), BSC assigns a lead for each chapter or section, as appropriate, who is responsible for

ensuring the appropriate BSC personnel review the LA and who is responsible for ensuring resolution of comments related to that chapter or section. For the technical team review and joint chapter reviews, each participating organization provides an LA review coordinator to represent the entire organization. If necessary, each coordinator may be represented by a different designee in each of the joint chapter reviews.

The review coordinators for both team and joint chapter reviews:

- Serve as overall comment coordinators for their respective departments or organizations
- Assign the document review to the appropriate personnel
- Evaluate review comments and eliminate those that are redundant, contradictory, or not relevant to the assigned review criteria
- Ensure that one consolidated set of review comments and specific recommendations for comment resolution for the department or organization represented is provided via the LA storyboards or as directed by the BSC LA Coordinator.

Comments for team and joint chapter reviews should consist of specific recommendations for changes to the text, tables, and figures. Comments from the DOE Las Vegas and headquarters organizations will be submitted through the DOE coordinator.

Comments should be submitted via the appropriate LA storyboard for the technical team review or as directed by the BSC LA Coordinator.

Comments for the joint chapter reviews will be provided as directed by the BSC LA coordinator to be resolved in a meeting with other commentors. Each organization's comments will be forwarded by the organization's review coordinator to the other review coordinators in advance of the comment resolution meeting. The outcome of the comment resolution meeting will be a master markup of the subject section. Each of these master markups is controlled by the ORD Coordinator and will be provided to BSC for production.

## **4. LA DEVELOPMENT**

### **4.1 OVERVIEW**

The audience for the LA is the NRC. The LA is being developed in accordance with the requirements found in 10 CFR 63.21 and is responsive to the *Yucca Mountain Review Plan* (NRC 2003), which was established to ensure quality, uniformity, and consistency of the NRC review of the LA. The text of the LA presents the safety case and conclusions in clear language, supported by appropriate tables and figures. The LA text, tables, and figures will be extracted from approved project documents and analyses.

## **4.2 LA DEVELOPMENT MANAGEMENT**

### **4.2.1 Schedules for Drafting Sections**

The schedules for production of specific section drafts, the review process, final production, approval, and submittal to the NRC are contained in the Project Control schedule. The schedules implement the applicable multiyear planning system Work Breakdown Structures for the LA. BSC Licensing interfaces with the technical organizations to coordinate timely development of products to support the LA. A general overview of the process is contained in Figure 2. The dates and durations shown in Figure 2 are estimates; the actual schedule may vary and will be reflected in postings to the LA storyboards.

### **4.2.2 Controlling Processes**

The LA is being developed by BSC for the DOE under the specifications of this management plan. This plan provides a consistent approach to development of the various sections of the LA and helps ensure consistency with related provisions of the latest revision of the *Yucca Mountain Project Licensing Strategy* (ORD 2003). LA authors will identify source information used in the LA text, tables, and figures following Section 5.1 of AP-3.15Q, *Managing Technical Product Inputs*. LA reviews will be conducted in accordance with the process provided in this management plan and in associated desk guides, as appropriate.

Applicable guidance documents (e.g., desk guides, the LA Writer's Guide) provide details that are applied in support of this plan, including:

- Use of the LA storyboards
- Review processes
- Comment resolutions
- Editing processes
- Graphics standards
- Writer's guidance
- Referencing standards and practices
- Review criteria.

Following these guidance documents helps to ensure that the LA is consistent in language and appearance and that it meets the requirements for content and validation.

### **4.2.3 Qualification of the LA Development Team Members**

LA development personnel are trained according to preestablished training matrices, which are based upon their job descriptions. No additional qualification requirements are applicable for activities performed as part of LA development and review. Indoctrination for specified LA-related tasks is provided to other personnel, as appropriate, to ensure that draft LA sections address regulatory requirements.

#### **4.2.4 Metrics**

To monitor the progress of the development of the LA, metrics are used to provide management with an ongoing status, as well as the ability to foresee challenges related to quality and schedule. Metrics are also provided for:

- The actual progress of the development of the LA versus the scheduled progress
- Forecasted activities versus scheduled activities
- Progress of the closure of LA Open Items.

These metrics are updated monthly and are rolled up with the information incorporated into the ORD Manager's Operating Review meeting. They are also included on the LA storyboards.

BSC Licensing will provide status information to the ORD with increasing frequency as the activities related to LA development increase. Figure 3 is an example of a report that provides information on LA development progress and issues. Electronic distribution of status information is generally acceptable (e.g., status charts posted to the LA storyboards).

#### **4.2.5 LA Completeness and Accuracy**

10 CFR 63.10 requires that information provided by the licensee be complete and accurate in all material respects. The development steps and multiple reviews described in this plan, which are conducted by technical organizations and by management in BSC, the ORD, and related organizations, will ensure that the LA presents the safety case completely and accurately and that the information provided and the conclusions reached address the acceptance criteria in the *Yucca Mountain Review Plan* (NRC 2003). During development and review, authors and reviewers will attest to completeness and accuracy for themselves and as representatives of their respective organizations.

#### **4.2.6 LA Management Council**

The LA Management Council will meet as needed to:

- Review progress on preparation and review of the LA
- Review project licensing positions
- Resolve resource issues regarding participation in the joint chapter reviews.

Following the joint chapter reviews, the LA Management Council will assist the ORD in staff briefings of Program Secretarial Officers who express an interest in the LA. The scope of such briefings will encompass LA content related to the programmatic interests of those requesting briefings.

### **4.3 LA PREPARATION PROCESS**

BSC Licensing is the lead BSC organization for development of the LA. Because of the size of the LA, the variety of technical subjects covered, and the availability of personnel to write portions of it, personnel within the BSC Licensing organization, as well as personnel from other

project organizations, will author the LA. Input received from other organizations such as NR will be incorporated into the LA by the appropriate LA section author.

The LA storyboards are electronic tools that are maintained on Lotus Notes and that are used to facilitate LA document preparation and technical team reviews (Section 4.4). The LA storyboards provide timely access to text for authors and reviewers. They also serve as a mechanism by which reviews of the documents are performed and as a place where comments and resolutions are documented. Additionally, the LA storyboards are the mechanism whereby additional reference information can be shared with authors, such as the *Yucca Mountain Review Plan* (NRC 2003) and relevant federal regulations. Authors will develop text that is responsive to the *Yucca Mountain Review Plan* (NRC 2003) and that is in accordance with guidance provided by BSC Licensing on the appropriate type and level of information to be included in the LA. Exceptions to this guidance must be discussed with BSC Licensing and, if deemed significant, will be elevated to the BSC Licensing Manager and the Director of the OLAS, as appropriate, for a decision. Future updates to the *Yucca Mountain Review Plan* will be examined to identify any changes that need to be made as a result. LA sections drafted by other project organizations will have been internally reviewed within that organization before submittal to BSC Licensing for review.

The BSC LA Coordinator has developed guidance on the appropriate structure, format, and style to be used in the development of the LA. This information is provided in the LA Writer's Guide and the LA Style Sheet, as well as in other general guidance on document preparation to be used by authors. Deviations from this guidance may only be made as directed by the PLAD Nuclear Engineer and the BSC LA Coordinator. The LA Writer's Guide and the LA Style Sheet are available on the LA storyboards.

As LA text is developed, statements that impose future obligations will be identified with unique numeric designators, identified as LA Action Items and defined in Section 6, and will be tracked in the Commitment Management System after submittal of the LA. These LA Action Items are tracked in a Lotus Notes database. These LA Action Items will be evaluated, and any significant unscheduled or unfunded LA Action Items will be discussed with the appropriate DOE organization during review of the LA sections. When the DOE has accepted the LA, the LA Action Items created will be entered into the Commitment Management System.

Text, tables, and figures that are incomplete or not available at the time the associated LA section is drafted should each be identified by authors in the draft LA text as LA Open Items or LA Validation Items, as defined in Section 6. As with LA Action Items, LA Open Items and LA Validation Items each have a unique number and are tracked in the LA Action Item and Open Item database maintained on Lotus Notes and available through the LA storyboards. Progress on resolving LA Open Items and LA Validation Items will be monitored by BSC Licensing and will be reported to the PLAD Director on a periodic basis. Additional guidance on the identification, documentation, and tracking of LA Action Items, LA Open Items, and LA Validation Items is available on the LA storyboards. It is important that the technical basis for the LA is supported by appropriate, approved project documents so that it can be attested to as complete and accurate. Therefore, the source of the information in the LA text (whether cited as a reference or not) will be identified as the text is being developed. Although the LA is a non-Q document, the identification of source information in drafts that are being developed will follow the process

described in Section 5.1 of AP-3.15Q. Identification of this source information allows traceability of information presented in the LA back to the technical documents from which the information came and ensures that notification is provided in the event that either the LA or a source document changes. The detailed sources of the information provided in the draft LA sections for review will not necessarily be included in the final, printed version of the LA to be transmitted to the NRC. The LA will list the primary general references that are provided as sources where additional information related to the material in the LA can be found. The material that is incorporated by reference will be identified in the LA as well. These materials primarily include topical reports that have been approved by the NRC, as well as other large source documents that will not be included in the LA submittal. Additional guidance for authors regarding the provision of source information for statements of fact, numbers, and design details is available on the LA storyboards. Guidance on how to appropriately cite project documents, standards, regulatory guides, and other documents in the LA is also provided on the LA storyboards under License Application Reference Guidance.

#### **4.4 DOCUMENT REVIEW AND COMMENT RESOLUTION**

BSC Licensing staff will conduct a licensing review upon initial receipt of LA sections. Two additional reviews, a technical team review and a BSC and ORD joint chapter review, will be conducted prior to submittal of the LA to DOE headquarters. The elements of the LA review process are shown in Figures 1 and 2. The reviews of the individual sections of the LA, as well as the reviews of the compiled LA document, will be conducted in accordance with the process described in this management plan. BSC and the ORD, as well as NR, EM (including the National Spent Nuclear Fuel Program [NSNFP]), EH, SO, GC, and the USGS, will participate in both the technical team and joint chapter reviews. All organizations, including GC, are responsible for reviewing and providing an integrated set of comments for their respective organizations. GC will work with the ORD and with BSC to ensure that appropriate legal review and advice is provided in a timely and efficient manner throughout the entire process. GC will be represented by its own coordinator during the technical team and joint chapter reviews. Comments from the DOE organizations will be submitted to the ORD prior to passage to BSC to ensure comments are not redundant, are not conflicting, and are consistent with RW program needs.

Not all organizations will participate in the review of all LA sections. Reviewers for each section will primarily include those organizations potentially affected by the material in the section. Reviewers will also vary by section of the LA based on the expertise needed for the particular draft under review. A standard set of review criteria has been developed and compiled into a list by BSC Licensing for use in the LA reviews and is posted to the LA storyboards. However, the list may be supplemented with other criteria determined to be appropriate for a particular review.

##### **4.4.1 Licensing Reviews of the Draft LA Sections**

The licensing reviews of draft material take place before technical team review. BSC Licensing is responsible for ensuring that the draft LA sections are clearly written, complete, and responsive to the *Yucca Mountain Review Plan* (NRC 2003) and other guidance provided to the

authors. The DOE may also provide informal input on the drafts during this time through the PLAD Nuclear Engineer.

After the initial review by BSC Licensing, the original draft may be returned to the author for revision, including identification of additional materials or information needed to adequately support the section. Once an acceptable draft is developed, BSC Licensing submits it to production via the appropriate LA storyboard. When the edited draft is complete and acceptable, the file is posted to the LA storyboard for technical team review.

#### **4.4.2 Technical Team Review Process**

The technical team review of the LA sections is a formal, multidisciplinary review consisting of BSC, ORD, RW headquarters, GC, EM (including the NSNFP), NR, SO, EH, and USGS personnel, as agreed to by the DOE and by BSC Licensing. It is expected that reviewers will confine their comments to their respective scopes of expertise. Individuals independent of the author of the section are included in the review team, as appropriate. A kickoff meeting may be used prior to the technical team review to provide an overview of the material to be reviewed and to explain the purpose of the review. When conducted, these meetings also identify reviewers and review coordinators and their responsibilities, as well as review criteria. Additionally, these meetings provide information regarding the review schedule, review period, due date for comments, comment resolution period, and final concurrence on the sections being reviewed. Reviewers and authors are expected to adhere to the review schedule. Multiple LA sections may be in review concurrently.

##### **4.4.2.1 Technical Team Review**

Technical team reviews are intended to ensure that the sections of the LA present the safety case completely, are technically accurate, address the acceptance criteria in the *Yucca Mountain Review Plan* (NRC 2003), and do not adversely affect the DOE program interests. Technical team reviewers are responsible for providing comments on the draft material to their respective review coordinators, along with specific recommendations for resolving the comments. Review coordinators consolidate and integrate all comments provided to them by the reviewers from their organizations and post the comments to the appropriate LA storyboard or as directed by the BSC LA Coordinator. BSC personnel should provide their comments to the appropriate technical lead for consideration and are not required to post them to the LA storyboard. The review coordinator is responsible for ensuring that comments are appropriately designated as mandatory or nonmandatory. Mandatory comments are those that are required to ensure that the LA is technically accurate, that the interests of other departmental elements and NR are appropriately addressed, that the *Yucca Mountain Review Plan* (NRC 2003) is appropriately addressed, or that language that could have an unacceptable licensing consequence is corrected. Nonmandatory comments are those comments that express an editorial preference. The authors will reply to all mandatory comments. Comments may include the identification of missing information or the desire for additional information. Responses to nonmandatory comments are at the discretion of the author.

#### **4.4.2.2 Comment Resolution**

Authors, working with BSC Licensing, provide responses to review coordinators for mandatory comments. Review coordinators are then responsible for working with their reviewers to determine if the responses can be accepted. For any comment response that cannot be accepted, the review coordinator and the author attempt to negotiate an acceptable resolution. If comments cannot be resolved satisfactorily, the comment is elevated. The dispute is resolved in consultation with the review coordinator, the BSC LA Coordinator, and the PLAD Nuclear Engineer. If resolution still is not reached, the issue proceeds up the management chain to OLAS and BSC management and, as applicable, to management of the reviewing organization until agreement on the issue is reached by a representative of each of these lines of authority.

Following resolution of comments, the author is responsible for incorporating the changes into the draft document and submitting it to the production staff for processing.

#### **4.4.2.3 Document Processing**

The production team prepares a concurrence draft that will be reviewed and approved by BSC Licensing prior to being posted to the appropriate LA storyboard for technical team concurrence review.

#### **4.4.2.4 Technical Team Concurrence Review and Comment Resolution**

For any changes that are not editorial in nature, review coordinators review the concurrence draft to make sure the comments made by members of their organization have been addressed satisfactorily. For BSC personnel, comments should be provided to the appropriate technical lead for evaluation as to whether or not such comments should be incorporated. DOE mandatory comments on the concurrence draft are posted to the appropriate LA storyboard for authors to resolve. The closure of the comments on the storyboard will document their resolution. To facilitate concurrence, a comment resolution meeting may be held to address major changes from the version that went out for concurrence review, as well as any mandatory comments that remain open. The Technical Team Review Comment Resolution Signature Sheet (Figure 4) is provided as an option for reviewers to sign, following discussions at the comment resolution meetings to address any additional comments or to document concurrence with the section.

#### **4.4.2.5 Document Processing**

To support the subsequent management and joint chapter reviews, the production team will incorporate changes resulting from the concurrence review and comment resolution process into the document.

### **4.4.3 BSC and ORD Joint Chapter Reviews**

#### **4.4.3.1 Preparation of LA Sections**

Following completion of the BSC validation review of LA sections, each section will be prepared for the joint chapter reviews. Figure 2 depicts the general approach to chapter groupings for this review, although chapter arrangements may be modified.

LA Open Items, LA Validation Items, and LA Action Items will be clearly identified as part of the joint chapter reviews. LA Open Items that are expected to still be open at the time of joint chapter reviews will be reviewed on a periodic basis to ensure they are progressing to closure. For the purpose of meeting Performance-Based Incentive 1 (“Submission of a Complete Draft LA”), BSC will provide draft sections of the LA to the DOE as part of the joint chapter review process or as a hard copy of the entire document by July 26, 2004. Draft sections of the LA for the joint chapter review may include LA Open Items (as defined in Section 6) if the OCRWM Deputy Director, ORD, or a designee has agreed in advance. LA Validation Items may remain open at the time of the joint chapter review and will be used to ensure the source documents for the LA are completed to support the draft LA information. LA Open Items and LA Validation Items are expected to be closed by October 1, 2004, but the Director of the OLAS may approve exceptions to this expectation.

#### **4.4.3.2 Joint Chapter Reviews**

The LA sections identified in the appropriate chapter groups in Figure 2 will be provided to a review team of selected representatives of the DOE (GC, DOE headquarters, NR, EM, NSNFP, EH, and SO) and BSC. Based on subject matter contained in the sections, the PLAD Director and the BSC Licensing Manager will jointly determine the specific review organizations. The organizations represented on the LA Management Council will identify the staff members of their departmental elements who will participate in the joint chapter reviews. Joint chapter reviews exist to ensure that the document and any documented actions will result in an LA suitable for LA completion activities, as described in Section 4.4.5. A consolidated set of comments will be prepared for each chapter group by the ORD, NR, and BSC. The ORD will consolidate the comments from GC, DOE headquarters, EM, NSNFP, EH, and SO.

#### **4.4.3.3 Resolution of Joint Comments**

Following the joint chapter reviews, representatives from the ORD, NR, and BSC will attend a joint meeting in Las Vegas, Nevada, to resolve comments identified during the reviews. Representatives from each review organization that took part in the joint chapter review will be given the opportunity to attend the joint meeting. These individuals will each have the authority to speak for their respective organizations regarding the resolution and acceptance of any comments related to their areas of technical expertise. Support personnel may be brought to the comment resolution meeting to address specific issues. In case of disputes, the PLAD Director and the BSC Licensing Manager, in consultation with the representative from the disputing organization, will resolve any disputes that are not resolved at lower levels. At the end of the joint meeting, signed concurrence will be obtained from representatives of each of the organizations that attended the meeting, as identified in Figure 5. This concurrence will indicate agreement with the completeness and accuracy of the joint chapter review draft, within each representative’s area of technical expertise, as augmented by documented actions to be taken to resolve any outstanding issues.

#### **4.4.3.4 Document Processing**

After incorporation of comment resolutions, the production team will prepare the document for final concurrence.

#### **4.4.4 LA Completion**

The LA Completion Schedule is shown in Figure 6 and provides further detail than that shown in Figure 2 (baseline schedule). Figure 6 is a working schedule with target dates, in advance of the baseline schedule. Future changes in the working schedule will not be updated in this plan but will be communicated to affected parties. The key activities supporting LA completion are described below. The activity name and identification (ID) number correspond to the Figure 6 task name and task ID number.

The LA completion activities include finalizing the LA text, tables, and figures and ensuring consistency throughout the document. Various activities are performed to ensure the completeness and accuracy of the LA. A joint management team performs a final review of the LA and the safety case. Any LA Open Items or outstanding issues are tracked to completion.

##### **4.4.4.1 Chapter Review and Comment Resolution (ID 1)**

Joint chapter review and the resolution of comments are discussed in Section 4.4.4. Comment resolution meetings are scheduled for each LA section. At the end of a comment resolution meeting, there may be actions that remain to be incorporated into an LA section.

##### **4.4.4.2 Complete LA Groups (IDs 6, 9, and 12)**

After the chapter review comment resolution meetings, the LA sections will be finalized, which includes incorporating comment resolution actions that were not completed earlier. It also includes final restructuring of the LA sections and final editing for consistency.

##### **4.4.4.3 Joint Management Review (ID 15)**

A final joint management review of the LA will be performed to assess the overall completeness and accuracy of the LA. LA sections will be evaluated to ensure actions or LA Open Items resulting from the chapter reviews have been adequately resolved. The joint management review will also evaluate the list of LA issues that have not been fully resolved or closed to ensure an acceptable path forward exists.

The joint management review team will be led by the Director of the OLAS; the OCRWM Deputy Director, ORD; and the Repository Development Manager, BSC. The joint management team will include full- or part-time participation by the following individuals or their designees:

- Director, OCRWM
- OCRWM Deputy Director, ORD
- General Manager, BSC
- Lead legal counsel
- Director, Office of Project Management and Engineering.

LA sections that are submitted for joint management review will be under strict configuration management control (ID 16). Only changes authorized by the joint management team will be incorporated into the LA sections.

#### **4.4.4.4 Completion of Supporting Documents (ID 20)**

The LA summarizes information presented in numerous supporting documents. These supporting documents provide the underlying design or analytical bases for the LA. Some of the supporting documents have been included in the LA as general references. These documents include analysis model reports, system description documents, facility description documents, preclosure safety analysis calculations and analyses, and other documents. Some of the supporting documents are being revised in parallel with the development of the LA and must be finalized to support submittal of the LA to the NRC.

If some of the supporting documents have not been finalized once the LA has been completed, they will be tracked as either LA Open Items or LA Validation Items (ID 34). When the design bases documents are approved, a final validation of the LA will be performed (ID 36).

#### **4.4.4.5 Validation and Certification Activities (ID 21)**

The ORD and BSC will both perform various activities to assess the completeness and accuracy of the LA. The joint management review of the LA (ID 15) is one activity that provides assurance of LA completeness. Other LA validation and certification activities may include the following:

- Independent analytical validation
- Independent assessment of LA completeness for docketing
- Validation of the LA against the design bases documents
- Certification that the LA addresses 10 CFR Part 63 requirements and the *Yucca Mountain Review Plan* (NRC 2003) acceptance criteria
- Assessment and ORD approval of commitments in the LA
- Independent assessment of LA commitments
- Assessment of QA status
- Review for sensitive or “official use only” information.

#### **4.4.4.6 Preparations for LA Submittal to DOE Headquarters (ID 22)**

This activity is to ensure the LA is ready for delivery to DOE headquarters. When the LA has been completed, it will be formally turned over to the ORD to obtain DOE headquarters concurrence and to obtain subsequent submittal to the NRC. The LA submittal process is described in Sections 4.4.6 and 4.4.7.

Prior to BSC submittal of the LA to the ORD, a series of meetings will be held to summarize the results of the various ORD and BSC validation and certification activities, including those

described above. The purpose of the meetings will be to provide high confidence that the LA is complete, accurate, and ready for submittal to the NRC.

If there are any LA Open Items or validation issues that must be closed in the LA or supporting documents, they will be specifically addressed at this time. The Director of the OLAS will determine if the LA Open Items and LA Validation Items must be closed prior to submitting the LA to DOE headquarters for concurrence. All LA Open Items shall be closed prior to submitting the LA to the NRC.

#### **4.4.4.7 DOE Completeness and Concurrence Decisions (ID 29)**

After the LA has been completed (ID 28) and turned over to the ORD, the DOE will complete its validation and certification activities. These activities include a review of the LA supporting documents (e.g., analysis model reports, system description documents, preclosure safety analysis calculations) against the LA sections (ID 30) and various reviews and assessments deemed necessary to validate that the LA is complete and accurate.

A key element in support of the DOE headquarters concurrence activities (ID 32) is the familiarization briefings for DOE headquarters (ID 31). These briefings will be arranged by the lead legal counsel and will be supported by ORD and BSC staff. The purpose of the briefings will be to inform the final decision-making authorities in DOE headquarters that the LA is complete, accurate, and ready for transmittal to the NRC. Applicable topics for the familiarization briefings include:

- Completion of the design bases documentation (e.g., analysis model reports, total system performance assessment, preclosure safety analysis calculations)
- Results of the ORD and BSC completeness reviews
- Results of any independent validations or certifications
- Overview of the LA format and content
- The preclosure and postclosure safety case.

#### **4.4.4.8 BSC Closure of Remaining LA Activities (ID 34)**

DOE headquarters concurrence review may proceed with a manageable list of activities being worked to closure. BSC will continue to close any remaining LA Open Items and LA Validation Items after the LA has been turned over to the ORD. These activities may include the completion of LA supporting documentation or revisions to the LA based upon the DOE headquarters concurrence review. The joint management team shall approve all changes to the LA.

#### **4.4.4.9 Final Validation and Certification (ID 37)**

As discussed above, there may be activities associated with the completion of the LA that will be closed after the LA is turned over to the ORD. These activities may include technical changes

that must be made to the LA itself, or they may include the completion and final approval of LA supporting documents. When the activity is completed, a final validation or certification of the changes to the LA will be performed, as applicable.

#### **4.4.5 LA Submittal Process**

##### **4.4.5.1 Final Production**

The production team will incorporate the changes from the final concurrence review and will prepare the LA for final signature.

##### **4.4.5.2 Signature of the OCRWM Deputy Director, ORD**

After incorporation of the comments from the final concurrence review, the LA is provided to the OCRWM Deputy Director, ORD. The OCRWM Deputy Director, ORD, is responsible for providing the final environmental impact statement, and NR is responsible for ensuring that the technical support document is complete.

Upon headquarters approval, the OCRWM Deputy Director, ORD, will transmit a signed authorization to BSC to print the LA for submittal to the NRC. It is planned, but still subject to final approval, that the Office of Civilian Radioactive Waste Management Deputy Director, Office of Repository Development, will sign the License Application.

##### **4.4.5.3 Printing**

BSC Licensing will coordinate printing, signing, and delivery of the LA following authorization by the OCRWM Deputy Director, ORD. The initial printing will produce sufficient copies to meet regulatory requirements; 50 hard copies and 50 optical disks are estimated to meet these requirements. Approximately 160 copies will be produced in the follow-up printing for additional distribution.

##### **4.4.5.4 Submittal of the LA to the NRC**

The LA will be filed and distributed in accordance with 10 CFR 63.22, as revised on October 10, 2003 (68 FR 58815). The LA, along with the accompanying final environmental impact statement, will be signed and submitted to the NRC Director, Office of Nuclear Material Safety and Safeguards (NMSS), in triplicate hard copy and will include three sets of optical media storage (disks), in accordance with 10 CFR 63.22(a). The DOE will submit an additional 30 hard copies and disks in accordance with 10 CFR 63.22(b). Twenty of these copies will be used by the NRC in the manner described in 10 CFR 2.101(f)(2). After the application has been accepted for docketing and a docket number has been assigned, additional copies of the LA and the final environmental impact statement will be submitted, served, and distributed in accordance with 10 CFR 2.101(f)(5) and 10 CFR 63.22(b) and with the written directions of the Director of NMSS or the Director's designee. However, the LA will not be formally docketed until the additional copies requested in the Director's written instructions are received by the Director of NMSS, as stated in 10 CFR 2.101(f)(6). The date of docketing will be the date the Director receives the requested copies. Within 10 days after formal docketing, the DOE must submit to the Director of NMSS a written statement that distribution of the additional copies to federal,

state, tribal, and local officials has been completed in accordance with those written instructions provided by the Director of NMSS. Distribution is deemed to be complete, according to 10 CFR 2.101(f)(6), as of the time the copies are deposited in the mail or with a carrier prepaid for delivery to the designated addressees.

#### 4.4.5.5 Submittal of Plans to the NRC

Upon completion of the LA, the plans shown in Table 1 will be submitted to the NRC as reflected in the project schedule. As these plans provide information related to meeting specific review criteria of the *Yucca Mountain Review Plan* (NRC 2003) that will not be included in the LA itself, the process for development of these plans will be specified and will incorporate related direction from this management plan to ensure reviews and approvals similar to those required for the LA.

Table 1. Plans to Be Submitted to the NRC after Submittal of the LA

PLAN	SCHEDULED COMPLETION
Emergency Plan	June 2008
Physical Security Plan	June 2008
Material Control and Accountability Plan	June 2008
Safeguards and Security Training Plan	June 2008
Safeguards and Security Contingency Plan	June 2008

## 5. PROJECT MANAGMENT AND CONTROLS

### 5.1 QA REQUIREMENTS

The LA is not subject to the requirements of the QARD, as previously determined by an activity evaluation performed in accordance with procedures in effect at that time. Preparation and review of the draft LA and its individual sections, however, are subject to appropriate management and document quality controls, as described in this management plan, to ensure transparency, traceability, accuracy, and correctness of the information presented (Sections 4.4.3 through 4.4.5). Preparation and review of the LA source documents classified as quality affecting will be subject to the requirements of the QARD and applicable procedural controls.

Like the LA itself, this management plan, which establishes the process governing development of the LA, is not quality affecting. Validity and accuracy of the LA are essential, however. Accordingly, many of the processes specified for development of the LA are consistent with the requirements in the procedures that implement the QARD.

### 5.2 RECORDS

The records listed in this section will be collected and submitted to the Records Processing Center in accordance with AP-17.1Q, *Records Management*, as individual records or will be included in appropriately assembled records packages.

### 5.2.1 QA Records

There are no QA records resulting from this management plan.

### 5.2.2 Non-QA Inclusionary Records

The following drafts are to be included:

- Technical team review draft
- Joint chapter review draft
- Final copy of the LA submitted to the NRC.

For each of the above drafts, the following review records are to be included:

- Mandatory review comments and responses posted to the LA storyboard
- Joint chapter review signature sheets with documented actions
- Final joint chapter review signature sheets.

The records will be printed and delivered for archival storage in hard-copy form.

### 5.2.3 Non-QA Exclusionary Records

There are no non-QA exclusionary records resulting from this management plan.

## 6. DEFINITIONS

**LA Action Items**—Items that require completion subsequent to the submittal of the LA but that are discussed in an LA section as information to be provided to the NRC.

**LA Open Items**—Items that meet both of the following conditions:

- Text, tables, or figures necessary to an LA section do not currently exist in a source document (i.e., either the work has not been done yet, or it has been done but not documented).
- There is not a reasonable anticipation that the current information in the LA will be consistent with the source document when finalized.

**LA Validation Items**—Items that meet either of the following conditions:

- Text, tables, or figures in an LA section are based on content already incorporated into some version of a source document. However, that source document needs to be finalized to validate that the information in the SAR is correct.

- Text, tables, or figures in a SAR section are based upon a reasonable anticipation of what will be included in a source document.

**Mandatory Comment**—Mandatory comments are those that are required to ensure that the LA is technically accurate, that the *Yucca Mountain Review Plan* (NRC 2003) is appropriately addressed, or that language that could have an unacceptable licensing consequence is corrected. Mandatory comments are used to alert the author of a safety hazard or of potential noncompliance with a requirement (e.g., a law, regulation, the QARD, procedure, policy, review criterion, commitment).

## 7. REFERENCES

### 7.1 DOCUMENTS CITED

DOE (U.S. Department of Energy) 2004. *Quality Assurance Requirements and Description*. DOE/RW-0333P, Rev. 14. Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20040331.0004.

NRC (U.S. Nuclear Regulatory Commission) 2003. *Yucca Mountain Review Plan, Final Report*. NUREG-1804, Rev. 2. Washington, D.C.: U.S. Nuclear Regulatory Commission, Office of Nuclear Material Safety and Safeguards. TIC: 254568.

ORD (Office of Repository Development) 2003. *Yucca Mountain Project Licensing Strategy*. YMP/02-01, Rev. 00, ICN 01. Las Vegas, Nevada: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20030430.0002.

### 7.2 CODES, STANDARDS, REGULATIONS, AND PROCEDURES

Atomic Energy Act of 1954. 42 U.S.C. 2011 et seq. Readily available.

Energy Reorganization Act of 1974. 42 U.S.C. 5801 et seq. Readily available.

Nuclear Waste Policy Act of 1982. 42 U.S.C. 10101 et seq. Readily available.

10 CFR (Code of Federal Regulations) 2. Energy: Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders. Readily available.

10 CFR 63. Energy: Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada. Readily available.

10 CFR 73. Energy: Physical Protection of Plants and Materials. Readily available.

AP-3.15Q, Rev. 4, ICN 2. *Managing Technical Product Inputs*. Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20030627.0002.

AP-17.1Q, Rev. 3, ICN 1. *Records Management*. Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: DOC.20031117.0004.

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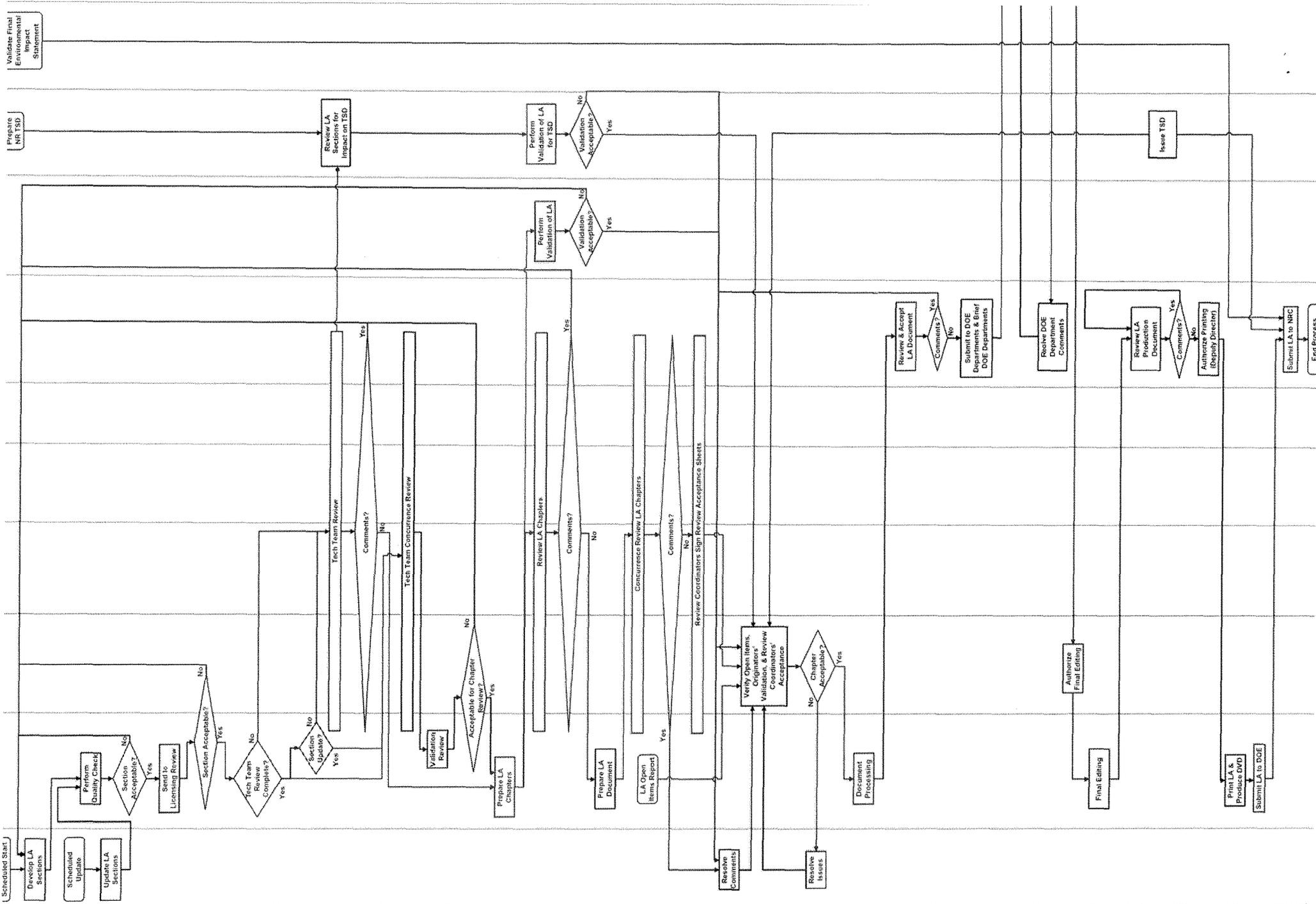


Figure 1.

