

CORRES CONTROL
OUTGOING LTR NO

EG&G ROCKY FLATS

REF ID: 4700 1
4 RF 09547

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September 14, 1994

94-RF-09547

Vern F Witherill
Acting Director for Decontamination
and Decommissioning Planning Division
DOE, RFFO

Attn W N Fitch

SUBMITTAL OF REVISED DECONTAMINATION AND DECOMMISSIONING
IMPLEMENTATION PLAN - TRD-052-94

Action None Required

Enclosed is Draft A of the Decontamination and Decommissioning (D&D) Implementation Plan
This draft incorporates comments from an internal review held on August 30, 1994 The
essence of the document remains unchanged The nature of the proposed changes was to
allow for more flexibility in the D&D process

We realize that this submittal may delay your review of the initial draft We therefore extend the
review period until September 21, 1994 Early submission of review comments from the initial
draft would be greatly appreciated We feel that this document should be used as a basis to
initiate dialogue on resolving programmatic differences between the D&D Implementation Plan
and your draft Program Plan We will submit comments of the draft D&D Program Plan under
separate cover

Should you have any questions, please contact me at extension 8760

Tomc

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T R De Mass, P E
Senior Program Manager
Decontamination and Decommissioning
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IN REPLY TO RFP CC NO
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ACTION ITEM STATUS
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**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
DECONTAMINATION AND DECOMMISSIONING
IMPLEMENTATION PLAN**

for

ENVIRONMENTAL RESTORATION MANAGEMENT PROGRAM

AUGUST 1994

Draft A

Prepared by

EG&G Rocky Flats, Inc
Decontamination and Decommissioning Projects
Golden, Colorado

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6 1	Engineering During Operations	48 38
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8 4 1	Project/Subproject Data	56	5
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			7

LIST OF ACRONYMS AND ABBREVIATIONS

		1
		2
ADS	activity data sheet	3
ALARA	as low as reasonably achievable	4
AMER	Assistant Manager for Environmental Restoration	5
BCP	Baseline Characterization Plan	6
CAA	Clean Air Act	7
CCR	Colorado Code of Regulations	8
CDPHE	Colorado Department of Public Health and Environment	9
CDR	Conceptual Design Report	10
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	11
CFR	Code of Federal Regulations	12
CHWR	Colorado Hazardous Waste Regulations	13
CPAF	cost plus award fee	14
CPFF	cost plus fixed fee	15
CPIF	cost plus incentive fee	16
CTR	contract technical representative	17
CX	categorical exclusion	18
D&D	decontamination and decommissioning	19
DOE	Department of Energy	20
DOE-RFETS	Department of Energy-Rocky Flats Environmental Technology Site	21
DOE-STD	Department of Energy-standard	22
DQOs	data quality objectives	23
EA	Environmental Assessment	24
EDGM	Engineering Design Guidance Manual	25
EIS	Environmental Impact Statement	26
EM	Environmental Restoration and Waste Management	27
EPA	Environmental Protection Agency	28
ER	Environmental Restoration	29
ERD	Environmental Restoration Division	30
ER-IPP	Environmental Restoration-implementation plans and procedures	31
ERM	Environmental Restoration Management	32
ER-MSA	Environmental Restoration-Major Site Acquisition	33
ERP	Environmental Restoration Program	34
ERPM	Environmental Restoration Project Manager	35
ES	engineering study	36
ES&H	environmental, safety, and health	37
FDC	functional design criteria	38
FONSI	finding of no significant impact	39
FPIF	fixed price incentive fee	40
FSAD	Final Safety Analysis Document	41
FSAR	Final Safety Analysis Report	42
FYWP	fiscal year work plans	43
GET	general employee training	44
H&S	health and safety	45

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HASP	Health and Safety Plan	1
HS&QAG	Health, Safety, and Quality Assurance Group	2
IAG	Interagency Agreement	3
IHSS	Individual Hazardous Substance Site	4
IPP	implementation plans and procedures	5
IVC	independent verification contractor	6
IWCP	Integrated Work Control Program	7
LLMW	low level mixed-waste	8
LLW	low level (radioactive) waste	9
MIP	management implementation plan	10
MP	major projects	11
MSA	major site acquisition	12
NEPA	National Environmental Policy Act	13
NESHAP	National Emissions Standards for Hazardous Air Pollutants	14
NPDES	National Pollutant Discharge Elimination System	15
NPL	National Priority List	16
NRC	Nuclear Regulatory Commission	17
NRDA	Natural Resource Damage Assessment	18
OMG	Operations Management Group	19
ORD	operational requirements documents	20
OSHA	Occupational Safety and Health Act	21
OU	Operable Unit	22
PCB	polychlorinated biphenyls	23
PM	project manager	24
PMO	Project Management Office	25
PPE	personnel protective equipment	26
PSAD	Preliminary Safety Analysis Documentation	27
PSAR	Preliminary Safety Analysis Report	28
QA	Quality Assurance	29
QAMS	Quality Assurance Management Staff	30
QAP	Quality Assurance Plan	31
QAPD	Quality Assurance Program Description	32
QAPjP	Rocky Flats Site-Wide Quality Assurance Project Plan for CERCLA Remedial Investigations/Feasibility Studies and RCRA Facility Investigations/Corrective Measures Studies Activities	33 34 35
QARD	Quality Assurance Requirements and Description	36
RA	Remedial Action	37
RCRA	Resource Conservation and Recovery Act	38
RFCA	Rocky Flats Cleanup Agreement	39
RFETS	Rocky Flats Environmental Technology Site	40
RFETS-ERM	Rocky Flats Environmental Technology Site-Environmental Restoration Management	41 42
RFFO	Rocky Flats Field Office	43
RFI/RI	RCRA Facility Investigation/Remedial Investigation	44 45

RI	Remedial Investigation	1
ROD	Record of Decision	2
RR	readiness review	3
RRC	readiness review checklist	4
SA	Subcontract Administrator	5
S&A	Safety and Assessment	6
SAP	Sampling and Analysis Plan	7
SAR	Safety Analysis Report	8
S&M	Surveillance and maintenance	9
SARA	Superfund Amendments and Reauthorization Act	10
SDP	subproject decommissioning plan	11
SECP	Sitewide Environmental Compliance Program	12
SM	Subproject Manager	13
SMP	Subproject Management Plan	14
SNM	Special nuclear material	15
SPM	Subproject Project Manager	16
STD	standard	17
SW	solid waste	18
SURB	Site Use Review Board	19
TRU	Transuranic waste	20
TSCA	Toxic Substance Control Act	21
TSD	treatment, storage, and disposal	22
WBS	Work Breakdown Structure	23
WEMS	Waste and Environmental Management System	24
WMP	Waste Management Plan	25
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Decontamination and Decommissioning

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**SECTION 1
INTRODUCTION**

Environmental Restoration Management Decontamination and Decommissioning	Manual Revision No Page	RFETS/ERM-94-000XX Draft A 2 of 57
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1.0 INTRODUCTION

This implementation plan provides specific guidance for conducting decontamination and decommissioning (D&D) projects (referred to as subprojects) at the Rocky Flats Environmental Technology Site (RFETS) as managed by the Operating Contractor Environmental Restoration Management (ERM) D&D subprojects will be managed within the Environmental Restoration (ER) Major Site Acquisition (MSA) Project as implemented through the ER Management Implementation Plan (MIP) and associated Implementation Plan and Procedures (IPP) documents

D&D projects contain unique challenges which are different from management requirements associated with implementing capital upgrade projects and conducting soil and ground water remediation. Therefore this D&D IPP coordinates the similar requirements of ER subprojects (contained in the other ER-MSA/MIP IPPs) with the D&D-specific management requirements

1.1 Purpose

The purpose of this document is to provide overall management guidance and consistent methodology to D&D Project Managers (PMs) and project personnel in carrying out their responsibilities within the ER Program. This IPP document is a sub-tier planning document under the ER-MSA Contractor Implementation Plans and Procedures Program. The D&D IPP supplements the ER Program Plan and is a summary of the elements of the D&D project to be executed.

The primary guidance used in developing this plan includes the Environmental Restoration and Waste Management (EM)-40 D&D Guidance Manual, U S Department of

Energy (DOE) Order 4700 1, and DOE Order 5820 2A. The work process integrates the EM-40 D&D Guidance Manual phased process with a graded approach to the requirements of DOE Orders 4700 1 and 5820 2A. Figure 1-1 illustrates the overall D&D logic diagram.

1.2 Scope

The scope of this document encompasses facilities at RFETS which have completed deactivation activities, have been accepted by EM-40 into the D&D project, or facility that requires up-front D&D engineering and project planning prior to official turnover.

The anticipated scope of the D&D subproject includes approximately 400 separate retired, deactivated, transitional, and active facilities as individual subprojects. The D&D Project also includes process equipment (such as process and storage tanks), ventilation systems, ancillary filter houses and effluent stacks, and security devices such as fencing and guard posts. The facilities include laboratories and production facilities (some with heavily contaminated glove boxes), special nuclear material storage vaults, effluent treatment facilities, hazardous and mixed waste storage facilities, fabrication shops, and numerous support facilities.

The buildings have been grouped into "complexes" based upon the functional use of each structure during the production of nuclear weapons components at RFETS. The three categories of complexes are plutonium, non-plutonium, and support. In general, this segregation refers to the primary type of radiological contamination.

DECONTAMINATION and DECOMMISSIONING Logic Flow Diagram

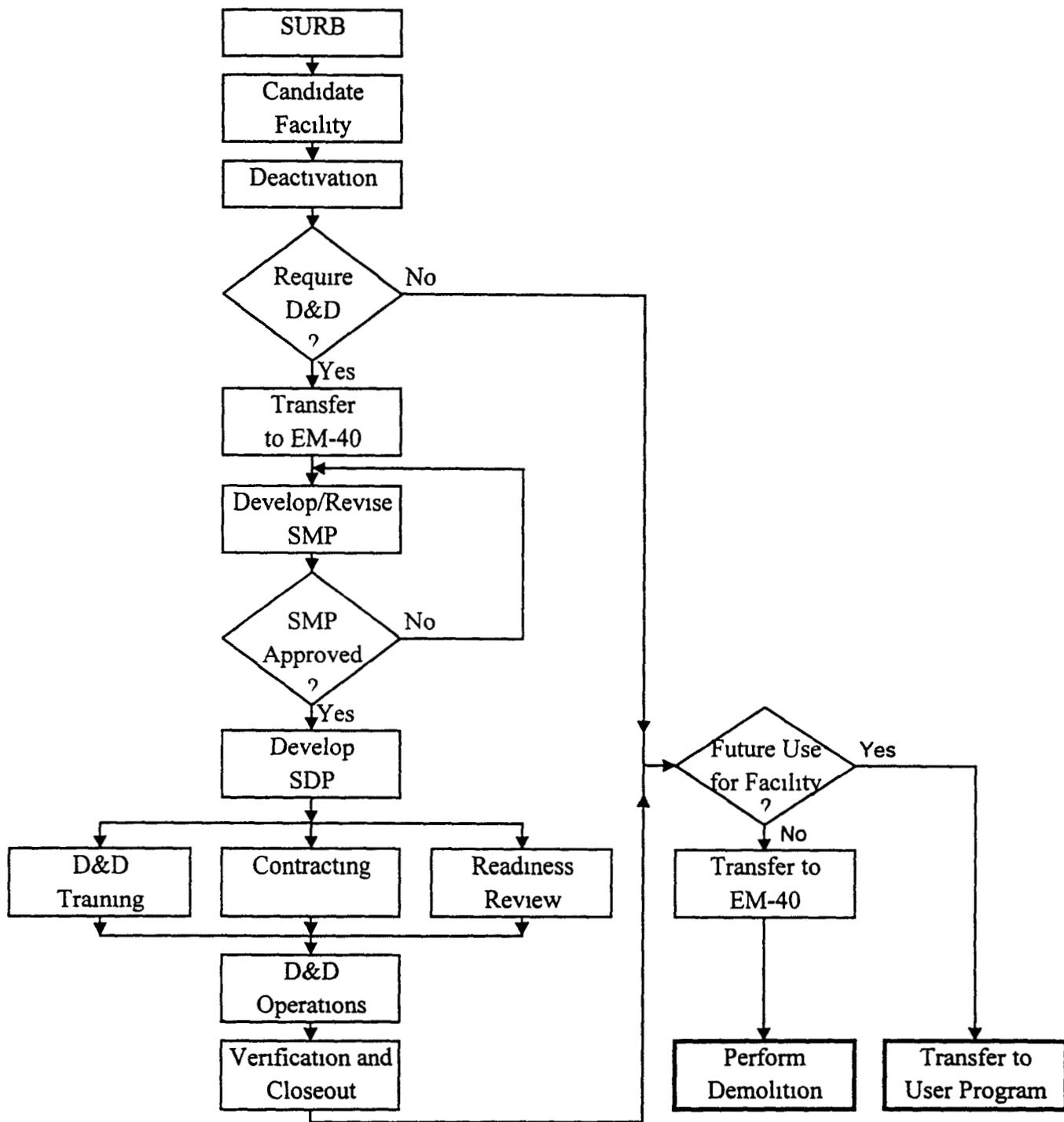


Figure 1-1

expected "Plutonium" refers to plutonium or transuranic contamination "Non-plutonium" refers to contamination from other radionuclides, primarily uranium and associated non-radioactive beryllium "Support" refers to either no contamination or only hazardous material contamination Both plutonium and non-plutonium buildings may be contaminated with hazardous materials in addition to their primary contaminants

A facility may be designated a D&D subproject if it has been declared surplus due to loss of operational mission and/or loss of programmatic value (deterioration, obsolescence) The facility is added to a Master List of Surplus Facilities and is reviewed by the Site Use Review Board (SURB) If the SURB identifies a use for the existing facility, the current program and the requesting program will negotiate a transfer If the SURB fails to identify a current or future use for the facility, it then enters the planning process for transfer to the D&D subproject, followed by decontamination, decommissioning, and/or demolition

Because the D&D of entire facilities at the RFETS will probably be deferred due to numerous programmatic interfaces and alternative uses, D&D of individual buildings or rooms will be considered and performed when cost-effective and otherwise feasible This strategy is especially applicable when reducing the contamination level of contamination offers a large savings in surveillance, maintenance, and health protection costs

Each D&D subproject includes the management process for evaluating both the risk and final disposition of surplus nuclear and/or support facility The specific

subproject management plan (SMP) will include the characterization, hazards analysis, environmental review, and conceptual engineering required to initiate and implement the subproject decommissioning plan (SDP) The subproject implementation steps include, but are not limited to declassifying or destroying sensitive equipment/components, decontaminating equipment and structures to allow their reuse and/or demolition and removal, ensuring worker safety and health protection, managing primary and secondary wastes to comply with regulatory requirements, and controlling residual hazards to ensure protection of the public and the environment

Activities may include

- Site/facility assessments,
- Regulatory and public involvement,
- Maintenance actions,
- Project scoping and engineering designs,
- D&D operations, and
- Closeout/verification

The scheduling of these activities must reflect consideration of risks to human health and the environment, facility planning, and impacts to regulatory commitments Approved subproject baseline schedules and costs will be used as performance measures for these activities

The D&D IPP identifies the major elements of a D&D subproject, maximizes the integration of lessons learned from D&D activities within the DOE Complex into the

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Rocky Flats Environmental Technology Site (RFETS) D&D Project, and defines the coordination and integration of other RFETS organizations to perform D&D activities as safely, effectively, and efficiently as possible

1.3 Objective

The objective of the D&D Subproject is to complete decontamination, equipment removal, dismantlement, and/or demolition and site stabilization activities on surplus facilities or sites that have been accepted into the D&D subproject baseline. This objective includes

- Assisting in facility/site prioritization and selection to reduce the risk of (chemical, radiological, and/or industrial) exposure to the public, onsite worker, and the environment,
- Ensuring the maintenance of EM-40-accepted facilities and sites in a safe configuration until cleanup activities are completed,
- Removing radiological and hazardous contaminants in a safe and controlled fashion,
- Performing segregation, recycling, treatment, and disposal activities of D&D-generated wastes such that exposure risks posed to the public, onsite worker, and environment are lower than current facility conditions, and
- Meeting final facility and site reuse and/or site release requirements

These objectives of the D&D subproject are met in this IPP by

- Providing a definition of the RFETS D&D subproject scope, objectives, and authorities, 1
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 - Providing an overview of the RFETS D&D subproject planning process, 5
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 - Providing guidance for integration of regulatory, stakeholder, and economic development requirements, 8
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 - Providing a basis for the five-year plan (Activity Data Sheets - ADSs) and the fiscal year work plans, 12
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 - Identifying the project work flow process that will guide RFETS D&D activities and to minimize the hazards and risks associated with a D&D activity, thus ensuring the health and safety of the RFETS work force and the general public, 16
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 - Developing D&D subproject documentation from inception through closeout, consistent with the ultimate end-use of a facility and RFETS, 23
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 - Planning and performing D&D subprojects in a manner which minimizes the quantity of waste generated, reduces contamination to the lowest level possible, and minimizes the generation of secondary waste, and 30
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 - Developing management and work processes that are consistent among D&D subprojects and meet the administrative and technical requirements of applicable DOE Orders, guidance, and other IPPs 38
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- 1.4 Requirements Documents 45**

