Department of Energy
Office of Civilian Radioactive Waste Management
Yucca Mountain Site Characterization Office
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QA: N/A

JAN 31 2002

OVERNIGHT MAIL

John T. Greeves, Director
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U. S. Nuclear Regulatory Commission
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TRANSMITTAL OF "OCRWM MANAGEMENT IMPROVEMENT INITIATIVES" (THE *INITIATIVES*)

At the September 6, 2001, the U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) Quality Assurance (QA) and Key Technical Issues Status Management Meeting, the DOE advised the NRC that a plan was being developed to improve our level of performance as we prepare to move into a more rigorous nuclear regulatory environment. As committed to by the DOE, the completed plan is enclosed for your information.

Although originally envisioned to be "the corrective action plan" to address recommendations identified in the root cause analyses for Corrective Action Requests (CAR) BSC-01-C-001 and BSC-01-C002, the *Initiatives* has evolved during its development to be a more comprehensive plan that serves to communicate, increase awareness of, and track management's commitment to self-critical evaluation and continuous improvement. The *Initiatives* is also responsive to other recommendations such as those from the NRC, the 2001 Integrated Safety Management System Assessment, the 2001 Quality Assurance Management Assessment, and the 2001 Morgan, Lewis, and Bockius Safety Conscious Work Environment Final Report. Although the *Initiatives* does address recommendations from the aforementioned root cause analyses, they will be resolved and monitored, along with the other CAR corrective action commitments, via procedure AP 16.1Q, *Management of Conditions Adverse to Quality*, since that is our approved QA process for addressing conditions adverse to quality.

We will continue to keep you informed of our progress in implementing the process improvements discussed in the *Initiatives*.

WM-11

YMP-5

If you require any additional information, please contact Donald G. Horton at (702) 794-1301.

J. Russell Dyer
Project Manager

OL&RC: AVG-0566

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As stated

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QA: N/A

Office of Civilian Radioactive Waste Management

OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT (OCRWM) MANAGEMENT IMPROVEMENT INITIATIVES

Revision 00

January 2002

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

ENCLOSURE

Approval:

K. G. Hess — 1/17/02

Ken Hess, General Manager
Bechtel SAIC Company, LLC

Date

1/18/02

Russell Dyer, Project Manager
Yucca Mountain Site Characterization Project

Date

CHANGE HISTORY

Revision Number	Interim Change No.	Effective Date	Description of Change
00	0	01/18/02	Initial issue

CONTENTS

FIGURES

ACRONYMS & ABBREVIATIONS

AOS	August 2001 Senior Manager Offsite in Mesquite
BSC	Bechtel SAIC Company, LLC
CAR	Corrective Action Report
CIRS	Condition/Issue Identification and Reporting/Resolution System
CY	Calendar Year
DOE	U.S. Department of Energy
ISMS	Integrated Safety Management System
OCRWM	Office of Civilian Radioactive Waste Management
QAMA	Quality Assurance Management Assessment
NRC	U.S. Nuclear Regulatory Commission
SCWE	Safety Conscious Work Environment
YMSCO	Yucca Mountain Site Characterization Office

1. INTRODUCTION

In recent years, Yucca Mountain Project (Project) met significant milestones that address the potential recommendation of the site as the national repository for high-level nuclear waste. These milestones included publication of technical products representing over 20 years of site characterization and analysis performed through a collaborative effort, led by the U.S. Department of Energy (DOE) and supported by the U. S. Geological Survey, several national laboratories, and private contractors. Achieving these milestones involved the development and execution of unique, single-purpose methods of collecting and analyzing data.

Noteworthy achievements include new mining and drilling techniques that preserve site characteristics for data collection, plus a wide range of complex computer-based algorithms and models. Contributing scientists and engineers used customary practices of iterative development, expert knowledge-based decision-making, and peer review validation of analysis activities. The pioneering nature of early Project research drove a collegial, academic culture among institutions whose staff accomplished work in accordance with unique protocols and processes.

Beginning in 1998, senior Project managers agreed that products developed during earlier years might not be sufficiently rigorous for the U.S. Nuclear Regulatory Commission (NRC) to potentially docket a license application. As a result, Project managers began developing initiatives to help implement a transition from the research-driven environment toward the more rigorous nuclear regulatory environment. Reaffirming the need for such a transition was the identification of multiple significant conditions adverse to quality.

That same year, senior Project managers also endorsed an initiative called *Nuclear Culture* to begin the transition by adding rigor to existing processes that more closely aligned Project activities with nuclear industry standards. *Nuclear Culture* was characterized as a culture that required:

- Strict and literal procedural compliance
- Attention to detail
- Personal accountability
- Self-assessment
- Continuous improvement
- Prevention of complacency
- An inherent questioning attitude
- Teamwork, communication, and collaboration
- Regular critical reviews of work
- A more efficient and compliant infrastructure

Although the *Nuclear Culture* initiative realized progress, including more structured self-assessment and lessons-learned programs and several infrastructure improvements, its overall progress was limited.

In 2001, DOE oversight and employee concerns regarding some technical products and processes identified additional conditions adverse to quality, which were documented in two Corrective Action Reports (CARs) (Clark 2001). The significance of the new concerns was compounded by their similarity to those identified in 1998, indicating the likely existence of repetitive unresolved conditions.

During the period May through July 2001, the Project conducted two independent root cause analyses[1] that identified several potential problems, such as weaknesses in management systems, staff assignments, and organizational infrastructures. The first analysis addressed quality deficiencies and issues associated with model validation and software qualification activities. The second analysis addressed discrepancies identified in the Total System Performance Assessment for Site Recommendation (CRWMS-M&O 2000) and preparation of other technical products. Follow-up reviews verified the quality and soundness of Site Recommendation products, however confirmed some discrepancies needed correction.

