TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY 1-1

2.0 INTRODUCTION 2-1

2.1 Purpose and Objectives 2-1

2.2 Scope 2-1

2.3 The Requirements-Based Surveillance and Maintenance Methodology 2-2

3.0 ORGANIZING THE TEAM AND ACTIVITIES

3.1 Forming an RBSM Process Review Team 3-1
3.1.1 Team Members Full or Part-time 3-2
3.1.2 Determining the Resouces for the RBSM Team 3-2
3.1.3 Organizing the Review Team for Maximum Effectiveness 3-3
3.1.4 Support Required From Other Facility Personnel 3-5

3.2 Selecting Activities to be Reviewed Using the RBSM Process 3-5

4.0 DATA ANALYSIS

4.1 Summarizing the Data 4-1

4.2 Disposition of Activities 4-1
4.2.1 Cancellation 4-2
4.2.2 Frequency Change 4-2
4.2.3 Further Evaluation 4-2

4.3 Constructing and Using a Database 4-3

4.4 Identification of Dominant Drivers 4-4

4.5 Identification of Additional Opportunities 4-4

5.0 ROLE OF RBSM IN COMPREHENSIVE COST REDUCTION AND PERFORMANCE MEASUREMENT

5.1 Additional Uses of RBSM Data 5-1

5.2 Other Cost Reduction Approaches 5-1
5.2.1 Benchmarking 5-1
5.2.2 Management and Performance Reports 5-2
5.2.3 Process Reengineering 5-2

5.3 Requirements-Based Review of Mission-Direct Activities 5-3

5.4 Meeting Performance Goals 5-4

APPENDICES

A - Requirements-Based Surveillance and Maintenance Review Implementation Process, Process Flow Chart and the Flow Chart Footnotes

B - Requirements-Based Surveillance and Maintenance Review Interview Form

C - Requirements-Based Surveillance and Maintenance Review Example Data Table

D - DOE Orders, Regulations, Commercial Standards, and Other Driver Documents

E - Results of the Requirements-Based Surveillance and Maintenance Review Process Pilot Project, Rocky Flats Environmental and Technology Site, Building 771

LIST OF TABLES

Table 2-1: Disposition Category Distinguishing Characteristics 2-4

Table 3-1: Recommended RBSM Interview Team Background 3-1

Table 3-2: Recommended Facility Team Background 3-1

Table 4-1: Sample Activity Assignments 5-1

Table 4-2: Example Activity Drivers With Activities and Cost 5-4

LIST OF FIGURES

Figure 2-1: Basic Description of the RBSM Review Process 2-3

Figure 3-1: Getting the Review Team Organized 3-3

Figure 5-1: Use of the RBSM Review Process to Achieve Performance Measures 6-4

Use of the Guidance Manual

This manual was developed to provide organizations with the knowledge and tools necessary to perform a disciplined and thorough Requirements-Based Surveillance and Maintenance (RBSM) review at any given facility or site in order to cost effectively manage S&M activities. Sections 1.0, 2.0 and 3.0 of this manual provide a brief explanation of what the RBSM review process is, why such a process is needed and the steps a facility or site should take to get organized and initiate an RBSM review. Sections 4.0 and 5.0 of this manual discuss the use of the data gained from the RBSM review process like the development of cost reduction strategies and the development of benchmarks.

Appendix A is designed as a pullout section that can be used in conjunction with the RBSM Review Interview Form (Appendix B) to answer questions the interviewer may have about the process as the interview form is being filled out. Appendix C, D, and E are mainly informational in nature with Appendix E highlighting the results obtained through the implemenation of the RBSM pilot project carried out at the Rocky Flats Environmental and Technology Site's Building 771.

1.0 EXECUTIVE SUMMARY

Surveillance and maintenance (S&M)[1] of facilities in the Department of Energy (DOE) complex consumes a significant portion of the overall DOE budget. The management of nuclear materials, facilities, and wastes requires an extensive amount of fiscal and personnel resources to maintain adequate worker, public, and environmental safety. The most effective way to reduce these S&M costs is to deactivate facilities by removing all nuclear material, wastes, systems, and components, thereby reducing the hazards and risks associated with those facilities. However, the accelerated deactivation of DOE facilities, which requires the treatment, storage, and disposal of waste and the stabilization and consolidation of nuclear materials, is complicated by declining budgets.

The Clinton Administration, Congress, and DOE are committed to balancing the federal budget by the year 2002. Accordingly, the 1997 House Energy and Water Development Appropriations Bill identified the need to reduce current mortgages for maintaining those facilities which will ultimately be closed. The bill also recommended that the Department review the possibility of reducing costs without compromising safety by redefining the minimum safety requirements commensurate with each facility, and by developing a validated, requirements-based estimate of surveillance and maintenance costs.

Reducing S&M and other support costs has become a key component in the DOE Environmental Management (EM) Program and its development of the 2006 Accelerated Cleanup Plan. It has been recognized and demonstrated that prior to facility deactivation, EM can reduce S&M costs by evaluating existing activities and determining the minimum set of activities required to protect workers, the public, and the environment while maintaining an adequate safety envelope and compliance status. Additionally, it is recognized that performing excessive or unnecessary S&M impacts safety by desensitizing the work force and consuming funds that could be used for needed ES&H-related work.

