Department of Energy
Washington, DC 20585

QA: L

APR 15 1997

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ISSUANCE OF SURVEILLANCE RECORD M&O-SR-97-015 RESULTING FROM THE OFFICE OF QUALITY ASSURANCE (OQA) SURVEILLANCE OF THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT SYSTEM MANAGEMENT AND OPERATING CONTRACTOR (CRWMS M&O)

Enclosed is the record of Surveillance M&O-SR-97-015 conducted by the OQA of the CRWMS M&O February 10 through March 10, 1997 at the Yucca Mountain Site.

The purpose of the surveillance was to review the Request for Clarification (RFC) process and implementation thereof.

There was one Deficiency Report issued as a result of the surveillance, which addressed using the RFC to provide design criteria without initiation of approved and authorized design methods.

The surveillance indicates that the CRWMS M&O is satisfactorily implementing the RFC process with some areas identified as needing improvement.

If you have any questions, please contact either James Blaylock at (702) 794-1420 or Wesley C. Pugmire at (702) 295-7992.

Donald G. Horton, Director
Office of Quality Assurance

OQA:JB-1374

Enclosure:
Surveillance Record M&O-SR-97-015

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OFFICE OF CIVILIAN
RADIOACTIVE WASTE MANAGEMENT
U.S. DEPARTMENT OF ENERGY
WASHINGTON, D.C.

Surveillance No. SR-97-015

QUALITY ASSURANCE SURVEILLANCE RECORD

SURVEILLANCE DATA

1. ORGANIZATION/LOCATION:	2. SUBJECT:	3. DATE:
Management & Operations (M&O) Architect/ Engineer (A&E)/M&O field offices at ESF pad	Request for Clarification (RFC) Process	01/13/97

4. SURVEILLANCE OBJECTIVE:

Review of the RFC process and Project implementation thereof. The review focused on the relationship between the RFC process and Design Control requirements defined by the Quality Assurance Requirements and Description (QARD).

5. SURVEILLANCE SCOPE:

The surveillance was limited to review of "Q" RFCs initiated during FY96 & 97. The review compared in-process and completed RFCs with the requirements of YAP-3.7Q, Rev. 0, Request for Clarification and DOE/RW-0333P (QARD) Rev. 5/6, Section 3, Design Control. Emphasis was placed on determining whether or not RFCs were used to provide new or revised design criteria in lieu of initiating design document (specifications/drawings) revision or issuing new design, as appropriate.

6. SURVEILLANCE TEAM:
Team Leader: W. C. Pugmire
Additional Team Members: N/A

7. PREPARED BY:		8. CONCURRENCE:	
W. C. Pugmire for	01/13/97	N/A	
Surveillance Team Leader	Date	Director, OQA	Date

SURVEILLANCE RESULTS

9. BASIS OF EVALUATION / DESCRIPTION OF OBSERVATIONS:

This surveillance was initiated as a desk-top review of RFCs processed in FY96 & 97. The initial review was followed by interviews with M&O A/E and Quality Assurance (QA) personnel (i.e., the M&O organizations responsible for providing RFC response [termed "evaluation"] and concurrence, respectively).

The review used the Construction Management Office (CMO) copy of RFCs as the most up-to-date/accurate version of the RFC available (per field A/E recommendation). The CMO secretary assigns a unique number and logs each RFC upon initiation, with the intent of tracking the RFC status through closure. A copy of the initial RFC is forwarded to the appropriate engineering organization, with the original typically held in the CMO logbook. When determinations are reached through the engineering evaluation process, a response is documented with concurring signatures from M&O technical and quality reviewers. Copies of the "completed" RFC, are distributed to concerned individuals/organizations with the original record submitted to the Records Processing Center (RPC) for retention.

YAP-3.7Q Rev. 0, Para. 5.4 b), requires that RFCs be "incorporated into the as-built drawings and specifications". The implication being that RFCs may be considered design source documents in the as-built design process, and as such, should be controlled in accordance with Section 3 of the QARD. However, the status of the RFC as a design source/input becomes questionable when referencing Para. 2.0 of the same procedure which states, "It (the RFC) shall not be used for revising (continued on page 2)

10. SURVEILLANCE CONCLUSIONS:

Based on information gathered during the course of this surveillance, implementation of the RFC process and use thereof is satisfactory, with some areas identified as needing improvement. There was one Deficiency Report (DR), and one recommendation resulting from this surveillance.