As a result of the DOE's desire to continue transitioning into the regulatory environment of a potential license applicant, senior Project managers developed integrated project-wide drivers, herein entitled the *OCRWM Management Improvement Initiatives*. These initiatives are structured using techniques confirmed to be effective for sustained improvement at several NRC-regulated facilities. This document is intended to be a living document that highlights areas needing improvement and helps focus work, rather than a corrective action plan resulting from the CARs or root cause analyses. Although initiatives address recommendations identified by root cause analyses associated with the referenced CARs, specific CAR corrective actions will be resolved and monitored via procedure AP-16.1Q, *Management of Conditions Adverse to Quality*. Initiatives also include recommendations from the NRC, the Integrated Safety Management System (ISMS) assessment (BSC 2001a), the Quality Assurance Management Assessment (QAMA) (BSC 2001b), and the Safety Conscious Work Environment Final Report (Morgan et al.).[2]

These *OCRWM Management Improvement Initiatives* serve to communicate and increase awareness of management's commitment to continuous improvement and revitalize and reinforce earlier *Nuclear Culture* expectations. These initiatives will be prioritized and considered in the Project's Six Sigma[3] Program and will contribute to a

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[1]*Root Cause Analysis Report for CAR BSC-01-C-001, CAR, BSC-01-C-002*, Revision 1, August 8, 2001. ACC: MOL.20011023.0447. *Root Cause Analysis Report for Yucca Mountain Project Technical Document Deficiencies*, August 17, 2001. ACC: MOL.20011023.0449.

[2]*Bechtel SAIC Company, LLC (BSC) Integrated Safety Management System (ISMS) Annual Review Report*, ACC: MOL.20011023.0009. ; *Quality Assurance Management Assessment Report, Fiscal Year 2001, Office of Civilian Radioactive Waste Management*, Final Report, September 15, 2001, MOL.20020110.0010; *Safety Conscious Work Environment Final Report*, U.S. Department of Energy, Contract Number DE-AC08-01RW12154, Morgan, Lewis & Bockius LLP, Washington, DC, August 28, 2001 (redacted version).

[3]A rigorous, statistically based, customer-focused methodology to solve business problems and improve business results. Six Sigma strives for perfection.

more systematic approach toward achieving nuclear industry standards and improving business practices. The Leadership Team of senior Project managers will revise this living document as determined necessary. Currently, that Team is monitoring progress of action summary development and is actively involved in resolving issues when they arise.

2. STRUCTURE

Appendix A depicts a graphic representation of the Plan's structure, which is defined in this section and consists of: objectives, strategies for meeting objectives, action summaries for achieving the strategies, and performance measures for evaluating the implementation and effectiveness of the actions.

2.1 OBJECTIVES

Objectives are the highest and first-tier initiatives and are the drivers for overall senior manager expectations for Project activities. The following objectives were selected and developed by senior Project managers to focus improvements. Ownership of each objective and associated strategies and actions will be assigned to a senior manager. The objectives are:

Quality–Fully and effectively implement established and documented procedures to successfully support the quality and defensibility of Project technical products and NRC licensing and compliance activities. Mentor and support the line organization during the in-process development of technical products.

Safety–Protect the environment and the health and safety of the public and Project staff. Heighten awareness and understanding of the NRC policy for a Safety Conscious Work Environment (SCWE).

Project Management–Develop a current cost and schedule baseline that is technical, logical, and comprehensive. Develop and implement effective project management systems.

Human Performance–Improve organizational effectiveness: ensure that staff holding supervisory and leadership positions possess the necessary competencies to manage and lead the organizations; define and communicate expectations, roles, and responsibilities for effective contract execution; enhance training to reflect the greater rigor expected in a regulated environment.

Performance measures for objectives will be developed.

2.2 STRATEGIES & RECOMMENDATIONS

Strategies represent the second-tier and are broadly stated improvements that collectively contribute to achieving each objective. Strategies are based on proactive management initiatives, NRC and QAMA recommendations, recommendations from root cause analysis reports, and others. Root cause analysis recommendations are

referenced by abbreviated letters and numbers to retain the essence of original recommendations, i.e., M/S RC-2, -3, represents Modeling/Software Root Causes 2 and 3 from the *Root Cause Analysis Report for CAR BSC-01-C-001, CAR BSC-01-C-002* (BSC 2001c). Appendix B is a list of objectives and strategies that may be refined or augmented during the first quarter of Calendar Year (CY) 2002 and do not represent commitments to the NRC. The implementation of strategies is managed via action summaries, which will be fully developed during that time. Recommendations will be evaluated and their disposition documented in action summaries (e.g., action summaries for many recommendations are ongoing, some may not be practical at this time, while others may be schedule dependent).

Performance measures for strategies will be developed.

2.3 ACTION SUMMARIES

Action Summaries, the third-tier of the initiatives, will be developed by accountable individuals and their organizational counterparts during the first quarter of CY 2002. These summaries are intended to be living documents that detail the methods for implementing improvements to achieve the strategies. In addition, they will identify recommendations and corrective actions in the same manner as for strategies. Actions and deliverables developed in the future will be prioritized for incorporation into Project baselines after receiving required management reviews and approvals. Once the action summaries have been evaluated to determine their effectiveness toward achieving desired conditions, and appropriately integrated with supporting/affected individuals and activities, they will be maintained with resource-loaded schedules, e.g., Performance Evaluation and Review Technique/Critical Path Method schedules. Action summaries will:

- Summarize current condition or performance
- Summarize the desired condition or performance, including schedule considerations
- Define the approach to close the delta between the current and desired conditions
- Identify deliverables associated with action summary implementation
- Identify management sponsors and accountable individuals who develop, integrate, and implement actions
- Identify current and desired budget to support the actions
- Provide performance measures that monitor implementation and effectiveness
- Define necessary modifications as the Six Sigma initiative matures

2.4 PERFORMANCE MEASURES

Performance measures will be developed to monitor the progress of implementation and the effectiveness of actions taken and will provide the basis for follow-up assessments and monitoring of implementation effectiveness. Performance measures will take two forms:

- Status of initial implementation of the action summary or strategy, i.e., how implementation is proceeding
- Effectiveness of actions taken in responding to the needs identified by recommendations

Performance results will be documented and communicated to Project staff via integrated communications. If the results of performance measures indicate ineffective implementation in achieving or maintaining a desired condition, the accountable individual will develop, document, and implement corrective actions accordingly.

