

# **DEPARTMENT OF ENERGY**

## **MAINTENANCE PROGRAM INITIATIVE**



**DOE-SR Maintenance Program Initiative (MPI)  
FY 2015 Integrated Project Plan Project (IPT) Plan  
July 2015**

## Summary of Changes

<b>Rev No.</b>	<b>Date</b>	<b>Description of Change</b>
1	7/20/15	Final Issue

## Introduction:

**Issue:** Lack of coordination and integration of all site maintenance activities, currently divided among the DOE-SR line organizations (SWPF PO, AMIES, AMNMSP, AMWD) and support organizations (AMOC SQAM, AMMS), has hindered DOE-SR's understanding and communication of site-wide maintenance trends and funding needs to our internal/external stakeholders. The lack of integration among DOE organizations has created a fragmented approach in the oversight of the site's maintenance program. An MPI charter was developed and approved defining the team scope and responsibilities.



Approved MPI  
Charter.pdf

**Drivers:** DOE-SR has taken the initiative to assess the status of the SRS deferred maintenance (DM) program and corrective maintenance (CM) and Preventive maintenance (PM) backlogs in light of recent WIPP incidents, Extent of Condition review guidance provided by EM Headquarters (HQ), Defense Nuclear Safety Board (Defense Board) reviews, and other site assessments. DM has become a significant issue due to drastically increasing DM cost numbers realized at the close of the five year Condition Assessment Survey (CAS) cycle, and limited funding applied to DM during the last decade. Many of SRS's assets are way beyond their design life (40 - 60 years old) with no mechanisms to address DM costs and risks of failure. CM and PM backlogs remain consistently high, requiring a multi-year and focused improvement strategy and plan for addressing system and equipment repair, life extensions, and replacement. Accordingly, there is an immediate need to invest more in the site's aging systems, structures, and components. System viability is becoming more and more of a challenge for DOE-SR.

**Goal:** To ensure that all maintenance, including, but not limited to DM, CM, PM, Replacement Property Value [RPV], Predictive Maintenance [PdM], Actual Maintenance [AM] processes, data, and associated costs, are validated and well understood so that the site maintenance "As-Is" condition and needs can be easily and accurately communicated to DOE HQ, Defense Board, and other internal/external stakeholders<sup>1</sup>. Specifically, DOE-SR needs to:

- Better articulate how maintenance decisions are made and how needs are integrated into SR's annual budget formulation process;
- Closely monitor and analyze DM costs, CM and PM backlogs, and associated impacts so that they can be anticipated and addressed; and
- Better position DOE- SR to respond to internal and external inquiries.

---

<sup>1</sup> The MPI approach is depicted in the graphic on page 3.

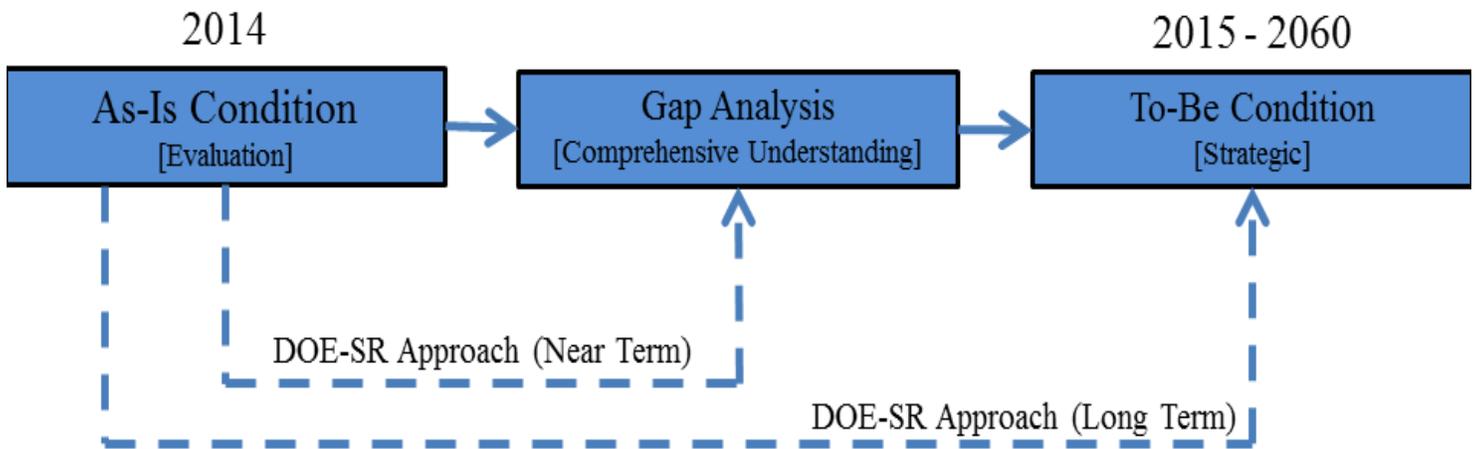
## **Strategies (“As-Is Condition”)**

1. To validate maintenance requirements stated in DOE Order (O) 433.1B and DOE O 430.1B are synchronized under one integrated system and consistently implemented by the contractor community.
2. Develop a common baseline or “language” of definitions, data sources, processes, and other terms to ensure standardized and clear communications (i.e., one message) to DOE-SR’s internal/external stakeholders.
3. Develop a Responsibility Matrix (RAM) to summarize the maintenance program roles and responsibilities (R2) for the DOE-SR line and support organizations. If necessary, eliminate and/or add functions to the appropriate organization(s) and/or resolve roles and responsibilities (R2) conflicts and confusion.
4. Evaluate and understand the components of DM, AM, and RPV estimated costs so as to improve the accuracy and reliability of numbers that are the basis of budget requests.

## **Draft Strategies (“To-Be Condition”):**

5. Evaluate and improve maintenance trends and ensure key attributes are evaluated so facility sustainability and recapitalization are properly evaluated for future impacts on facility operations.
6. Evaluate planning and funding for recapitalization to ensure long-term viability of mission critical facilities.
7. Recognize limitations in real property and personal property metrics to monitor maintenance program, and consider options to improve accuracy and effectiveness.
8. Explore/implement opportunities for lifecycle cost reduction, such as operational, energy use, and contracting efficiencies.