DR YM-97-D-031 address misuse of the RFC in providing design criteria without initiation of appropriate and authorized design methods (e.g., FCR/BCP, ECR, NCR, etc.). In addition, the adequacy of the system (or lack thereof) which oversees and directs the RFC process and related actions/activities is documented by this DR.

Recommendation - A recommendation is made regarding M&O development of an implementing procedure for the RFC process, which provides details on the process, responsibilities, and related activities not presently available in YAP-3.7Q. An alternative would be to initiate a DAR for YAP-3.7Q requesting that additional implementing details and instruction be included for the process.

11. COMPLETED BY:		12. APPROVED BY:	
W. C. Pugmire for	04/08/97		4/14/97
Surveillance Team Leader	Date	Director, OQA	Date

9. Basis of Evaluation/Description of Observations: (continued)

documents/drawings, although it may be used as the basis for initiating revisions that result from documented clarifications.". In other words, even though the RFC is used as a source document when preparing final, as-built drawings and specifications, it may not be used to provide new or revised design criteria for construction, operations, or maintenance purposes. From discussion with individuals involved with initial RFC process development, the reason the RFC was identified for consideration when preparing as-builts was to capture any design information which may have inadvertently been provided by the RFC process. The potential for misuse of the RFC process exists simply because design criteria can be provided, without concurrent or subsequent issue of authorized change documents (e.g. FCR/BCP, ECR, ICN, NCR or FDR). The RFC process was initiated to serve as a communications tool, which would document questions concerning intent of design, or proposed actions to meet what was thought to be the intent of the design. Project engineering, construction management, quality assurance/control, and construction contractors communicate in this manner on design issues not clearly defined or understood. The RFC appears much like a standard design change document, with engineering and quality assurance signatory to the form. The similarities may influence engineering at times to cross the boundary from clarification to design. The same similarities can also influence construction contractors, who undoubtedly view the RFC as being more than just a documented explanation from the designer. Interviews with responsible personnel in the RFC process confirm that individuals are knowledgeable about proper use of the process; however, it is not always easy to determine when clarification stops and ad hoc design begins. Several of the RFCs reviewed were determined to provide design criteria without requiring revision to design documents. Examples are provided as follows (synopsis of RFC subject matter included):

RFCs 96-054 & 96-053 (Q inquiries) - These inquiries were initiated by the constructor's QC, with both RFCs addressing similar subject matter (dry and wet process shotcrete). The RFCs both include multiple questions concerning shotcrete pre-placement/placement/post-placement issues. The specification sections queried through the RFC are 03362, Rev. 00, for dry process and 03363, Rev. 00, for wet process shotcrete methods. Both RFCs inquire about post-placement temperature measurement in accordance with ASTM C1064 (required by specification) as opposed to measuring surface temperature of placed shotcrete using a "contact" type thermometer. ASTM C1064 requires that temperature readings be taken a minimum of 3 inches below the surface using a "probe" type thermometer. The A/E responded that surface temperature of as-placed shotcrete was the information desired. Although these RFCs both indicate "Yes" in Block 12 (change document required), the specified changes address other non-related issues included in these multiple question RFCs (RFC evaluations identify which of the multiple conditions identified require change documents or design revision). The evaluation for the temperature inquiry did not stipulate design change requirements. As such, the RFCs provide revised requirements from those established by design. Other topics addressed by these RFCs may also provide new or revised design (e.g., criteria for prorating three and seven day cylinder breaks, criteria for establishing saturated/surface dry conditions on tunnel wall surfaces prior to application of shotcrete).