Company, LLC; CIO = Chief Information Officer; CSO = Chief Science Officer; DOE = U.S. Department of Energy; DVD = digital versatile disk; EH = Office of Environment, Safety and Health (routing symbol); ES&H = Environmental Safety and Health; GC = Office of General Counsel DOE (routing symbol); HQ = Headquarters-DOE; LA = License Application; NR = Naval R

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# License Application Development Progress

Section	Title	Development Progress									
		Start	End	Start	End	Start	End	Start	End	Start	End
<b>GENERAL INFORMATION</b>											
1	GENERAL DESCRIPTION	06/14/04	01/04/04								
2	PROVISIONS RELATIVE TO CONVERSION, EFFECT, AND IMPLEMENTATION OF WASTE	09/14/04	08/14/04								
3	PHYSICAL PROTECTION PLAN	07/27/04	06/27/04								
4	MAXIMUM CONTAINMENT AND ACCOUNTING PROGRAM	06/04/04	05/04/04								
5	SITE CHARACTERIZATION	09/21/04	07/21/04								
<b>SAFETY ANALYSIS REPORT</b>											
<b>REPOSITORY SAFETY BEFORE PERMANENT CLOSURE</b>											
1.1	Site Description as it Relates to Previous Safety Analysis	05/29/04	05/29/04								
1.2	Surface Structures, Systems, and Components, Equipment and Operational Process Activities	04/01/04	03/01/04								
1.2.1	Surface Operations Overview	04/01/04	03/01/04								
1.2.2	General Surface Design Considerations	06/01/04	05/01/04								
1.2.3	Temperature Control System Facility	06/30/04	05/30/04								
1.2.4	Dry Storage Facility	06/30/04	05/30/04								
1.2.5	Transfer Handling Facility	06/01/04	05/01/04								
1.2.6	Agent Facility	04/29/04	03/29/04								
1.2.7	Maintenance Plant Facilities	04/29/04	03/29/04								
1.2.8	Final Handling Facility	06/14/04	05/14/04								
1.3	Subsurface Structures, Systems, and Components and Operational Process Activities	05/29/04	04/29/04								
1.3.1	Subsurface Operations Overview	05/29/04	04/29/04								
1.3.2	General Subsurface Design Criteria, Methodology, and Loads	07/26/04	06/26/04								
1.3.3	Subsurface Facility - Non-Enclosed Areas	05/29/04	04/29/04								
1.3.4	Subsurface Facility - Enclosed Areas	05/29/04	04/29/04								
1.3.5	Subsurface Facility - Ventilation	05/29/04	04/29/04								
1.3.6	Subsurface Facility - Closure	05/29/04	04/29/04								
1.4	Reference to Structures, Systems, Components, Equipment and Operational Process Activities	04/30/04	03/30/04								
1.4.1	Structures and Systems	04/30/04	03/30/04								
1.4.2	Process Activities	04/30/04	03/30/04								
1.4.3	Reference to Waste Management Systems	05/13/04	04/13/04								
<b>Waste Package</b>											
1.5.1	Characteristics of Spent Nuclear Fuel and High Level Waste	05/29/04	04/29/04								
1.5.2	General Description of Waste Packages and Their Components	04/29/04	03/29/04								
1.6	Identification of Hazards, Loads, and Initiating Events	05/14/04	04/14/04								
1.7	Event Sequences	05/14/04	04/14/04								
1.8	Consequence Analysis	05/14/04	04/14/04								
1.9	Inventories, Systems, and Components Support to Safety: Safety Controls, and Measures to Ensure Availability of the Safety Systems	05/14/04	04/14/04								
1.10	Identifying the CLARA Requirements for Normal Operations and Emergency 1, 2, and 3 Support	04/01/04	03/01/04								
1.11	Plans for Retrieval and Alternate Storage of Radioactive Waste	04/01/04	03/01/04								
1.12	Plans for Permanent Closure and Decommissioning, or Decommissioning and Demolition of Surface Facilities	04/01/04	03/01/04								
1.13	Equipment Qualification Program	04/23/04	03/23/04								
<b>REPOSITORY SAFETY AFTER PERMANENT CLOSURE</b>											
2.1	Process Description and Demonstration of Multiple Barriers	06/01/04	05/01/04								
2.2	Structural Analysis and Error Probability	06/01/04	05/01/04								
2.3	Technical Basis and Model Assumptions	06/01/04	05/01/04								
2.3.1	Climate and Infiltration	06/01/04	05/01/04								
2.3.2	Fluctuation Core Flow	06/01/04	05/01/04								
2.3.3	Water Seeping into Wells	06/01/04	05/01/04								
2.3.4	Microbial Degradation and Source Effects	06/01/04	05/01/04								
2.3.5	In Situ Chemical Environment	06/01/04	05/01/04								
2.3.6	Water Package and Deep Model Component	06/01/04	05/01/04								
2.3.7	Geopack Characteristics: Water Level, Degradation, and Integrity and Corrosion Through the Engineered Barrier	06/01/04	05/01/04								
2.3.8	Radionuclide Transport in the Confinement Zone	06/01/04	05/01/04								
2.3.9	Enhanced Zone Flow and Transport	06/01/04	05/01/04								
2.3.10	Biogeochemical Transport	06/01/04	05/01/04								
2.3.11	Variable Effects	06/01/04	05/01/04								
2.4	Demonstration of Compliance With the Performance Public Health and Environmental Standards	06/01/04	05/01/04								
<b>RESEARCH AND DEVELOPMENT PROGRAM TO RESOLVE SAFETY QUESTIONS</b>											
<b>PERFORMANCE CONFIRMATION PROGRAM</b>											
<b>ADMINISTRATIVE AND PROGRAMMATIC REQUIREMENTS</b>											
6.1	Quality Assurance Program	05/01/04	04/01/04								
6.2	Records, Reports, Data, and Support	05/01/04	04/01/04								
6.3	Training and Certification of Personnel	05/01/04	04/01/04								
6.4	Organizational Review of U.S. Department of Energy and Program's Operational and Support of the Repository	05/01/04	04/01/04								
6.5	Site Position Report Responsibility for Safety and Operations in the Future	05/01/04	04/01/04								
6.6	Program's Health, Safety and Training Requirements	05/01/04	04/01/04								
6.7	Equipment	05/01/04	04/01/04								
6.8	Plan for Usage Activities and Testing	05/01/04	04/01/04								
6.9	Plan for Control of Normal Activities Including Maintenance, Surveillance, and Remote Testing	05/01/04	04/01/04								
6.10	Emergency Planning	05/01/04	04/01/04								
6.11	Search to Extract Access and Storage Land Cost	05/01/04	04/01/04								
6.12	Use of the Geologic Repository Operational Area for Purpose-Other than Storage of Radioactive Waste	05/01/04	04/01/04								
6.13	Technical Specifications	05/01/04	04/01/04								
6.14	Radioactive Protection Program	05/01/04	04/01/04								
Mark completion progress Unshaded Within 60 days (this is equal to working day of critical path) Shaded: Invert with "B" as negative Date											

Figure 3. Team Review Development Progress

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Technical Team Review Comment Resolution Signature Sheet

LA chapter/SAR section: \_\_\_\_\_

Reviewer: \_\_\_\_\_  
Name Date

Organization: \_\_\_\_\_

In my judgment, the proposed resolutions to the mandatory comments of the technical team review, as entered on the LA storyboard or as discussed during the comment resolution process, are acceptable. In other cases, revised text was not available, but the proposed resolution appears acceptable. The text will have to be checked, however, during chapter review.

Figure 4. Technical Team Review Comment Resolution Signature Sheet

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## LA Joint Chapter Review Signature Sheet

The information contained in the section of the LA that has completed the BSC and ORD joint chapter review, as indicated below, has been reviewed by my organization, as applicable, as it relates to my area's responsibilities. With the exception of those specific items identified as documented actions (if any), the section is complete and accurate, LA Open Items have been closed, comments have been resolved, and the section is consistent with the documents originated in my department that have been identified to support the associated LA text, tables, and figures.

LA section: \_\_\_\_\_

BSC Licensing	Name	Date
NSNFP (as designated)	Name	Date
EM (as designated)	Name	Date
EH (as designated)	Name	Date
SO (as designated)	Name	Date
GC (as designated)	Name	Date
NR (as designated)	Name	Date
OLAS	Name	Date
OPM&E	Name	Date
Others	Name	Date

Figure 5. Joint Chapter Review Signature Sheet

NOTES: BSC = Bechtel SAIC Company, LLC; EH = Office of Environment, Safety and Health–DOE (routing symbol); EM = Office of Environmental Management–DOE (routing symbol); GC = Office of General Counsel–DOE (routing symbol); LA = License Application; OLAS = Office of License Application and Strategy; OPM&E = Office of Project Management and Engineering; ORD = Office of Repository Development; SO = Office of Security–DOE (routing symbol).

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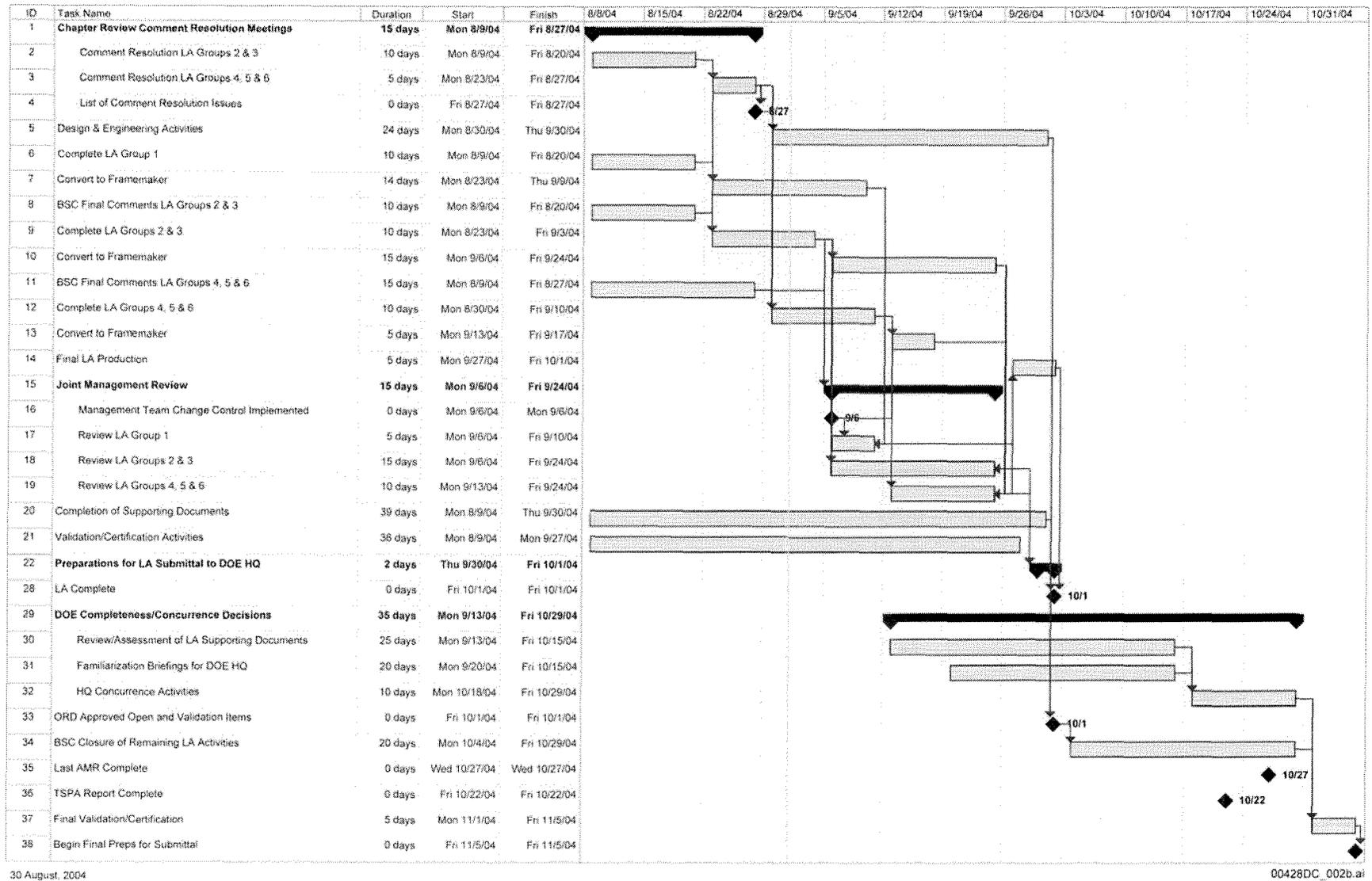


Figure 6. LA/SAR Completion Schedule

NOTES: AMR = analysis model report; BSC = Bechtel SAIC Company, LLC; DOE = U.S. Department of Energy; HQ = Headquarters–DOE; ID = identification; LA = License Application; ORD = Office of Repository Development; TSPA = total system performance assessment.

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## **Exhibit E**

**YUCCA MOUNTAIN PROJECT – LICENSE APPLICATION  
PLAN OF ACTION AND MILESTONES - (Actual dates in bold)**

DRAFT

DRAFT

DRAFT

Deliverable: License application for Yucca Mountain Project to be delivered to the Nuclear Regulatory Commission by December 31, 2004. The license application consists of the following sections: cover letter, general information (400 pages) and safety analysis report (SAR) (4,800 pages).

<b>ACTION</b>	<b>START DATE</b>	<b>COMPLETE DATE</b>	<b>RESPONSIBLE PERSON</b>	<b>STATUS</b>
1) GC-1/RW-1 agree on policy issues and approach for resolution: a) Secretarial Level, b) Other	8/31/04	9/13/04	Garrish	
2) GC/RW present policy issues listing and schedule to S-2	9/15/04	9/15/04	Otis/Chu	
3) RW incorporates non-Secretarial technical issues into LA and LA ready for HQ clearance	8/31/04	10/4/04	Arthur	
4) GC/RW agree to schedule for GC-1 briefings on issues and LA sections	9/8/04	9/10/04	Irwin	
5) "Hunton and Williams" brief GC-1 on issues and LA sections	9/15/04	10/4/04	Irwin	
6) GC-1 review and comment on LA section by section	8/20/04	11/1/04	Otis	
7) S-2 resolves Secretarial Level Issues	9/10/04	10/4/04	Otis	
8) RW incorporates policy issues resolution into LA	9/22/04	11/10/04	Arthur	
9) OMB/White House reviews/concurs with LA	10/27/04	11/15/04	Hutto/Dearborn	
10) Secretary approves LA (includes concurrence by S-3 and S-2)	11/10/04	12/3/04 (T)	Hutto	
11) GC-1 concurs all changes have been incorporated into LA, and LA is ready for signature and printing	11/15/04	12/9/04	Otis	
12) Prepare final LA for signature, sign LA	12/10/04	12/10/04 (T)	Garrish	

13) Develop electronic version of LA	12/10/04	12/20/04 (T)	Garrish	
14) Submit LA to the printer	12/10/04	12/10/04 (T)	Garrish	
15) Develop press strategy	11/10/04	12/3/04 (T)	Davis/Hutto/ Garrish	
16) Develop roll-out strategy for Congress and other stakeholders	11/10/04	12/3/04 (T)	Dearborn	
17) Submit LA to NRC	12/20/04	12/20/04 (T)	Arthur	
18) Implement press strategy		12/20/04 (T)	Davis	
19) Implement roll-out strategy for Congress and other stakeholders		12/20/04 (T)	Dearborn	

"T" – tentative dates

**DRAFT**

**DRAFT**

**DRAFT**

**Redacted**

**YUCCA MOUNTAIN PROJECT – CERTIFICATION OF FEDERAL PROJECT DIRECTORS  
PLAN OF ACTION AND MILESTONES - (Actual dates in bold)**

DRAFT

DRAFT

DRAFT

*Deliverable: Certification of Project Directors to Level 4 by December 2004.*

**Notes:**

1. Six individuals will be seeking certification. Three required by S-2 as part of CD-1 approval: John Arthur – Yucca Mountain Project Director, Ned Larson – National and Nevada Transportation Projects, and Jim Owendoff – assistant to the Director for management and integration. Three for be Ric Craun – Yucca Mountain, Vince Iorri – Yucca Mountain, and Gary Lanthrum – Transportation.
2. The Deputy Secretary required the project directors to be certified to Level 4 by December 2004.

<b>ACTION</b>	<b>START DATE</b>	<b>COMPLETE DATE</b>	<b>RESPONSIBLE PERSON</b>	<b>STATUS</b>
1) Complete Certification Form.	<b>7/14/04</b>	<b>10/16/04</b>	Owendoff	
2) Sign-off of Certification Form by RW-1.	<b>8/9/04</b>	<b>11/1/04</b>	Chu	
3) Complete review by OECM.	<b>8/24/04</b>	<b>11/15/04</b>	Rispoli	
4) Action by Certification Review Board.	<b>8/25/04</b>	<b>11/29/04</b>	Rispoli	Arthur and Owendoff certified to Level 4, Larson certified to Level 2

## **Exhibit F**

JUN 21 2004

QA:N/A

RECEIVED BY BSC CCU

DATE: 06/22/2004

Joseph D. Ziegler, Director  
Office of License Application and Strategy  
U.S. Department of Energy  
Office of Repository Development  
1551 Hillshire Drive  
Las Vegas, NV 89134

CONTRACT NO. DE-AC28-01RW12101 - CHAPTER REVIEW OF GROUP 1 LICENSE  
APPLICATION (LA) SECTIONS

The purpose of this letter is to notify you that the Group 1 LA sections are available for Chapter Review. This letter also addresses the current status of the LA sections relative to their overall completeness and compliance with applicable DOE technical direction letters (TDLs).

The DOE-designated reviewers have been notified that the following LA sections are posted on the LA storyboard and are ready for Chapter Review:

- General Information Section 3, Physical Protection Plan
- General Information Section 4, Material Control and Accounting Program
- Safety Analysis Report (SAR) Chapter 5, Administrative and Programmatic Requirements (Sections 5.1 through 5.9 and Section 5.11; Section 5.10, Technical Specifications, is in a different review group).

These LA sections have been through technical team review, and the DOE mandatory comments have been resolved and closed in preparation for Chapter Review. The LA storyboard shows the status of all mandatory comments. Enclosure 1, "Listing of Closed Mandatory Comments for Group 1," provides verification that all mandatory comments have been closed. The Chapter Review is the final review before the sections are finalized by a small team of Bechtel SAIC Company, LLC (BSC)/Office of Repository Development (ORD) members and provided to the DOE for submittal to the U.S. Nuclear Regulatory Commission (NRC). The LA sections are still considered to be drafts. After the Chapter Review comments are resolved and incorporated into the LA, as appropriate, the sections may be further revised as final decisions are made on information contained in the LA.

The LA sections address the applicable NUREG-1804 acceptance criteria and 10 CFR Part 63 requirements. A tabular listing of the NUREG-1804 acceptance criteria and 10 CFR Part 63 requirements applicable to each LA section have been included in the introduction for each section. Additionally, parenthetical references to the applicable NUREG-1804 acceptance criteria have been added to the appropriate LA section headings. To facilitate the DOE review of the LA sections, an even more detailed, "Crosswalk Between the LA, NUREG-1804, and CFR" (Enclosure 2) is enclosed.

The LA sections are complete drafts. Although open items in the draft LA sections are allowed if approved by the ORD, there are no LA open items associated with the Group 1 LA sections. Verification that there are no open items can be made by reviewing the LA text and by checking the LAAOItems database on the LA storyboard.

The LA sections clearly identify future DOE commitments to the NRC. These commitments are identified in the LA sections as LA action items (LAAIs). A unique LAAI identifier is assigned to each commitment. In addition, the LAAIs are included in the LAAOItems database to track the implementation of each commitment. LAAIs will continue to be work in progress until the actual submittal of the LA to the NRC. At the time of LA submittal, the LAAIs will be incorporated into the existing commitment management system. Additional DOE commitments resulting from the NRC review of the LA will be added to the commitment management system as they are identified. A printout of "License Application Action Items (LAAI) For Group 1" is enclosed (Enclosure 3).

The Group 1 LA sections are compliant with the applicable TDLs BSC has received to date. There are two TDLs that affect the Group 1 LA sections:

1. TDL No. 04-033 directed BSC to maintain one integrated summary of commitments made in the LA. BSC maintains a list of potential DOE commitments or LAAIs, as discussed in the paragraph above. A printout of "License Application Action Items (LAAI) For Group 1" is enclosed (Enclosure 3).
2. TDL No. 04-036 directed BSC to do two things relative to the LA. The first item stated that LA sections shall contain a lead-in that describes how that section meets applicable NUREG-1804 acceptance criteria. Also, in each section, reference to the applicable NUREG-1804 acceptance criteria must be included to facilitate review of the LA. BSC has incorporated NUREG-1804/SAR crosswalks into the applicable levels of the LA. Parenthetical references to the NUREG-1804 acceptance criteria have also been added to each applicable LA section or subsection heading. The second item stated that in addition to external references, whenever practical, general primary references created by the Yucca Mountain Project shall be included in LA text to provide ease of traceability. Internal general references have been added to the LA sections, where practical.

JUN 21 2004

0618042011

Page 3

The Group 1 LA sections are being posted for Chapter Review well in advance of July 26, 2004, the deliverable date for BSC to fully meet the performance-based incentive associated with Chapter Review. If any issues are identified with the Group 1 LA sections that could impact BSC obtaining the incentive fee, please bring them to my attention immediately. BSC will resolve these issues and resubmit the Group 1 LA sections prior to the July 26, 2004 deadline.

If you have any questions, please contact Robert G. Morgan at (702) 295-3965.



Nancy H. Williams  
Repository Development Manager

6-21-04  
Date

NHW:jeb - 0618042011

Enclosures:

1. Listing of Closed Mandatory Comments for Group 1
2. Crosswalk Between the LA, NUREG-1804, and CFR
3. License Application Action Items (LAAI) for Group 1

cc:

R. W. Andrews, BSC, Las Vegas, NV  
J. N. Bailey, BSC, Las Vegas, NV  
M. C. Bryan, BSC, Las Vegas, NV  
S. J. Cereghino, BSC, Las Vegas, NV  
S. A. Derr, BSC, Las Vegas, NV  
A. V. Gil, DOE, Las Vegas, NV  
B. Hamilton-Ray, DOE, Las Vegas, NV  
R. G. Morgan, BSC, Las Vegas, NV  
C. M. Newbury, DOE, Las Vegas, NV  
M. R. Wisenburg, BSC, Las Vegas, NV

Joseph D. Ziegler, Director  
Office of License Application and Strategy  
U.S. Department of Energy  
Office of Repository Development  
1551 Hillshire Drive  
Las Vegas, NV 89134

**RECEIVED BY BSC CCU**

**DATE: 07/07/2004**

**CONTRACT NO. DE-AC28-01RW12101 - CHAPTER REVIEW OF GROUP 2 AND 3  
LICENSE APPLICATION (LA) SECTIONS**

The purpose of this letter is to notify you that the Group 2 and 3 LA sections are available for chapter review. This letter also addresses the current status of the LA sections relative to their overall completeness and compliance with applicable DOE technical direction letters (TDLs).

The DOE-designated reviewers have been notified that the following LA sections are posted on the LA storyboard and are ready for chapter review.

- Safety Analysis Report (SAR) Sections 2.2 and 2.3 (Section 2.1, 2.4, and 2.2.2.3, are in a different review group)
- SAR Sections 1.2, 1.3, 1.4, 1.5, 1.10, 1.11, 1.12, 1.13 (Sections 1.1, 1.2.8, and 1.6-1.9 are in a different review group).

These LA sections have been through technical team review, and the DOE mandatory comments have been resolved and closed in preparation for chapter review. The LA storyboard shows the status of all mandatory comments. Enclosure 1, "Listing of Closed DOE Mandatory Comments for Group 2 and 3," provides the results of BSC's verification that the DOE mandatory comments have been closed. In addition, signed comment resolution sheets have been obtained from Office of Repository Development (ORD) staff indicating that the reviewers' comments have been adequately resolved in preparation for chapter review. The signed "Comment Resolution Meeting Signoff Sheets" are provided in Enclosure 2. The chapter review is the final review before the sections are finalized by a small team of Bechtel SAIC Company, LLC (BSC) and ORD members and provided to the DOE for submittal to the U.S. Nuclear Regulatory Commission (NRC). The LA sections are still considered to be drafts. After the chapter review comments are resolved and incorporated into the LA, as appropriate. The sections may be further revised as final decisions are made on information contained in the LA.

The LA sections address the applicable NUREG-1804 acceptance criteria and 10 CFR Part 63 requirements. A tabular listing of the NUREG-1804 acceptance criteria and 10 CFR Part 63 requirements applicable to each LA section have been included in the introduction for each

0701042221

Page 2

section. Additionally, parenthetical references to the applicable NUREG-1804 acceptance criteria have been added to the appropriate LA section headings. To facilitate the DOE review of the LA sections, a consolidated, "Crosswalk Between the LA, NUREG-1804, and CFR" (Enclosure 3) is enclosed.

The LA sections are complete drafts. LA open items in the draft LA sections are allowed if approved by the ORD. There is one LA open item associated with the Group 2 and 3 LA sections. A letter requesting ORD agreement with this LA open item was sent to ORD on July 2, 2004. Verification that there are no other LA open items can be made by reviewing the LA text and by checking the LA open item database on the LA storyboard.

The LA sections clearly identify high-level DOE commitments to the NRC. These commitments are identified in the LA sections as LA action items (LAAIs). A unique LAAI identifier is assigned to each commitment. In addition, the LAAIs are included in the LA open item database to track the implementation of each commitment. LAAIs will continue to be work in progress until the actual submittal of the LA to the NRC. At the time of LA submittal, the LAAIs will be incorporated into the existing commitment management system. Additional DOE commitments resulting from the NRC review of the LA will be added to the commitment management system as they are identified. A printout of "License Application Action Items (LAAI) For Group 2 and 3" is enclosed (Enclosure 4).

The Group 2 and 3 LA sections are compliant with the applicable TDLs BSC has received to date. There are two TDLs that affect Group 2 and 3 LA sections:

1. TDL No. 04-033 directed BSC to maintain one integrated summary of high-level commitments made in the LA. BSC maintains a list of potential DOE commitments or LAAIs, as discussed in the paragraph above.
2. TDL No. 04-036 directed BSC to do three things relative to the LA. The first item stated that LA sections shall contain a lead-in that describes how that section meets applicable NUREG-1804 acceptance criteria. Also, in each section, reference to the applicable NUREG-1804 acceptance criteria must be included to facilitate review of the LA. BSC has incorporated NUREG-1804/SAR crosswalks into the applicable levels of the LA. Parenthetical references to the NUREG-1804 acceptance criteria have also been added to each applicable LA section or subsection heading.

The second item stated that in addition to external references, whenever practical, general primary references created by the Yucca Mountain Project shall be included in LA text to provide ease of traceability. Internal general references have been added to the LA sections, where practical. The third item from TDL No. 04-036 stated that the LA level of detail shall be consistent with satisfying the pertinent review and acceptance criteria of NUREG-1804 and other pertinent regulatory requirements, consistent with the objective of obtaining

(1) docketing within 90 days, (2) a construction authorization within three years after docketing, and (3) a license to receive and possess in 2010. In addition, the content and technical detail described in the technical bases documents shall be used as a general guide to define the audience being addressed by the LA. BSC is using other commercial and DOE-sponsored SARs as examples and precedence for the level of detail provided in the LA. The postclosure sections of the SAR have used the technical bases documents as a general guide to define the audience addressed by the LA.

The Group 2 and 3 LA sections are being posted for chapter review well in advance of July 26, 2004, the deliverable date for BSC, to fully meet the performance-based incentive associated with chapter review. If any issues are identified with the Group 2 or 3 LA sections that could impact BSC obtaining the incentive fee, please bring them to my attention immediately. BSC will resolve these issues and resubmit the Group 2 and 3 LA sections prior to the July 26, 2004 deadline.

If you have any questions, please contact Robert G. Morgan at (702) 295-3965.

*for*   
Nancy H. Williams  
Repository Development Manager

7.6.04  
Date

NHW:jeb - 0701042221

Enclosures:

1. Listing of Closed DOE Mandatory Comments for Group 2 and 3
2. Comment Resolution Meeting Signoff Sheets
3. Crosswalk Between the LA, NUREG-1804, and CFR
4. License Application Action Items (LAAI) For Group 2 and 3

cc:

R. W. Andrews, BSC, Las Vegas, NV  
J. N. Bailey, BSC, Las Vegas, NV  
M. C. Bryan, BSC, Las Vegas, NV  
S. J. Cereghino, BSC, Las Vegas, NV  
S. A. Derr, BSC, Las Vegas, NV  
A. V. Gil, DOE, Las Vegas, NV  
B. Hamilton-Ray, DOE, Las Vegas, NV  
R. G. Morgan, BSC, Las Vegas, NV  
C. M. Newbury, DOE, Las Vegas, NV  
M. R. Wisenburg, BSC, Las Vegas, NV

**RECEIVED BY BSC CCU**  
**DATE: 07/20/2004**

Joseph D. Ziegler, Director  
Office of License Application and Strategy  
U.S. Department of Energy  
Office of Repository Development  
1551 Hillshire Drive  
Las Vegas, NV 89134

**CONTRACT NO. DE-AC28-01RW12101 - CHAPTER REVIEW OF GROUP 4, 5 AND 6  
LICENSE APPLICATION (LA) SECTIONS**

The purpose of this letter is to notify you that the Group 4, 5 and 6 LA sections are available for chapter review. This is the last set of LA sections being issued for chapter review. The Group 1 LA sections were issued for chapter review on June 21, 2004 and Group 2 and 3 LA sections were issued for chapter review on July 6, 2004. This letter also addresses the current status of the LA sections relative to their overall completeness and compliance with applicable DOE technical direction letters (TDLs).

The DOE-designated reviewers have been notified that the following LA sections are posted on the LA storyboard and are ready for chapter review.

- General Information Sections 1, 2 and 5
- Safety Analysis Report (SAR) Sections 1.1, 1.2.8, 1.6-1.9, and 5.10
- SAR Sections 2.1, 2.2.2.3, 2.4
- SAR Chapters 3.0 and 4.0.

These LA sections have been through technical team review, and the DOE mandatory comments have been resolved and closed in preparation for chapter review. The LA storyboard shows the status of all mandatory comments. Enclosure 1, "Listing of Closed DOE Mandatory Comments for Groups 4, 5 and 6," provides the results of BSC's verification that the DOE mandatory comments have been closed. In addition, signed comment resolution sheets have been obtained from Office of Repository Development (ORD) staff indicating that the reviewers' comments have been adequately resolved in preparation for chapter review. The signed "Comment Resolution Meeting Signature Sheets" are provided in Enclosure 2. The chapter review is the final review before the sections are finalized by a small team of Bechtel SAIC Company, LLC (BSC) and ORD members and provided to the DOE for submittal to the U.S. Nuclear Regulatory Commission (NRC). The LA sections are still considered to be drafts. After the chapter review, comments are resolved and incorporated into the LA, as appropriate. The sections may be further revised as final decisions are made on information contained in the LA.

The LA sections address the applicable NUREG-1804 acceptance criteria and 10 CFR Part 63 requirements. A tabular listing of the NUREG-1804 acceptance criteria and 10 CFR Part 63 requirements applicable to each LA section have been included in the introduction for each section. Additionally, parenthetical references to the applicable NUREG-1804 acceptance criteria have been added to the appropriate LA section headings. To facilitate the DOE review of the LA sections, a consolidated, "Crosswalk Between the LA, NUREG-1804, and CFR" (Enclosure 3) is enclosed.

The LA sections are complete drafts. There are no LA open items associated with the Group 4, 5 and 6 LA sections. Verification that there are no LA open items can be made by reviewing the LA text and by checking the LA open item database on the LA storyboard.

The LA sections clearly identify high-level DOE commitments to the NRC. These commitments are identified in the LA sections as LA action items (LAIs). A unique LAI identifier is assigned to each commitment. In addition, the LAIs are included in the LA open item database to track the implementation of each commitment. LAIs will continue to be work in progress until the actual submittal of the LA to the NRC. At the time of LA submittal, the LAIs will be incorporated into the existing commitment management system. Additional DOE commitments resulting from the NRC review of the LA will be added to the commitment management system as they are identified. A printout of "License Application Action Items (LAI) For Groups 4, 5 and 6" is enclosed (Enclosure 4).

The Group 4, 5 and 6 LA sections are compliant with the applicable TDLs BSC has received to date. There are two TDLs that affect Group 4, 5 and 6 LA sections:

1. TDL No. 04-033 directed BSC to maintain one integrated summary of high-level commitments made in the LA. BSC maintains a list of potential DOE commitments or LAIs, as discussed above.
2. TDL No. 04-036 directed BSC to do three things relative to the LA. The first item stated that LA sections shall contain a lead-in that describes how that section meets applicable NUREG-1804 acceptance criteria. Also, in each section, reference to the applicable NUREG-1804 acceptance criteria must be included to facilitate review of the LA. BSC has incorporated NUREG-1804/SAR crosswalks into the applicable levels of the LA. Parenthetical references to the NUREG-1804 acceptance criteria have also been added to each applicable LA section or subsection heading.

The second item stated that in addition to external references, whenever practical, general primary references created by the Yucca Mountain Project shall be included in LA text to provide ease of traceability. Internal general references have been added to the LA sections, where practical. The third item from TDL No. 04-036 stated that the LA level of detail shall

be consistent with satisfying the pertinent review and acceptance criteria of NUREG-1804 and other pertinent regulatory requirements, consistent with the objective of obtaining (1) docketing within 90 days, (2) a construction authorization within three years after docketing, and (3) a license to receive and possess in 2010. In addition, the content and technical detail described in the technical bases documents shall be used as a general guide to define the audience being addressed by the LA. BSC is using other commercial and DOE-sponsored SARs as examples and precedence for the level of detail provided in the LA. The postclosure sections of the SAR have used the technical bases documents as a general guide to define the audience addressed by the LA.

The Group 4, 5 and 6 LA sections are being posted for chapter review well in advance of July 26, 2004, the deliverable date for BSC to fully meet the performance-based incentive requirements associated with chapter review. If any issues are identified with the Group 4, 5 or 6 LA sections, please bring them to my attention immediately. BSC will resolve these issues and resubmit the LA sections prior to the July 26, 2004 deadline.

If you have any questions, please contact Robert G. Morgan at (702) 295-3965.



Nancy H. Williams  
Repository Development Manager

7-19-04  
Date

NHW:jeb - 0714042333

Enclosures:

1. Listing of Closed DOE Mandatory Comments for Groups 4, 5 and 6
2. Comment Resolution Meeting Signature Sheets
3. Crosswalk Between the LA, NUREG-1804, and CFR
4. License Application Action Items (LAAI) For Groups 4, 5 and 6

cc:

R. W. Andrews, BSC, Las Vegas, NV  
J. N. Bailey, BSC, Las Vegas, NV  
W. J. Boyle, DOE, Las Vegas, NV  
M. C. Bryan, BSC, Las Vegas, NV  
S. J. Cereghino, BSC, Las Vegas, NV  
R. L. Craun, DOE, Las Vegas, NV

S. A. Derr, BSC, Las Vegas, NV  
B. Hamilton-Ray, DOE, Las Vegas, NV  
D. W. Kane, DOE, Las Vegas, NV  
L. Kantola, BSC, Las Vegas, NV  
R. G. Morgan, BSC, Las Vegas, NV  
C. M. Newbury, DOE, Las Vegas, NV  
M. R. Wisenburg, BSC, Las Vegas, NV

## **Exhibit G**

**RECEIVED BY BSC CCU****DATE: 07/26/2004**

W. John Arthur, III, Deputy Director  
U.S. Department of Energy  
Office of Repository Development  
1551 Hillshire Drive  
Las Vegas, NV 89134-6321

CONTRACT NO. DE-AC28-01RW12101 - PERFORMANCE BASED INCENTIVE (PBI) 1 -  
SUBMISSION OF A COMPLETE DRAFT LICENSE APPLICATION (LA)

Reference: Ltr, Arthur to Mitchell, dtd 7/15/04, BSC Log No. 0716042379, Open Item  
Approval Letter

In accordance with the subject contract, this letter transmits the deliverable for PBI 1, submission of a complete draft License Application, and provides documentation demonstrating that the requirements in the attributes, assumptions, and conditions of PBI 1 have been met.