# DOE-SR Maintenance Program Initiative Approach



- Maintenance Executive Group
- MPI Integrated Project team
- IPT Project Plan/Strategies
- Information Briefings and Interactions (Federal Staff, Contractors)

- DOE Order and Process Integration
- Common Baseline/Language
- Oversight Coordination – Clear R2
- Maintenance Backlog Analysis (Real Property, Non-Real Property)

- Partnering (DOE, SRNS, SRR, Parsons)
- Resources Needed (Funds, Staffing)
- Targeted Investments
- Opportunities for Improvement (Efficiencies)
- One Story/One Message

Performance Metric	Responsible Lead	Status	Comments
<p><b>Metric 1.1:</b> DOE review of Contract Administrator Notice (CAN) and the Compliance Assessment and Implementation Report (CAIR) process include programs and line organizations personnel so that a detailed review of contractor implementation proposal of DOE requirements is compliant with DOE Order requirements.</p>	Sandra Waisley		<ul style="list-style-type: none"> <li>• The currently used S/RIDS has not been revised. Revision expected by 12/2015</li> <li>• Desktop instruction should be developed by DOE-SR to ensure a group approach review process is used when reviewing DOE Orders</li> </ul>
<p><b>Metric 2.1:</b> Verify that RPAM terminology is consistently implemented among DOE-SR contractors.</p> <p><b>Metric 2.2</b> Determine PBS owners in FIMS</p>	Doug Hintze		<ul style="list-style-type: none"> <li>• Definitions booklet and Terminology crosscut was issued. A definitions flow chart was developed detailing the DOE O 430.1B definitions will be used to achieve consistency.</li> <li>• AMMS should ensure DOE and Contractors are consistently utilizing the definitions. A letter of direction or other means of communication should be used to ensure proper use of RPAM terminology is implemented.</li> <li>• Population of the program owner codes in the FIMS database is pending approval of the AMMS.</li> </ul>
<p><b>Metric 3.1:</b> Verify the FRAP revision process is well understood and the required implementing procedures are kept updated when new requirements from applicable DOE orders are received.</p>	Sandra Waisley		<ul style="list-style-type: none"> <li>• FRAP revision process has not started.</li> </ul>
<p><b>Metric 4.1:</b> Process to report DM reduction site wide</p>	Doug Hintze		<ul style="list-style-type: none"> <li>• Working with AMMS-OIP to ensure DM data is adequacy analyzed and documented to support DOE guidance requirements.</li> <li>• MPI Maintenance Team working to establish a process to identified actual maintenance cost in real property.</li> </ul>

# DOE-SR Maintenance Program Initiative

## IPT Project Plan

### Strategy 1

**Key Strategy #1:** To validate that the maintenance requirement stated in DOE Order (O) 433.1B and DOE O 430.1B are synchronized under one integrated system and consistently implemented by the contractor community.

**Lead:** Fred Brown

**Support Team:** Rodney Walker, William Ahlers

**Description:** Integration of both DOE Orders is necessary to ensure that facilities are adequately maintained in a timely manner and allow a complete understanding of the DOE-SR maintenance needs so that an accurate budget formulation is provided to DOE-HQ.

**Expected Outcome:** Integration of the Real Property Asset Management (RPAM) process (DOE O 430.1B) with the facility maintenance program (DOE O 433.1B) so that all DOE-SR maintenance needs are adequately evaluated, prioritized and funded.

**Current Status: DOE-SR Improvement Actions (includes schedule):**

- A. Review S/RID(s) for SRS contractor implementation of DOE O 433.1B and DOE O 430.1B to verify consistent flow down of Order requirements to SRS implementing procedures.
- B. Review Standard/Requirements Identification Document (S/RID(s) implementing documents for the maintenance functional area to verify that all Order requirements are adequately captured.
- C. Review DOE O 430.1B and DOE O 433.1B and consult with HQ owners to ensure line organizations are implementing the requirements of the Orders.
- D. Share any potential issues (synchronization/integration) between the Orders with SRNS so a clear understanding and agreement is achieved.
- E. Contact DOE-SR and/or DOE-HQ maintenance program managers as required to clarify or validate the suitability of any areas where the SRS maintenance program has implemented less than full compliance with Order requirements or has combined or tailored the requirements of applicable Orders into one or more implementing processes (e.g., 1Y and 2S).

**A. Review S/RID(s) for SRS contractor implementation of maintenance DOE O 433.1B and DOE O 430.1B to verify consistent flow down of Order requirements to SRS implementing procedures.**

**Lines of Inquiry (LOIs):**

- 1. Perform a review of Functional Area 10 S/RID for the maintenance program and verify that all Order requirements and CFRs are appropriately included and adequately integrated.**

**Results:**

DOE O 430.1B and DOE O 433.1B were reviewed and the requirements of DOE O 433.1B were found to be adequately flowed down from the maintenance order and captured in the SRNS S/RID: SRNS-RP-2008-00086-010-M&O, Functional Area (FA) 10 for Maintenance.

As described in the Nuclear Materials Maintenance Program Description Document (NMMP-DD), SRS uses a single maintenance program to satisfy both DOE Orders 430.1B and DOE O 433.1B. The maintenance requirements of DOE O 430.1B (e.g., Maintenance Contract Requirements Document (CRD) 5.a) were partially found in S/RID FA 10 with others requirements found in the Non-ES&H requirements Compliance Assessment and Implementation Reports (CAIRs) (e.g., 5.b (Sustainment), and 5.c (Recapitalization)). The CRD requirement for condition assessments, 5.d (Condition Assessment Information System (CAIS)/ Facility Information Management System (FIMS)), was not found in the S/RID or CAIR. FA 10 S/RID included Subsection “5.a” of the DOE O 430.1B CRD that was “re-written” to indicate that the M&O Contractor was taking a tailored approach. The tailored approach was approved by DOE-SR in 2004 (by Letter OSPA-05-002, dated 12/6/2004). No documentation was found to describe the approved tailored approach, however, it was evaluated against the FY 2013 submittal of the Condition Assessment Survey (CAS) and FIMS reports and it was concluded that the full intent of DOE O 430.1B has been implemented at SRS.



A review of DOE-SR Implementing Procedures (SRIPs) and the FRAP (Functions, Responsibilities, and Authorities Procedure) to understand the DOE-SR functions in terms of how DOE-SR responsibilities for the maintenance program are implemented and whether it is well integrated was also completed. It was determined that maintenance program roles, responsibilities, and implementing requirements were not consistently included in any great detail for most organizations. A FRAP review process is in progress (See Strategy 3) so that DOE-SR organizations can validate

applicability of Order requirements with the proper organization and that oversight expectations are clearly defined between the program owner and the line organizations.