2.5 SOURCE DOCUMENTS

Source documents used as input (e.g., management initiatives, recommendations from root cause analyses, QAMA, or the NRC) are identified in Section 3, References. Recommendations will encompass sources such as:

- DOE/BSC Management Initiatives
- Corrective actions responding to deficiencies identified in the *Submittal of Bechtel SAIC Company Integrated Safety Management System (ISMS) Annual Review Report* (BSC 2001a)
- Recommendations from the *Safety Conscious Work Environment Final Report*, Morgan, Lewis & Bockius LLP (Morgan et al. 2001)
- *OCRWM Quality Assurance Management Assessment Report, Final Report,* September 15, 2001 (BSC 2001b)
- Incomplete/indeterminate self-assessment results subsequent to February 12, 2001

2.6 MANAGEMENT & IMPLEMENTATION

Responsibilities and accountabilities for improvement initiatives are shown in Appendix B. Four levels of accountability provide for the Project's sustained progress toward achieving its objectives:

- Leadership Team comprised of senior Project managers
- Executive Program Manager, designated to be the Manager of Projects, BSC, and Deputy Manager, Projects, BSC
- Management sponsors selected by the Leadership Team
- Accountable individuals

2.7 BUDGET & SCHEDULE MANAGEMENT

Accountable individuals will be responsible for working within approved budgets and schedules. Management sponsors will be cognizant of budget and schedule status and provide guidance and support to accountable individuals. Milestones and deliverables will be identified in action summaries for each strategy, which, after review and approval, will be included in the Project's Primavera P3® baseline schedule and managed as part of the baseline activities.

Resources required will be estimated and identified as part of action summary development. Funded activities will be integrated into the budget and schedule baseline. Resources for unfunded activities will be estimated separately, reported in the action summary, and proposed as baseline change proposals to obtain additional funding or reprioritize existing resources.

2.8 PERIODIC REVIEWS & REPORTS

Accountable individuals will report the results of performance measures for the previous calendar month by the fifteenth day of the following month, except as deemed less frequently by the Leadership Team. The reports will identify performance measure results and trends, a discussion of corrective actions for ineffective trends, and ongoing evaluation of improvement effectiveness. The Executive Program Manager will assemble and issue a consolidated report by the last day of the month following the reporting period. The consolidated report will be provided to the Leadership Team and routinely communicated to Project staff.

As requested, the Project Manager, YMSCO, will discuss progress of the improvement initiatives with the NRC at quarterly NRC/DOE Quality Assurance and Management Meetings.

2.9 MANAGEMENT OVERSIGHT

The senior manager Leadership Team will oversee and evaluate these initiative improvements on a monthly basis, or more frequently as appropriate, to ensure their effective implementation.

3. REFERENCES

3.1 DOCUMENTS CITED

BSC 2001a. *Submittal of Bechtel SAIC Company, LLC (BSC) Integrated Safety Management System Annual Review Report (ISMS)*, Revision 00, September 14, 2001. ACC: MOL.20011023.0009.

BSC 2001b. *Office of Civilian Radioactive Waste Management FY 2001 Quality Assurance Management Assessment Report,* Final Report, September 15, 2001. ACC: MOL.20020110.0010.

BSC 2001c. *Root Cause Analysis Report for CAR BSC-01-C-001, CAR BSC-01-C-002,* Revision 01, August 8, 2001. ACC: MOL.20011023.0447.

CRWMS M&O 2000. *Total System Performance Assessment for the Site Recommendation.* TDR-WIS-PA-000001 Revision 00, ICN 01. Las Vegas, Nevada: CRWMS M&O. ACC: MOL.20001220.0045.

Morgan et al. 2001. *Safety Conscious Work Environment Final Report, U.S. Department of Energy,* Contract Number DE-AC08-01RW12154, Morgan, Lewis & Bockius LLP, Washington, DC, August 28, 2001 (redacted version).[4]

3.2 CODES, STANDARDS, REGULATIONS, & PROCEDURES

AP-3.10Q, Rev. 2, ICN 4. *Analyses and Models.* Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: MOL.20010405.0009.

AP-SI.1Q, Rev. 3, ICN 2. *Software Management.* Washington, D.C.: U.S. Department of Energy, Office of Civilian Radioactive Waste Management. ACC: MOL.20011030.0599.

AP-16.1Q, Rev. 4, ICN 1. *Management of Conditions Adverse to Quality.* ACC: MOL.19991217.0503.

[4] NOTE: Portions of this report that discuss specific employee concerns, allegations, and findings are intentionally blank and clearly identified as such.