With the incorporation of MOD A057 on March 1, 2004, a new series of Performance-Based Incentives were incorporated in the fee provisions of the subject contract. The first of these, PBI 1, deals with the delivery of a complete draft of the LA as an event leading to the submission and docketing of the LA, covered by PBI 2 and PBI 3. These PBIs, and other components of the fee provisions, are the result of a negotiation process that started in December of 2003 and continued through early CY 2004.

In parallel with this negotiation process, the Office of Repository Development (ORD) and Bechtel SAIC Company, LLC (BSC) jointly defined, developed and approved the "Management Plan for the Development of the Yucca Mountain License Application" (LA Management Plan). This document was jointly approved on March 15, 2004, by the ORD and BSC. It defines the process by which the LA will proceed through the requisite development and approvals involving BSC, the ORD, and other affected government organizations up to and including the final submission to the U.S. Nuclear Regulatory Commission.

The LA Management Plan was subsequently revised on July 13, 2004 to reflect process refinements and changes in DOE organizational responsibilities. The defined process is an integrated and incremental one of development and approval, which is designed to provide the highest level of confidence in the overall quality and suitability for docketing and defense of the LA at the time of submission.

The objective of PBI 1 is served if the product is consistent with the LA Management Plan and is focused on the end objective of LA submission. To that end, the enclosed deliverable is submitted in fulfillment of the requirement for a product suitable for its intended purpose, to allow for a meaningful DOE review of the LA, leading to its subsequent approval, as described by the LA Management Plan.

PBI 1 requires the submittal of a complete draft LA. The deliverable transmitted herewith is complete as noted in the following:

- It addresses the full range of topics in 10 CFR 63.21;
- It addresses the full range of topics as outlined in NUREG-1804;
- The information contained therein is not expected to change in any fundamental manner;
- Any items that may not be final in order to substantiate text, tables, and figures are subject to document control, in accordance with Sections 4.4.4 and 6.0 of the LA Management Plan;
- The document is suitable for its intended purpose of ORD chapter review; and,
- It contains one open item (see the referenced approval letter)

The table below lists the enclosures of this deliverable in response to specific PBI 1 requirements:

Enclosure #	PBI Performance Measure	Hardcopy Document(s) included in Deliverable
1	Draft License Application (LA)	Draft LA: <ul style="list-style-type: none"> <li>◆ General Information sections 1-5</li> <li>◆ Safety Analysis Report sections 1-5</li> </ul>
2	The draft LA meets all applicable requirements of 10 CFR 63 and NUREG-1804	Requirements crosswalk <ul style="list-style-type: none"> <li>◆ Crosswalk table provided showing the regulations and NUREG-1804 mapped to the applicable LA section</li> <li>◆ Summary level crosswalk tables to NUREG 1804 in tables in LA sections</li> </ul>
3	Technical team reviews, as defined in the DOE License Application Management Plan, are complete on all LA chapters and that all DOE mandatory comments are resolved	Hardcopy of signed DOE/NR Technical Team Review comment resolution signature sheets, noted as resolved.
4	All applicable Technical Direction Letters are resolved	<ul style="list-style-type: none"> <li>a) List of TDs issued since contract transition</li> <li>b) Indication of whether the TD is applicable to the LA or not</li> <li>c) For each TD that is applicable to the LA, a summary of how the direction was implemented into the technical baseline</li> </ul>

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Page 3

	Conditions	Hardcopy Document(s) included in Deliverable
5	Preclosure Safety Analysis is complete	a) SAR Sections 1.6-1.9 are provided from 1) above b) 16 calculations that are supporting documents
6	Total System Performance Assessment is complete	a) Draft AMR b) Model DVD with roadmap
7	All AMR's consistency review mandatory comments have been resolved	1) DOE letter dated 6/9/2004 2) BSC Response on 6/30/2004 3) DOE analysis of response letter dated 7/14/2004 4) BSC memo to File with attached DOE resolution
8	CARs 1 and 2 are closed	a) Printout of CAR002 from CAP software b) Letter to DOE asking for initiation of CAR001 validation activities dated 7/19/2004
9	Level A or B Condition Reports relevant to the draft LA have been dispositioned	a) List of open level A and B CR's generated prior to 6/26/2004 b) CR Route map c) BSC letter dated 7/23/04 to File documenting no impact to draft LA for CRs not yet at "oversee implementation" status
10	Disposition of all KTIs is confirmed	a) KTI agreement table with status demonstrating that all KTIs due by 7/26/2004 to DOE were delivered prior to 7/26/2004 (KTI Table noting issue dates) b) Copy of KTI agreement response transmittal letters

The complete Draft LA is provided as an enclosure hereto and in fulfillment of the PBI 1 requirement. BSC will conduct a self-assessment of our compliance with the PBI 1 requirement not later than August 10, 2004.

If you have any questions or require additional information, please contact either Margaret G. McCullough or me at (702) 295-0528.

*Margaret G. McCullough*  
for John T. Mitchell, Jr.  
President and General Manager

*July 26, 2004*  
Date

JTM:jeb - 0719042391

0719042391

Page 4

Enclosures a/s

cc w/o Enclosures:

W. J. Arthur, DOE, Las Vegas, NV  
W. J. Boyle, DOE, Las Vegas, NV  
R. D. Brown, DOE, Las Vegas, NV  
M. C. Bryan, BSC, Las Vegas, NV  
A. L. Capoferri, DOE, Washington, DC  
S. J. Cereghino, BSC, Las Vegas, NV  
J. R. Dyer, DOE, Las Vegas, NV  
D. G. Franklin, NNPP, Las Vegas, NV  
A. V. Gil, DOE, Las Vegas, NV  
R. S. Hajner, BSC, Las Vegas, NV  
B. V. Hamilton-Ray, DOE, Las Vegas, NV  
D. P. Irwin, Hunton & Williams, Richmond, VA  
D. W. Kane, DOE, Las Vegas, NV  
M. G. McCullough, BSC, Las Vegas, NV  
R. A. Milner, DOE, Washington, DC  
Collin Moller, BSC, Washington, DC  
R. G. Morgan, BSC, Las Vegas, NV  
C. M. Newbury, DOE, Las Vegas, NV  
K. W. Powers, DOE, Las Vegas, NV  
L. D. Ray, DOE, Las Vegas, NV  
D. M. Ridolfi, DOE, Las Vegas, NV  
S. L. Rives, DOE, Las Vegas, NV  
P. F. Sanchez-Bartz, DOE, Las Vegas, NV  
D. J. Schlismann, BSC, Las Vegas, NV  
N. H. Williams, BSC, Las Vegas, N  
M. R. Wisenburg, BSC, Las Vegas, NV  
J. D. Ziegler, DOE, Las Vegas, NV

## **Exhibit H**

# LA Chapter Review Notification re Chapter Group 1

Joseph Ziegler/YD/RWDOE@CRWMS, William Boyle/YD/RWDOE@CRWMS, Richard  
Craun/YD/RWDOE@CRWMS, Dan Kane/YD/RWDOE@CRWMS, George  
Hellstrom/YD/RWDOE@CRWMS, James Linhart/YM/RWDOE@CRWMS, David  
Franklin/YM/RWDOE@CRWMS, eric.cohen@eh.doe.gov, tony.eng@eh.doe.gov,  
Marshall.Combs@hq.doe.gov, guy.mcdowell@hq.doe.gov,  
john.fitzgibbons@hq.doe.gov, Jack Bailey/YM/RWDOE@CRWMS, Robert  
Morgan/YM/RWDOE, Nancy Williams/YM/RWDOE@CRWMS, Stephen  
Cereghino/YM/RWDOE@CRWMS, Gary LeCain/YM/RWDOE@CRWMS, Stacy  
Junio/YM/RWDOE@CRWMS

----- Forwarded by Marty Bryan/YM/RWDOE on 07/28/2005  
02:31 PM -----

John Kutzer

To: Joseph Ziegler/YD/RWDOE@CRWMS, William  
Boyle/YD/RWDOE@CRWMS, Richard  
06/22/2004 09:35 Craun/YD/RWDOE@CRWMS, Dan Kane/YD/RWDOE@CRWMS,  
George Hellstrom/YD/RWDOE@CRWMS,  
AM James Linhart/YM/RWDOE@CRWMS, David  
Franklin/YM/RWDOE@CRWMS, eric.cohen@eh.doe.gov,  
tony.eng@eh.doe.gov, Marshall.Combs@hq.doe.gov, guy.mcdowell@hq.doe.gov,  
john.fitzgibbons@hq.doe.gov, Jack Bailey/YM/RWDOE@CRWMS, Robert  
Morgan/YM/RWDOE,  
Nancy Williams/YM/RWDOE@CRWMS, Stephen  
Cereghino/YM/RWDOE@CRWMS, Gary  
LeCain/YM/RWDOE@CRWMS, Stacy Junio/YM/RWDOE@CRWMS  
cc:  
Subject: LA Chapter Review Notification -- Chapter Group 1

LA Chapter Review Notification

Date: 21 JUN 04

Due Date: 13 JUL 04

-----+ +-----

Primary objectives of the Chapter Review:

- Technical Adequacy and Accuracy
- Integration of LA Sections
- YMRP Acceptance Criteria are addressed

-----+ +-----  
Chapter 1 Group Sections

LA Section Number	Section Title	Link
GI-3	Physical Protection Plan	(Document link: Database 'LA Storybd R00 Gen Info', View 'Table of Contents', Document '3 PHYSICAL PROTECTION PLAN')
GI-4	Material Control and Accounting Program	(Document link: Database 'LA Storybd R00 Gen Info', View 'Table of Contents', Document '4 MATERIAL CONTROL AND ACCOUNTING PROGRAM')
SAR-5.1	Quality Assurance	(Document link: Database 'LA Storybd R00 SAR Ch 5', View 'Table

		of Contents', Document '5.1 QUALITY ASSURANCE PROGRAM')
SAR-5.2	Records, Reports, Tests, and Inspections	(Document link: Database 'LA Storybd R00 SAR Ch 5', View 'Table of Contents', Document '5.2 RECORDS, REPORTS, TESTS, AND INSPECTIONS' )
SAR-5.3	Training and Certification of Personnel	(Document link: Database 'LA Storybd R00 SAR Ch 5', View 'Table of Contents', Document '5.3 TRAINING AND CERTIFICATIO N OF PERSONNEL')
SAR-5.4	Expert Elicitation	(Document link: Database 'LA Storybd R00 SAR Ch 5', View 'Table of Contents', Document '5.4 EXPERT ELICITATION' )

SAR-5.5	Plans for Startup Activities and Testing	(Document   link:   Database 'LA   Storybd R00   SAR Ch 5',   View 'Table   of   Contents',   Document   '5.5 PLANS   FOR STARTUP   ACTIVITIES   AND   TESTING')
SAR-5.6	Plans for Conduct of Normal Activities Including Maintenance, Surveillance, and Periodic Testing	(Document   link:   Database 'LA   Storybd R00   SAR Ch 5',   View 'Table   of   Contents',   Document   '5.6 PLANS   FOR CONDUCT   OF NORMAL   ACTIVITIES   INCLUDING   MAINTENANCE,   SURVEILLANCE   , AND   PERIODIC   TESTING')
SAR-5.7	Emergency Planning	(Document   link:   Database 'LA   Storybd R00   SAR Ch 5',   View 'Table   of   Contents',   Document   '5.7   EMERGENCY   PLANNING')
SAR-5.8	Controls to Restrict Access, and Regulate Land Use	(Document   link:

|Database 'LA|  
|Storybd R00 |  
|SAR Ch 5', |  
|View 'Table |  
| of |  
|Contents', |  
|Document |  
|'5.8 |  
|CONTROLS TO |  
|RESTRICT |  
|ACCESS AND |  
|REGULATE |  
|LAND USES') |

SAR-5.9 |Uses of the Geologic Repository Operations | (Document |  
|Area for Purposes Other than Disposal of | link: |  
|Radioactive Wastes |Database 'LA|

|Storybd R00 |  
|SAR Ch 5', |  
|View 'Table |  
| of |  
|Contents', |  
|Document |  
|'5.9 USES |  
|OF THE |  
|GEOLOGIC |  
|REPOSITORY |  
|OPERATIONS |  
|AREA FOR |  
|PURPOSES |  
|OTHER THAN |  
|DISPOSAL OF |  
|RADIOACTIVE |  
|WASTES') |

SAR-5.11 |Radiation Protection Program | (Document |

| link: |  
|Database 'LA|  
|Storybd R00 |  
|SAR Ch 5', |  
|View 'Table |  
| of |  
|Contents', |  
|Document |  
|'5.11 |  
|RADIATION |  
|PROTECTION |  
|PROGRAM') |

## LA Chapter Review Notification re Chapter Group 2

Joseph Ziegler/YD/RWDOE@CRWMS, William Boyle/YD/RWDOE@CRWMS, Richard Craun/YD/RWDOE@CRWMS, Dan Kane/YD/RWDOE@CRWMS, George Hellstrom/YD/RWDOE@CRWMS, James Linhart/YM/RWDOE@CRWMS, David Franklin/YM/RWDOE@CRWMS, eric.cohen@eh.doe.gov, tony.eng@eh.doe.gov, Frank Chen@eh.doe.gov, Marshall.Combs@hq.doe.gov, guy.mcdowell@hq.doe.gov, john.fitzgibbons@hq.doe.gov, Jack Bailey/YM/RWDOE@CRWMS, Robert Morgan/YM/RWDOE@CRWMS, Nancy Williams/YM/RWDOE@CRWMS, Stephen Cereghino/YM/RWDOE@CRWMS, Gary LeCain/YM/RWDOE@CRWMS, Stacy Junio/YM/RWDOE@CRWMS, Larry Saraka/MV/RWDOE@CRWMS

LA Chapter Review Notification
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Date:	6 JUL 04	
Due Date:	27 JUL 04	

Primary objectives of the Chapter Review:  Technical Adequacy and Accuracy Integration of LA Sections YMRP Acceptance Criteria are addressed
--

LA Group 2 Sections		
LA Section Number	Section Title	Link
SAR-2.2	Scenario Analysis and Event Probability (Except Section 2.2.2.3 Nuclear Criticality)	(Document link: Database 'LA Storybd' 'R00 SAR Ch 2', View 'Table of Contents', Document '2.2' 'SCENARIO ANALYSIS AND EVENT PROBABILITY')

SAR-2.3.1	Climate and Infiltration	(Document link: Database 'LA Storybd   R00 SAR Ch 2', View   'Table of Contents',   Document '2.3.1   Climate and   Infiltration')
SAR-2.3.2	Unsaturated Zone Flow	(Document link: Database 'LA Storybd   R00 SAR Ch 2', View   'Table of Contents',   Document '2.3.2   Unsaturated Zone   Flow')
SAR-2.3.3	Water Seeping into Drifts	(Document link: Database 'LA Storybd   R00 SAR Ch 2', View   'Table of Contents',   Document '2.3.3   Water Seeping Into   Drifts')
SAR-2.3.4	Mechanical Disruption of Engineered Barriers	(Document link: Database 'LA Storybd   R00 SAR Ch 2', View   'Table of Contents',   Document '2.3.4   Mechanical Disruption   of Engineered   Barriers')
SAR-2.3.5	In-Drift Chemical Environment	(Document link: Database 'LA Storybd   R00 SAR Ch 2', View   'Table of Contents',   Document '2.3.5   In-Drift Chemical   Environment')
SAR-2.3.6	Waste Package and Drip Shield Corrosion	(Document link: Database 'LA Storybd   R00 SAR Ch 2', View   'Table of Contents',   Document '2.3.6   Waste Package And   Drip Shield   Corrosion')

SAR-2.3.7	Waste Form Degradation and In-Drift Radionuclide Transport Database 'LA Storybd' R00 SAR Ch 2', View Table of Contents', Document '2.3.7' In-Package Environment, Waste Form Degradation and Solubility, and Transport through the Engineered Barriers (combines ')	(Document link:
SAR-2.3.8	Radionuclide Transport in the Unsaturated Zone Database 'LA Storybd' R00 SAR Ch 2', View Table of Contents', Document '2.3.8' Radionuclide Transport in the Unsaturated Zone (formerly 2.3.9))	(Document link:
SAR-2.3.9	Saturated Zone Flow and Transport Database 'LA Storybd' R00 SAR Ch 2', View Table of Contents', Document '2.3.9' Saturated Zone Flow and Transport (formerly 2.3.10))	(Document link:
SAR-2.3.10	Biosphere Transport and Exposure Database 'LA Storybd' R00 SAR Ch 2', View Table of Contents', Document '2.3.10' Biosphere Transport (formerly 2.3.11))	(Document link:
SAR-2.3.11	Igneous Activity Database 'LA Storybd' R00 SAR Ch 2', View Table of Contents', Document '2.3.11' Volcanic Effects (formerly 2.3.12))	(Document link:

# LA Chapter Review Notification re Chapter Group 3

Joseph Ziegler/YD/RWDOE@CRWMS, William Boyle/YD/RWDOE@CRWMS, Richard Craun/YD/RWDOE@CRWMS, Dan Kane/YD/RWDOE@CRWMS, George Hellstrom/YD/RWDOE@CRWMS, James Linhart/YM/RWDOE@CRWMS, David Franklin/YM/RWDOE@CRWMS, eric.cohen@eh.doe.gov, tony.eng@eh.doe.gov, Frank Chen@eh.doe.gov, Marshall.Combs@hq.doe.gov, guy.mcdowell@hq.doe.gov, john.fitzgibbons@hq.doe.gov, Jack Bailey/YM/RWDOE@CRWMS, Robert Morgan/YM/RWDOE@CRWMS, Nancy Williams/YM/RWDOE@CRWMS, Stephen Cereghino/YM/RWDOE@CRWMS, Gary LeCain/YM/RWDOE@CRWMS, Stacy Junio/YM/RWDOE@CRWMS, Larry Saraka/MV/RWDOE@CRWMS

----- Forwarded by Marty Bryan/YM/RWDOE on 07/28/2005  
02:35 PM -----

Robert Morgan

To: Joseph Ziegler/YD/RWDOE@CRWMS, William Boyle/YD/RWDOE@CRWMS, Richard  
07/06/2004 06:54 Craun/YD/RWDOE@CRWMS, Dan Kane/YD/RWDOE@CRWMS,  
George Hellstrom/YD/RWDOE@CRWMS,  
PM James Linhart/YM/RWDOE@CRWMS, David  
Franklin/YM/RWDOE@CRWMS, eric.cohen@eh.doe.gov,  
tony.eng@eh.doe.gov, Frank Chen@eh.doe.gov, Marshall.Combs@hq.doe.gov,  
guy.mcdowell@hq.doe.gov, john.fitzgibbons@hq.doe.gov, Jack  
Bailey/YM/RWDOE@CRWMS,  
Robert Morgan/YM/RWDOE@CRWMS, Nancy  
Williams/YM/RWDOE@CRWMS, Stephen  
Cereghino/YM/RWDOE@CRWMS, Gary LeCain/YM/RWDOE@CRWMS,  
Stacy Junio/YM/RWDOE@CRWMS,  
Larry Saraka/MV/RWDOE@CRWMS  
cc:  
Subject: LA Chapter Review Notification -- Chapter Group 3

-----  
LA Chapter Review Notification  
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Date: 6 JUL 04 |||  
 -----+--+  
 Due Date: 3 AUG 04 |||  
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-----  
 Primary objectives of the Chapter Review:  
 Technical Adequacy and Accuracy  
 Integration of LA Sections  
 YMRP Acceptance Criteria are addressed  
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LA Group 3 Sections		
LA Section Number	Section Title	Link
SAR-1.2	Surface Structures, Systems, and Components and Operational Process Activities	(Document link: Database 'LA Storybd R00 SAR Ch 1', View 'Table of Contents', Document '1.2 SURFACE STRUCTURES, SYSTEMS, AND COMPONENTS, EQUIPMENT AND OPERATIONAL PROCESS ACTIVITIES')
SAR-1.2.1	Surface Operations Overview	(Document link: Database 'LA Storybd R00 SAR Ch 1', View 'Table of Contents', Document '1.2.1 Surface

Operations  
Overview)

SAR-1.2.2. General Surface Design Considerations (Document |

2

link:  
Database 'LA  
Storybd R00  
SAR Ch 1',  
View 'Table  
of  
Contents',  
Document  
'1.2.2  
General  
Surface  
Design  
Consideratio  
ns')

SAR-1.2.3. Cask and Waste Package Receipt Building (Document |

3

link:  
Database 'LA  
Storybd R00  
SAR Ch 1',  
View 'Table  
of  
Contents',  
Document  
'1.2.3 Cask  
and Waste  
Package  
Receipt  
Building')

SAR-1.2.4. Dry Transfer Facility (Document |

4

link:  
Database 'LA  
Storybd R00  
SAR Ch 1',  
View 'Table  
of  
Contents',  
Document  
'1.2.4 Dry  
Transfer  
Facility')

SAR-1.2.5. Canister Handling Facility (Document |

5

link:  
Database 'LA  
Storybd R00

| SAR Ch 1', |  
| View 'Table |  
| of |  
| Contents', |  
| Document |  
| '1.2.5 |  
| Canister |  
| Handling |  
| Facility') |

SAR-1.2.6 | Aging Facility | (Document |

6 |

| link: |  
| Database 'LA |  
| Storybd R00 |  
| SAR Ch 1', |  
| View 'Table |  
| of |  
| Contents', |  
| Document |  
| '1.2.6 Aging |  
| Facility') |

SAR-1.2.7 | Miscellaneous Plant Facilities | (Document |

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| link: |  
| Database 'LA |  
| Storybd R00 |  
| SAR Ch 1', |  
| View 'Table |  
| of |  
| Contents', |  
| Document |  
| '1.2.7 |  
| Miscellaneou |  
| s Plant |  
| Facilities') |

SAR-1.3 | Subsurface Structures, Systems, and | (Document |  
| Components and Operational Process Activities | link: |

| Database 'LA |  
| Storybd R00 |  
| SAR Ch 1', |  
| View 'Table |  
| of |  
| Contents', |  
| Document |  
| '1.3 |  
| SUBSURFACE |  
| STRUCTURES, |  
| SYSTEMS, AND |  
| COMPONENTS |  
| AND |

OPERATIONAL  
PROCESS  
ACTIVITIES)

SAR-1.3. Subsurface Operations Overview (Document |

1 | link: |  
| Database 'LA |  
| Storybd R00 |  
| SAR Ch 1', |  
| View 'Table |  
| of |  
| Contents', |  
| Document |  
| '1.3.1 |  
| Subsurface |  
| Operations |  
| Overview')

SAR-1.3. General Subsurface Design Criteria, Design (Document |  
2 | Methodology, and Loads | link: |

| Database 'LA |  
| Storybd R00 |  
| SAR Ch 1', |  
| View 'Table |  
| of |  
| Contents', |  
| Document |  
| '1.3.2 |  
| General |  
| Subsurface |  
| Design |  
| Criteria, |  
| Design |  
| Methodology, |  
| and Loads')

SAR-1.3. Subsurface Facility Nonemplacement Areas (Document |

3 | link: |  
| Database 'LA |  
| Storybd R00 |  
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| View 'Table |  
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| Document |  
| '1.3.3 |  
| Subsurface |  
| Facility - |  
| Non-Emplacem |  
| ent Areas')

SAR-1.3. Subsurface Facility?Emplacement Areas (Document |

4 | |link: |  
|Database 'LA|  
|Storybd R00 |  
|SAR Ch 1', |  
|View 'Table |  
|of |  
|Contents', |  
|Document |  
|'1.3.4 |  
|Subsurface |  
|Facility - |  
|Emplacement |  
|Areas') |

SAR-1.3. Subsurface Facility Ventilation (Document |

5 | |link: |  
|Database 'LA|  
|Storybd R00 |  
|SAR Ch 1', |  
|View 'Table |  
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|Contents', |  
|Document |  
|'1.3.5 |  
|Subsurface |  
|Facility |  
|Ventilation'|  
|) |

SAR-1.3. Subsurface Facility Closure (Document |

6 | |link: |  
|Database 'LA|  
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|SAR Ch 1', |  
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|Contents', |  
|Document |  
|'1.3.6 |  
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|Facility |  
|Closure') |

SAR-1.4 Infrastructure Structures, Systems, (Document |

|Components, Equipment, and Operational |link: |  
|Process Activities |Database 'LA|  
|Storybd R00 |  
|SAR Ch 1', |  
|View 'Table |  
|of |

|Contents', |  
|Document |  
|'1.4 |  
|INFRASTRUCTU|  
|RE |  
|STRUCTURES, |  
|SYSTEMS, |  
|COMPONENTS, |  
|EQUIPMENT, |  
|AND |  
|OPERATIONAL |  
|PROCESS |  
|ACTIVITIES')|

|SAR-1.4.|Electric Power |(Document |  
1 | |link: |  
|Database 'LA|  
|Storybd R00 |  
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|View 'Table |  
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|Contents', |  
|Document |  
|'1.4.1 |  
|Electric |  
|Power') |

|SAR-1.4.|Controls and Monitoring |(Document |  
2 | |link: |  
|Database 'LA|  
|Storybd R00 |  
|SAR Ch 1', |  
|View 'Table |  
|of |  
|Contents', |  
|Document |  
|'1.4.2 |  
|Controls and|  
|Monitoring')|

|SAR-1.4.|Fire Protection |(Document |  
3 | |link: |  
|Database 'LA|  
|Storybd R00 |  
|SAR Ch 1', |  
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|'1.4.3 Fire |  
|Protection')|

SAR-1.4. 4	Plant Services	(Document
		link:  Database 'LA'  Storybd R00  SAR Ch 1',  View 'Table  of  Contents',  Document  '1.4.4 Plant  Services')
SAR-1.4. 5	Waste Management	(Document
		link:  Database 'LA'  Storybd R00  SAR Ch 1',  View 'Table  of  Contents',  Document  '1.4.5  Radioactive  Waste  Management  System')
SAR-1.5	Waste Form and Waste Package	(Document
		link:  Database 'LA'  Storybd R00  SAR Ch 1',  View 'Table  of  Contents',  Document  '1.5 WASTE  PACKAGE')
SAR-1.5. 1	Characteristics of Spent Nuclear Fuel and High-Level Radioactive Waste	(Document
		link:  Database 'LA'  Storybd R00  SAR Ch 1',  View 'Table  of  Contents',  Document  '1.5.1  Characterist

ics of Spent  
Nuclear Fuel  
and High  
Level  
Waste')

SAR-1.5.2 Waste Packages and Their Components (Document

2

link:  
Database 'LA  
Storybd R00  
SAR Ch 1',  
View 'Table  
of  
Contents',  
Document  
'1.5.2 Waste  
Packages and  
Their  
Components')

SAR-1.10 Meeting the ALARA Requirements for Normal Operations and Category 1 Event Sequences (Document

link:  
Database 'LA  
Storybd R00  
SAR Ch 1',  
View 'Table  
of

Contents',  
Document  
'1.10  
MEETING THE  
ALARA  
REQUIREMENTS  
FOR NORMAL  
OPERATIONS  
AND CATEGORY  
1 EVENT  
SEQUENCES')

SAR-1.11 Plans for Retrieval and Alternate Storage of Radioactive Wastes (Document

link:  
Database 'LA  
Storybd R00  
SAR Ch 1',  
View 'Table  
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Contents',  
Document  
'1.11 PLANS  
FOR

|RETRIEVAL |  
|AND |  
|ALTERNATE |  
|STORAGE OF |  
|RADIOACTIVE |  
|WASTES') |

SAR-1.12|Plans for Permanent Closure and |(Document |  
Decontamination or Permanent Closure,	link:
Decontamination, and Dismantlement of Surface	Database 'LA
Facilities	Storybd R00
SAR Ch 1',	
View 'Table	
of	
Contents',	
Document	
'1.12 PLANS	
FOR	
PERMANENT	
CLOSURE AND	
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ION, OR	
DECONTAMINAT	
ION AND	
DISMANTLEMEN	
T OF SURFACE	
FACILITIES')	

SAR-1.13|Equipment Qualification Program |(Document |  
|link: |  
|Database 'LA|  
|Storybd R00 |  
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|View 'Table |  
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|Contents', |  
|Document |  
|'1.13 |  
|EQUIPMENT |  
|QUALIFICATIO|  
|N PROGRAM') |

## LA Chapter Review Notification re Chapter Group 4, 5, and 6

Joseph Ziegler/YD/RWDOE@CRWMS, William Boyle/YD/RWDOE@CRWMS, Richard Craun/YD/RWDOE@CRWMS, Dan Kane/YD/RWDOE@CRWMS, George Hellstrom/YD/RWDOE@CRWMS, James Linhart/YM/RWDOE@CRWMS, David Franklin/YM/RWDOE@CRWMS, eric.cohen@eh.doe.gov, tony.eng@eh.doe.gov, frank.chen@eh.doe.gov, Guy.McDowell-Notes@hq.doe.gov, Glenn.Podonsky-Notes@hq.doe.gov, Marshall.Combs-Notes@hq.doe.gov, John.Fitzgibbons-Notes@hq.doe.gov, Jack Bailey/YM/RWDOE@CRWMS, Robert Morgan/YM/RWDOE@CRWMS, Nancy Williams/YM/RWDOE@CRWMS, Stephen Cereghino/YM/RWDOE@CRWMS, Gary LeCain/YM/RWDOE@CRWMS, Stacy Junio/YM/RWDOE@CRWMS, Jeff Williams/HQ/RWDOE@CRWMS, Larry Saraka/MV/RWDOE@CRWMS, Jeff Williams/HQ/RWDOE@CRWMS

----- Forwarded by Marty Bryan/YM/RWDOE on 07/28/2005  
02:44 PM -----

Robert Morgan

To: Joseph Ziegler/YD/RWDOE@CRWMS, William Boyle/YD/RWDOE@CRWMS, Richard  
07/19/2004 08:23 Craun/YD/RWDOE@CRWMS, Dan Kane/YD/RWDOE@CRWMS,  
George Hellstrom/YD/RWDOE@CRWMS,  
PM James Linhart/YM/RWDOE@CRWMS, David  
Franklin/YM/RWDOE@CRWMS, eric.cohen@eh.doe.gov,  
tony.eng@eh.doe.gov, frank.chen@eh.doe.gov, Guy.McDowell-  
Notes@hq.doe.gov,  
Glenn.Podonsky-Notes@hq.doe.gov, Marshall.Combs-Notes@hq.doe.gov,  
John.Fitzgibbons-Notes@hq.doe.gov, Jack Bailey/YM/RWDOE@CRWMS,  
Robert Morgan/YM/RWDOE@CRWMS, Nancy Williams/YM/RWDOE@CRWMS,  
Stephen Cereghino/YM/RWDOE@CRWMS, Gary LeCain/YM/RWDOE@CRWMS,  
Stacy Junio/YM/RWDOE@CRWMS,  
Jeff Williams/HQ/RWDOE@CRWMS, Larry Saraka/MV/RWDOE@CRWMS,  
Jeff Williams/HQ/RWDOE@CRWMS  
cc:  
Subject: LA Chapter Review Notification -- Chapter Groups 4, 5, & 6

LA Groups 4, 5, and 6 are the last of the LA sections to be sent for

Chapter Review.

