

CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM M&O CONTRACTOR

Document Title: M&O MGDS Design Control Improvement Plan

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Introduction

This plan has been developed in order to document corrective actions planned in response to Quality Assurance verification and deficiency documents dated from January 1993 to the present. The purpose of these actions is to:

- (a) provide immediate response to open Corrective Action Reports (CARs);
- (b) ensure that conditions immediately adverse to quality (if any) are identified and corrected;
- (c) provide for the development of a series of improvements to the design control process to preclude similar future incidents; and
- (d) increase the confidence of external agencies and DOE in the M&O's ability to properly control our design procedures and processes.

Background

Since January, a number of Corrective Action Reports (CARs), have been generated which are associated with M&O design control procedures or processes being employed for design of the Exploratory Studies Facility (ESF). As a result of these CARs, the M&O has committed to developing an action plan for addressing these issues. This plan has been generated as a result of that commitment, and serves to document immediate and longer-term actions and the parties responsible for implementing these actions.

Actions identified in response to CARs that are still open, as well as those to improve the design control process, are documented in the form of tables as a part of this plan. The tables indicate the problems identified by the CARs and related discussions, the proposed solutions, the responsible parties, and the anticipated dates of completion.

Near-Term Response Actions

The response actions found in the "Immediate Corrective Actions" section of the action plan (Table 1) are those necessary to provide prompt assurance that any conditions immediately adverse to quality are identified and corrected. These problems include primarily procedural errors and inadequate M&O control over some specific elements of design control. Most of the immediate corrective actions are scheduled to be addressed by mid-August.

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Process Improvement Actions

The corrective actions found in the "Process Improvement" section (Table 2) are somewhat broader in scope, and imply a longer-term approach to improving the overall design control process for MGDS. The issues addressed in this section include: resolution of conflicts between the systems engineering/configuration management control and design control processes; enhanced understanding of and personnel training in the appropriate processes; improvement of our design products and associated procedures; and promotion of constructive attitudes toward the design control and other QA processes. The activities discussed in this section will take place over the next several months.

Implementation of Design Control Improvement Plan

Among the first steps in this action plan is approval of the plan itself. This plan is approved by the responsible managers from Systems Engineering, MGDS Development, M&O Nevada Site QA, and the M&O Nevada Site Manager; the M&O Systems Engineering Manager and M&O QA Manager provide concurrence.

The MGDS Development Manager has overall responsibility for ensuring that the improvement process described is properly executed in order to ensure that acceptable design control practices are in place for MGDS design activities. The MGDS Systems Engineering Manager has been designated the responsible manager for monitoring progress on the tasks detailed in this plan as well as ensuring that additional activities are undertaken if any are identified as necessary.

As part of the immediate corrective actions, a management steering committee will be established to ensure that a long term commitment to verbatim compliance with QA requirements is maintained. This steering committee will be supplemented by a working level QA committee.

The working level committee will be comprised of responsible individuals from the engineering and interfacing organizations. This working committee will principally be responsible for ensuring that self-identification of procedural compliance problems is achieved by identifying procedural ambiguities or inadequacies, and recommending appropriate revisions to the procedures. As the representatives of the direct users of the procedures, these individuals will be uniquely qualified to ensure that the procedure set is sufficient to control the work activities. The working level committee will report, on a regular basis, to the steering committee, who will in turn have authority to enact recommendations provided by the working level committee.

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FROM: DOE-YMGAD TO: 301 504 2260 AUG 18, 1993 3:14PM #378 P.07

**M&O MGDS Design Control Improvement Plan
Table 1 - Immediate Corrective Actions**

Problem	Recommended Solution	Responsible	Due
A. MGDS Development is experiencing continuing difficulties complying with QA requirements	1. Provide immediate "importance of QA" briefing for MGDS Development.	Foust Sandifer	Complete
	2. Establish a Management Steering Committee to monitor progress toward resolving issues.	Foust	Start 8/6
	3. Establish a QA Procedure Working Committee to act as a focal point for ensuring that necessary procedure enhancements are put in place on an ongoing basis. All affected line organizations should be represented.	Foust	Start 8/6
	4. Develop and distribute for concurrence the action plan for the near-term and long-term corrective actions.	Sandifer Geer	Complete
	5. Reinforce CCB Secretary's responsibility (at both Level 2 and 3) for ensuring completeness of change documentation.	Geer	8/13