APPENDIX A

STRUCTURE

STRUCTURE

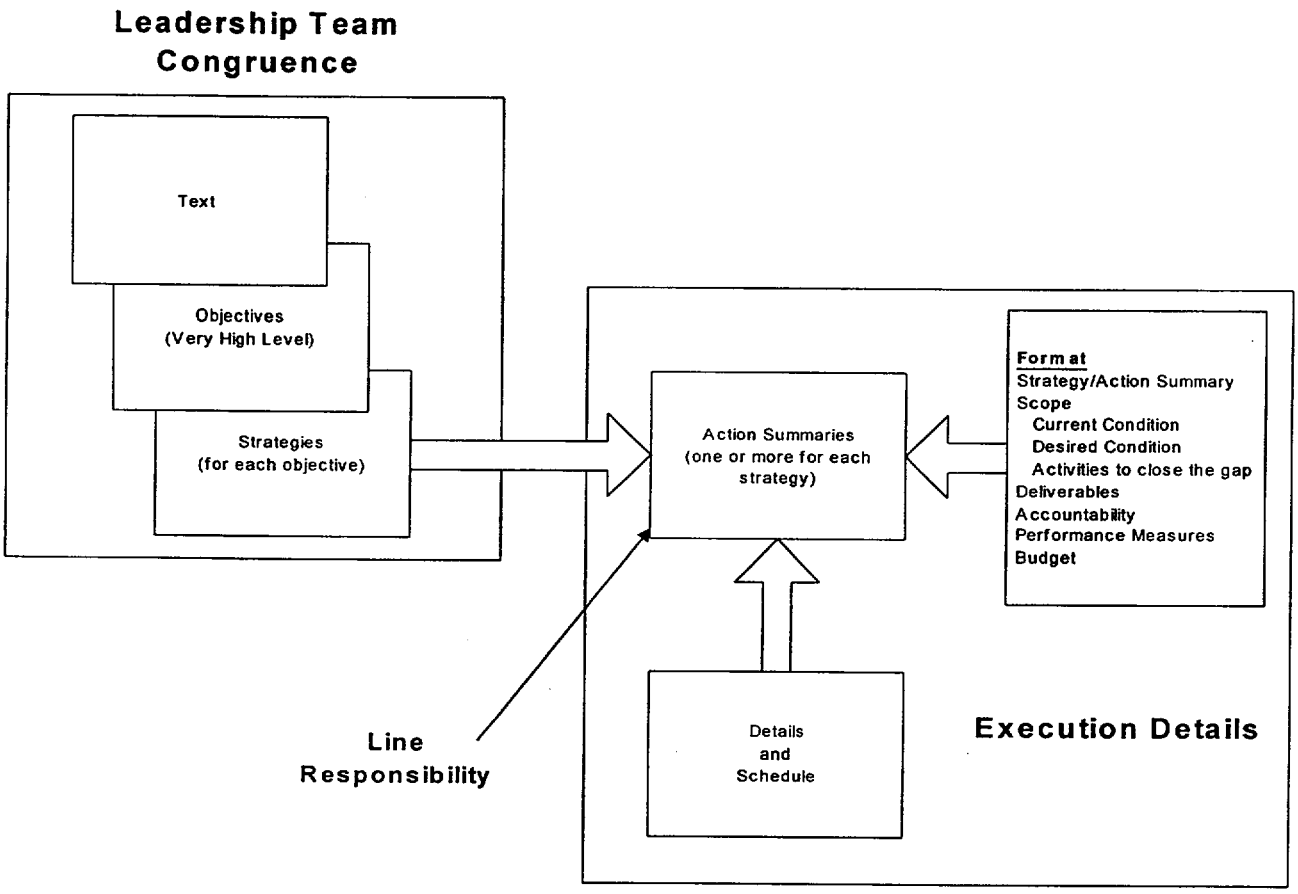

Figure 1. OCRWM Management Improvement Initiative Structure

APPENDIX B

RESPONSIBILITIES

Leadership Team – Responsible for Management Oversight and Sponsorship of Improvements, Objectives, and Strategies

Project Manager, YMSCO*
Deputy Project Manager, YMSCO*
Assistant Project Manager, Office of Project Execution, YMSCO
Assistant Project Manager, Office of Licensing & Regulatory Compliance, YMSCO
Director, Office of Information Management, YMSCO
General Manager, BSC*
Deputy General Manager, BSC*
Manager of Projects, BSC
Manager, Environmental Safety & Health, BSC
Chief Information Officer, BSC

- Direct, guide, and manage oversight for strategy and activity implementation
- Evaluate and approve initiative revisions
- Promote teamwork and support teams for development and execution of implementing actions

* Executive Committee of the Leadership Team

Executive Program Manager/Deputy Executive Program Manager – Responsible for Initial Development and Day-to-Day Implementation

Manager of Projects, BSC
Deputy Manager, Projects, BSC

- Develop and support review and approval of improvements, objectives, strategies, and action summaries
- Ensure improvements are responsive to needs and recommendations
- Ensure a high level of confidence exists for the effectiveness of actions planned
- Execute needed project management support
- Develop and implement long-term evolution of performance measures
- Communicate progress and results to Project staff

Management Sponsors – Responsible for Coordination and Management Oversight to Integrate and Execute Strategies and Action Summaries

- Review action summary scopes, detailed actions, budgets, and schedules
- Sponsor budget and schedule actions (i.e., baseline change proposals)
- Support senior manager review and approval of action summaries
- Monitor progress and results
- Communicate and report progress and results to Project staff

Accountable Individuals – Action Summary Accountable Individual

- Implement a team approach for developing, executing, and implementing actions
- Develop effective action summaries and obtain management review and approval
- Implement actions within approved budget and schedule resources
- Provide high quality deliverables
- Develop and implement actions for budgeting and scheduling as needed
- Develop and implement meaningful performance measures, including corrective action plans for performance measures that indicate ineffective results

APPENDIX C

OBJECTIVES & STRATEGIES

OBJECTIVE 1: QUALITY

Fully and effectively implement established and documented procedures to successfully support the quality and defensibility of Project technical products and NRC licensing and compliance activities. Mentor and support the line organization during the in-process development of technical products.

STRATEGIES FOR OBJECTIVE 1:

Q1. MINIMIZE REPEAT CONDITIONS

Q1.1 Improve quality assurance effectiveness
Q1.2 Improve effectiveness of the self-assessment program
Q1.3 Improve effectiveness of the lessons learned program
Q1.4 Improve effectiveness of the root cause analysis process

Q2. STRENGTHEN QUALITY-RELATED PROCESSES

Q2.1 Improve quality-related modeling processes
Q2.2 Improve quality-related software processes
Q2.3 Align procedure ownership and designation of interpretive authority
Q2.4 Evaluate the need to improve the management of data
Q2.5 Review scientific notebooks to determine whether national laboratories are documenting conditions adverse to quality to assure inclusion of the conditions in the corrective action program

OBJECTIVE 2: SAFETY

Protect the environment and the health and safety of the public and Project staff. Heighten awareness and understanding of NRC policy for a Safety Conscious Work Environment (SCWE).