LA Chapter Review Notification

Date: 19 JUL 04

Due Date: 16 AUG 04

Primary objectives of the Chapter Review:

Technical Adequacy and Accuracy

Integration of LA Sections

YMRP Acceptance Criteria are addressed

Chapter Groups |

4, 5, & 6 |

Sections |

Note: This |

completes |

Chapter Review |

notification. |

The draft LA has |

been sent to |

Chapter Review. |

LA Section | Section Title

Number |

Link |

GI-01

General Description

(Document

link: |

Database |

'LA |

Storybd |

R00 Gen |

Info', |

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Document |

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GENERAL |

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		ON' )
GI-02	Proposed Schedules for Construction, Receipt, and Emplacement of Waste	(Document link:
		Database
		'LA
		Storybd
		R00 Gen
		Info',
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		'Table of
		Contents'
		,
		Document
		'2
		PROPOSED
		SCHEDULES
		FOR
		CONSTRUCT
		ION,
		RECEIPT
		AND
		EMLACEME
		NT OF
		WASTE')

GI-05	Site Characterization	(Document link:
		Database
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		Storybd
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		Info',
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		Contents'
		,
		Document
		'5 SITE
		CHARACTER
		IZATION')

SAR-01.01	Site Description as it Pertains to Preclosure Safety Analysis	(Document link:
		Database
		'LA
		Storybd
		R00 SAR
		Ch 1',
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		'Table of

|Contents'|  
| , |  
|Document |  
|'1.1 SITE|  
|DESCRIPTI|  
|ON AS IT |  
|PERTAINS |  
| TO |  
|PRECLOSUR|  
|E SAFETY |  
|ANALYSIS'|  
| ) |

|SAR-01.02.08 |Fuel Handling Facility |(Document|

| link: |  
|Database |  
| 'LA |  
|Storybd |  
|R00 SAR |  
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|Document |  
|'1.2.8 |  
|Fuel |  
|Handling |  
|Facility'|  
| ) |

|SAR-01.06 |Identification of Hazards and Initiating |(Document|

|Events

| link: |  
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| 'LA |  
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|R00 SAR |  
|Ch 1', |  
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|'Table of|  
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| , |  
|Document |  
|'1.6 |  
|IDENTIFIC|  
|ATION OF |  
|HAZARDS |  
| AND |  
|INITIATIN|  
| G |  
|EVENTS') |

SAR-01.07	Event Sequences	(Document)	
			link:   Database   'LA   Storybd   R00 SAR   Ch 1',   View   Table of   Contents'   ,   Document   '1.7   EVENT   SEQUENCES   )
SAR-01.08	Consequence Analyses	(Document)	
			link:   Database   'LA   Storybd   R00 SAR   Ch 1',   View   Table of   Contents'   ,   Document   '1.8   CONSEQUEN   CE   ANALYSES'   )
SAR-01.09	Structures, Systems, And Components Important To Safety; Safety Controls; And Measures To Ensure Availability Of The Safety Systems	(Document)	
			link:   Database   'LA   Storybd   R00 SAR   Ch 1',   View   Table of   Contents'   ,   Document   '1.9   STRUCTURE   S,

SYSTEMS,  
AND  
COMPONENT  
S  
IMPORTANT  
TO  
SAFETY;  
SAFETY  
CONTROLS;  
AND  
MEASURES  
TO ENSURE  
AVAILABIL  
ITY OF  
THE  
SAFETY)

SAR-02.01 System Description and Demonstration of Multiple Barriers (Document link:

Database  
'LA  
Storybd  
R00 SAR  
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View  
'Table of  
Contents'  
,  
Document  
'2.1  
SYSTEM  
DESCRIPTI  
ON AND  
DEMONSTRA  
TION OF  
MULTIPLE  
BARRIERS'  
)

SAR-02.02.01.04.SCREENED-OUT Scenario Class - Criticality (Document link:  
02 Nuclear Criticality

SAR-02.02.02.03 Database

'LA  
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| '2.2 |  
|SCENARIO |  
|ANALYSIS |  
|AND EVENT|  
|PROBABILI|  
|TY') |

SAR-02.04 | Compliance with Postclosure Public Health and|(Document|

Environmental Standards | link: |

|Database |  
| 'LA |  
|Storybd |  
|R00 SAR |  
|Ch 2', |  
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|Document |  
| '2.4 |  
|DEMONSTRA|  
|TION OF |  
|COMPLIANC|  
|E WITH |  
|THE |  
|POSTCLOSU|  
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|HEALTH |  
|AND |  
|ENVIRONME|  
|NTAL |  
|STANDARDS|  
| ' ) |

SAR-03 | Reaserch and Development Programs to Resolve |(Document|

Safety Questions | link: |

|Database |  
| 'LA |  
|Storybd |  
|R00 SAR |  
|Ch 3', |  
|View |  
|'Table of|  
|Contents'|  
| , |  
|Document |  
| '3 |  
|RESEARCH |  
|AND |  
|DEVELOPME|  
|NT |

		PROGRAM TO RESOLVE SAFETY QUESTIONS )	
SAR-04	Performance Confirmation Plan		(Document)
		link: Database 'LA Storybd R00 SAR Ch 4', View Table of Contents' , Document '4 PERFORMAN CE CONFIRMAT ION PROGRAM')	
SAR-05.10	Technical Specifications and License Conditions		(Document)
		link: Database 'LA Storybd R00 SAR Ch 5', View Table of Contents' , Document '5.10 TECHNICAL SPECIFICA TIONS')	

The complete Table of Contents for the LA is provided at the following links:

LA Section Table of Contents	Link
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General Information | (Document |  
|link: Database|  
|'LA Storybd |  
|R00 Gen Info',|  
|View 'Table of|  
| Contents', |  
| Document '1 |  
| GENERAL |  
|DESCRIPTION') |

SAR Chapter 1 | (Document |  
|link: Database|  
|'LA Storybd |  
|R00 SAR Ch 1',|  
|View 'Table of|  
| Contents', |  
| Document '1 |  
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|SAFETY BEFORE |  
| PERMANENT |  
| CLOSURE') |

SAR Chapter 2 | (Document |  
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| Document '2 |  
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|SAFETY AFTER |  
| PERMANENT |  
| CLOSURE') |

SAR Chapter 3 | (Document |  
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|View 'Table of|  
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| Document '3 |  
| RESEARCH AND |  
| DEVELOPMENT |  
| PROGRAM TO |  
|RESOLVE SAFETY|  
| QUESTIONS') |

SAR Chapter 4 | (Document |  
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|R00 SAR Ch 4',|

| View 'Table of|  
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| Document '4 |  
| PERFORMANCE |  
| CONFIRMATION |  
| PROGRAM') |

-----+-----|  
SAR Chapter 5 | (Document |

|link: Database|  
| 'LA Storybd |  
|R00 SAR Ch 5',|  
|View 'Table of|  
| Contents', |  
| Document '5 |  
|ADMINISTRATIVE|  
| AND |  
| PROGRAMMATIC |  
|REQUIREMENTS')|

## **Exhibit I**

Sent by: Janet Christ

To: Margaret Chu/HQ/RWDOE@CRWMS, John Arthur/YD/RWDOE@CRWMS, John Mitchell/YM/RWDOE@CRWMS, Donald Irwin/HQ/RWDOE@CRWMS, Richard Craun/YD/RWDOE@CRWMS  
cc: William Boyle/YD/RWDOE@CRWMS, Denny Brown/YD/RWDOE@CRWMS, Anita Capoferri/HQ/RWDOE@CRWMS, Marty Bryan/YM/RWDOE@CRWMS, Robert Morgan/YM/RWDOE@CRWMS, Jack Bailey/YM/RWDOE@CRWMS, Robert Andrews/YM/RWDOE@CRWMS, Stephen Cereghino/YM/RWDOE@CRWMS, Robert Brock/YM/RWDOE@CRWMS, David Powell/YM/RWDOE@CRWMS, Gary Lavine@Exchange  
Subject: LA Joint Management Review

User Filed as: Excl/AdminMgmt-14-4/QA:N/A  
LSN: Non Relevant

This e-mail is being sent by Nancy Williams and Joe Ziegler.

Sections of the LA are being sent out for the U.S. Department of Energy (DOE)/Bechtel SAIC Company, LLC (BSC) Joint Management Review. Review resolution sessions will begin September 6, 2004, and are scheduled to run through September 22, 2004. The sessions will run Monday through Friday from 3:00 p.m. to 7:00 p.m., Las Vegas time. On Saturdays and holidays, the meetings will run from 8:00 am to 5:00 p.m. If delays are encountered, the reviews will be extended beyond September 22, 2004. Every weekday from 7:00 a.m. to 3:00 p.m. will be reserve to allow the joint management review team to conduct their reviews of the document, in preparation for the comment resolution sessions.

The outcome of the review will be a complete LA that will go to DOE headquarters review beginning October 4, 2004. It is anticipated at that time, that the joint management review team will endorse the LA as written to higher levels of management within DOE. The submittal in December, allowing time for revisions resulting from headquarters review, will take approximately one month for reproduction and other handling.

If you have comments and are unable to attend the corresponding resolution session, those comments should be provided to Joseph Ziegler or Nancy Williams prior to the resolution session.

The review criteria for the joint management review will be as follows:

1. Other substantive comments to address sensitive issues, errors, or major

clarifications.

2. Any other comments that must be resolved for the joint management review team members to endorse the LA as written to higher levels of management.
3. Regulatory Requirements of 10CFR63 are met.
4. Yucca Mountain Review Plan (YMRP) acceptance criteria are satisfied or acceptably addressed in other fashion (e.g., commitment is made to meet acceptance criteria at an appropriate later date or milestone).
5. Exception to the YMRP acceptance criteria is specifically discussed.
6. Commitments and other future actions are clearly articulated. (Although not described in the LA, commitments and actions must be included in program planning).

To facilitate your review, the "Review Meeting Standard Agenda" (attached) will be utilized for the comment resolution sessions throughout the month of September. Also attached is the current review schedule for the joint management review. You should pay particular attention to the columns labeled "Send to Mgmt Team" - the day LA sections will be sent out, and "Mgmt Team Meeting" - the scheduled comment resolution sessions for each LA section. You will be notified of changes to the schedule, as they become necessary.

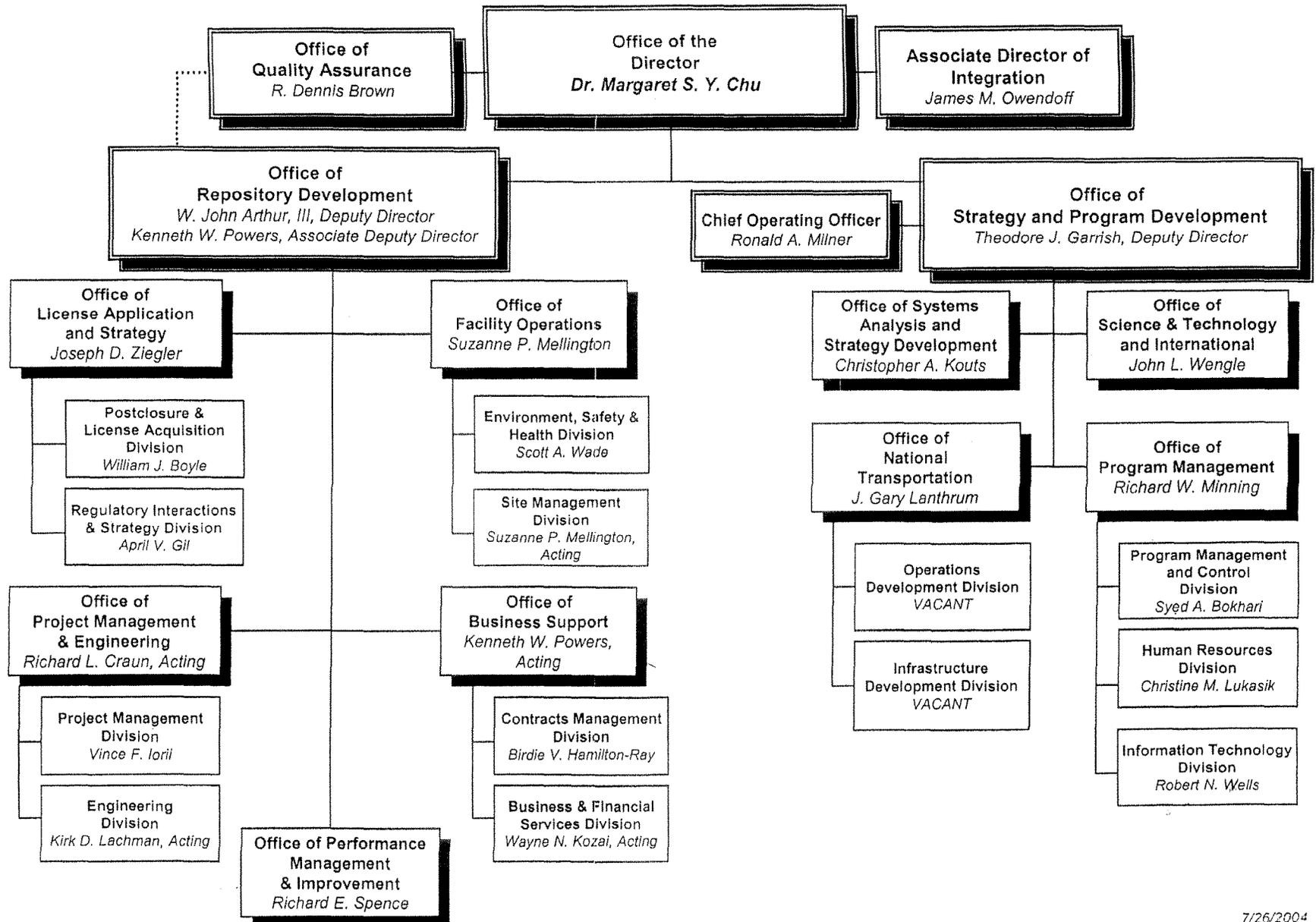
(See attached file: Review Meeting Standard Agenda.doc)(See attached file: Detailed Schedule Matrix 090104.xls)

## Review Meeting Standard Agenda

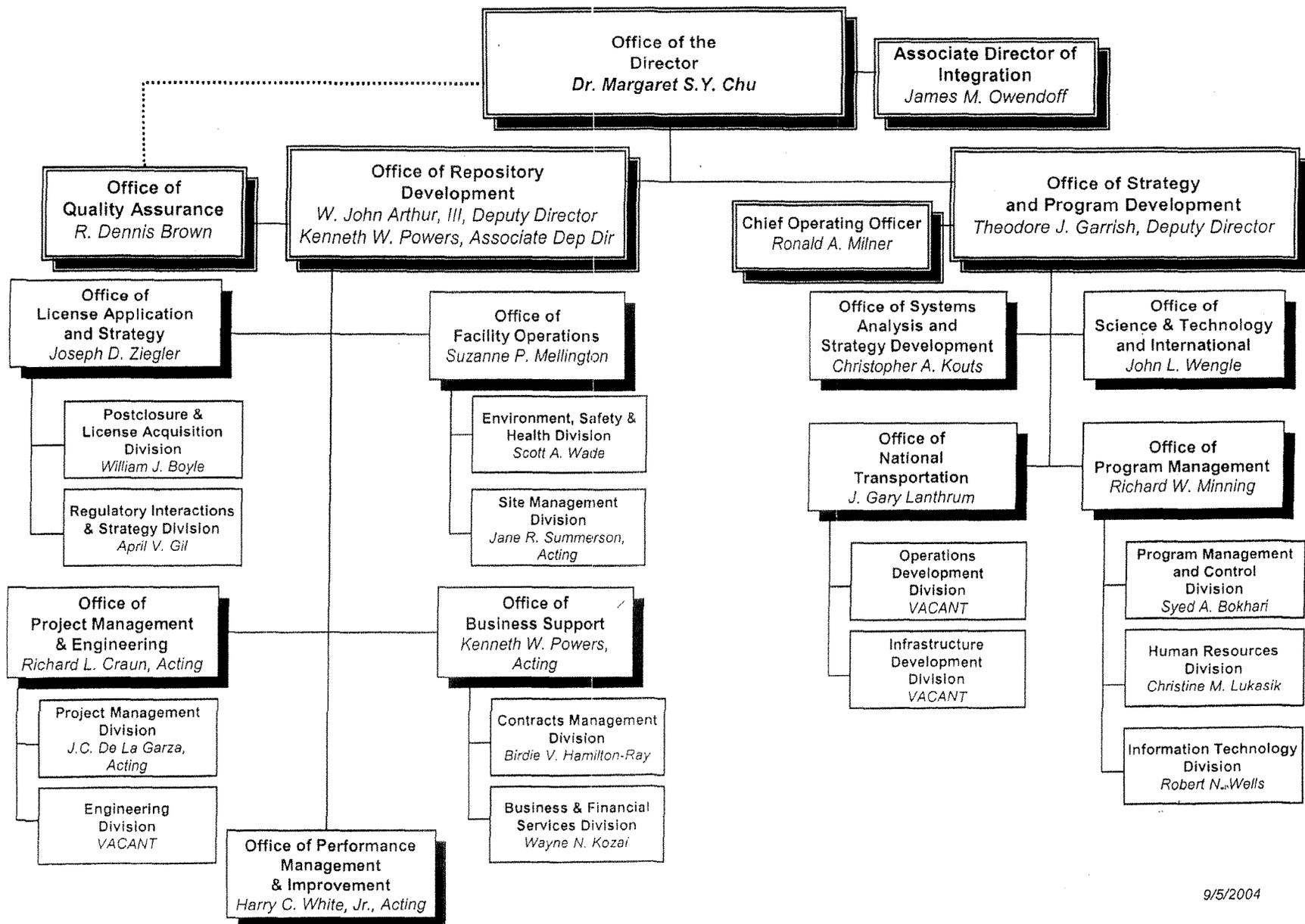
1. Familiarize Management Team with Content of Sections (brief presentation by BSC lead)
  - Meet Regulations
  - Meet YMRP Acceptance Criteria (or note exception)
  - Notice of Significant Content to Senior Managers
  - Acceptability of Submittal
  
2. Management Team Provide Comments
  - Go through entire text section by section for substantive comments
  - Major revisions will be marked on mast copy, as appropriate
  - No discussion unless there is disagreement
  - If agreement cannot be reached promptly, assignment to resolve will be made
  - Turn in editorial comments to production team
  
3. Provide Future Actions
  - Closure Issues (punch lists will be kept to ensure final resolution)
    - Validation Items
    - Action Items
    - Open Items
  
4. Preparation for next stage of regulatory interaction
  - Technical evolution approach
  - Risks
    - Acceptance Review
    - Requests for Additional Information
    - Intervention Potential

## **Exhibit J**

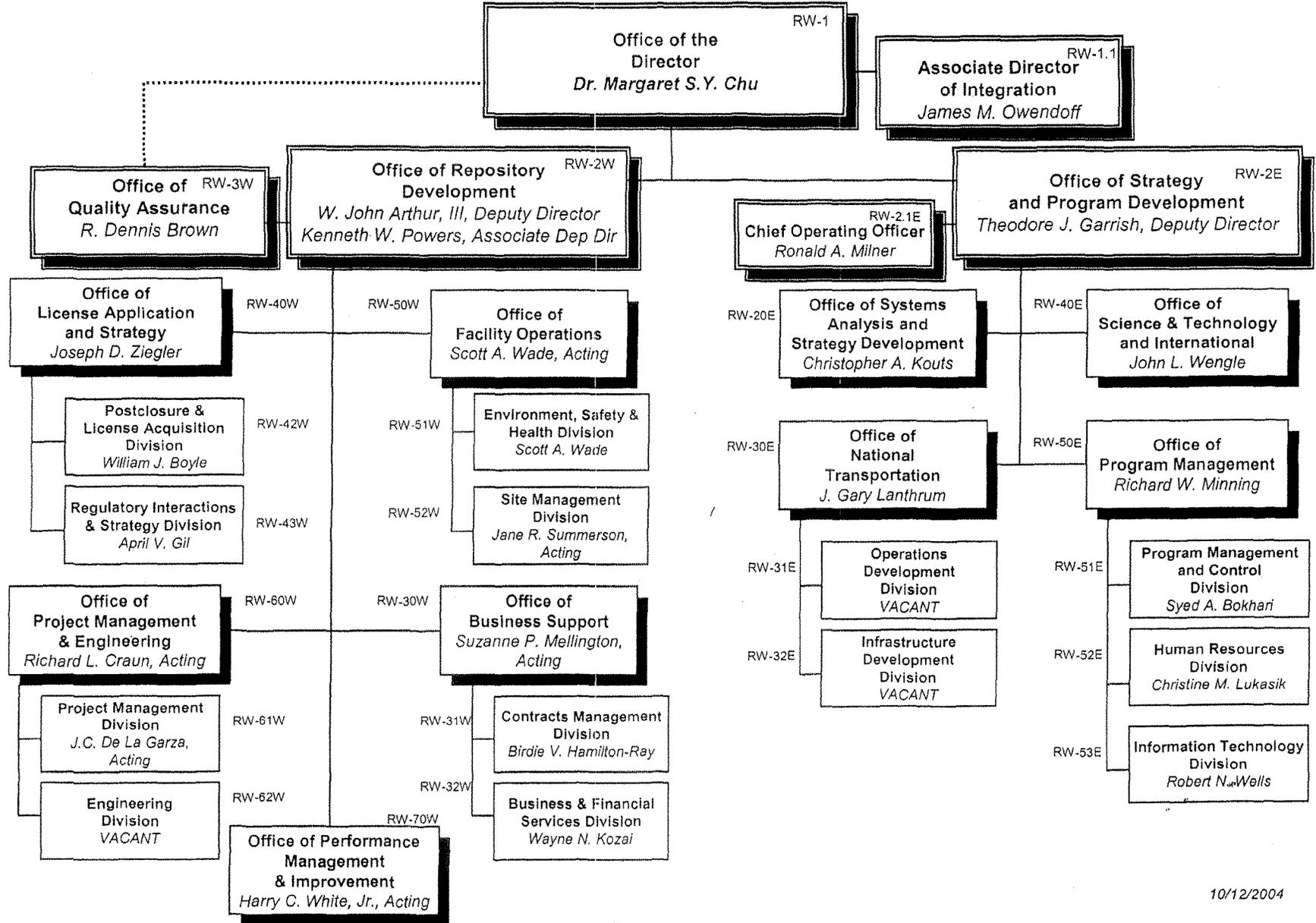
# OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT



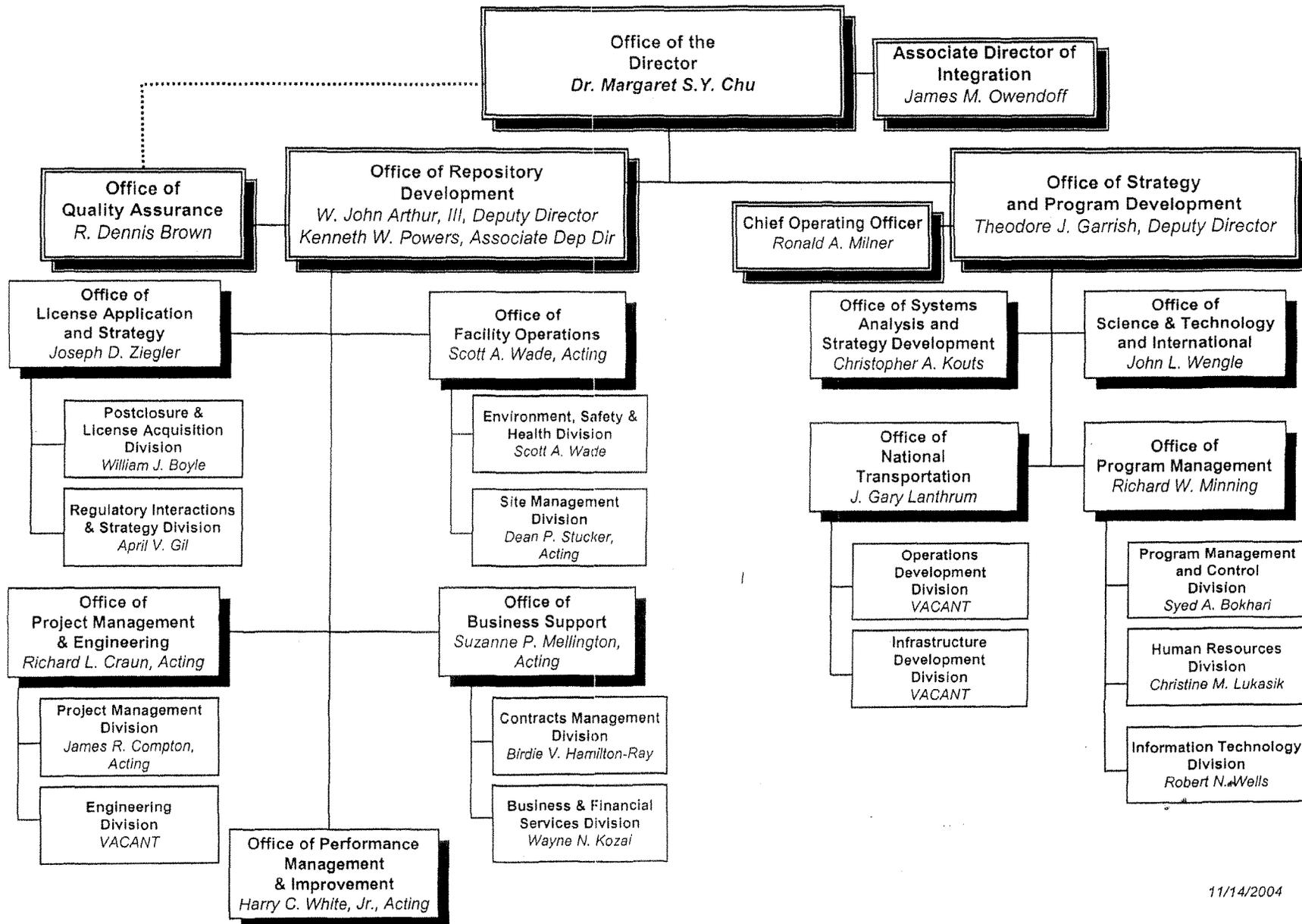
# OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT



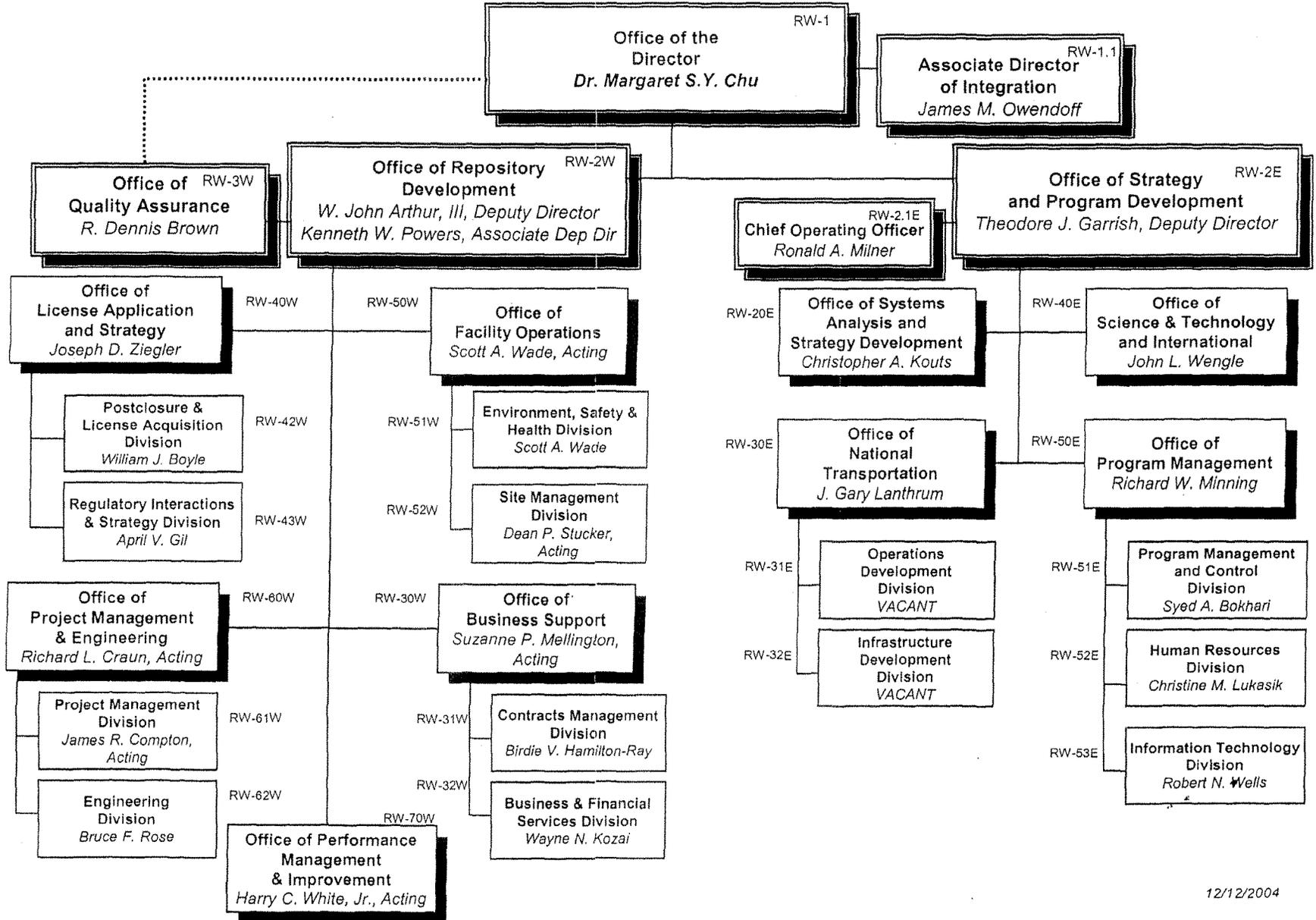
# OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT



# OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

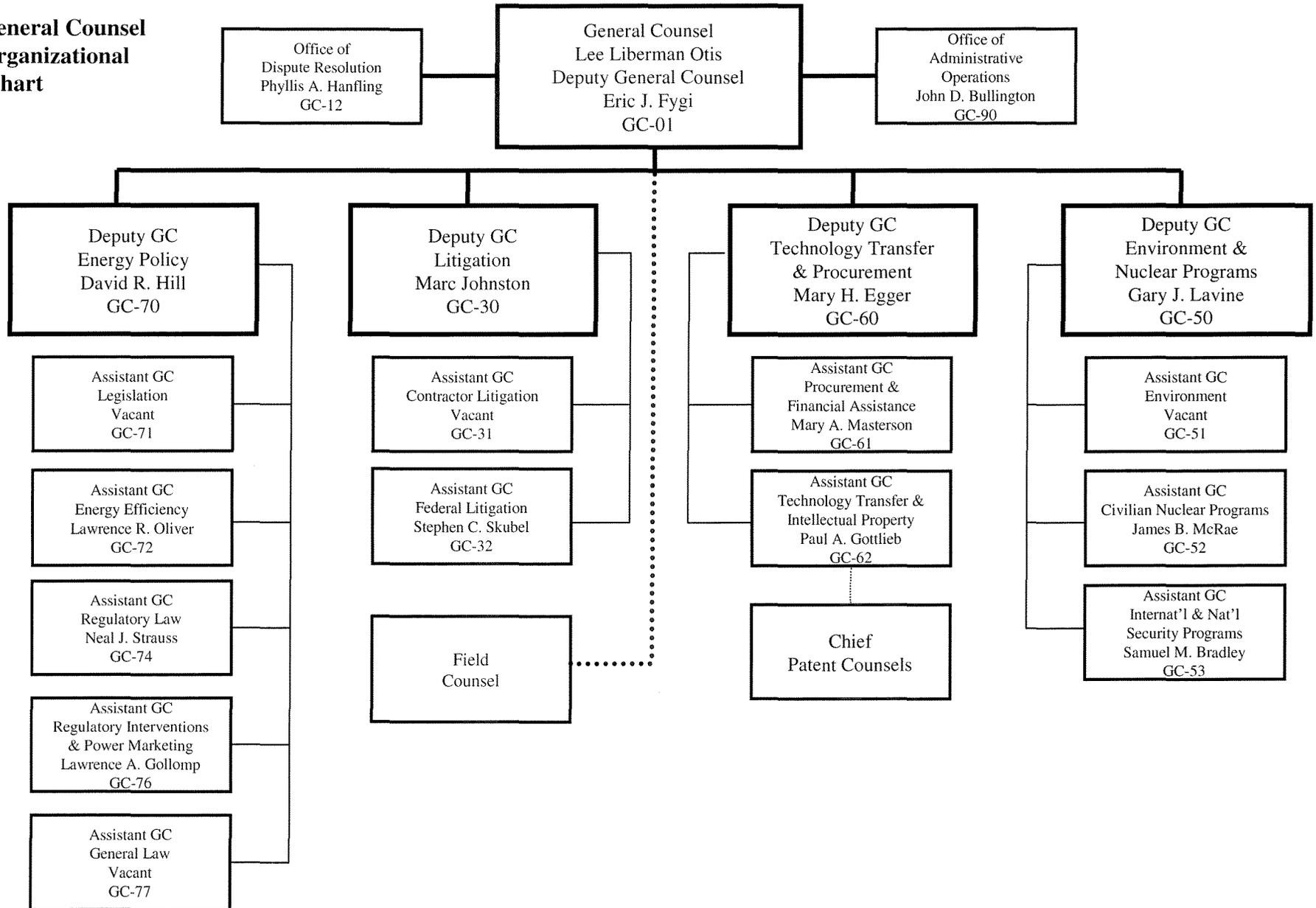


# OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

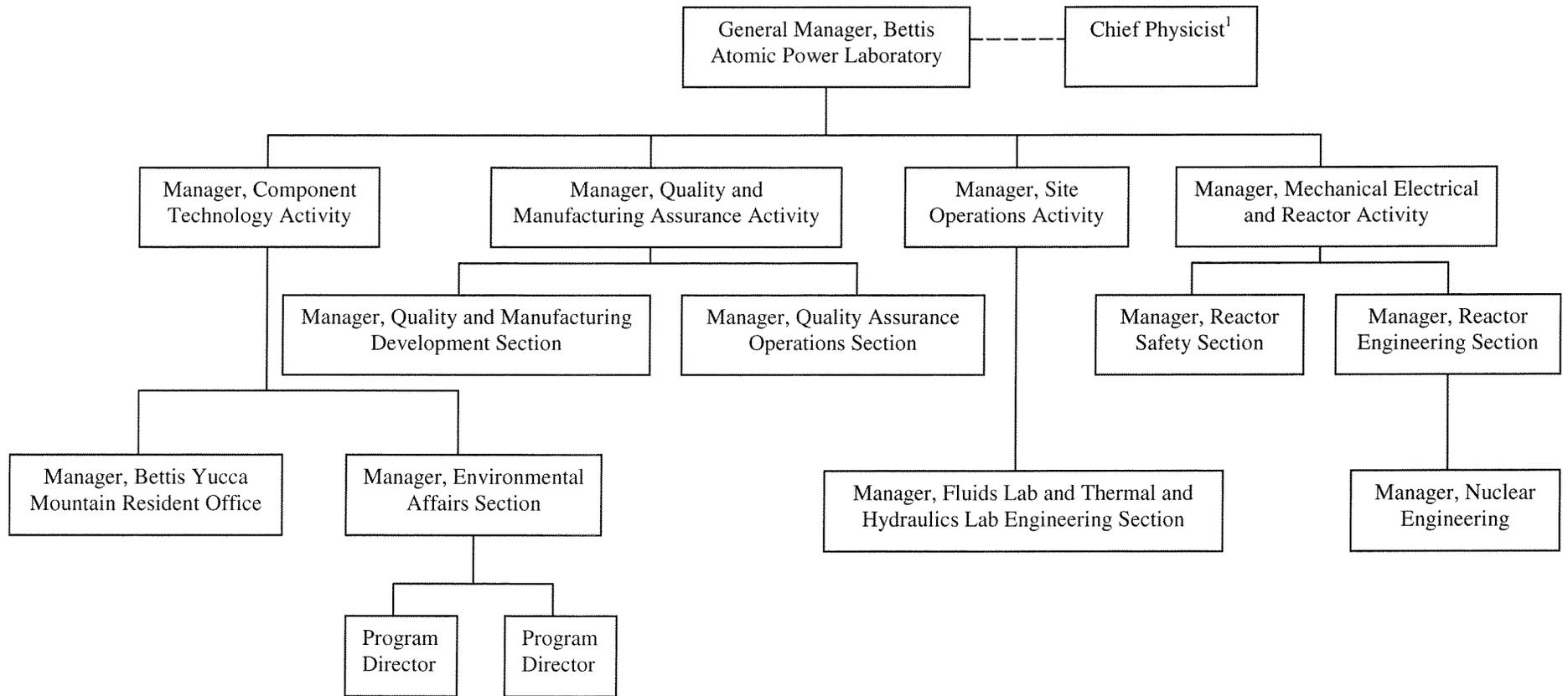


## **Exhibit K**

**General Counsel  
Organizational  
Chart**



## **Exhibit L**

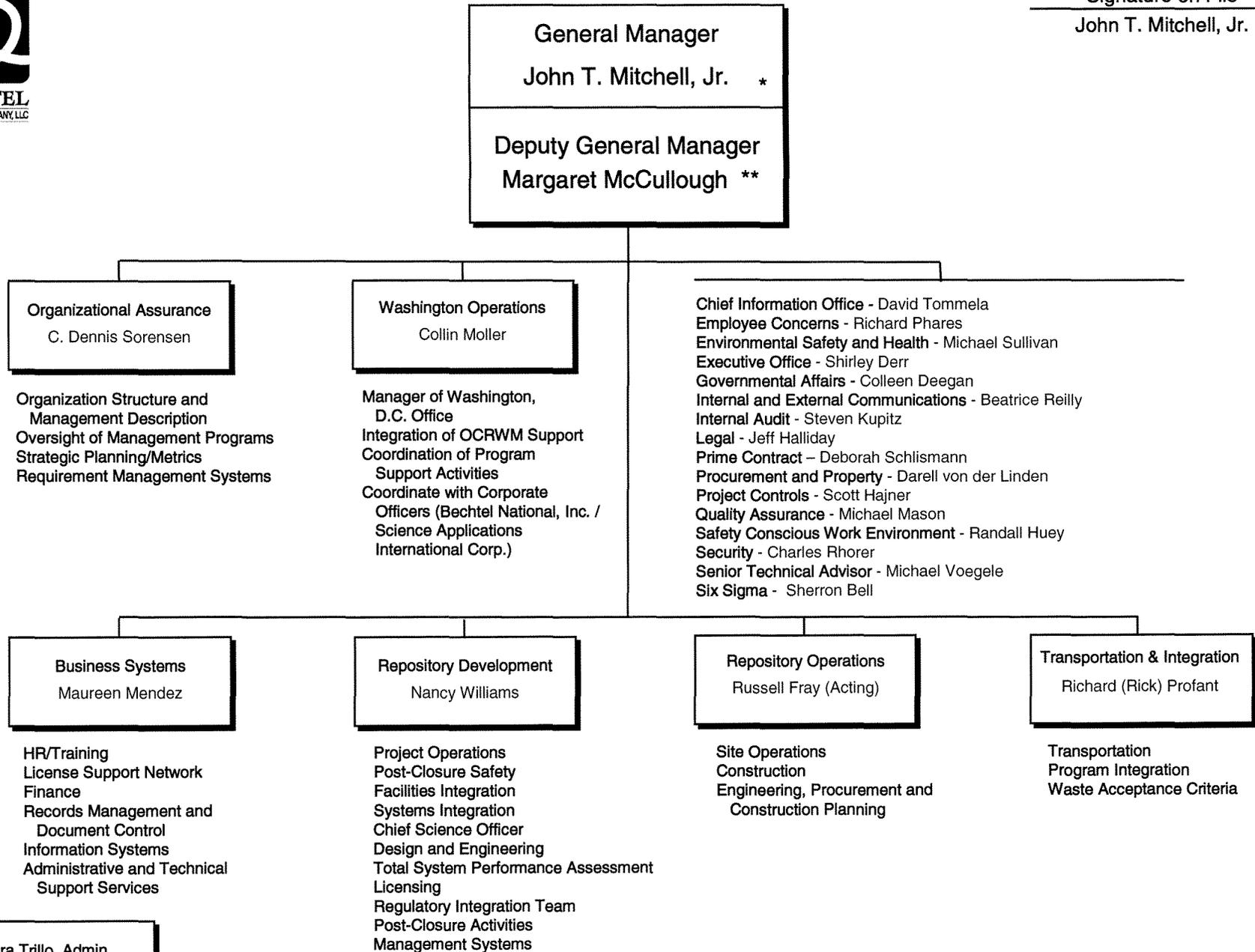


1. Although a Bechtel Bettis Inc. employee, the chief physicist serves on the staff of the Deputy Administrator for Naval Reactors, NNSA, USDOE.

