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Oak Ridge National Laboratory Isotopes Facilities Shutdown Program Management Plan

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MANAGED BY
MARTIN MARIETTA ENERGY SYSTEMS, INC.
FOR THE UNITED STATES
DEPARTMENT OF ENERGY

ORNL/TM-11829

Chemical Technology Division

OAK RIDGE NATIONAL LABORATORY ISOTOPES FACILITIES SHUTDOWN PROGRAM MANAGEMENT PLAN

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ABSTRACT

The goal of the Isotopes Facilities Shutdown Program (IFSP) is to place the isotopes facilities at ORNL in a radiologically and industrially safe condition for routine maintenance and surveillance prior to eventual decommissioning. Implementation and completion of the shutdown program will significantly reduce the risks to the environment and public safety and health. Furthermore, it should result in reduced surveillance and maintenance costs for future years. The IFSP Management Plan has been prepared to document the objectives, define organizational relationships and responsibilities, and outline the management control systems to be employed in the management of the program.

1. INTRODUCTION

The Isotopes Facilities Shutdown Program (IFSP) Management Plan has been prepared to document the objectives, define organizational relationships and responsibilities, and outline the management control systems to be employed in the management of the program. This plan has been developed by the Department of Energy Field Office, Oak Ridge (DOE-OR) and the Oak Ridge National Laboratory (ORNL). It will be reviewed periodically and revised, as necessary, with agreement from the major participants.

This document complies with the intent of DOE Order 4700.1,[1] "Project Management System." Concurrence on the contents of this document by the major participants in the program indicates agreement of (1) their role in the management of IFSP and (2) their acceptance of the management control systems in terms of participation in the program.

A companion document, *ORNL Isotopes Facilities Shutdown Program Plan*, ORNL/TM-11689,[2] describes the technical planning for execution of the program.

1.1 IFSP OBJECTIVES

1.1.1 Technical Objectives

The goal of the shutdown program is to place 16 formerly utilized isotopes facilities at ORNL (see Table 1) in a radiologically and industrially safe condition for routine, long-term maintenance and surveillance prior to eventual decommissioning. These facilities will be placed in a condition to meet the requirements for environmental restoration specified by the DOE Policy Memorandum for Acceptance of Facilities for Environmental Restoration (ER) Program, issued March 15, 1991, by L. F. Duffy.[3] A radiologically safe condition for a facility is defined as one in which (1) all hazardous materials, including radioactive materials, high-level wastes, and contaminated liquid wastes have been removed; (2) the structures and radiation monitoring systems are in a physical condition adequate to contain and monitor any radioactive contamination in accordance with DOE Order 5480.1A,[4] "Environmental Protection, Safety, and Health Protection Program for DOE Operations," August 31, 1981; (3) security systems and procedures are adequate to prevent unauthorized entry; (4) all hazardous chemicals will be removed, and the general requirements for industrial safety will be achieved; and (5) loose/unanchored equipment or contamination has been removed.

1.2 SCHEDULE AND COST OBJECTIVES

A comprehensive program management scheduling and cost system will be developed for following the shutdown activities in terms of scheduling, funding, interrelationships between tasks, and important control points. This system will be set up using a "bottoms-up" planning effort that involves all personnel from the line individuals performing the work up through the program manager.[5,6] This system will be an essential

management tool in communications among the various activities covered by the plan, affected programs, divisions within ORNL, other organizations within Martin Marietta Energy Systems, Inc. (Energy Systems), and DOE. It will be used for tracking and managing the timely accomplishment of milestones, developing budgets and following costs, and preparing various summary reports for use by management and DOE.

Table 1. Scheduled shutdown facilities[a]

Krypton-85 Enrichment Facility	Building 3026-C
Alpha Powder Facility	Building 3028
Source Development Laboratory	Building 3029
Radioisotope Production Laboratory—C	Building 3030
Radioisotope Production Laboratory—D	Building 3031
Radioisotope Production Laboratory—H	Building 3118
Radioactive Gas Processing Facility	Building 3033
Radioactive Production Laboratory Annex	Building 3033-A
Isotope Area Storage and Service Building	Building 3036
Alpha Handling Facility	Building 3038-AHF
Radioisotope Packaging and Shipping Facility	Building 3038-M
Isotope Materials Laboratory	Building 3038-E
Isotope Technology Building	Building 3047
Fission Product Development Laboratory	Building 3517
Tritium Target Preparation Facility	Building 7025
Actinide Facility	Building 9204-3

[a]*Note:* Building 3550 was originally included but was subsequently removed by DOE Directive.

2. DESCRIPTION OF THE PROJECT

In December 1989, DOE instructed ORNL to prepare the isotopes production and distribution facilities, with the exception of immediate facility needs for ^{85}Kr, tritium, and ^{90}Y, for safe shutdown. In response, ORNL identified 17 facilities for shutdown, as indicated in Table 1. Subsequently, one of them (Building 3550), was removed by DOE directive.[7] Each of these facilities is located within the ORNL complex with the exception of Building 9204-3, which is part of the Y-12 Weapons Production Plant. ORNL is presently addressing the requirements for placing these facilities into safe shutdown while maintaining them under the existing maintenance and surveillance procedures. The IFSP is defined in three work phases:

Phase I—Developing a safe shutdown plan while maintaining the facilities under the existing maintenance and surveillance plan.
Phase II—Refining the initial shutdown plan and beginning implementation of the required actions for placing the facilities in a safe condition and for obtaining an approved, minimal maintenance and surveillance plan.
Phase III—Completing the required actions for acceptance and transfer of the facilities into the ER Program.

In summary, the objectives of the shutdown program are to determine and complete the required shutdown tasks on the isotopes facilities in order to place them in a radiologically and industrially safe condition and to minimize the necessary maintenance and surveillance of the isotopes facilities.

3. PROGRAM ORGANIZATION AND RESPONSIBILITIES

3.1 GENERAL

A program office has been established in the Chemical Technology Division (CTD) to direct and manage the IFSP activities. The CTD Director has delegated programmatic responsibilities to the IFSP Manager. While the majority of the work on IFSP is performed within CTD, key support will be provided by other ORNL functional organizations. The functional relationships among the organizations involved in the IFSP are shown in Fig. 1.

3.2 DOE-HEADQUARTERS

DOE Headquarters (DOE-HQ) is the source of program policy direction, programmatic issue resolution, and necessary funding.

3.3 DOE-FIELD OPERATIONS, OAK RIDGE (DOE-OR)

DOE-OR, which is the interface between ORNL CTD and DOE-HQ, provides guidance to ORNL and tracks the completion of activities, informing DOE-HQ of schedule progress and budget requirements. The primary contact for DOE-OR at ORNL is the Isotopes Programs Manager.

3.4 ORNL CHEMICAL TECHNOLOGY DIVISION

3.4.1 Director

The CTD is responsible for daily oversight and implementation of all activities leading to the safe shutdown of the isotopes facilities. The IFSP Manager reports directly to the CTD Director, who, in addition to providing guidance to the IFSP Manager, works with higher-level ORNL management to ensure strong functional support to IFSP from outside CTD. CTD staff members will keep DOE-OR fully informed of progress and issues.

3.4.2 IFSP Manager

The IFSP Manager reports to the CTD Director and is responsible for the development, implementation, and completion of required actions for acceptance and transfer of designated ORNL Isotope Program facilities into the ER Program. The IFSP Manager is the single point of contact with DOE-OR on all technical, schedule, or budget issues. She/he is responsible for the general technical direction and management of the overall program, including environmental compliance, engineering, activity oversight for the