STRATEGIES FOR OBJECTIVE 2:

S1. REINFORCE SAFETY CONSCIOUS WORK ENVIRONMENT

S1.1 Encourage staff to identify problems
S1.2 Communicate to staff their role in nuclear safety
S1.3 Assign a senior manager to be responsible for SCWE concerns

S2. INCREASE PROACTIVE PROBLEM IDENTIFICATION

S2.1 Strengthen management expectations for a single corrective action program
S2.2 Evaluate reportability of potential deficiencies

S3. HEIGHTEN MANAGEMENT SUPPORT AND DIRECTION TO OCRWM CONCERNS PROGRAM

S3.1 Effectively communicate to management their roles and responsibilities in the Concerns Program
S3.2 Address identified adverse trends from the OCRWM Concerns Program

S4. IMPROVE INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS) PERFORMANCE

S4.1 Establish a culture of procedural compliance within Site Operations and the balance of Project organizations
S4.2 Improve the thoroughness of pre-job safety planning activities

OBJECTIVE 3: PROJECT MANAGEMENT

Develop a current cost and schedule baseline that is technical, logical, and comprehensive. Develop and implement effective project management systems.

STRATEGIES FOR OBJECTIVE 3:

P1. ENHANCE PROGRAM PROJECT MANAGEMENT SKILLS AND IMPLEMENTATION

P1.1 Develop and manage an integrated, resource-loaded baseline schedule that provides for sufficient review/checking/validation/verification resources for technical input and products

P1.2 Realign budgets and schedules to ensure that fiscal accountability resides with responsible managers

P2. IMPROVE THE CONFIGURATION MANAGEMENT PROGRAM

P2.1 Establish effective configuration management processes

P2.2 Compare processes identified as best practices in the nuclear industry with current records and document control practices

P2.3 Establish requirements function and develop requirements

P3. SUPPORT THE IMPROVEMENT OF ORGANIZATIONAL EFFECTIVENESS

P3.1 Evaluate and improve the effectiveness of performance measures

P4. INTEGRATE BUSINESS PROCESSES WITH COMPREHENSIVE ARCHITECTURE PLANNING, INCLUDING INFORMATION TECHNOLOGY (IT) INVESTMENT MANAGEMENT

P4.1 Demonstrate enterprise view of program processes and IT Investment Management

P4.2 Simplify business processes and reduce duplicative investments

OBJECTIVE 4: HUMAN PERFORMANCE

Improve organizational effectiveness: ensure that staff holding supervisory and leadership positions possess the necessary competencies to manage and lead the organizations; define and communicate expectations, roles, and responsibilities for effective contract execution; enhance the training program to reflect the greater rigor expected in a regulated environment.

STRATEGIES FOR OBJECTIVE 4:

H1. IMPROVE MANAGER AND SUPERVISOR LEADERSHIP COMPETENCIES

H1.1 Define and provide minimum supervisory skills training for managers, supervisors, and team leads
H1.2 Define leadership competencies and assess current leaders against defined competencies
H1.3 Address the performance management process and competency development for leaders in individual development plans
H1.4 Use existing performance evaluation systems to remove unsatisfactory performers in managerial, supervisory, or leadership positions
H1.5 Attract, train, and retain a professional, competent staff

H2. ESTABLISH TEAM-ORIENTED PROJECT MANAGEMENT PERFORMANCE

H2.1 Develop a cohesive senior management vision statement that articulates expectations, roles, and responsibilities, for project management to ensure effective contract execution
H2.2 Develop training to communicate the vision and tools available for Project staff to execute the vision
H2.3 Improve communication and teamwork

H3. IMPROVE TRAINING PROGRAM

H3.1 Benchmark INPO's accredited training programs to develop a common understanding of expectations in the NRC-regulated environment
H3.2 Develop and execute a written training program improvement plan to ensure NRC expectations for training are met

APPENDIX D

RECOMMENDATIONS

SOURCE REFERENCE KEY FOR RECOMMENDATIONS

The following abbreviations are used throughout this Appendix to identify the source of recommendations.

M/S Recommendations from the *Root Cause Analysis Report for CAR BSC-01-C-001, CAR BSC-01-C-002, Revision 1, August 8, 2001* (MOL.20011023.0447)

M/S = Modeling/Software Root Cause Analysis
RC # = root causes
CC # = common causes
GC # = generic causes
RA = Recommended Actions

TD Recommendations from the *Root Cause Analysis Report for Yucca Mountain Project Technical Document Deficiencies*, August 17, 2001 (MOL.20011023.0449)

TD = Technical Document Root Cause Analysis
RC # = root causes
GC # = generic causes
RA = Recommended Actions

ISMS Recommendations in response to deficiencies identified in the *Bechtel SAIC Company, LLC (BSC) Integrated Safety Management System (ISMS) Annual Review Report*, Revision 0, September 14, 2001 (MOL.2011023.0009)

SCWE Recommendations from the *Safety Conscious Work Environment Final Report*, Morgan, Lewis & Bockius LLP, August 28, 2001

NRC NRC expectations, draft letter, August 17, 2001

QAMA Recommendations from the *Office of Civilian Radioactive Waste Management FY 2001 Quality Assurance Management Assessment Report, Final Report, September 15, 2001.* (MOL.20020110.0010)

AOS Recommendations developed during the August 2001 Mesquite senior manager off-site and communicated to the NRC via informal fax

MI DOE/BSC Management Initiative

OBJECTIVE 1: QUALITY

Fully and effectively implement established and documented procedures to successfully support the quality and defensibility of Project technical products and NRC licensing and compliance activities. Mentor and support the line organization in the in-process development of technical products.