The RFETS ER Project is designated as a Major System Acquisition (MSA), as defined in DOE Order 4240 1k, "Designation of MSAs and MPs " The classification of an MSA requires the use of DOE Order 4700 1 as a developmental document to define management requirements The ER MSA, however, is a modified MSA project in that it does not require the use of capital funding and utilizes the five-year planning activity data sheets (ADSs) and fiscal year work plans (FYWPs) as budget approval documents (as opposed to project validation and key decision points) This IPP uses DOE Order 4700 1 as a generalized guidance document for the conduct of a typical D&D subproject

The subproject should follow a logical progression from identification of the candidate facility through developing characterization, technical, cost, and scheduling baselines (EDGM ERP-3 10), safety analysis (EDGM ERP-3 6) [section 4 3], engineering and planning (including subcontracting if appropriate) [section 4 0], remediation and D&D operations [Sections 5 0 and 6 0], and ending with the subproject closeout and verification [Section 8 0]

Figure 1-2 illustrates the requirements document hierarchy that establishes the requirements for this implementation plan Additionally, this plan implements requirements defined in the following documents

- The Agreement-in-Principle (June 28, 1989),
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)(1980) as amended by the Superfund Amendments and Reauthorization

Act (SARA)(1986),	1
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• Federal Facility Compliance Agreement (January 22, 1991),	3
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• Rocky Flats Interagency Agreement (January 22, 1996) (Future Rocky Flats Cleanup Agreement),	6
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• National Environmental Policy Act (NEPA) (1969),	10
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• Resource Conservation and Recovery Act of 1976 (RCRA),	13
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• Title 29, Code of Federal Regulations (CFR) Part 1910 120 Hazardous Waste Operations and Emergency Response (March 6, 1990),	16
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• DOE Order 4700 1, Project Management System,	21
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DOCUMENT HIERARCHY

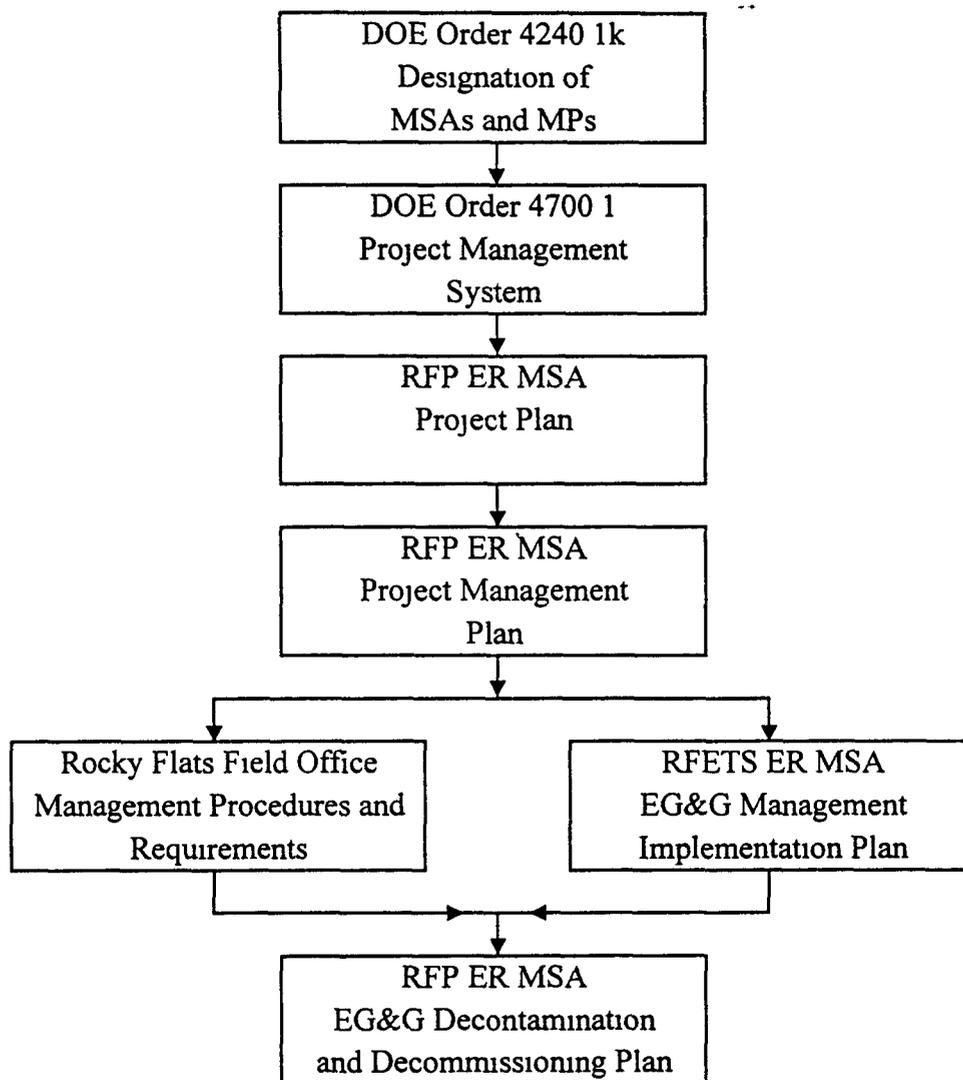


Figure 1-2

• DOE Order 4700 4, Baseline Change Control (January 27, 1993),	• Sitewide Environmental Compliance Plan (June 1994),	1 2 3
• DOE Order 5000 3A, Occurrence Reporting and Processing of Operations Information (September 20, 1991),	• DOE ER Project Management Plan,	4 5
• DOE Order 5400 1, General Environmental Protection Program,	• DOE-ERPD Quality Assurance Requirements and Description,	6 7 8
• DOE Order 5440 1E, Implementation of National Environmental Policy Act, as amended by SEN 15-90 (November 10, 1992),	• Waste Management Plan (Draft), EG&G (July 22, 1992),	9 10 11
• DOE Order 5480 4, Environmental Protection, Safety, and Health Protection Standards (May 16, 1989),	• Environmental Protection Management Plan, EG&G (June 30, 1993),	12 13 14 15
• DOE Order 5480 19, Conduct of Operations Requirements for DOE Facilities (July 9, 1990),	• EG&G RFETS Quality Assurance Manual,	16 17 18
• DOE Order 5483 1A, Occupational Safety and Health Programs for DOE Contractor Employees at Government-Owned, Contractor-Operated Facilities (June 22, 1983),	• ERPD Quality Assurance Project Plan,	19 20 21
• DOE Order 5700 6C, Quality Assurance (August 21, 1991),	• ERPD Quality Assurance Program Description, and	22 23 24
• DOE Order 5700 7B, Work Authorization System (September 24, 1986),	• EG&G ERP Engineering Design Guidance Manual (EDGM) (September 30, 1993)	25 26 27 28
• Rocky Flats Instruction 5700 6, Quality Assurance (March 18, 1992),	1.5 Procedural Interfaces	29 30
• Community Relations Plan (December 4, 1991),	This plan is one of 15 Implementation Plans and Procedures (IPPs) applicable to the RFETS ER MSA. The individual IPPs are detailed guidance documents used to define specific project management requirements. This plan has direct interface with a number of other IPPs. This interface is presented in Figure 1-3	31 32 33 34 35 36 37 38 39

IMPLEMENTATION PLANS and PROCEDURES INTERFACE

	Project Control Systems Description	Configuration Management Plan	Quality Assurance Plan	Administrative Control Plan	Health and Safety Plan	Public Outreach Plan	Design Management Plan	Test and Evaluation Plan	Acquisition Strategy Plan	Data Management Plan	Construction Management Plan	Operational Requirements Plan	Self-Assessment Plan	Decontamination and Decommissioning Plan
Project Control System Description														
Configuration Management Plan														
Quality Assurance Plan														
Administrative Control Plan														
Health and Safety Plan														
Public Outreach Plan														
Design Management Plan														
Test and Evaluation Plan														
Acquisition Strategy Plan														
Data Management Plan														
Construction Management Plan														
Operational Requirements Plan														
Self-Assessment Plan														
Decontamination and Decommissioning Plan	X	X	X		X		X	X		X	X	X	X	

Figure 1-3

Environmental Restoration Management
Decontamination and Decommissioning

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SECTION 2
PROGRAM MANAGEMENT

2.0 PROGRAM MANAGEMENT

D&D at RFETS will encompass the management or elimination of risks posed by surplus nuclear and/or support facilities. In general, the risks posed by these surplus facilities include radiological exposure, exposure to hazardous and toxic materials, and mechanical or industrial risk (collapse). Management of these risks includes reduction of hazardous and/or radiological contamination through decontamination, removal, and/or chemical or physical extraction.

A facility, building, or room (including process equipment) should become a candidate subproject in the D&D subproject (via EM-60 Deactivation, acceptance by EM-40, or determined to be more cost effective to D&D than maintain) when the facility is no longer required to support the RFETS mission and no future user is identified for the facility, building, or room in its current state. The selection, prioritization, and implementation schedule for D&D subprojects will be based on the demonstrated need to reduce current or future risks, to reduce the surveillance and maintenance (S&M) costs at RFETS, and to allow facilities, equipment, and/or areas to be made available for alternate uses.

D&D program management addresses the following critical elements:

- Regulatory oversight requirements,
- Guidelines for planning, conducting, and implementing D&D subprojects,
- Quality Assurance Program Plan,
- Health and Safety documentation, and

- Protocols for the transfer of landlord responsibilities and other program-level activities 1
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2.1 DOE Rocky Flats Environmental Technology Site (RFETS) Management 5
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Rocky Flats Field Office (RFFO) has been designated the cognizant managing office with overall responsibility and authority for management of the RFETS ER Project. The Assistant Manager for Environmental Restoration (AMER) has appointed the Director, Environmental Restoration Division (ERD), as the ER Project Manager (ERPM). The PM is located at RFETS. 9
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The ERD is designated as the Project Management Office (PMO). The PMO is responsible for the overall management of the RFETS ER Project. The PMO is directed by the PM and is assisted by contractors responsible for specific project functions. 18
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The PMO is responsible for establishing the guidelines for the RFETS D&D subproject and authorizing D&D subprojects through approval of programmatic and engineering plans. The PMO will interface with stakeholders to ensure integration and broad acceptance of the RFETS D&D Project (see Figure 2-1). 27
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2.2 Environmental Restoration Division (Project Management Office) 36
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The ERD is composed of three branches: the Remediation Branch, the Facilities/D&D Branch, and the Project Management Support Branch. These three branches provide the necessary management direction. 40
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DECONTAMINATION and DECOMMISSIONING

Organizational Chart

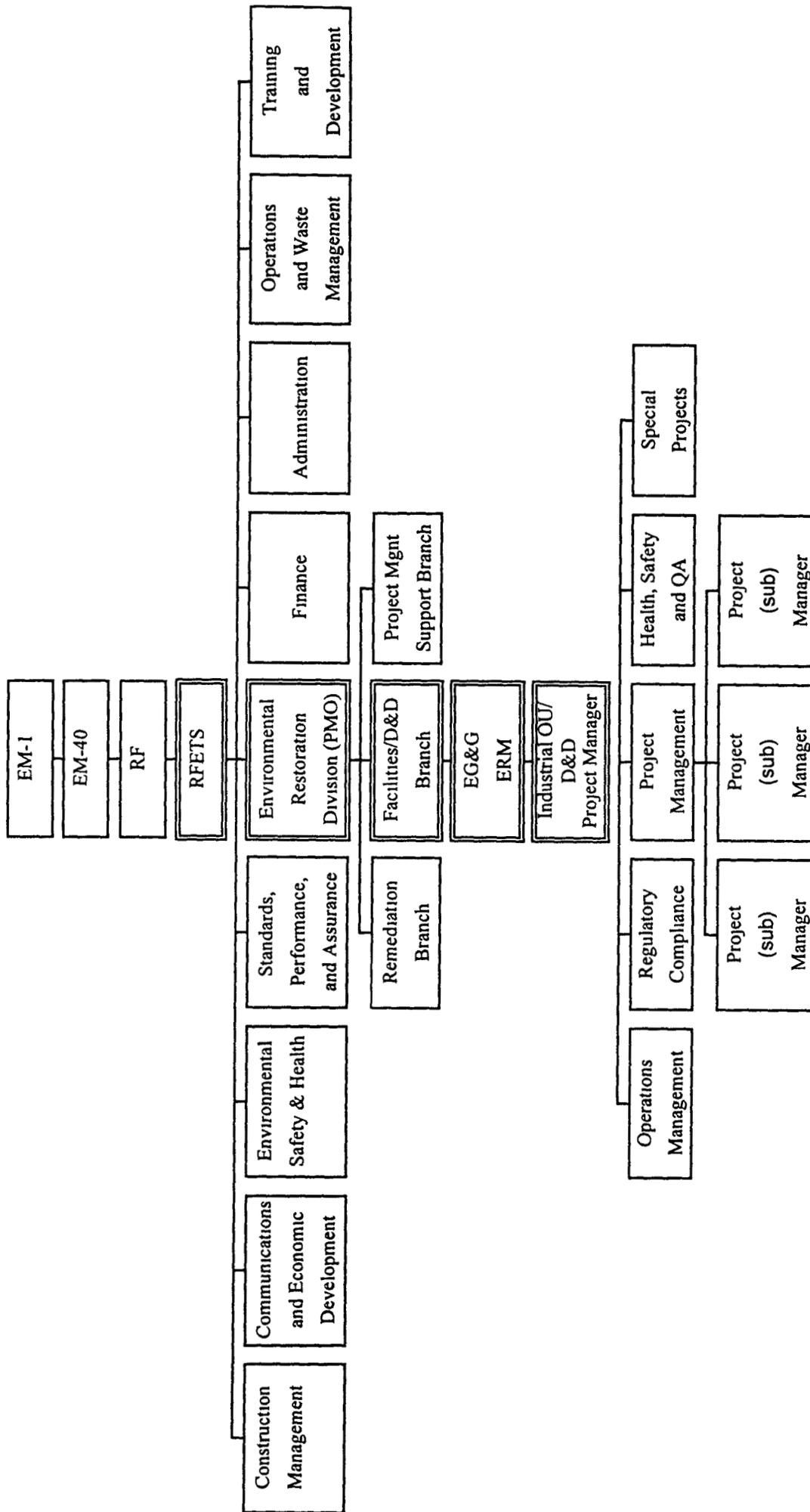


Figure 2-1

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and oversight of the contractors performing under the ER scope of work

2.2.1 Facilities/D&D Branch

The Facilities/D&D Branch has responsibility for activities associated with plant facilities and the D&D of those facilities. Specific responsibilities include

- D&D facilities,
- Transition planning as related to D&D,
- S&M of remediated facilities,
- Characterization of contamination within facilities,
- D&D technology development, and
- Coordination of analysis for the NEPA, risk assessment, and Natural Resource Damage Assessment (NRDA)

The PM assigns staff resources to accomplish the responsibilities identified for this branch. The individual staff responsibilities include DOE actions necessary to ensure that requirements are met, as well as management oversight and direction of contractor resources applied to the effort.

The PM will have direct interface with the Operating Contractor's D&D Project organization. The PMO will oversee and approve D&D subprojects, the supporting documentation, and the development of a sitewide programmatic planning document.

2.2.2 Related Rocky Flats Support Groups

RFFO has overall responsibility for operations and projects conducted at RFETS. To apply the efficient use of resources to the broad range of RFETS-ERM responsibilities, RFFO uses a matrix approach to supply support to specific projects or activities. The following RFFO offices will supply support services as required.

