# Configuration Control of Radiation Monitoring System Databases

## Purpose

EPRI publication CHEM 2023-018 [1], "Lessons Learned from Issues Affecting Radiation Monitors - White Paper," analyzes recent issues related to the calibration, maintenance, and use of radiation monitors that are relied upon to implement the site emergency plan and/or satisfy various area and effluent monitoring requirements. CHEM 2023-018 provides guidance to prevent similar issues, including a specific recommendation related to the configuration control of radiation monitor system (RMS) databases:

> *"The RMS database requires a rigorous change control process. One way to accomplish this is to utilize a high-level procedure to categorize and define the change processes for various database parameters. To ensure database changes are made when needed, all documents controlling work on the RMS, such as procedures, engineering design changes, and maintenance work orders, should point to the high-level procedure governing the database change control process. Another option is to prevent exiting calibration procedures until the database is updated for the changes that were required. The error trap to address is to ensure that the work management process requires that the most up to date values are entered into the system before the work management process can be exited."*

This white paper is intended to provide additional detail related to this recommendation, including a description of essential approaches and elements of RMS-related programs that support effective administration and maintenance of RMS databases.

## Background

RMS databases provide a crucial tie between a monitor's raw response (e.g., counts per minute, ampere, etc.) and the measurement result of interest (e.g. microcuries per cubic centimeter or millirem per hour) that is tied to the potential or projected dose to plant personnel or the public. Other parameters of interest contained in the database typically include monitor configuration, setpoints, check source acceptance criteria, and calibration information. The database includes values and information that are informed by one or more of the following:

- the initial primary calibrations and type-testing performed by the manufacturer that determined the generic response characteristics of the detector,
- any detector-specific parameters (either provided by the manufacturer or determined during calibration or maintenance activities at the station) that are needed to accurately convert detector response to the measurement of interest,

- inherent assumptions important to dose assessment, such as the source term distribution, that are needed to convert detector response to the measurement units required for the end user, and
- other manufacturer (and other) settings designed to ensure that detector response provides the required monitoring capabilities.

Emergency plans also rely on RMS instruments to classify events, provide input to dose assessments, and allow informed decision-making when constructing protective action recommendations for protection of the public. CHEM 2023-018 summarizes instances where failures to adequately maintain RMS databases have negatively impacted the ability of licensee processes to provide accurate decisions during emergency response activities. These instances have led to regulatory performance deficiencies.

To most end-users, the RMS database's impact on the measurement is invisible and not well understood. For instance, operations personnel and emergency plan participants are trained in the use of the monitors that are important to their roles; however, training for these roles rarely details the form, function, and processes associated with the RMS database. End users simply take the measurement results that were derived using the RMS database values and use them to conduct the tasks for which they are trained. Errors in the RMS database will result in inaccurate values provided to the end user which will, by extension, impact the calculations and decisions made using those values. In some cases, this could lead to inaccurate emergency classifications, dose projections and/or protective action recommendations. It is important to note that accuracy is critical to appropriate emergency response measures and that both non-conservative and overly conservative inputs can lead to unwarranted protective action recommendations that can have a negative impact on the health and safety of the public.

As such, it is imperative for licensees to recognize the importance of the RMS database to a broad range of programmatic needs. Individuals performing tasks that can impact the configuration of the RMS database must have sufficient relevant training/ familiarization and understand the impact of the database on these programs. Finally, licensee processes must be designed to ensure continued accuracy of the RMS database over time.

## Considerations for RMS Database Configuration and Control

Ensuring that an RMS database remains updated and current requires a holistic understanding of the processes that can impact the database. Key personnel who impact the related programs and instruments should be identified and trained/familiarized to the impact of their actions on the RMS database and system. Processes must be designed to ensure that needed database revisions are identified and implemented.

The following practices have been found to promote consistent excellence in RMS database management. While several of these considerations are broadly applicable to the RMS programs as-

a-whole, each of these provides opportunities to strengthen the controls of the RMS database and to drive cross-functional ownership of the associated programs.