RECOMMENDATIONS FOR OBJECTIVE 1:

Q1. MINIMIZE REPEAT CONDITIONS

Q1.1 Improve quality assurance effectiveness

- Q1.1.1 Provide quality culture briefings to line organizations to facilitate improvements (MI)
- Q1.1.2 Improve communication between quality organizations (SCWE)
- Q1.1.3 Better communicate Quality Assurance role (SCWE)
- Q1.1.4 Model quality assurance improvement initiatives after the Zero Accident Philosophy program (MI)
- Q1.1.5 Improve QA-related training, in both effectiveness and efficiency, to better meet the needs of the line organization at all locations (QAMA)
- Q1.1.6 Evaluate the need for a BSC Quality Assurance Plan (M/S CC-3, TD RC-4)

Q1.2 Improve effectiveness of the self-assessment program

- Q1.2.1 Require managers to communicate assessment results/corrective actions to staff and via lessons learned (SCWE)
- Q1.2.2 Improve management response to self-assessment issues (SCWE)
- Q1.2.3 Provide sufficient priority to perform self-assessments (SCWE)
- Q1.2.4 Augment existing self-assessment training (SCWE)
- Q1.2.5 Evaluate results of self-assessments since February 2001 (NRC, AOS)

Q1.3 Improve effectiveness of the lessons learned program (MI)

- Q1.3.1 Ensure, as appropriate, conditions adverse to quality are communicated via the Lessons Learned program (MI)
- Q1.3.2 Improve utilization of the program by all Project participants (QAMA)
- Q1.3.3 Achieve a better balance between industrial safety and best management practices (QAMA)

Q1.4 Improve effectiveness of the root cause analysis process

Q1.4.1 Review the root causes from CARs 1 & 2 and on Total System Performance Assessment errors to identify similarities (NRC, AOS)

Q1.4.2 Compare to past corrective actions to determine:
- Whether past root causes were correct
- Why corrective actions taken did not prevent recurrence
- Which corrective actions were not effectively implemented

Q1.4.3 Evaluate CAR-01-002 sequence of events (SCWE)

Q1.4.4 Lower threshold for initiation of root cause analysis (M/S CC-3)

Q2. STRENGTHEN QUALITY-RELATED PROCESSES

Q2.1 Improve quality-related modeling processes

Q2.1.1 Ensure timely completion of the Model Validation Review (M/S RA 4.7.1)

Q2.1.2 Establish functional manager who owns the modeling process (M/S RA 4.7.2):
- Establish binding technical/quality requirements for AP-3.10Q
- Define model validation acceptance criteria
- Establish a single communication and feedback process
- Implement an effective disagreement escalation and resolution process
- Establish minimum training and experience requirements

Q2.1.3 Review/revise AP-3.10Q to incorporate results of the Model Validation Review (M/S RA 4.7.3)

Q2.1.4 Establish model application users group (M/S RA 4.7.4)

Q2.1.5 Establish modeling website (M/S RA 4.7.5)

Q2.1.6 Conduct modeling procedure training (M/S RA 4.7.6)

Q2.1.7 Conduct mentoring and assist visits with model developers (M/S RA 4.7.7)

Q2.1.8 Conduct lessons learned to establish best practices (M/S RC-2, -3)

Q2.1.9 Develop and enforce a resource-loaded schedule for Analysis & Model Report development (M/S RA 4.7.8)

Q2.1.10 Perform self-assessment of corrective action, revised processes, and training (M/S RA 4.7.9)

Q2.1.11 Establish performance measures (M/S RA 4.7.10)

Q2.2 Improve quality-related software processes

Q2.2.1 Establish a functional BSC software process manager to (M/S RA 5.4.1):
- Establish binding requirements
- Benchmark AP-SI.1Q, *Software Management*, against other DOE and commercial industry procedures
- Establish a timely feedback process
- Implement an effective escalation and resolution process

- Enforce minimum training/experience for model developers

Q2.2.2 Subdivide AP-SI.1Q into a series of procedures that (M/S RA 5.4.2):
- Establish a graded approach for routines, macros, single-use codes, and major applications
- Differentiate between commercial software, research code development, and process software
- Conduct user validation before implementation
- Perform a readiness review before implementation consistent with Capability Maturity Model
- Identifies points-of-contact for procedure questions
- Addresses maintenance/operational/implementation and retirement

Q2.2.3 Establish software website (M/S RA 5.4.3)

Q2.2.4 Establish a software users' group (M/S 5.4.4)

Q2.2.5 Establish a short-term team to assist in software process change management (M/S RA 5.4.5)

Q2.2.6 Provide compliance staff support to user developers; conduct lessons learned to identify best practices (M/S RA 5.4.6)

Q2.2.7 Establish enterprise architecture (M/S RA 5.4.7)

Q2.2.8 Establish performance measures for corrective action effectiveness (M/S RA 5.4.8)

Q2.3 Align procedure ownership and designation of interpretive authority

Q2.3.1 Transfer administrative procedures to BSC ownership as appropriate (M/S CC-4)

Q2.3.2 Appoint BSC functional manager for each procedure (M/S CC-4)

Q2.3.3 Benchmark procedure programs at DOE and commercial facilities to identify best practices (M/S CC-4)

Q2.3.4 Establish a more effective differing opinion [escalation] resolution process; streamline AP-5.1Q, *Plan and Procedure Preparation, Review, and Approval*, to (M/S CC-4):
- Include effective, streamlined procedure development and change process
- Involve owner and appropriate team members during development and change
- Provide for owner final authority for comment incorporation unless escalation to management occurs
- Increase efficiency and allow for employee participation
- Provide goals for a short turnaround for non-intent changes (i.e., one day) and a 30-calendar day turnaround for intent changes

Q2.3.5 Revise procedures as appropriate:

- Implement procedures on a trial basis to determine adequacy; include pilot/readiness review (NRC)
- Provide more effective procedure training (NRC)
- Monitor procedure effectiveness (NRC)
- Establish a firm date for reviewing and revising procedures to assure they are adequate and effective for the NRC licensing phase of the Project (QAMA)
- Revise the procedures around processes and outputs from the Project, rather than just on the existing set of procedures (QAMA)

Q2.4 Evaluate the need to improve the management of data (MI)

Q2.5 Review scientific notebooks to determine whether national laboratories are documenting conditions adverse to quality to assure inclusion of the conditions in the corrective action program (SCWE)

OBJECTIVE 2: SAFETY

Protect the environment and the health and safety of the public and Project staff. Heighten awareness and understanding of NRC policy on Safety Conscious Work Environment (SCWE).