FROM DOE-YMGAD TO: 301 504 2260 AUG 18, 1993 3:14PM #378 P.07

FROM: DOE-YMOAD TO: 301 504 2260 AUG 18, 1993 3:15PM #378 P.08

**M&O MGDS Design Control Improvement Plan
Table 1 - Immediate Corrective Actions**

Problem	Recommended Solution	Responsible	Due
<p>B. The RSN BFD has not been evaluated to determine if changes are necessary as a result of M&O-generated Package 1A design changes.</p>	1. Complete ILP for revising RSN BFD.	Buckey	Complete
	2. Tabulate and collect copies of all change requests (CRs) or Field Change Requests (FCRs) processed against Job Package 92-020, the ESF Baseline, or Package 1A drawings or specifications.	Cruz	8/13
	3. Review all CRs/FCRs for potential impact to the BFD; document results of review and categorize as follows: a. No change required. b. Editorial change recommended. c. Technical change required.	Engwall Naaf	8/13
	4. Provide redline version of BFD incorporating the changes required and recommended by item 3.	Engwall	8/30
	5. Submit Baseline Change Request per QAP-3-4 to request changes.	Engwall	8/30
	6. Complete the revision of RSN BFD and baseline the new document.	Engwall	9/10

FROM DOE-YMOAD AUG 18 1993 03:15 PM #378 P.08

FROM: DOE--YMOAD
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**M&O MGDS Design Control Improvement Plan
 Table 1 - Immediate Corrective Actions**

Problem	Recommended Solution	Responsible	Due
C. Change Request 93/405 resulted in a hand-written "TBV" being dropped from a drawing; problems with completeness of CR submittals.	<ol style="list-style-type: none"> 1. Review all current drawings and specifications against original Job Package 92-020 products and subsequent CRs & FCRs for similar error; document review and results as part of CAR response. 2. Process necessary changes to resolve any findings as a result of review. 3. Review all CRs for procedural compliance prior to issuing the change request. 	Engwall Naaf Engwall Naaf Jackson	8/13 8/27 Ongoing
D. There is no M&O procedure for formal documentation and tracking of TBVs/TBDs on design inputs/outputs.	<ol style="list-style-type: none"> 1. Complete the ILP for documenting and tracking TBDs/TBVs and begin tracking activities. 	Taipale Cruz	Complete (Approved 7/30)
E. There is no process for documenting interdisciplinary (ID) design reviews.	<ol style="list-style-type: none"> 1. Evaluate the need for an MGDS ILP based on the new QAP for documenting ID reviews. 	Engwall Naaf Jackson SI rep.	8/6

**M&O MGDS Design Control Improvement Plan
Table 1 - Immediate Corrective Actions**

Problem	Recommended Solution	Responsible	Due
F. QA requirements are described in specifications, but QA classification is not shown on drawings.	1. Ensure that QAP-2-3 is completed and approved by DOE.	Hastings	8/30
	2. Develop ILPs or QAP revisions for identifying QA classification on design outputs (including drawings and specs which contain QA and Non-QA components) in accordance with DIE results and QAP-2-3. Consult with MRS and Vienna on methodology.	Engwall Naaf Hastings	8/30
	3. Implement QAP/ILPs prior to final verification for 1B & 2A.	Engwall Naaf	9/27
	4. Begin incorporating into package 1A as design outputs are revised.	Engwall Naaf	8/30

**M&O MGDS Design Control Improvement Plan
Table 1 - Immediate Corrective Actions**

Problem	Recommended Solution	Responsible	Due
<p>G. Design inputs are not consistently shown on drawings and the M&O process for demonstrating traceability of requirements is not explicit.</p>	<p>1. Review M&O BFD traceability matrix and RSN CM report to identify most effective method of ensuring traceability.</p>	<p>Rindskopf Peters Leonard SI rep.</p>	<p>8/13</p>
	<p>2. Resolve Configuration Item/Architecture definition issues to ensure that a basis for establishing traceability exists.</p>	<p>Rindskopf Peters Leonard Robinson</p>	<p>8/13</p>
	<p>3. Revise or create procedures for implementation as appropriate.</p>	<p>Rindskopf Robinson</p>	<p>9/24</p>
	<p>4. Revise BFD as necessary.</p>	<p>Rindskopf Peters Leonard</p>	<p>9/17</p>
	<p>5. Revise drawings & specifications appropriately based on changes to BFD.</p>	<p>Engwall Naaf</p>	<p>9/24</p>
<p>H. Generic procedures are used for waste isolation and test interference evaluations, but line procedures specific to these evaluations are needed.</p>	<p>1. Develop ILP to formalize guidance on waste isolation evaluations.</p>	<p>Yunker</p>	<p>8/20 (draft)</p>
	<p>2. Develop ILP to formalize guidance on test interference evaluations.</p>	<p>Statton</p>	<p>8/20 (draft)</p>