To facilitate the reduction of S&M costs, EM has developed a Requirements-Based Surveillance and Maintenance (RBSM) review and evaluation process for use by site personnel. The RBSM process, developed with improving cost and schedule performance in mind, is a tool that is used in conjunction with Work Smart Standards to systematically perform a bottom-up analysis of S&M (and other activities). Application of the process includes gathering facility data using a series of questions to evaluate the conduct of activities and their associated requirements. In instances where drivers for activities are non-existent or not current, or where the activity is being performed at a frequency greater than that required, the process identifies appropriate management actions that can be taken. Conversely, where it is clear that the activity has a legitimate driver and it is being performed at the appropriate frequency, the process provides validation for conduct of the activity.

The product from implementing a RBSM review is the identification of potential reductions

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[1] Activity or set of activities at a site or facility that result in the effective management of hazards and that are necessary to obtain safe and secure conditions and to comply with applicable requirements. Also referred to with no stringent consistency as, facility mortgage, facility base-cost, facility fixed-cost, minimum safe operations (Min-Safe), etc.

in S&M activities and the reallocation of funding and labor resources to mission-direct work in support of accelerated cleanup and site closure. A fiscal year 1997 pilot initiative, conducted to support the development and validation of this process, identified the potential for 20-25% S&M cost savings, a result which would not be unreasonable to expect at other facilities and sites.

Implementation of this process supports a number of the objectives and strategies addressed in the Environmental Management 2006 Accelerated Cleanup Plan. Specifically, the outcome of this process can directly support site efforts to meet support cost reduction targets established for the sites over the next five years. By effectively reallocating resources, sites can demonstrate additional productivity and efficiency improvements addressed in the 2006 Plan.

The information generated from the RBSM process has other potential benefits, including support to site reengineering efforts and development of information for S&M benchmarking efforts which facilitate process improvement. Furthermore, the activity level information is useful in the development and prioritization of facility and site budgets, and the performance of cost reduction reviews to meet contract performance incentives. The RBSM guidance document provides DOE and contractor management with a thorough, consistent and systematic evaluation process for comparing activities against requirements, and the identification of potential improvements in cost and schedule performance by reducing or eliminating efforts expended on activities that are not required.

2.0 INTRODUCTION

2.1 Purpose and Objectives

As facilities and/or sites budgets are reduced throughout the DOE complex, it is necessary and

appropriate to undertake efforts to reduce support costs and increase resources available to perform mission direct activities. An important management focus in this effort is on the conduct of the S&M work and requires that support activities be reviewed to identify where improvements can be made. However, management can be quickly overwhelmed by the sheer number of support activities at a facility and can spend a substantial amount of time and money reviewing activities that result in limited operational or cost reduction improvements. In addition, personnel tasked to perform such evaluations may not have the tools needed to achieve success quickly; tools which ensure that evaluations are being performed in a consistent, structured, and defendable manner.

What is needed is a systematic process that can be used by management to establish a protocol for support activity review and that will aid them in understanding what drives the activities being done at their facility and how those drivers impact costs and their ability to get work done. The Requirements-Based Surveillance and Maintenance (RBSM) Review Process was conceived as an evaluative methodology that addresses the following objectives:

- To provide a mechanism for a systematic review process that can be easily utilized for a wide range of activities in a repeatable, consistent manner.

- To categorize activities based on the potential for realizing support cost improvements through a reduction in the required work and provide the information needed to prioritize and allocate resources to improve the efficiency of S&M activities.

- To identify the bases (drivers) for conducting the activity and evaluate the conformance of the activity to the driver requirements.

2.2 Scope

The scope of the RBSM Review Process focuses on surveillance and maintenance activities. The following are definitions for surveillance and maintenance activities as defined in the EM budget B&R code structure:

- Surveillance - any activity at a site or facility that involves the scheduled periodic inspection of a site area, facility, equipment or structure as required by federal and state environmental, safety, and health laws, regulations, and DOE orders for the purpose of demonstrating compliance, identifying problem areas requiring corrective action, and for determining the facility's present environmental, radiological, and physical condition. More specifically, surveillance includes activities performed to determine the operability of critical equipment, monitor radiological conditions, check safety-rated items, provide for site or facility security controls, and to assess facility structural integrity.

- Maintenance - any activity performed at a site or facility on a day to day basis that is required to sustain property in a condition suitable for the property to be used for its designated purpose and includes preventative, predictive, and corrective (repair)