## **Exhibit M**



Signature on File  
John T. Mitchell, Jr.



\* Sandra Trillo, Admin  
\*\* Carla Hays, Admin



John T. Mitchell, Jr.

**General Manager**  
John T. Mitchell, Jr. \*

---

**Deputy General Manager**  
Margaret McCullough \*\*

**Organizational Assurance**  
C. Dennis Sorensen

Organization Structure and Management Description  
Oversight of Management Programs  
Strategic Planning/Metrics  
Requirement Management Systems

**Washington Operations**  
Collin Moller

Manager of Washington, D.C. Office  
Integration of OCRWM Support  
Coordination of Program Support Activities  
Coordinate with Corporate Officers (Bechtel National, Inc. / Science Applications International Corp.)

**Chief Information Office** - David Tommela  
**Employee Concerns** - Richard Phares  
**Environmental Safety and Health** - Michael Sullivan  
**Executive Office** - Shirley Derr  
**Governmental Affairs** - Colleen Deegan  
**Internal and External Communications** - Beatrice Reilly  
**Internal Audit** - Steven Kupitz  
**Legal** - Jeff Halliday  
**Prime Contract** - Deborah Schlismann  
**Procurement and Property** - Robert Cohose  
**Project Controls** - Scott Hajner  
**Quality Assurance** - Michael Mason  
**Safety Conscious Work Environment** - Randall Huey  
**Security** - Charles Rhorer  
**Senior Technical Advisor** - Michael Voegele  
**Six Sigma** - Sherron Bell

**Business Systems**  
Maureen Mendez

HR/Training  
License Support Network  
Finance  
Records Management and Document Control  
Information Systems  
Administrative and Technical Support Services

**Repository Development**  
Nancy Williams

Project Operations  
Post-Closure Safety  
Facilities Integration  
Systems Integration  
Chief Science Officer  
Design and Engineering  
Total System Performance Assessment  
Licensing  
Regulatory Integration Team  
Post-Closure Activities  
Management Systems

**Repository Operations**  
Russell Fray (Acting)

Site Operations  
Construction  
Engineering, Procurement and Construction Planning

**Transportation & Integration**  
Richard (Rick) Profant

Transportation  
Program Integration  
Waste Acceptance Criteria

\* Sandra Trillo, Admin  
\*\* Carla Hays, Admin



John T. Mitchell, Jr.

**General Manager**  
John T. Mitchell, Jr. \*

**Deputy General Manager**  
Margaret McCullough \*\*

**Organizational Assurance**  
C. Dennis Sorensen

Requirements/Performance  
Management Systems Project  
Performance Indicator Project  
Human Performance  
Requirements Management  
Change Management  
Assessment Program  
Strategic Programs  
Corrective Action Program

**Washington Operations**  
Collin Moller

Manager of Washington,  
D.C. Office  
Integration of OCRWM Support  
Coordination of Program  
Support Activities  
Coordinate with Corporate  
Officers (Bechtel National, Inc. /  
Science Applications  
International Corp.)

**Chief Information Office** – David Tommela  
**Employee Concerns** - Richard Phares  
**Environmental Safety and Health** - Michael Sullivan  
**Executive Office** - Shirley Derr  
**Governmental Affairs** - Colleen Deegan  
**Internal and External Communications** - Beatrice Reilly  
**Internal Audit** - Steven Kupitz  
**Legal** – Jeff Halliday  
**Prime Contract** – Deborah Schlismann  
**Procurement and Property** – Robert Cohose  
**Project Controls** - Scott Hajner  
**Quality Assurance** - Michael Mason  
**Safety Conscious Work Environment** - Randall Huey  
**Security** - Charles Rhorer  
**Senior Technical Advisor** - Michael Voegele  
**Six Sigma** - Sherron Bell

**Business Systems**  
Maureen Mendez

HR/Training  
License Support Network  
Finance  
Records Management and  
Document Control  
Information Systems  
Administrative and Technical  
Support Services

**Repository Development**  
Nancy Williams

Project Operations  
Post Closure Safety  
Facilities Integration  
Systems Integration  
Chief Science Officer  
Design and Engineering  
Total System Performance Assessment  
Licensing  
Regulatory Integration Team  
Post-Closure Activities  
Management Systems

**Repository Operations**  
Russell Fray

Site Operations  
Construction  
Engineering, Procurement and  
Construction Planning

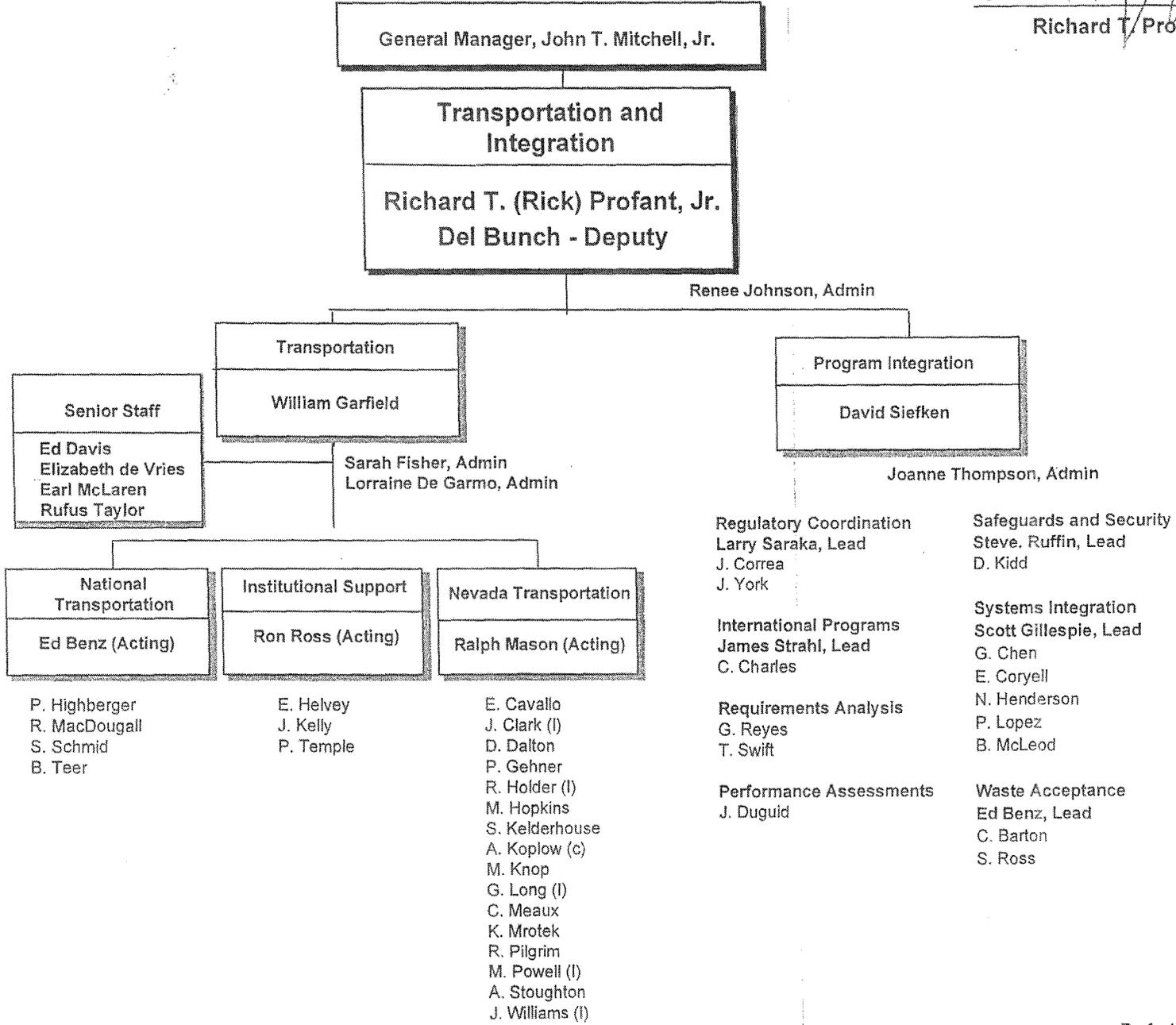
**Transportation & Integration**  
Richard (Rick) Profant

Transportation  
Program Integration  
Waste Acceptance Criteria

\* Sandra Trillo, Admin  
\*\* Carla Hays, Admin



*Richard T. Profant, Jr.*  
 Richard T. Profant, Jr.



(C) = Contractor  
 (I) = Matrix



General Manager, John T. Mitchell, Jr.

Signature on File  
Nancy Williams

Repository Development  
Manager  
Nancy Williams

U.S. Geological Survey  
Robert W. Craig  
(Technical Project Officer)

Project Operations  
Leon Kantola

See additional org chart

Facilities Integration  
Dilip Patel

Mallory Jett-Edwards, Admin  
William Duffy (IBEX)\*  
Dean Siddoway

Systems Integration  
Jack Bailey

See additional org chart

Janet Christ, Admin  
Post closure Safety  
Robert Andrews

Pre closure Safety  
Robert (RT) Brock

Chief Science Officer  
Jean Younker

See additional org chart

National Laboratories  
Los Alamos National Laboratories  
Paul Dixon / Ardyth Simmons  
(co-Lab Leads)  
Lawrence Livermore National Laboratories  
David McCallen  
(Lab Lead)  
Lawrence Berkeley National Laboratories  
Bo Bodvarsson  
(Lab Lead)  
Sandia National Laboratories  
Andrew Orrell  
(Lab Lead)  
Idaho National Engineering and  
Environmental Laboratory  
Philip D. Wheatley  
(Technical POC)  
Pacific Northwest National Laboratory  
Brady Hanson  
(Technical POC)  
Argonne National Laboratories  
Jim Cunnane  
(Technical POC)  
Oak Ridge National Laboratories  
Mark DeHart  
(Technical POC)

Design and  
Engineering  
Larry Lucas

See additional org chart

Total System Performance  
Assessment  
Peter Swift

See additional org chart

Licensing  
Steve Cereghino

See additional org chart

Regulatory Integration  
Team  
Jim Whitcraft

See additional org chart

Post closure  
Activities  
Paul Dixon (Acting)

See additional org chart

Management Systems  
Roberta Stambaugh  
(Acting)

See additional org chart



General Manager, John T. Mitchell, Jr.

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Nancy Williams

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Robert Andrews

Pre closure Safety  
Robert (RT) Brock

Chief Science Officer  
Jean Younker

See additional org chart

National Laboratories

- Los Alamos National Laboratories  
Paul Dixon / Ardyth Simmons  
(co-Lab Leads)
- Lawrence Livermore National Laboratories  
David McCallen  
(Lab Lead)
- Lawrence Berkeley National Laboratories  
Bo Bodvarsson  
(Lab Lead)
- Sandia National Laboratories  
Andrew Orrell  
(Lab Lead)
- Idaho National Engineering and Environmental Laboratory  
Phillip D. Wheatley  
(Technical POC)
- Pacific Northwest National Laboratory  
Brady Hanson  
(Technical POC)
- Argonne National Laboratories  
Jim Cunnane  
(Technical POC)
- Oak Ridge National Laboratories  
Mark DeHart  
(Technical POC)

Design and Engineering  
Larry Lucas

See additional org chart

Total System Performance Assessment  
Peter Swift

See additional org chart

Licensing  
Steve Cereghino

See additional org chart

Regulatory Integration Team  
Jim Whitcraft

See additional org chart

Post closure Activities  
Paul Dixon (Acting)

See additional org chart

Management Systems  
Roberta Stambaugh (Acting)

See additional org chart



General Manager, John T. Mitchell, Jr.

Repository Development Manager  
Nancy Williams

Nancy Williams

U.S. Geological Survey  
Robert W. Craig  
(Technical Project Officer)

Project Operations  
Leon Kantola  
See additional org chart

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Dilip Patel  
Mallory Jett-Edwards, Admin  
William Duffy  
Dean Siddoway

Systems Engineering and Integration  
Jack Bailey  
See additional org chart

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Jean Younker

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David McCallen  
(Lab Lead)
- Lawrence Berkeley National Laboratories  
Bo Bodvarsson  
(Lab Lead)
- Sandia National Laboratories  
Andrew Orrell  
(Lab Lead)
- Idaho National Engineering and Environmental Laboratory  
Philip D. Wheatley  
(Technical POC)
- Pacific Northwest National Laboratory  
Brady Hanson  
(Technical POC)
- Argonne National Laboratories  
Jim Cunnane  
(Technical POC)
- Oak Ridge National Laboratories  
Mark DeHart  
(Technical POC)

Design and Engineering  
Larry Lucas

Total System Performance Assessment  
Peter Swift

Licensing  
Steve Cereghino

Regulatory Integration Team  
Jim Whitcraft

Post closure Activities  
Paul Dixon (Acting)

Management Systems  
Roberta Stambaugh (Acting)

See additional org chart



General Manager, John T. Mitchell, Jr.

Signature on File  
Nancy Williams

Repository Development  
Manager  
Nancy Williams

U.S. Geological Survey  
Robert W. Craig  
(Technical Project Officer)

Janet Christ, Admin

**National Laboratories**

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(co-Lab Leads)

Lawrence Livermore National Laboratories  
David McCallen  
(Lab Lead)

Lawrence Berkeley National Laboratories  
Bo Bodvarsson  
(Lab Lead)

Sandia National Laboratories  
Andrew Orrell  
(Lab Lead)

Idaho National Engineering and  
Environmental Laboratory  
Philip D. Wheatley  
(Technical POC)

Pacific Northwest National Laboratory  
Brady Hanson  
(Technical POC)

Argonne National Laboratories  
Jim Cunnane  
(Technical POC)

Oak Ridge National Laboratories  
Mark DeHart  
(Technical POC)

Project Operations  
Leon Kantola

Post closure Safety  
Robert Andrews

Facilities Integration  
Dilip Patel

Pre closure Safety  
Robert (RT) Brock

Systems Engineering  
and Integration  
Jack Bailey

Chief Science Officer  
Jean Younker

See additional org chart

Mallory Jett-Edwards, Admin  
William Duffy  
Dean Siddoway  
Bruce Wells, See additional org chart

See additional org chart

Design and  
Engineering  
Larry Lucas

Total System Performance  
Assessment  
Peter Swift

Licensing  
Steve Cereghino

Regulatory Integration  
Team  
Jim Whitcraft

Post closure  
Activities  
Paul Dixon (Acting)

Management Systems  
Roberta Stambaugh  
(Acting)

See additional org chart



**Repository Development Manager, Nancy Williams**

Signature on File  
Nancy Williams

**Licensing**  
**Steve Cereghino**

**License Application**  
Marty Bryan (BAA)

**Regulatory Coordination/  
Program Regulatory  
Integration**  
Mark Wisenburg

Joan Brooks, Admin  
Lorraine deSimone, Admin (Alpha Services)  
Lillian Lee (Volt)

Ruth Ann Vineyard, Admin  
Lynne Fletcher, Admin

- |                        |                    |                        |
|------------------------|--------------------|------------------------|
| G. Ashley              | P. Kell            | J. Nieves (Red, Inc.)  |
| S. Barnett             | R. Kelmenson       | V. Obrad               |
| S. Bell (Red, Inc.)    | P. Kumar           | J. Odd (Red, Inc.)     |
| T. Booth (ISSI)        | J. Kutzer (BAA)    | B. Peltier (Red, Inc.) |
| J. Dearmin             | L. Lee             | H. Petty (Red, Inc.)   |
| D. Dobson* (ISSI)      | J. Luellen (URSG)  | A. Rae (Red, Inc.)     |
| D. Franks (FANP)       | M. Lydic           | J. Self                |
| L. Gonzales            | J. McCleary (ISSI) | P. Sholar              |
| H. Hammermeister       | J. McIlvaine       | D. Suarez              |
| P. Hopkins (Red, Inc.) | E. McKlveen        | T. Tai (BPI)           |
| J. Jessen              | P. Meacham (ISSI)  | M. Therien             |
| J. Jones (Red, Inc.)   | H. Minwalla        | C. Vita (URSG)         |
|                        |                    | C. Wilkens (Red, Inc.) |

- |                  |                   |
|------------------|-------------------|
| J. Bess          | J. Raleigh (JKRA) |
| A. Haghi         | L. Skoblar (BAA)  |
| S. Hobbs (BAA)   | B. Sweeney (BAA)  |
| L. Kraemer       | S. Webster        |
| K. Pointer (BAA) | R. Whetsel (BAA)  |

**Project Support**  
Alan Nakashima

- Laurie Skaggs, Admin
- J. Kriner (BAA)
  - F. Perdomo (BAA)
  - P. Rescheske
  - J. Skov
  - D. Watkins
  - L. Weishaar

**Project Administrator**  
Jeff Carroll

**Project Controls**  
Jan Dionisio

- S. Bovell
- R. Gulewich
- C. Liu
- W. Russell

**Criticality**  
William Hutchins (BAA)  
Dan Thomas, Deputy

**Preclosure Safety  
Analysis**  
Dennis Richardson

**Science Regulatory  
Integration**  
Martha Pendleton

**Design Regulatory  
Integration**  
George Pannell (BAA)

Paulette Brown, Records Coordinator  
Barbara Tancayo, Admin  
Ruth Ann Vineyard, Admin

Marvalyn Hogan, Admin  
Lynne Fletcher, Admin

Mae Moss, Admin

- John McClure, Supervisor
- P. Bernot\*
  - A. Danise
  - C. Hsu
  - J. Knudsen
  - S. LeStrange\*
  - H. Massie (FANP)
  - D. Newell (SAIC)
  - J. Nicot (IDT)
  - K. Zarrabi\*

- Halim Alsaed, Supervisor
- |                    |                  |
|--------------------|------------------|
| W. Anderson (FANP) | H. Radulescu     |
| J. Harwell (FANP)  | J. Ryman         |
| J. Huffer (RCS)    | M. Saglam (FANP) |
| D. Kimball (BNI)   | J. Scaglione     |
| C. Mays (FANP)     | A. Wells (BAA)   |
| D. Moscalu (FANP)  | L. Wimmer (FANP) |

- K. Ashley
- B. Merrill
- B. Carlsen (BWXT)
- F. Nouri
- P. Davis (LATA)
- D. Orvis
- A. Deng
- G. Ragan
- T. Dunn
- N. Ramirez
- R. Garrett (BAA)
- S. Tsai
- W. Hannaman
- J. Ziegler
- P. Macheret
- R. McDonnell

- |                     |                        |
|---------------------|------------------------|
| G. Appel            | E. Lindner             |
| S. Blair* (LLNL)    | T. Lister* (INEEL)     |
| T. Crump            | A. Matthusen           |
| R. Datta            | R. Perman* (Geomatrix) |
| A. Eddebarh*        | K. Prince              |
| B. Goldstein* (SNL) | J. Prouty* (ISSI)      |
| C. Haukwa* (ISSI)   | P. Rogers* (ISSI)      |
|                     | P. Sanchez* (SNL)      |
|                     | C. Stockman*           |

- P. Acree (BAA)
- D. Ferris (BAA)
- K. Iyengar
- R. Keller
- G. Martin (BAA)
- T. McDonnell (BNI)
- P. Nair (JKRA)
- S. Shapiro
- Y. Williams

• = Shared resource within Repository Development



**Repository Development Manager, Nancy Williams**

Signature on File  
Nancy Williams

**Licensing**  
Steve Cereghino

**License Application**  
Marty Bryan (BAA)

**Regulatory Coordination/  
Program Regulatory  
Integration**  
Mark Wisenburg

Joan Brooks, Admin  
Lorraine deSimone, Admin (Alpha Services)  
Lillian Lee (Volt)

Ruth Ann Vineyard, Admin  
Lynne Fletcher, Admin

- |                        |                    |                        |
|------------------------|--------------------|------------------------|
| G. Ashley              | P. Kell            | J. Nieves (Red, Inc.)  |
| S. Barnett             | R. Kelmenson       | V. Obrad               |
| S. Bell (Red, Inc.)    | P. Kumar           | J. Odd (Red, Inc.)     |
| T. Booth (ISSI)        | J. Kutzer (BAA)    | B. Peltier (Red, Inc.) |
| J. Dearmin             | L. Lee             | H. Petty (Red, Inc.)   |
| D. Dobson* (ISSI)      | J. Luellen (URSG)  | A. Rae (Red, Inc.)     |
| D. Franks (FANP)       | M. Lydic           | J. Self                |
| L. Gonzales            | J. McCleary (ISSI) | P. Sholar              |
| H. Hammermeister       | J. McIlvaine       | D. Suarez              |
| P. Hopkins (Red, Inc.) | E. McKlveen        | T. Tai (BPI)           |
| J. Jessen              | P. Meacham (ISSI)  | M. Therien             |
| J. Jones (Red, Inc.)   | H. Minwalla        | C. Vita (URSG)         |
|                        |                    | C. Wilkens (Red, Inc.) |

- |                  |                   |
|------------------|-------------------|
| J. Bess          | J. Raleigh (JKRA) |
| A. Haghi         | L. Skoblar (BAA)  |
| S. Hobbs (BAA)   | B. Sweeney (BAA)  |
| L. Kraemer       | S. Webster        |
| K. Pointer (BAA) | R. Whetsel (BAA)  |

**Project Support**  
Alan Nakashima

Laurie Skaggs, Admin  
J. Kriner (BAA)  
F. Perdomo (BAA)  
P. Rescheske  
J. Skov  
D. Watkins  
L. Weishaar

**Project Administrator**  
Jeff Carroll

**Project Controls**  
Jan Dionisio

- S. Bovell  
R. Gulewich  
C. Liu  
W. Russell

**Criticality**  
William Hutchins (BAA)  
Dan Thomas, Deputy

**Preclosure Safety  
Analysis**  
Dennis Richardson

**Science Regulatory  
Integration**  
Martha Pendleton

**Design Regulatory  
Integration**  
George Pannell (BAA)

Paulette Brown, Records Coordinator  
Barbara Tancayo, Admin  
Ruth Ann Vineyard, Admin

Marvalyn Hogan, Admin  
Lynne Fletcher, Admin  
Mae Moss, Admin

- |                                 |                                 |
|---------------------------------|---------------------------------|
| <b>John McClure, Supervisor</b> | <b>Halim Alsaed, Supervisor</b> |
| P. Bernot*                      | W. Anderson (FANP)              |
| A. Danise                       | J. Harwell (FANP)               |
| C. Hsu                          | J. Huffer (RCS)                 |
| J. Knudsen                      | D. Kimball (BNI)                |
| S. LeStrange*                   | C. Mays (FANP)                  |
| H. Massie (FANP)                | D. Moscalu (FANP)               |
| D. Newell (SAIC)                | H. Radulescu                    |
| J. Nicot (IDT)                  | J. Ryman                        |
| K. Zarrabi*                     | M. Saglam (FANP)                |
|                                 | J. Scaglione                    |
|                                 | A. Wells (BAA)                  |
|                                 | L. Wimmer (FANP)                |

- |                   |            |
|-------------------|------------|
| K. Ashley         | B. Merrill |
| B. Carlsen (BWXT) | F. Nouri   |
| P. Davis (LATA)   | D. Orvis   |
| A. Deng           | G. Ragan   |
| T. Dunn           | N. Ramirez |
| R. Garrett (BAA)  | S. Tsai    |
| W. Hannaman       | J. Ziegler |
| P. Macheret       |            |
| R. McDonnell      |            |

- |                     |                        |
|---------------------|------------------------|
| G. Appel            | E. Lindner             |
| S. Blair* (LLNL)    | T. Lister* (INEEL)     |
| T. Crump            | A. Matthusen           |
| R. Datta            | R. Perman* (Geomatrix) |
| A. Eddebarth*       | K. Prince              |
| B. Goldstein* (SNL) | J. Prouty* (ISSI)      |
| C. Haukwa* (ISSI)   | P. Rogers* (ISSI)      |
|                     | P. Sanchez* (SNL)      |
|                     | C. Stockman*           |

- |                    |
|--------------------|
| P. Acree (BAA)     |
| D. Ferris (BAA)    |
| K. Iyengar         |
| R. Keller          |
| G. Martin (BAA)    |
| T. McDonnell (BNI) |
| P. Nair (JKRA)     |
| S. Shapiro         |
| Y. Williams        |

• = Shared resource within Repository Development



**Repository Development Manager, Nancy Williams**

Signature on File  
Nancy Williams

**Licensing**  
**Steve Cereghino**

**License Application**  
Marty Bryan (BAA)

**Regulatory Coordination/  
Program Regulatory  
Integration**  
Mark Wisenburg

Joan Brooks, Admin  
Lorraine DeSimone, Admin (Alpha Services)  
Lillian Lee, Admin (Volt)

Ruth Ann Vineyard, Admin  
Lynne Fletcher, Admin

- |                        |                       |                        |
|------------------------|-----------------------|------------------------|
| G. Ashley              | P. Kumar              | J. Odd (Red, Inc.)     |
| S. Barnett             | J. Kutzer (BAA)       | B. Peltier (Red, Inc.) |
| S. Bell (Red, Inc.)    | J. Luellen (URSG)     | H. Petty (Red, Inc.)   |
| T. Booth (ISSI)        | M. Lydic              | A. Rae (Red, Inc.)     |
| J. Dearmin             | J. McIlvaine          | J. Self                |
| L. Gonzales            | E. McKlveen           | P. Sholar              |
| H. Hammermeister       | P. Meacham (ISSI)     | D. Suarez              |
| P. Hopkins (Red, Inc.) | H. Minwalla           | T. Tai (BPI)           |
| J. Jessen              | J. Odor (Red, Inc.)   | M. Therien             |
| P. Kell                | J. Nieves (Red, Inc.) | C. Vita (URSG)         |
| R. Kelmenson           | V. Obrad              | C. Wilkens (Red, Inc.) |

- |                  |                   |
|------------------|-------------------|
| J. Bess          | J. Raleigh (JKRA) |
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| C. Hicks         | B. Sweeney (BAA)  |
| S. Hobbs (BAA)   | S. Webster        |
| L. Kraemer       | R. Whetsel (BAA)  |
| K. Pointer (BAA) |                   |

**Project Support**  
Alan Nakashima

- Laurie Skaggs, Admin**
- J. Kriner (BAA)
  - F. Perdomo (BAA)
  - P. Rescheske
  - J. Skov
  - D. Watkins
  - L. Weishaar

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Records Coordinator

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Marvalyn Hogan, Admin

Lynne Fletcher, Admin

Mae Moss, Admin

John McClure, Supervisor

Halim Alsaed, Supervisor

- P. Bernot\*
- A. Danise
- C. Hsu
- J. Knudsen
- S. LeStrange\*
- H. Massie (FANP)
- D. Newell (SAIC)
- J. Nicot (IDT)
- K. Zarrabi\*

- |                    |                  |
|--------------------|------------------|
| W. Anderson (FANP) | H. Radulescu     |
| J. Harwell (FANP)  | J. Ryman         |
| J. Huffer (RCS)    | M. Saglam (FANP) |
| D. Kimball (BNI)   | J. Scaglione     |
| C. Mays (FANP)     | A. Wells (BAA)   |
| D. Moscalu (FANP)  | L. Wimmer (FANP) |

- |                   |            |
|-------------------|------------|
| K. Ashley         | B. Merrill |
| B. Carlsen (BWXT) | F. Nouri   |
| P. Davis (LATA)   | D. Orvis   |
| A. Deng           | G. Ragan   |
| D. Dexheimer      | N. Ramirez |
| T. Dunn           | J. Schultz |
| R. Garrett (BAA)  | S. Tsai    |
| W. Hannaman       | J. Ziegler |
| P. Macheret       |            |
| R. McDonnell      |            |

- |                     |                        |
|---------------------|------------------------|
| G. Appel            | T. Lister* (INEEL)     |
| S. Blair* (LLNL)    | A. Matthusen           |
| T. Crump            | R. Perman* (Geomatrix) |
| R. Datta            | K. Prince              |
| A. Eddebarh*        | J. Prouty* (ISSI)      |
| B. Goldstein* (SNL) | P. Rogers* (ISSI)      |
| C. Haukwa* (ISSI)   | P. Sanchez* (SNL)      |
| E. Lindner          | C. Stockman*           |

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- D. Ferris (BAA)
- K. Iyengar
- R. Keller
- G. Martin (BAA)
- T. McDonnell (BNI)
- P. Nair (JKRA)
- S. Shapiro
- Y. Williams

• = Shared resource within Repository Development



Regulatory Integration Team Manager, Jim Whitcraft

Signature on File  
John T. Mitchell, Jr.

Integration Team  
Rob Howard  
David Powell - Reg. Asst.

- Kathie Sinclair, Admin.
- David Mohr (ISSI)
- Jeff Skov (FANP) (dual role with LA)
- Richard Pawlowicz (Bechtel)
- Annette Schafer (INEEL)
- Ahmed Monib
- Karen Jenni (Geomatrix)
- Tim Nieman (Geomatrix)
- Roger Dupere (IBEX) (shared)
- David Dobson (Dual role with LA)
- Larry Rickertson (Dual role with LA)

Parameter Team  
Jim Blink (LLNL)\* - Lead  
Mike Jaeger - Deputy

See additional org. chart

FEPs Team  
Geoff Freeze (SNL) - Lead

See additional org. chart

Natural System Team  
Ming Zhu (ISSI) - Lead  
Bill Arnold (SNL) - Deputy

See additional org. chart

Near-Field Environment/  
Transport Team  
Ernie Hardin - Lead  
Cliff Howard (SNL) - Deputy

See additional org. chart

Engineered System Team  
Neil Brown - Lead  
Dennis Thomas - Deputy

See additional org. chart

Igneous Team  
Mike Cline - Lead

See additional org. chart

Seismic Team  
Mark Board - Lead

See additional org. chart

\* = Shared resource within Repository Development



Regulatory Integration Team Manager, Jim Whitcraft

Nancy Williams

Integration Team  
Rob Howard

- Kathie Sinclair, Admin.
- D. Dobson (Dual role with LA)
- R. Dupere (IBEX) (shared)
- K. Jenni (Geomatrix)
- D. Mohr (ISSI)
- T. Nieman (Geomatrix)
- J. Skov (FANP) (dual role with LA)
- S. Swenning

Parameter Team

Jim Blink (LLNL)\*, Lead  
Mike Jaeger, Deputy  
  
See additional org. chart

FEPs Team

Geoff Freeze (SNL), Lead  
  
See additional org. chart

Natural System Team

Ming Zhu (ISSI), Lead  
Ahmed Monib, Deputy

See additional org. chart

Near-Field Environment/  
Transport Team

Ernie Hardin, Lead  
Cliff Howard (SNL), Deputy

See additional org. chart

Engineered System Team

Neil Brown, Lead  
Dennis Thomas, Deputy

See additional org. chart

Igneous Team

Mike Cline, Lead

See additional org. chart

Seismic Team

Mark Board, Lead

See additional org. chart

\* = Shared resource within Repository Development



Regulatory Integration Team Manager, Jim Whitcraft

Integration Team  
Rob Howard

Nancy Williams

Kathie Sinclair, Admin.