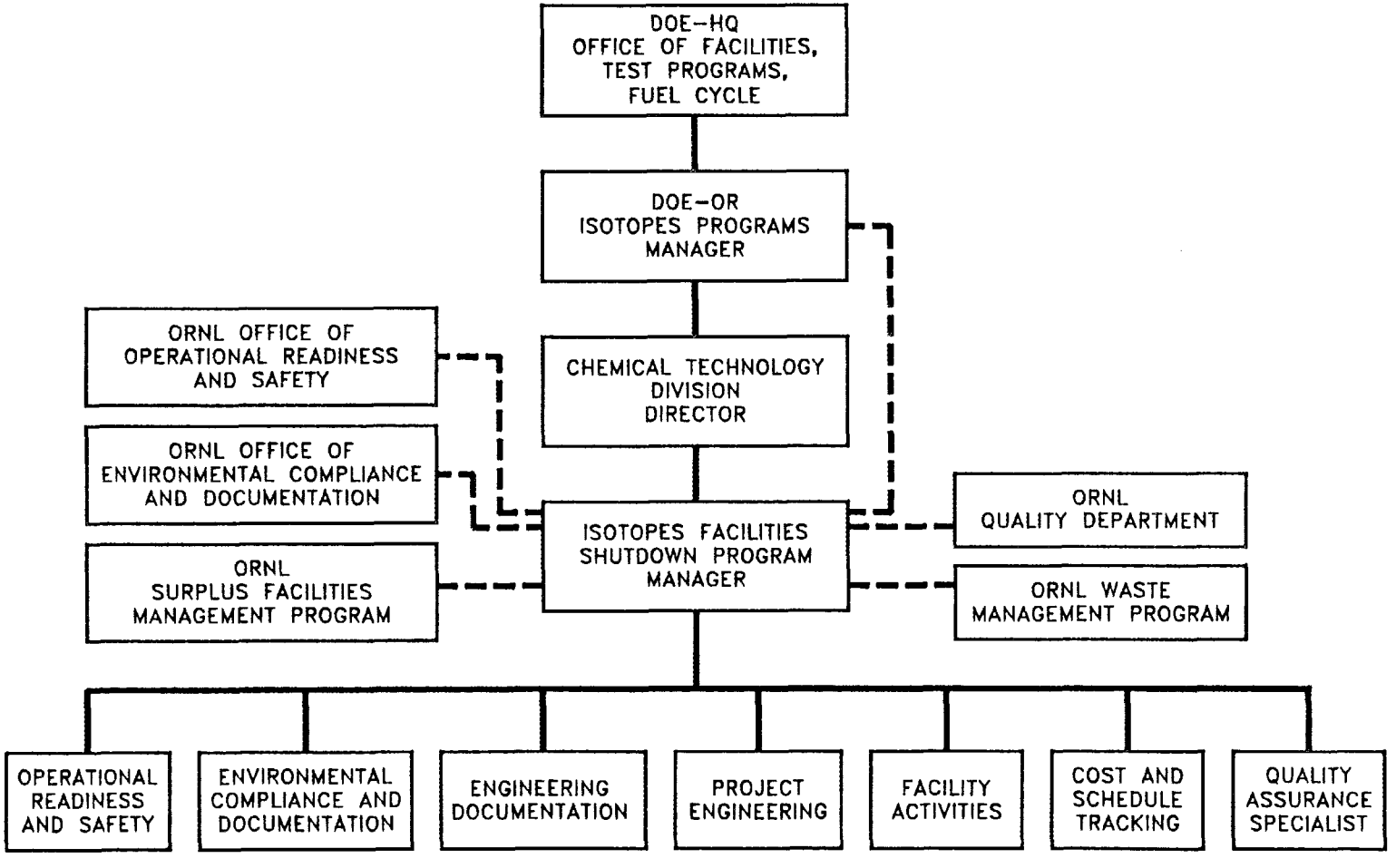


Fig. 1. Organization chart for ORNL Isotopes Facilities Shutdown Program.

16 involved facilities, cost and schedule tracking, and reporting and configuration management. Specific technical skills are provided by functional organizations within CTD and other ORNL organizations. The IFSP Manager is also held accountable for securing the support and commitment to IFSP of the functional staff members, both internal and external to CTD, and for Quality Assurance (QA) planning and implementation of the program.

As indicated in the IFSP organization chart, representatives from Quality, Waste Management, Surplus Facilities, the Office of Operational Readiness and Safety, and the Office of Environmental Compliance and Documentation maintain close contact with the program manager for both oversight and support activities. For effectiveness in pursuing program objectives, personnel from Operational Readiness and Safety, Environmental Compliance and Documentation, and Quality Assurance (QA) are assigned to the IFSP team in a matrix capacity to aid the IFSP Manager in accomplishing needed actions within their respective parent organizations.

3.4.3 Facility Manager

The facility manager is responsible for all operations within the assigned shutdown isotope facility. Shutdown activities will be coordinated with the IFSP Manager and staff.

3.4.4 Cost and Schedule Project Engineer

The Cost and Schedule Project Engineer is responsible for the tracking system used in managing the timely accomplishments of milestones, developing budgets, and following costs.

3.4.5 Project Engineering Personnel

A project engineer from the IFSP staff will be responsible for the overall technical, and the subsequent programmatic, management of the execution of each WBS element.

The project engineer will provide the interface with the cost/schedule engineering function and line organizations performing the work to ensure effective integration of programmatic requirements, with the applicable technical and operational considerations.

3.4.6 Facility Supervisor

The Facility Supervisor is responsible for all isotope and shutdown activities and for the staff needed to complete those activities within a particular facility.

3.4.7 Performance Responsibility

The individual who has been assigned the responsibility for a WBS activity is the official contact for assisting with the initial cost-and-schedule estimate for that WBS and, subsequently, is responsible for executing the work and for ensuring that the activities are on schedule and within budget.

3.4.8 Configuration Control Board

The Configuration Control Board (CCB) is responsible for maintaining the baseline integrity of the project. The CCB will provide a comprehensive review and will grant approval of the proposed revision(s) to controlled elements of the program (see Sect. 4.4 for details).

3.5 OPERATIONAL READINESS AND SAFETY

The ORNL Installation Facility Safety Manager is responsible to the shutdown program to ensure safety and readiness compliance with the "Safety Analysis and Review Program," X-OS-3, dated March 3, 1989. This office will review and approve all safety documentation and revisions for the program.

3.6 OFFICE OF ENVIRONMENTAL COMPLIANCE AND DOCUMENTATION

The Office of Environmental Compliance and Documentation (OECD) is responsible for ensuring that IFSP plans are reviewed and documented prior to inventory transfer to and storage in Building 3517 and other shutdown activities to ensure compliance with DOE Order No. 5440.1C, dated May 15, 1985, "Implementation of the National Environmental Policy Act (NEPA)" and ORNL's Environmental Protection Procedure, "Environmental Review and Documentation Program." Responsibilities include assurance that activities within the IFSP are undertaken without undue risk to personnel and the environment, in full compliance with the letter and spirit of NEPA.

3.7 ENGINEERING DOCUMENTATION

The IFSP Program Manager ensures that all documentation required for turnover of facilities to the ER Program is complete. This shall include as-built drawings, user histories, surveillance and maintenance procedures, and all safety documentation. Permanent records of such documents will be turned over to the ER Program, along with the facilities.

3.8 QUALITY ASSURANCE SPECIALIST

The IFSP Quality Assurance Specialist (QAS) ensures Nuclear Quality Assurance (NQA-1) compliance, verifies implementation of this plan through monitoring surveillance, coordinates internal audits, and serves as the prime interface between the Quality Department and the IFSP for matters concerning quality. The IFSP QAS assists the program manager and other IFSP staff members in writing the program QA Plan. The IFSP QAS shall review and comment on all QA documents in their formative stages.

4. IFSP MANAGEMENT CONTROL SYSTEM

4.1 OVERVIEW OF CONFIGURATION MANAGEMENT SYSTEM APPROACH

The IFSP Configuration Management System (CMS) approach is designed to provide contributing participants with management techniques and information that will ensure complete integration of technical, cost, and schedule objectives and plans for the duration of the IFSP. State-of-the-art project management software shall be used to integrate the technical, cost, and schedule objectives. Emphasis shall be placed on three principal functions: (1) baseline definition, (2) performance monitoring, and (3) change control. The CMS shall comply with DOE Order 4700.1, "Project Management System."

4.1.1 Baseline Definition

For the purpose of management control, each participant shall work within the IFSP Work Breakdown Structure (WBS) scope, cost, and schedule baseline. A WBS Data Sheet for each WBS element, as shown in Fig. 2, shall be developed for each activity and defines the baseline scope, cost, schedule, and milestones for that element. Activities within the baseline structure shall be assigned milestones according to the level of responsibility (Sect. 4.3.4).

4.1.2 Performance Monitoring

Technical, schedule, and cost objectives shall be tracked, on a WBS-element basis, by ORNL to ensure that work activities are performed within the scope of all three parameters. Summary performance charts/tables will be provided to DOE.

4.1.3 Change Control

Change control action may be initiated when cost or schedule variances are out of tolerance or variances occur in the scope or budget. The CCB (reference Sect. 4.4.1) shall review and approve each recommended action.

4.1.4 Scope and Responsibility

A comprehensive program tracking and database management system is necessary for following the IFSP in terms of scheduling, funding, interrelationships between tasks, and important control points. The Cost and Scheduling Project Engineer is responsible for developing, maintaining, analyzing, and reporting schedule and cost information for the program to the IFSP Manager.

ISOTOPE FACILITY SHUTDOWN PROGRAM
WBS DATA SHEET

WBS No.: Account/ Work Order: Date: Revision No.:

Facility Supervisor: Facility:

Performance Responsibility: Project Engineer:

WBS Title:

Scope:

Monthly Status/Comments:

Milestones:	Level	Date

Schedule Start Date:
Actual Start Date:
Schedule Completion Date:
Actual Completion Date:

	FY-91	FY-92	FY-93	FY-94	TOTAL
Funds Appropriated	___	___	___	___	___
Actual Cost	___	___	___	___	___

Fig. 2. WBS Data Sheet.

4.2 WORK BREAKDOWN STRUCTURE

The WBS defines the hierarchy and family relationships between elements of the IFSP and reflects the lowest level of work package necessary to complete the program. The WBS work package shall be used to (1) identify the scope of all work activities; (2) plan and schedule work; (3) prepare resource budgets to support work; (4) develop spending profiles; (5) contract for work; and (6) collect technical, schedule, and cost performance data. Coordinated use of the WBS is required of all participants in ORNL IFSP and shall be the vehicle by which complete integration of the technical, schedule, and cost baseline will be maintained at all times. The configuration management process employs the WBS system to establish and control the technical schedule and cost baseline.