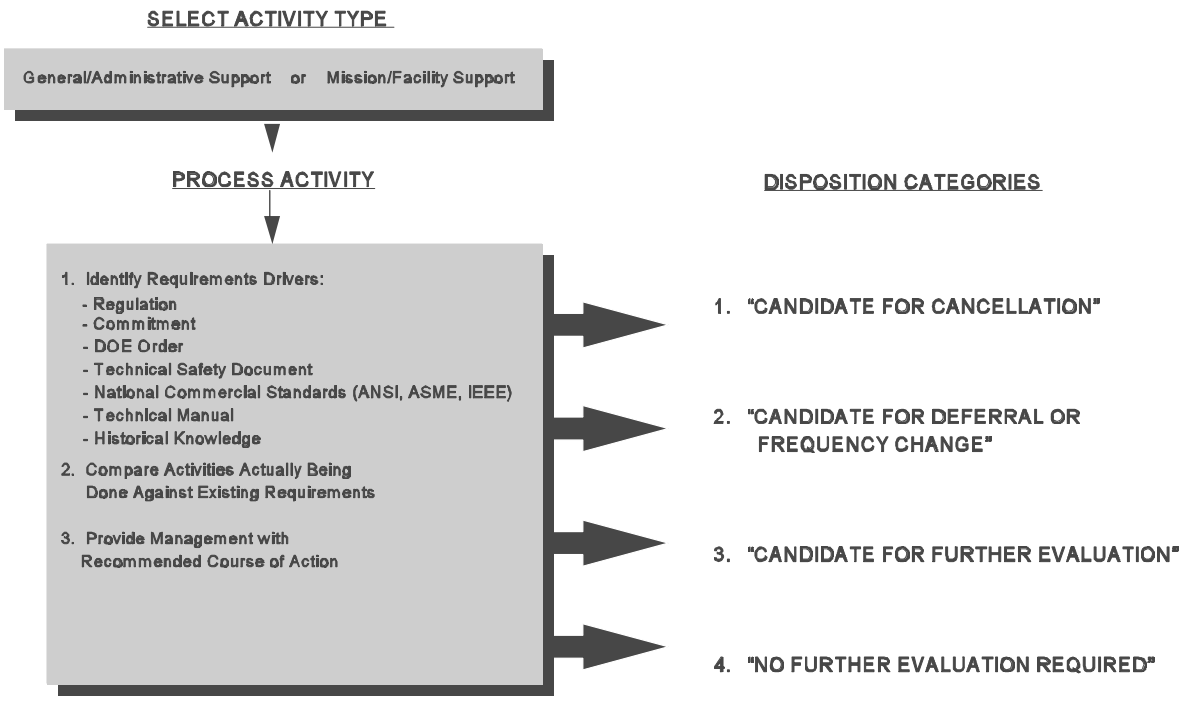
maintenance. (Note: While corrective maintenance activities are defined as S&M, they are not candidates for review under the RBSM Review Process. These activities are performed on an as-needed basis and are driven by the condition of facilities or equipment, not requirements which specify periodicity of performance.)

Taken together these categories of activities comprise Surveillance and Maintenance (S&M). S&M is defined as an activity or set of activities at a site or facility that result in the effective management of hazards and that are necessary to obtain safe and secure conditions and to comply with applicable requirements. Significant S&M costs are associated with the caretaking of Department of Energy (DOE) facilities. In fact, analyses have shown that as much as 71% of a facility's programmatic funds may be consumed by surveillance and maintenance activities, many of which may be unnecessary or excessive.

2.3 The Requirements-Based Surveillance and Maintenance Methodology

As a necessary first step in the RBSM Review Process, management must determine what facilities and types of activities are to be addressed. While the process will support the evaluation of all S&M activities performed at a facility or site in a relatively short period of time, it is anticipated that management would stage its use, focusing on one area or group of activities at a time (i.e., radiation protection activities, or preventative maintenance activities), depending on staff and financial resource availability. Once the area or group of activities is chosen, management assembles a small team (referred to as the RBSM review team, or simply review team) that includes individuals knowledgeable of the activities under review, and who can remain objective throughout the process.

As a first step, the review team needs to identify all the S&M activities in that area. Once these activities have been determined, the review team would interview the individual(s) selected for their ability to answer questions related to each task. Normally, the line managers are appropriate facility personnel who are familiar with the work and the common practices of the facility. In order to ensure thoroughness and consistency, the review team will utilize an RBSM Interview Form which contains a standardized set of questions. Figure 2-1 provides an overview of the review process and outcomes.



Figur
e 2-1: Basic Description of the RBSM Review Process

The RBSM Review Process initially separates work activities into two main broad areas, General/Administrative Support and Mission/Facility Support. This separation is necessary to specifically address the inherent differences between these areas. General/Administrative Support activities primarily deal with activities such as data management, procedure development and maintenance, procurement services, training, and personnel issues. On the other hand, Mission/Facility Support involves such areas as surveillance, maintenance and ES&H type activities.

Once an activity has undergone this initial characterization, the driver for that activity is identified, i.e., the reason why it is being done. Drivers at a site or facility are divided into seven categories: regulations, commitments, Orders, technical safety documents, national commercial standards, technical/vendor specifications, and best practices. These drivers are arranged in a hierarchial manner based on the consequences of non-compliance with the driver.

For each driver category, the why's and how's of that activity are explored in order to fully understand the need for conducting the activity, how that need is satisfied (methodology), and the frequency for conducting the activity.

The process also seeks to determine if operations or conditions have changed significantly enough such that the driver is (or may be) no longer applicable to that activity. Further analysis is then used to probe the specifics of each activity to determine such questions as whether regulatory requirements or commitments can be renegotiated, if the activity reflects

changes made to the driver since the inception of the activity, or whether the activity is being conducted more rigorously than is required.

In order to achieve specificity in the questioning, the RBSM process is divided into six sections. The first section directs an activity into either the General/Administrative or to the Mission/Facility Support areas. The activity is then further divided into its respective driver. Any driver-specific questions are posed in this section. If the answer to the first set of questions does not lead to a disposition category that recommends the level of management review needed, the evaluator is instructed to follow the questions in one of the other five sections. These sections provide for a more detailed sub-classification of activities and the ultimate categorization of each activity.

Once an activity has been taken through the RBSM Review Process, it will be grouped into one of four categories (disposition categories), as shown in Table 2-1 below, to indicate a course of action for management to take.