## Identify and Understand Activities that Impact the RMS Database

There are a broad range of activities and personnel that can have an impact on the information/parameters contained in the RMS database or the use of RMS data. For instance,

- New procedures or procedure changes implemented for RMS system components or using data from the RMS database (including emergency planning, maintenance, radiation protection, chemistry, etc.)
- Design changes related to the systems or evaluations that use data from the monitors
- Calculations, including models used to convert monitor response (e.g., exposure or count rate, R/hr or c/min) to activity concentration, (e.g., $\mu Ci/cm^3$ or $Bq/m^3$)
- Implementing RMS database changes
- Reviews of maintenance and calibration records
- Software changes (e.g., changes to a dose assessment model, interfaces with emergency planning dose assessment software such as Unified RASCAL Interface (URI), etc.)
- Maintenance activities
- Setpoint revisions due to Offsite Dose Calculation Manual (ODCM) revisions
- Power uprates and fuel design changes (may alter expected isotopic mixtures)

## Training and Knowledge Transfer

Personnel performing RMS database tasks should have the requisite knowledge and skills related to the RMS system, design functions, and diverse program requirements and/or methodologies. For instance:

- Effluent program owners require a broad understanding of program bases and requirements, including integral knowledge of the RMS database form, function, and established control processes. These owners should also understand how the same monitors used for effluent monitoring may also be integrated into the emergency plan.
- Emergency planning personnel with roles related to dose assessment should understand the bases behind the RMS monitors, including how routine functions such as effluent controls and maintenance/calibration activities can impact the RMS database and, by extension, the emergency plan and implementing procedures. Emergency planning personnel must have a strong understanding of what instrumentation is considered Equipment Important To Emergency Response (EITER) and have a bias towards ensuring the instruments remain functional (including the accuracy of RMS parameters impacting monitor performance).
- Engineers assigned roles related to RMS programs require an understanding that RMS monitors satisfy multiple functions.

Training methods and qualifications required for key personnel involved in maintaining the RMS database should be based on the specific tasks being assigned. For instance, tasks associated with

RMS surveillance performance that may require changes to the RMS database may warrant formal task definition within an accredited training program (such as the instrument and controls technician program). Training and familiarization for program owners, engineers, and others not expected to make physical changes to the RMS database may be best accomplished using familiarization guides or similar.

Training materials related to RMS equipment tasks should address RMS database control expectations, as applicable. When personnel need to perform RMS database changes, to maximize the proficiency, the number of qualified personnel and the periodicity and content of training should be considered.

Licensed operators often perform reviews of RMS system surveillances and may provide authorization and review of RMS database changes. Licensed operator training programs should consider providing information related to the importance and reach of the RMS database to impact operator response actions and emergency plan decisions. Readily available reference or desktop guides may also assist control room personnel with providing oversight of these changes.

## Use of an RMS Steering Committee

Some sites utilize a multidisciplinary group for oversight of the RMS that includes all stakeholders to ensure that RMS responsibilities (including database management) are appropriately addressed. If an RMS committee is used, it should include all impacted/impacting departments to allow for cross-functional exchange of information and support (i.e., engineering, emergency planning, instrument maintenance, radiation protection, operations, chemistry). The frequency and form of interaction should be based on the current and anticipated RMS-related activities. For instance, a station that is actively planning or installing a replacement RMS system may require more frequent meetings and a different agenda than one that is strictly performing routine calibration and maintenance activities. Other times, the committee may only meet once per year. The committee should also convene when necessary for high level condition reports. While the RMS Steering Committee can be used to drive cross functional input and ownership, controls should be put in place to ensure that the committee's responsibilities do not delay routine fieldwork implementation/monitor restoration. The best practice would be for steering committees to determine in advance what activities require the committee's oversight and what ones do not. Corporate oversight or coordination between plant sites may be used to ensure that fleets have a consistent committee structure and requirements.

A key element of the success of RMS Steering Committees is the commitment of the participants as well as the support of supervision and management in ensuring the committee remains active and relevant. Aligned management support of this committee can provide a strong message of the importance of the RMS system (including the RMS database) to the station.

## Cross-Functional Reviews

Independent and cross-discipline reviews of database changes should be used to provide input and challenge from different program perspectives that rely on the RMS program. The selection of reviewers must be based on the potential impact of the database parameters being changed and with

the intent of ensuring the best possible review and challenge. RMS Steering Committee involvement in routine changes (i.e., setpoint changes for effluent discharges) should be limited, but it should be highly engaged in programmatic changes (i.e., setpoint changes that impact emergency classification thresholds).