SRNS-RP-2008-00086-010-M&O, SRID, Functional Area 10 “Maintenance”, dated 12/31/2014, states the DOE O 433.1B, Maintenance Management Program for DOE Nuclear Facilities requirements to establish a Facility Condition Inspection (FCI) Program is implemented through the following documents:

- Manual 12Q, procedure SA-1 “Self-Assessment”;
- Manual 1Y, procedure 5.02 “Preventive Maintenance Program”;
- M annual 2S, procedure 5.1 “Facility Operations Organization and Administration”; and
- Manual 8Q, procedure 1 “Safety Principles and program Responsibilities”, Sections 4.2 “Management” and 5.3 “Safety and Housekeeping Walk downs”

The DOE O 433.1B states that the NMMP must be integrated with applicable programs and requirements identified by Orders and Manuals to include DOE O 430.1B Chg 2, RPAM, among others.

DOE O 433.1B, Attachment 2, Section 2.P “ Facility Condition Inspection” states that the facility condition inspection is the process for conducting and implementing routine assessment of facilities to identify issues related to operability, reliability, housekeeping, and general condition. DOE G 433.1-1A states that “DOE O 430.1B provides requirements for establishing a Condition Assessment Program of real property assets on a five-year cycle. The Facility Condition Inspection (FCI) should be integrated with the Condition Assessment Program so that identified repairs can be included as part of deferred maintenance reporting.” In addition, the “Guide” states that FCIs should include items such as asbestos, PCBs, and lead based paint locations and material to assure that they are not damaged or contaminating the area, and that they are included in the required identification surveys required by codes, laws, or policies. A good facility condition inspection program, often called Condition Assessment Survey (CAS), should include these building materials as a way to account for them”. The same SRID states that CAS requirements defined in DOE O 430.1B are implemented via the 1Y Manual “Conduct of Maintenance.”

SRNS has not fully integrated the FCI program with the requirements of DOE O 430.1B Condition Assessment Program. The SRS CAS inspection program was implemented in 2010. The CAS inspection program is well defined process with procedures and qualified inspectors independent from the 1Y manual requirements. The 1Y manual has not been integrated with CAS as required by the DOE O 433.1B.

The link between SRS facilities and the CAS inspection program is a well-defined FCI program. The latter will potentially correct facility problems and will feed the CAS inspection, avoiding duplication and, thus, prompting correction of facility “real property” systems/components issues.

## **RECOMMENDATIONS:**

- A.1.a: Revise the currently approved SRIDS to ensure full integration between DOE O 430.1B and DOE O 433.1B.
  - A.1.b: Ensure that requirements of the SRS FCI program are compliant with DOE O 433.1B and DOE G 433.1-1A.
  - A.1.c: SRNS should evaluate FA 10 S/RID and remove text indicating that SRS is using a tailored approach applied to DOE O 430.1B CAS requirements.
- B. Review Standard/Requirements Identification Document (S/RID(s) implementing documents for the maintenance functional area to verify that all Order requirements are adequately captured.**

### **Lines of Inquiry (LOIs):**

- 1) **Review Nuclear Facilities' maintenance implementing procedures to verify flow down of DOE Order Requirements.**

### **Results:**

The FA 10 S/RID review identified that DOE O 433.1B requirements were implemented by multiple Company/Site Level Manuals and Procedures including the 1Y, 2S, E7, 8Q, 18Q and 1Q Manuals. A review of these Manuals verified that DOE O 433.1B requirements were adequately “flowed down” and that a comprehensive program to implement the requirements of DOE O 433.1B exists. The document reviews were supplemented with meetings and interviews with SRNS and SRR Maintenance Program Managers, Facility and Operations Managers, and other personnel.

Some of the DOE O 430.1B requirements were found to be implemented and included in the 1Y Manual. This included the requirement to perform maintenance of real property (e.g., CRD 5.a). The CAS, FIMS, and the Ten Year Site Plan were found in a Site Level Manual 1-01, Procedure MP5.5 that provides real property asset management responsibilities for SRS contractors; however, the specific practices, roles, and responsibilities for completing these items were not found in a site level manual or procedure. During the review it was found that there is a CAS/CAIS “Five Year Implementation Plan” and a website that provides useful information. There was also a Washington Savannah River Company (WSRC) era FIMS Quality Assurance (QA) Plan, dated 3/16/2006 that described the FIMS process.

Deferred Maintenance (DM) is required to be identified and managed by the SRNS Manual 1-01 Procedure 5-5, but a review of the procedure determined that there were no specific procedures for managing DM. There was little documentation of how DOE O 430.1B categorized DM and entered CAS/CAIS deficiencies and degraded

conditions into the maintenance system for actual corrections. There is a requirement in 1Y Manual Procedure 8.20 for Work Management System (WMS) maintenance work that has been deferred to be evaluated for entry into the DOE FIMS; however, this was not reportedly consistently done. There is also a requirement in E7 Manual Procedure 3.04 for CAS/CAIS and DM to be included in the Performance Monitoring of Facilities; however, outside of the Tritium Facilities, there was little evidence that this is consistently done across SRS.

**RECOMMENDATIONS:**

- B.1.a: Define the term DM in DOE O 433.1B, and explain the differences between backlog and DM.
- B.1.b: Develop and/or enhance CAS implementing procedures and/or guidance documents that will provide instructions, including assignment of responsibility for the data collection, review, facility evaluation, and management of condition assessments deficiencies at SRS Facilities.
- B.1.c: SRNS should evaluate the Tritium maintenance/CAS program implementation; understanding how the maintenance process is integrated and implement any applicable lessons learned.

**Lines of Inquiry (LOIs):**

- 2) Review Non-Nuclear Facilities' (commercial) facility level maintenance implementing procedures to verify flow down of DOE Order Requirements.**

**Results:**

As described in the NMMP-DD, SRS uses a single maintenance program to satisfy both DOE O 430.1B and DOE O 433.1B. Both nuclear and non-nuclear facilities now follow a single maintenance program.