4.3 COST AND SCHEDULE CONTROLS

4.3.1 Cost Control

Actual and planned costs will be compared each month by ORNL on a WBS-element basis. Cost control will be accomplished in two stages. First, deviations on any individual WBS element greater than 20% of planned spending to that date shall require review by the IFSP Manager for potential corrective action. Second, deviations in the actual program spending compared with planned spending through that date will require review by the IFSP Manager, for potential corrective action, if the following limits are exceeded:

- months 1–8 of current FY: 10%
- months 9–12 of current year: 5%

Unspent funds at the end of the fiscal year will be carried over to the next fiscal year.

4.3.2 Tracking System Summary

The intent of the WBS Data Sheet (Fig. 2) is to present an overview of a specific WBS activity or project. Summary items on the data sheet include cost, schedule, and a milestone listing with level. These data sheets summarize information from the Detailed Activity Schedule Sheets.

The Detailed Activity Schedule Sheet (Fig. 3) includes all activities and milestones required to complete the WBS scope. Every activity and milestone scheduled shall reflect all pertinent information, such as dates, level, CTD and support resources, subcontractors, equipment and materials, funding, and interactions with other activities or projects. Most of the Detailed Activity Schedule Sheets shall be developed during the bottoms-up planning by the Cost and Schedule Tracking Project Engineer and the Operations and Facilities Supervisors. Others may be added as the need arises. Figures 4 and 5 show examples of completed sheets.

ISOTOPE FACILITIES SHUTDOWN PROGRAM
DETAILED ACTIVITY SCHEDULE SHEET

WBS No: Building: Date:

Facility Supervisor: Project Engineer:

Performance Responsibility:

WBS Scope Description: _____

ACTIVITY/MILESTONE	SCHEDULED START DATE	SCHEDULED COMPLETE DATE	DURATION	MILESTONE LEVEL	CTD RESOURCES (TECH, OPR, ETC.) (LABOR HOURS)	SUPPORT RESOURCES (P&E, I&C, ETC.) (LABOR HOURS)	SUB-CONTRACTOR	EQUIPMENT & MATERIALS	COST

Does this project interact with other projects:
Describe interaction: _____

IFSP ACTIVITY SCHEDULE SHEET

Submitted by: _____
Reviewed by: _____
Approved by: _____ Program Manager
Approved by: _____ DOE-OR Isotopes Program Manager

Fig. 3. IFSP Activity Schedule Sheet.

ISOTOPE FACILITY SHUTDOWN PROGRAM
WBS DATA SHEET

WBS No.: 1.2.1.13 Account/ Work Order: Date: 01-23-92 Revision No.:

Facility Supervisor: D. W. Ramey Facility: **3026-C**

Performance Responsibility: Project Engineer: J. R. Gibson

WBS Title: Krypton-Xenon Gas Cylinder Dumping

Scope: Numerous standard gas cylinders (13 each) are in storage in Building 3517. This material was collected as a byproduct from the ^{85}Kr purification process and contains a small amount of ^{85}Kr (<1 Ci in each cylinder). The cylinders will need to be transferred to Building 3026-C, mass analysis performed to confirm the ^{85}Kr content, and each cylinder vented to the primary containment system in the building.

Monthly Status/Comments:

Milestones:	Level	Date
Develop Procedures		
Procedure Training		
Transfer to Building 3026-C		
Mass Analysis		
Vent Gas		
Dispose of Waste		

Schedule Start Date:
Actual Start Date:
Schedule Completion Date:
Actual Completion Date:

	FY-91	FY-92	FY-93	FY-94	TOTAL
Funds Appropriated	___	___	___	___	___
Actual Cost	___	___	___	___	___

Fig. 4. Sample WBS Data Sheet.

ISOTOPE FACILITIES SHUTDOWN PROGRAM
DETAILED ACTIVITY SCHEDULE SHEET

WBS No: 1.2.23 Building: 3037 Date: 4/4/91

Facility Supervisor: B. D. Patton Project Engineer: R. E. Eversole

Performance Responsibility: R. E. Eversole

WBS Scope Description: Remove the air handling unit from the wall, remove the ductwork, close all holes left by removal, patch and paint room 203A.

ACTIVITY/MILESTONE	SCHEDULED START DATE	SCHEDULED COMPLETE DATE	DURATION	MILESTONE LEVEL	CTD RESOURCES (TECH, OPR, ETC.) (LABOR HOURS)	SUPPORT RESOURCES (P&E, I&C, ETC.) (LABOR HOURS)	SUB-CONTRACTOR	EQUIPMENT & MATERIALS	COST
Remove ductwork	4/6/91	4/17/91	8			2 Sheetmetal			$600
Remove air handling unit	4/17/91	4/20/91	3			2 P&E			250
Remove all unnecessary pipes, wires, instrumentation	4/20/91	4/22/91	2			1 P&E			300
Repair hole in wall	4/23/91	4/24/91	1			1 Hole patcher			100
Patch interior holes and paint	4/25/91	4/30/91	5			1 Painter			450
Beneficial Occupancy		4/30/91		3					

Does this project interact with other projects: No
Describe interaction:

IFSP ACTIVITY SCHEDULE SHEET

Submitted by: _____
Reviewed by: _____
Approved by: _____ Program Manager
Approved by: _____ DOE-OR Program Manager

Fig. 5. Sample Activity Schedule Sheet.

After the Detailed Activity Schedule Sheets have been developed, summarized into WBS Data Sheets, agreed upon, and baselines determined, the change control procedures, as described in Sect. 4.4, shall be implemented.

4.3.3 Schedule Tracking

Schedules and milestones shall be developed by the individual program participants and compiled by the program manager as a part of the work package for each WBS element. A schedule sheet shall be completed for activities within a WBS, reflecting dates, duration, milestone level, and restraints (Fig. 3). Individual networks and schedules can then be developed and followed. (Figures 6 through 9 are example charts developed for inventory movement into Building 3517.) These schedules are the basic vehicles for communicating work plans and serve as the basis for scheduling responsibilities for the work package. These schedules shall be constructed around the WBS and shall reflect tasks required to complete a single WBS element. By integrating the project schedules with the WBS hierarchy, control systems based on both decision points and audit of variances can be established.

The person designated as having "Performance Responsibility" (i.e., the contact) on the WBS Data Sheets, is responsible for collecting and transmitting all schedule and cost information. The contact shall notify the Cost and Schedule Project Engineer by Milestone/Budget Change Request Form (Fig. 10) anytime activities, milestones, and events do not occur as planned or are forecasted to change.

To support DOE Order No. 4700.1, "Project Management System,"[1] which details the requirements of issuing a monthly assessment of progress, actual program progress shall be tracked against baseline schedule activities and milestones. Individual-task activity networks and program summary schedules shall be updated and distributed to the IFSP Manager on a monthly basis along with cost charts and variance reports. Continuous, effective information exchange and status updating shall be maintained between the contact with performance responsibility and the tracking engineer, and a computerized database will help to ensure consistency of data and information used in assessing the program. Reports shall identify the activities requiring special management attention.

4.3.4 Milestones

The ORNL IFSP schedule baseline consists of activity networks integrated with a milestone hierarchy. Three levels of milestones are selected in sufficient detail to ensure project control and visibility. Each higher level of detail will reflect a more significant level of relative importance to total project management.

The following three levels of milestones, in descending order of importance, are proposed by the IFSP Manager to DOE:

1. **Level 1 milestones** are subject to DOE review and control. A DOE-Controlled Milestone Log (Fig. 11) will be maintained.