If an RMS Steering Committee is used, then this committee may also be an effective means of providing high-level oversight of changes, tracking and trending system performance, driving system health priorities (as applicable), and ensuring that appropriate personnel have been engaged in reviewing database (or other program) changes.

## High-Level Procedure Controls for the RMS Database

Administrative processes must be sufficient to manage and control database parameters. Some stations have developed high-level procedures that categorize and define the change process required for various RMS database parameters. These procedures also define the roles and responsibilities related to RMS database control. Categorization should consider the impact of changing individual or types of parameters and the controls that are appropriate to implement the change. In some cases, identification and implementation of an RMS database change can be made through the execution of a maintenance procedure or work order. In other cases, an RMS database change may require a design change process to implement. For instance, RMS database parameters could be categorized as:

- Administrative: Parameters directly controlled by a procedure to facilitate operation and maintenance. Examples are setpoints or toggling a monitor out-of-service during maintenance to prevent alarms.
- Maintenance: Parameters that require modification because of maintenance or design modifications. Examples are the need for a different engineering unit conversion factor (ECF) following detector replacement, or the need to revise check source acceptance criteria because of radioactive decay, background subtract, or high voltage adjustments. Ultimately, these changes should also be controlled by procedure; however, changing them is not a common occurrence.
- Design: Parameters that are part of the monitor configuration such as the type of monitor, the number of channels, flow rates, pressure corrections, or parameters that affect Emergency Action Level (EAL) threshold calculations, etc. These are items that would require a design change document and are subject to a screening required by regulations for changes to the facility.

Database changes can be controlled by an approved form (change sheet, database change request form, etc.) that specifies what approvals are required for the parameter being changed. Open change approval sheets are tracked until the change is verified and reflected in the master database. This process may be vulnerable to failure if an incorrect value is input into the radiation monitor while the change is being tracked. Human performance tools such as independent verification of correct values may be warranted to prevent this type of failure.

Periodic review of the RMS database may be performed to ensure that all values are correct and/or to satisfy software quality assurance requirements. Any identified errors during such a review would be retrospective and may demonstrate existing non-compliance with station processes and regulatory requirements. As a result, periodic reviews are not an adequate substitute for review and validation of proposed database changes when executed.

Some plants perform periodic database reviews using a comparison utility that compares individual monitor databases to a master database. Discrepancies are documented in the corrective action program and flagged until resolved using implemented but open change approval sheets until the change is verified and updated to the master database. Then the change sheet gets a final sign off. The impacted radiation monitor may be non-functional or inoperable (for technical specification equipment) until the discrepancy is resolved. This process is contingent on the accuracy of the master database.

Processes should also require that impacted programs are notified of RMS database changes, either as part of the initial approval process (if appropriate) or as a communication for awareness.

## RMS Database Controls in Working Documents

To ensure database changes are made when needed, all documents controlling work on the RMS, such as procedures, engineering design changes, and maintenance work orders, should point to the high-level procedure governing the database change control process. These execution documents must reflect the appropriate controls for identifying and implementing RMS database changes in accordance with station processes. Some utilities perform a preventative maintenance task for downloading the RMS database values before a calibration to document the as-found state that can subsequently be used to validate the as-left state. Some plants also perform weekly/monthly checks for issues/changes in their databases.

Work processes should point to the master database and any open database change sheets, database change request forms, or procedures to ensure use of the most current database values, such as engineering unit conversion factors (ECFs), etc. Where ECFs require alteration, the associated procedure or work order should apply appropriate process controls to ensure that the correct ECFs are maintained.

Some plants require manual uploading of updated parameters. This practice requires the use of human performance tools to ensure no incorrect values are uploaded. Automatic uploading (if not prevented by inhibit switches) of updated parameters values should not be relied upon unless it is verified that any outstanding database changes have been reconciled with the operating database. Whether manual or automatic uploading is being utilized, for multi-channel monitors, caution is required to ensure that only the channel under maintenance is uploaded. Uploading the entire monitor may overwrite correct parameters in unaffected channels depending upon when the last time the master database was updated.

RMS parameter changes should be traceable to a procedure, work order and/or other document (e.g., a vendor document stored in the Document Control Record Management System that lists the RMS parameters) and should require sufficient rigor and peer/supervisor review to avoid and/or identify errors in entry. At some stations, operations shift personnel are involved in the final review and approval of completed surveillances and work orders associated with RMS components. While these personnel are not generally expected to have the detailed knowledge of the database as would an RMS program owner, operations can provide a critical timely review of the actions being taken to identify potential errors.