**RECOMMENDATIONS:**

No Actions Required

**Lines of Inquiry (LOIs):**

- 3) Verify that the tailored application (e.g., graded approach) of the NMMP meets the definition of graded approach that is provided in Title 10 CFR 830.3.**

**Results:**

The tailored approach to maintenance is defined in the NMMP-DD and is applied in the implementing maintenance program manual 1Y. The tailored approach to maintenance considers safety, safeguards and security, hazards involved, the relative importance of radiological and non-radiological hazards, complexity, and the lifecycle state of the facility. This is consistent with the provisions of 10 CFR 830.3.

**RECOMMENDATIONS:**

No Actions Required

**Lines of Inquiry (LOIs):**

- 4) What controls the spare parts inventory (e.g., quantities, tracking, storage, etc.) and does it meet the DOE O requirements.**

**Results:**

The SRS Spare Parts Program which is implemented by several site level procedures including, 7B “Requisitioning Manual”, 3B “Property and Materials Management Manual”, and “1Y Conduct of Maintenance Manual”, contains requirements for parts requisition, storing, inventorying and tracking, and shelf life. The SRNS managers responsible for the Site’s Spare Parts Program were interviewed and indicated that several activities were ongoing to review and access the non-moving spare parts inventory with plans for the streamlining of overstocked parts and dispositioning of spare parts no longer needed at SRS. The SRS Non-Moving Inventory Plan (SRNS-RP-2014-0411) was reviewed and had been previously approved by DOE-SR for implementation. The spare parts inventory was assessed to be adequate in meeting the DOE O maintenance requirements.

**RECOMMENDATIONS:**

B.4.a: Contractor should continue implementation of the plan to address SRS Non-Moving Inventory.

**Lines of Inquiry (LOIs):**

- 5. It appears that DOE O 430.1B and DOE O 433.1B are not integrated. Are there requirements and/or implementing procedures that should have ensured better integration (e.g., should the Defense Waste Processing Facility (DWPF) Facility Manager know what items are in CAS for his facility)?**

**Results:**

A review of S/RID FA 10 and implementing documents did not reveal a strong linkage or integration between the maintenance requirements of DOE O 430.1B and DOE O 433.1B. E7 Manual Procedure 3.04 does require that Facility Management and Cognizant System Engineers use CAIS/CAS and DM Reports as input to Performance Monitoring of Structures, Systems, and Components (SSCs); however, it was not apparent that this is consistently performed. Interviews with SRNS/SRR facility and maintenance management and other personnel did not indicate that there is a consistent “linkage” between the two Orders and there is little documentation of how DOE O 430.1B categorizes DM and CAS/CAIS deficiencies and how degraded conditions are entered into the maintenance system (i.e. Asset Suite Work Management System) for actual corrections.

**RECOMMENDATIONS:**

B.5.a: Develop a method to better integrate the deficiencies of CAS/CAIS and DM reviews that are required by DOE O 430.1B into the SRS Maintenance Program (i.e., Asset Suite Work Management System) for corrective actions.

**C. Review DOE O 430.1B and DOE O 433.1B and consult with HQ owners to ensure line organizations are implementing the requirements of the Orders.**

**Lines of Inquiry (LOIs):**

- 1. Contact HQ Program Managers and personnel responsible for SRS oversight and verify that implementation of maintenance requirements in DOE O 433.1B and DOE O 430.1B is adequate.**

**Results:**

During the review, several DOE-HQ Program Managers (e.g., EM-20, EM-13, MA-65) were contacted to discuss the implementation of the maintenance program, including Order maintenance requirements at SRS. A presentation was provided to EM-20 providing an overview of the site maintenance program, including initiatives to reduce maintenance backlogs and information on the amount and nature of DM at SRS. The efforts and goals of the DOE-SR Maintenance Performance Initiative (MPI) were also detailed during this presentation. There were no concerns expressed by DOE-HQ on the maintenance program implementation at SRS.

## RECOMMENDATIONS:

C.1.a: Continue to inform DOE HQ Program Managers and stakeholders of the MPI activities and involve them in efforts to improve implementation of maintenance programs at SRS, including the maintenance reporting requirements of DOE O 430.1B (e.g., DM, CAIS, FIMS).

**D. Share any potential issues (synchronization/integration) between Orders with SRNS so a clear understanding and agreement is achieved.**

### Lines of Inquiry (LOIs):

1. **Contact DOE-SR and contractor personnel responsible for implementing the Orders and present the MPI Phase 1 recommendations.**

#### Results:

DOE has successfully communicated all Phase 1 recommendations to DOE-SR and site contractors. Both DOE-SR and contractor personnel agreed on the lack of integration between the Orders. Phase 2 will track implementation of all recommendations associated with the lack of integration.

2. **Ensure all Phase 1 recommendations are implemented.**

#### Results:

The MPI scheduled will be used to track all Phase 1 recommendations.



DOE is working in selecting a DOE Point of Contact (POC) for each of the recommendations. Phase 2 will add contractor personnel to support implementation of all Phase 1 recommendations plus new strategies.



- E. **Contact DOE-SR and/or DOE-HQ Maintenance Program Managers as required to clarify or validate the appropriateness of any areas where the SRS maintenance program has implemented less than full compliance with DOE O requirements or has combined or tailored the requirements of applicable Orders into one or more implementing processes (e.g., 1Y and 2S).**

**Lines of Inquiry (LOIs):**

1. **Contact DOE-SR and/or DOE-HQ Maintenance Program Managers to discuss areas of less than full compliance with DOE O requirements.**

**Results:**

The SRNS Functional Area 10 S/RID indicates that the M&O Contractor was taking a tailored approach for DOE O 430.1B maintenance requirements included in CRD Attachment 2, 5.a. The tailored approach was approved by DOE-SR in 2004 (by Letter OSPA-05-002, dated 12/6/2004). No documentation was found to describe the approved tailored approach; however, it was determined that with the FY 2013 submittal of the CAS and FIMS reports the full intent of DOE O 430.1B has been implemented at SRS. This review did not find requirements that were not being met or that had been tailored beyond what is allowed by 10 CFR 830 “Nuclear Safety Management”.



FA-10 Maintenance  
SRIDs.pdf



FA-10 Identification  
Document.pdf

**RECOMMENDATIONS:**

E.1.a: See Recommendation A.1.c

**DOE-SR Performance:**

**Metric 1.1:** DOE review of Contract Administrator Notice (CAN) and the Compliance Assessment and Implementation Report (CAIR) process includes programs and line organizations personnel so that a detailed review of contractor implementation proposal of DOE requirements is compliant with DOE Order requirements.

