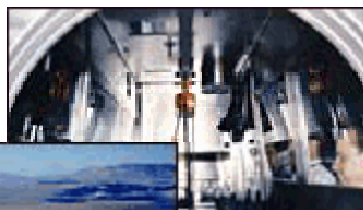


DOE/NV--612

Project Execution Plan

Waste Management Division

Nevada Operations Office



April 2000

Waste Management Division
U.S. Department of Energy, Nevada Operations Office

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PROJECT EXECUTION PLAN

**Waste Management Division
U.S. Department of Energy/Nevada Operations Office
Las Vegas, Nevada**

Revision No.: 0

April 2000

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PROJECT EXECUTION PLAN

**Waste Management Division
U.S. Department of Energy/Nevada Operations Office
Las Vegas, Nevada**

Approved by: /S/ _____ Date: _____
Bobbie K. McClure, Coordinator
Program Integration

Approved by: /S/ _____ Date: _____
E. Frank DiSanza, Division Director
Waste Management Division

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Preface

This plan addresses project activities encompassed by the U.S. Department of Energy/Nevada Operations Office Waste Management Division and conforms to the requirements contained in the “Life Cycle Asset Management,” U.S. Department of Energy (DOE) Order O430.1A (DOE, 1998a); the *Joint Program Office Policy on Project Management in Support of DOE Order O430.1* (DOE, 1996a); and the *Project Execution and Engineering Management Planning Guide*, GPG-FM-010 (DOE, 1996b).

The plan also reflects the milestone philosophies of the Federal Facility Agreement and Consent Order (1996), as agreed to by the state of Nevada; and traditional project management philosophies such as the development of life cycle costs, schedules, and work scope; identification of roles and responsibilities; and baseline management and controls.

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List of Acronyms and Abbreviations

ADS	Activity Data Sheet
ANSI	American National Standards Institute
BCC	Baseline Change Control
BCCP	Baseline Change Control Process
BN	Bechtel Nevada
CFR	Code of Federal Regulations
DO/CCB	Designated Official/Change Control Board
DoD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOE/NV	U.S. Department of Energy/Nevada Operations Office
DOE/HQ	U.S. Department of Energy/Headquarters
DPCU	Distributed Project Consolidation Utility
EIS	Environmental Impact Statement
EM	Environmental Management (Program)
EOD	Explosives Ordnance Disposal
FCC	Financial Change Control
FIS	Financial Information System
FY	fiscal year
LAN	Local Area Network
LCAM	Life Cycle Asset Management
LLW	Low-Level Waste
M&O	Management and Operating (contractor)
MLLW	Mixed Low-Level Waste
NDEP	Nevada Division of Environmental Protection
NPMIS	Nevada Project Management Information System
OSHA	Occupational Safety and Health Administration
PA	Performance Assessment
PBS	Project Baseline Summary
PEIS	Programmatic Environmental Impact Statement
PEP	Project Execution Plan
PMISG	Project Management Information System Group
PTS	Progress Tracking System
QA	Quality Assurance
RAM	Responsibility Assignment Matrix
RCRA	Resource Conservation and Recovery Act
RWMS	Radioactive Waste Management Site
SC	Site Characterization
SSHASP	Site-Specific Health and Safety Plan
TRU/MTRU	Transuranic/Mixed Transuranic (waste)
TSCA	Toxic Substances Control Act
VAR	Variance Analysis Report
WBS	Work Breakdown Structure
WIPP	Waste Isolation Pilot Plant

List of Acronyms and Abbreviations

WM	Waste Management
WMD	Waste Management Division (DOE / NV)
WSI	Wackenhut Services, Inc.

1.0 MISSION NEED

The U.S. Department of Energy's (DOE's) Environmental Management (EM) programs, created in 1989, have grown rapidly to address the environmental liabilities of over 50 years of nuclear weapons production in the United States. The environmental liabilities include future cleanup costs associated with environmental contamination, hazardous and radioactive materials and wastes, contaminated buildings and facilities, and the associated risks. The costs are collectively referred to as the Department's "environmental mortgage." The EM Program is embarked on an ambitious, decade-long effort to reduce this environmental mortgage.