- Construction Management Office - for engineering design, construction services, and systems engineering,
- Communications and Economic Development Office - for reviewing and preparing community relations activities,
- Environmental, Safety, and Health Office - for health and safety protection programs for
 - the public,
 - the contractor, and
 - DOE personnel,
- Standards, Performance, and Assurance Office - for QA services,
- Finance Office - for fiscal services,
- Administration Office - for contract, human resources, and other non-monetary support services,
- Operations and Waste Management Office - for transportation, storage, and disposal (TSD) of waste generated as a result of D&D activities (unless treatment is conducted *in situ*), and

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• Training and Development Office - for training and certification of project personnel to project requirements		1
2.3 Operating Contractor Environmental Restoration Management (ERM)	2.4.1 Project Management Group	2
		3
	The Project Management Group is	4
	responsible for identifying and defining D&D	5
	subprojects Specific tasks assigned to the	6
	Project Management Group are	7
		8
	• Identifying and prioritizing	9
	subprojects to ensure integration with	10
	other RFETS activities and effective	11
	application of available funds,	12
		13
	• Developing subproject scopes,	14
	schedules, and costs,	15
		16
	• Maintaining subproject development	17
	schedules and performing cost	18
	control,	19
		20
	• Obtaining funding for subproject	21
	implementation,	22
		23
	• Performing subproject development	24
	reporting, and	25
		26
	• Providing support for developing	27
	compliance documentation	28
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	2.4.2 Project Manager(s)	30
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	The subproject (facility or site) manager	32
	(SM) reports to the D&D Subproject	33
	Project Manager and is responsible for	34
	management of subprojects in the assigned	35
	area To carry out this function, each SM is	36
	responsible and has the authority for the	37
	development, execution, supervision,	38
	coordination, and integration of all aspects of	39
	the D&D subproject planning and	40
	management activities The SMs are	41
	participants with the subproject staff in the	42
	development of the work plans that define	43
	the scope of each subproject task, schedule,	44
	budget, and deliverable they are required to	45
The Operating Contractor's Environmental Restoration Program (ERP) is responsible for coordination and planning of all restoration activities at the RFETS including the D&D of facilities		
2.4 Operating Contractor D&D Project/Subproject Organization Roles and Responsibilities		
The Industrial Operable Unit (OU) and Facility D&D is the cognizant Operating Contractor organization for the D&D subproject implementation The Operating Contractor D&D PM is responsible for coordinating the activities performed by these groups and ensuring that the work is conducted in conformance with DOE and regulatory requirements as they apply to each subproject		
The Operating Contractor D&D PM is also responsible for developing the programmatic planning and project reporting documents, ensuring that planning initiatives and resource requirements are identified and met, and for the day to day management of the D&D subprojects The subtier Operating Contractor D&D technical groups are responsible for the development and implementation of project-specific documentation as required The following sections describe the specific industrial OU/facility D&D groups responsible for the subproject definition, planning, procurement, operations, and closeout		

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meet Resource allocations are requested and approved from these plans by the SM Additional resources from other Operating Contractor organizations or in addition to the resource allocation in the ADSs/FYWP will be negotiated by the SM

Each SM participates in the review of revisions to this IPP and reviews QA Plans and Procedures Each SM must ensure that all procedures, regulations, codes, and standards are followed

The SM is responsible for performing the following specific duties

- Directing the subproject team including the lead discipline engineers and others responsible for the execution of the subproject's planning and field implementation,
- Delegating to project personnel specific responsibilities within the organization for technical criteria, reviews, and other related activities,
- Determining (with the assistance of the Lead Discipline Engineers) the detailed scope of work,
- Developing the project budget and schedule with the lead scheduler, cost control analyst, Lead Discipline Engineers, and other responsible persons on the subproject team,
- Reviewing and analyzing cost and schedule reports, developing variance analysis reports, and taking action, as required, to maintain project budgets and schedules,
- Maintaining a chronological record of the project history, and

- Implementing the project's QA Program Plan 1
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2.4.3 Regulatory Compliance Group 5
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The Regulatory Compliance Group is responsible for identifying, defining, and ensuring project and subproject compliance with applicable federal and state laws, and DOE and industry standards Specific tasks assigned to the Regulatory Compliance Group are 7
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- Identifying, defining, and developing strategies for areas of compliance, 15
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- Conducting independent subproject assessments and compliance verifications, and 18
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- Supporting the PM and Operations to ensure that regulatory compliance is attained and maintained throughout the life of the subproject 22
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2.4.4 Health, Safety, and Quality Assurance Group (HS&QAG) 27
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The HS&QAG is responsible for identifying, defining, and ensuring compliance with applicable federal and state health, safety, and radiological control requirements as well as applicable quality assurance requirements Specific tasks assigned to the HS&QAG are 30
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- Identifying, defining, and developing strategies for health, safety, radiological, control, and quality assurance compliance requirements, 37
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- Conducting independent subproject assessments and compliance verifications, and 42
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• Supporting Project Management and Operations groups to ensure that health, safety, radiological control, and quality assurance compliance is attained and maintained throughout the life of the subproject	2.4.6 Special Projects	1 2 3 4 5 6 7
2.4.5 Operations Management Group (OMG)	2.5 Other Operating Contractor Organizational Interfaces	8 9 10 11
Operations Management Group is responsible for the implementation, management, and completion of subproject field activities. Specific tasks assigned to the Operations Management Group are	Other interfaces with Operating Contractor organizations will be developed on a project-by-project basis. The other ER-MSA IPPs define required interfaces (i.e., ER Health and Safety, ER Quality Assurance, ER Procurement)	12 13 14 15 16 17 18 19 20 21
• Review and approval of project scoping and engineering design documents, (i.e., SMP, SDP, HASP, Characterization Reports),		22 23 24 25 26 27 28
• Review, approval, and implementation of pre-operations requirements including readiness reviews, training documentation, contractor evaluation and selection, development of exclusion zones, and		29 30 31 32
• Field operations management, schedule, cost control, regulatory compliance and reporting, and		33 34 35 36 37 38 39 40 41 42
• Compliance with Conduct of Operations during field operations, including maintaining daily logbook, reviewing and approving log and tagout documentation, ensuring training certification, and conducting plan of the day/plan of the week meetings, occurrence notifications, and		43 44 45
• Providing support for development of compliance documentation and subproject closeout		

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SECTION 3
SUBPROJECT MANAGEMENT PLAN

3.0 SUBPROJECT MANAGEMENT PLAN (SMP)

The RFETS maintains a Site Utilization Review Board (SURB) made up of DOE and contractor personnel to determine the disposition of RFETS facilities. Either the operations organization or the D&D organization will develop the SURB package in accordance with SURB procedures. Both operations and D&D will approve and present the SURB package to the SURB. If it is determined that a facility is a candidate project (subproject) for D&D then the subproject baseline planning will commence. For D&D subproject activities, the SMP will provide the subproject functional requirements, technical scope, conceptual estimate, and baseline schedule. This includes items found in the engineering study (ES), functional design criteria (FDC) [on the operational requirements Documents (ORDs) at RFETS], and conceptual design report (CDR) under DOE Order 4700 1, and Phases I (Transition), II (Project Preparation), and III (Environmental Review) of the EM-40 Guidance Document. The content and extent of the SMP will vary in accordance with the size, complexity, and type of project. If the subproject scope can be implemented using the Integrated Work Control Program (IWCP), then the requirements for a SMP will be replaced with the IWCP work package process.

The SMP is initiated after facility transition and should coordinate closely with facility deactivation in order to determine the extent of deactivation and D&D activities. The SMP describes the subproject and establishes subproject baselines against which overall progress of the project and the effectiveness of its management shall be measured. Figure 3-1 shows the logic flow in developing an SMP.

The SMP is intended to establish the technical, cost, and schedule baseline through incorporation of the conceptual technical approach (EDGM Section 1 through Section 5). In addition, this plan establishes and refines the work breakdown structure (WBS), organizational roles and responsibilities, and the overall project work flow logic. Any subproject-specific quality assurance (QA) requirements will be addressed in this plan. Development of this plan will include a regulatory requirements review process intended to provide early identification of regulatory issues and permitting requirements. These requirements will be incorporated into the subproject scope, schedule, and budget and will ensure that the requirements contained in the Sitewide Environmental Compliance Plan (SECP) are met.	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
The SMP specifies the overall procedures and guidelines for implementation of the specific D&D subproject. The following elements are to be described in the SMP:	22 23 24 25 26
<ul style="list-style-type: none"> • Project Scope Description <ul style="list-style-type: none"> - Building History - Project Purpose - Management Implementation Plan - Design Basis (Assumptions) - Performance Objectives, • Environmental, Safety, and Health <ul style="list-style-type: none"> - Environmental Review - Safety and Health Requirements - Baseline Characterization - Hazards Assessment, 	27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

SUBPROJECT MANAGEMENT PLAN Logic Flow Diagram

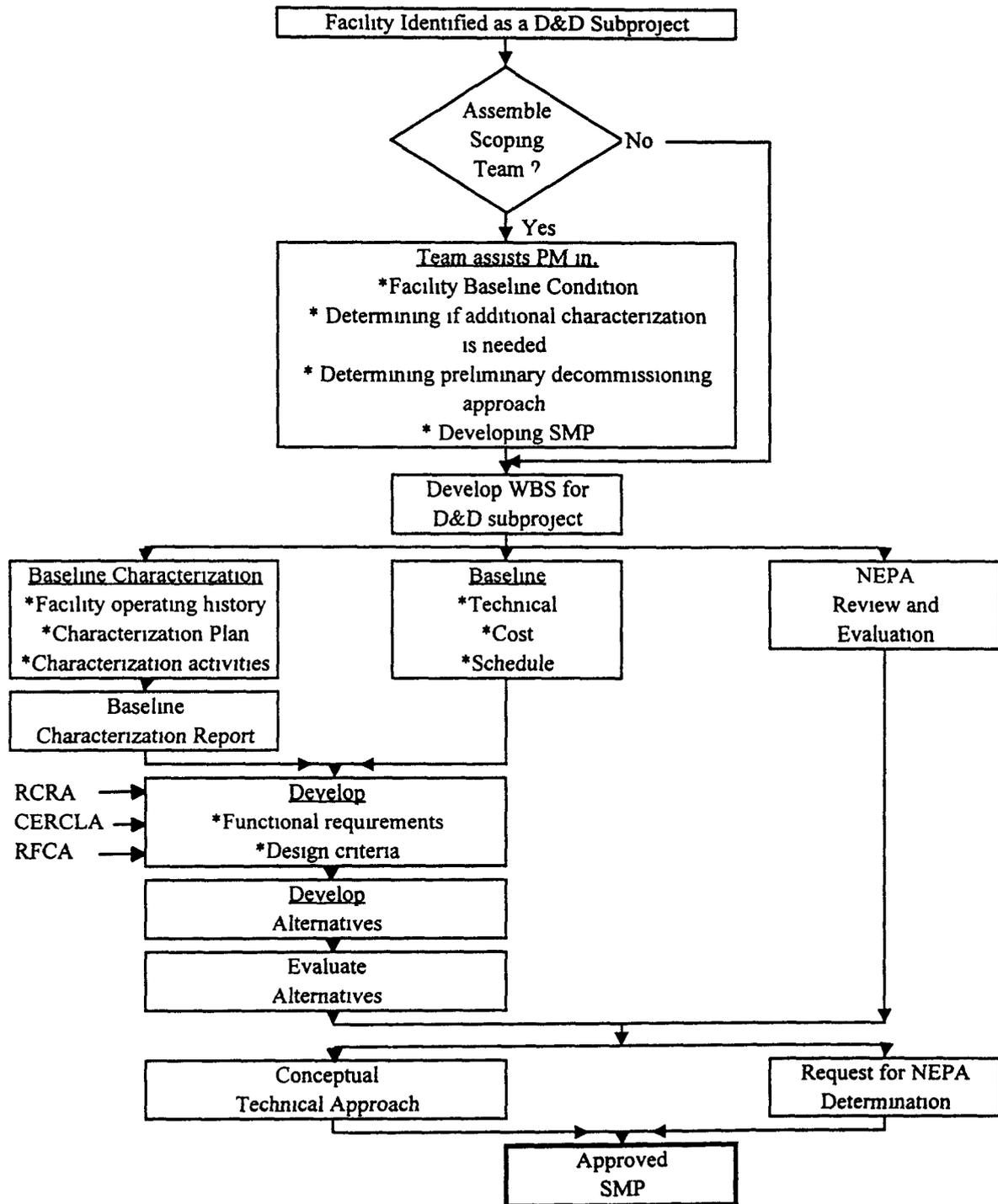


Figure 3-1

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• Project Functional Requirements	characterization is needed, and developing a	1
- Cleanup Standards	preliminary decommissioning approach The	2
- Decontamination Methods	purpose of convening subproject scoping	3
- Dismantlement Methods	teams is also to define the basic subproject	4
- Design Codes and Standards	requirements and objectives, to select the	5
- Alternatives Evaluation, and	appropriate elements, criteria, and personnel	6
	for subsequent design evaluation efforts, and	7
• Project Approach	to assign appropriate organizational	8
- Conceptual Approach	responsibilities, participation, and review	9
- Conceptual Estimate	requirements The subproject scoping team	10
- Conceptual Schedule	should be structured to the specific	11
	subproject, but it normally consists of	12
The information developed in the D&D SMP	individuals from the D&D subproject	13
will be the basis for the subsequent	organization, the facility operations	14
development of the Decommissioning	organization, safety organizations, and	15
Subproject Plan	regulatory analysis organizations To be	16
	effective, the subproject scoping team should	17
The SMP will include subtier activities that	include no more than six members, with the	18
are needed prior to developing the	PM serving as the chairman	19
Subproject Decommissioning Plan These		20
activities may address areas such as sampling	All D&D subprojects of significant size,	21
and analysis, environmental checklist	duration, complexity, and cost should	22
(NEPA), further characterization, subproject	consider using a subproject scoping team to	23
QA planning, and health and safety reviews	plan the initiation of the subproject design	24
for S&A These subtier activities will be	activities For subprojects of short duration,	25
documented within the SMP plans and	a formal scoping team may not be effecient	26
results will be included as attachments	or cost effective The results of the scoping	27
	team efforts will be documented in the SMP	28
		29
3.1 Subproject Scoping Team	3.2 Subproject Scope Description	30
		31
The project scope will address the bounds of	This section will include the building history,	32
the specific subproject being undertaken	project purpose, management	33
(EDGM ERP-3 2) This description should	implementation plan, design basis, and	34
address the particular equipment, room,	performance objectives	35
building, facility, or process that is		36
undergoing D&D The final objective (i e ,	3.2.1 Building History	37
unrestricted release, restricted release,		38
demolition) of the activities should be	To develop the D&D subproject, information	39
included	regarding the operational history of the	40
	facility will be reviewed to assess the nature	41
For complex subprojects, it is often	and extent required of D&D activities (see	42
advantageous to assemble a subproject	Appendix C, Baseline Planning Information	43
scoping team (EDGM ERP-2 5) to assist the	Checklist) This section includes a detailed	44
PM in documenting the facility baseline	discussion of building operating history as it	45
condition, determining if additional		

affects D&D activities Of particular importance are chemicals and/or products used at the facility The documentation of normal operations, spills, and accidents at the facility will require the review of occurrence notifications, building operating logs, and other historical records Interviews with past operations personnel will also be valuable for data collection

3.2.2 Project Purpose

The SURB will determine if a facility is to be used after D&D or if the facility has no future use This section will discuss the purpose of the D&D process

3.2.3 Management Implementation Plan

Included in this section will be the Work Breakdown Structure (WBS), project organization and responsibility description, project controls (see ER-IPP Project Controls), performance measurement system, and quality assurance plan (see ER-IPP Quality Assurance)

3.2.4 Project Assumptions

This section will describe the pertinent assumptions on which the conceptual and definitive design will be based Assumptions might include which activities will be conducted by facility operations, deactivation, or D&D, as well as contamination levels based on process knowledge

3.2.5 Performance Objectives

This section will describe the end point of the project at which to measure the completion of the job This section will also include intermediate objective for performance measurement during the

conduct of the project 1
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3.3 Environmental, Safety, and Health Requirements 3
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Environmental, safety, and health (ES&H) review and documentation requirements that must be addressed when planning and implementing D&D subprojects must be consistent with the Environmental, Health, and Safety Plan A brief summary of major ES&H requirements that may impact D&D subprojects is presented along with guidance for compiling documentation needed to support the D&D project phases Due to many possible permutations for regulatory involvement in specific RFETS D&D actions, it is imperative that regulatory requirements be defined early and thoroughly 5
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3.3.1 Regulatory Requirements 21
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The D&D Subproject at the RFETS will be governed by three major environmental regulations NEPA, RCRA, and CERCLA D&D subprojects will also be affected by the provisions of the Rocky Flats Cleanup Agreement (RFCA) if the facility is located within the boundaries of an OU or interfaces with remediation of an OU 23
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This section will describe a detailed discussion of environmental requirements based on the following sections and the results of the completed Regulatory Requirements Identification Checklist for D&D 32
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3.3.1.1 NEPA Requirements 39
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NEPA is a review and documentation process promulgated under 10 CFR 1021, and executed pursuant to DOE Order 5440 1E, Chapter V NEPA requires that all 41
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federal agencies identify any potential environmental impacts associated with a proposed project that may impact the environment and/or human health. NEPA requirements vary based on the scope of the proposed project. For D&D subprojects, the NEPA process consists of reviewing the alternatives established and assessing the environmental impacts from each alternative. Because most RFETS D&D subprojects will not have significant environmental impact, a Categorical Exclusion (CX) or an Environmental Assessment (EA) with a Finding of No Significant Impact (FONSI) will be required. In very infrequent circumstances, an Environmental Impact Statement (EIS) with subsequent Record of Decision (ROD) will be required. Depending on the complexity of the D&D activities, the NEPA documentation will be prepared and incorporated into the Subproject Decommissioning Plan, or will be prepared as a stand-alone document.