## DOE-SR Maintenance Program Initiative

### IPT Project Plan

#### Strategy 2

**Key Strategy #2:** Develop a common baseline or “language” of definitions, data sources, processes, and other terms to ensure standardized and clear communications (i.e., one message) to DOE-SR’s internal/external stakeholders.

**Lead:** Jack Butler

**Support Team:** Chun Pang and Amanda Watson

**Description:**

DOE Order 430.1B definitions are not consistently used across DOE-SR contractor organizations. The lack of consistency has produced new terms not found in the DOE Order. In addition, the process and available data sources supporting implementation of the Order are fragmented, not recognized, nor consistently used among the operating organizations.

**Expected Outcome:**

Consistency in use of definitions and of existing processes supporting the implementation of the Order.

**Current Status: DOE-SR Improvement Actions (includes schedule):**

- A. Develop a matrix containing key definitions and terminology associated with maintenance activities / programs to ensure consistency and understanding among various SRS federal and contractor organizations. (Completed)**
- B. Identify / Define maintenance processes, databases, and interfaces. (Completed)**
- C. Evaluate / Compare DOE Order 430.1B and DOE Order 433.1B processes. (Completed)**
- D. Working with SRNS Facility Information Management System (FIMS)/Condition Assessment Survey (CAS) staff to obtain a breakdown of FIMS data by respective project Baseline Summary (PBS) owner. This is the first step, to assign ownership to the DM numbers, as well as to reconcile FIMS/CAS numbers with maintenance numbers allocated to each Program.**

**A. Develop a matrix containing key definitions and terminology associated with maintenance activities / programs to ensure consistency and understanding among various SRS federal and contractor organizations.**

**Lines of Inquiry (LOIs):**

**1) Collect all terminology used by all site organizations.**

**Results:**

The team collected all terminology associated with DOE O 430.1B and collected terminology not included in the Order, but used by DOE-HQ. The team review definitions used in the DOE Financial Handbook, DOE Facility Management Terminology, DOE O 433.1B and DOE G 433.1-1A, Statement of Federal Financial Accounting Standard (SFFAS), among others.

In addition, the team identified inconsistencies in the use and implementation of the real property asset management definitions between DOE-SR and SRS Contractors. To ensure consistency, the team developed a “Definition Flowchart” (see below). The flow chart shows the definitions that will consistently be used to implement the requirements of DOE O 430.1B.



Definition Flow  
Chart, rev 7.pdf

**RECOMMENDATIONS:**

A.1.a: Educate both DOE facility owners and contractors on key maintenance terms, definitions, processes, and procedures.

**Lines of Inquiry (LOIs):**

**2) Consolidate all information into one set and define them according to Orders/Regulations.**

**Results:**

The consolidation of all the real property asset management and maintenance definitions was compiled into a “Definitions Booklet (DB)” and a “Terminology Crosswalk (TC)” (see below). The DB and TC contains key maintenance terms and definitions from a variety of Federal regulations, Orders and DOE guidelines to assist all SRS organizations to use standard, approved terminology in communications regarding maintenance programs and issues.



MPI definition matrix  
short list rev5.pptx



terminologies  
Crosswalk rev 7.pptx

## **RECOMMENDATIONS:**

See recommendation A.1.a

### **B. Identify / Define maintenance processes, databases and interfaces.**

#### **Lines of Inquiry (LOIs):**

##### **1) Review the different processes, databases, and interfaces being used.**

###### **Results:**

The Team conducted a survey of the two major Site contractors who perform infrastructure and facility maintenance (SRNS & SRR). Each contractor submitted data on its various data systems that provides information related to maintenance operations at the site which is ultimately reported to the FIMS. FIMS data is used to report key maintenance metrics to Congress, the Federal Real Property Profile, Office of Management and Budget (OMB), Government Services Administration (GSA) and DOE-HQ. These Computerized Maintenance Management Systems (CMMS) and related databases include: 1) SRNS: FIMS, Asset Suite (Site-wide CMMS), Condition Assessment Information System, PeopleSoft; and 2) SRR: COBRA and Puridium. Copies of CMMS survey sheets for each of these systems are provided below.



CMMS SURVEY  
FORMS.pdf

#### **Lines of Inquiry (LOIs):**

##### **2) Identify opportunities and barriers for integration of the different databases.**

###### **Results:**

Due to the various CMMS and database platforms used to manage, track and report disparate maintenance information on the Site's 2,280 real property infrastructure and facility assets, there are no current opportunities to fully integrate these systems without a major overhaul of the systems by both contractors. The amount of funds needed to integrate these systems so that automated reporting of maintenance data and work order completion at the asset level would require a significant investment by both contractors.

## **C. Develop DOE O 430.1B/DOE O 433.1B process diagrams**

### **Lines of Inquiry (LOIs):**

- 1) Describe/understand differences between DOE O 430.1B and DOE O 433.1B pertaining to requirements and direction.**

#### **Results:**

A PowerPoint presentation, Understanding DOE Order 430.1B and DOE Order 433.1B, was created. The objective of DOE O 430.1B (Real Property Asset Management [RPAM]) is to establish a corporate, holistic, and performance-based approach to real property life-cycle asset management that links real property asset planning, programming, budgeting, and evaluation to program mission projections and performance outcomes.

The objective of DOE O 433.1B (Maintenance Management Program for DOE Nuclear Facilities) is to define the safety management program required by Title 10 CFR 830.204(b)(5) for maintenance and the reliable performance of structures, systems, and components (SSC) that are part of the safety basis required by 10 CFR 830.202 at hazard category 1, 2, and 3 DOE nuclear facilities.

Based on a comparison of the Orders, it was concluded that there are no similarities between the two Orders. While DOE Order 430.1B contains general real property maintenance guidelines, none of these programmatic requirements are incorporated in DOE Order 433.1B.

However, DOE O 433.1B states that the Nuclear Materials Maintenance Program (NMMP) must be integrated with applicable programs and requirements identified by DOE Orders and Manuals to include DOE O 430.1B Chg 2, Real Property Asset Management, among others. In addition, the Nuclear Materials Maintenance Program Description Document (NMMP-DD), states that SRS uses a single maintenance program to satisfy both DOE Orders 430.1B and 433.1B (See diagram below).