Table 2-1: Disposition Category Distinguishing Characteristics

Category	Category Name	Category Distinguishing Characteristic
1	Candidate for Cancellation	• No driver can be found for activity • Facility conditions have changed making activity unnecessary • Current or future mission of facility makes activity unnecessary • Strong criteria exists to support evaluation
2	Candidate for Frequency Change	• Activity was being performed more frequently than specified by driver • Strong criteria exists to support evaluation
3	Candidate for Further Evaluation	• Limited information on actual activity driver was available • Driver may not be appropriate for activity reviewed • Undeterminate criteria exists to support evaluation • Regulatory relief could or should be sought for activity • Driver interpretation may be incorrect
4	No Further Evaluation Required	• Activity scope and frequency was found to be valid

Together with driver(s) for the activity, the general information provided on the activity assists management in identifying S&M activities that may be modified in frequency or scope or even

eliminated to free up funding for mission-direct work. Additionally, because the process records the time required for performing each activity, it is possible for management to identify costs associated with activities being performed. With this information, management is now able to better determine the precedence for further reviewing the activities or group of activities identified with the RBSM review process.

The outcome derived from this process is not meant to be an end of the evaluation of an activity. While the evaluative process is designed to allocate an activity into one of four disposition categories, management must still validate the recommendation from the RBSM process and make a final decision regarding disposition of that activity. The recommendation for disposition provides a starting point for facility management to further investigate and implement the results of the RBSM process.

3.0 ORGANIZING THE TEAM AND ACTIVITIES

3.1 Forming an RBSM Review Team

A thorough review of surveillance and maintenance and other activities and drivers at a facility requires the support of a review team that is experienced and knowledgeable of the Department of Energy and facility management practices. To this end, each team member conducting the interviews should generally have a background, as described below in Table 3-1, that will support implementation of the review.

Table 3-1: Recommended RBSM Review Team Background

Recommended RBSM Review Team Background
Understanding the nature and conduct of the RBSM review process.
Experience with one or more or the following: fiscal year planning and budget implementation, training development and implementation, nuclear industry experience (in ES&H, radiological controls, hazardous and radioactive waste management, environmental compliance, maintenance, and conduct of operations)
Awareness/understanding of surveillance and maintenance drivers (e.g., regulations, DOE Orders, and other requirements)
Knowledge of the facility under evaluation, including its physical characteristics, operations and procedures.

The facility personnel, who during the interview will be providing the information for the RBSM analysis, should be selected based the following background, as described in Table 3-2 below.

Table 3-2: Recommended Background for Facility Support Personnel

Recommended Background for Facility Support Personnel
Direct involvement in the planning or line management of the surveillance and maintenance activities being reviewed.
In-depth knowledge of the drivers and the basis for the current surveillance and maintenance activities at the facility.
In-depth understanding of the conduct of operations within the facility being reviewed.

In general, line managers (production managers, utility managers, radiation protection managers, etc.) are appropriate facility personnel to provide input to the RBSM review process since they are very familiar with the work and common facility practices.

3.1.1 Team Members Full or Part-time

Forming a RBSM review team requires determining if the review team participation will

be on a full or part-time basis and how extensive a review will be conducted. Generally, it is better for RBSM review team members to be full-time rather than part-time. This applies more for personnel who will be facilitating the RBSM review process than for facility personnel participating, as review team members, in the interview process.

3.1.2 Determining the Resources for the RBSM Review Team

Because the RBSM process is simple and straight forward, it is easily facilitated by personnel from within the facility as long as facility personnel maintain an objective outlook.

If the use of personnel from within the facility is not practical because of man-power constraints, the facility could also consider using personnel from other facilities on site as resources to conduct the review. This option is probably best for the following reasons:

- Outside personnel can generally be more objective because they are not directly involved in facility planning or management;
- Outside personnel are not associated with the current facility operational culture and practices; and
- Outside personnel may bring different perspectives on how work can be performed because of experiences gained in organizations external to the facility.

Lastly, if the use of personnel from other facilities on the site is not an option, off-site personnel (federal employees and/or consultants) familiar with the development and implementation of the RBSM process may be brought in to conduct the reviews. The process is designed to be simple, flexible, and does not necessarily require resources external to the organization to implement.

As a rule, the number of review team and facility personnel required to perform an RBSM review will largely depend on the number of activities and facility areas under evaluation. Other factors that will affect the use of personnel time, such as the amount of time allotted for performing the review and the level of detailed analysis needed by management to make decisions should also be evaluated.

In general, the fewer the people involved in the interview process, the more quickly the interview will be completed. However, individual facility and RBSM review team members who possess as much of the required knowledge as possible should be sought for the interviews to ensure a high quality product is generated.

3.1.3 Organizing the Review Team for Maximum Effectiveness

Organizing the implementation of the RBSM review process is as simple as developing knowledge of the goal or plan and then progressing to a systematic division of the work among the members of the RBSM review team, as depicted in Figure 3-1.

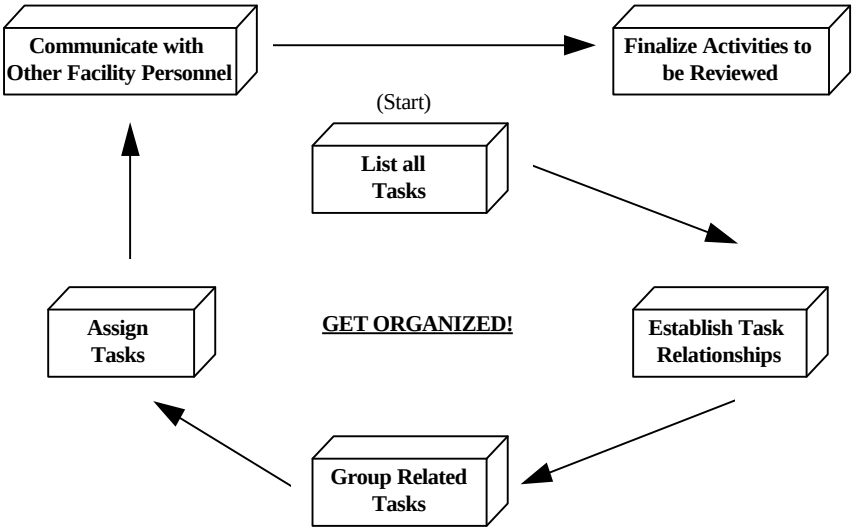


Figure 3-1: Getting the Team Organized

Typically, the organization of the review team should follow the path as shown above and may include the following general steps:

A. <u>Make a list of all the tasks</u> that must be performed by the RBSM review team to accomplish it's objectives. This list may include items such as:

- Establishing the review team leader and backup leader;
- Determining the facility's total S&M work scope, activities, and facility reference documents (very critical);
- Defining the level of facility support required for completion of the evaluation;

- Verifying the availability of ancillary data (budget information and general man-power requirements) for the activities under review;

- Establishing an interview protocol;

- Familiarizing the team with the facility's past and present operations through a review of facility logs, system evaluation reports, authorization basis documentation, and the organization chart; and

- Defining the training and security requirements that will need to be met by the members of the team if entry into the facility is required for the performance of the review.

B. Establish relationships between the various review tasks so that all members of the team will have a clear understanding of interdependencies among tasks.

C. Group review tasks together in a logical and efficient manner. This step is truly a team leader decision that will vary from one review process to another based upon the man-power limitations of the team. It is intended to support an efficient review.

D. Assign responsibilities and divide tasks into activities (or groups of activities) that can be performed by one person. Examples of how tasks may be divided include:

- Gathering the facility specific data and assembling it into a briefing package that may be given to other members on the review team to assist them in preparing for the review process;

- Developing the interview protocol;

- Establishing the project schedule;

- Determining additional training and security clearance needs of the team;

- Compiling and maintaining the list of activities that are to be reviewed at the facility; and

- Tracking and assembling an organized package of all project information, including the maintenance of a database that contains process review results.

3.1.4 Support Required from Other Facility Personnel

For other facility personnel, participating in the review process will generally consist of supporting the needs of the review team. Below are some steps to support the review team which will help to ensure a smooth review process:

A. Define discrete facility work activities for each resource area (Radiation Protection, Operations, etc.) that may be evaluated under the RBSM review process;

B. Provide requirements documentation (RCRA permits, authorization basis documents, conduct of operations, and other regulatory documentation) that the review team can use to both conduct reviews and tabulate the process data;

C. Assemble facility financial information for the last fiscal year and year to date (detailed budgets, charge numbers, manpower loading and other) with S&M activities being reviewed; and

D. Assign a facility point of contact who the team may call upon for facility and site data.

3.2 Selecting Activities to be Reviewed Using the RBSM Process

The RBSM review process is to be used to review S&M activities that are both administrative and non-administrative in nature. Most activities commonly considered to be S&M are likely to be categorized by facilities as compliance and surveillance, environmental monitoring, maintenance, training, safeguards and security, safety and health, radiation protection and other such categories. Many activities are actually defined by a facility's authorization basis documentation. The RBSM team should find many of these activities defined in a facility's Facility Safety Analysis Report (FSAR), Basis for Interim Operation (BIO), or Basis for Operation (BFO) in a section called Limiting Conditions for Operations (LCO). Most facilities track these LCO's in a database and should be able to generate a report that lists each LCO and its required performance frequency.

Other sources of facility activity information include a facility's Plan of the Day (POD), the facility's detailed budget documentation, facility watchstander logs, facility operation orders or standing orders, past or present facility activity based costing exercise data, facility maintenance work package cover sheets, facility activity authorized charge number listing, and other facility specific data.

In general, the activities to be evaluated during RBSM review process are activities which are performed at some specified frequency. Examples of activities that may be reviewed under the process include but are not limited to:

- Daily RCRA inspections of above ground tanks;

- Monthly emergency diesel generator load test;
- Daily reading of glove box magnehelic gauges;
- Weekly gamma surveys on operating HEPA ventilation systems; or
- Qualification of personnel for the handling and packaging of hazardous waste.

However, it is important to note that the process is flexible enough to accommodate the review of almost any activity. Examples of non-routine and non-S&M related activities might include:

- Packaging of waste drums;
- Decontamination of a piece of equipment; or
- Determining the validity of projects.

Additionally, the RBSM review process might look at activities that are related to the procurement of replacement parts, administrative tasks necessary to maintain environmental reporting requirements, facility management oversight inspections and more. Other examples of activities that might be reviewed can be found in Appendix C of this guidance manual.

4.0 DATA ANALYSIS

4.1 Summarizing the Data

First, the data from the interviews are summarized to generate statistics which support the subsequent activity disposition and also support possible improvements in the interpretation of drivers.

At the completion of the interviews for a particular facility, the RBSM review team will have a set of disposition category assignments for the S&M activities that were reviewed. These disposition category assignments should be combined with the available cost data

for the activities to construct a table of activity assignments such as that shown in Table 4-1.