When a required RMS database change is identified, the work management process for that document (procedure, calibration, work order, etc.) should not be exited until the database change has been implemented, reviewed, and approved. This ensures that the RMS database remains current and that a backlog of intended change(s) does not exist as a potential error trap for future database reconciliation. For those sites that use a marked up physical version of the database, typically stored in the control room, the accuracy of the database is only ensured through rigorous application of procedural requirements to immediately update the physical database. The physical process may not contain the level or number of timely reviews prior to returning the monitor to service that other processes require.

## Detector Replacements

Detector replacement activities typically result in changes to the RMS database that are intended to ensure that the monitor is configured for the new detector to accurately indicate existing radiological conditions as well as to ensure traceability to the original primary calibration and type-testing.

The steps to perform a detector replacement should be included in appropriate work procedures (e.g., the routine calibration procedures for each model detector). In the detector replacement process where ECFs require alteration, the associated procedure should point to the appropriate steps in the database change control process. This is to ensure that the correct ECFs are maintained until the next detector replacement.

ECF changes will likely require the revision of the applicable acceptance criteria for transfer calibration sources.

- When the expected response calculations are performed for solid state detectors and some area monitors (e.g., Geiger Muller (GM) and ion chambers), the response of the originally installed detector to the transfer source(s) should be compared to that of the new detector to determine the correction ratio (original ECF/new ECF) equals transfer source correction ratio.
- When performing decay corrections for transfer sources, use the data from the original dedication (to minimize the propagation of uncertainties due to basing calculations on previous decay-corrected values) and ensure that the most up-to-date half-life values are used (e.g., from NUDAT or Henri Becquerel Laboratories).

# Summary/Recommendations

In summary, the above discussion is intended to provide considerations that may be used to evaluate and strengthen the understanding of, and controls for, the RMS database. While the specific details of an RMS program implementation may differ given organizational and equipment differences, the following high-level recommendations are offered for consideration.

Additional detail for individual recommendations is provided in the above sections.

## Identification and Training of Key Personnel

- ☐ Identify and understand the activities that impact, or are impacted by, the RMS Database. Related activities typically reside within multiple organizations including emergency planning, radiation protection, maintenance, chemistry/effluents, operations and engineering.
- ☐ Designate an owner/SME (Subject Matter Expert) of the RMS database.
- ☐ Define the roles and responsibilities of the groups that use and maintain the system.
- ☐ Identify the knowledge and skills needed to perform system maintenance and calibration activities and provide appropriate training and coaching/mentoring to workers.
- ☐ Include in training and coaching/mentoring opportunities a discussion of the reliance of site programs (e.g., performance of emergency plan functions) on the capabilities and functionality of the RMS. The goal is to cultivate an appreciation of the interrelationship between RMS operation and the requirements in various site programs, processes, and procedures.

## Independent and Cross-Discipline Reviews

- ☐ Use a multidisciplinary group for oversight of the RMS that includes all stakeholders
- ☐ Use independent and cross-discipline reviews of database changes to provide input and challenge from different program perspectives that also rely on the RMS program.

## Procedure and Work Controls

- ☐ Utilize a high-level procedure to categorize and define the change processes required for RMS database parameters.
- ☐ Control all work on RMS instrumentation using procedures, engineering design changes and/or maintenance work orders. All documents controlling work on the RMS should point to the high-level procedure governing the database change control process.
- ☐ Work processes point to the master database and any open database change sheets to ensure use of the most current database values.
- ☐ Control RMS database changes with a change sheet that specifies what approvals are required for the parameter being changed.
- ☐ Track open change approval sheets until the change is verified in the master database.
- ☐ Prevent exiting calibration procedures until database updates are complete.
- ☐ Require that impacted programs be notified of RMS database changes, either as part of the initial approval process (if appropriate) or as a communication for awareness.