The mission of the DOE Nevada Operations Office (NV) Waste Management Division (WMD) is to provide safe, cost-effective, and environmentally sound hazardous and radioactive waste operational, technical, and transportation planning services to our customers, while protecting the public, workers, and the environment. This mission will be accomplished by adhering to the following core values:

- Ensure protection of workers, the public, and the environment;
- Serve as a model steward of natural and cultural resources;
- Comply with federal, state, and local statutes;
- Use taxpayers' money prudently in achieving tangible results; and
- Focus on customer satisfaction and collaborative decision-making.

Facilities supporting the DOE/NV WMD mission include the Areas 3 and 5 Radioactive Waste Management Sites (RWMSs) located on the NTS, and the Area 11 Explosive Ordnance Disposal (EOD) Unit. Waste management activities conducted at these facilities include the disposal of low-level waste (LLW), the storage and disposal of mixed low-level waste (MLLW), the storage of transuranic (TRU) wastes, the storage of nonradioactive hazardous waste, and the thermal treatment of waste explosives. These waste management activities are conducted at four primary locations on the NTS.

- Area 3 RWMS – This approximately 128-acre site is used for the disposal of LLW.
- Area 5 RWMS – This approximately 732-acre site is used for the storage of MLLW and TRU wastes, and for the disposal of LLW and MLLW. Approximately 92 acres of the site is currently used for waste management disposal activities, including administrative and support facilities and the Waste Examination Facility used for the characterization of TRU waste.
- Area 5 Hazardous Waste Storage Unit – This unit is located near the Area 5 RWMS and is a Resource Conservation and Recovery Act (RCRA)-permitted unit used to store nonradioactive hazardous waste.
- Area 11 EOD Unit – This unit is a RCRA-permitted facility used for thermal treatment of waste explosives.

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2.0 PROJECT/STRATEGIC SYSTEM DESCRIPTION

The following is the Strategic System Description.

2.1 Purpose and Scope

Operations associated with the DOE nuclear testing, weapons production, and EM programs include the management of radioactive, hazardous, and mixed wastes. These waste management (WM) activities are the mission of the DOE/NV WMD and are addressed in this Project Execution Plan (PEP). It is the intent of the DOE/NV WMD to execute an effective WM program that satisfies all applicable codes, standards, and DOE Orders.

In addition to managing on-site generated wastes, DOE/NV receives, stores, and disposes of LLW waste from approved generators throughout the DOE complex at waste management facilities located on the NTS.

2.2 Project Description

For over 40 years, the primary mission of the DOE/NV was to conduct tests of both nuclear and conventional explosives in connection with the research and development of nuclear weapons. Field testing was primarily conducted at the Nevada Test Site (NTS) (Figure 2-1). In addition to weapons tests, the NTS has also hosted secondary missions including neutron and gamma-ray interaction studies; open-air nuclear reactor, nuclear engine, and nuclear furnace tests; hazardous materials spill response testing; and experiments involving radioactive and nonradioactive materials conducted by the U.S. Department of Defense (DoD). In the 1950s, atmospheric tests were the predominant NTS activity. Atmospheric testing of nuclear weapons ceased in 1963, and off-site tests

ceased in 1973. Since July 1962, all nuclear tests conducted at the NTS had been underground. Underground nuclear testing was suspended in October 1992, although a readiness posture is maintained by presidential mandate.

The DOE EM Program was established in 1989 at DOE offices around the country to address environmental liabilities associated with nuclear weapons production and testing in the United States. Within DOE EM, the Environmental Restoration Program encompasses activities that assess the degree of contamination resulting from the testing program and performs corrective actions required by federal and state regulations. DOE/NV environmental restoration activities fall under the purview of the DOE/NV Environmental Restoration Division.

The Waste Management Program was formally established at the NTS in 1978. Prior to this date, waste at the NTS was being disposed in an informal manner. Waste records reflect the receipt of waste in the Area 5 RWMS as far back as 1960. However, in 1978, funding was received to establish a program to manage the receipt and storage or disposal of waste from waste generators on and off the NTS.

Funding records also reflect the active use of subsidence craters U3ax and U3bl (in what is now known as the Area 3 RWMS) as a location for disposal of waste debris from the tower or atmospheric nuclear test activity that had taken place on the NTS in the 1960s. The formal name for this work was the NTS Radioactive Waste Consolidation Project.