Regulatory Support

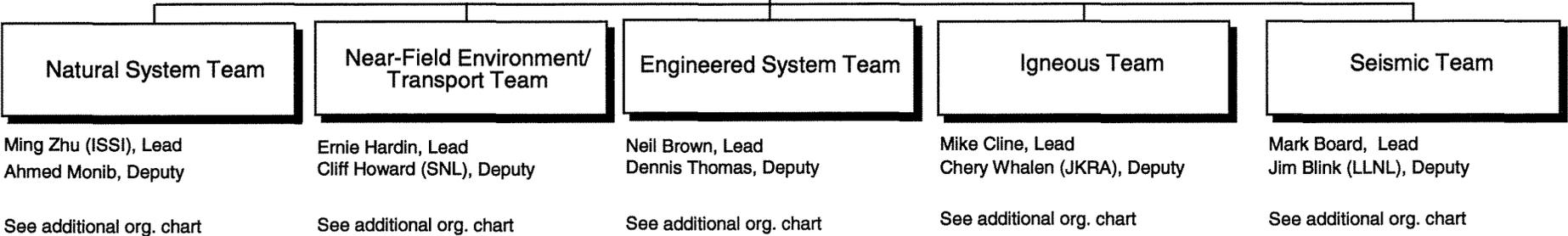
- J. Skov (FANP)
- D. Dobson (Dual role with LA)
- R. Dupere (IBEX) (shared)
- K. Jenni (Geomatrix)
- D. Mohr (ISSI)
- T. Nieman (Geomatrix)
- S. Swenning

Parameter Team

Jim Blink (LLNL)\*, Lead  
Mike Jaeger, Deputy  
  
See additional org. chart

FEPs Team

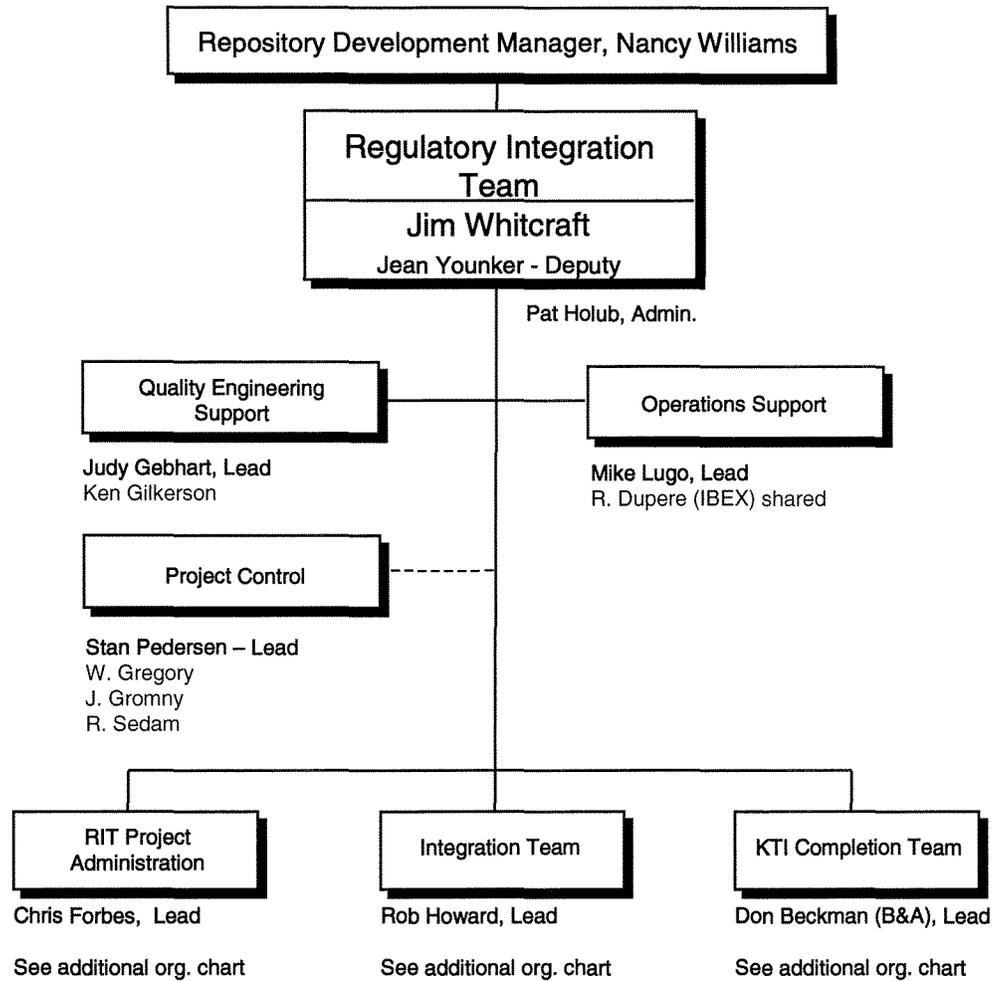
Geoff Freeze (SNL), Lead  
  
See additional org. chart



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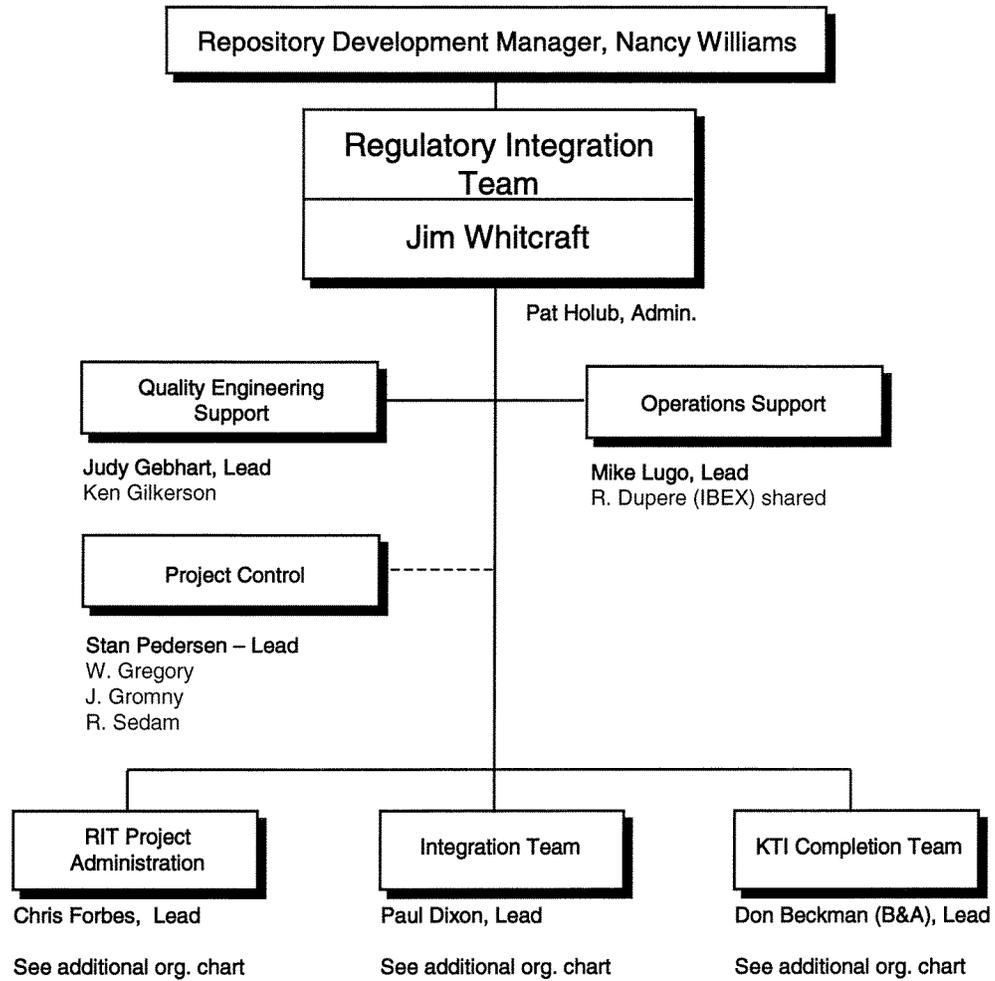


Nancy Williams





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Nancy Williams





Design and Engineering Manager, Lawrence L. Lucas

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Nancy Williams

Engineering Production  
Barbara E. Rusinko

Charlotte A. Santilli, Admin

Design Engineering  
Thomas W. Mulkey

Project Engineering  
Barbara E. Rusinko (Acting)

Environmental and Nuclear Engineering  
David B. Darling

See additional Org Chart

See additional Org Chart

See additional Org Chart

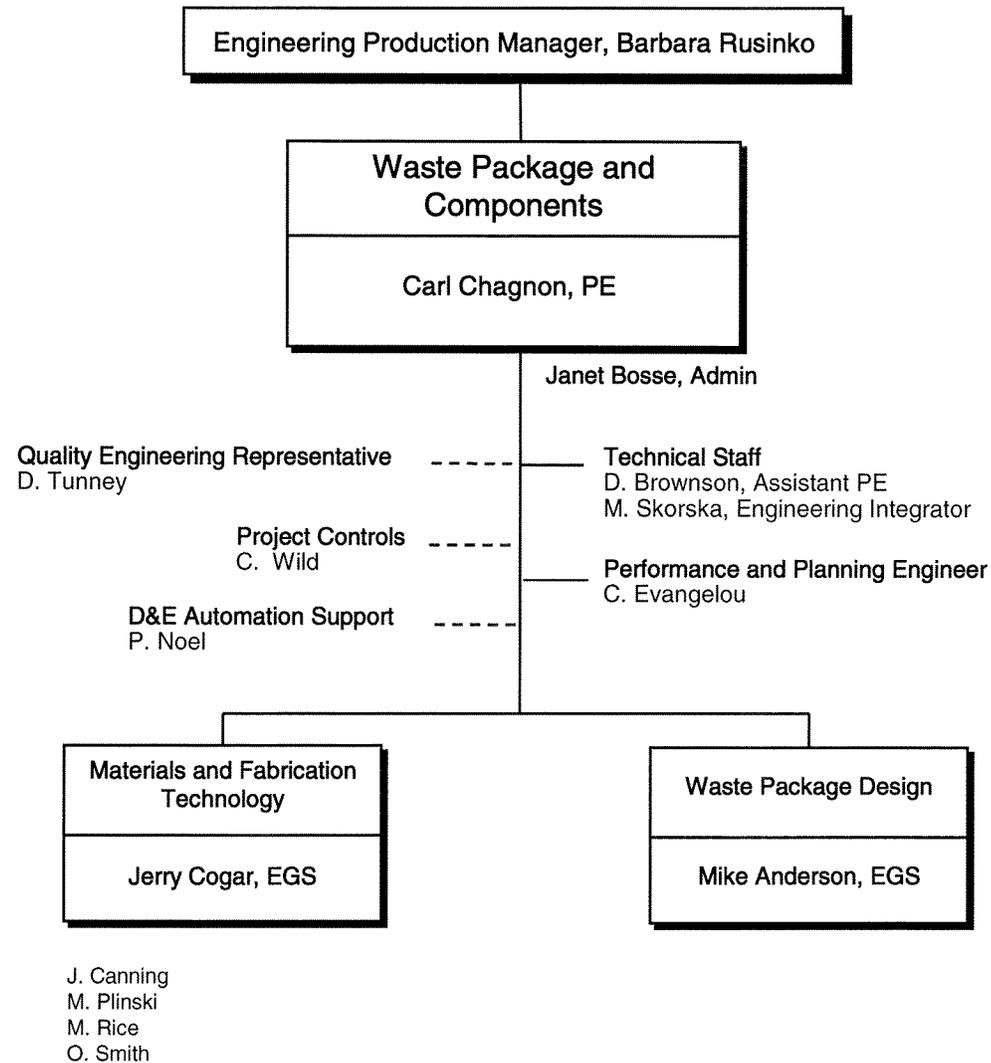
- DTF/Remediation
- R. C. Slovic
- Subsurface
- R. J. Boutin
- Waste Package and Components
- C. W. Chagnon – See additional org chart
- CHF/Aging/Cask Receipt
- C. C. Cochrane
- T. Frankert
- N. Kahler
- Site Infrastructure and Facilities
- R. D. Holt
- G. W. Tauss
- Emplacement and Retrieval
- M. T. Prytherch
- Special Projects
- W. Biehl
- Fuel Handling Facility
- D. W. Tooker
- M. L. Johnson

TBD = To Be Determined



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Nancy Williams

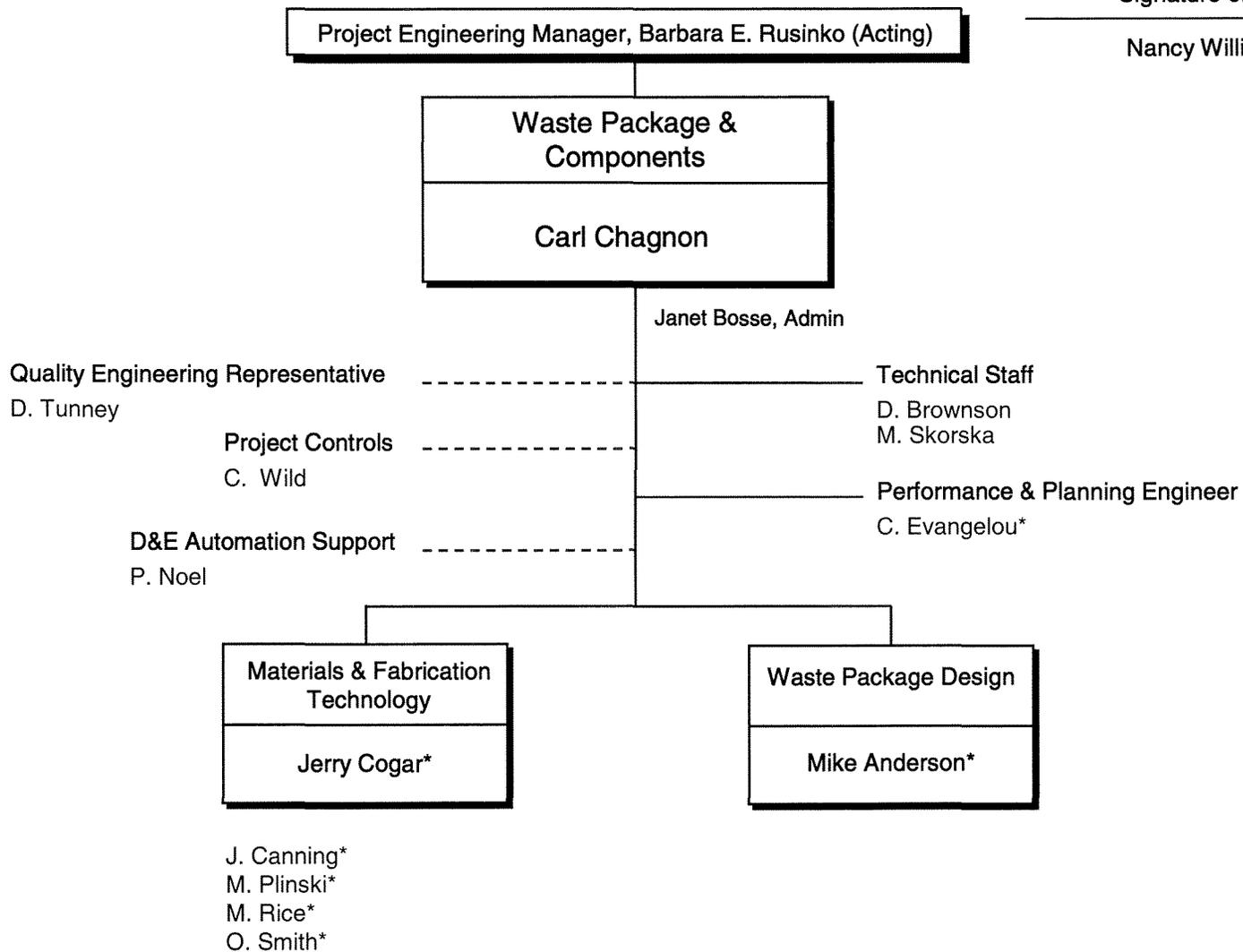


EGS = Engineering Group Supervisor



Signature on File

Nancy Williams



\* = Shared



D&E Engineering Production, Barbara Rusinko

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Nancy Williams

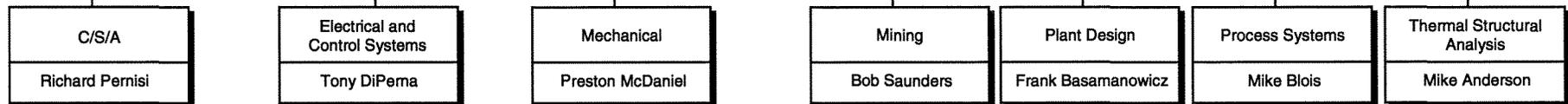
**Design Engineering**

**Thomas Mulkey**

Senior Staff  
Richard Foster

Debbie Moore, Admin  
Admin (TBD)

-----Quality Engineering



**Civil/Structural**  
Mike Ruben  
Mike Dentlinger  
M. Ali (Aug)  
J. Beesley  
J. Bissett  
D. Burdine  
M. Durani  
S. Earnest (Aug)  
T. Kohli (Aug)  
S. Kothari  
B. Kumar (Aug)  
D. Lauchengco  
K. Lee  
C. C. Lu  
**Tom McCormick**  
T. Misiak  
**Raj Rajagopal**  
T. Rintamaki  
B. Sines  
J. Tutterow  
K. Vuddagiri

**Structural**  
Farhang Ostadan ( ROS)  
N. Deng (ROS)  
O. Gurbuz (ROS)  
L. Hoffaker (ROS)  
W. Johnson (ROS)  
T. Ma (ROS)  
L. Todorovski (ROS)

**Civil Mining**  
**Jerry Keifer**

**Geotech**  
J. Cameron (ROS)  
P. Chiu (ROS)  
A. Pena-Iquaron (ROS)

**Architectural**  
C. Ash  
J. Clark  
A. Passalacqua

**Elec./Control Systems**  
EGS  
Milton Allcock (Aug)  
Jorge Gonzales  
Thomas Tam (ROS)  
N. Barangan  
**N. Castillo (Aug)**  
F. Caulfield  
**D. Green**  
E. Guinoo  
C. Kuo  
A. Mendiola  
M. Maniyar  
A. Mirza  
K. Nakagawa  
E. Porter (Aug)  
S. Roy  
L. Ruivivar (Aug)  
S. Schmude  
R. Spang  
B. Szalewski  
B. Ternate  
K. Thanawala  
J. Turner  
S. Zinkevich

**HVAC**  
John Que, Lead  
R. Abengoza  
M. Ansari (Aug)  
O. Asuncion (ROS)  
R. Balane (Aug)  
F. Banea  
M. Demetria  
K. Draper  
F. Favis  
G. Gould  
E. Kho  
M. Mercado  
S. Ployhar  
O. Santiago  
K. Shah (Aug)  
S. Singh  
A. Tan  
J. Veluz

**Throughput Analysis**  
R. Daubert  
S. Eirich (IDT)  
F. Mostoufi (ROS)  
M. M. Voegele (Intern)

**Mechanical Handling**  
William Holt, Lead  
Maurice LaFountain, Lead  
Latif Mughal, Lead  
Leonard Swanson, Lead  
Richard Silva, Lead  
A. Achudume  
N. Ambre  
F. Bierich  
J. Brumfield (Intern)  
N. Cole (INEEL)  
B. Dianda  
S. Drummond  
B. Gorpani  
S. Hanrahan  
J. Heineman  
R. Hulskamp  
V. King  
L. Martinez  
K. Schwartztrauber  
D. Shook

**Mining**  
Alan Krug  
N. Kramer  
T. Lahnalampi  
J. Layton  
A. Linden  
J. Steinhoff

**Ventilation**  
Hang Yang  
B. Gandhi  
R. Jurani  
B. Prosser  
J. Sears  
B. Skorseth  
E. Thomas  
B. Walker

**Geotechnical**  
Fei Duan  
J. Cho (ISSI)  
E. Cikanek  
R. Elayer  
D. Kicker  
M. Lin  
M. Mrugala  
D. Rigby  
G. Shideler  
Y. Sun  
D. Tang

**Plant Design**  
R. Chestney  
P. Cole (Aug)  
L. Dewey  
U. Eks  
J. Herrera  
P. Landskrone  
P. Lesley  
S. Olsen  
R. Pavelka  
T. Sauer  
C. Sauers  
F. Trapanese  
D. Trujillo

**Fire Protection**  
John Kubicek  
D. Barreres  
D. Hill (Aug)  
R. Kilroy  
D. Logan  
M. Reineck  
N. Ruonavaara (Aug)  
D. Wong (Aug)

**Utilities**  
Narciso Encarnacion  
J. Afonien  
P. Mendiola  
P. Richardson  
R. Sidranski  
D. Tiojanco

**Waste Systems**  
Maria Skorska  
T. Chnyrenkova  
S. Estey  
E. Gardiner  
B. Harrington  
D. Lamprecht  
J. Quigley  
A. StaAna  
M. Stock

**Other**  
J. Mentgen  
K. Pontius  
L. Stevenson (Aug)

**Thermal**  
Del Mecham  
N. Alsaigh  
M. Hinds  
C. Linden  
H. Marr  
M. Mullin

**Structural**  
Z. Ceylan  
T. DeBues  
K. Jaquay  
M. Lewis  
D. McKenzie IV  
M. Plinski  
M. Rice  
T. Schmitt  
O. Smith  
B. Ward

**Design**  
Adam Scheider  
C. DeVille  
G. Goodsell

**Other**  
Jerry Cogar  
J. Canning  
C. Evangelou

TBD= To Be Determined



**Business Systems Manager, Maureen Mendez**

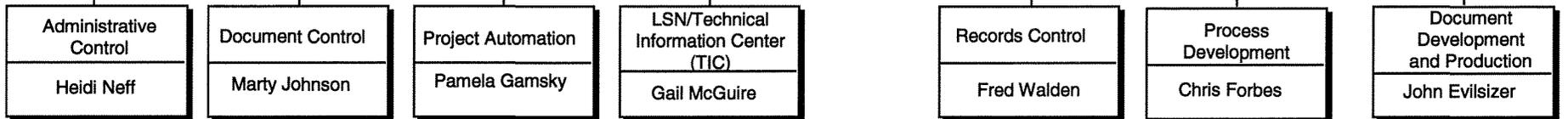
Signature on File  
Maureen Mendez

**Records Management and Document Control**

**James Harding**  
**Marty Johnson, Deputy**

Cynthia Biondo, Admin

**InfoWorks - Yasuyo Hamaguchi**



C. Biondo  
J. Ocampo  
C. Vondriska

**Heather Podewell, Lead**  
S. Bowlinger  
J. Coombs  
S. French  
D. Lawson  
C. Maimone  
J. McKinney  
M. Miller  
M. Pinney  
C. Stettler

**Site**  
**Judith Wetzel, Lead**  
A. Bass  
D. Piniol

**Dave Keller, Lead**  
**Michele Bann, Lead**  
C. Crawford  
E. Jackson  
K. Jerome  
J. Stephan  
Y. Valadez  
N. Williams

**Records Processing Center**  
**Sharon Harris-Womack**

**Kim Bakken, Lead**  
**Deedee Calloway (M), Lead**  
**Terry Dietrich, Lead**  
**Kathy Steel, Lead**  
**Toni Washington, Lead**

M. Aguirre  
T. Calloway  
W. Carter  
N. Chaffin  
L. Church  
T. Church  
Y. Danner  
Q. Dudley  
D. El-Madani  
E. Hudy  
E. Jackson (M)  
D. Jerome  
Q. Johnson  
T. Jones

**Records Outreach**  
**Rocky Hergenreder**

D. Holmes  
A. Jackson  
V. Poole  
G. Sipe-Eaton

See additional org chart

See additional org chart

**M = Matrix**



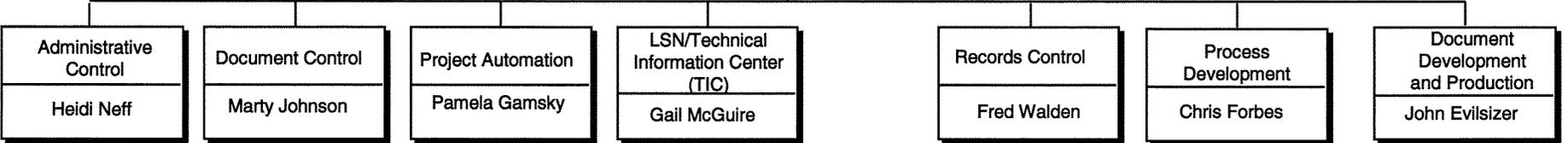
**Business Systems Manager, Maureen Mendez**

Signature on File  
Maureen Mendez

**Records Management and Document Control**  
James Harding  
Marty Johnson, Deputy

**InfoWorks - Yasuyo Hamaguchi**

Cynthia Biondo, Admin  
Juliet Ocampo, Admin (V)



C. Biondo  
J. Ocampo (V)  
C. Vondriska

**Heather Podewell, Lead**  
S. Bowlinger  
J. Coombs  
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C. Stettler

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**Dave Keller, Lead**  
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**Records Processing Center**  
Sharon Harris-Womack

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**Deedee Calloway (M), Lead**  
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**Toni Washington, Lead**

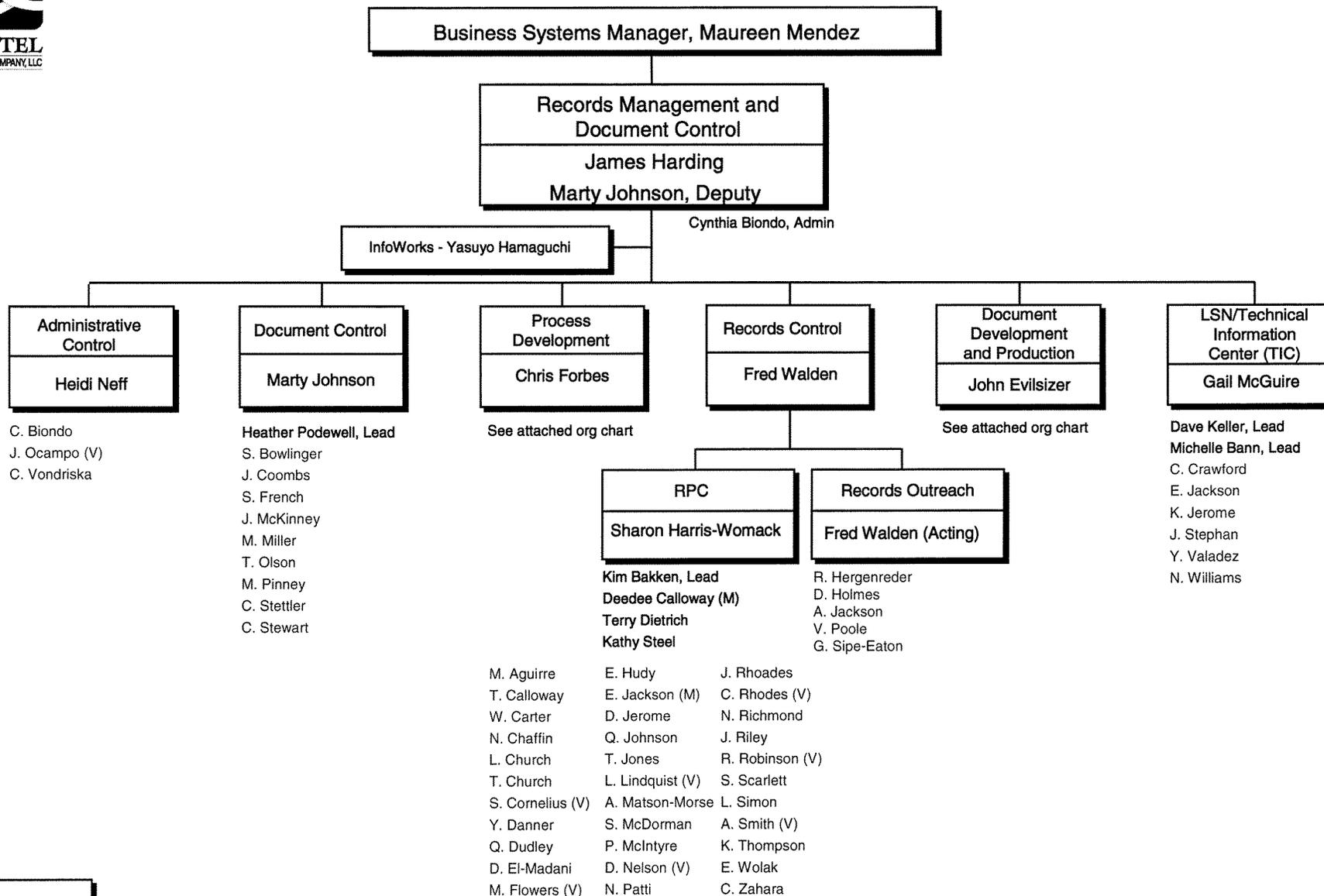
**Records Outreach**  
Rocky Hergenreder

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V. Poole  
G. Sipe-Eaton

**Site**  
**Judith Wetzel, Lead**  
A. Bass  
D. Piniol

M. Aguirre	E. Jackson (M)	C. Rhodes (V)
T. Calloway	D. Jerome	N. Richmond
W. Carter	Q. Johnson	J. Riley
N. Chaffin	T. Jones	R. Robinson (V)
L. Church	L. Lindquist (V)	S. Scarlett
T. Church	A. Matson-Morse	L. Simon
S. Cornelius (V)	S. McDorman	A. Smith (V)
Y. Danner	P. McIntyre	S. Still (V)
Q. Dudley	D. Nelson (V)	K. Thompson
D. El-Madani	T. Olson (M)	E. Wolak
M. Flowers (V)	N. Patti	C. Zahara
E. Hudy	J. Rhoades	

**M = Matrix**  
**V = Volt**



M = Matrix  
V = VOLT



**Business Systems Manager, Maureen Mendez**

Signature on File  
Nadine Haag

**Human Resources and Training**  
Nadine Haag  
Dei Barney, Deputy

Trish Pytel, Admin\*

**Employee Assistance Program**  
Kevin Broadbent

**Diversity Programs**  
Loretta Lucier

**Special Projects**  
Karen Dunlap

**Employee Relations**  
Dan Robertson  
P. Nelson-Willis

**Training Manager**  
Paul Turner  
Linda Bouie, Admin\*

**Staffing**  
Michelle Rinehart

**Benefits**  
Susan Harris

**Compensation**  
Donna Bardo

**HR Systems and Records**  
Dei Barney

**Program Support Training**  
Barry Mellor

**Business Management Training**  
Christine Drummond

- A. Afanasiev
- D. Boyd
- S. Miller
- J. Niejadlik
- A. Poderis
- L. Salmon
- TBD (1)

- B. Burbank
- J. Gomes
- B. Wells
- D. Zendano

- N. Bergman
- C. Bitters

- R. Angelo
- C. Glenn
- L. Holder
- C. Tabor
- C. Thigpen

- P. Baiocchi
- D. Broach
- M. Crisp
- K. Frederick
- P. Hains
- W. Hickey
- J. Johnson
- J. Karasik
- J. Loughney
- T. Mazurek
- J. Moore
- S. Pincock
- B. Valley
- B. Werra

- D. Bird
- S. Bolden
- G. Ferreiro
- S. Garelick
- L. Lausen
- G. Mansur
- E. Spangler
- C. Taylor

\* = Shared  
TBD = To Be Determined



**Business Systems Manager, Maureen Mendez**

Signature on File  
Nadine Haag

**Human Resources  
and Training**  
Nadine Haag  
Dei Barney, Deputy

Trish Pytel, Admin\*

**Employee Assistance  
Program**  
Kevin Broadbent

**Diversity Programs**  
Loretta Lucier

**Special Projects**  
Karen Dunlap

**Employee Relations**  
Dan Robertson  
P. Nelson-Willis

**Training Manager**  
Paul Turner  
Linda Bouie, Admin\*

**Staffing**  
Michelle Rinehart

**Benefits**  
Susan Harris

**Compensation**  
Michael Inglima  
(Acting)

**HR Systems and  
Records**  
Dei Barney

**Program Support  
Training**  
Barry Mellor

**Business Management  
Training**  
Christine Drummond

- A. Afanasiev
- D. Boyd
- S. Miller
- J. Niejadlik
- A. Poderis
- L. Salmon
- TBD (1)

- B. Burbank
- J. Gomes
- B. Wells
- TBD

- N. Bergman
- C. Bitters

- R. Angelo
- C. Glenn
- L. Holder
- C. Tabor
- C. Thigpen

- P. Baiocchetti
- D. Broach
- M. Crisp
- K. Frederick
- P. Hains
- W. Hickey
- J. Johnson
- J. Karasik
- J. Loughney
- T. Mazurek
- J. Moore
- S. Pincock
- B. Vallely
- B. Werra

- D. Bird
- S. Bolden
- G. Ferreira
- S. Garelick
- L. Lausen
- G. Mansur
- E. Spangler
- TBD

\* = Shared  
TBD = To Be Determined



**Post Closure Activities Acting Manager, Paul Dixon**

**Test Coordination Office**

**Douglas Weaver (LANL)  
Ron Oliver, Deputy (LANL)**

Signature on File  
Nancy Williams

**QA/Compliance Support**  
Shellie Rucinski  
Joann Tamashiro (SNL)

Deidre Maestas, Admin

**Scientific Investigations**  
Robert Jones, Lead (SNL)  
Deidre Maestas, Admin  
M. Haga (LANL)  
J. Kelly (SNL)  
K. Lee (LLNL)  
R. Price (SNL)  
R. Salve (LBNL)  
M. Schuhen (SNL)  
R. Taylor (SNL)

**Safety Assurance**  
James Hollins, Lead (LANL)  
Deidre Maestas, Admin  
W. Distel (ISSI)  
A. Kalia  
H. Rael

**Test Planning & Project Engineering**  
Alan Mitchell, Lead (LANL)  
B. Matthews, Admin

**Underground Testing**  
C. Hermes  
D. Neubauer  
M. Taylor (LANL)

**Surface-Based Testing**  
M. Esp  
E. Wasson

**PC/Design Testing**  
S. Goodin  
H. Kalia (LANL)

**Field Test Coordination**  
Richard Kovach, Lead (LANL)  
C. Longhouser, Admin  
J. Craig (LANL)  
A. Czarnomski (LBNL)  
J. Dinsmoor (LANL)  
B. Dozier (LANL)  
B. Reinert (LANL)

**Sample Management Facility**  
Chris Lewis, Lead  
B. Cavallo, Admin  
S. Hopkins  
B. Howard  
D. Merritt  
G. Nelson  
G. Olson  
M. Pitterle  
W. Slack

**Data Collection Systems**  
Fred Homuth, Lead (LANL)  
Deidre Maestas, Admin  
R. Fenster (LANL), Software Coordinator  
R. Sievert  
E. Warnick (LANL)

**Performance Confirmation**  
Francis Hansen, Lead (SNL)  
Barbara Mathews, Admin  
R. Henning  
R. Snell

\* = Shared resource within Repository Development



**Repository Development Manager, Nancy Williams**

Signature on File  
Nancy Williams

**Total System Performance Assessment**  
Peter Swift (SNL)  
Jerry McNeish, Deputy

LeAnn Mays (ISSI)

**Operations**  
T. Burroughs (SNL)  
M. Heerdt (SNL)

**Project Control**  
**Bart Mann, Lead**  
D. Cox (SNL)  
C. Flores (SNL)  
L. Michaels

**Process**  
**Robert Zimmerman, Lead**  
J. Gebhart (QER) (M)  
P. Gibson  
N. Graves  
R. Wagner (ISSI)

**TSPA Model Design/Analysis**  
**David Sevougian, Lead (SNL)**  
J. Avis (Intera) \*  
B. Bullard (FANP)  
N. Calder (Intera) \*  
Y. Chen  
J. Duguid (JKRA)  
V. Jain  
M. Lord (SNL)  
S. Mehta (FANP)  
L. Rickertsen

**TSPA Model Calculations**  
**Donald Kalinich, Lead (SNL)**  
B. Baker (SNL)  
A. Behie (FANP)  
V. Chipman (LLNL)  
B. Dacko \*  
B. Dunlap  
V. Dwarakanath (Intera) \*  
S. Hommel  
P. Lee (FANP)  
B. Lester (GeoTrans)  
C. Li (FANP)  
P. Mattie (SNL)  
J. Matties (FANP)  
G. Roselle  
R. Senger (Intera) \*  
W. Wu

**TSPA Model Uncertainty Analyses**  
**Robert MacKinnon, Lead (SNL)**  
N. Deeds \* (Intera)  
J. Helton (IDT) \*  
B. Knowlton (FANP) \*  
S. Mishra (Intera) \*  
J. Nowak (SNL) \*  
B. Ramarao (FANP)  
C. Sallaberry (SNL)

**TSPA Documentation**  
**Ralph Rogers, Lead (BSC)**  
L. Braun (M)  
D. Foote (M)  
B. Gabaldon (M)  
L. Grisham (M)  
V. Kelly (M)  
J. Knoth (M)  
M. Martell (SNL)  
D. Miller (Intera) \*  
S. Miller (SNL)  
M. Patel (M)  
G. Saulnier (FANP)  
W. Statham (FANP)  
D. Tomcheff (M)  
J. York (M)

**TSPA Testing/Review Support**  
J. Benegar (GeoTrans) \*  
S. Brooks (GeoTrans) \*  
D. Burnell (GeoTrans) \*  
G. Council (GeoTrans) \*  
W. Hintze (INEEL) \*  
L. Pincock (INEEL) \*  
G. Roemer (GeoTrans) \*

**TSPA-LA Configuration Management**  
**Charles Thom, Lead (Beckman)**  
R. Dockter

ISSI	Integrated Science Solutions Inc
FANP	Framatome ANP
INEEL	Idaho National Engineering & Environmental Laboratory
LLNL	Lawrence Livermore National Laboratory
(M)	full-time YM, matrixed with other organizations, may be part or full-time PASS
JKRA	John Kelly Research Associates
QER	Quality Engineering Representative
SNL	Sandia National Laboratories
*	part-time YM