DOE Orders  
Chronology rev 3.pdf

DOE O 430.1B uses some of the tools defined in the maintenance Order such as the work control process to ensure that all real property is properly maintained. Strategy 1 is addressing the integration of the Orders to ensure the CAS requirements addressed in DOE O 430.1B are fully implemented (See diagram below).



430.1B History,  
rev6.pdf

## **RECOMMENDATION**

See Strategy 1 recommendations A.1.a, A.1.b, and A.1.c

### **Lines of Inquiry (LOIs):**

- 2) Identify all necessary steps in DOE O 430.1B and DOE O 433.1B processes, and sequence steps according to the requirements.**

#### **Results:**

The team evaluated the CAS requirements addressed in the DOE Order 430.1B. The Order contains enough substance to implement the CAS requirements. Issues identified during CAS assessments should be corrected utilizing the work control process established by DOE O 433.1B. Strategy 1 addressed the lack of integration between Orders. Strategy 1 recommendations coupled with existing programs defined in the NMMP-DD will ensure full integration.

- 3) Prepare the process diagram(s).**

#### **Results:**

The team developed a CAS Maintenance Flow Chart (see below) that shows the integration between the Orders as required by DOE O 433.1B. Strategy 1 recommendations coupled with existing programs defined in the NMMP-DD will ensure full integration.



CAS Maintenance  
Flow Chart, Rev 6.pd

- D. Working with SRNS FIMS/CAS staff to obtain a breakdown of FIMS data by respective PBS owner. This is the first step, assigning ownership to the DM numbers, as well as to reconcile FIMS/CAS numbers with maintenance numbers allocated to each Program.**

### **Lines of Inquiry (LOIs):**

- 1) Populate the FIMS Spreadsheet with PBS Owners.**

**Results:**

Program Codes which identify facility PBI and program owners were developed and facility ownership was organized based on the FY 2014 Year-End FIMS snapshot. A summary table was developed which provides a roll-up summary of maintenance costs for all facility owners. An update to the summary table will be prepared based on the FY 2015 Year-End FIMS Snapshot. Population of the program owner codes in the FIMS database is pending approval of the Assistant Manager Mission Support (AMMS).

**RECOMMENDATION**

D.1.a: AMMS to approve the FIMS updates with the PBS owners code.

**DOE-SR Performance:**

**Metric 2.1:** Verify that RPAM terminology is consistently implemented among DOE-SR contractors.

**Metric 2.2:** Determine the PBS owners of FIMS data.

# DOE-SR Maintenance Program Initiative

## IPT Project Plan

### Strategy 3

**Key Strategy #3:** Develop a Responsibility Assignment Matrix (RAM) to summarize the maintenance program roles and responsibilities (R2) for the DOE-SR line and support organizations. If necessary, eliminate and/or add functions to the appropriate organization(s) and/or resolve R2 conflicts and confusion.

**Lead:** Karl Frazier

**Support Team:** Marie Garvin

**Description:**

This strategy will validate that all DOE organizations responsible for implementation of DOE O 430.1B understand all duties and responsibilities.

**Expected Outcome:**

Validate that DOE Order implementation is understood, duplication of efforts is eliminated, and implementation gaps among DOE organizations are corrected.

**Current Status: DOE-SR Improvement Actions (includes schedule):**

- A. Ensure that federal staff requirements in DOE O 430.1B and DOE O 433.1B have been properly identified in Savannah River Manual (SRM) 300.1.1B “DOE-SR Functions, Responsibilities and Authorities Procedure (FRAP)” and applicable Assistant Manager FRAP Implementing Procedures.**
- B. Validate that requirements in the FRAP are properly implemented and understood among all DOE Organizations.**
- C. Prepared and issue a RAM.**

- A. Ensure that federal staff requirements in DOE O 430.1B and DOE O 433.1B have been properly identified in SRM 300.1.1B “DOE-SR Functions, Responsibilities and Authorities Procedure (FRAP)” and applicable Assistant Manager FRAP Implementing Procedures.**

**Lines of Inquiry (LOIs):**

- 1. Complete a review of the two DOE Orders and ensure that all applicable federal staff requirements have been properly identified in SRM 300.1.1B Manual.**

**Results:**

Completed the review of DOE O 430.1B, DOE O 433.1B and the Function, Responsibilities and Authorities Procedures (FRAP) Safety Management Functions (SMF) Matrix. The FRAP accurately addressed most of the requirements of the DOE Orders for all federal staff; however, requirement 4.d. “Maintenance and Recapitalization” of DOE O 430.1B was not captured in the FRAP’s latest revision. As an example, the above section states:

“Each site must have a maintenance program to maintain each real property assets, including plant, property, and equipment, in a condition suitable for its intended use. The maintenance program will include condition assessments of real property assets, a work control system, management of deferred maintenance, a method to prioritize maintenance projects, and cost accounting systems to budget and track maintenance expenditures.”

DOE management should evaluate the need to include the above requirement in the FRAP SMF and applicable implementing procedures.

Completed a review of various DOE Assistant Manager FRAP implementing procedures. The FRAP SMF assigned responsibilities for DOE O 430.1B and DOE O 433.1B to DOE-SR lead organizations as well as line organizations. The approved FRAP defines the DOE-SR expectations in implementing the above Orders. However, the review showed that the FRAP SMF has not been fully implemented.

SRM 300.1.1B “DOE-SR Functions, Responsibilities and Authorities Procedure (FRAP)”:

- Sub 2.0 “Office of the Chief Financial Officer (CFO)”
- Sub 3.0 “Office of Assistant Manager for Mission Support (AMMS)”
- Sub 4.0 “Office of Assistant Manager for Infrastructure and Environmental Stewardship (AMIES)”
- Sub 5.0 “Office of the Assistant Manager for Nuclear Material Stabilization (AMNMS)”
- Sub 6.0 “Office of the Assistant Manager for Waste Disposition (AMWD)”
- Sub 7.0 “Office of the Assistant Manager of Organizational Culture, Safety, and Quality Assurance Management (AMOCSQAM)”

The above procedures excluded, missed, or improperly assigned requirements from the DOE Orders as defined in the SMF. As an example, the majority of the requirements from DOE O 430.1B were assigned to the AMIES Organization; however, the majority of the requirements belong to the AMMS organization. Also, the SMF assigned DOE 430.1B oversight/implementation responsibilities to the line organizations; however, their applicable implementing procedures were not revised to ensure that applicable DOE O 430.1B requirements for oversight/implementation

were properly implemented. In addition, the review included validation of the maintenance program's integration with the requirements of DOE O 430.1B. None of the SMF and FRAP implementing procedures addressed the integration of both Orders to ensure proper DOE oversight.