Transuranic waste was received as early as 1974 from Lawrence Livermore National Laboratory to place in storage at what is now known as the Area 5 RWMS. Similarly,

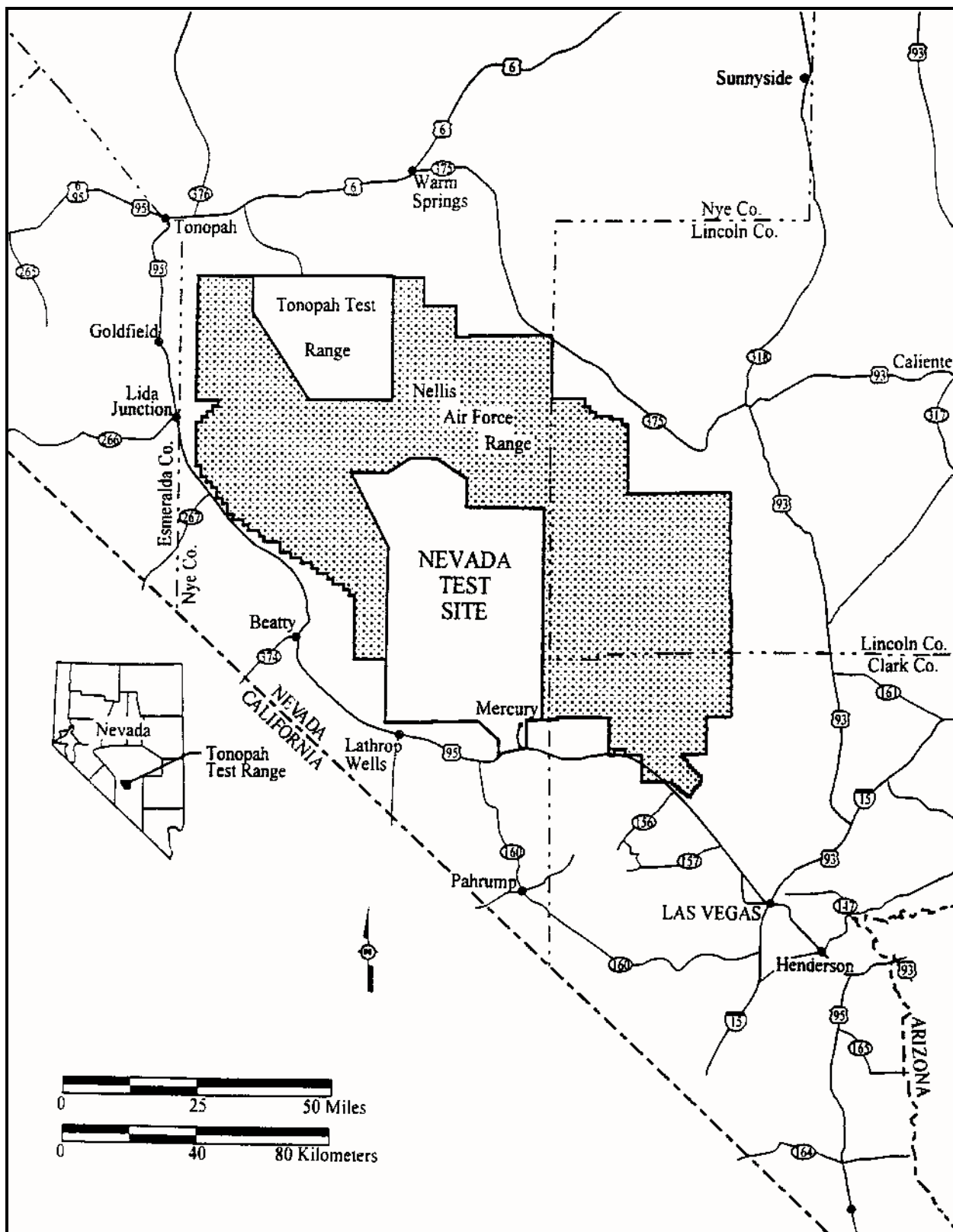


Figure 2-1
Nevada Test Site Location Map

records show that some high-specific activity tritium waste was received from the Mound Laboratory in 1976 and 1977. These early waste receipts and the unique characteristics present at the NTS for waste disposal prompted early studies that supported the development of a formal program for waste disposal (*An Assessment of the Nevada Test Site for Low-Level Waste Management*, NVO-193, February 1, 1978; and *A Preliminary Study of Low-Level Waste Disposal at the Nevada Test Site*, October 1, 1978).