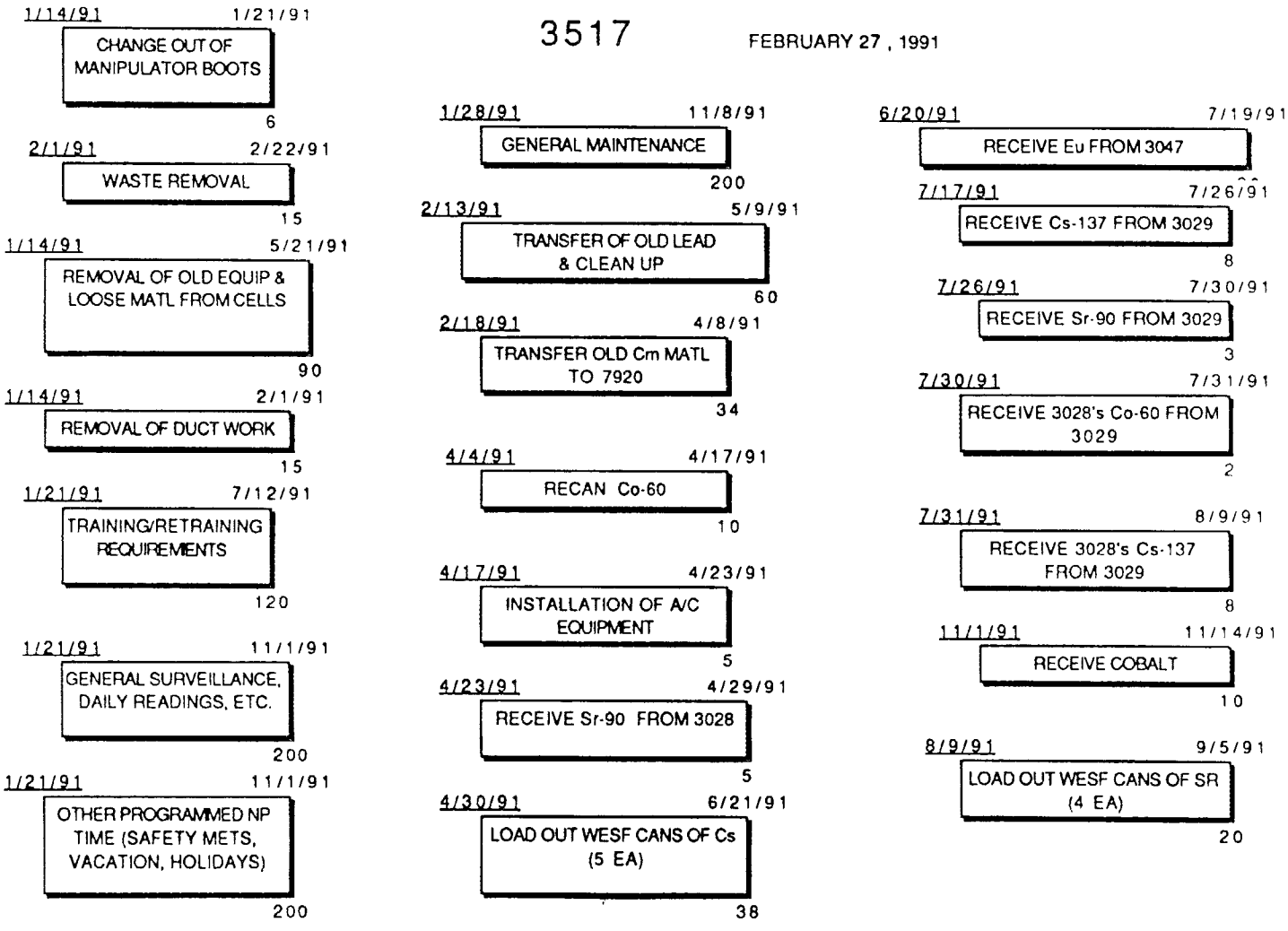


Fig. 6. Building 3517: scheduled activities report.

3517 FEBRUARY 27, 1991

Name	Earliest Start	Earliest Finish	Days
CHANGE-OUT OF MANIPULATOR BOOTS	1/14/91	1/21/91	6
REMOVAL OF DUCT WORK	1/14/91	2/1/91	15
TRAINING/RETRAINING REQUIREMENTS	1/21/91	7/12/91	120
OTHER PROGRAMMED NP TIME (SAFETY METS, VACATION, HOLIDAYS)	1/21/91	11/1/91	200
WASTE REMOVAL	2/1/91	2/22/91	15
REMOVAL OF OLD EQUIP & LOOSE MATL FROM CELLS	1/14/91	5/21/91	90
GENERAL SURVEILLANCE, DAILY READINGS, ETC.	1/21/91	11/1/91	200
GENERAL MAINTENANCE	1/28/91	11/8/91	200
TRANSFER OLD Cm MATL TO 7920	2/18/91	4/8/91	34
RECAN Co	4/4/91	4/17/91	10
INSTALLATION OF A/C EQUIPMENT	4/17/91	4/23/91	5
TRANSFER OF OLD LEAD & CLEAN UP	2/13/91	5/9/91	60
RECEIVE Sr-90 FROM 3028	4/23/91	4/29/91	5
LOAD OUT WESF CANS OF Cs (5 EA)	4/30/91	6/21/91	38
RECEIVE Eu FROM 3047	6/20/91	7/19/91	20
RECEIVE Cs-137 FROM 3029	7/17/91	7/26/91	8
RECEIVE 3028's Co-47 FROM 3029	7/30/91	7/31/91	2
RECEIVE 3028's Cs-137 FROM 3029	7/31/91	8/9/91	8
LOAD OUT WESF CANS OF SR (4 EA)	8/9/91	9/5/91	20
RECEIVE Sr-90 FROM 3029	7/26/91	7/30/91	3
RECEIVE COBALT	11/1/91	11/14/91	10

Fig. 7. Building 3517: activities table.

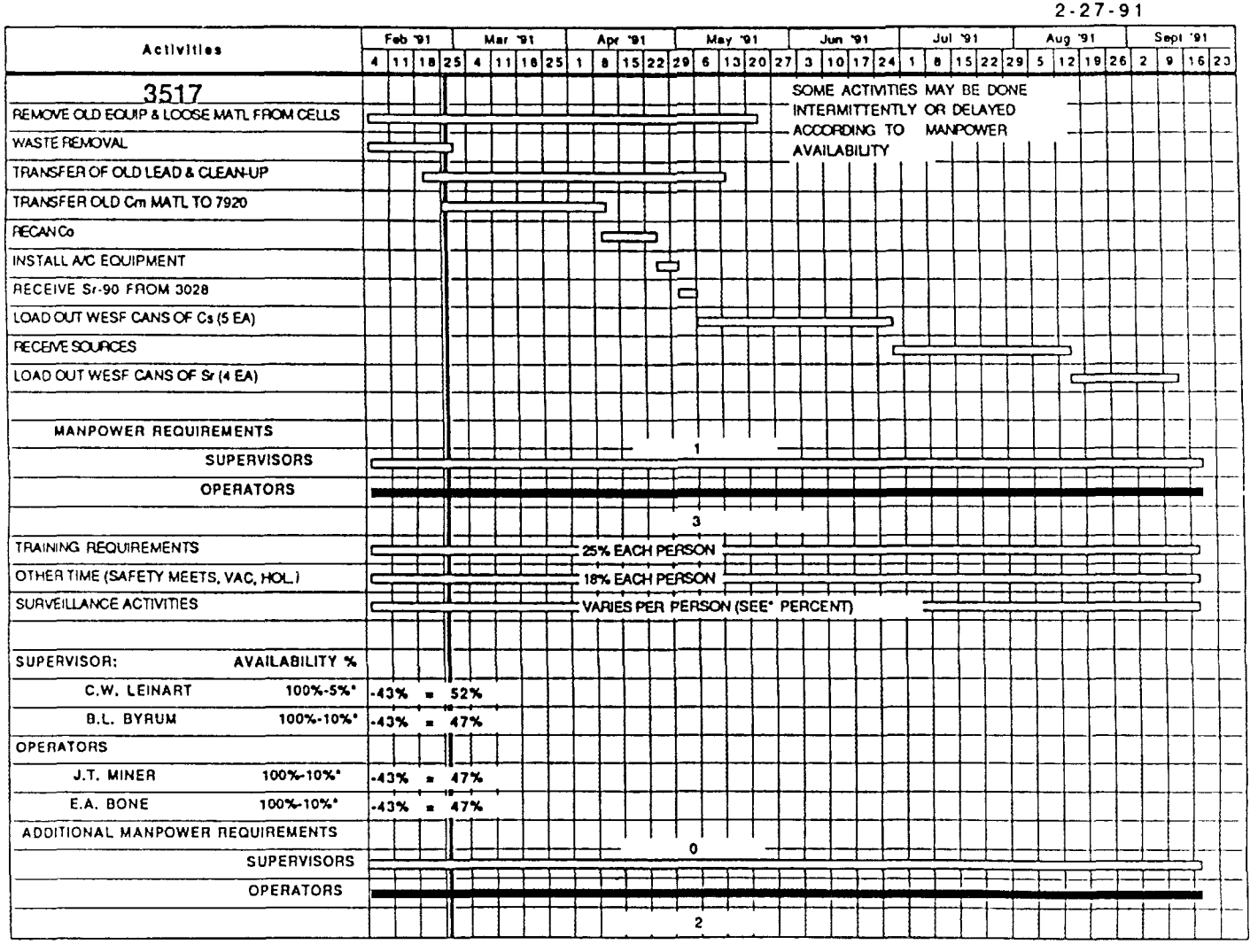


Fig. 8. Building 3517: manpower requirements chart.