Table 4-1: Sample Activity Assignments

RECOMMENDED DISPOSITION	ACTIVITIES (#/%)	ANN. COSTS ($/%)	ESTIMATED REDUCTION IN (M-Hrs/Yr)
Candidate for cancellation	24/12%	$1M/3%	2,345
Candidate for frequency change	65/33%	$12M/30%	5,562
Candidate for further evaluation	70/35%	$17M/42%	10,675
No further evaluation	40/20%	$10M/25%	0

The summary data in Table 4-1 can also provide an initial validation of the results of the data collection process. For example, if the interviews for a facility resulted in 90% of the activities assigned to a single disposition category, this could indicate that a closer look should be taken at the way the interviews were conducted and the activities were dispositioned. This review of the interview process should be made before the final disposition of the activities. As more RBSM reviews are completed at DOE facilities, a better baseline can be developed regarding the expected outcomes of dispositioning activities. Such a baseline could be of value in identifying interview outputs which merit a closer look before proceeding.

4.2 Disposition of Activities

This phase is the culmination of the RBSM review process, during which decisions are made that will actually achieve modifications in the performance of activities and the reallocation of resources from support to mission-direct tasking. Disposition of the activities should not be performed by the same people who made the original category assignments. Rather, facility management should be responsible for implementing the changes made to the S&M activities. Additionally, management should be supported by at least one member of the RBSM review team who is highly familiar with the RBSM process and also with the rationale for the assigning each activity to the various categories.

4.2.1 Cancellation

Activities recommended for cancellation would, for the most part, be easy to address. Most important in this disposition category are those activities where the operations or conditions have changed such that this activity no longer serves the intended purpose of

the driver. Other activities in this disposition category do not have an identified driver, do not support a present or a future site mission, do not support current job assignments, or duplicate existing processes. After assuring that these activities were dispositioned correctly according to the comments provided, cancellation of these activities would be appropriate.

Management may consider focusing their attention on activities falling into this category first, since these activities generally represent an opportunity for significant and immediate resource reallocations (i.e., all the resources consumed by that S&M activity can be reallocated rather than just a part of them).

4.2.2 Frequency Change

Those activities dispositioned for frequency change should require only a reasonable amount of effort to disposition. Most of the activities assigned to this disposition category will be those that are safety related but are being performed at frequencies greater than that defined in the driver. With such activities, management needs to determine if some tangible cost benefit exists for continuing the activity at its current frequency or scope level. Other activities may involve more training than required or more supervision of employees than the desired minimum level. Activities performed on materials with no known vulnerabilities will also be assigned here. Since almost all of these activities are currently being performed more frequently or at greater levels than required by the driver, a check of the actual requirement will establish what changes need to be made to meet the intent of the driver. Frequency reductions could be affected by internal facility administrative or policy changes.

4.2.3 Further Evaluation

Those activities dispositioned for further evaluation will generally require more effort to disposition than activities in other categories. Accordingly, subsets within this category have been developed to assist in determining the approach needed to make any activity modifications. Section G of the RBSM interview form will indicate the primary reason for the placement of the activity in this disposition category.

- Incomplete information -- The evaluator determines that not enough information is known about the activity to ascertain the driver. Additional investigation is required before the activity can be justified at its current level.

- Intent and/or appropriateness -- It is not immediately clear to the evaluator whether the activity is meeting the intent of the driver or whether the driver itself is appropriate based upon the facility's mission.

- Further review of activities -- The evaluator is questioning the need to continue with a non-safety-related activity even though there may be a driver requiring this

activity. Depending on the driver, changing this activity may require obtaining relief from the regulator or from DOE Headquarters, or re-evaluating the technical basis for the performance of this activity.

- Further review/relief requirements -- A change in the frequency or level of effort for that activity requires the facility to request relief from a regulator or from DOE Headquarters.

Reasons for "Further Evaluation" include determining whether possibilities for renegotiation of or relief from the identified driver(s) exist and negative answers to questions such as: "Has the activity been revised to reflect recent formal evaluations; DOE Order updates; or technical safety documents?"

Additionally, even though frequency may be defined in the driver(s), activities may have excessive scope or may not have been based upon a graded approach. Some reviews will identify training, procurement, or oversight activities that are excessive or not specifically covered in the driver.

4.3 Constructing and Using a Database

In addition to assigning each activity to one of the four disposition categories, the RBSM process allows the review team gather a wealth of information that may be used to build a facility specific database. When the review process is completed at a facility and the database has been constructed and populated, a data sort can then be performed on a wide range of response combinations. Examples of might include something such as a sort to determine the number of activities dispositioned as "Frequency Change" that were conducted on safety related systems and whose disposition was based on renegotiating the requirements of a DOE Order).

4.4 Identification of Dominant Drivers

The preliminary results of the interviews can also be summarized by driver. In this summary, the number of S&M activities and the annual costs associated with these activities would be calculated for each specific driver identified during the interviews. Table 4-2 demonstrates how this information would be displayed. If a small group of individual drivers is responsible for a significant percentage or number of the total S&M activities/costs, the review team should carefully review these drivers and their interpretation and implementation to determine if they are appropriate for the current facility conditions and operating environment. In conducting this evaluation, the team would pay particular attention to the intent of the driver, comparing the facility's approach to fulfilling this intent with corresponding approaches employed by "best in class" DOE and commercial facilities.