2.3 Participants

There are a number of organizations and government entities involved directly or indirectly with assisting the DOE/NV WMD in the execution of its responsibilities. The WMD is assisted in carrying out Baseline tasks by Bechtel Nevada (BN), the DOE/NV Management and Operating (M&O) contractor; support services contractors (i.e., HAZMED, Professional Analysis, Inc.); and a number of other organizations providing technical support to the program (i.e., Argonne National Laboratory, Sandia National Laboratories, Wackenhut Services, Inc. [WSI], Desert Research Institute, IT Corporation, and the University of Nevada system). A Responsibility Assignment Matrix (RAM) is shown in Figure 2-2 which describes what portion of work each contractor performs.

There are currently 15 waste generators who are approved under the NTS Environmental Impact Statement (EIS) (DOE, 1996) to ship LLW for disposal at the NTS (Figure 2-3):

- Aberdeen Proving Ground, Aberdeen, Maryland
- Honeywell-FM&T, Kansas City, Missouri
- Bechtel Nevada, Las Vegas, Nevada

- Boeing-Canoga Park, Canoga Park, California
- Fernald Environmental Management Project, Cincinnati, Ohio
- General Atomics, San Diego, California
- IT Corporation, Las Vegas, Nevada
- Lawrence Livermore National Laboratory, Livermore, California
- Lovelace Respiratory Research Institute, Albuquerque, New Mexico
- Mound Plant, Miamisburg, Ohio
- Pantex Plant, Amarillo, Texas
- RMI Environmental Services, Ashtabula, Ohio
- Rocky Flats Plant, Golden, Colorado
- Sandia National Laboratories, Livermore, California; and Albuquerque, New Mexico

Additional waste generators may or may not be added in the near term based on the Programmatic Environmental Impact Statement (PEIS) Record of Decision to use the NTS waste disposal facilities as one of the favored PEIS options.

2.4 Regulatory Guidelines

DOE/NV is required by the FFCAct Consent Order to submit an annual update of the Nevada Test Site – Site Treatment Plan to the Nevada Division of Environmental Protection. A Site Treatment Plan is required for facilities at which the DOE/NV generates or stores MLLW. MTRU waste information reported in the Annual Update meets the annual reporting requirement set forth in the Settlement Agreement between the Nevada Division of Environmental Protection and DOE/NV.

The WMD is regulated under DOE Order O435.1, “Radioactive Waste Management” (DOE, 1999b). This Order, which became effective in July 1999, controls the regulation of LLW, MLLW, and TRU waste.

PROGRAM	DOE PM	BN	Others*
Low-Level Waste	Wendy Clayton		
LLW Treatment			
LLW Storage			
Waste Generator Program		X	
LLW Disposal			
Performance Assessment (PA)		X	X
Site Characterization (SC)		X	X
LLW Closures		X	X
Environmental Monitoring		X	X
Construction		X	
Capital Equipment		X	
LLW Program		X	
LLW Disposal Operations		X	
Mixed Low-Level Waste (MLLW)	Angela Colarusso		
MLLW Treatment			
Site Treatment Plan		X	
Mutual Consent Agreement		X	
MLLW Storage		X	
MLLW Disposal		X	
Transuranic/Mixed Transuranic (TRU/MTRU) Waste	Angela Colarusso		
TRU/MTRU Treatment			
TRU/MTRU Storage			
TRU/MTRU Storage Operations		X	
Waste Examination Facility Operations		X	
Classified TRU		X	
TRU/MTRU Disposal			
TRU/MTRU PA/SC		X	X

*Others include Sandia, DRI, Argonne, etc.