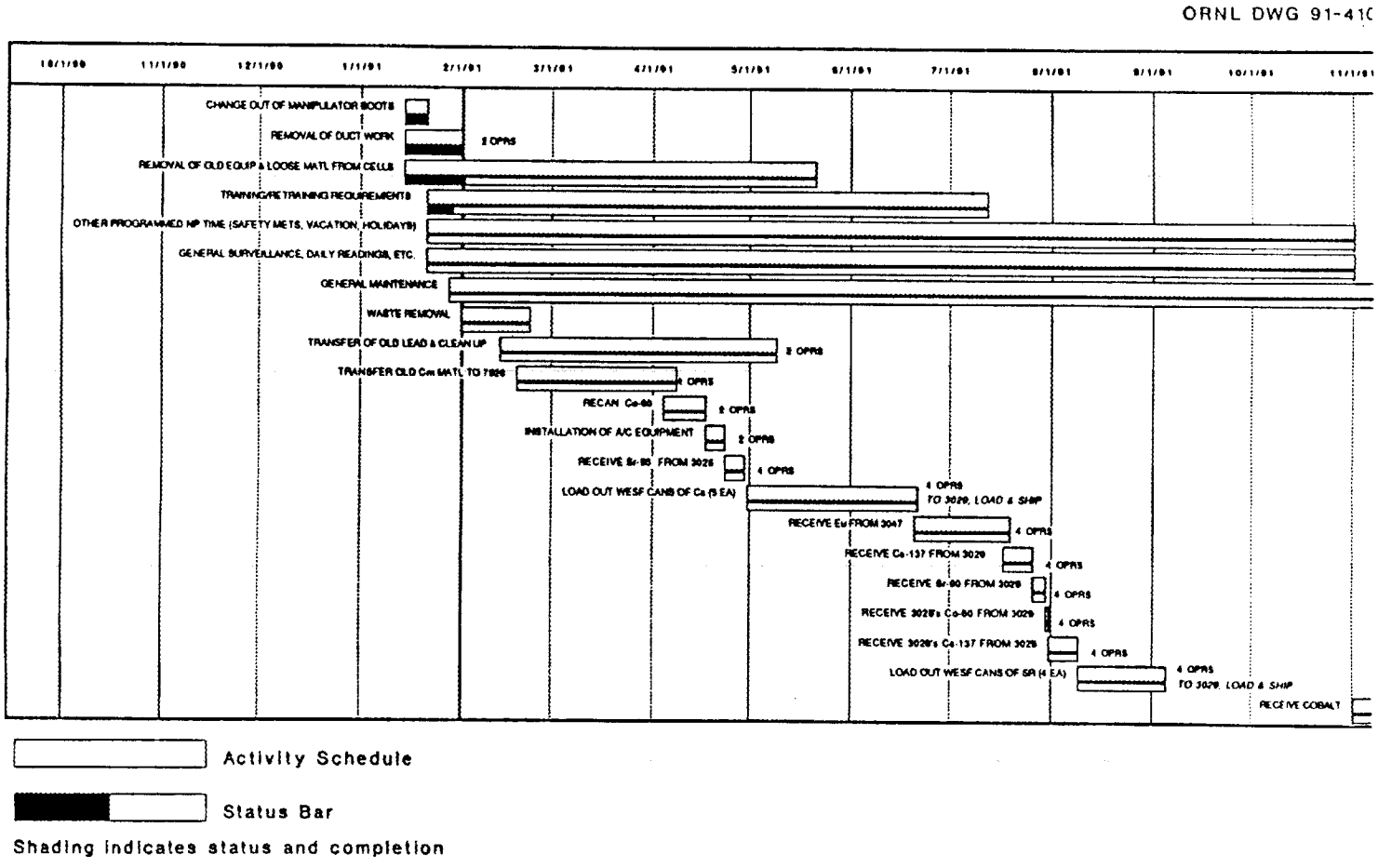


Fig. 9. Building 3517; activities schedule chart.

ISOTOPE FACILITY SHUTDOWN PROGRAM
MILESTONE/BUDGET CHANGE REQUEST

WBS No.:

Request No:
Date of Request: (Assigned by Cost & Scheduling Tracking Section)

Requesting Participant:

Milestone Level: 1, 2, or 3 (Circle One)

Milestone/Budget to be changed:_____

Description of Change:_____

_____

_____

Reason for Change Request:_____

_____

_____

Comments:

Program Impact: (Supplied by Program Contact and Tracking Engineer)

_____

_____

Disposition:

****

Milestone Level	CONFIGURATION CONTROL BOARD Approval/Disapproval	Date
3	_____ IFSP Project Engineer	_____
3	_____ Isotopes Facility Manager	_____
2	_____ IFSP Program Manager/ORNL	_____

Fig. 10. Milestone/Budget Change Request Form.

ISOTOPE FACILITY SHUTDOWN PROGRAM
DOE CONTROLLED MILESTONE LOG

WBS	Description	Planned Completion Date	Actual Completion Date	Comments

DOE CONTROLLED MILESTONE LOG

Fig. 11. DOE-controlled milestone log.

2. **Level 2 milestones** represent significant program events to be reviewed and controlled by the IFSP Manager.

3. **Level 3 milestones** are primarily used for internal control by program representatives.

After review and approval by DOE, these milestones will be controlled as described in Sect. 4.4 (Fig. 11).

4.4 CHANGE CONTROL

4.4.1 Configuration Control Board

After the hierarchy of WBS elements has been fully determined and definitive work scopes, budgets, and milestones have been established in the respective work packages and approved by all participants, no changes to the baseline definitions (see Sect. 4.1.1) in the WBS Data Sheets will be made without formal review and approval by the Configuration Control Board.

Members of the Configuration Control Board	Title	Milestone level: Approval Authority
D. R. Brown	DOE-OR Isotopes Program Manager	1
R. E. Eversole	IFSP Acting Manager	2
L. G. Hill	IFSP Cost and Schedule Project Engineer	3
B. D. Patton	IFSP Facility Manager	3

Additions, deletions, and modifications to work package schedule, budgets, and milestones shall be directly controlled according to the level of responsibility. A request for change shall be documented and thoroughly reviewed in the light of overall project impacts before approval or disapproval decisions are made.

Documented requests for level 1 and 2 revisions estimated to have no impact on the overall program cost or schedule shall be acted upon by the IFSP Manager and reviewed by DOE. Level 1 changes to the WBS baseline that have the potential for impacting the overall program cost or schedule will require concurrence and approval by the Director of the Chemical Technology Division and by DOE prior to implementation. Copies of the schedules and other information used in schedule and cost updates will be maintained by the Cost and Schedule Project Engineer to provide traceability.

4.4.2 Controlled Program Documentation

The IFSP Manager is responsible for designating controlled documents (CDs) for the program or project. To comply with the Configuration Control objectives, each CD shall

be assigned a document number with a publication or distribution date. Every issue shall be permanently maintained in the central program files. A document change form with revision number shall accompany proposed revisions with a detailed explanation of requested changes (Fig. 12). A summary sheet with all CDs will be maintained by the IFSP Office (Fig. 13).

The objectives of the controlled program documentation activity are to control the contents and quality of each document and to assume proper distribution. No attempt will be made to control distribution (e.g., numbered copies) prior to retrieving or destroying prior issues.

Items identified as CDs to date include:

1. IFSP Technical Plan,
2. IFSP Management Plan,
3. IFSP Inventory List,
4. Capital Equipment List,
5. Action Items List (Change Request Form not required), and
6. WBS-related documents:
   - WBS tables,
   - budget allocations, and
   - data sheets.

4.4.3 Milestone/Budget Change Request Form

Milestone/budget change procedures have been established to control and coordinate modifications to reportable milestones. Each revision to a milestone, regardless of the milestone's significance, may affect successive activities; hence, analyzing the changes, alerting the functions of potential changes, and allowing comments and/or replanning by affected contacts are all important.

A Milestone/Budget Change Request Form (Fig. 10) is used to:

1. change a description to affect the meaning of the milestone or activity,
2. add or delete level 1 through level 3 milestones or activities,
3. change the level of hierarchy,
4. report a variance in performance,
5. change the forecast date, and/or
6. effect a change in the milestone financial plan.

4.4.4 Change Request Procedure

Figure 14 shows the analysis and approval cycle for a Milestone/Budget Change Request. In the event a program contact or manager considers it advisable to (in any way) change a milestone, the recommendation must be entered on a Milestone/Budget Change Request Form. Change requests will be submitted to the Cost and Schedule Project Engineer for analysis, processing, and record-keeping. Upon receipt and logging of a change request,

ISOTOPE FACILITIES SHUTDOWN PROGRAM
CONTROLLED DOCUMENT CHANGE FORM

WBS NO:

DOCUMENT TITLE:

DOCUMENT NO: DATE:

REVISION NO: REVISION DATE:

DESCRIPTION OF CHANGE: _____

_____

_____

_____

_____

_____

_____

COMMENTS:

REQUESTOR: _____ DATE: _____

APPROVAL: _____ DATE: _____
IFSP Manager

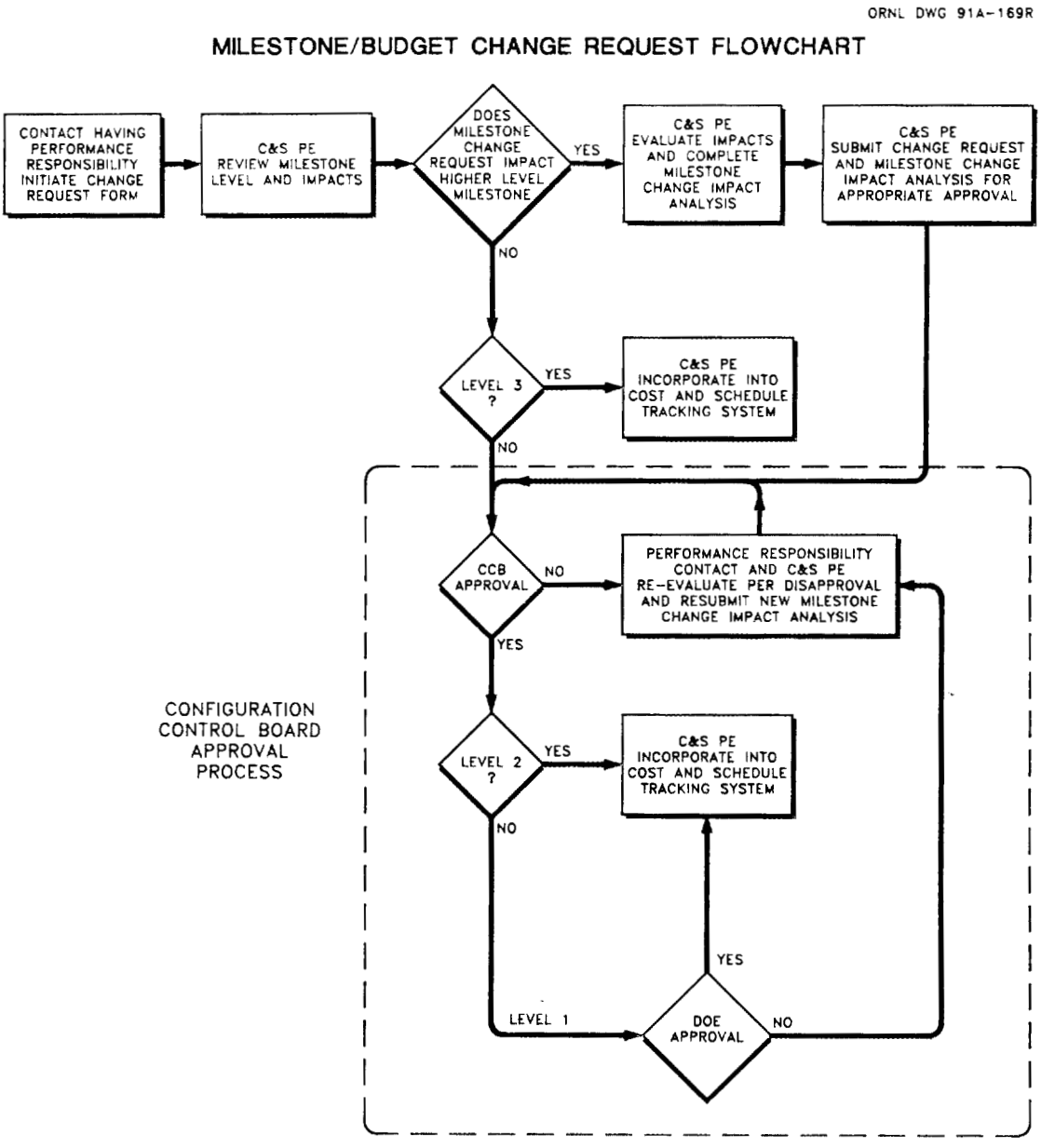
cc: DOE-OR Isotopes Program Manager

Fig. 12. Controlled Document Change Form.

ISOTOPE FACILITIES SHUTDOWN PROGRAM
CONTROLLED DOCUMENT LOG

DOCUMENT NO.	REV.	DATE	TITLE

Fig. 13. Controlled document log.



CCB – CONFIGURATION CONTROL BOARD
C&S PE – COST & SCHEDULING PROJECT ENGINEER

Fig. 14. Milestone/budget change request flowchart.

the request shall be analyzed utilizing a Milestone/Budget Impact Analysis Form (Fig. 15) in coordination with appropriate responsibility areas for effecting the change on the program. The analysis shall be summarized to include the following:

1. identification and listing of other milestones affected by the change, including their level of control;
2. narrative that explains the effect on program performance and cost; and
3. suggestions for recovery, workarounds, or alternatives to the requested change.

The highest-level milestone identified in the analysis will dictate the level of approval required for the disposition. When decisions relative to disposition have been reached, their conclusions will be documented on the Milestone/Budget Change Request Form. Completed dispositions will be placed in program office files, and a copy will be forwarded to the contact who initiated the change request and all other affected areas. The Cost and Scheduling Project Engineer will incorporate approved requests into the cost scheduling system.

4.4.5 Change Responsibility

The contacts with performance responsibility are authorized to make schedule changes involving detailed milestones (level 3) within their area of responsibility without processing a Milestone/Budget Change Request Form for management approval, except when the changes impact a level 1 or level 2 milestone or interfacing milestones or budget allocations. If there is a possibility of such impact, a Change Request Form must be completed, reviewed, and approved by the next higher approval authority. If the proposed change impacts a DOE-reportable milestone, the program manager will inform DOE of the impact and obtain concurrence for the proposed change. Changes, additions, or deletions to accountable milestones (levels 1 and 2) require authorization by the program manager and/or DOE.

4.5 COST CONTROL

The cost control system is designed to provide IFSP management staff members with the data necessary to control and manage program costs.

The database management section gathers project and cost information and reports it to IFSP staff at the appropriate level. Time-phased cost and budget information is maintained in the financial database at the program level and at each WBS level.

4.6 REPORTS

All reports will be reviewed and approved by the IFSP Manager.

ISOTOPE FACILITY SHUTDOWN PROGRAM
MILESTONE/BUDGET CHANGE IMPACT ANALYSIS

Change Request Number: Date:

Additional Milestones Effected by Change Request:

	Activity/Milestone	Level	Title	Description of Impact
1.				
2.				
3.				
4.				
5.				

Suggested Alternatives (work-around, recovery, etc.):

Analysis Summary:

MILESTONE/BUDGET CHANGE IMPACT ANALYSIS

Fig. 15. Milestone/budget change impact analysis.

4.6.1 Overview

Program performance will be reported to DOE through a graded system of weekly highlights; monthly cost and schedule status summaries; and quarterly, midyear, and annual reports. Weekly highlights reports will be issued for the life of the program. Quarterly reports will be issued during the peak activities of FY 1993 and 1994; semiannual reports will be issued in FY 1992; and an annual summary will be issued in FY 1991. The schedule for these reports is as follows:

REPORTING PERIOD	FREQUENCY	DUE DATE
FY 1991–1994 Weekly Highlights		Wednesday of each week
FY 1993–1994 Monthly Activity Progress Report	End of month + 5 working days	Fifth working day of each month
FY 1992 Mid-Year Summary Year-End Summary	Mid-year + 1 month Year end + 1 month	April 30, 1992 October 31, 1992
FY 1993 Quarterly Summaries	End of quarter + 1 month	January 31, 1993 April 30, 1993 July 31, 1993 October 31, 1993
FY 1994 Quarterly Summaries	End of quarter + 1 month	January 31, 1994 April 30, 1994 July 31, 1994 October 31, 1994
Final Program Report	End of program + 3 months	December 31, 1994

4.6.2 Weekly Highlights and Program Meeting Minutes

An IFSP staff meeting is conducted on a weekly basis to discuss all programmatic activities, concerns, and accomplishments. Discussion and subsequent reporting items include critical program constraints, budgets, schedules, safety, QA, other support groups, procedures, training, staffing, inventory movement, action items, and weekly activity highlights as submitted by the facility supervisors. The staff meeting report is organized into planning, leading, organizing, and controlling elements.

The IFSP Weekly Highlights condenses progress and significant concerns into a "bullet" format for timely reporting to DOE.

Monthly cost charts (Sect. 4.6.3) with "bulletized" analyses of variances will be included in the second weekly meeting minutes of each month.

4.6.3 Summary Cost Charts

The financial reporting system is designed to provide the program manager with the data necessary to control and manage program costs. All costs within the ORNL complex are collected in the Finance and Materials (F&M) Accounting System. IFSP costs shall be electronically retrieved from the F&M system and input into the Cost and Scheduling Tracking System where comparative analysis may be made against planned costs. Cost reports will be presented in the project (WBS) format.

Linear cost-curve charts, showing actual costs relative to a planned budget, will be developed for each WBS and reported monthly. These charts will appear in the ORNL Weekly Meeting Minutes (Sect. 4.6.2) as soon as the data are available from ORNL F&M (i.e., normally by the second week). Variances will be controlled as explained in Sect. 4.3.

Actual program summary operating costs for September 1991 (shown in Table 2 and Fig. 16) are examples of available cost reports. The same data will also be prepared at the task level to serve as a backup detail to the overall program summary charts.

4.6.4 Detailed Activity Progress Report

In addition to the weekly reporting discussed in Sect. 4.6.2, monthly detailed schedule status reports will be generated to assist the program manager. These reports are intended, primarily, to be a working tool for use by all program participants and will include information in the following areas:

1. major accomplishments;
2. developments affecting baseline estimates, schedules, and scope;
3. cost performance;
4. schedule status on milestones;
5. significant problems and solutions; and
6. significant comments.

Presentation of the scheduled status will include the following:

Program Summary Schedules—The summary schedules in tabular and graphics form depict activities, milestones, budget, and program progress.
Program Schedules—The program schedules present detailed time-phased logic networks to the detailed level (level 3) with interrelated reportable milestones.
Program Data Sheets—The program data sheets provide an overview of scope, facilities, responsibility, and activity dates by WBS and account number; they also reveal budget information.

These reports will be issued to IFSP participants and to DOE by the fifth working day of each month.