Table 4-2: Example Activity Drivers With Activities and Cost

DRIVER	# OF ACTIVITIES	ANNUAL COST
10 CFR 835	16	$875,000
40 CFR 190	9	$634,500
19 CFR 1910	12	$232,000

4.5 Identification of Additional Opportunities

One of the assignments for the review team member(s) during the interview phase of the RBSM review is to identify ancillary opportunities for resource reallocations or operational improvements outside of the RBSM process. These opportunities may involve reductions of S&M tasking based upon making beneficial operational changes rather than on improved interpretation of requirements or these opportunities may involve efficiencies in operational activities other than surveillance and maintenance activities. Such opportunities should be described in as much detail as possible under section J, *Comments*, on the first page of the RBSM interview form. Several examples of such opportunities are offered below.

- Storage of hazardous materials in numerous locations necessitates surveillance activities at all of these locations, with associated costs for each. Consolidation of such materials in a single location would greatly reduce the total surveillance activity, independent of any decisions regarding requirement-driven surveillance frequency.

- Training comprises a significant portion of an employee's time. In addition, traditional training classes usually require employees to be away from the work area and facility for consecutive blocks of time. Computer Based Training (CBT) has been demonstrated to reduce the overall time required to train personnel. In addition, CBT can be used as a portable classroom, allowing supervision to tailor training around work activities.

- Annual proficiency training is required by certain facility personnel to maintain qualifications as a glovebox operator. Currently, such training is conducted off-site and removes the worker from the facility for a large part of the workday. Trainers facilitating the training generally have less experience than the trainee and utilize glovebox training aids that are often quite different from what is actually used in the facility. To save time, save money, and enhance the training process, personnel could receive the same training at the facility, on the exact same glovebox for which they are to maintain proficiency, by performing the training under the

direction of their supervisor. If found to be satisfactory, the supervisor certifies the operator proficient. If found to be unsatisfactory, the supervisor could correct deficiencies on the spot by discussing the trainees' weak points and by having them re-perform the evolution.

- A required maintenance task frequently cannot be completed because the requisite spare part is not in stock. The procurement of the needed part can take three months or longer from the time the need is identified until the required item is received on-site and available to the maintenance technician. During this time period, the equipment needing the maintenance may not be able to perform its intended functions in the manner required of it. This situation presents two opportunities. First, the frequency of parts outages indicates that the inventory system may not be achieving the desired balance between low inventory investment and infrequency of material shortages. Secondly, the procurement system is a candidate for a process re-engineering initiative, to eliminate unnecessary steps and to reduce spare parts ordering lead times to several weeks or days instead of several months.

These opportunities, when identified, will be presented to facility management as a part of the individual S&M activity profiles, recorded on the interview forms, at the end of the interview process. Facility management may either evaluate these opportunities themselves as a part of the data analysis phase or may assign them to another group of site and facility managers for disposition.

5.0 ROLE OF RBSM IN COMPREHENSIVE COST REDUCTION AND PERFORMANCE MEASUREMENT

5.1 Additional Uses of RBSM Data

The primary reason for the collection of RBSM data is the identification of surveillance and maintenance tasks which could be performed less frequently, or not at all, with a consequent reallocation of resources from surveillance and maintenance activities to mission-direct tasking. Additional efficiency improvement opportunities can be derived empirically by evaluating or tracing the analytical process/pathway used to arrive at these disposition categories. These additional efficiency improvements arise from gauging the appropriateness of some of the requirements which are driving the performance of surveillance and maintenance activities. Examples of this may include a situation where the required actions outlined in the requirement document have been interpreted incorrectly causing a greater level of surveillance activity than what is required. By identifying and eliminating "non-value-added" requirements (that is, requirements that specify the performance of activities which do not provide any specified benefit or satisfy any recognized need), a number of surveillance and maintenance activities may be changed or deleted.

The RBSM review process also provides insights into opportunities for reducing the costs

or improving the effectiveness of current operating practices. During the data collection interviews, the RBSM review team members are to identify situations where efficiency improvements may be realized independently from the RBSM review and to document these situations in *section J* on the first page of the interview form. These opportunities will be communicated to facility or site management for follow-up. Examples of such opportunities can be found in section 4.4 of this report.

5.2 Other Cost Reduction Approaches

The RBSM initiative is complemented by other proven task analysis and cost reduction techniques. In some cases, two different techniques may be combined to produce a more effective and efficient cost reduction methodology. This section addresses some of the other cost reduction approaches, how they may interact with RBSM, and how they fit together into a comprehensive approach to efficiency enhancement.

5.2.1 Benchmarking

Benchmarking involves comparing operating parameters of well run facilities or functions against similar parameters for the facility or function being evaluated, in order to assess the latter's performance. In the diagnostic role, benchmarking is intended as a quick and easy means for spotting potential efficiency problems, so the comparison is made at a fairly high level. The benchmark function, which represents the desired level of efficiency and against which the comparison is being made, can be either commercial or governmental, including DOE, although it may be difficult to find other commercial or government counterparts for many of the functions performed at a DOE site. The functions which are compared through benchmarking should be as similar as possible, at least in terms of the parameters of importance to the comparison. For example, if maintenance costs per square foot of facility space are to be compared, then the types of facilities and the types of equipment to be maintained should be as comparable as possible. Benchmarking can be used to identify which facilities may have unnecessarily high surveillance and maintenance costs. Once these facilities are identified, the RBSM approach can be applied to identify and eliminate the unnecessary efforts. After RBSM has been completed, each facility can again be benchmarked to measure the progress of that facility against its "best in class" counterpart and to determine if further efforts to improve the level of operating efficiency are warranted.