#### **RECOMMENDATIONS:**

A.1.a: Revise the FRAP SMF Matrix with applicable implementing procedures to ensure proper alignment and integration between DOE O 430.1B, DOE O 433.1B, and the DOE-SR Organizations. (DOE-SR)



FRAPc1r7p1s10r0  
(MATRIX OF SAFETY)

**B. Validate that requirements in FRAP are properly implemented and understood across all DOE Organizations.**

#### **Lines of Inquiry (LOIs):**

- 1. Are roles and responsibilities, as defined in the FRAP, being implemented by both program and line organizations.**

#### **Results:**

DOE O 430.1B roles and responsibilities as defined in the currently approved FRAP SMF Matrix are being implemented by the DOE program owner organization; however, the line organization support of the program is not evident. SRM 300.1.1B is not clear in defining expectations as far as the DOE O 430.1B implementation. Proposed changes to the FRAP SMF were submitted to the DOE Human Resources Organization on 2/26/2015. The proposed changes aligned DOE O requirements to the correct DOE-SR organizations and eliminate some of the line organization activities not required by the Order.

#### **RECOMMENDATIONS:**

See Recommendation A.1.a

#### **Lines of Inquiry (LOIs):**

- 2. Are there areas where duplication of activities (implementation of DOE Order requirements) are observed either by the program or line organizations.**

**Results:**

The review concluded that the DOE-SR implementation of DOE O 430.1B and DOE O 433.1B requirements belongs to the AMMS and the AMOCSQAM organizations, respectively, and no duplication of efforts was observed during the evaluation.

**RECOMMENDATIONS:**

No Actions Required

**Lines of Inquiry (LOIs):**

- 3. Are there areas where any of the DOE Order requirements are not being implemented either by the program or line organizations?**

**Results:**

As mentioned before, the program organization ties to the DOE O implementation were not aligned properly as describe in the FRAP SMF Matrix. However, the oversight of the Order requirement has been evaluated by the correct program owner. Proper guidance was not developed by the program owner so DOE implementing procedures fell short in describing the level of support required by the line organizations. In addition, the Integrated Project Team (IPT) team felt that additional requirements were needed to support the DOE-SR budget process to ensure that budget information such as the Integrated Facility and Infrastructure (IFI) Crosscut Budget and the Critical Infrastructure Integrated Project List (CI IPL) were included in the FRAP SMF Matrix. The IFI Crosscut Budget and CI IPL are tools that describe investment in the site infrastructure. The information in both documents should be aligned with the SRS Budget. Clear guidance should be developed to ensure that the information contained in the documents has been reviewed and agreed upon by the line organizations. As of today, the line organizations have no input in validating the accuracy of the information in both documents.

**RECOMMENDATIONS:**

B.3.a: Revise the FRAP Safety Management Functions to ensure responsibilities for development of the IFI Crosscut Budget and CI IPL are defined. (DOE-SR)

**C. Prepared and issue a RAM.**

**Lines of Inquiry (LOIs):**

- 1. Identified all organizations and their responsibilities for the implementation of RPAM.**

**Results:**

The team is still identifying DOE-HQ responsibilities to initiate the development of the RAM. The RAM will be developed and issued during Phase 2.

**RECOMMENDATIONS:**

C.1.a: Develop a RAM to include DOE-HQ, DOE-SR, and DOE Contractors. (DOE-SR)

**DOE-SR Performance:**

**Metric 3.1:** Verify that the FRAP revision process is well understood and implementing procedures are kept updated when new or revised DOE Order requirements are received.

# DOE-SR Maintenance Program Initiative

## IPT Project Plan

### Strategy 4

**Key Strategy #4:** Evaluate and understand the components of Deferred Maintenance (DM), Actual Maintenance (AM), and Replacement Value (RPV) estimated costs so as to improve the accuracy and reliability of numbers that are the basis of budget requests.

**Lead: Christopher Hall**

**Support Team: Richard Olsen, Anthony( Tony) Robinson, and Alexander (Buddy) Mackay**

#### **Description:**

The three elements of maintenance costs defined in DOE Order 430.1B, Real Property Asset Management (RPAM), DM, AM, and RPV, are not used to support budget formulations. The Condition Assessment Survey (CAS)/RPAM process is a diagnostic tool/process for accessing condition assessment across large DOE sites and was never intended to be used for budget formulation. The Integration and Planning group under the Assistance Manager for Management Systems (AMMS) at DOE-SR has re-instated the condition assessments as of 2010 and has just completed the 5<sup>th</sup> (final) year of the rolling wave condition assessment. Prior to 2010, condition assessments were not being performed and a steady and exponential increase has been identified in the yearly DM cost since the CAS program was implemented at DOE-SR. There is a general understanding by most of the IPT members that items which are included in the Facility Information Management System (FIMS)/CAS/Condition Assessment Information System (CAIS) aspects of dollar amount (\$1billion), may or may not be represented in the budget, because by nature FIMS/CAS are simply diagnostic tools and the budget process is an active/detailed attempt to address immediate needs. The purpose of this strategy to understand how maintenance budget is developed and integrated (including RPAM/CAS process) across the different organizations within Savannah River Nuclear Solutions (SRNS) and Savannah River Remediation (SRR). Also, trying to understand how RPAM/CAS is or in not related to the budget process.

#### **Expected Outcome:**

Understand the three elements of maintenance costs in FIMS/CAS. Understand how individual programs manage maintenance needs, how contractors/DOE formulate maintenance into annual budgets, break-downs in maintenance integration among systems/organizations and understand the current maintenance management picture.