Table 2. Isotopes Facilities Shutdown Program operating costs for the month ending September 30, 1991

Account #	Title	Current Month Cost	FY Cost To Date	Outstanding Commitments	Annual FY Budget
Facility Documentation					
3371-8948	*Facility Documentation*	7,036	16,032	0	(25,200)
A5837KAA 3	*WBS 1.2.21.5 SAFETY DOC(W/03517)*	1,973	54,130	0	35,000
A5839KAA 3	*WBS 1.2.21.3 QA DOCUMENT*	0	0	3,000	3,000
A5840KAA 3	*WBS 1.2.21.1.2 ENVIR. ASSESSMENT*	3,933	14,811	23,189	38,000
A5984KAA 3	*SAFETY DOCUMENTATION- 3517*	1,901	27,082	2,918	30,000
A5892AA1 3	*STUDY/EST. ELECT. AS-BUILT NEED*	5,079	34,107	1,893	36,000
A4100AJ1 3	*AS-BUILT DRAWING ASSESSMENT*	0	0	20,000	20,000
A5838KAA 3	*WBS 1.2.21.4 WASTE MGMT PLAN*			20,000	20,000
A4138BJ7 3	*Electrical As Built Drawings*	0	0		75,000
NEW	*3517 FRACAS DRAWINGS*			42,000	42,000
A4047DAA 3	*MONITOR & ALARM PLAN*	19,504	60,702	15,498	76,200
	SUB-ACCOUNT TOTAL	39,426	206,864	128,498	350,000
Program Management					
3371-7000	*ISFP Administration*	$34,934	$534,865	0	593,580
A5972EAA 0	*HVAC DUCTWORK REMOVAL*	0	13,101	899	14,000
G3697EAA 0	*WBS 1.2.23 PROJECT MGMT*	0	1,677	2,323	4,000
	SUB-ACCOUNT TOTAL	34,394	546,076	3,222	611,580
Maintenance and Surveillance					
3371-8000	*Building 3517*	76,220	768,701		725,000
A5332EAA 0	*INACTIVE DUCT WORK REMOVAL*	0	6,877	123	7,000
G3322EAA 3	*BLDG MAINTENANCE*	13,172	129,315	24,685	154,000
G3514EAA 3	*BLDG 3517 SAFE STANDBY*	2,416	88,947	38,053	127,000
	SUB-ACCOUNT TOTAL	91,808	993,840	62,861	1,013,000
3371-8900	*Building 3028*	17,937	165,200		178,500
G3516EAA 3	*BLDG 3028 SAFE STANDBY*	6,296	50,785	1,215	52,000
	SUB-ACCOUNT TOTAL	24,233	215,985	1,215	230,500

Table 2 (continued)

Account #	Title	Current Month Cost	FY Cost To Date	Outstanding Commitments	Annual FY Budget
3371-8903	*Building 3029*	12,181	197,851		186,500
G3517EAA 3	*BLDG 3029 SAFE STANDBY*	4,999	51,028	(1,028)	50,000
	SUB-ACCOUNT TOTAL	17,180	248,879	(1,028)	236,500
3371-8906	*Building 3038M*	13,808	68,293	0	42,900
3371-8909	*Building 3038E/3038AHF*	10,282	233,545		250,000
G3472EAA 3	*BLDG 3038 Y-90 & AHF SAFE STANDBY*	9,647	76,950	0	38,000
	SUB-ACCOUNT TOTAL	19,929	310,495	0	288,000
3371-8915	*Building 3026C*	1,278	30,199	0	32,700
3371-8918	*Building 3033*	8,076	132,208	0	163,100
NEW	*P & E TPS MANIFOLD MAINT.*	0	0	2,000	2,000
	SUB-ACCOUNT TOTAL	11,917	144,125	2,000	165,100
3371-8921	*Building 3033A*	3,205	74,318		76,500
G3513EAA 3	*BLDG 3033A SAFE STANDBY*	572	4,308	(308)	4,000
	SUB-ACCOUNT TOTAL	3,777	78,626	(308)	80,500
3371-8927	*Building 7025*	2,958	50,289		61,000
G3512EAA 3	*BLDG 7025 SAFE STANDBY*	(8)	2,814	386	3,200
	SUB-ACCOUNT TOTAL	2,950	53,103	386	64,200
3371-8930	*Building 3030/3118/3031*	7,276	103,838		120,000
G3470EAA 3	*BLDG 3030/3118/3031 SAFE STANDBY*	1,430	35,073	0	32,000
	SUB-ACCOUNT TOTAL	8,706	138,911	0	152,000
3371-8933	*Building 3047*	12,571	275,359		330,000
G3471EAA 3	*BLDG 3047 SAFE STANDBY*	3,860	89,311	14,189	103,500
G7405EAA 3	*BLDG 3047 MAINT*	13,624	122,037	0	76,000
	SUB-ACCOUNT TOTAL	30,055	486,707	14,189	509,500
4371-5340	*Actinide Facility*	18,430	228,559	0	238,300
Subtotal Maintenance and Surveillance		244,071	2,997,722	79,315	3,053,200

Table 2 (continued)

Account #	Title	Current Month Cost	FY Cost To Date	Outstanding Commitments	Annual FY Budget
Waste Management					
3371-8936/1200	*IFSP Waste Chargeback*	220,109	3,248,816	0	3,300,000
Shutdown Activities					
3371-9000	*Building 3517*	(14,201)	72,310	0	11,460
A5815KAA 3	*WBS 1.2.14 3517-UPGRADE FOR NUC IN*	2,400	21,822	45,178	67,000
A5829AA1 3	*STRUCTURAL IMPROV. BLDG 3517*	0	25,854	4,146	30,000
A5922EAA 3	*MODIFY DECONTAMINATION TANK*	5,411	11,178	(828)	10,350
A4039EAA 3	*PROCESS LINES TO POTABLE H2O LIN*	4,924	5,213	(2,463)	2,750
A4041EAA 3	*SHOWER STALL INSTALLATION*	3,000	8,018	(1,018)	7,000
A4055EAA 3	*SAFETY UPGRADES TO BLDG 3517*	21,873	59,562	7,838	67,400
A5989EAA 3	*FIX STEAM LEAK CUBICLE D, BLDG 35*	0	18,349	0	8,280
G3709DAA 3	*WBS 1.2.14 I&C 3517*	15,105	22,180	820	23,000
	SUB-ACCOUNT TOTAL	38,512	244,486	53,673	227,240
3371-9900	*Building 3028*	14,687	38,117	0	12,100
G3699EAA 3	*WBS 1.2.2 3028 P&E*	457	457	7,543	8,000
	SUB-ACCOUNT TOTAL	15,144	38,574	7,543	20,100
3371-9903	*Building 3029*	13,568	51,332	0	12,085
G3700DAA 3	*WBS 1.2.3 3029 I&C*	(8)	362	4,638	5,000
G3700EAA 3	*WBS 1.2.3 3029 P&E*	658	711	4,289	5,000
	SUB-ACCOUNT TOTAL	14,218	52,405	8,927	22,085
3371-9906	*Building 3038M*	3,715	19,083	0	5,000
G3707EAA 3	*WBS 1.2.12 BLDG 3038-M P&E*	239	775	4,225	5,000
	SUB-ACCOUNT TOTAL	3,954	19,858	4,225	10,000
3371-9909	*Building 3038E/3038AHF*	11,162	35,626	0	40,500
	SUB-ACCOUNT TOTAL	3,813	39,439	0	40,500

Table 2 (continued)