DOE directives (e.g., DOE Order 5440 1E) require that NEPA documentation be reviewed and approved by DOE-Headquarters. To avoid unnecessary delays, the requirements for NEPA documentation must be identified as soon as possible in the developmental stages of D&D efforts. A request for a NEPA determination should be submitted at or near the completion of the SMP.

3.3.1.2 RCRA Requirements

RCRA regulates the generation, transportation, storage, treatment, and disposal of solid and hazardous waste. DOE Order 5400 3 discusses management of hazardous and radioactive mixed waste within the DOE complex.

Many of the RFETS facilities currently

contain equipment that is included in the RFETS RCRA Part B Permit application or regulated under interim status, and as such must be closed in accordance with a RCRA closure plan. The RCRA closure plan must be approved by the Colorado Department of Public Health and Environment (CDPHE) prior to implementing a D&D subproject. Therefore, D&D activities must consider lead time for implementing RCRA closure requirements and must integrate these requirements into the planning and engineering of the D&D subproject.

Any D&D subprojects that involve closure of RCRA units shall be accomplished in accordance with the State of Colorado Hazardous Waste Regulations (CHWR). Closure of the unit may require the removal and/or decontamination of all waste residues, contaminated structures, equipment, and the associated soil (typically remediated as part of OU). The closure plan identifies RCRA closure requirements, the steps to achieve compliance with the requirements, operations and maintenance, long term monitoring requirements (if required), and security requirements. The closure plan will also stipulate any specific design requirements to achieve remediation goals. Design requirements can include functional design criteria, performance specifications, and specific requirements associated with the project. Once the closure plan is completed, it will be submitted to CDPHE for review and approval. Post-closure requirements will only apply if hazardous waste remains after completion of closure activities. Post-closure documentation will be completed in compliance with requirements identified in the State of Colorado RCRA regulations.

Waste generated as a result of closure activities is to be managed as hazardous waste unless the provisions of Colorado

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regulation 6 CCR 1007-3, Section 262 3(d) apply The waste is to be packaged and managed in accordance with 6 CCR 1007-3 and RFETS waste management requirements These requirements include waste characterization in accordance with SW-846 procedures, manifesting the waste for offsite shipment, and disposal Specific requirements for hazardous waste designation are found in 6 CCR 1007-3

3.3.1.3 CERCLA Requirements

CERCLA gives EPA the authority to investigate and respond to a release or threat of release of a hazardous substance into the environment DOE Order 5400 4 establishes DOE policies and procedures for the DOE complex as they relate to CERCLA CERCLA requirements may be applicable at any facility undergoing D&D if there is a release or real threat of a potential release As required by CERCLA, the D&D process will be designed to protect human health, welfare, and the environment

In the event that a specific facility at RFETS is decommissioned under CERCLA, two types of response actions are authorized by CERCLA Removal Actions and Remedial Actions

Removal actions are those activities taken to clean up or remove released hazardous substances from the environment Removal actions may also include activities necessary to respond to the threat of release of hazardous substances into the environment and those tasks associated with monitoring, assessment, and evaluation of the release or threat of release, disposal of the removed materials, and other activities that may be taken to prevent, minimize, or mitigate damage to public health or the environment

Remedial actions involve the long-term study of site conditions, treatability studies, and development of planning and scoping documents DOE has entered into an agreement with CDPHE and the EPA for implementing CERCLA at RFETS The agreement specifies Individual Hazardous Substance Sites (IHSS) for which specific remedial activities are to be conducted This agreement was signed at a point when the plant mission was still in a cold shutdown mode Therefore, D&D was not considered within this agreement

3.3.1.4 RFCA Requirements

The RFCA governs remedial actions associated with 16 OUs at the plant The RFCA was previously referred to as the Interagency Agreement (IAG) The RFCA integrates requirements of both RCRA and CERCLA for various site remedial activities Some facilities that will eventually undergo D&D are located within the boundaries of the OUs, or may interfere with anticipated RFCA-governed remedial activities Several of the facilities that will undergo D&D at the site may require integration of RFCA requirements and schedules with D&D activities and schedules

Remediations governed by the RFCA require project documentation A method for accomplishing review and approval of the D&D project documentation by the involved regulatory agencies, is to submit the D&D IPP for review and approval Then an annual D&D subproject list, including a brief description and associated milestones would be forwarded to the regulators for review and approval of subsequent subprojects The D&D process will then be subject to strict compliance with the D&D IPP Informational copies, forwarded to the regulators when requested, would include

the SMP, the NEPA Determination, and SDP. The schedule for submittal of the documentation is negotiated between the DOE, EPA, and CDPHE. It is important to recognize that facility D&D is currently not included in the language of the RFCA, but may be considered as a part of the RFCA renegotiations. This will most likely be established in the renegotiated RFCA. During this phase of the project, the PM should ensure that integration with the RFCA is completely and thoroughly defined.

3.3.2 S&A Health and Safety Plan

This section will include the S&A-specific health and safety plan (HASP) requirements. The HASP will include applicable sections of the ER-IPP for health and safety, and the building/area-specific HASP or will be covered under the appropriate section of the IWCP as required. A boiler plate HASP has been attached for S&A HASP development (see Attachment B). DOE Orders 5483 1A, 5480 10, and 10 CFR 835 (DOE Order 5480 11) establish standards for implementation of an occupational safety program for the DOE complex. The primary safety and health standards applicable to D&D subprojects are those found in OSHA 29 CFR 1910 and 1926. Radiation protection standards for occupational workers can be found in 10 CFR 835 and DOE Order 5480 11 and DOE Order 5480 6 Radiological Control Manual. The DOE Order establishes standards and program requirements for DOE facilities.

The S&A HASP will identify field work tasks to be performed, describe the hazards (i.e., physical, chemical, and radiological) associated with these tasks, and specify the frequency and type of air and personnel monitoring to be conducted during work activities. Personal protective equipment, as

appropriate, is to be used by workers for each task. Training and medical monitoring/surveillance requirements, site control measures, decontamination procedures, and contingency plans for emergencies (e.g., medical, spill, fire, and explosion) will be identified.

3.3.3 Baseline Characterization

The Baseline Characterization effort consists of preparation of the Baseline Characterization Plan, implementation of the plan, and preparation of the Baseline Characterization Report.

In performing routine D&D subprojects, H&H issues will be incorporated into the integrated work control package (IWCP) process. For major or complicated D&D subprojects, a separate HASP will be developed.

3.3.3.1 Baseline Characterization Plan

Once the data requirements have been identified, a Baseline Characterization Plan can be developed to obtain the missing information to support the engineering and implementation of the D&D subproject. The characterization plan will include establishment of data quality objectives (DQOs) to ensure that the information obtained will be of a quality to meet subproject requirements. The BCP defines the following:

- Types of samples or measurements required,
- Required instrument sensitivities,
- Number of samples/measurements,

• Sample/measurement locations,	Following approval of the Baseline Characterization Plan and the S&A HASP,	1
• Data reduction, validation, and reporting, and	facility characterization activities will be initiated These activities include sample collection, laboratory analyses, data validation and data management The characterization results will be used to select the appropriate decontamination methods, to classify the waste materials into the correct management categories, and to determine the extent of decontamination required to achieve subproject cleanup goals	2 3 4 5 6 7 8 9 10 11 12
• QA requirements		13
DQOs are qualitative and quantitative statements that specify the quality of the data required to support decisions during D&D activities They are determined based on the end uses of the data to be collected In addition to characterization, sufficient data may be needed to evaluate remedial alternatives, determine design criteria, or monitor site conditions and/or remedial action effectiveness The level of detail and data quality needed will vary based on the intended use of the data	From a scheduling perspective, it is preferable to initiate facility characterization as early as possible in the project Delays in characterization could create detrimental effects on the project critical path planning and scheduling Evaluation of analytical results will be factored into the development of the D&D engineering and implementation plans	14 15 16 17 18 19 20 21 22 23
A Field Sampling Plan and Quality Assurance Subproject Plan, which defines the sample locations and the sample collection and analytical procedures, will be included as a component of the Baseline Characterization Plan To ensure proper protection of the field characterization team, existing health and safety procedures and plans will be reviewed and amended as needed to address any specific hazards associated with implementation of the Baseline Characterization Plan If available, existing procedures for sampling and analysis should be used in lieu of developing new procedures	3.3.3.3 Baseline Characterization Report	24 25 26
	Results of the characterization effort are summarized in the Baseline Characterization Report The report presents, in summary format, the methods used to characterize the facility, deviations from the Baseline Characterization Plan, and the results of the sampling and analysis A summary of QA sampling and analysis should also be presented Detailed analytical data should be appended to the report	27 28 29 30 31 32 33 34 35 36 37
To ensure that the characterization data are processed in a manner that meets the objectives of ERM, the Baseline Characterization Plan will be verified for consistency with the ER Data Management Plan	The Baseline Characterization Report should be prepared in sufficient detail so that waste volumes and waste types anticipated during D&D operations can be easily defined during conceptual engineering, and definitive design Areas of the facility that are expected to be either highly contaminated or uncontaminated based on a review of the	38 39 40 41 42 43 44 45
3.3.3.2 Facility Characterization		

operating history, should be highlighted in the report

standards applicable to D&D subprojects, 1
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3.3.4 Preliminary Hazards Assessment

• DOE Orders applicable to the D&D subproject, and 4
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DOE Orders 5480 23, Nuclear Safety Analysis Reports, 5480 21, Unreviewed Safety Questions, and 5480 22, Technical Safety Requirements, require preparation and review of safety analyses for DOE facilities This section is limited to the initial evaluation of existing safety analysis and a preliminary characterization of the hazards DOE-STD-1027-92 provides preliminary guidance for accident analysis The detailed safety analysis will be conducted during the subproject decommissioning planning stage

• Environmental regulations applicable to the D&D subproject 7
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Thorough and definitive functional requirements and design criteria are key elements of the project definition phase of the D&D subproject During definition of the requirements, a balance must be maintained between defining detailed and specific subproject requirements and allowing sufficient latitude to the design team for innovative and creative engineering 10
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3 4 Project Functional Requirements

Functional requirements, design criteria, and objectives that must be achieved are documented in the SMP The functional requirements and design criteria (see DOE Order 4700 1, EDGM, and Radiological Operations Instructions) are used to develop the conceptual technical approach and the Subproject Decommissioning Plan (SDP) (further described in Section 4 0) Development of these criteria is consistent with the ER Design Management Plan Several key topics comprise the D&D subproject-specific criteria and include (but are not limited to)

Functional requirements and design criteria should be reviewed by the PM and the design team early in the engineering and planning phase Many of the criteria defined will have significant impacts on the engineering alternatives and design of the subproject 20
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3.4.1 Cleanup Standards 27
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- Cleanup standards,
- Functional requirements for decontamination methodologies to achieve cleanup standards,
- RFETS standards and procedures applicable to D&D subprojects,
- National consensus codes and

Cleanup standards should be based on the contaminant list resulting from a knowledge of the facility operating history and the baseline characterization activities Defining cleanup standards is difficult and can be a time-consuming process for both relatively simple and complex D&D subprojects DOE, regulatory, and health and safety requirements must be reviewed during definition of cleanup standards Other considerations include review of previously established standards at RFETS, DOE sites, or other nuclear facilities A review of Radiological Operations Instructions and other standards will provide valuable information about methods and procedures used in establishing previously approved 29
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standards

DOE Order 5400 5, Radiation Protection of the Public and Environment, contains radiological standards and protection requirements covering operations by DOE and DOE contractors Chapter IV of this Order gives requirements and guidelines for cleanup of residual radioactive material, management of the resulting wastes and residues, and requirements for release of the property These requirements and guidelines are based on 40 CFR 192, Nuclear Regulatory Commission (NRC) Regulatory Guide 1 86, and subsequent NRC guidance on residual radioactive material

Once draft cleanup standards have been established, appropriate decontamination methods will be investigated These methods will consider constraints at each facility, as they apply to the subproject A wide variety of decontamination methods have been demonstrated at nuclear facilities and at environmental restoration sites It is anticipated that in most instances, a single decontamination method will not be capable of reaching cleanup standards, therefore, a combination of several methods will be required Aspects of decontamination methods to be considered should include appropriateness to the contaminants at the facility, ability to achieve cleanup standards, ability to reduce worker exposures if cleanup standards cannot be achieved, secondary waste generation and waste minimization, ability to treat and dispose of the secondary waste on site, generation of new regulated waste, other facility- specific constraints such as criticality control, and cost of decontamination implementation Functional requirements and design criteria for the decontamination process should be based on the recommended decontamination methods

3.4.2 Decontamination Methods

Decontamination, a method to achieve the end results leading to decommissioning, may be used to accomplish several goals Some of these goals are

- Reduction of occupational exposure,
- Reduction of potential release of radioactive material,
- Reduction of potential uptake of radioactive material,
- Releasing of a component or piece of equipment for reuse, and
- Facilitating waste management

Decontamination is defined as the removal of contamination from the surface of facilities or equipment by using techniques such as washing, heating, chemical or electrochemical action, mechanical cleaning, or others The decontamination objectives associated with decommissioning are

- Reduction of personnel exposure during decommissioning activities,
- Salvage of equipment and materials for reuse, and
- Reduction of the volume of equipment and materials requiring disposal as mixed, hazardous, or radioactive waste

3.4.3 Dismantlement Methods

Dismantlement is the final physical step of decommissioning Dismantlement can range from disassembling and removing equipment and machinery to demolishing an

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entire building or facility Dismantlement may take place before, during, or after decontamination For this reason, the same goals, objectives, and concerns apply to dismantlement as apply to decontamination	technical approach proceeds The alternatives evaluation is documented in the SMP	1 2 3 4
3.4.4 Design Codes and Standards	3.4.5.1 Alternatives Development	5 6
This section will include a detailed list of applicable codes and standards (see DOE Order 4700 1, ER EDGM)	The alternatives should vary in their assessment of several topics, including decontamination versus disposal as-is, decontamination for dose reduction during dismantlement versus remotely operated dismantlement, decontamination methods appropriate to the contaminants present, special constraints such as space limitations and utilities available, and ability to meet cleanup standards Other items that should be considered in the development of alternatives include secondary waste generation and its treatment, storage and disposal, cost/benefits, schedule for startup and operation, special health and safety concerns such as criticality, special nuclear material (SNM) handling, worker exposure, exposure to the public, environmental protection during operations, and cost considerations	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
3.4.5 Alternatives Development and Evaluation	3.4.5.2 Alternative Evaluation	28 29 30 31 32 33 34 35 36 37 38 39 40 41 42
The SURB will determine the end state of the D&D subproject (i.e., economic conversion, safe storage, demolition) Once this determination has been made, there are several D&D alternatives that will achieve the facility cleanup standards or release criteria Decontamination, demolition, disposal methods, and cost and schedule options may require extensive evaluation prior to detailed definition of the work scope An alternatives evaluation should address the range of realistic alternatives for each facility The PM is responsible for determining whether an alternatives evaluation is warranted, based on the D&D complexity and contaminants present at each facility Each alternative should be evaluated in sufficient detail to allow an objective determination of the best course of action for each subproject In cases where the facility alternatives are limited, as in small facilities or facilities with relatively low levels of contamination, the number of alternatives evaluated should be minimized For large complex facilities with high levels of contamination, the alternatives evaluated should be commensurate with the complexity of the D&D operation anticipated Following selection of an alternative, development of the conceptual	Each alternative should be developed in sufficient detail to allow objective evaluation and ranking against several evaluation criteria Order-of-magnitude costs and schedules should be developed for comparison of the alternatives When developing costs for each alternative, a common basis should be used and all costs, including surveillance and maintenance, engineering, capital equipment, waste treatment, storage, and disposal, secondary waste management, decontamination, and dismantlement operations should be included in the cost estimates	43 44 45
	Following development, the alternatives are	45

evaluated against several criteria to determine the best alternative. However, for larger projects, it is often more difficult to evaluate the alternatives. In this case, the alternatives are first screened and then evaluated in detail against predetermined evaluation criteria. For screening the alternatives, a go/no go analysis should be used. For example, if it is determined that an alternative cannot meet the cleanup standards, it is not considered further. After screening the alternatives, a weighted criteria evaluation should be used. When using the weighted criteria method, each criterion is given a subjective weighing factor based on its relative importance and significance in being achieved by the alternative. Each of the alternatives is then ranked according to how well it meets the criteria. The criteria weighing factor is then multiplied by the ranking score for all of the criteria, the results from the successive multiplications are added, and the total score is assigned to the alternative. The alternative with the highest score is the preferred alternative.