RECOMMENDATIONS FOR OBJECTIVE 2:

S1. REINFORCE THE SAFETY CONSCIOUS WORK ENVIRONMENT

S1.1 Encourage staff to identify problems

S1.1.1 Senior management:
- Clearly express and model SCWE principles (SCWE)
- Clearly express expectations for raising/responding to problems (SCWE)

S1.1.2 Advertise and promote SCWE (SCWE)

S1.1.3 Better communicate differing professional opinions/views in the resolution process (M/S)

S1.1.4 Provide for easy closure of minor issues (TD RC-4, QAMA)

S1.1.5 Simplify CIRS to make it a useful management tools (QAMA)

S1.2 Communicate to staff their role in nuclear safety (SCWE)

S1.2.1 Enhance uniform and thorough understanding of nuclear safety and its relationship to current activities (SCWE)

S1.2.2 Revisit and expand nuclear culture initiatives (SCWE)

S1.2.3 Update licensing training (SCWE)

S1.2.4 Provide training on SCWE and harassment, intimidation, retaliation, and discrimination (SCWE)

S1.2.5 Augment management expectations for QA (corrective action program), SCWE, and the OCRWM Concerns Program in Orientation training (SCWE).

S1.3 Assign a senior manager to be responsible for SCWE concerns (SWCE)

S2. INCREASE PROACTIVE PROBLEM IDENTIFICATION

S2.1 Strengthen management expectations for a single corrective action program

S2.1.1 Benchmark issues-management programs (M/S CC-3)

S2.1.2 Develop a mature trending program for non-quality issues

S2.1.3 Separate issues-management from commitment tracking (TD RC-4)

S2.1.4 Train staff on management expectations/program requirements (M/S CC-3)

S2.1.5 Appoint a senior manager to conduct daily/routine screening and assignment of responsibility for employee self-identified issues (M/S CC-3)

S2.1.6 Senior management must play a key role in implementing an effective corrective action program on a high priority basis (QAMA)

S2.1.7 Line managers must be held accountable for assuring that corrective actions in their area of responsibility are identified and corrected (QAMA)

S2.1.8 Effective corrective actions should be a key element in each manager's performance appraisal, and should be directly tied to the BSC fee determination (QAMA)

S2.2 Evaluate reportability of deficiencies

S3. HEIGHTEN MANAGEMENT SUPPORT AND DIRECTION TO OCRWM CONCERNS PROGRAM

S3.1 Effectively communicate to management their roles and responsibilities in the Concerns Program

S3.1.1 Clearly express expectations for raising/responding to concerns (SCWE)

S3.1.2 Ensure appropriate, but not excessive, use of confidentiality (SCWE)

S3.1.3 Ensure early coordination with regard to issues (SCWE)

S3.1.4 Eliminate the practice of providing concerned individuals with copies of draft reports and recommended corrective actions (SCWE)

S3.1.5 Establish an understanding that the Concerns Program is an anonymous fact-finding management tool for evaluation and action (SCWE)

S3.2 Address identified adverse trends from the OCRWM Concerns Program

S4. IMPROVE INTEGRATED SAFETY MANAGEMENT SYSTEM (ISMS) PERFORMANCE

S4.1 Establish a culture of procedural compliance within Site Operations and the balance of Project organizations (ISMS)

S4.2 Improve the thoroughness of pre-job safety planning activities (MI)

OBJECTIVE 3: PROJECT MANAGEMENT

Develop a current cost and schedule baseline that is logical, comprehensive, and technical. Develop and implement effective project management systems.

RECOMMENDATIONS FOR OBJECTIVE 3:

P1. ENHANCE PROJECT MANAGEMENT SKILLS AND IMPLEMENTATION

P1.1 Develop and manage an integrated, resource-loaded baseline schedule that provides for sufficient review/checking/validation/verification resources for technical input and products (SCWE, TD RC-1, TD RC-2)

- P1.1.1 Establish a firm milestone to have the technical, cost and schedule baseline in place (QAMA)
- P1.1.2 Clearly communicate to all managers who is responsible for the effort and management expectations regarding the level of detail contained in the baseline (QAMA)
- P1.1.3 Provide project management training regarding schedule and budget (MI)
- P1.1.4 Include time for final, cohesive review of products (TD RC-1)
- P1.1.5 Senior management must value a robust checking and review process (TD RC-1)
- P1.1.6 Process must include a final check and review of a frozen document (TD RC-1)
- P1.1.7 Benchmark industry best practices to establish appropriate norms for the extent of checking/validation/verification resources and effort

P1.2 Realign budgets and schedule to ensure that fiscal accountability resides with responsible managers (AOS)

P2. IMPROVE THE CONFIGURATION MANAGEMENT PROGRAM

P2.1 Establish effective configuration management processes (TD RC-1)

- P2.1.1 Benchmark configuration management processes (TD RC-1).