#### **Current Status: DOE-SR Improvement Actions:**

- A. Validating that maintenance cost elements, as defined in DOE O 430.1B, are well understood among DOE and contractor organizations so that accurate numbers are provided to DOE in support of the SRS budget process.**

**B. Reviewing the DOE budget formulation process to understand how DOE-SR maintenance cost needs are incorporated/are not incorporated into the SRS budget process. Document any constraints/weak points in system.**

**A. Validating that maintenance cost elements, as defined in DOE O 430.1B, are well understood among DOE and contractor organizations so that accurate numbers are provided to DOE in support of the SRS budget process.**

**Lines of Inquiry (LOIs):**

- 1. How much of the \$1B DM number has been completed and is in Actual Maintenance (AM), and, if so, have the AM costs over the last five years been subtracted out of the \$1B Deferred Maintenance (DM) number?**

**Results:**

Strategy #4 covered areas of (1) RPAM, (2) maintenance and (3) budgeting. When the Maintenance Program Initiative (MPI) started in July, 2014, the team did not realize that the subject areas are closely related, with integration points, but ultimately different. (1) The RPAM CAS is a diagnostic tool used by interested parties in Washington DC to obtain a high level picture of DM on federal facilities. The CAS process at DOE-SR was started in 2010 time frame, as a result of that in 2014, after 5 years of collecting CAS data; the DM cost went up exponentially every year, totaling \$1B in 2014. Does this mean that DOE-SR has DM cost which are going up at an exponential rate? No. It means a new assessment system was implemented and many years' worth of DMcost was captured in the diagnostic assessment over 5 years. At DOE-SR, the CAS process is a diagnostic tool, in which a limited group of surveyors perform a high level assessment of the 2280+ facilities over the required 5 year assessment window. (2) The maintenance process at DOE-SR in general may have organizations and functions which line up with the RPAM process, but in reality, the maintenance process is a more tactical process (day-to-day nuts and bolts) than the high level diagnostic process of CAS. The team concluded that there is a lack of integration between DOE O 430.1B, IFI Crosscut Budget, TYSP, maintenance and the budget process.

Currently there is no direct linkage between AM and DM. AM is based on actual reported maintenance hours multiplied by standard rates. DM is a calculation of maintenance that was not performed derived from facility condition assessments CAS. However, future process improvements will be developed to adjust (reduce) DM by any actual maintenance that qualifies as a reduction to DM. This will result in a linkage of AM to DM.

See the SRS CAS Analysis chart to further understand the current \$ 1 Billion in DM at SRS.



Deferred Maint.  
Flowchart 9-30-2014

## **RECOMMENDATIONS:**

- A.1.a Initiate a study team with DOE and contractors management to integrate DOE 430.1B (i.e., IFI Crosscut, TYSP, and CAS), Maintenance, and budget into the DOE-SR budget formulation process so accurate and consistent data is provided to DOE-HQ.
  - A.1.b Develop a tailor Replacement Plant Value (RPV) model for mission unique nuclear processing and storage facilities.
- B. Reviewing the DOE budget formulation process to understand how DOE-SR maintenance cost needs are incorporated/are not incorporated into the SRS budget process.**

### **Lines of Inquiry (LOIs)**

- 1. How does the SRNS and SRR Facility Integrated Project Lists (F-IPL) relate to the DOE-SR IPL, Integrated Facility and Infrastructure (IFI) Crosscut Budget, Critical Infrastructure Integrated Project List (CI IPL) developed annually and at each PBS/Program?**

#### **Results:**

Prior to 2008 the Savannah River Site was managed under one Management and Operating contract. In 2008 the department split the contracts into a smaller M&O, a dedicated liquid waste and security contract. In 2015 there are 5 prime Environmental Management contracts as well separate National Nuclear Security Administration prime contracts. Prior to 2008 the M&O contractor established and maintained procedures which address Real Property Asset Management, maintenance, and budgeting and the integration of all yearly work scope. After 2008, the DOE-SR budget began being formulated by the DOE-SR Office, and while the contractors and program were involved, the M&O was not required to maintain ownership of RPAM and maintenance in coordination with the budget. Processes and organizations have been developed to integrate the parts and pieces, but is still a work in progress.

The majority of programs at SR develop Facility-Integrated Projects Lists. These lists are what the facility management personnel use to keep real-time status of facility needs. When DOE-SR sends out a budget request every year, the program must work within a target. Because of this target, it limits what the program can request in a budget. The CI IPL captures in-target and over-target maintenance/infrastructure needs. However there could be small/medium ticket items that do not make it into a baseline, budget, IPL, CI IPL and therefore do not get funded, and created a backlog. Recommendations to include the maintenance in the Contract Performance Baseline (CPB) will help improve the CI IPL/IPL process. In addition, there is a lack of DOE-SR guidance in support of the IFI Crosscut Budget and CIILP review process. As an example, the currently approved IFI Crosscut Budget includes programmatic equipment/related personal property contrary to the DOE-HQ IFI development guidance.

Maintenance costs (preventive, predictive, corrective, projects) for EM is incurred by the Direct cleanup programs (PBS's) as well as the common and laboratory infrastructure (ESS (Emergency Services), Landlord Services, and Power Pool). These maintenance costs are associated with both real property and processing equipment. Currently various systems address different aspects of maintenance costs and budget formulation but are not well understood or fully integrated ( including FIMS, IFI Crosscut Budget, CIPL, Asset Suite, Ten Year Site Plan, Contractor Baselines and F-IPL.

**RECOMMENDATIONS:**

- B.1.a Ensure data provided to DOE-SR and DOE-HQ through several DOE-HQ guidance documents such as the IFI Crosscut Budget Exhibit are accurate.
- B.1.b Develop process improvements to reconcile Actual Maintenance (AM) Costs.
- B.1.c Desktop instructions explaining the integration process between CIPL, IFI and Budget.

**Lines of Inquiry (LOIs)**

**2. How does budget formulation incorporate maintenance (vs. infrastructure) needs?**

**Results:**

Maintenance requirements in Contract Performance Baseline are not well defined so a clear maintenance investment strategy for real property and personal property is formulated. Currently maintenance is not defined in a broken-out format (it may be there as part of bigger operations scope, but it does not have an individual WBS, code, Control Account, Work Package etc.). The desire it, if the maintenance needs get identified in the baseline, then they will be more visible in Integrated Priority List (IPL) development and receive consideration during budget formulation.

Going forward a fully integrated approach will to be developed to insure a consistent DOE O 430.1B definition of maintenance cost is utilized across all systems and processes. Budget formulation will also be integrated into the processes.

**RECOMMENDATIONS:**

- B.2.a Ensure consistency among the SRS contractors on how maintenance requirements are documented in Contract Performance Baselines.
- B.2.b Alignment of IFI and CIPL with contractor baseline strategies.

**DOE-SR Performance:**

**Metric 4.1:** Process to report DM reduction site wide.