# References


1. EPRI Document CHEM 2023-018. “Lessons Learned from Issues Affecting Radiation Monitors – White Paper”. December 2023
2. U.S. Nuclear Regulatory Commission 10 C.F.R. § 20. “Standards for Protection Against Radiation”. 2024
3. U.S. Nuclear Regulatory Commission 10 C.F.R. § 50. “Domestic Licensing of Production and Utilization Facilities”. 2024
4. U.S. Nuclear Regulatory Commission 10 C.F.R. § 72. “Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-Level Radioactive Waste, and Reactor Related Greater Than Class C Waste”. 2024

# Acronyms/Abbreviations

| | |
|---|---|
| $\mu Ci/cm^3$ | Microcuries per cubic centimeter |
| $Bq/m^3$ | Becquerels per cubic meter |
| c/min | Counts per minute |
| DBCR | Design Base Change Request |
| EAL | Emergency Action Level |
| ECF | Engineering unit Correction Factor |
| EITER | Equipment Important To Emergency Response |
| e.g. | For example |
| etc. | Etcetera |
| EPRI | Electric Power Research Institute |
| GM | Geiger Muller instrument |
| i.e. | That is |
| I/O | Input/Output |
| NRC | Nuclear Regulatory Commission |
| NUDAT | Interactive Chart of Nuclides and Nuclear Structure and Decay Search (https://www.nndc.bnl.gov/nudat3/) |
| ODCM | Offsite Dose Calculation Manual |
| RASCAL | Radiological Assessment System for Consequence Analysis for Radiological Emergencies |
| R/hr | Roentgen per hour |
| RMS | Radiation Monitoring System |

| | |
|---|---|
| SME | Subject Matter Expert |
| URI | Unified RASCAL Interface |
| U.S. | United States |

# Appendix A – Example of Plant Procedure for Database Control

As described throughout this document, there are many approaches to database control that can be used effectively. This appendix provides an example of one plant's approach to this activity - below are excerpts from the procedure used for establishing the requirements for controlling changes to installed computer databases including Radiation Monitoring System parameters and tracking outstanding database changes to ensure that approved changes are incorporated into controlled documents. The forms referenced are provided at the end of this Appendix.

## Purpose and Scope:

1. Applies to databases containing programs / parameters for several systems, including RMS.
2. Parameters that are changeable by the user / Operator are not controlled by this procedure.
3. Does not provide testing instructions for database parameters changed in accordance with procedure.
4. Temporary modifications of certain database parameters are controlled by other procedures.

## Definitions

DBCR PACKAGE - The database change control documentation package which describes changes to database computer points/parameters. The controlling document in this package is the Form 1. The DBCR Package contains the following, as applicable:

- Database Change Request (DBCR) Form 1
- Attachments by Originator
- User Department Database Change Request Review Form 2
- Database Change Request Impact Assessment Form 3 and any associated 10CFR50.59 Review or 10CFR72.48 review documentation
- Computer printouts used to verify the installation.

INDEPENDENT REVIEWER - A technically qualified person assigned to review a specific DBCR Package. The Independent Reviewer SHALL NOT participate in the implementation or have immediate supervisory responsibility for the individual performing the implementation of a DBCR Package.

USER GROUP (ORGANIZATION) - A person or group who is the normal operational user of a computer system function or output (e.g., Plant Operations, Systems Engineering, Maintenance, Chemistry, etc.). Other users could include a person, or a group impacted by proposed database changes.

## Procedure Steps Summarized

### Database Change Requests (DBCR)

Database Changes are requested using the DBCR Form 1. The DCBR form is filled out with the applicable information by the originator and then submitted to the cognizant System Engineer. The System Engineer performs an evaluation for feasibility and determines the required implementation steps based on the parameters/type of change. For example, the System Engineer would determine if a design change is necessary to implement the changes requested or if an Impact Assessment (Form 3) to screen for regulatory requirements is needed. If the request is to be processed, then a User Department Database Change Request Review (Form 2) is initiated for compliance impact review (e.g. emergency response, Tech Specs). The forms are tracked by the tracking log/database. The DBCR package is then forwarded to the System Engineering Supervisor for review and approval.

### User Group Evaluations

Required user group evaluations are identified by the System Engineer using Form 2 which is forwarded to the appropriate user groups. Following return of the User Group Evaluation, the System Engineer initiates steps to resolve any actions from the evaluation. The DBCR is not closed until all actions are resolved or the DBCR is rejected.

### Installation, Testing, and Verification

If approved and all User Group Evaluations are complete, the System engineer installs the changes in accordance with this procedure and updates the tracking database. Notifications are made as appropriate for the type of parameter, for example, if changes affect Tech Spec parameters, obtain Shift Manager permission prior to install and testing. Installation, verification, and testing are performed per applicable instructions. The DBCR package is then forwarded to an Independent Reviewer for Technical Review and validation.