Evaluation criteria are developed on a case-by-case basis. However, the evaluation criteria should consist of the following at a minimum and may be used as go/no go criteria for larger subprojects:

Ability to Meet Cleanup Standards -
Alternatives should achieve cleanup standards. Alternatives that meet cleanup standards will vary in their ability to achieve the standards. For example, an alternative may meet cleanup standards but may take three times as long and cost twice as much as another alternative. The alternative that most easily achieves the standards should be given the highest ranking compared to other alternatives.

Ease of Implementation - Some

alternatives may be rapidly implemented and easily conducted with little chance of complications, while others may require extensive preparation and may be more complex. If the end result is the same, the easiest to implement alternative is preferred.

Health and Safety - Some alternatives may have a higher possibility for worker exposure and safety issues. The safest alternative should receive the highest ranking.

Other criteria for evaluation of alternatives should include cost, secondary waste management, schedule for start, and schedule for completion.

3.5 Conceptual Technical Approach

After selection of the preferred alternative, development of the conceptual technical approach of the D&D subproject commences. The selected alternative description should be expanded in sufficient detail to allow preparation of a baseline cost estimate and schedule with a high level of confidence.

3.5.1 Conceptual Approach

The conceptual approach is incorporated into the SMP. Detailed sketches showing appropriate sequences of the D&D should also be prepared. In addition, the following information should be included in the SMP:

- Facility equipment inventory,
- Characterization maps and tables for surfaces,
- Characterization information for equipment,
- Description of project sequence,

including decontamination methods used during each phase,	D&D subproject includes development of the subproject technical, cost, and schedule baselines	1 2
• Preliminary Waste Management Plan,	Development of the subproject baselines is typically initiated after receipt of preliminary characterization data	3 4 5
• Preliminary Hazard Mitigation Plan,	Subproject baseline development includes preparation of functional requirements and design criteria (EDGM ERP-4 1),	6 7 8
• Identification of special circumstances such as space limitations, use of remotely operated equipment, and special contamination control procedures and equipment that will affect the design and D&D operations,	alternatives evaluation and selection of the D&D alternative (EDGM ERP-4 2), technology development activities, conceptual technical approach (EDGM ERP-5 9), and preparation of the SMP	9 10 11 12 13
• Outline specifications,	These baselines are developed consistent with the guidelines presented in the Configuration Management Plan	14 15 16
• Preliminary procurement plan, and		17 18
• Identification of long-lead procurement items		19 20 21 22
As the development of the D&D concept proceeds, the functional requirements and design criteria are reviewed and modified as appropriate to reflect the selected approach		23 24 25 26
The technical approach will be internally reviewed by the Operating Contractor project team before transmittal in the SMP to DOE-RFETS/ERD	Once the SMP is approved by DOE-RFETS/ERD, Detailed Design (analogous to Title II Design per DOE 4700 1) is initiated	27 28 29 30 31 32
Preliminary Design (analogous to Title I Design) is not required for D&D activities	Because the design will proceed directly into Detailed Design, the conceptual technical approach must be prepared in sufficient detail to prevent unknowns from affecting the Detailed Design	33 34 35 36 37 38 39 40
3.5.2 Technical, Cost, and Schedule Baseline		41 42 43 44
The second element in this phase of the		45

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**SECTION 4
DECOMMISSIONING PLAN**

4.0 DECOMMISSIONING PLAN

For each D&D subproject, a Subproject Decommissioning Plan (SDP) will be prepared that describes the work scope in significant detail. This plan will constitute Title II, Detailed Engineering, for the subproject. The following elements are included in the SDP:

- Engineering Plan
 - Engineering Design
 - Definitive Schedule
 - Definitive Estimate
 - Contingency Plan
- Waste Management Plan
 - Waste Management Evaluation
 - Waste Management Plan
- Safety Documentation
 - Safety Analysis
 - Project Health and Safety Plan
- Operations Procedures

Figure 4-1 shows the logic flow in developing an SDP.

4.1 Engineering Plan

The work elements associated with D&D engineering and implementation planning include:

- Engineering Design -- Engineering design includes plans and specifications for facility dismantlement, facility-specific support systems or equipment, and engineered designs for unique technology applications
- Cost Estimates -- Definitive cost

estimates for all D&D operations will be required

- Schedule -- Performance scheduling (including milestones, reviews, and critical path elements as appropriate) of the primary activities and processes of the project will be developed

4.1.1 Engineering Design

Following approval of the SMP, the Detailed Design (EDGM Section 8) is initiated. This design further refines the field operations plans, specifications, waste management plan, and description of the subproject sequencing, developed in the SMP, are finalized. Anticipated radiological and chemical contaminant conditions should be defined in detail.

During Detailed Design, preparation of draft D&D procedures is initiated. If special methods or equipment are to be used, coordination in developing or modifying procedures is essential. The Detailed Design package includes a SAP for in-process characterization for measuring the success of decontamination against the cleanup standards. The completed Detailed Design package is incorporated into the SDP.

The content of the Detailed Design will vary depending on the complexity of the subproject and the procurement approach to accomplishing the work. The PM must establish early in the Detailed Design those activities that will be subcontracted and those activities that will be completed by

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SUBPROJECT DECOMMISSIONING PLAN

Logic Flow Diagram

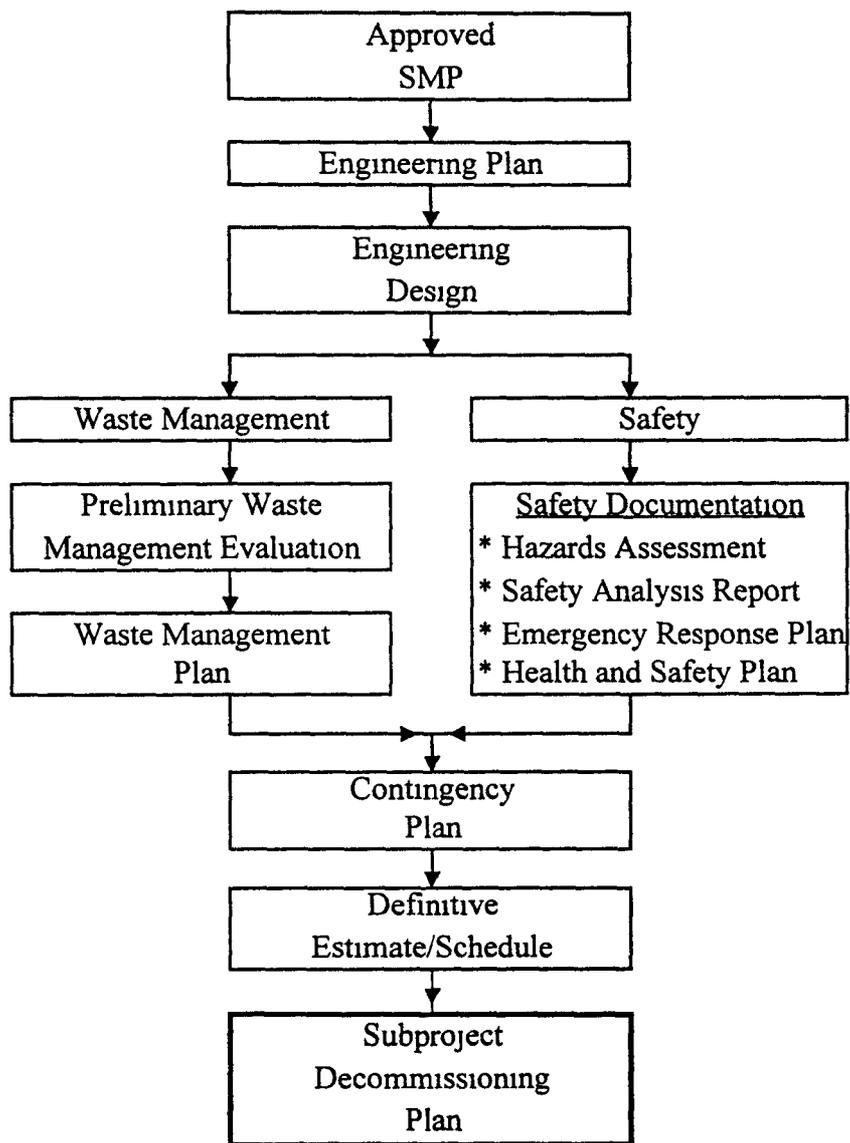


Figure 4-1

Operating Contractor or the onsite construction contractor For example, the PM may elect to use performance specifications instead of detailed construction specifications for a subproject that consists primarily of decontamination by a readily available technology

4.1.2 Cost Estimate/Schedule

During Detailed Design, the subproject definitive cost estimate and baseline schedule are prepared (EDGM ERP-8 4) The definitive cost estimate and schedule include the following activities as appropriate

- Improvements to land, depletable resources, land rights, and turnover costs to land users,
- Engineering during operations,
- Construction (i e , demolition) and all other structures to support the D&D activities,
- D&D operations including waste handling, packaging, transport, and disposal, secondary waste treatment, packaging, storage, and disposal, decontamination system operations, dismantlement, contamination containment and control, temporary utility systems, and safety systems such as fire prevention (S&M is not included in the D&D subproject estimate),
- Safeguards and security,
- Project and construction management,
- Equipment,

- Direct and indirect construction costs, 1
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- Computer systems (if dedicated to the project), 4
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- Standard and special facilities, 7
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- Contingency, and 9
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- Economic escalation 11
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The Detailed Design cost estimate basis will include the project schedule, engineering data, methods of performance, as well as final exact detailed requirements, and must include a complete list of all data used in developing the estimate Several estimating techniques can be applied to D&D subprojects, as described in DOE Order 4700 1, including the bottom-up technique (material take-offs), specific analogy technique, parametric technique, cost review and update technique, and expert opinion technique For each detailed estimate, a combination of these estimating techniques will likely be required It is difficult to establish firm costs for decontamination because decontamination is often an iterative process in which attempts at decontamination continue until the item or structure is "clean " The estimator must rely on expert opinion and prior successful decontamination projects to establish these costs

4.1.3 Contingency Plans

Because of the unknowns associated with D&D activities, a detailed contingency analysis is required to develop the project contingency funds The contingency analysis should consider the potential for success of decontamination techniques, potential for changing waste treatment or disposal costs,

potential for successful application of newly developed or innovative technologies, and general detail of plans, specifications, engineering data, and assumptions used in their development. Contingency associated with D&D activities should range from 10 to 25 percent of the total cost.

4.2 Waste Management

A thorough evaluation of the waste management issues associated with D&D activities is necessary to ensure that the D&D subproject is cost-effective and in regulatory compliance. The Waste Management Plan (WMP) section (EDGM ERP-8 5) forecasts the amounts and types of wastes generated during D&D activities, and defines how the wastes will be handled, stored, transported, and disposed of in accordance with DOE, federal, and state requirements. The waste management strategy is initiated during definition of the technical approach, and is finalized during preparation of the Detailed Design.

In developing the waste management strategy, two sub-tier sections will be prepared to allow proper analysis of alternatives and design: the Preliminary Waste Management Evaluation and the WMP section as described below.

4.2.1 Preliminary Waste Management Evaluation

The Preliminary Waste Management Evaluation identifies the waste management basis on which the alternatives evaluation and the technical approach are developed. To develop the evaluation, the Building/Facility Site Evaluation and Process Historical Document is reviewed to establish potential waste volumes and types that may be generated during D&D activities. Waste

types could potentially include Low Level Waste (LLW), Low Level Mixed Waste (LLMW), Transuranic Waste (TRU), TRU-Mixed waste, hazardous waste, polychlorinated biphenyls (PCBs), asbestos, and non-regulated wastes (sanitary and trash). These wastes may be present as solids, liquids, and gases, or as airborne wastes. This Preliminary Waste Management Evaluation envelopes the waste types and potential volumes that could be generated. The evaluation will assist the D&D engineering staff in determining applicable treatment, storage, and disposal alternatives during the D&D alternatives evaluation and conceptual design. The preliminary waste management evaluation also will include a detailed assessment of the regulatory requirements governing each waste stream, and will identify appropriate treatment, packaging, storage, transportation, and disposal requirements for each stream.

Requirements for the management of radioactive wastes are defined by DOE Order 5820.2A. Hazardous wastes are regulated under the requirements of RCRA (40 CFR 260 through 40 CFR 268). Asbestos and PCBs are regulated under the requirements of the Toxic Substances Control Act (TSCA). CERCLA may also apply to some facilities. Airborne emissions of organics, asbestos, and radionuclides are regulated under National Emission Standards for Hazardous Air Pollutants (NESHAP). Airborne discharges of radionuclides are also governed by DOE Order 5400.5. Other regulations, such as the Clean Water Act, National Pollution Discharge Elimination System (NPDES), and the Clean Air Act (CAA) may also apply to D&D operations.

D&D activities can generate large volumes

of wastes that could be recycled, treated, or otherwise minimized in toxicity, mobility, or volume. The Preliminary Waste Management Evaluation should identify opportunities for waste minimization. Waste minimization activities will result in reduced overall subproject life cycle costs. When evaluating waste minimization for individual subprojects, opportunities to combine waste minimization opportunities from several subprojects should be investigated to improve overall efficiency.

4.2.2 Waste Management Plan (WMP)

The WMP section finalizes the strategy developed by the Preliminary Waste Management Evaluation. Specific details regarding waste volumes, secondary waste generation, waste treatment, storage and disposal, waste characterization, waste packaging, and regulatory requirements are defined in the WMP.

If waste to be packaged and shipped offsite for treatment or disposal is identified in the WMP section, waste handling, segregation, packaging, and shipping requirements will be identified for incorporation into subproject procedures. Incorporation may be accomplished by referencing existing site procedures.

Wastes generated during D&D activities must be characterized before they are either packaged for storage (or disposal) or before they are treated. Process knowledge can be used to determine if the wastes are regulated under RCRA. If process knowledge is not available or is inadequate, sampling and analysis will be necessary. Sampling and analysis will also be required if waste is shipped offsite for disposal to verify compliance with the waste acceptance criteria (see RFETS Waste Analysis Plan).

Waste minimization and pollution prevention practices will be emphasized during D&D operations to reduce the type and quantity of waste generated 1-5

D&D waste will be managed, when feasible, to segregate the non-contaminated from the contaminated debris/waste materials. The non-contaminated debris/waste material will be packaged for reuse, offsite recycle, or disposal at a sanitary landfill. The contaminated debris/waste material will be segregated to separate potentially hazardous wastes, low level radioactive wastes, and mixed wastes. Two types of wastes are anticipated to be generated during the D&D operations: 1) operational and 2) decommissioning wastes 6-19

4.2.2.1 Operational Wastes 20

The anticipated operational wastes include personal protective equipment, (PPE) decontamination fluids, and other liquids. Waste from PPE is expected to be generated as a result of D&D activities. PPE will be packaged as appropriate for storage/disposal or laundered onsite. However, if PPE is determined to be contaminated with currently untreatable hazardous waste, the PPE will be drummed and placed in onsite RCRA storage awaiting development of treatment technologies or storage capacity 22-33

Wastewaters generated during decontamination activities that are compatible with RFETS waste treatment facilities will be treated onsite. Solid radioactive decontamination wastes and sampling wastes will be drummed and compacted for offsite radioactive or mixed waste disposal, or stored onsite if mixed waste disposal is not yet available 35-45

4.2.2.2 Decommissioning Wastes

The anticipated decommissioning wastes include sediments and sludges from process equipment, demolition debris, and miscellaneous waste streams. Sound waste minimization practices should be followed during generation of any D&D waste.

Residues removed from process equipment will be in pumpable or non-pumpable forms. Pumpable sediments and sludges will be mechanically transferred to water-tight containers for transport to appropriate storage or treatment. Non-pumpable sediments and sludges will be manually placed into drums. Absorbent will be added to the drums to ensure that any free liquids are solidified. The drums will be stored at the appropriate onsite or offsite storage facility.

Demolition debris includes structural steel and siding, process equipment, ancillary piping, and non-ferrous debris (i.e., wiring, insulation). Where feasible, the non-contaminated waste will be segregated from the contaminated waste. Non-contaminated will be packaged for reuse, offsite recycle, or disposal at a sanitary landfill. Contaminated waste will be decontaminated as required for handling, and where appropriate will be further segregated and treated for reuse and/or recycle. Primary considerations for treatment include minimization of worker and environmental exposure, waste minimization, natural resource conservation, and waste acceptance criteria at a treatment, storage, and disposal (TSD) facility. The choice of treatment will be balanced between the potential effectiveness and waste acceptance criteria versus the cost and secondary waste generated. In order to choose the most appropriate option, consideration will be given to

characterization of the contamination, the tenacity of the contaminant adherence, chemical structure of the contaminants, final disposition of decontaminated equipment, generation of secondary wastes, treatment systems available, and waste acceptance criteria of targeted TSD facilities

Equipment and tools used in the demolition, size reduction, and treatment activities may become waste due to equipment failure or residual contamination. Currently undefined waste streams may also be encountered during decommissioning operations. All debris/waste materials will be properly designated and packaged prior to exiting the working or controlled area.