P2.2 Compare processes identified as best practices in the nuclear industry with current records and document control practices (TD RC-1)

P2.3 Establish requirements function and develop requirements (QAMA, MI)

P3. SUPPORT THE IMPROVEMENT OF ORGANIZATIONAL EFFECTIVENESS

P3.1 Evaluate and improve the effectiveness of performance measures

- P3.1.1 Communicate error free goal (TD RC-5)
- P3.1.2 Create performance measures for root cause evaluations, management-directed self-assessment, and employee identification of issues (M/S CC-3)

P3.1.3 Establish performance measures that monitor root, common, and generic cause corrective action effectiveness/verification follow-up (M/S RA-6.3.3, TD RC-2)

P3.1.4 Set goals, monitor, trend, conduct assessments, and take management action when progress fails to achieve expectations (M/S RA-6.3.3, TD RC-2)

P3.1.5 Communicate goals and progress to personnel (M/S RA-6.3.3)

P3.1.6 Report results quarterly to Bechtel corporate management (M/S RA-6.3.3, TD RC-2)

P3.1.7 Bechtel corporate management: challenge Project performance and conduct field evaluations to validate performance (M/S PLT-3, TD RC-2)

P3.1.8 Create performance measures to monitor error-free progress (TD RC-5):

- Develop in-process technique for assessing technical adequacy and final personnel/group/organization errors (MI, TD RC-5)
- Integrate the performance evaluations processes with the selected performance measures (MI)
- Develop measurement of rework (MI)

P3.1.9 Establish metrics to ensure problems are resolved in a timely manner and that they do not recur (QAMA)

P3.1.10 Assign the lead for monitoring the corrective action program in YMSCO to an organization other than OQA, perhaps the Office of Project Execution (QAMA)

P4. INTEGRATE BUSINESS PROCESSES WITH COMPREHENSIVE ARCHITECTURE PLANNING, INCLUDING INFORMATION TECHNOLOGY (IT) INVESTMENT MANAGEMENT

P4.1 Demonstrate enterprise view of program processes and IT Investment Management

P4.1.1 Identify business processes

P4.1.2 Model As-Is, To-Be and perform gap analysis to transitional requirements

P4.1.3 Establish performance measures for the select, control, and evaluate phases of IT Investment Management

P4.2 Simplify business processes and reduce duplicative investments

P4.2.1 Unify redundant business processes

P4.2.2 Eliminate stove-piped systems

P4.2.3 Establish performance measures to demonstrate the reduction of duplicative investments

OBJECTIVE 4: HUMAN PERFORMANCE

Improve organizational effectiveness: ensure that staff holding supervisory and leadership positions possess the necessary competencies to manage and lead the organization; define and communicate expectations, roles, and responsibilities, for effective contract execution; enhance the training program to reflect the greater rigor expected in a regulated environment.

RECOMMENDATIONS FOR OBJECTIVE 4:

H1. IMPROVE MANAGER AND SUPERVISOR LEADERSHIP COMPETENCIES

H1.1 Define and provide minimum supervisory skills training for managers, supervisors, and team leads

H1.2 Define leadership competencies and assess current leaders against defined competencies

H1.2.1 Assess current manager and supervisor leadership skills (M/S CC-1, TD RC-3)

H1.3 Address the performance management process and competency development for leaders in individual development plans (MI)

H1.4 Use existing performance evaluation systems to remove unsatisfactory performers in managerial, supervisory, or leadership positions

H1.4.1 Train and mentor and/or replace management staff (M/S CC-1, TD RC-3)

H1.5 Attract, train, and retain a professional, competent staff

H1.5.1 Rely on proven INPO tools and guidance, including the use of self-assessments by the line organizations, on improving human performance and enhancing professionalism (QAMA)

H2. ESTABLISH TEAM-ORIENTED PROJECT MANAGEMENT PERFORMANCE

H2.1 Develop a cohesive senior management vision statement that articulates expectations, roles, and responsibilities for project management to ensure effective contract execution

H2.1.1 Within a facilitated session, senior managers agree on and communicate roles and responsibilities (M/S RA 6.3.1)

H2.1.2 Train staff on current performance-based contract requirements (M/S CC-1, TD RC-3)

H2.1.3 Expect contract to be followed; hold management accountable (MS, TD)

H2.1.4 Develop and communicate clear roles, responsibilities, accountabilities, and authorities (M/S, TD)

H2.1.5 Establish a firm date for developing a management plan, approach, and organizational structure that aligns the authorities and roles and responsibilities of the YMSCO and BSC organizations (QAMA)

H2.1.6 Involve managers in reaching and promptly implementing decisions and hold them accountable for effective implementation (QAMA)

H2.1.7 YMSCO evaluate the structure of other successful government and private sector projects (QAMA)

- Identify required changes in staffing or skill mix and set a date for implementing the changes (QAMA)

H2.1.8 Develop and issue a BSC Management Description (MI)

H2.2 Develop training to communicate the vision and tools available for Project staff to execute the vision

H2.2.1 For BSC employees, improve performance based in part on Bechtel's Performance-Based Leadership

H2.2.2 Define and implement values/expectations/consequences to performance evaluation processes (AOS)

H2.2.3 Train management expectations (include procedure program requirements) (M/S CC-4)

H2.2.4 Add SCWE and values/expectations to performance evaluation processes (SCWE)

H2.2.5 Define resources (i.e., legal, HR) to assist managers/supervisors (SCWE)

H2.2.6 Hold people accountable for strict and literal procedure compliance (NRC)

H2.2.7 Provide consistent rewards and discipline (M/S, SCWE)

H2.2.8 Hold managers accountable for product quality (TD RC-2) (example: AP-3.11Q, *Technical Reports*, Sec. 3.18)

H2.3 Improve communication and teamwork

H2.3.1 Integrate and communicate common theme for improvement initiatives (MI, QAMA)

H2.3.2 Develop a process for top-down communication of standard messages (MI)

H3. IMPROVE TRAINING PROGRAM

H3.1 Benchmark INPO's accredited training programs to develop a common understanding of expectations in the NRC regulated environment

H3.1.1 Strengthen training program with continuous job task analysis (M/S CC-5)

H3.1.2 Benchmark commercial nuclear facilities and DOE nuclear Category-1 facilities (M/S CC-5)

H3.1.3 Establish a method for measuring retention and proficiency (i.e., training effectiveness) (M/S RA-4.7.6, M/S CC-5)

H3.1.4 Revise training processes/management expectations to reflect best practices (M/S CC-5)

H3.2 Develop and execute a written training program improvement plan to ensure NRC expectations are met (MI)