### DBCR Independent Review and Validation

The independent reviewer verifies completeness and accuracy of the DBCR package.

### Tracking of Database Changes

Throughout the process, a log/database is maintained of computer points/parameters associated with DBCR Form 1 and Engineering Change Documents. This ensures approved changes are incorporated into subsequent revisions of any applicable documents (e.g., RMS Scaling Documents). It also ensures approved changes are installed and testing as applicable is completed, as well as provide a reference for disapproved change requests. The tracking log/database is maintained to reflect an accurate record of the current plant configuration, along with a history of computer points/parameters incorporated in other plant documents and installed.

### Database Change Request (DBCR) Closeout

The DBCR package is reviewed to verify all required actions on the User Group Evaluation Form 2 and Impact Assessment Form 3 are resolved. Actions are initiated as required for changes to applicable parameter documents. The tracking log/database is updated. Appropriate signatures and approvals for package closeout are obtained and the DBCR package is forwarded to Records for document retention.

Form 1

| Form 1 | Database Change Request | Page 1 of 2 |
|---|---|---|

Associated CR / Design Change / EC: | DBCR Log No:

5.1.1 INITIATION

Affects Unit 1 ☐ | Unit 2 ☐ | Units 1 and 2 ☐ | Common ☐

Computer System: | Need Date:

☐ Change can be implemented Immediately (no associated field work)

☐ Change tied to WAN# Outage? ☐N ☐Y

Point ID(s)/Parameter(s): _____

Request Description:

(Continue on attached sheet if needed)

_____ Originator _____ Date

5.1.3.4 USER GROUP EVALUATION (not required if Plant Impact Review performed

☐Operations ☐Security ☐Emergency Response ☐Health Physics ☐Reactor Engineering

☐Change authorized by DCP/EC (# _____) ☐Chemistry ☐Design Engineering ☐ Other

5.1.4 Section Supervisor Review

☐Rejected ☐ Approved _____ Cognizant Section Supervisor _____ Date

Comments:

☐ Non-Engineered Parameters Form 2 and 3 completed (Continue on attached sheet if needed)

5.3 INSTALLATION AND TESTING

User Group Evaluations Complete: _____ Cognizant System Engineer _____ Date

Design Engineering Notified of ERDS changes: ☐NA ☐Yes _____ Date

Testing Required ☐Yes ☐No Work Order # (if applicable): _____

Technical Specification Installation and Testing:

_____ Shift Manager _____ Date _____ Time

_____ Performed by (Initials) _____ Dual Verified by (Initials)

Installation and Testing Complete _____ Cognizant System Engineer _____ Date

This form, when completed, SHALL be retained for the life of the plant.

| Form 1 | Database Change Request | Page 2 of 2 |
|---|---|---|

5.4 Independent Review and Validation

Items to be resolved (if any): Initial Date

Attach Additional sheets as Necessary

Satisfactory Review: _____ _____
Independent Reviewer Date

5.6 Scaling Manual Revision Required [ ] Yes [ ] No
I/O List Document Revision Required [ ] Yes [ ] No [ ] N/A

Scaling / I/O List Update Document Number _____

DBCR Package Closeout _____ _____
Cognizant System Engineer Date

_____ _____
Cognizant Section Supervisor Date

Comments: _____

This form, when completed, SHALL be retained for the life of the plant.

Form 2

| Form 2 | Database Change Request Review | Page 1 of 1 |
|---|---|---|

DBCR Log No.: _____ Department: _____

Need Date: _____

Please review the attached Data Base Change Request (DBCR) and respond to the questions below. If you have any questions please contact the System Engineer. Comments from System Engineer:
Known Technical Specifications Affected: _____

Planned Operability Tests: _____

REMARKS: _____

_____ _____ _____
System Engineer (Print Name) Date Extension

Review of the attached DBCR is complete and the effect this change will have on other systems has been evaluated. The User Department has determined the following:

| | | YES | NO |
|---|---|---|---|
| 1. | Does this change affect operability of any items used to satisfy Technical Specification requirements? (If yes, identify Technical Specification affected in REMARKS) | _____ | _____ |
| 2. | If this change were partially implemented would operability be affected? (If yes, identify concerns in REMARKS) | _____ | _____ |
| 3. | Is any additional post implementation test required prior to declaration of operability? (If yes, note in REMARKS) | _____ | _____ |
| 4. | Will the implementation of this change impact any departmental programs, procedures, or require specific training? (If yes, identify specifics in REMARKS) | _____ | _____ |