4.3 Safety Documentation

The level of safety documentation (EDGM ERP-8.5) required depends on several factors, including potential offsite impacts from a release of radioactive material during operations, potential worker exposure, and the risks associated with the D&D activities. Safety documentation for D&D activities at RFETS may include preparation of documentation such as a Hazards Assessment Document/Report, a Safety Analysis/Assessment, Preliminary and Final Safety Analysis Reports (PSAR and FSAR), or other similar documentation. An Emergency Response Plan will be required as part of the SDP. The Emergency Response Plan outlines the actions to be taken in the event of an emergency including immediate actions to be taken, notification requirements, and subsequent procedures to be followed. Each person working on the project should be familiar with the content of the plan.

4.3.1 Safety Analysis

DOE Orders 5480 23, 5480 21, and 5480 22 require preparation and review of safety analyses for DOE operations. The objectives of the safety analysis preparation and review process assure that

- Potential hazards are systematically identified,
- Potential consequences are analyzed,
- Reasonable measures to eliminate, control, or mitigate the hazards have been taken, including (where applicable) compliance with environmental assessments and impact statements, and
- Documented management authorization of the DOE operation exists based upon an objective assessment of the safety analysis

The safety analysis documentation identifies hazards, assesses risks, and documents the approval for various stages of facility design, construction, and operation. DOE has directed that a graded approach is to be used in the preparation of safety analysis documentation. The objective of the graded approach is to proportion safety requirements for analysis, evaluation, and documentation of the potential hazards associated with operating DOE nuclear and non-nuclear facilities.

With respect to D&D subprojects, the graded approach should be followed to determine the level of effort and documentation that will be associated with D&D activities. Each D&D subproject should be reviewed early in the project definition phase to determine the hazard classification and the degree to which safety documentation is required. For activities

that are relatively nonhazardous, the scope of safety documentation required may be a review of the hazards that were addressed which must be completed prior to initiation of the activity/subproject. Rocky Flats facilities that have existing Safety Analysis Reports (SARs) must be reviewed prior to establishing safety documentation for D&D subprojects. D&D activities may be bounded within the scope of the SAR or an addendum to an existing SAR may be required.

The safety documentation for the subproject may be phased (submitted at different decision points in the subproject) and could consist of a preliminary Hazards Analysis, a final Hazards Analysis, Preliminary Safety Analysis Document or Report (PSAD/PSAR), and Final Safety Analysis Document or Report (FSAD/FSAR).

4.3.2 Health and Safety Plan

Based upon Section 4(b)(1) of the Occupational Safety and Health Act (OSHA) of 1970, DOE exercises statutory authority to prescribe and enforce safety and health standards at DOE facilities. Because of the diversity of past missions within the DOE complex, both radiological and non-radiological hazards must be managed when completing D&D subprojects. These programs have been segregated, however, in the future they may be integrated.

DOE Orders 5483 1A, 5480 10, and 10 CFR 835 (DOE Order 5480 11) establish standards for implementation of an occupational safety program for the DOE complex. The primary safety and health standards applicable to D&D subprojects are those found in 29 CFR 1910, OSHA. These general industrial standards include requirements for occupational workers.

performing remediation activities. Radiation protection standards for occupational workers can be found in 10 CFR 835, DOE Order 5480 11, and the Radiological Control Manual (DOE N 5480 6). DOE Orders establish standards and program requirements for DOE facilities. All D&D subprojects must be conducted in accordance with these standards. For those D&D subprojects that may be involved in hazardous waste operations, OSHA requires that a safety and health plan be written for employees involved in hazardous waste operations.

RFETS D&D will be conducted in accordance with the provisions of the approved RFETS Comprehensive Environmental Occupational Safety and Health Program. A subproject-specific health and safety plan, which will be used by personnel who conduct the D&D subproject, will be prepared as required. This plan will additionally address any precautions or concerns associated with criticality or specific hazardous chemicals. It will be maintained for the duration of the D&D subproject.

The D&D subproject-specific health and safety plan will identify field work tasks to be performed, describe the hazards (i.e., physical, chemical, and radiological) associated with these tasks, and will specify the frequency and type of air and personnel monitoring to be conducted during work activities. PPE, as appropriate, is to be used by workers for each task. Training and medical monitoring/surveillance requirements, site control measures, decontamination procedures, and contingency plans for emergencies (e.g., medical, spill, fire, and explosion) will also be addressed. For routine D&D subprojects, H&S issues may be incorporated into the

IWCP process	1
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4.4 Operations Procedures	3
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This section will include all operations procedures required for project implementation	5
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Each facility D&D is unique in that contaminants and contaminant levels vary, facility limitations and access vary, and each facility presents unique concerns such as dose control, criticality control, contaminant containment, and safeguards and security	9
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The subproject will utilize existing site procedures, or new subproject specific procedures will be prepared, for each facility	14
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These procedures will address both general operations and unique features of the facility	17
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During development of procedures for D&D subprojects, the preparer should review RFETS standards, DOE Orders, environmental regulations, and other guidance that may be applicable to the D&D operations	21
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Before procedures are prepared, the procurement strategy should be determined. It must also be ascertained who will be conducting specific portions of the D&D operations. The Operating Contractor will assist subcontractors in developing their own operating procedures in conjunction with applicable RFETS standards and procedures	26
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A list of potentially applicable procedures that may exist or may be developed for D&D subprojects is provided below. The PM (or his delegated representative) is responsible for ensuring that procedures exist to address the following topics	36
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• Residual waste removal,	43
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• Implementation of decontamination	45

techniques,	1
	2
• Decontamination verification,	3
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• Dismantlement and size reduction,	5
	6
• Waste packaging and transportation, and	7
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• Verification sampling and analysis	10
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**SECTION 5
PRE-OPERATIONS ACTIVITIES**

5.0 PRE-OPERATIONS ACTIVITIES

Pre-operations activities are those activities that must be completed after the engineering efforts are substantially complete and before actual decommissioning activities start

The SDP provides the definitive design, baseline schedule, cost for completing the D&D subproject, and is the primary document for performing the D&D. Therefore, the SDP must be reviewed thoroughly and be approved by the Operating Contractor ER and D&D, and DOE-RFETS/ERD. If the SDP incorporates regulatory requirements, such as RCRA closure or post-closure monitoring requirements, regulatory agencies will review and approve applicable portions of the plan. Before implementing the plan, all review comments and issues must be resolved appropriately. Comments and dispositions, as well as draft and final SDP documentation, must be maintained as part of the project file according to Operating Contractor quality assurance procedures

5.1 Readiness Reviews

The ER Readiness Review (RR) process will be applied on a graded approach in accordance with the ERM guidelines. Determination of operational readiness must establish that appropriate measures and planning are in place so that activities within the work plan, in conjunction with worker training, will function as they were designed

Prior to commencing D&D operations, an RR is conducted to ensure that D&D activities have been properly planned and designed. The RR is a systematic review of plans, procedures, and programs intended to ensure that activities will be conducted in a safe, technically sound, and environmentally

protective manner. The first step in the RR process is preparation of the Readiness Review Checklist (RRC). The RRC outlines requirements that the planned activities must meet. The depth and thoroughness of the review established in the RRC should be consistent with the scope of the subproject undergoing review. For simple subprojects, a less detailed review will be required than the review for a large complex program. The RR should be in compliance with the Operating Contractor's ER-specific procedure for RRs.

General topics addressed by the RR include adequacy of the technical aspects of the D&D subproject (including a review of the SDP), adequacy and completeness of procedures, training completeness, management and organizational review, adequacy of the Health and Safety Plan and emergency response procedures, stop work responsibilities, and overall readiness of operations personnel.

5.2 Training

Operating Contractor and subcontractor personnel must be trained in the conduct of D&D operations. This training consists of RFETS General Employee Training (GET), safety training such as radiation worker training, OSHA hazardous site worker training, respirator training, D&D operations training, subproject-specific procedure training, and other training identified in DOE Order 5480 20.

The training plan will be developed by the site training department with input from the industrial operations area and the D&D subproject management. Training will be conducted by the site training department. Training will be based on RFETS-specific requirements as well as those requirements

generated from D&D operating procedures	completed RCRA Hazardous Waste	1
D&D operating procedures should be	Operations Training	2
prepared in conjunction with the Detailed		3
Design and in advance of the training	The SM should ensure that each worker has	4
program implementation	received the appropriate health physics	5
	training for working in radiation areas	6
The Training Plan will outline the objectives	Radiological/nuclear safety and control	7
of the training program, and will define	directives may be derived from the Operating	8
specific requirements for workers involved in	Contractor Training Department, DOE/EV-	9
the D&D subproject The Training Plan will	0263T, DOE Order 5400 5, and DOE Order	10
include lesson plans as appropriate for the	5480 11 Radiological safety training should	11
training course The Training Plan will	include specific training to support the	12
include D&D subproject- specific training	concept of As Low As Reasonably	13
requirements for decontamination	Achievable (ALARA) as specified in	14
operations, waste management operations,	DOE/EV/1830-TS	15
sampling and analysis procedures, and other		16
procedures as described in the operating	5.3 Contracting and Acquisition	17
procedures and manuals		18
	Following completion of engineering and	19
The SM or designated representative will	implementation planning, procurement of the	20
maintain complete training records in	items and services identified for D&D	21
compliance with the training requirements	activities will be conducted Long-lead	22
Subcontractors will be responsible for	procurement items will be identified in the	23
maintaining their personnel training records	engineering implementation and planning	24
and ensuring compliance with the training	phase Procurement plans will be prepared,	25
requirements	and detailed cost and schedule information	26
	and items associated with D&D operations	27
The aim of training is to bring about	will be addressed DOE subcontractors will	28
	be identified, retained, and trained (based on	29
• An understanding of the process,	the training plan in 5 2)	30
		31
• An understanding of the tools and	Contractual issues related to Operating	32
procedures used in the process, and	Contractor subcontracting and procurement	33
	are managed through the Operating	34
• An understanding of the variability of	Contractor Procurement Department (see	35
tools and processes that may arise in	ER-IPP Acquisition Strategy) Each	36
actual field practice	subcontract is assigned a Subcontract	37
	Administrator (SA) who is responsible for	38
Hazardous materials compliance training is	administration of the subcontract and for	39
to be provided (per the requirements of 29	ensuring that Operating Contractor and DOE	40
CFR 1910 120) for persons responsible for	procurement policies and procedures are	41
waste generation, hazardous materials	adhered to Technical and related issues are	42
packing, and transportation operations Site	managed by the Contract Technical	43
personnel involved in packaging, loading,	Representative (CTR) The PM will assign	44
and handling of hazardous wastes are to have	the CTR as appropriate The CTR is	45

responsible for 1) ensuring that technical aspects of the subcontract are adhered to, 2) subproject reporting and tracking, and 3) interfacing with the subcontractors

Procurement activities for D&D operations will normally be initiated following completion of the SDP and the RR. However, it may sometimes be necessary to initiate procurement of long-lead items early in order to meet schedule constraints. Long-lead procurement items are identified during the conceptual design. The schedule for procurement is baselined at completion of the conceptual design report. The PM or CTR should integrate long-lead procurement planning with the Operating Contractor Procurement Division as soon as items are identified.

Initial planning for procurement is initiated during preparation of the SMP and is typically formalized during Detailed Design. This preliminary planning should include a procurement strategy that identifies activities to be conducted by the Operating Contractor staff, activities to be conducted by outside sources, potential opportunities for small and small disadvantaged businesses, and identification of long-lead procurement items. The preliminary procurement plan should be in sufficient detail to support the development of the conceptual design report cost estimate.

If subcontracted services are required to support development of the SDP, a separate procurement plan should be prepared to address the requirements for technical services. Options for procuring technical support during the engineering and planning phase of the project include use of existing Operating Contractor subcontracts, competitive bids, and sole-source procurement. The PM should work with the

Operating Contractor's Procurement	1
Department to define the requirements for procuring technical services	2
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The final procurement plan will identify all procurement actions necessary to support D&D activities. The plan should identify general scopes of work for subcontractors, establish the types of procurement activities for the scopes of work (unrestricted bid, sole-source procurement, small business set-asides, evaluation criteria, and pre-qualification requirements), selection of pre-qualified bidders, procurement schedules for each bid package, and other information that may be pertinent to the procurement process such as vendor lists for equipment procurement	5
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The work to be procured should be segregated into discrete work scopes. When defining the work scopes, the PM should consider grouping work scopes that are similar and that can be accomplished by a single bidder. For example, a D&D subproject may have the following procurement packages:	20
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• Architect/Engineer Services,	29
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• Equipment Procurement,	31
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• Construction Management Services,	33
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• Waste Management Services,	35
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• Decontamination Operations, and	37
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• Demolition Operations	39
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The Operating Contractor's Procurement Department will assist the PM in establishing the type of subcontract appropriate to the work scope for each package. The types of subcontracts for services include fixed hourly	41
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labor rate, cost plus fixed fee (CPFF), cost plus award fee (CPAF), cost plus incentive fee (CPIF), fixed price, or fixed price incentive fee (FPIF) Equipment procurement is normally completed using fixed price or unit rate contracts Considerable effort should be expended in determining the appropriate subcontracting mechanism, as it can greatly affect the work cost and schedule

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**SECTION 6
OPERATIONS PLAN**

6.0 OPERATIONS PLAN

Field operation guidance is found in the ER-IPP Operations Management. The following sections include additional guidance and clarification for D&D- specific field work

Implementation of the SDP includes engineering during operations (analogous to Title III Services), conduct of D&D operations, waste management operations, emergency response and preparedness, and documentation and status reporting

6.1 Engineering During Operations

Because the design of D&D systems and operations involves inherent uncertainty, the amount of engineering and inspection support during operations may be greater than that required for a similar construction project that does not involve D&D. This uncertainty includes success of decontamination operations, changes to assumed amounts of wastes generated, and characterization activities. The Detailed Design should include assumptions for the level of effort involved in these activities, as well as appropriate contingency funding for the potentially increasing levels of effort required to support these activities. Engineering during operations includes, but is not limited to

- Technical and engineering support during D&D,
- Quality assurance activities related to characterization,
- Change documentation and recording of the operations, and
- Quality verification of the operations

Engineering and design changes during D&D operations should be controlled using approved change control and configuration management procedures. Because valuable lessons are learned during D&D subproject activities that can be applied to other D&D subprojects, daily field logs should be maintained. Weekly reports and monthly subproject status summaries should be prepared, submitted, and maintained according to configuration management practices (see ER-IPP Configuration Management). Project files containing this information should be maintained to allow ready access by other subproject SMs

6.2 Management of D&D Field Activities

D&D activities will vary significantly from one subproject to another. These activities must be conducted according to the SDP. The PM will ensure that the subproject is managed to the SDP baseline, and if justified, will implement baseline changes in accordance with change control and configuration management procedures

Field activity logs should be prepared daily. A summary of activities should be prepared by the field operations manager on a weekly basis. Monthly status reports summarizing the activities completed, budget and schedule status, problems and their resolution, and anticipated future activities should be prepared, as appropriate, reporting of planned and future activities to Operating Contractor and DOE management

Each subproject must undergo an independent assessment to verify that the objectives of the subproject D&D activities have been met (see section 8, Verification and Closeout). Therefore, operating records, sampling and analysis records, and

waste management records must be in sufficient detail to allow ready review, understanding, and evaluation of the processes, procedures, and results of the D&D activities

6.3 Field Waste Management and Minimization

The WMP will identify the appropriate waste management processes and opportunities for waste minimization during D&D activities. Waste management and waste minimization efforts should adhere to the WMP section within the SDP. However, because of unexpected conditions that may be encountered during operations, field operations must be flexible and allow for decision making regarding waste management and waste volume reduction. Deviations from approved SDP waste management operations must be consulted. For example, the SDP may require that certain equipment be decontaminated until unrestricted release criteria are achieved. However, during operations it may be discussed that further decontamination would generate excessive liquid waste with little chance of achieving the release criteria. Expedited analyses to support field decisions should be completed by the project staff to ensure that cost/benefit and waste minimization aspects are considered. Records of analyses must be maintained in the project files.

Waste management records (Waste and Environmental Management System (WEMS)), including the WMP, reports, packaging records, waste characterization records, and waste storage records must be maintained according to the QA records procedures and configuration management, DOE, environmental, and other requirements for radioactive and hazardous wastes.