Additionally, benchmarking can be used in two applications: to identify instances of low efficiency and to correct such situations. Whereas high level, "macro" comparisons are used for the former application, benchmarking to correct efficiency problems is done at a detail, "micro" level. Once problems with efficiency have been identified and the RBSM process has eliminated unnecessary activities, benchmarking can be used to optimize necessary surveillance and maintenance activities by comparing low-level, process parameters between the activity under analysis and a corresponding "best in class" activity from the commercial world or other governmental or DOE sites. In this case, the parameters to be studied relate to the manner in which the activity is conducted and to the

resources used. In this application, detail data are used to solve the identified problems by measuring and adopting the features of the "best in class" activity.

5.2.2 Management and Performance Reports

Management and performance reports can often be used to diagnose instances of low efficiency. Those facilities for which Activity-Based Costing (ABC) initiatives have been completed will have cost standards, in terms of ABC estimates, for all the activities conducted within the facility. It will be possible, therefore, to develop a standard cost for operation of the entire facility. Comparison of this standard facility cost with the actual facility operating cost available from the management reporting system will provide an objective measure of efficiency. Some sites also generate and maintain data on labor utilization rates by facility or function. Because the methods for calculating labor utilization rates may vary among sites, no standard guidelines can be given for acceptable rates versus those needing improvement. In general, though, it could be said that facilities with utilization rates above 90% would offer little potential for improvement, whereas those below 50% would offer considerable potential.

5.2.3 Process Reengineering

Process reengineering typically involves critically questioning all of the assumptions governing a process and it results in the radical redesign of that process with substantial (50% or greater) reductions in process cost. The regulatory environment within which DOE operates precludes the complete questioning and rethinking of the assumptions (i.e., regulations) driving many DOE site processes and, for this reason, reengineering would focus on an entirely different set of activities from RBSM. However, the activity drivers, or requirements, which were recommended for further management action based upon the RBSM data can be evaluated from a system standpoint (i.e., defining the objective of the requirement and determining how that objective can be most easily achieved) using a reengineering type of approach.

Additionally, reengineering looks at each activity as a system, focusing on the most efficient method and the minimum resources required for producing the activity's intended output. In this role, it is equally applicable to mission-direct and to support activities, just as long as these activities are not regulatory-driven. Like traditional reengineering, reengineering of DOE processes starts with a clean slate and, entirely independent of the current procedures and practices, assembles the minimum steps, with the minimum resources allocated to each step, for the production of a satisfactory process output. Unlike traditional reengineering, however, the regulatory framework will always be accepted as a given and will exert an influence on the reengineered process, where necessary, as it is redesigned.

5.3 Requirements-Based Review of Mission-Direct Activities

A requirements-based analysis of mission-direct activities is both a diagnostic and a corrective technique. The U.S. Army Corps of Engineers Project EM Team, in their draft Phase 2 report on Waste Isolation Pilot Plant (WIPP) operations, stated that excessively conservative interpretations of safety or nuclear regulations are reflected in technical training, oversight, and [mission-direct] facility operational activities. Since RBSM review teams have found overly conservative interpretations of requirements related to surveillance and maintenance activities, the situation found at WIPP is probably not confined to that site.

Because the requirements-based approach analyzes the driver(s) for each individual activity, the requirements-based approach is most cost effective when it is applied to highly repetitive types of tasking. Such tasking would include training and oversight activities related to mission-direct work -- as identified by the Project EM Team -- and also to treatment and disposal activities at sites with major inventories of waste or unstable nuclear material and to certain facility take-down activities which are common to most facilities. In analyzing the requirements basis for these activities, the analyst would employ a logic-based interview form, similar to its RBSM counterpart, which would seek to identify:

- what is required for that activity by applicable regulatory drivers in terms of number of people involved and their skills, monitoring, record keeping, special equipment, and procedures.

- what specifications are appropriate for this activity (e.g., tolerances on the activity's outputs, specifications on equipment or systems employed in the activity).

- what and how frequently training is required for different classes of employees, based upon the job descriptions and the locations in which mission-direct activities take place.

- what are the oversight requirements and the associated record keeping and reporting requirements.

5.4 Meeting Performance Goals

Use of the RBSM review process to meet performance measure goals is simple and sensible. Having said that, a discussion of this application is warranted in the context of why facilities and sites would want to use the process to meet performance objectives.

It is well understood by this point that the RBSM review process is a tool that targets activities being unnecessarily performed. It is also understood that when this occurs,

excess resources are consumed. The consumption of these resources is in many cases a direct contributor to a site or facility not reaching a performance objective but, can be counteracted by applying the RBSM review process. An example is shown below in Figure 5-1.

Example:

A contractor is incentivized to complete the D&D of a facility under its control by FY2001. With the current budget constraints and the high costs associated with safeguarding the facility the contractor views the FY2001 milestone as highly unachievable and fears losing its fee. The contractor also knows that if it is able to cut its support costs in the facility by 20% within the next 6 months, the hours saved can be reallocated for performing the work necessary to earn the fee. The contractor uses the RBSM review process to perform a comprehensive bottoms up analysis of each activity being performed at the facility and the drivers that cause those activities to be performed. Once completed, the contractor observed that many of the surveillances being performed at the facility could be changed in frequency or deferred and some even canceled yielding a savings in labor hours greater than what was need to achieve the performance milestone.

Figure 5-1: Use of the RBSM Review Process to Achieve Performance Measures

Implementation of this process to support meeting performance objectives as addressed in the Departments Environmental Management 2006 Accelerated Cleanup Plan, will assist sites in effectively reallocating resources to achieve additional productivity and efficiency improvements called for in the Plan.