Figure 2-2
Responsibility Assignment Matrix

Current NTS Approved LLW Generators

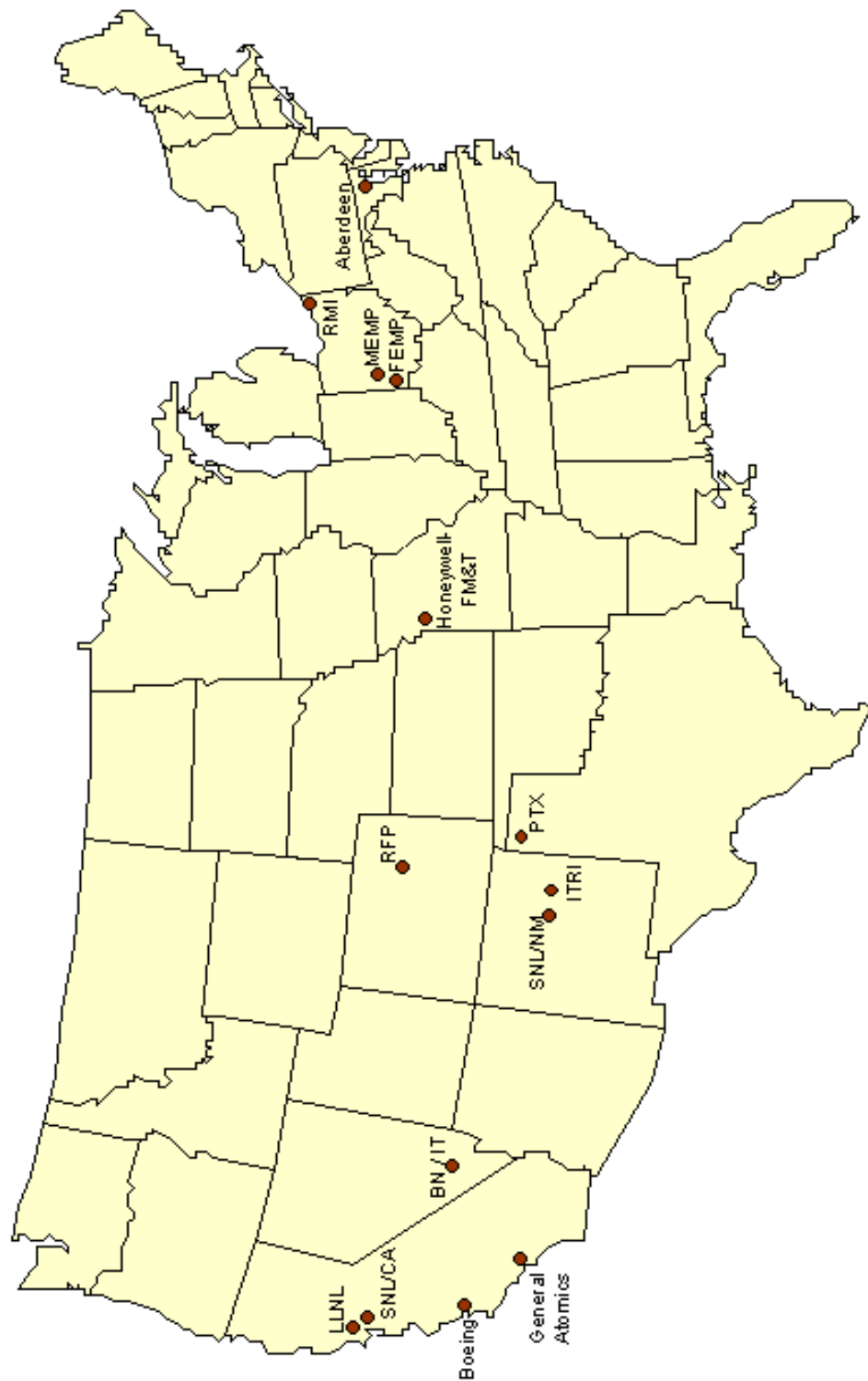


Figure 2-3
Current NTS Approved LLW Generators

Regulatory guidelines that also affect the technical objectives include, but are not limited to, the Resource Conservation and Recovery Act (RCRA) (Code of Federal Regulations [CFR], 1996), the Toxic Substances Control Act (TSCA), Occupational Safety and Health Administration (OSHA) regulations, the Hazardous and Solid

Waste Amendments to RCRA, the National Environmental Policy Act (1969), and applicable state of Nevada statutes and administrative codes.

3.0 OBJECTIVES

3.1 Waste Management Objectives

Waste operations at the NTS are best described by waste types. These operations include the storage of TRU waste, and the disposal of both LLW and MLLW.

The primary focus of the DOE/NV EM strategic plan is to remove waste from storage and into proper treatment and disposal. This philosophy drives the emphasis of getting NTS TRU waste shipped to the Waste Isolation Pilot Plant (WIPP) near Carlsbad, New Mexico, and the furtherance of treatment and disposal of NTS MLLW. Specifically, the objectives also include:

- The storage and on-site disposal of LLW for the NTS and other facilities throughout the DOE Complex;
- The storage, treatment, and disposal of MLLW generated on the NTS;
- The storage and disposal of TRU waste currently in storage at the NTS; and
- The storage/accumulation and ultimate disposal (at off-site facilities) of hazardous waste generated at the NTS and surrounding DoD facilities (this is a chargeback operation).