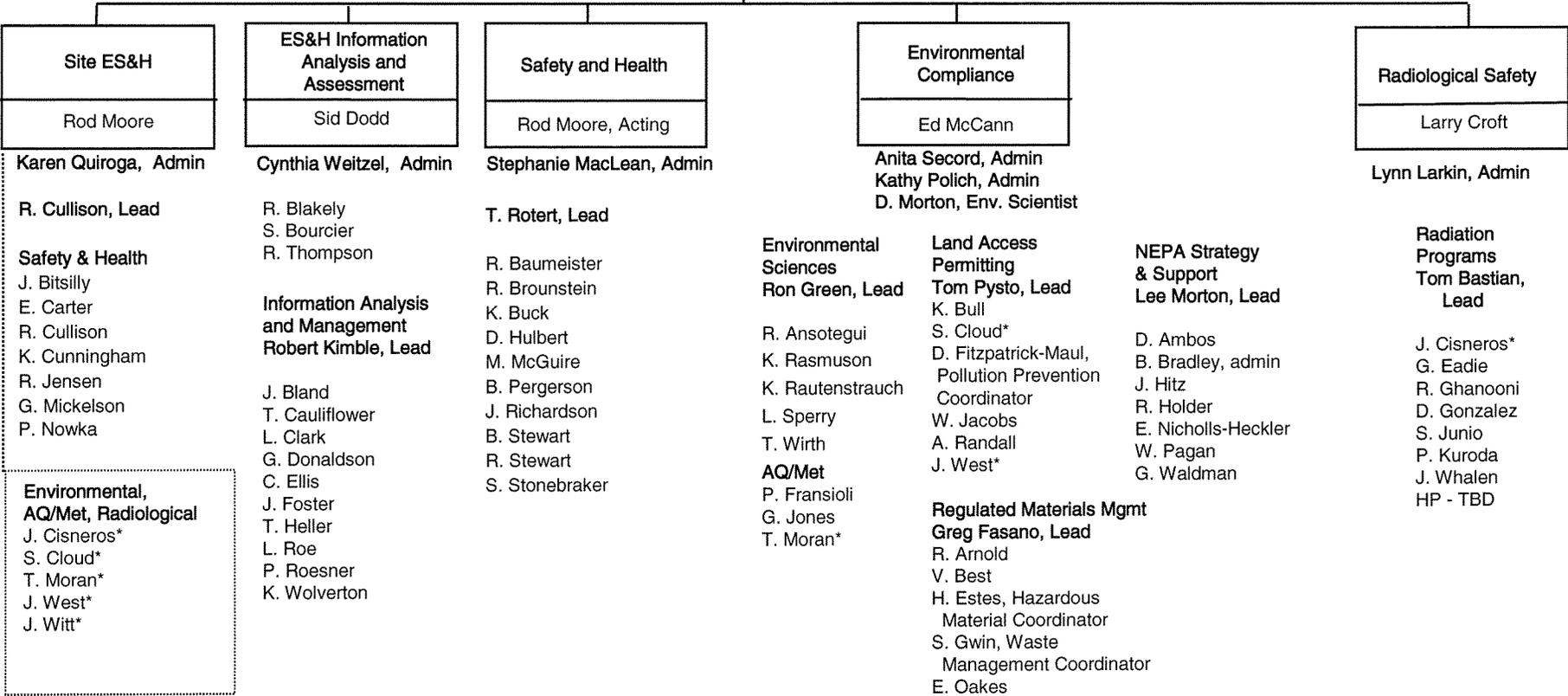
**General Manager, John T. Mitchell, Jr.**

Signature on File  
Michael T. Sullivan

**Environmental, Safety and Health (ES&H)**  
Michael T. Sullivan

Lorraine Garcia, Admin  
ES&H Performance Mgmt  
Penny Schilling

**Project Controls**  
Leslie Hoen



\*Assigned to Site ES&H



**Records Management and Document Control Manager, James Harding**

**James Harding**

**Document Development and Production**  
**John Evilsizer**

Arlene Nery, Admin

**Graphics and Reprographic Services**  
Janette Lloyd

Kathryn Beach, Admin

**Graphic Services**  
Richard Danat, Lead (Figures)  
Judy Sandgren, Lead (Products)  
N. Ikeda (Red, Inc.)  
K. Loo  
L. McKinley  
M. Pearson  
K. Prouty (Red, Inc.)  
R. Sandgren  
J. Scarbrough\*\*  
J. Scott  
W. Young

**Photo/Video Services**  
David Wehner, Lead  
D. Unglesbee  
J. Vosburgh

**Reprographics Services**  
Nick Connerley, Lead  
E. Bates  
B. Beverly (Volt)  
S. Callahan (Volt)  
R. Guy  
D. Rodriguez

**Publication Services**  
Andrea Hunter

Arlene Nery, Admin

**Publications Production**  
P. Meyer  
K. Miller  
A. Norris  
J. Rollan

**Publications Writing and Editing**  
B. Blaha (Volt)  
S. Crawford  
K. Dutton  
K. Guise  
K. Shupe \*\*  
E. Zolnay  
TBD (3)

**AFS Web and Forms Design**  
A. Boyles  
J. Coombs

**E-Publishing**  
A. Heskett

**Public Release Review Coordination**  
Arlene Nery, Admin  
Bonnie Howe, Lead  
C. French  
M. McDonald  
D. Morales (Volt)

**Document Production Management**  
Bonna Savarise

Yolanda Cason, Admin

**DD&P Matrixed Staff by Assigned Project**  
(See org chart for respective Admins)

**KTI Completion Project**  
S. Barnett  
S. Bell (Red, Inc.)  
H. Hammermeister  
P. Hopkins (Red, Inc.)  
J. Jones (Red, Inc.)  
J. Odor (Red, Inc.)  
B. Peltier (Red, Inc.)  
A. Rae (Red, Inc.)  
P. Sholar  
C. Wilkins (Red, Inc.)

**Licensing**  
P. Brown  
J. Dearmin  
P. Kell  
M. Lydic  
E. McKlveen  
B. Merrill  
V. Obrad  
M. Therien

**Management Systems**  
A. Barker  
D. Seamans  
C. Smith

**Administrative and Technical Support Services**  
V. Mulford (Red, Inc.)  
S. Runde (Red, Inc.)

**Regulatory Integration Team**  
M. Aiken  
R. Anawalt (Red, Inc.)  
J. Arikawa (Red, Inc.)  
M. Bost (Red, Inc.)  
A. Boyles  
T. Breene (Red, Inc.)  
S. Burkthert (Red, Inc.)  
J. Connell  
L. Feedar  
S. Foster (Red, Inc.)  
G. Hernandez  
M. Johnson (Alpha Services)  
D. Nurse (Red, Inc.)  
M. Odor  
R. Painter (Red, Inc.)  
J. Patton (Bechtel, Idaho)  
A. Rotstein (Red, Inc.)  
C. Stewart  
T. Tetreault (Red, Inc.)  
J. Withrow  
M. Zale (Red, Inc.)

**Total Systems Performance Assessment - LA**  
Valerie Kelly, Lead  
L. Braun (Red, Inc.)  
D. Foote (Red, Inc.)  
B. Gabaldon  
P. Gibson  
L. Grisham  
J. Krogh  
M. Patel (Red, Inc.)  
D. Tomcheff

**Design and Engineering**  
Tammy Graf, Lead  
Katrina Reeder, Lead  
C. Beglinger  
J. Boone  
D. Francis  
F. Gordon (Red, Inc.)  
R. Honaker (Red, Inc.)  
J. Lorenz (Red, Inc.)  
S. Martin  
J. McCreary  
C. Sales  
E. Stemley  
P. VanDillen

**\*\* = East Coast**  
**TBD = To Be Determined**



**Records Management and Document Control Manager, James Harding**

Signature on File  
James Harding

**Document Development and Production**  
**John Evilsizer**

Arlene Nery, Admin

**Graphics and Reprographic Services**  
Janette Lloyd

Kathryn Beach, Admin

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L. McKinley  
M. Pearson  
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J. Scott  
W. Young

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David Wehner, Lead  
D. Unglesbee  
J. Vosburgh

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S. Callahan (Volt)  
R. Guy  
D. Rodriguez

**Publication Services**  
Andrea Hunter

Arlene Nery, Admin

**Publications Production**  
P. Meyer  
K. Miller  
A. Norris  
J. Rollan

**Publications Writing and Editing**  
S. Crawford  
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K. Guise  
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TBD (3)

**AFS Web and Forms Design**  
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**E-Publishing**  
A. Heskett

**Public Release Review Coordination**  
Arlene Nery, Admin  
Bonnie Howe, Lead  
C. French  
M. McDonald  
D. Morales (Volt)  
L. Stemley

**Document Production Management**  
Bonna Savarise

Yolanda Cason, Admin

**DD&P Matrixed Staff by Assigned Project**  
(See org chart for respective Admins)

**KTI Completion Project**  
S. Barnett  
S. Bell (Red, Inc.)  
H. Hammermeister  
P. Hopkins (Red, Inc.)  
J. Jones (Red, Inc.)  
J. Odor (Red, Inc.)  
B. Peltier (Red, Inc.)  
A. Rae (Red, Inc.)  
P. Sholar  
C. Wilkens (Red, Inc.)

**Licensing**  
P. Brown  
J. Dearmin  
P. Kell  
M. Lydic  
E. McKlveen  
B. Merrill  
V. Obrad  
M. Therien

**Management Systems**  
A. Barker  
D. Seamans  
C. Smith

**Administrative and Technical Support Services**  
V. Mulford (Red, Inc.)  
S. Runde (Red, Inc.)

**Regulatory Integration Team**  
M. Aiken  
R. Anawalt (Red, Inc.)  
J. Arikawa (Red, Inc.)  
M. Bost (Red, Inc.)  
A. Boyles  
T. Breene (Red, Inc.)  
S. Brooks (Red, Inc.)  
S. Burkert (Red, Inc.)  
J. Connell  
L. Feedar  
S. Foster (Red, Inc.)  
K. Gaston (Volt)  
D. Gibson  
G. Hernandez  
G. Janis  
M. Johnson (Alpha Services)  
D. Nurse (Red, Inc.)  
M. Odor  
R. Painter (Red, Inc.)  
A. Rotstein (Red, Inc.)  
C. Stewart  
T. Tetreault (Red, Inc.)  
C. Valladao (LBNL)  
J. Withrow  
M. Zale (Red, Inc.)

**Total Systems Performance Assessments-LA**  
Valerie Kelly, Lead  
L. Braun (Red, Inc.)  
D. Foote (Red, Inc.)  
B. Gabaldon  
S. Gregoire (Red, Inc.)  
L. Grisham  
J. Krogh  
M. Patel (Red, Inc.)  
D. Tomcheff

**Design and Engineering**  
Tammy Graf, Lead  
Katrina Reeder, Lead  
C. Beglinger  
J. Boone  
D. Francis  
F. Gordon (Red, Inc.)  
R. Honaker (Red, Inc.)  
J. Lorenz (Red, Inc.)  
S. Martin  
J. McCreary  
C. Sales  
P. VanDillen

**\*\* = East Coast**  
**TBD = To Be Determined**

## **Exhibit N**



**PROCEDURE**

**RESOLUTION OF DIFFERING PROFESSIONAL OPINIONS**

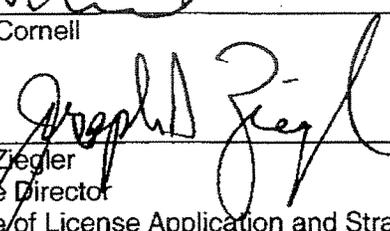
**LP-REG-005-OCRWM**

**Revision 0 ICN 0**

Effective Date: 10/20/2003

Preparer:   
V.P. Cornell

10/16/03  
Date

Approval:   
J.D. Ziegler  
Office Director  
Office of License Application and Strategy  
Office of Civilian Radioactive waste Management

10/16/03  
Date

## **OCRWM**

Type: Line Procedure

Title: Resolution of Differing Professional Opinions

Procedure No.: LP-REG-005-OCRWM

Rev./ICN: 0/0

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### **1.0 PURPOSE**

This procedure establishes the process for the objective and impartial review, consideration, and resolution of differing professional opinions (DPOs). It is reasonable to expect that differences in professional opinions will occur. The DPO process is an important element of the Safety Conscious Work Environment. It is a U.S. Department of Energy goal to foster and maintain a culture in which employees can express their professional opinion. The application of DPOs is limited to nuclear safety and potential licensing issues associated with activities related to scientific investigation, performance assessment, and repository design.

### **2.0 APPLICABILITY**

This procedure applies to Office of Civilian Radioactive Waste Management (OCRWM) Office of Repository Development (ORD) federal staff and direct support contractors who wish to express a DPO and have the DPO heard and impartially reviewed and resolved by management. The U.S. Department of Energy encourages employees to make a reasonable attempt to pursue resolution of the differing opinion prior to issuing a DPO. Differing opinions that cannot be resolved through normal processes, such as AP-16.1Q, *Management of Conditions Adverse to Quality*, may be resolved in accordance with this procedure. Anonymous submittals will not be considered under the DPO process since it is necessary that the Originator participate during the evaluation process (e.g., provide clarifying information).

This procedure is not intended to:

- Preclude an employee from seeking resolution per AP-32.1, *Office of Civilian Radioactive Waste Management Concerns Program*
- Inhibit open communication with the U.S. Nuclear Regulatory Commission as provided for by U.S. Nuclear Regulatory Commission regulations
- Apply to resolution of personnel issues; project management matters such as cost, scope, or scheduling of work; or issues specifically governed by law or regulation.

For the purpose of this procedure, notifications may be written documentation or e-mail.

### **3.0 OTHER DOCUMENTS NEEDED/REFERENCES**

- AP-16.1Q, *Management of Conditions Adverse to Quality*
- AP-17.1Q, *Records Management*
- AP-32-1, *Office of Civilian Radioactive Waste Management Concerns Program*

### **4.0 RESPONSIBILITIES**

- 4.1 The Director, Office of License Application and Strategy, is responsible for the preparation, change, and maintenance of this procedure.

# OCRWM

Type: Line Procedure

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- 4.2 The Director, Office of License Application and Strategy, is responsible for the approval of this procedure.
- 4.3 The following organizations or positions are responsible for activities identified in Section 5.0 of this procedure:
- a. Originator
  - b. OCRWM Office Director
  - c. Evaluator
  - d. Resolution Team
  - e. ORD Deputy Director
  - f. Management Reviewer(s)

## 5.0 PROCESS

An overview of this process is depicted in the flowchart shown in Attachment 1, LP-REG-005-OCRWM Flowchart. Acronyms and Abbreviations used in this procedure are defined in Attachment 2, Acronyms and Abbreviations. Terms used in this procedure are defined in Attachment 3, Definitions.

### Process Outline

	Page
5.1 INITIATION AND SUBMITTAL.....	4
5.2 PROCESSING AND REVIEWING.....	4
5.3 RESOLUTION .....	5
5.4 APPEAL .....	7

## OCRWM

Type: Line Procedure

Title: Resolution of Differing Professional Opinions

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### 5.1 INITIATION AND SUBMITTAL

Originator

[1] **Initiate** a DPO (either written or electronic) by providing, at a minimum, the following information:

- Summary of existing or proposed decision, position, or practice
- DPO as contrasted to the above decision, position, or practice
- Assessment of consequences if DPO is not considered
- Reference(s)
- Originator's name
- Originator's location
- Originator's telephone number.

[2] **IF** desired,

**THEN request** a meeting with the OCRWM Office Director to clarify or resolve the DPO before any other action is taken.

Note: For the purpose of this procedure, the OCRWM Office Director is an ORD Office Director or an Independent Manager designated by an ORD Office Director.

[3] **Submit** the DPO to the OCRWM Office Director.

### 5.2 PROCESSING AND REVIEWING

OCRWM Office Director

[1] **Determine** if sufficient organizational independence exists to process the DPO.

[2] **IF** it is determined that the DPO should be considered by another OCRWM Office Director,

**THEN discuss AND document** the transfer of the DPO to the alternate OCRWM Office Director.

[3] **Ensure** that the DPO is tracked until final resolution.

[4] **Review** the DPO to determine if the DPO is or contains a potential Condition Adverse to Quality (CAQ).

## OCRWM

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[5] **IF** a potential CAQ exists,

**THEN ensure** that the CAQ is processed per AP-16.1Q.

[6] **Review** the DPO submittal to ensure that the DPO is in accordance with the definition of DPO in Attachment 3 and with the DPO content requirements listed in Step 5.1[1].

[7] **Notify** the Originator:

- If additional information to further clarify the differing opinion is needed
- Of acceptance of the DPO and the schedule for when a decision will be rendered
- Of rejection of the DPO, including the basis for rejection.

[8] **IF** the DPO is accepted,

**THEN assign** an Evaluator or Resolution Team to develop a recommended resolution to the DPO in accordance with Subsection 5.3.

[9] **IF** the DPO is rejected,

**THEN notify** the Originator, including the basis, **AND submit** the DPO and basis for rejection to the Records Processing Center (RPC) in accordance with Section 6.0.

[10] **Forward** the DPO to an Evaluator or Resolution Team for evaluation, including the schedule for completing the review and documenting the recommended resolution.

### 5.3 RESOLUTION

Evaluator or  
Resolution Team

[1] **Review** the DPO and/or other relevant information, as necessary.

[2] **Interview** the Originator to obtain additional clarification or understanding of the DPO.

[3] **IF** the evaluation from the DPO review requires any actions,

**THEN document** the actions where appropriate (e.g., condition reports, assignment tracking).

## OCRWM

Type: Line Procedure

Title: Resolution of Differing Professional Opinions

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[4] **Assemble** a resolution package that includes the following:

- The name of the Evaluator or a list of the Resolution Team members, including reporting organization and job function(s)
- A summary of the points of disagreement(s)
- A response to each disagreement
- A recommended resolution
- A draft response to the Originator, including any person or organization whose input was considered during the evaluation.

[5] **IF** delays occur and the specified schedule can not be met,

**THEN** notify the OCRWM Office Director including the reason for the delay.

[6] **Submit** the resolution package to the OCRWM Office Director.

OCRWM Office  
Director

[7] **Review** the resolution package.

[8] **IF** additional information is needed,

**THEN** denote the additional information **AND** return the resolution package to the Evaluator or Resolution Team for reprocessing per Subsection 5.3.

[9] **Approve** the DPO decision documented in the resolution package.

[10] **Notify** the Originator of the DPO decision.

Note: The OCRWM Office Director is encouraged to notify the Originator in a face-to-face interaction to give the Originator an opportunity to seek clarification.

[11] **Ensure** that the DPO resolution package is submitted to RPC in accordance with Section 6.0.

Originator

[12] **Notify** the OCRWM Office Director of acceptance of the DPO decision or proceed to Subsection 5.4.

## OCRWM

Type: Line Procedure

Title: Resolution of Differing Professional Opinions

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### 5.4 APPEAL

Originator

[1] **IF** dissatisfied with the DPO resolution,

**THEN notify** the OCRWM Office Director **AND request** that the DPO be elevated to the ORD Deputy Director for a final decision.

Note: Supplemental information is information that was not previously considered by the Evaluator or Resolution Team because it was not available or the Originator was unaware of its availability at the time the DPO was initiated.

[2] **Provide** supplemental information to the OCRWM Office Director, if appropriate, regarding the merits of the DPO.

OCRWM Office Director

[3] **Review** supplemental information provided by the Originator.

[4] **IF** the supplemental information is deemed to alter the DPO decision consistent with the DPO request,

**THEN notify** the Originator of the revised DPO decision.

[5] **IF** the supplemental information does not alter the DPO decision,

**THEN forward** the supplemental information and resolution package to the ORD Deputy Director.

ORD Deputy Director

[6] **Select** a Management Reviewer(s) independent of the Evaluator or Resolution Team to evaluate the DPO.

Management Reviewer(s)

[7] **Review** the resolution package and/or other relevant information as requested by the ORD Deputy Director.

[8] **Submit** a recommended final decision to the ORD Deputy Director.

ORD Deputy Director

[9] **Notify** the Originator and OCRWM Office Director of the final decision.

OCRWM Office Director

[10] **Ensure** that the supplemental information is submitted to RPC in accordance with Section 6.0.

## **OCRWM**

**Type: Line Procedure**

**Title: Resolution of Differing Professional Opinions**

**Procedure No.: LP-REG-005-OCRWM**

**Rev./ICN: 0/0**

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### **6.0 RECORDS**

The records listed in Subsection 6.2 shall be collected and submitted to the RPC in accordance with AP-17.1Q as individual records or included in a records package, as specified.

#### **6.1 QA RECORDS**

None

#### **6.2 NON-QA LONG-TERM RECORDS**

Records Package:

OCRWM Office Director DPO Decision, including resolution package

ORD Deputy Director DPO Decision, if applicable, including supplemental resolution package

Written documentation or printed electronic mail submitting, accepting, rejecting and responding to DPOs

List of Management Reviewer(s), if applicable

#### **6.3 NON-QA SHORT-TERM RECORDS (THREE YEARS OR LESS RETENTION)**

None

### **7.0 ATTACHMENTS**

The change history for this procedure is included in Attachment 4, Change History.

- 1 LP-REG-005-OCRWM Flowchart
- 2 Acronyms and Abbreviations
- 3 Definitions
- 4 Change History

# OCRWM

Type: Line Procedure

Title: Resolution of Differing Professional Opinions

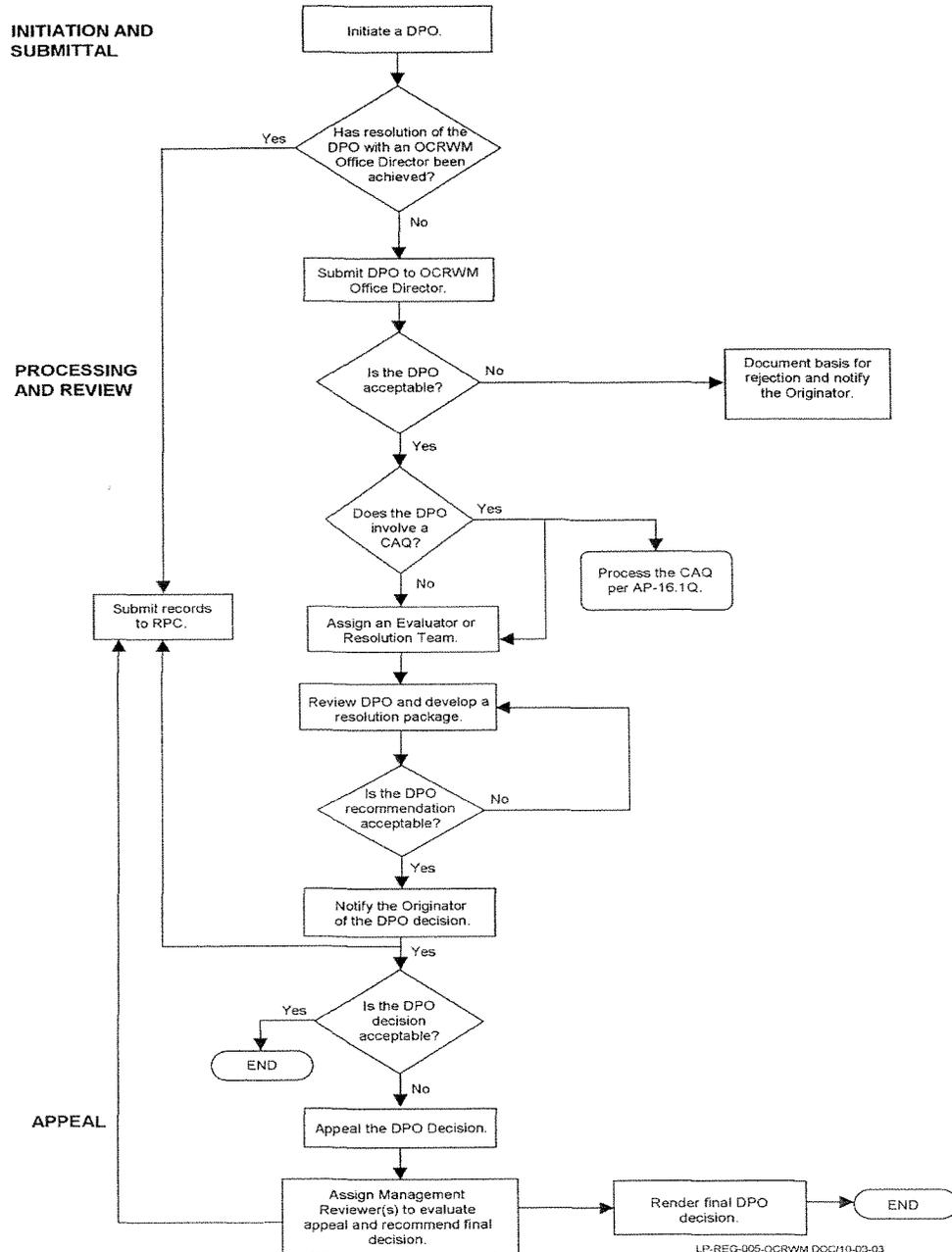
Procedure No.: LP-REG-005-OCRWM

Rev./ICN: 0/0

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Attachment 1

## LP-REG-005-OCRWM Flowchart



**OCRWM**Type: **Line Procedure**

Procedure No.: LP-REG-005-OCRWM

Title: **Resolution of Differing Professional Opinions**

Rev./ICN: 0/0

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**Attachment 2****Acronyms and Abbreviations**

CAQ	Condition Adverse to Quality
DPO	Differing Professional Opinion
OCRWM	Office of Civilian Radioactive Waste Management
ORD	Office of Repository Development
RPC	Records Processing Center

**OCRWM****Type: Line Procedure****Title: Resolution of Differing Professional Opinions****Procedure No.:** LP-Reg-005-OCRWM**Rev./ICN:** 0/0**Page:** 11 of 12**Attachment 3****Definitions**

***Differing Professional Opinion (DPO)***—A conscientious expression of professional judgement that conflicts with an existing Project scientific or engineering technical position, a management decision or position, a proposed or established project practice involving technical issues, or an interpretation of technical information or data.

***Evaluator***—A person who is knowledgeable in the subject area being reviewed, but who is not directly involved in the issue being reviewed. The Evaluator may be selected from YMP management or technical staff, list of proposed staff by the Originator, or non-YMP personnel.

***Management Reviewer(s)***—At least one Senior OCRWM Manager (Office Director or above) designated to render the final DPO decision during the appeal process who is knowledgeable in the subject area being reviewed, but who is not directly involved in the issue being reviewed. Use of standing management groups (e.g., License Application Integration Group, Project Operations Review Board) may be used if the nature of the DPO is consistent with the technical expertise of the management group.

***Resolution Team***—A team of personnel who are knowledgeable in the subject area being reviewed, but who are not directly involved in the issue being reviewed. The Resolution Team may be selected from YMP management or technical staff, list of proposed staff by the Originator, or non-YMP personnel.

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**Attachment 4****Change History**

<u>Revision Number</u>	<u>Interim Change No.</u>	<u>Effective Date</u>	<u>DESCRIPTION OF CHANGE</u>
0	0	10/20/2003	Initial issue. Supersedes the differing professional view and differing professional opinion process in AP-32.1Q, <i>Office of Civilian Radioactive Waste Management Concerns Program</i> , for OCRWM staff and direct contractors. Incorporated Document Action Request D9749.

## **Exhibit O**



Office of Civilian Radioactive Waste Management

QA: N/A

**PROCEDURE**

**RESOLUTION OF DIFFERING PROFESSIONAL OPINIONS**

**LP-REG-005-OCRWM**

**Revision 1 ICN 0**

Effective Date: 11/03/2004

Preparer: *Janis D. Verden*  
J.D. Verden

11/01/2004  
Date

Approval: *R.E. Spence*  
R.E. Spence  
Director  
Office of Performance Management and Improvement

11/01/2004  
Date

## **OCRWM**

**Type:** Line Procedure

**Procedure No.:** LP-REG-005-OCRWM

**Title:** Resolution of Differing Professional Opinions

**Rev./ICN:** 1/0

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### **1.0 PURPOSE**

This procedure establishes the process to disposition technical or regulatory related differing professional opinions (DPOs). It is an important element of the Safety Conscious Work Environment. It is the expectation that most differences of opinion will be resolved through exhibiting behaviors consistent with our core values that encourage the open expression and discussion of differing viewpoints. The purpose of this procedure is to support a work environment that encourages workers to express their best professional judgments even though those judgments may differ from the professional opinion of others or a management decision. This procedure also provides individuals with an opportunity to have their views heard and considered by management and, to the extent practicable, to participate in the DPO process.

The DPO process is separate and distinct from the Employee Concerns Program. The DPO process functions in conjunction with the Corrective Action Program and is not intended to be used in place of Corrective Action Program. To the contrary, personnel are expected to first attempt to resolve issues through discussions with their chain of command and use other normal issue resolution processes (such as the Employee Concerns Program or the Corrective Action Program) before using the DPO process.

In some instances, Office Directors may direct use of the DPO process to address perceived DPO situations that have not been pursued as DPOs. In such instances, Office Directors will designate personnel to assume the roles of Initiator and Initiator's Office Director and any other roles deemed necessary to clearly identify and address the issue.

The following issues are NOT included in the scope of this procedure:

- Resolution of grievances or personnel issues
- Issues previously considered, addressed, or rejected under this process, absent significant new information.

### **2.0 APPLICABILITY**

This procedure applies to Office of Civilian Radioactive Waste Management (OCRWM) Office of Repository Development (ORD) federal staff and direct support contractors who wish to express a DPO and have the DPO heard and impartially reviewed and resolved by management in a timely manner.

### **3.0 OTHER DOCUMENTS NEEDED/REFERENCES**

- AP-16.1Q, *Management of Conditions Adverse to Quality*
- AP-17.1Q, *Records Management*
- AP-32.1, *Office of Civilian Radioactive Waste Management Concerns Program*

**OCRWM****Type: Line Procedure****Title: Resolution of Differing Professional Opinions****Procedure No.:** LP-REG-005-OCRWM**Rev./ICN:** 1/0**Page:** 3 of 13**4.0 RESPONSIBILITIES**

**4.1** The Director, Office of Performance Management and Improvement (OPM&I), is responsible for the preparation, change, maintenance, and approval of this procedure.

**4.2** The following organizations or positions are responsible for activities identified in Section 5.0 of this procedure:

- a. DPO Initiator
- b. Director, OPM&I
- c. Office Director (and Managers of Direct Support Contractor Organizations)
- d. Responsible Individual
- e. Evaluator(s)

**5.0 PROCESS**

An overview of this process is depicted in the flowchart shown in Attachment 1, Flowchart for DPO Resolution. Acronyms and Abbreviations used in this procedure are defined in Attachment 2, Acronyms and Abbreviations. Terms used in this procedure are defined in Attachment 3, Definitions. Example DPO Form is provided in Attachment 4, DPO.

**Process Outline**

	<b>Page</b>
<b>5.1 INITIATION AND SUBMITTAL</b> .....	<b>4</b>
<b>5.2 PROCESSING AND REVIEWING</b> .....	<b>4</b>
<b>5.3 EVALUATION</b> .....	<b>5</b>
<b>5.4 DISPOSITION</b> .....	<b>6</b>

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### 5.1 INITIATION AND SUBMITTAL

- DPO Initiator**
- [1] **Initiate** a DPO by completing Attachment 4, DPO.
  - [2] **Obtain** a DPO number from the Director, OPM&I, or the designee.
  - [3] **Submit** the DPO and supporting information to the DPO Initiator's Office Director.

### 5.2 PROCESSING AND REVIEWING

- Director, OPM&I**
- [1] **Maintain** a log of all DPOs that are initiated, including date, DPO number, and initiator information.
- Office Director (and Managers of Direct Support Contractor Organizations)**
- [2] **Contact** the DPO Initiator **AND confirm** receipt of the DPO, requesting any additional information needed to clarify the issue, in order to fully support the DPO Initiator.
  - [3] **Review** the DPO to determine if the DPO is or contains a potential Condition Adverse to Quality (CAQ).
  - [4] **IF** a potential CAQ exists,  
**THEN ensure** that the CAQ is processed per AP-16.1Q.
  - [5] **Review** the DPO **AND confirm** that the submittal meets the criteria for a DPO as described in Section 1.0.
  - [6] **IF** review determines that the submittal does not meet the criteria for a DPO,  
**THEN summarize** the basis for rejection on the DPO, **advise** the DPO Initiator, **AND go** to Step 5.4 [7].
  - [7] **IF** initial discussion with the DPO Initiator resolves the DPO,  
**THEN summarize** the resolution on the DPO **AND go** to Step 5.4 [8].
  - [8] **IF** the DPO is not resolved,  
**THEN select** an involved staff representative to be the Responsible Individual to represent the prevailing staff view, management decision, direction, policy, or existing or proposed practice that is the subject of the DPO.

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### Responsible Individual

- [9] **Confirm** that the prevailing staff view, management decision, policy, or existing or proposed practice is accurately reflected in the DPO.

Note: Selected personnel shall be competent in the subject matter, drawn from personnel **not** directly involved in the issue being reviewed, and **not** in a position of authority over the Initiator. If a group is needed to evaluate the DPO, selected personnel shall include a designated Team Lead with responsibility for tracking the process, signing the forms, etc.

Note: If the Director, OPM&I, is the DPO Initiator's manager, then another Office Director shall fulfill this responsibility.

### Office Director (and Managers of Direct Support Contractor Organizations)

- [10] **Select** an individual or group to evaluate the DPO.  
[11] **Obtain** concurrence of selected personnel from the Director, OPM&I.

### 5.3 EVALUATION

### Office Director (and Managers of Direct Support Contractor Organizations)

- [1] **Outline** an evaluation approach with input from the Initiator to assure a thorough and objective evaluation of the DPO **AND attach** to the DPO form.

Note: If the Director, OPM&I, is the DPO Initiator's manager, then another Office Director shall provide independent concurrence with the Evaluator(s) approach.

### Evaluator(s)

- [2] **Obtain** concurrence with the evaluation approach from the Director, OPM&I.
- [3] **Conduct** a meeting with the Initiator and Responsible Individual prior to the start of the evaluation to perform the following:
- **Ensure** complete and accurate understanding of both sides of the issue.
  - **Provide** the Initiator and Responsible Individual an opportunity to clarify their views or to provide any additional information pertinent to the evaluation.

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- **Obtain** any needed clarifications of the prevailing staff view, management decision or policy, or existing or proposed practice that is the subject of the DPO from the Responsible Individual.

[4] **Notify** the Office Director if additional technically competent assistance is needed

[5] **Evaluate** the DPO **AND ensure** the following:

- The evaluation is completed in a timely manner consistent with the safety significance of the issue.
- The Initiator is informed of any delay and advised of the expected completion date.

[6] **Attach** results of the evaluation and any associated recommendations to the DPO form **AND submit** to the Office Director, including information compiled on prior actions, points of agreement and disagreement, and safety consequences.

### 5.4 DISPOSITION

Note: Consultation with other Office Directors may be appropriate when work scope or work execution is affected.

Office Director (and  
Managers of Direct  
Support Contractor  
Organizations)

[1] **Review** the evaluation approach, findings, and recommendations **AND recommend** decision after receipt of the evaluation results.

Note: If the OPM&I Manager is the Office Director for the DPO Initiator, then the decision rationale and approach shall be reviewed by another Office Director who will provide independent concurrence.

[2] **Review** the decision recommendation, rationale, and approach with the OPM&I Manager.