**M&O MGDS Design Control Improvement Plan
Table 1 - Immediate Corrective Actions**

Problem	Recommended Solution	Responsible	Due
L. Review all design-related CARS to ensure corrective actions are being accomplished.	1. Tabulate & summarize all open and closed CARS affecting or involving the M&O design process.	Verdery	8/13
	2. Establish MGDS point of contact for all CAR responses for MGDS Development.	Sandifer	Complete (Verdery is contact point)
	3. Review outstanding actions to ensure timely completion.	Verdery	8/13

TO:

FROM: DOE-YMOAD

M&O MGDS Design Control Improvement Plan
 Table 2 - Process Improvement Actions

Problem	Recommended Solution	Responsible	Due
<p>J. Recurrent instances of non-compliance with procedural requirements.</p>	<p>Develop "Culture of Compliance".</p> <ol style="list-style-type: none"> 1. Involve M&O QA more proactively during design development. <ul style="list-style-type: none"> - Increase consultation - Increase surveillances 2. Invite DOE QA to review M&O design process. 3. Implement systems conformance reviews involving Systems Engineering, Regulatory & Licensing, QA. 	<p>Jackson</p> <p>Sandifer</p> <p>Geer</p>	<p>Ongoing</p> <p>Start 8/6</p> <p>FY 94</p>
<p>K. Perception exists that schedule pressures are impacting quality of work.</p>	<p>TBD (for example: Evaluate FY 94 schedule against FY 93 experience, foster culture of not being afraid to stop construction when appropriate).</p>	<p>Foust</p> <p>Sandifer</p>	<p>8/15</p>
<p>L. Perception persists that the design procedures are overly complex and difficult to follow; not developed or maintained by those performing work; feedback mechanism (to authors) is inadequate; revisions and improvement are not easily facilitated.</p>	<ol style="list-style-type: none"> 1. Evaluate the process by which M&O procedures are reviewed in the field to identify potential improvements. 2. Procedure review team to trial run the existing procedures and upcoming revisions to ensure that the procedures are adequate and to generate the necessary revisions and/or ILPs. 3. Conduct formal training on appropriate procedures. 	<p>Hodgson</p> <p>Geer</p> <p>Carruth</p> <p>Hodgson</p> <p>Geer</p> <p>Penovich</p>	<p>8/13</p> <p>Start 8/6</p> <p>Start 9/1</p>

TO:

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**M&O MGDS Design Control
Improvement Plan**

**Appendix A
Acronym List**

- 1A - Design Package 1A (primarily ESF surface facilities)**
- 1B - Design Package 1B (additional ESF surface facilities)**
- 2A - Design Package 2A (beginning of ESF excavation of North Ramp)**
- BFD - Basis for Design document**
- CAR - Corrective Action Request**
- CCB - Change Control Board**
- CI - Configuration Identifier**
- CM - Configuration Management**
- CR - Change Request**
- DIE - Determination of Importance Evaluation**
- DOE - Department of Energy**
- ESF - Exploratory Studies Facility**
- FCR - Field Change Request**
- ID - Interdisciplinary (as in "interdisciplinary review")**
- ILP - Implementing Line Procedure**
- M&O - Management & Operating Contractor**
- MGDS - Mined Geologic Disposal System**
- OCRWM - Office of Civilian Radioactive Waste Management**
- QA - Quality Assurance**
- QAP - QA Procedure**

Appendix A (continued)

QARD - DOE Quality Assurance Requirements and Description document

REECo - Reynolds Electrical & Engineering Company, Inc. (construction contractor)

RIB - Reference Information Base

RSN - Raytheon Services Nevada

SE - M&O Systems Engineering

TBD - To Be Determined

TBV - To Be Verified

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