Supporting the overall objective are project-specific objectives that are discussed in detail in the following sections.

3.1.1 Technical Objectives

The technical objectives of the WMD are:

- Maintain an approved Performance Assessment.

- Conduct environmental monitoring to include shallow and deep vadose zone monitoring; deep vadose zone monitoring at Pilot Wells 1, 2, and 3; groundwater monitoring at Pilot Wells 1, 2, and 3; air monitoring; and meteorological and water balance monitoring.
- Continue development of new and innovative disposal activities including cost estimating and cost control techniques and schedules to enhance activity leveling.
- Characterization.
- Disposal practices, including data validation and evaluation.

3.1.2 Schedule Objectives

This document was prepared in support of DOE EM objectives. Specific schedule objectives are contained within the DOE/NV WMD Life Cycle Baseline.

3.1.3 Cost Objectives

The cost objective for the DOE/NV WMD is to complete project activities within identified funding levels. Accuracy of currently identified costs is dependent on future waste volumes received, regulatory interpretations, and facilities actions. Total project costs based on available data are part of the DOE/NV WMD Life Cycle Baseline.

The methodology used to develop the DOE/NV WMD Life Cycle Baseline was as follows:

- Activity-based cost estimates for fiscal year (FY) + 2 period were used, based upon expert judgment for outyears.
- Cost models based on experience gained from past years.

- All costs within the Life Cycle Baseline data base are in nonescalated current (FY 2000) dollars.

3.1.4 Environmental, Health, and Safety Objectives

The DOE/NV WMD is committed to ensuring that risks to the environment and to human health and safety are either eliminated or reduced to acceptable levels. All work performed will be consistent with regulatory requirements and agreements, and applicable DOE Orders.

3.1.5 Quality Assurance Objectives

The overall quality assurance (QA) objective of the DOE/NV WMD is to ensure compliance with applicable QA requirements. All QA manuals and procedures will be consistent with current DOE Orders, American National Standards Institute's (ANSI) *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Equipment Technology Programs* (ANSI, 1994), and applicable state requirements.

3.1.6 Project Management Objectives

DOE Order O430.1A, "Life Cycle Asset Management" (LCAM) (DOE, 1998a), is the

DOE's directive for implementing project management principles. The LCAM is transitioning the management of projects from a compliance-based system to a performance-based system. In support of the LCAM, the Nevada Project Management Information System (NPMIS) is used to control the activities within the WMD. The WMD Work Breakdown Structure (WBS) established the basis for required project management and control systems. A RAM for the project has been established (*Figure 2-2*) to ensure direct DOE project management control over the contractors through all elements of the WBS. Project progress is measured against cost and schedule parameters developed within the framework of the WBS, subject to approval levels established in the Baseline Change Control process. These parameters will be used as the criteria for measuring performance and determining the need for control actions by successively higher levels of management.

4.0 PROJECT ORGANIZATION

4.1 Project Team and Organizational Interfaces

The WMD team is composed of organizations from the public and private sectors. Figures 4-1 and 4-2 show the overall DOE/NV organization and the DOE/NV WMD organizational structures, respectively. Additional descriptions of the participants and their roles can be found below.