[3] **IF** the decision is not consistent with the evaluation recommendations,

**THEN review AND seek** direction as to a final decision with the OCRWM Deputy Director, ORD.

[4] **Document** the final decision on the DPO form.

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- [5] **Discuss** the final decision and rationale for it with the DPO Initiator and any other appropriate personnel.
- Evaluator(s)**
- [6] **Issue** any additional Condition Reports (CR) per AP-16.1Q as needed to address approved recommendations and corrective actions **AND record** the CR number(s) on the DPO Form.
- [7] **Compile** documentation **AND attach** to the DPO form the following:
- Any and all prior actions
  - Points of agreement as well as points of disagreement
  - Safety consequences.
- [8] **Transmit** all DPO documentation to the Director, OPM&I.
- Director, OPM&I**
- [9] **Update** the DPO Log indicating resolution of the DPO.
- [10] **Direct** the submittal of the DPO form and all attachments in accordance with Section 6.0 of this procedure.
- [11] **Direct** periodic submittal of the DPO Log in accordance with Section 6.0 of this procedure.

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**6.0 RECORDS**

The records listed in Subsection 6.2 shall be collected and submitted to the Records Processing Center in accordance with AP-17.1Q as individual records or included in a records package, as specified.

**6.1 QA RECORDS**

None

**6.2 NON-QA LONG-TERM RECORDS**

Individual Records:

DPO Form and all attachments  
DPO Log

**6.3 NON-QA SHORT-TERM RECORDS (THREE YEARS OR LESS RETENTION)**

None

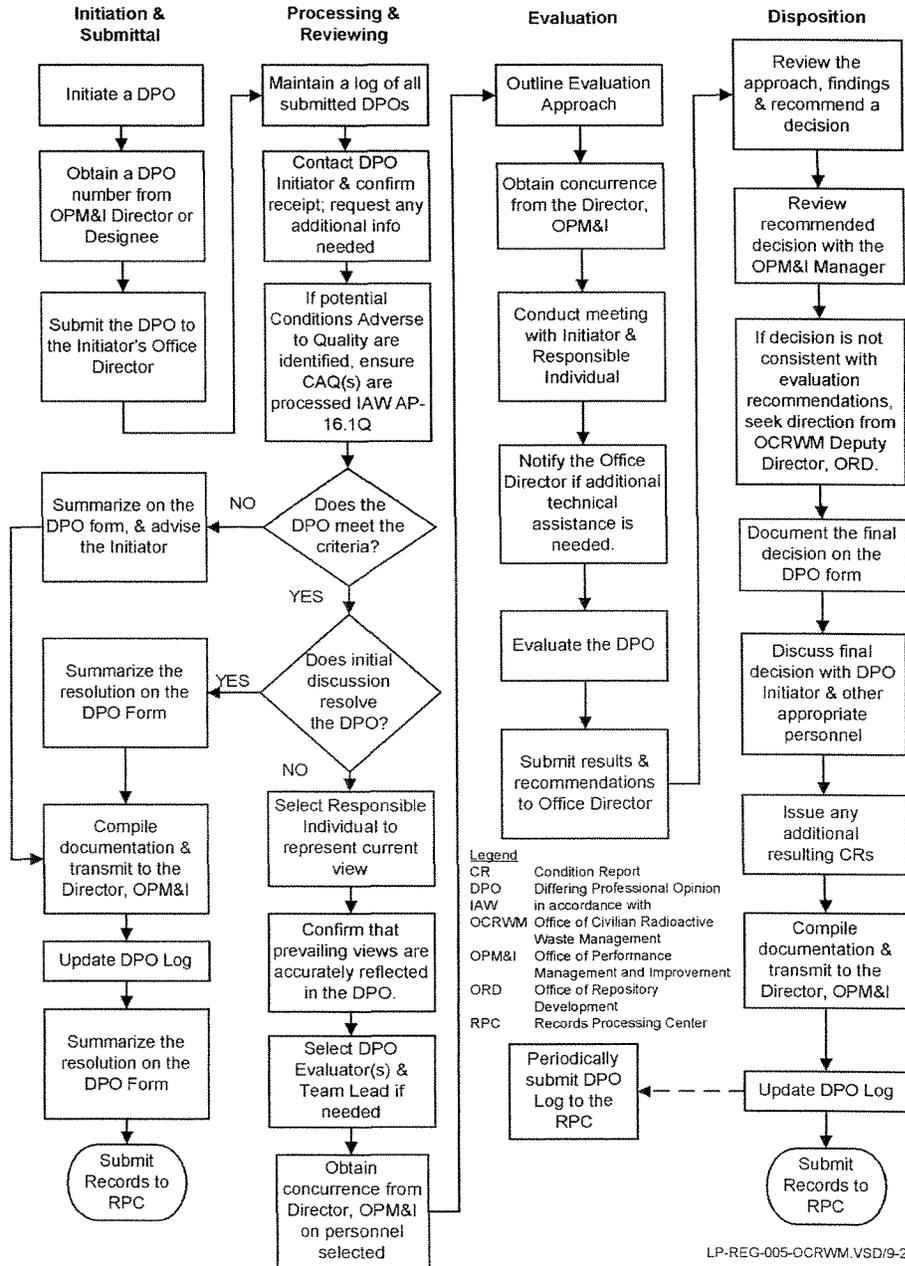
**7.0 ATTACHMENTS**

Forms attached to this procedure are controlled and distributed as full-size pages separate from this procedure and may be copied for use when implementing this procedure. The change history for this procedure is included as Attachment 5, Change History.

- 1 Flowchart for DPO Resolution
- 2 Acronyms and Abbreviations
- 3 Definitions
- 4 DPO (Form LREG5-1)
- 5 Change History

**Flowchart for DPO Resolution**

**DIFFERING PROFESSIONAL OPINIONS RESOLUTION**



**OCRWM**

Type: Line Procedure

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**Attachment 2****Acronyms and Abbreviations**

CAQ	Condition Adverse to Quality
CR	Condition Report
DPO	differing professional opinion
OCRWM	Office of Civilian Radioactive Waste Management
OPM&I	Office of Performance Management and Improvement
ORD	Office of Repository Development

**OCRWM****Type: Line Procedure****Procedure No.:** LP-REG-005-OCRWM**Title: Resolution of Differing Professional Opinions****Rev./ICN:** 1/0**Page:** 11 of 13**Attachment 3****Definitions**

***Differing Professional Opinion (DPO)***—A conscientious expression of a professional judgement that differs from the prevailing staff view; disagrees with a management decision, direction, or policy; or takes issue with an existing or proposed practice.

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**Attachment 4****DPO**

<b>OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT DIFFERING PROFESSIONAL OPINION</b>		QA: Page <u>1</u> of <u>1</u>
DPO Number:	Resulting CR(s):	
<b>SECTION 1 – INITIATION &amp; SUBMITTAL</b>		
Summary of the existing or proposed decision, position, or practice:		<input type="checkbox"/> Attachments
Initiator's professional opinion (as contrasted from above) and recommended actions to resolve concern:		<input type="checkbox"/> Attachments
Assessment of consequences (i.e., safety consequences of the issue to be resolved):		<input type="checkbox"/> Attachments
Reference documents and summary of previous efforts undertaken to resolve the issue (procedures, technical products, standards, specifications, CRs):		<input type="checkbox"/> Attachments
DPO Initiator wishes to participate in resolution of the DPO? <input type="checkbox"/> Yes <input type="checkbox"/> No		
DPO Initiator (print name and sign):	Date:	Phone:
<b>SECTION 2 – PROCESSING &amp; REVIEWING</b>		
Does DPO submittal meet DPO criteria? (If not, summarize basis for rejection) <input type="checkbox"/> Yes <input type="checkbox"/> No		Date:
If issue is resolved with DPO Initiator, summarize resolution:		Date:
Office Director (print name and sign):		Date:
Summary of Prevailing Staff View (by Responsible Individual):		Date:
Concurrence of selected personnel by Director, OPM&I (print name and sign):		Date:
<b>SECTION 3 – EVALUATION</b>		
Evaluation Approach:		<input type="checkbox"/> Attachments
Evaluator or Evaluator Team Lead (print name and sign):	Date:	
OPM&I Manager Concurrence with Evaluation Approach (print name and sign):	Date:	
Summary of Evaluation:		<input type="checkbox"/> Attachments
Recommendations:		<input type="checkbox"/> Attachments
Evaluator or Evaluator Team Lead (print name and sign):	Date:	
<b>SECTION 4 – DISPOSITION</b>		
Summary of Disposition:		<input type="checkbox"/> Attachments
Office Manager (print name and sign):	Date:	

**OCRWM**

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**Attachment 5****Change History**

<u>Revision Number</u>	<u>Interim Change No.</u>	<u>Effective Date</u>	<u>DESCRIPTION OF CHANGE</u>
1	0	11/03/2004	Reflects Office of Performance Management and Improvement ownership and approval. Provides opportunity for Differing Professional Opinion Initiator to participate in the Differing Professional Opinion resolution process. Provides guidance to Office Directors to use the Differing Professional Opinion process to address perceived Differing Professional Opinion situations. Excludes issues previously considered, unless significant new information is available. Changes responsibility for process administration and oversight to the Director, Office of Performance Management and Improvement, based on the new Office of Repository Development organization and reassignment of responsibilities. Updates the form to comply with the new process. Incorporates Document Action Requests D17491 and D17710.
0	0	10/20/2003	Initial issue. Supersedes the differing professional view and differing professional opinion process in AP-32.1Q, <i>Office of Civilian Radioactive Waste Management Concerns Program</i> , for OCRWM staff and direct contractors. Incorporated Document Action Request D9749.

## **Exhibit P**

**SUMMARY OF THE  
U.S. NUCLEAR REGULATORY COMMISSION / U.S. DEPARTMENT OF ENERGY  
QUARTERLY MANAGEMENT MEETING  
IN ROCKVILLE, MARYLAND  
NOVEMBER 22, 2004**

**Introduction**

The U.S. Nuclear Regulatory Commission (NRC) and U.S. Department of Energy (DOE) held a public quarterly management meeting on November 22, 2004. The purpose of this meeting was to discuss the overall progress of the project at the proposed geologic repository site at Yucca Mountain (YM), Nevada. The meeting was hosted at the NRC Headquarters in Rockville, Maryland, with audio connections to the Center for Nuclear Waste Regulatory Analyses (CNWRA) in San Antonio, Texas, and to the DOE offices in Las Vegas, Nevada. Other participants included representatives from NRC Region IV, the State of Nevada, the Nevada Nuclear Waste Task Force, Public Citizen, the press, and interested members of the public.

The NRC issued the notice for this public meeting on November 4, 2004. The meeting notice is available in the NRC Agencywide Documents Access and Management System (ADAMS) at Accession No. ML043090582.

**NRC Opening Remarks**

Mr. Jack Strosnider, Director, Office of Nuclear Materials Safety and Safeguards, NRC started the meeting by welcoming DOE managers, members of the public, and all other stakeholders.

He acknowledged that DOE might not be able to submit a license application (LA) for a geologic repository at Yucca Mountain, Nevada, by December 2004. He said that EPA had not specifically stated when and how it would revise its YM standard. He also said NRC would amend 10 CFR Part 63 to be consistent with any EPA revisions to the YM standard and that interested parties would have the opportunity to submit public comments in any rulemaking.

Mr. Strosnider noted that in August 2004 the Pre-license Application Presiding Officer (PAPO) Board granted the State of Nevada's motion to strike DOE's licensing support network (LSN) certification, and in September 2004, DOE filed a Notice of Appeal with the Commission to overrule a portion of the PAPO Board's August 31, 2004 order. He said DOE had indicated it would comply with those portions of the order that it did not appeal. On November 10, 2004, the Commission issued an order holding DOE's appeal in abeyance. Mr. Strosnider reminded the audience that, according to NRC regulations in 10 CFR Part 2, the staff cannot docket the LA until at least 6 months have elapsed from the time of DOE certification. He said NRC is interested in hearing from DOE about DOE's schedule for completing activities leading up to a DOE LSN certification and for submitting an LA.

Mr. Strosnider concluded by noting that the President's budget request for FY 2005 includes significant increases for the NRC's LA review, for the high level waste information technology and information management (IT/IM) metasystem, and for the NRC public hearing. He stated

that any decision to fund NRC below requested levels would adversely impact NRC's schedule for reviewing the LA.

### **NRC Program Update**

Mr. C. William Reamer, Director, Division of High-level Waste Repository Safety, NRC, presented the NRC program update. Mr. Reamer began by discussing key technical issue (KTI) agreements. He noted that DOE submitted its responses to all 293 KTI agreements by August 31, 2004. He said 124 KTI agreements had been completed and the staff was currently reviewing 169 KTI agreement responses. He stated that the staff plans to give DOE feedback on DOE's responses to high-risk-significance agreements by the end of December 2004.

He said DOE sent a letter to NRC in July 2004 to say that it would not provide supplemental responses to those KTI agreements that NRC did not close by the end of August 2004. In a September 2004 response to DOE's letter, the staff told DOE it expects the issue resolution process, including the KTI agreement information exchanges, to continue as pre-licensing activities until the LA is submitted. When DOE files an LA, the pre-licensing phase, along with the KTI agreement resolution process, will end, and the KTIs and the related agreements will no longer be the focus of NRC staff attention. From then on, NRC will evaluate whether the application adequately addresses NRC regulations. Consequently, the requirements in 10 CFR Part 63, not the KTI process, will provide the basis for a licensing determination. He said it will be up to DOE to decide how, or whether, to respond to the staff's feedback. The NRC will make its final determination on any issues relevant to licensing during review of the LA.

Mr. Reamer provided an update with regards to the status of the revised Integrated Issue Resolution Status Report (IIRSR). The staff began drafting sections of the IIRSR in December 2003. He stated that although the staff's initial target date was to publish a revision to the IIRSR by the end of September 2004, the staff was on track to distribute the report to DOE and stakeholders by the end of November as Revision 1 to NUREG-1762.

Mr. Reamer noted that since December 2003, DOE and NRC staff have held three technical exchanges to discuss the level of detail in the LA with respect to the design of surface and subsurface facilities. Specifically, in an October 2004 letter to DOE, the staff conveyed the NRC's expectations about the type and amount of information that DOE should provide on the design of subsurface and surface facilities to enable the staff to perform its technical review in accordance with 10 CFR Part 63 and the Yucca Mountain Review Plan (YMRP). The letter explained the agency's expectations on level of the detail in four areas: (1) the design of the site-specific cask to be used at the aging facility, (2) unresolved design issues regarding the important-to-safety (ITS) portion of the Geologic Repository Operation Area (GROA) electrical distribution system, (3) reliability values for equipment and systems, and (4) effects of preclosure operations on postclosure performance objectives.

Mr. Reamer said the NRC Yucca Mountain Inspection Program team (composed of Region IV, quality assurance (QA), Office of Enforcement, and onsite inspection staff) completed the revision to Manual Chapter (MC) 2300, "Yucca Mountain Inspection Program License Application Review." He noted that MC 2300 was revised to include risk information and to establish a phased inspection approach.

Mr. Reamer gave an update on the transition of the NRC onsite representatives to the NRC Region IV office. He indicated that NRC has slightly modified the structure of the Las Vegas office to focus on reviewing the potential LA and has moved some site office management functions to the region. Specifically, beginning FY 2005, one senior onsite representative will continue to report to HQ and the other senior onsite representative and the office assistant will be transferred to Region IV. In addition to performing activities in direct support of the licensing action, Region IV will also manage allegation followup and enforcement issues, if such issues arise, when DOE submits its application.

Mr. Reamer concluded by noting that the Advisory Committee on Nuclear Waste (ACNW) reported its working group's evaluation of igneous activities and their consequences in a November 3, 2004 letter to the NRC Chairman. The NRC staff is evaluating the working group's comments and will respond to the ACNW letter.

### **DOE Program Update**

Dr. Margaret Chu, Director of DOE's Office of Civilian Radioactive Waste Management, began her remarks by discussing recent significant events affecting the YM program. She said a draft LA was completed on July 26, 2004. The DOE reviewed that version of the LA and another revision was completed on November 5, 2004. That revision is currently undergoing DOE review. The DOE is also evaluating the impact of significant events, including the U.S. Court of Appeals' decision on the EPA radiation protection standard, and DOE certification of availability of documents relevant to the licensing of the repository through the Licensing Support Network (LSN). As a result, DOE is revising the goal to submit the LA to the NRC in December of 2004. DOE will provide a revised schedule to the NRC as soon as it is available.

Dr. Chu reported that funding for the Office of Civilian Radioactive Waste Management would be flat for Fiscal Year 2005 at \$577 million. She said that historical funding levels would no longer be sufficient to implement the national policy for a licensed geologic repository.

Mr. Reamer (NRC) asked Dr. Chu to clarify DOE's current goal for submitting the LA to the NRC. Dr. Chu said that the DOE will not submit the LA in December of 2004, but the delay will not be significant.

Mr. John Linehan (NRC) asked about the schedule for recertification of the LSN. Dr. Chu said that this is planned for the spring of 2005.

### **DOE Yucca Mountain Project Update**

John Arthur, Deputy Director, Office of Repository Development gave an update on the Yucca Mountain Project (YMP). Mr. Arthur said the purpose of his remarks was to summarize DOE's continuing improvements and accomplishments since the August 19, 2004, management meeting and to discuss the status of DOE preparations to submit the LA and complete the supporting documentation.

Mr. Arthur began by discussing the LSN activities. He noted that the Atomic Safety and Licensing Board (ASLB) granted a motion on August 31, 2004, to strike DOE's LSN certification. During the following 2 months, DOE closely examined DOE's internal processes

and the complete text of the ASLB decision. Since then, new internal requirements have been established, the budget has been realigned, and DOE is proceeding with additional work. DOE expects to recertify the LSN in the spring of 2005 timeframe.

Mr. Arthur noted that DOE would not submit the LA in 2004. In September 2004 DOE and Bechtel SAIC Company (BSC) completed a major management review of the draft LA. This review indicated that the science and design work completed in support of the LA was *technically sound, was adequate for its intended purpose, and meets quality assurance requirements.* This work supports robust safety analyses for the preclosure (operational) period through 10,000 years after permanent closure and was thoroughly cross-referenced against the requirements in 10 CFR Part 63 and the guidance in the YMRP.

Mr. Arthur said that DOE needs to refine the presentation of this technical work for licensing. Also, DOE needs to assure the transparency, traceability, and the self-sufficiency of the LA; and if necessary, clarify the presentation of technical, analytical, and compliance information; improve the readability of the document; provide more details, particularly in distinguishing structures, systems, and components that are important to safety or important to waste isolation; *verify document-to-document consistency between the LA and underlying technical documents that were in revision during the development of the draft LA (principally Analysis and Modeling Reports, System Description Documents, Facility Description Documents, and the Preclosure Safety Analysis);* and document some additional preclosure and design detail, consistent with discussions between DOE and NRC in the September 2004 technical exchange and based in part on DOE internal design reviews (in particular, important-to-safety Electrical Systems and the Aging Facility.)

Following the September management review, DOE and BSC produced an interim consolidated draft LA. This will form the basis for the final application. By the next NRC/DOE quarterly management meeting, DOE expects to discuss detailed plans and present a revised estimate for completing and submitting the LA to the NRC.

With respect to key technical issues, Mr. Arthur stated that on August 31, 2004, DOE submitted the remaining 17 of the 293 agreement item responses to the NRC. With this submission of information, the intended purpose of the KTI process has been met and the process completed for DOE. The KTI process has served an important role in facilitating resolution of many of the NRC staff's questions and concerns. Although the NRC has not yet evaluated and closed all of the agreements, DOE expects that any additional NRC staff questions or concerns regarding these agreement topics will be addressed during the licensing process.

With respect to Analysis and Model Reports (AMRs) supporting the LA, Mr. Arthur said that Phase II of the Regulatory Integration Team's (RIT) phase activities were almost complete. DOE has reviewed and is revising the AMRs to assure that they are suitable for the intended technical and regulatory audiences. To date, 87 of the 89 AMRs have been approved. The remaining two documents are scheduled for completion in November 2004. Quality metrics and quality assurance oversight indicate that this process has been effective based on the number of insignificant issues and unresolved items found during checking. Overall Mr. Arthur noted that the intent of DOE letter of May 28, 2004, to the NRC was being achieved.

Mr. Arthur then reported that for preclosure analyses, a Preclosure Design Integration Team was initiated to ensure that the preclosure safety basis is well defined, understandable,

complete, and reflected in an integrated manner in the documentation supporting the LA. Team activities include reviewing the current set of System Description Documents (SDDs), Facility Description Documents (FDDs), Preclosure Safety Analysis (PCSA) calculations, and other design calculations, as needed. This review will identify inconsistencies and discrepancies in these documents, as well as between these documents and the related LA sections. The reviews will focus on items and supporting documentation that are important to safety. The team will work with the authors of these documents to identify proposed changes that resolve the inconsistencies and discrepancies found during the reviews, and to ensure that the documents are completed or revised.

In the area of human performance, Mr. Arthur said that a condition report (CR) was initiated last spring in recognition of the impact of human performance on DOE quality products. DOE has developed a 2-year management plan describing the strategies, objectives, and goals for developing an "error-prevention mindset" by 2006.

After an introduction from Mr. Arthur, Peggy McCullough, BSC Deputy General Manager, discussed human performance, the status of CR-3235, and trends. She noted that BSC has completed a management directive that defines the direction and expectations for human performance. A 2-year management plan has been developed describing the strategies, objectives, and goals for developing an error prevention mind set by 2006. BSC integrated the human performance issues in the Quality Assurance Management Assessment report (QAMA) and Integrated Safety Management (ISM) Internal Assessment and formalized the activities to align with the Office of Repository Development (ORD) transition plan.

Ms. McCullough stated that an ORD/BSC Steering Committee oversees a human performance team that is charged with implementing the actions necessary to meet the goals. The primary focus since July 2004 has been to develop the basic human performance principles and practices. The objective to improve the self-reporting culture by January 2005 has achieved some notable success, primarily due to management focus on the BSC self-assessment program. Current metrics show significant improvement since April 2004.

She said that a self-assessment completed in July 2004 included an evaluation of the effectiveness of the human performance tools introduced in response to CR-1497 and adequacy of the changes implemented by management. The results indicated an improvement in performance as a result of implementing pre-job briefs, self-checking, checklists, and showed continuing usage of these tools. The recent trend report and the subsequent analysis suggest the human performance problems are in the skill-based area. The number of cross-cutting issues suggest a need to do a more thorough review of the causes of human performance problem to look for systemic or underlying issues.

With regards to CR-3235, a DOE/BSC management review of a draft root cause analysis revealed several deficiencies: no linkage between the data presented in the body of the report and the conclusions reached in the root cause summary; an erroneous conclusion that the closed CRs on Design & Engineering and the Preclosure Safety Analysis documents constituted a statistically significant trend; and failure to do an extent-of-condition review to

determine if a condition adverse to quality currently exists in the documentation. In an effort to improve the quality of this root cause analysis, BSC took the following steps:

- (1) Brought in a corporate team to do an extent-of-condition of a statistically significant sample of calculations and system description documents.
- (2) Gave the root cause evaluation team additional resources.
- 3) Clarified the root cause team charter to remove the presumption of the condition and its cause, and reinforced that the timeframe identified for the root cause report is a target.
- 4) Established a management oversight board to assist the root cause evaluation team.

Ms. McCullough said a number of metrics and trends showed positive results for current performance:

- Self-identification of CRs has remained above 90 percent for the past 7 months, with September 2004 at 95%.
- Average time to complete Level B and C conditions-adverse-to-quality (CAQs) is on a general downward trend, with the past 3 months averaging just above 60 days.
- As the CRs tied to RIT close at the end of November and early December 2004, BSC expects the statistics to be negatively impacted due to the lengthy time for completion of some AMRs.

The time differential between the scheduled closure date and the actual closure date of Level A and B CRs has ranged between an average 10 days early to an average 3 days late over the past 5 months. This is a particularly important statistic because although BSC measures itself against a static goal, BSC expects the staff to identify an appropriate schedule for completing corrective actions, and then to work to that schedule. BSC has consistently met its goal for closing CRs. For example, successful QA verification of Level A and B CRs was 96% for the month of October and has remained at 95% or better for the past 9 months.

With respect to Level C CRs, Ms. McCullough noted that BSC recently made a change to the corrective action program (CAP) to assign complete responsibility for closure of level CRs to the line organization. These issues are lower significance conditions, such as typos, omissions of initials, signatures or designators, and one-time minor procedural non-compliance. To gauge the line organizations' performance in assuming full responsibility for these CRs, each of the line organizations performed several self-assessments and an assessment of another organization's processing of these types of CRs. The majority of the assessments have been performed. During the past several weeks, the line managers have provided their analyses of these assessments.

When organizations found issues in reviewing their processing of these CRs, they initiated CRs documenting the issues. Independent of the line self-assessments, BSC requested that QA perform a 100% review of these CRs after closure and provide a scorecard on the performance of the line organizations. Some individual line organizations received unsatisfactory scores; however, the low scores tended to be on a very small number of CRs (only one in several cases). The responsible line managers have been directed to mentor the individuals involved in the processing of those CRs.

Mr. Arthur continued noting that with more than a year's worth experience in trying to meet the 30- and 100-day goals, the leadership council recently reviewed the data on the Level A CRs to see if these goals should be changed. The data showed an average of 53 days for an approved action plan, an average of 615 days for closure on closed CRs, and an average of 412 days for CRs currently open.

Mr. Arthur said DOE does not see these timeframes changing substantially at this point in the program because the Level A CRs have dealt with and will likely continue to deal primarily with complex intellectual processes. To date, all Level A CRs have required multiple actions and the products have been significantly delayed beyond the goals. Therefore, DOE believes it is better to define the appropriate timeframe for closing a CR and to work to the schedule that is identified for that CR, rather than to an arbitrary timeframe. Therefore, the project is eliminating the arbitrary 30- and 100-day goals and will set a root cause target completion date. BSC will establish due dates for actions based on their nature and significance and the project schedule and will hold organizations accountable for the due dates they have established.

Regarding Safety-Conscious Work Environment, Mr. Arthur said that ORD completed a project-wide survey in October 2004 with a 65% total response rate. DOE expects to have the final results tabulated and analyzed early in 2005 and hopes to share these results with NRC at the next quarterly management meeting. The annual Quality Assurance Management Assessment was completed on September 30, 2004, by D.L. English Consulting. This assessment was performed on the basis of Rev 14 of the Quality Assurance Requirements and Description (QARD). DOE has forwarded a copy of the report to NRC. No compromising flaws were observed in the infrastructure and mechanics of the QA program.

Mr. Arthur said DOE would appreciate any NRC feedback on KTI agreements that NRC staff categorized as high-significance as soon as possible. This will facilitate any necessary DOE actions as it proceeds toward the licensing process. As DOE continues preparations for submittal of the LA, DOE welcomes a continuing dialogue through technical exchanges and Appendix 7 meetings on subjects of interest to both NRC and DOE. DOE expects to have a revised LA schedule by the next NRC/DOE quarterly management meeting.

Mr. Reamer (NRC) asked if DOE would notify NRC of any scheduling decisions in writing if decisions are made before the next management meeting. DOE agreed to send a letter, if appropriate. Mr. Marty Virgilio (NRC) noted that DOE has not yet responded to the recent NRC letter on the level of design detail. Mr. Joseph Ziegler, Director, Office of License Application and Strategy, (DOE), noted that a response was not planned. DOE's current approach to level of design detail addresses the NRC concerns documented in the letter. Mr. Virgilio noted that it would be useful for NRC and DOE to have additional dialogue on the level of design detail before DOE completes its ongoing management review of the draft LA. Mr. Elmo Collins (NRC) asked if the current budget will impact design activities. Mr. Arthur said that DOE is trying to maintain the focus on design by cutting back in other areas such as long-term procurement. Mr. Reamer (NRC) said that he did not have the same level of confidence in the preclosure design integration activity as he did in the KTI response effort and the Regulatory Integration Team activities and it is not clear that DOE understands NRC expectations. With the new DOE schedule, there is an opportunity to clarify these issues. Mr. Ziegler (DOE) suggested that NRC and DOE could address preclosure design issues in a future meeting.

## License Application Update

Mr. Ziegler, Director, Office of License Application and Strategy, reported on the progress being made towards LA, including the status of the Regulatory Integration Team activities, the Preclosure Design Integration Team activities, management review of the LA, and KTI agreements. Mr. Ziegler provided a comparison of percentage completion for actions related to the LA from July 2004 to October 2004.

Regarding the Regulatory Integration Team (RIT), Mr. Ziegler noted that Phase I (reviews) was complete and Phase II (document revision and approval) was almost complete. Eighty-seven of the 89 AMRs that support the LA have been completed as of November 22, 2004. The remaining two are scheduled for approval by the end of November 2004. Quality metrics indicate that the RIT process has been effective.

Mr. Ziegler also noted that a Preclosure Design Integration Team (P/DIT) has been formed to ensure the preclosure safety basis is well defined, complete, and integrated in the LA support documentation. Fifty design and preclosure safety analysis documents are being reviewed and revised as appropriate. This activity is scheduled to be completed in December of 2004.

Mr. Ziegler provided a status of the management review of the LA. A joint DOE/BSC review of completeness of the LA was conducted during September 2004. The review indicated that transparency and traceability needed to be improved in some cases. The LA was revised and is under review in DOE.

Mr. Ziegler said that DOE had submitted responses to all 293 KTI agreements as of August 31, 2004. Of the 293 agreements, NRC considers 124 complete as of November 15, 2004. Mr. Ziegler said that a continuing dialogue between DOE and NRC technical staff might facilitate the NRC reviews.

Next, Mr. Ziegler discussed the September 2004 DOE/NRC technical exchange on Yucca Mountain surface and subsurface facilities, acknowledging the October 8, 2004, NRC letter reiterating NRC's expectations on content requirements for the LA.

In closing, Mr. Ziegler noted that the RIT activities are nearly complete, substantial progress has been made on the PDIT, a comprehensive management review of the LA has been completed, and data qualification, software verification, and model validation are essentially complete.

Mr. Strosnider (NRC) asked what criteria were used for the management review. Mr. Ziegler said that the YMRP criteria were used.

Mr. Reamer (NRC) asked if the 89 AMRs from RIT would be put on DOE website. Mr. Ziegler said that they would be put on the web or transmitted to NRC under a cover letter. He also said that DOE would send a list of the 89 AMRs to the NRC.

## Transportation Cask Systems Acquisition

Gary Lanthrum, Director, Office of National Transportation, summarized the DOE approach to

acquiring cask systems, and efforts to ensure compatibility of casks with Yucca Mountain surface facilities and with shipping sites. He also discussed the capability of commercially available casks to accommodate commercial and DOE spent fuel.

Mr. Lanthrum said that DOE is focused on using existing cask designs and Certificates of Compliance when possible. DOE also has a preference for cask systems that provide maximum flexibility. Final decisions have not been made on the suite of casks required for both transportation and an aging facility.

DOE has purchased cask capability assessments from vendors possessing NRC Certificates of Compliance. Analysis of vendor data indicated that existing casks and Certificates of Compliance could accommodate about 60% of the fuel available for shipment in 2010. Preliminary analysis by the vendors indicated that Certificates of Compliance could be modified to accommodate more than 90% of the commercial spent nuclear fuel inventory, based on characteristics of spent nuclear fuel alone.

Mr. Lanthrum said that existing casks are technically capable of transporting DOE waste. New internal baskets could be developed to accommodate the DOE canisters. DOE fuel will only be shipped in canisters during the first 5 years of repository operations. Finally, DOE will continue efforts to integrate planning to reduce the number of new casks for NRC review and certification. Mr. Lanthrum also noted that some of the utilities did not have the infrastructure to accommodate large rail transportation and that less than 30 percent of the inventory is compatible with current rail casks' Certificates of Compliance.

Mr. Reamer (NRC) asked about the path forward for facility infrastructure. Mr. Lanthrum said that any plans for changes to the utilities infrastructures would be driven by utilities' needs, and would have to come from the utilities themselves.

Mr. Robert Lewis (NRC) asked about the use of nonstandard casks, such as those that may be used by the Private Fuel Storage Project. Mr. Lanthrum said that this is a waste acceptance and contractual issue and not a transportation issue.

### **Quality Assurance Program Update**

Mr. Dennis Brown, Director, Office of Quality Assurance (OQA), provided an update on QA activities. Mr. Brown's presentation topics included the status of the Quality Assurance Requirements and Description (QARD), the corrective action program oversight, audits and surveillance, environmental management (EM) activities, Naval Nuclear Propulsion Program (NNPP) oversight, and trend evaluation and reporting.

Regarding the QARD, Mr. Brown summarized topics discussed during the September 2004 quarterly QA meeting with the NRC, including waste custodian interfaces, Part 21 commercial grade item dedication, records retention, supplier QA records, and ISO procurement.

Regarding the corrective action program (CAP), Mr. Brown reported that BSC QA is reviewing 100% of BSC Level C corrective actions and OQA is reviewing 100% of the DOE Level C corrective actions. OQA is observing selected BSC QA oversight activities. OQA completed surveillances of software quality assurance and AMR review and approval. In both cases,

procedures were effectively implemented and no conditions adverse to quality were identified. OQA has three audits planned through March of 2005, including preclosure safety analysis; qualification, indoctrination, training; and BSC Las Vegas activities.

BSC completed one audit on AMR documentation and several surveillances on data confirmation, model validation, waste package specifications, verification of education and experience, design and engineering processes, and effectiveness of CR-1720 corrective actions.

One limited-scope audit of EM activities was performed at Savannah River. The audit results indicated that the Savannah River high-level waste QA Program is effectively implemented. A desktop audit of the Office of River Protection high-level waste is in progress and an audit of the National Spent Nuclear Fuel Program in Idaho is planned for February of 2005.

OQA completed an annual program review of the NNPP and found that the NNPP QA Program was acceptable. Four observations were conducted during the fiscal year and no significant QA issues were identified. OQA is developing a new procedure that will formalize the OQA process for NNPP program oversight.

With respect to trend and evaluation reporting, more CRs are being self-identified. More than 80% of the CRs are Level C. The dominant causal factor is human performance (55%). Six procedures are causing 60% of the problems. An emerging issue has been identified related to change management and supervisory methods.

In closing, Mr. Brown discussed an organizational change in OQA to streamline the organization. Fred Brown (NRC) asked if OQA had identified any issues with model validation in the AMRs that OQA is reviewing to close the model validation CR. Mr. Brown reported that there may be issues in two of these documents.

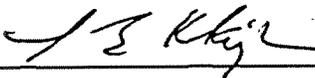
Mr. Reamer (NRC) asked about OQA interactions with the Preclosure Design Review Team. Mr. Brown noted that there is a full-time quality assurance engineer monitoring these activities. OQA is evaluating the need to conduct audit or surveillances of this activity later in the process.

**Action Items Status**

The status of open action items was discussed. Five new action items were established. DOE and NRC agreed to close two previous action items, MM 0304-07 and MM 0403-03. The status of the action items is summarized in the attached table.

**Public Comments**

Ms. Michele Boyd representing Public Citizen said that absent an EPA standard, DOE could not submit a high-quality LA. She said that the issues of igneous activity and corrosion need to be resolved before an LA can be submitted.

 Date: 12/2/04

 C. William Reamer, Director  
Div. of High Level Waste Repository Safety  
Office of Nuclear Material Safety  
and Safeguards  
U.S. Nuclear Regulatory Commission

 Date: 12/2/2004



Joseph D. Ziegler, Director  
Office of License Application and Strategy  
Office of Repository Development  
U.S. Department of Energy