REMARKS (attach additional sheets as needed): _____

User Department Representative: _____ _____
Signature Date

_____ _____
Print Name Extension

Form 3

| Form 3 | Database Change Request Impact Assessment | Page 1 of 3 |
|---|---|---|

10CFR50.59 Screening/Evaluation

Perform a 10CFR50.59 Screening/Evaluation

Additional Considerations:

Does the Database Change Request represent or create:

| | | YES | NO |
|---|---|---|---|
| 1. | Require a change to Technical Specifications? | _____ | _____ |
| 2. | A potential fire hazard, affect fire protection training or administration, emergency lighting or protection of the methods for achieving and maintaining safe shutdown in the event of a fire? | _____ | _____ |
| 3. | A potential radiological hazard to the environment? | _____ | _____ |
| 4. | A potential non-radiological hazard to the environment? | _____ | _____ |
| 5. | A potential ALARA concern? | _____ | _____ |
| 6. | A potential industrial safety hazard? | _____ | _____ |
| 7. | A potential to reduce the commitments of the Nuclear Security Program? | _____ | _____ |
| 8. | A potential to reduce the commitments or effectiveness of the Emergency Plan/Emergency Response Program? | _____ | _____ |

IF any of the above questions (#1 through #8) are marked YES, THEN complete and attach the applicable evaluation form.

10CFR72.48 Screening/Evaluation :

Complete a 10CFR72.48 applicability review (qual not required) If the change is within the scope of 10CFR72.48, THEN perform an applicability determination and attach 10CFR72.48 Applicability/Screening or Evaluation form.

| Form 3 | Database Change Request Impact Assessment | Page 2 of 3 |
|---|---|---|

PROGRAM IMPACT

| Does the Database Change Request impact the following Programs? (See Note 1) | | YES | NO |
|---|---|---|---|
| 1. | Surveillance Test Program | _____ | _____ |
| 2. | ASME Section XI Pump and Valve Testing Program | _____ | _____ |
| 3. | ASME Section XI System Pressure Test Program | _____ | _____ |
| 4. | Appendix J Local and Integrated Leak Rate Test Program | _____ | _____ |
| 5. | HVAC Filter Test Program | _____ | _____ |
| 6. | Fire Protection Inspection and Testing Program | _____ | _____ |
| 7. | Preventive Maintenance Program | _____ | _____ |
| 8. | Instrument Scaling and Calibration Program | _____ | _____ |

Discuss impact for each program marked "YES" and list associated action item and applicable Department. Use additional sheets as necessary.

Notes (1): In assessing programs for potential impact, the System Engineer should consider impact to be an action required outside the normal procedural process.

| Form 3 | Database Change Request Impact Assessment | Page 3 of 3 |
|---|---|---|

OPERATIONS, MAINTENANCE, AND TESTING IMPACT

| Will the DBCR? | | YES | NO | N/A |
|---|---|---|---|---|
| 1. | Be operable in all plant modes? | | | |
| 2. | Operate in all plant modes? | | | |
| 3. | Be capable of operating in an emergency? | | | |
| 4. | Have sufficient instruments, properly scaled and of the proper range and accuracy, for operations and testing personnel to observe the process? | | | |
| 5. | Have the instruments, control switches, indicating devices, electrical components and mechanical components appropriately located for Operations, Maintenance, and testing activities based on human factors considerations? | | | |
| 6. | Have sufficient alarms for off-normal conditions? | | | |
| 7. | Be capable of remote or automatic operation? | | | |
| 8. | Have adequate maintenance features, including adequate clearance, accessible serviceable components, monorails or rigging structures and other access features? | | | |
| 9. | Have adequate accessibility for operations or testing activities and not restrict access to existing components? | | | |
| 10. | Have adequate equipment identification requirements including tagging requirements? | | | |
| 11. | Have adequate panel or control board identification requirement including labeling requirements? | | | |

Discuss impact for each item marked "NO":

_____

_____

_____

_____

_____

_____ _____

Prepared By Date

_____ _____

Reviewed By Date