9. Basis of Evaluation/Description of Observations: (continued)

96-034 (Q inquiry) - This inquiry addressed an apparent conflict between the applicable specification section and an associated drawing note concerning steel set shimming requirements. Specification section 02341 Rev. 3, ECR E96-0019, deleted the requirement for shims to be equally distributed on both sides of the steel set (plus or minus two [2] inches). Drawing 41101 Rev. 3, Note 5, requires that both sides of the steel set be shimmed approximately equal (no stated tolerance). The RFC evaluation recognized the conflict and stated that the specification section was correct (shimming need not be equal); however, Block 12 was marked "No" with the intent (per Field A/E) that the conflict be corrected during the next revision of the drawing. The intent to correct the noted conflict at the next revision was not documented as part of the RFC. This RFC is a good example of how the process should work and addresses the type of issue for which the process was developed up to the point where the decision was made to delay correction of a problem. This example is different from the preceding examples, in that new or revised design is not provided by the RFC. It falls into the category of RFC misuse by establishing which of the conflicting requirements is correct, without initiating change documents to correct or delete the incorrect requirement from the design drawing. The drawing in question was obsoleted on 8/5/96; however, for a 3 month period beginning with completion of the RFC evaluation (5/6/96) and ending when the drawing was obsoleted, a known design inconsistency, identified on a Q drawing, applicable to a Q component, was not addressed by interim Project design change methods, available to resolve the condition described. Deferring design document change actions to the future should be avoided whenever possible, in particular if delaying the change process results in a known design inconsistency remaining in an "approved for use" status.

A review of RFCs with Block 12 marked "Yes" (change document required) indicates a lack of control in managing design changes which result from the RFC process. RFCs are often a catalyst in initiation of design changes; however, the RFC process does not provide closure for the "change document required" decision by identifying resultant change documents as part of Block 12, or elsewhere on the form. In effect, an action (initiation of a design change document) is assigned without verification/documentation that the action was accomplished or providing a path to objective evidence of completion. Usually, individuals assigned to evaluate the RFC are responsible for initiating design changes required (unless action is otherwise assigned or delegated). The CMO secretary maintains a logbook including an "open or closed" status indicator for all in-process RFCs, but does not track associated design change actions. Without a system for identifying and tracking these actions, there is no way to readily determine if actions were accomplished. Closure of an RFC is not dependent on design change actions (RFCs may be closed immediately after an evaluation is provided, whether required design change actions are complete or not).

9. Basis of Evaluation/Description of Observations: (continued)

Other observations which support development of a management system for RFCs include: RFCs submitted for A/E evaluation may not be answered or may be answered months later (e.g., RFCs 96-023, 96-029 and 96-032); RFCs which have been closed for some time without submittal to records processing center (e.g., RFCs 96-08, 96-17, 96-48, 96-57, and 96-58); and, in-process RFCs not controlled to prevent inadvertent loss or damage (i.e., RFCs 97-04 and 96-60 could not be located initially, but were later found to be with individuals performing evaluation or concurrence actions). The lack of an effective management control system for RFCs and related design change actions is addressed by Deficiency Report YM-97-D-031. Refer to Block 10, Surveillance Conclusions, for additional information.

The preceding activities and responsibilities are not addressed by M&O implementing procedures. Work is accomplished using YAP-3.7Q as both the requirement and implementing document. It is recommended that either an M&O implementing procedure be developed, or a DAR for YAP-3.7Q be initiated requesting that the RFC procedure provide additional, specific implementing instructions for the process.

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C. W. Wade, CMO Records Coordinator

9. Basis of Evaluation/Description of Observations: (continued)

Documents Reviewed or Referenced

*Request for Clarification 96-01 through 97-10 inclusive, various topics of inquiry
*BABEEOOOO-01717-6300-02341, Rev. 00, ESF Ground Support - Structural Steel and Accessories
*BABEEOOOO-01717-6300-03362, Rev. 00, Dry Process Shotcrete
*BABEEOOOO-01717-6300-03363, Rev. 00, Wet Process Shotcrete
*BABEABOOO-01717-2100-41101, Rev. 3, TS North Ramp, Steel Sets and Lagging Elev
*YAP-3.5Q, Rev. 3, Change Control Process
*YAP-3.7Q, Rev. 0, Request for Clarification
*AP-3.3Q, Rev. 5, Preparation and Submittal of As-Built Drawings and Specifications - (Superseded by YAP-3.5Q)
*American Society for Testing and Materials C1064, Standard Test Method for Measuring Temperature of Freshly Mixed Portland-Cement Concrete
*American Society for Testing and Materials A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
*Webster's II New Riverside University Dictionary, 1984 edition