Appropriate controls will be in place during operations to prevent contamination of non-contaminated wastes by hazardous or radioactive contaminants. The WMP will define these controls and protocols to ensure that uncontaminated materials are not being contaminated. Uncontaminated wastes will be disposed of properly in a sanitary landfill.

6.4 Emergency Response and Reporting

The SDP, Health and Safety Plan, and project procedures will define and incorporate the appropriate requirements for emergency preparedness, emergency response, and notification requirements for potential emergencies during operations. Emergencies may be safety-related, such as a fire or industrial accident, radiation-exposure-related, or related to the release of radiation or a spill of a regulated substance.

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**SECTION 7
QUALITY ASSURANCE**

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7.0 QUALITY ASSURANCE

The basis or sources of quality assurance (QA) requirements are

- Code of Federal Regulations, Title 10, Part 830,
- DOE Orders and Directives,
- EPA Regulations,
- CDPHE Regulations,
- RFETS QA Manual, and
- Environmental Restoration Management Quality Assurance Program Description (QAPD)

Elements, criteria, and requirements that are potentially applicable to the ER MSA Project are promulgated by these entities EPA and CDPHE requirements apply to RA activities RFCA requirements apply only to RA activities addressed in the agreement

Section IV A of the RFCA specifies minimum quality elements that the quality program must include and references EPA QA/R5, EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations Chapter IV Section 10 of DOE 5400 1, General Environmental Protection Program, specifies minimum elements that must be addressed by QA programs for DOE environmental protection programs DOE 5400 1 further states that environmental QA programs be developed consistent with DOE Order 5700 6B, Quality Assurance, which has been superseded by DOE Order 5700 6C DOE Order 5700 6C implements the requirements of 10 CFR 830 120, Quality assurance requirements The RFETS QA Manual is based on DOE

Order 5700 6C, Quality Assurance, and its requirements are satisfied by the QAPD with specific regard to EPA QA/R5 DOE RFFO prepared a Rocky Flats Office Instruction (RFI 5700 6) which imposes DOE Order 5700 6C plus other applicable Federal and state regulations, requirements, and industrial standards The SAA organization combined the quality requirements from various source documents referenced by the RFI 5700 6 into one document, the RFP QAM	1 2 3 4 5 6 7 8 9 10 11 12 13
The DOE Office of Environmental Restoration and Waste Management (EM) has prepared a QA Requirements and Description (QARD) document that sets forth the QA requirements and guidance for QA plans (QAPs) in support of DOE environmental management programs, including the ER MSA Project at the RFETS The DOE EM QARD requires DOE organizations and contractors to develop, implement, and maintain a QAP as identified in DOE Order 5700 6C The QAPD meets the requirements of a QAP as related to D&D	14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
D&D subproject-specific supplements to the QAPD will be prepared as necessary to ensure compliance with the RFETS QA Manual	29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

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SECTION 8
VERIFICATION AND CLOSEOUT

8.0 VERIFICATION AND CLOSEOUT

In order to release a decommissioned facility or site for use, with or without radiological restrictions, it is necessary to verify, and in some cases certify, that the decontamination has been completed according to DOE and regulatorily-approved criteria. It is essential that requirements for site certification be considered and that all requirements for site certification be integrated into the overall project planning process.

Additional documentation will be needed in addition to the above-referenced documents. These documents will include the final project report, the record of completion, and the project data package as required by DOE Orders 5820 2A and 4300 1C.

8.1 Verification of Attainment of Cleanup Standards

The Operating Contractor is ultimately responsible for ensuring that the D&D activities performed meet cleanup standards established for the subproject. The Operating Contractor and its subcontractors will be required to formally assess the effectiveness of D&D activities through sampling and analysis, D&D operations assessments and documentation, and an overall assessment of D&D activities. Once the Operating Contractor and its subcontractors have verified that D&D is complete and that cleanup standards have been achieved, the subproject will undergo a review by an independent verification contractor (IVC) and DOE.

The D&D subproject PM will be responsible for ensuring that verification activities are performed in accordance with the SDP and verification SAP. The results of the

Operating Contractor verification activities will be documented in the D&D Subproject Report. The following key topics should be included in the report:

- A summary of cleanup standards and how they were established,
- Changes to cleanup standards and justification for changes (risk reduction, worker protection, environmental regulations),
- A summary of D&D operations, including decontamination methods used, waste management history and summary, summary of project activities and impacts on achieving cleanup standards, summary of milestone and major activities completed to meet cleanup standards,
- Identification of areas where cleanup standards could not be achieved and corrective actions were taken to achieve cleanup standards,
- A summary of verification sampling and analysis,
- A summary of quality assurance methodology employed during D&D,
- The results and conclusions indicating that the facility meets cleanup standards, and
- A certification by the Operating Contractor that cleanup standards have been achieved.

Subproject verification will be conducted to validate the accuracy and completeness of the field measurements and to attest to the credibility of the procedures followed during

the cleanup and certification operations. The extent of subproject verification may vary and will typically involve document and procedure review, split-sample analysis, and spot survey checks. A number of factors, including types of cleanup, complexity of the operation, and various site-specific issues may be taken into consideration in determining the scope and intensity of the verification process for a specific subproject.

8.2 Subproject Certification

The formal certification process is initiated following verification of subproject completion by the Operating Contractor. The certification process will incorporate several aspects of the verification process. However, the implications of the certification process are not as broad-based as the verification process. The certification process will ensure that the resulting radiological, hazardous, and toxic contamination conditions are in compliance with established criteria, standards, and/or guidelines and that the public and the environment are protected.

The ultimate goal of any D&D action is to ensure that resulting radiological and (where appropriate) chemical conditions of the facility/activity comply with established criteria, standards, or guidelines, and that the public and the environment are thereby protected. Therefore, it is essential that the requirements of site certification be considered at the beginning of subprojects and that these requirements be integrated into the overall subproject on a site-by-site basis.

While data collection and preparation for certification begin prior to D&D activities, the bulk of the effort is conducted during and after D&D activities have been completed.

Environmental documentation, activity reports, decontamination control procedures, supportive sampling and analysis plans, and accurate subproject completion reports are essential to provide a record of cleanup activities and as a source of data for the certification process. As a result of the differences in the types of criteria and guidelines applied to various components subject to D&D activities, the requirements for verification activities may vary, depending on the D&D methodology applied.	1 2 3 4 5 6 7 8 9 10 11 12 13 14
Independent verification measures are typically imposed and/or implemented by DOE and follow verification by the Operating Contractor. DOE may contract an IVC to conduct the independent verification activities or may conduct the independent verification activities using personnel that have had no involvement in the D&D activities. The independent verification steps are as follows:	15 16 17 18 19 20 21 22 23 24 25
<ul style="list-style-type: none"> • Review of D&D specifications and plans, procedures, and supporting documentation, • Onsite visits and surveys involving direct measurements and sampling and/or split-sample analyses, and • Interviews with key site and operations personnel. 	26 27 28 29 30 31 32 33 34 35 36
The independent verification shall determine if data are sufficient and if procedures have been followed to the degree necessary to certify that the D&D is complete. Compliance with criteria for decontamination and release of equipment, structures, or buildings is demonstrated by field measurements and other appropriate methods. As appropriate, representative	37 38 39 40 41 42 43 44 45

additional samples will be taken from the air, water, and residue samples that were analyzed in the field and will be used to support the confirmation of the site's condition

If the site is remedied pursuant to CERCLA, the post-remedial action report should contain documentation necessary to support deletion of the site from the National Priority List (NPL) In such instances the report should contain, at a minimum

- A brief description of outstanding construction items from the pre-final inspection and an indication that the items were resolved,
- A synopsis of the work defined in the Statement of Work (SOW) for the subproject and certification that the work was performed,
- An explanation of any modifications to the work in the SOW and a discussion of why these modifications were necessary for the project,
- Certification that the remedy is operational and functional, and
- Documentation necessary to support deletion of the site from the NPL

[Note: For both radiological and non-radiological samples, all analytical efforts should include specific quality assurance and quality control requirements, which should set forth acceptance criteria for final data The quality control results are validated by independent laboratory chemists and/or statisticians to ensure that the data are of acceptable quality]

The RCRA closure regulations require the

removal and/or decontamination of all waste residues and contaminated structures, equipment, and soils Waste generated as a result of the closure activities is to be managed as hazardous waste unless the provisions of Colorado regulation 6 CCR 1007-3, section 261 3(d) apply

8.3 Final Radiological Survey

The radiation survey performed to meet site closure needs should be planned to ensure that compliance can be demonstrated with the desired level of confidence A SAP relative to the radiological survey should be developed and implemented The SAP will identify the types, frequencies, and locations of radiological measurements to be obtained The primary purpose of the radiological SAP will be to assess the quantity and distribution of residual radioactivity If hazardous chemical or toxic constituents are assumed to be present, then provisions to address these contaminants are needed in the SAP

8.4 Subproject Closeout

The closeout of a subproject involves a number of steps required to ensure proper termination of subproject activities These steps include completion of all contractual relationships, closing of contracts for file, closing of financial records and documents, obtaining necessary approvals, licenses, and permits, completing the safety analysis reports, establishing operating procedures, and other activities peculiar to the subproject

Subproject closeout is the final phase of a decommissioning subproject It begins at the completion of physical decommissioning, when it is believed that the site meets the defined release criteria for either restricted or unrestricted use Subproject closeout may

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be scheduled so that some surveying is done while decommissioning operations are still ongoing in other areas of the site. If so, measures are required to prevent spread of contamination to already closed areas. The purpose of the subproject closeout phase is to verify that the site in its final configuration meets the release criteria/requirements established for the subproject. Subproject closeout phase is performed by means of surveys, verification, and appropriate documentation. The requirements for documentation may be imposed by DOE or the regulatory agency to avoid legal ramifications.

The independent verification aspects are tied into the subproject closeout phase to provide an independent verification of the owner's determination that the site complies with release criteria, eliminating any biased configurations that may occur. Preparation of a subproject closeout checklist is recommended to assist the D&D manager in verifying completion of all closeout activities.

Subproject closeout consists of two elements, the Project/Subproject Data Package and the Final D&D Subproject Report.

8.4.1 Project/Subproject Data Package

The Subproject Data Package will provide a complete history of the subproject. A listing of all generated documentation will be maintained from inception to completion of the subproject. Compilation of all pertinent project documentation will aid in generation of the Final D&D Subproject Report and will serve as a repository for valuable subproject information.

The Subproject Data Package will address

the requirements of the D&D SMP and SDP, and will include the required information to prepare a Project Data Package in accordance with DOE Order 5820 2A, Sect V. The Project/Subproject Data Package will include the following information:	1
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• Background information,	8
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• Facility or site description,	10
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• Decommissioning and remedial action objectives and work scope,	12
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• A description of work performed including:	15
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- project management,	18
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- project engineering,	20
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- site characterization,	22
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- alternatives assessment,	24
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- site preparation,	26
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- decommissioning operations,	28
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- waste disposal,	30
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- post-decommissioning radiological survey, and	32
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- post-decommissioning hazardous chemical condition,	35
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• Cost and schedules,	38
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• Waste volumes generated,	40
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• Occupational exposure to personnel,	42
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• Final facility or site condition,	44
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• Lessons learned, conclusions, and recommendations,	1 2 3
• References, and	4 5
• Acronyms and abbreviations listing	6 7
8.4.2 Final D&D Subproject Report	8 9
Following completion of the planned decommissioning activities, a verification report will be prepared by the IVC (if required) for each site location, and the Final D&D Subproject Report will be prepared	10 11 12 13 14
The Final D&D Subproject Report will be made available to others through the Office of Scientific and Technical Information, in accordance with DOE Order 1430 1D - Scientific and Technical Information Management	15 16 17 18 19
Key topics to be addressed include (but are not limited to)	20 21 22
• Record of Completion,	23 24
• Final Radiological and D&D Chemical Survey Report,	25 26 27
• The Final D&D Subproject Report, and	28 29 30
• Appropriate Public Notices	31 32 33 34

APPENDIX A
REGULATORY REQUIREMENTS IDENTIFICATION CHECKLIST

Regulatory Requirements Identification Checklists

INTRODUCTION

The objective of this checklists is to present a reference evaluation of the regulatory implications and requirements that may be relevant when initiating a D&D project. The checklists are to be used to identify environmental statutes and regulations, DOE Orders, and/or applicable requirements and how they apply to the D&D process at the various types of regulated facilities (i.e., generators, treatment, storage and disposal facilities). The screening checklists serve as a mechanism to identify the regulatory drivers and waste management provisions. The screening checklist is divided accordingly to address the following areas and regulatory requirements:

- Resource Conservation and Recovery Act (RCRA)
- Asbestos Containing Material (ACM)
- Polychlorinated Biphenyls (PCBs)
- National Environmental Policy Act (NEPA)
- Department of Energy (DOE) Orders
- Clean Air Act (CAA)
- Clean Water Act (CWA)
- Department of Transportation (DOT)

The screening checklists do not address the regulatory oversight elements that may be required as a result of the Rocky Flats Cleanup Agreement (RFCA)/Interagency Agreement (IAG) renegotiations. New regulatory language may be added to include the D&D of facilities not currently within the scope of the RFCA/IAG. If the facilities subject to D&D are currently included in the RFCA/IAG as Individual Hazardous Substance Sites (IHSSs), then applicable RFCA/IAG provisions for the Operable Unit (OU) which the IHSSs is part of must be applied.

The screening checklists do not address the Nuclear Regulatory Commission provisions since the proposed action is not a CERCLA response action. The NRC requirements would apply if the an off-site NRC licensed disposal facility will be utilized. If so, the waste acceptance criteria of 10 CFR 61 as identified in the receiving facility's license and other specific disposal requirements contained in that license. NRC regulations are not directly applicable to the D&D of RFETS facilities. However, the waste management and disposal provisions specified in 10 CFR 61 may be applicable to low-level D&D wastes if an offsite, NRC-licensed disposal facility is used. In this case, the waste acceptance criteria for the permitted receiving would need to be met. It is probable that the waste acceptance criteria will be based on the 10 CFR 61 standards.

The screening checklists do not address Occupational Safety and Health Act (OSHA). Although OSHA standards are not considered ARARs, OSHA requirements would apply on their own merit. These OSHA standards apply to Federal facilities as required by the Occupational

Safety and Health Act [29 USC 668] and Executive Order 12196, however, they are not independently enforced by OSHA. These occupational safety requirements are adopted and implemented under DOE Order 5483 1A which references OSHA's general construction standards contained in 29 CFR 1926. Although this regulation is not presented in detail, protection requirements should not be overlooked when preparing the implementation plans for the selected subproject D&D activities.

The response question presents the regulatory citation/provision/standard which needs to be complied with. Attachment A provides (in sequential fashion) additional details for each citation/provision/standard cited in the response for each question. Attachment B contains the associated tables referenced in the checklist. Attachment C provides a listing of acronyms and abbreviations used in the checklist. Attachment D provides a copy of a NEPA checklist (sample draft) and Figure 1 (an overview of the NEPA process). Figure 1 is presented to reflect the NEPA process from the project planning stage through completion of any and all forms of NEPA documentation.