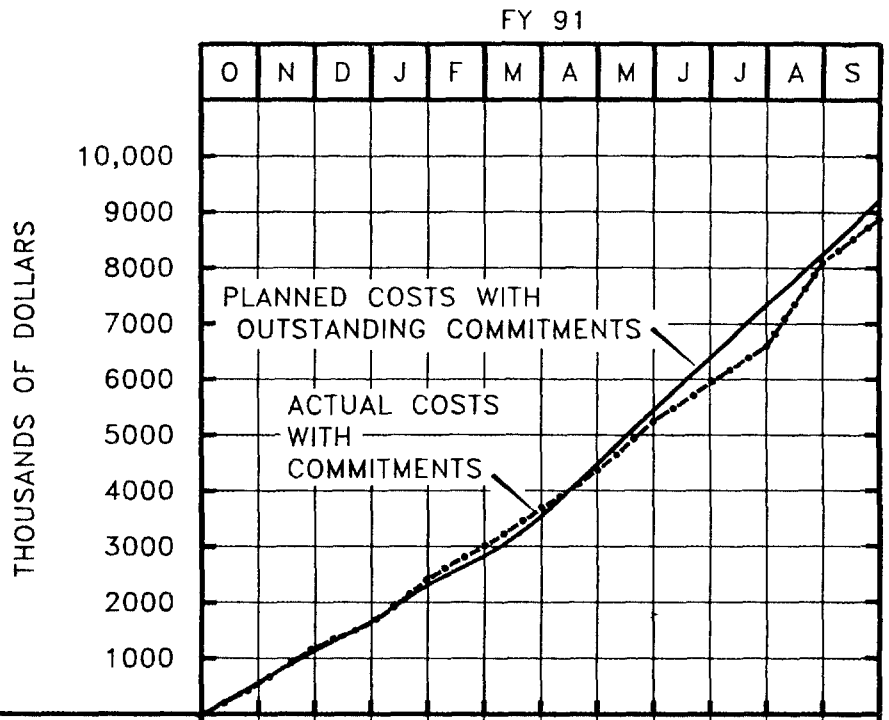
Account #	Title	Current Month Cost	FY Cost To Date	Outstanding Commitments	Annual FY Budget
3371-9915	*Building 3026C*	2,624	82,758		67,200
G3698EAA 3	*WBS 1.2.1 3026C P&E*	550	21,081	4,119	25,200
	SUB-ACCOUNT TOTAL	3,174	103,839	4,119	92,400
3371-9918	*Building 3033*	8,069	91,414	0	66,538
G3703EAA 3	*WBS 1.2.7 P&E BLDG 3033*	242	242	2,758	3,000
	SUB-ACCOUNT TOTAL	9,983	101,397	2,758	69,538
3371-9921	*Building 3033A*	2,010	47,499	0	20,000
G3704EAA 3	*WBS 1.2.8 BLDG 3033A P&E*	1,135	1,135	4,865	6,000
	SUB-ACCOUNT TOTAL	3,145	48,634	4,865	26,000
3371-9927	*Building 7025*			0	22,000
	SUB-ACCOUNT TOTAL	2,378	20,970	0	22,000
3371-9930	*Building 3030/3118/3031*	3,765	53,245	0	33,000
G3702EAA 3	*WBS 1.2.5 3031 P&E*	148	148	2,852	3,000
	SUB-ACCOUNT TOTAL	3,913	53,393	2,852	36,000
3371-9933	*Building 3047*	24,699	210,492	0	150,828
G3708EAA 0	*WBS 1.2.13 BLDG 3047 P&E*	479	1,206	6,794	8,000
	SUB-ACCOUNT TOTAL	25,178	211,698	6,794	158,828
4371-9340	*Actinide Facility*	0	0	0	0
3371-8939	*IFSP Utilities*	41,189	155,714	0	90,000
3371-8945	*Misc. Standby*	(6,179)	(11,634)	0	(812)
G3680EAA 0	*MAINTENANCE SUPPORT*	0	869	9,131	10,000
AK247GA1 2	*OAK RIDGE RESEARCH INSTITUTE*	17,870	30,347	17,153	47,500
	SUB-ACCOUNT TOTAL	11,691	19,582	26,284	56,688

Table 2 (continued)

Account #	Title	Current Month Cost	FY Cost To Date	Outstanding Commitments	Annual FY Budget
3371-8954		(1,747)	9,018	0	0
G3672EAA 3	*BRING ELEC. SER. TO OSHA STANDAR*	14,978	149,962		155,000
	SUB-ACCOUNT TOTAL	13,231	158,980	0	155,000
3371-8952	*Misc. Small Equipment*	(21)	749	0	196,000
NEW	CM-244 CASK (GE 1500 RENTAL)			15,000	15,000
NEW	PERSONNEL DOSIMETERS			6,000	6,000
	SUB-ACCOUNT TOTAL	(21)	749	21,000	217,000
Subtotal Shutdown Activities		189,502	1,269,718	143,040	1,243,379
Capital Equipment					
3371-8960	*Captial Equipment*	(9)	13,697		75,000
KA006EAA 3	*INSTALL 3517 COMPRESSOR*	0	0	4,700	4,700
KA006MAA 3	*COMPRESSOR*	0	7,967	64	8,031
KA012MAA 2	*CAMERA SYS*	0	25,810	0	25,810
KAO15MAA 2	*MANIPULATORS*	107	193	199,807	200,000
KAO14AAA 3	*GAMMA SPECTROMETER*	30,179	30,179	22,821	53,000
KAO17MAA 2	*COMPRESSOR*	11,061	11,297	6,703	18,000
NEW	*ELECTROMETERS*			6,000	6,000
KAO18MAA 2	*TRITIUM MONITOR*	90	137	41,863	42,000
KAO16MAA 2	*AIR HANDLING UNITS, 3517*	458	458	108,842	109,300
	SUB-ACCOUNT TOTAL	41,886	89,738	390,800	541,841
	TOTAL IFSP	$769,388	$8,358,934	$744,875	$9,100,000

ORNL DWG 91A-403R6

Isotopes Facilities Shutdown Program Cost/Budget Report for the Period Ending September 30



Projected cost and outstanding commitments	Monthly	525	560	575	600	620	700	942	1052	916	849	883	878
	FYTD Cumulative	525	1085	1660	2260	2880	3580	4522	5574	6490	7339	8222	9100
Actual cost and outstanding commitments	Monthly cost	522	568	531	650	683	693	768	801	831	804	1207	767
	FYTD Cumulative	522	1090	1621	2271	2954	3647	4415	5216	6047	6851	8058	8825
Projected cost	Monthly	525	560	575	600	620	700	780	767	796	865	988	1059
	FYTD Cumulative	525	1085	1660	2260	2880	3580	4360	5127	5923	6788	7776	8835
Actual cost	Monthly cost	522	568	531	650	683	693	760	777	807	780	818	769
	FYTD Cumulative	522	1090	1621	2271	2954	3647	4407	5184	5991	6771	7590	8359
Cost variance	Monthly cost	−3	+8	−44	+50	+63	−7	−20	+10	+11	−85	−170	−290
	Cumulative cost variance	−3	+5	−39	+11	+74	+67	+47	+57	+68	−17	−186	−466
	Cost variance percentage	−0.6%	+0.5%	−2.3%	+0.5%	+2.6%	+1.9%	+1.0%	+1.1%	+1.1%	−.3%	−2.4%	−5.3%

Fig. 16. Graph of cost/budget report for the period ending September 1991.

4.6.5 Midyear and Year-End Summaries for FY 1992

These reports, which are to be issued in FY 1992, will summarize in tabular, chart, and narrative format, the information that was detailed in the weekly and monthly reports described in Sects. 4.6.2, 4.6.3, and 4.6.4. These reports will contain brief descriptions of significant events during the defined period, as well as a narrative assessment of the current schedule position.

4.6.6 Quarterly Summaries for FY 1993 and FY 1994

Because of increased activity levels during FY 1993 and FY 1994, summary reports as described in Sect. 4.6.5 will be issued quarterly. In addition, an overall program summary report will be issued within 3 months of the end of the program.

4.7 ACTION ITEMS LIST

An Action Items List (Fig. 17) of activities to be performed by the program manager, facility supervisors, the facilities manager, project engineers, and other support participants, reveals descriptions and target dates for each activity. The Status section will be used for pertinent comments and references. Each activity is given a unique control number that will not be reassigned. The Action Items List is a controlled, working document that will be revised frequently and used daily. This reporting system complies with the intent of DOE Order 1332.1A, "Uniform Reporting System."[8]

IFSP ACTION ITEMS
Revision 1

√ Contribution Completed
* Lead Responsibility

Issue Date August 23, 1991
Page 6 of 6

Action Item	Target Date	Action Required By							Status
		CTD	ENG	ORO	FIN	QA	P&E	Other	

Fig. 17. IFSP Action Items List.

5. CENTRAL IFSP HISTORICAL FILES

A formal filing system shall be established and shall be consistent with the WBS hierarchy. These files will serve as the permanent repository for all historical and technical information that would be important for planning ER of these facilities. These files will contain all detailed user history; copies of the actual, end-of-shutdown as-built drawings of safety-related systems; copies of approved surveillance and maintenance procedures; and safety documentation, as well as other pertinent technical data. These files will be accountability-controlled documents with limited access.

6. QUALITY AND RELIABILITY

An overall, integrated IFSP QA Plan will be established and implemented to ensure achievement of project objectives in a safe, reliable, and predictable manner. The IFSP Manager has the overall responsibility for the QA Program, which shall be established and implemented in accordance with the applicable portions of recognized national standards and shall be commensurate with the scope, complexity, and importance of the activity.

6.1 QUALITY ASSURANCE MONITORING

Monitoring of the QA activities shall be performed to verify quality achievement in work performance. Included in this surveillance function is a regular management review of the QA Program to assess the adequacy of its scope, implementation, and effectiveness. Monitoring of the execution of the program shall be performed on a continuing basis to verify overall program adequacy.

Any preliminary shutdown activities performed prior to completion and approval of the IFSP QA Plan, shall be conducted in accordance with existing QA plans for the CTD's Radiochemical Technology Section.

7. REFERENCES

1. DOE Order 4700.1, "Project Management System," March 6, 1987.

2. S. M. Gibson, B. D. Patton, and M. B. Sears, *ORNL Isotopes Facilities Shutdown Program Plan,* ORNL/TM-11689, October 1990.

3. L. F. Duffy, Memorandum, "Policy for Acceptance of Facilities for Environmental Restoration," March 15, 1991.

4. DOE Order 5480.1A, "Environmental Protection, Safety, and Health Protection Program for DOE Operations," August 31, 1981.

5. W. Fulkerson to J. A. Reafsnyder, Letter, "ORNL Isotopes Facility Shutdown Information," June 14, 1990.

6. W. Fulkerson to J. A. Reafsnyder, Letter, "Isotopes Facilities Shutdown Program Plan," June 20, 1990.

7. J. A. Reafsnyder to A. W. Trivelpiece, Letter, "Oak Ridge National Laboratory (ORNL) Isotope Facility Shutdown Plan," August 14, 1990.

8. DOE Order 1332.1A, "Uniform Reporting System," October 15, 1985.

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