**D&D Regulatory Requirements Identification Checklist
Resource Conservation and Recovery Act (RCRA)**

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|--------------------------|
| 1 Does the action involve closing a RCRA permitted or interim status TSD (i.e., container storage area, tank storage/treatment) facility? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 264/265 Subpart G.
[NOTE: If interim status follow 265 provisions, If the unit was permitted, follow 264 provisions] | | |
| 2 Does the action involve RCRA closure of a hazardous waste container storage area? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 264.178 or 265.178. | | |
| 3 Does the action involve RCRA closure of a tank system? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 264.197 or 265.197. | | |
| 4 Will equipment, structures, and/or soils contaminated with hazardous waste result as waste streams via closure activities? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 265.114. | | |
| 5 Will a hazardous waste determination be required for the generated waste? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 261 and 262.11, respectively. | | |

**D&D Regulatory Requirements Identification Checklist
Resource Conservation and Recovery Act (RCRA)**

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|--------------------------|
| 6 Will any hazardous waste with concentrations in excess of the land disposal restrictions (LDRs) be identified? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with 6 CCR 1007-3, 268 Subpart A to D

[Note If generated waste in excess of LDR standards, the waste cannot be placed in a Land Disposal Unit Treatment, storage to facilitate treatment, recovery or disposal, placement in a Corrective Action Management Unit (CAMU), or LDR variance is required]

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|---|--------------------------|--------------------------|
| 6A Is waste determined to be a hazardous waste debris? | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|

If yes, comply with 6 CCR 1007-3, 268.45,
and employ appropriate treatment technology as listed in Table 1 of 268 45

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|---|--------------------------|--------------------------|
| 6B Following D&D activities, will any resulting waste material be identified as a waste residue and/or decontamination wastewater? | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|

If yes, comply with 6 CCR 1007-3, 268.41, 268.42 and 268.43 for appropriate hazardous waste code classifications

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|---|--------------------------|--------------------------|
| 6C Can restricted hazardous waste be treated to meet LDRs? | <input type="checkbox"/> | <input type="checkbox"/> |
|---|--------------------------|--------------------------|

If no, place in permitted storage and evaluate options and refer to Question 6B (i e , Treatability variance, development of treatment technologies, placement in CAMU, establish Temporary Unit, and/or petition for delisting of the waste material

If yes, reference Questions 6A and 6B and address accordingly

**D&D Regulatory Requirements Identification Checklist
Resource Conservation and Recovery Act (RCRA)**

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|--------------------------|
| 7 Will any hazardous waste with concentrations in excess of LDRs (restricted waste) require temporary storage onsite until treatment technologies are developed or a final disposal site is determined? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 268.50(c). | | |
| 8 Will additional treatment and/or storage facilities need to be operated to accommodate waste streams generated from D&D and/or closure activities? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 264/265 Subpart B, C and D. | | |
| 9 Prior to initiating D&D activities, will a closure plan need to be prepared and submitted to CDPHE? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 265.112. | | |
| 10 Following RCRA closure, will any documentation to verify that closure has been completed in accordance with approved closure specifications/closure plan need to be prepared? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 6 CCR 1007-3, 265.115 and 265.116 | | |
| 11 Will the D&D and/or closure activities require offsite transport of the waste to a TSD facility? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 49 CFR 172, Parts B to F, 49 CFR 173 Parts B to O and 49 CFR 177, and 6 CCR 1007-3, 262 Subpart B and C; 6 CCR 1007-3, 262.20, 262.30, 262.31, 262.32, 262.33, and 262.54. | | |

**D&D Regulatory Requirements Identification Checklist
Asbestos Containing Material**

1. Does the facility contain any suspect asbestos containing material?

If yes, comply with 40 CFR 763.85.

2. Will sampling and laboratory analysis be conducted to determine if ACM is present?

If yes, comply with 40 CFR 763.86.

3. Has ACM been identified as a result of the bulk sampling activities and laboratory analysis?

If yes, comply with 40 CFR 763.88, 763.91 and 763.93.

4. Is the ACM radiologically and/or chemically contaminated?

If yes, comply with applicable provisions of 40 CFR 763.90, and RFP Standard Operating Procedures (SOPs) for handling radioactively and/or chemically contaminated ACM [Note Also, evaluate RCRA and NRC regulatory checklist to determine additional handling requirements]

5. Will the response action require abatement of the ACM?

If yes, comply with 40 CFR 61, Subpart M; Colorado Air Quality Control Commission (CAQCC) Regulation No. 8, 40 CFR 763.90, Occupational Safety and Health Administration (OSHA) 29 CFR 1956 and 1910, and applicable RFP SOPs for managing ACM.

**D&D Regulatory Requirements Identification Checklist
Polychlorinated Biphenyls (PCBs)**

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|--------------------------|
| 1 Are polychlorinated biphenyls (PCBs) expected to be a waste stream generated as a result of D&D and/or closure activities? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 40 CFR 761. | | |
| 2 Are PCBs in liquid form with concentrations less than or equal to 50 ppm (parts per million)? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, not regulated as PCB waste | | |
| 3 Are PCBs in liquid form with concentrations greater than or equal to 50 ppm and less than 500 ppm? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 40 CFR 761.60(e).
Reference Attachment B, Table 1. | | |
| 4 Are PCBs in liquid form with concentrations greater than or equal to 500 ppm? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 40 CFR 761.70.
Reference Attachment B, Table 1. | | |
| 5 Are PCBs in a non-liquid state with concentrations greater than or equal to 50 ppm? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 40 CFR 761.60(a)(4)
Reference Attachment B, Table 1. | | |

**D&D Regulatory Requirements Identification Checklist
Polychlorinated Biphenyls (PCBs)**

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|--------------------------|
| 6 Are soils or sludge at the site contaminated with PCBs at concentrations greater than or equal to 50 ppm?

If yes, comply with 40 CFR 761.60(a)(4)
Reference Attachment B, Table 1. | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Does PCB contaminated electrical transformers, and capacitors which contains greater than 500 ppm PCBs need to be addressed?

If yes, comply with 40 CFR 761.60(b)(1) and 761.60(b)(4).
Reference Attachment B, Table 1. | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 Does PCB contaminated electrical equipment (transformers and other electrical equipment other than capacitors which contain PCBs between 50 ppm and 500 ppm) need to be addressed?

If yes, comply with 40 CFR 761.60(b)(4).
Reference Attachment B, Table 1. | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 Does PCB contaminated articles and/or containers with PCB concentrations greater than 500 ppm need to be addressed?

If yes, comply with 761.60(b)(5).
Reference Attachment B, Table 1. | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 Will PCB waste material with concentrations greater than or equal to 50 ppm need to be stored onsite?

If yes, comply with 40 CFR 761.65. | <input type="checkbox"/> | <input type="checkbox"/> |

**D&D Regulatory Requirements Identification Checklist
Polychlorinated Biphenyls (PCBs)**

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|--------------------------|
| 11A. Are the PCBs mixed with a listed hazardous waste or does the PCB waste exhibit a hazardous waste characteristic? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with 40 CFR 761.60, 761.70, 268, 268.42(a)(1), 268.42(b) In addition to 40 CFR 761, waste treatment must also comply with 40 CFR 268 Also, need to comply with other hazardous waste management requirements Complete hazardous waste modular of this checklist

**D&D Regulatory Requirements Identification Checklist
National Environmental Policy Act**

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|--------------------------|
| 1 | | |
| Will requirements of NEPA apply to the D&D of the facility/facilities? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with **10 CFR 1021** and **40 CFR 1500-1508**. Potential environmental impacts associated with the proposed remedial action alternatives considered need to be identified per **10 CFR 1021.200** and **DOE Order 5440.1E, Section 5**. The environmental checklist needs to be completed (see attachment D) and an Actions Description Memorandum (ADM) The completed NEPA checklist and ADM is submitted to the DOE-Rocky Flats Office for a determination of the level of NEPA documentation required (i.e. Category Exclusion, Environmental Assessment or Environmental Impact Statement)

[Note: DOE Policy is that NEPA documentation is not required for response actions conducted pursuant to CERCLA

- | | | |
|---|--------------------------|--------------------------|
| 2 | | |
| Will the proposed action be categorically excluded from further NEPA documentation under the NEPA process? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with **10 CFR 1021.400, Subpart A through D**.

- | | | |
|---|--------------------------|--------------------------|
| 3 | | |
| Does the potential exists for any "extraordinary circumstances" related to the proposed remedial action to evolve? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with **1021.314[a]** and **[c]** and **1021.400[c]**.

- | | | |
|---|--------------------------|--------------------------|
| 3A | | |
| Is the proposed remedial action "connected" to any other proposed action that may present potentially "significant impacts"? | <input type="checkbox"/> | <input type="checkbox"/> |

Comply with **40 CFR 1508.25[a][1]**

**D&D Regulatory Requirements Identification Checklist
National Environmental Policy Act**

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|--------------------------|
| 3B Is the proposed remedial action related to or connected with other proposed actions with "cumulatively significant" impacts? | <input type="checkbox"/> | <input type="checkbox"/> |
| Comply with 40 CFR 1508.25[a][2] and 10 CFR 1021.410. | | |
| 3C Has a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) been published in the Federal Register to begin the public scoping process? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021.311(a)(b)(c). | | |
| 4 Will preparation of an EIS Implementation Plan be required to aid in the preparation of an EIS? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 1021.312. | | |
| 5 Will an Environmental Impact Statement (EIS) have to be prepared? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021 Subpart D, Appendix D and 40 CFR 1502.1. | | |
| 6 Will an Environmental Assessment (EA) need to be prepared? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021.321 and 1501.4(b). | | |

**D&D Regulatory Requirements Identification Checklist
National Environmental Policy Act**

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|--------------------------|
| 7 Will a Finding Of No Significant Impact (FONSI) need to be prepared? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021.322. | | |
| 8 Has the FONSI been made available to the public for review and comment. | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021.322(c) and 40 CFR 1501.4(e)(1) and 1506.6. | | |
| 8A Has supplemental NEPA documentation been prepared for the D&D of the facility/facilities? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021.314 and 1502.9(c)(1) | | |
| 9 Has the NEPA Record of Decision been prepared? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021.315 and 40 CFR 1505.2. | | |
| 10 Has the Mitigation Action Plan been generated? | <input type="checkbox"/> | <input type="checkbox"/> |
| If yes, comply with 10 CFR 1021.331 | | |

**D&D Regulatory Requirements Identification Checklist
Nuclear Regulatory Commission (NRC)**

Should IAG be revised to include D&D activities as a CERCLA response action, NRC regulations could be determined to be "relevant" for the remedial activities to be conducted at the RFETS since they are promulgated standards and address the cleanup and management of radioactive materials. DOE could argue that although NRC regulations are relevant to remediating the RFETS, these requirements are not appropriate since DOE Orders adequately establish standards of control equivalent to NRC's regulation to protect human health and the environment during onsite response actions. However, EPA/CDPHE may impose those NRC regulations which are not addressed by DOE Orders or are more stringent than the DOE standards. Hence, NRC regulations may not need to be identified initially due to their lack of applicability, because DOE imposes its own standards of control for operations involving radioactive materials. The requirements that may be identified as ARARs include the radiation standards for protection of human health and the public (10 CFR 20), radionuclide limits for effluent discharges (10 CFR 20), and other license termination requirements (i.e., D&D (10 CFR 50)).

**D&D Regulatory Requirements Identification Checklist
Department of Energy Orders**

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|--------------------------|
| 1 Are radiation protection standards, limits and program requirements for protecting individuals from ionizing radiation from the conduct of D&D activities applicable? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with 10 CFR 835, follow applicable RFETS radiological program and established ALARA requirements.

- | | | |
|--|--------------------------|--------------------------|
| 2 Does the RFETS radiation protection program adequately address all operational task to be conducted during D&D subproject activities? | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|

If yes, comply with RFETS radiation protection program.

If no, a radiation protection program plan should be prepared in accordance with 10 CFR 835.

- | | | |
|--|--------------------------|--------------------------|
| 3 Have requirements for "as low as reasonably achievable" (ALARA); air, area and individual radiation monitoring, including, but not limited to: access controls, record keeping, reporting, training, engineering design and radiation control, emergencies and accidents been identified for the subproject activities? | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|

If yes, comply with the RFETS ALARA program.

If no, an ALARA program should be established in accordance with 10 CFR 835, DOE Order 5480.11 and DOE Order 5400.5.

**D&D Regulatory Requirements Identification Checklist
Department of Energy Orders**

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|--------------------------|
| 4 Will materials and/or equipment be free-release from subproject designated radiologically controlled areas? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with 10 CFR 835, DOE Order 5400.5 and NRC Guidance 1.86.

- | | | |
|--|--------------------------|--------------------------|
| 5 Has it been determined what environmental protection program requirements, authorities and responsibilities (for ensuring that D&D activities will comply with Federal, State and local environmental protection laws and regulations) will effect the subproject D&D activities? | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|

If yes, comply with DOE Order 5400.1.

If no, then the environmental protection requirements and applicable Federal, State and local environmental protection laws must be established before the subproject D&D activities commence

- | | | |
|--|--------------------------|--------------------------|
| 6 Are DOE contractors going to perform the necessary subproject D&D activities? | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|

If yes, comply with DOE Order 5400.5.

- | | | |
|--|--------------------------|--------------------------|
| 7 Have applicable Environmental, Safety and Health Programs for the DOE contractors to adhere to during the subproject D&D activities been prepared or established? | <input type="checkbox"/> | <input type="checkbox"/> |
|--|--------------------------|--------------------------|

If yes, comply with DOE Order 5480.1B.

If no, these requirements must be addressed prior to the commencement of the subproject D&D activities. The DOE contractors must be properly prepared prior to initiation of subproject D&D activities

D&D Regulatory Requirements Identification Checklist
Department of Energy Orders

- | | <u>Yes</u> | <u>No</u> |
|---|--------------------------|--------------------------|
| 8 Has waste management and minimization strategies for radioactive and mixed waste material handling techniques been established for waste material to be generated from contaminated facilities identified as components of the subproject? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with DOE Order 5820.2A.

If no, the preparation of waste management and minimization plans, along with the material handling strategies should be under development concurrently with the subproject D&D planning activities

**D&D Regulatory Requirements Identification Checklist
Clean Air Act**

- | | | <u>Yes</u> | <u>No</u> |
|------------|--|--------------------------|--------------------------|
| 1 | Could subproject D&D activities result in the potential release of fugitive emissions? | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, comply with 5 CCR 1001-1 III, Part D. | | |
| 2 | Can fugitive emissions contain radionuclides? | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, comply with 40 CFR 61, Subpart H. | | |
| 2A. | Can potential radionuclide emissions (both fugitive and stack) from subproject(s) D&D exceed 0.1 mrem/year? | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, a permit may be required Comply with Colorado Air Quality Control Standards. | | |

**D&D Regulatory Requirements Identification Checklist
Clean Water Act**

- | | | <u>Yes</u> | <u>No</u> |
|-----------|--|--------------------------|--------------------------|
| 1 | Will wastewater be generated from the subproject D&D activities? | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, comply with Question(s) #1A, #2, #3, #4, #5. | | |
| 1A | Will wastewater be taken to an existing onsite facility permitted either under the CWA and/or RCRA?. | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, comply with wastewater receiving facilities Waste Acceptance Criteria and monitoring requirements. | | |
| 2 | Will wastewater be discharged directly to the environment? | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, comply with 5 CCR 1002-2 Section 6.1.either modify the existing RFETS NPDES permit or obtain new NPDES permit prior to discharge. | | |
| 3 | Will wastewater be collected and transported offsite for treatment at permitted CWA or RCRA facility?. | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, comply with receiving facility approved Waste Acceptance Criteria and monitoring requirements and Department of Transportation (DOT) requirements. | | |
| 4 | Will wastewater discharge contain toxic pollutants from specific sources identified in RFETS NPDES Permit. | <input type="checkbox"/> | <input type="checkbox"/> |
| | If yes, comply with 40 CFR 129. | | |

**D&D Regulatory Requirements Identification Checklist
Clean Water Act**

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|--------------------------|
| 5 Will D&D activities conducted at RFP effect any wetlands, fish and wildlife or critical habitats, threatened or endangered species and/or flood plains? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with 10 CFR 1022, 33 CFR 323 and CWA Section 404.

D&D Regulatory Requirements Identification Checklist
Department of Transportation

- | | <u>Yes</u> | <u>No</u> |
|--|--------------------------|--------------------------|
| 1 Will D&D waste or radioactive materials be shipped offsite? | <input type="checkbox"/> | <input type="checkbox"/> |

If yes, comply with 49 CFR 172, 49 CFR 173, 49 CFR 177, DOE Orders 1540.1, 1540.2, 1540.3A, 5820.2A and 5480.3.

**APPENDIX B
HEALTH AND SAFETY BOILER PLATE**

CURRENTLY IN DEVELOPMENT

APPENDIX C
BASELINE PLANNING INFORMATION CHECKLIST

APPENDIX C

**D&D Projects
Baseline Planning Information Checklist**

Complete this part for each facility, part of a facility, or equipment that requires decontamination and decommissioning

A Facility Description

Facility/Process/Equipment Name	
Responsible Program	
Type/Purpose of Facility/Process/Equipment	
Description (specify type of construction and physical condition of structure)	
Major equipment	
Current use (facility/process/equipment)	
Environmental compliance status (list and attach all available environmental permits)	
Attach Drawings and ECNs Verify as-built conditions	

C Contamination

Radiological Data		Source of Data		
Type	Location	Isotope	Quantity (curies)	Date of Inventory

Attach copy of most recent radiological survey

Hazardous Materials Data		Source of Data	
Type	Location	Quantity	Mode of Storage

Note All stored hazardous materials must be removed before transfer of the facility to EM-40

Hazardous Materials Contamination		Source of Data
Type	Location	Description

Extent of offsite contamination _____

Potential for Release	
Contamination Type	Current Mode of Containment and Potential Modes of Release

Extent of offsite contamination _____

Other Surveillance and Maintenance Costs	
Items	\$/year

Attach all existing surveillance and maintenance plans

E Regulatory Data

Planning Considerations	
Interagency Agreement	
TSD Permits	
Historical Releases	
Other Permits/Licenses	

F Waste Management

Projected Volume of Waste Resulting from Environmental Restoration	
Type of Waste	Volume (ft ³)
Low-Level	
> Low-Level	
Transuranic	
Mixed Low-Level	
Mixed > Low-Level	
Hazardous	