4.1.1 U.S. Department of Energy/Nevada Operations Office Participants

- Office of Assistant Manager for Environmental Management – Develops policies and procedures and provides the programmatic planing and centralized management for all DOE/NV EM activities. These activities are assigned to DOE/NV by the DOE Headquarters (DOE/HQ) Assistant Secretary for Environmental Management and include assessments and Corrective Actions.
- Office of Assistant Manager for Technical Services – Develops, interprets, and provides matrix support for Environmental, Safety, and Health and safeguards and security policies, procedures, and practices to ensure DOE/NV operations are conducted in a manner that complies with statutes, regulations, Orders, mandated standards, and DOE/HQ program direction.
- Assistant Manager for Business and Financial Services – Responsible for ensuring the financial integrity of DOE/NV by developing and implementing appropriate policies and procedures to provide advice and assistance for effective management of DOE/NV finances and related activities. In addition, this office develops and maintains integrated financial accounting and financial management systems and provides oversight of all financial management activities relating to programs and operations.
- Office of the Assistant Manager for National Security – Assures that missions are successfully accomplished in a manner that protects the health and safety of workers, the public, and the environment; and promotes public trust. This Office provides the programmatic direction and technical project management necessary to maintain nuclear test capability, support field experiments gathering stockpile related physics data, operates the Hazardous Materials Spill Center, manages key elements of national nuclear emergency response, hosts DoD and DTRA special projects, and provides federal presence, intelligence support, and oversight to NTS programmatic and operational functions.
- Office of the Assistant Manager for Public and Institutional Affairs – Provides support that promotes public trust of DOE/NV missions. This office provides for the programmatic direction and technical project management necessary to ensure Total Quality Management, Affirmative Employment, appropriate news media coverage, community outreach, oversight of the Community Reuse Organization, coordination of land use planning and project siting, and promotes program diversification both on and off the NTS.
- Other DOE/NV Organizations – Provide advice and guidance to ensure that all DOE policies, requirements, and procedures are met. Also provide matrixed support in specialized areas such as information management, security, and procurement.

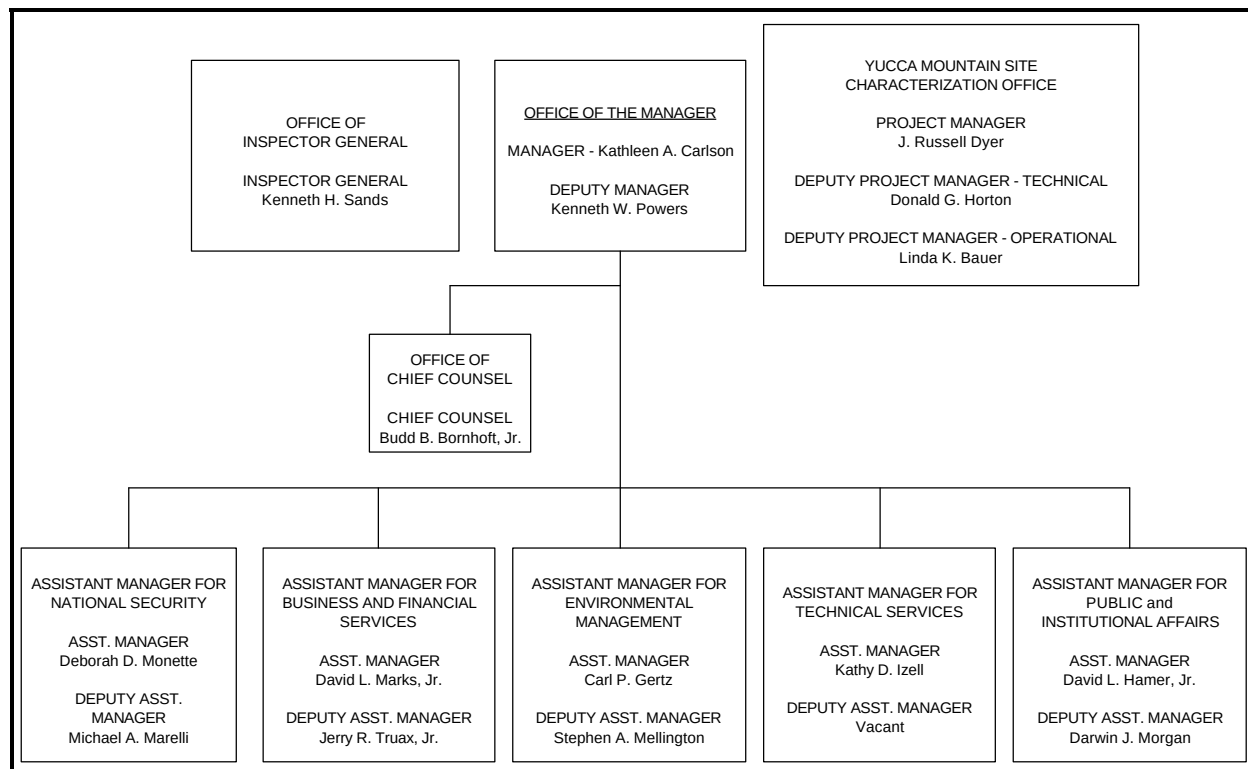


Figure 4-1
DOE Nevada Operations Office Organizational Structure

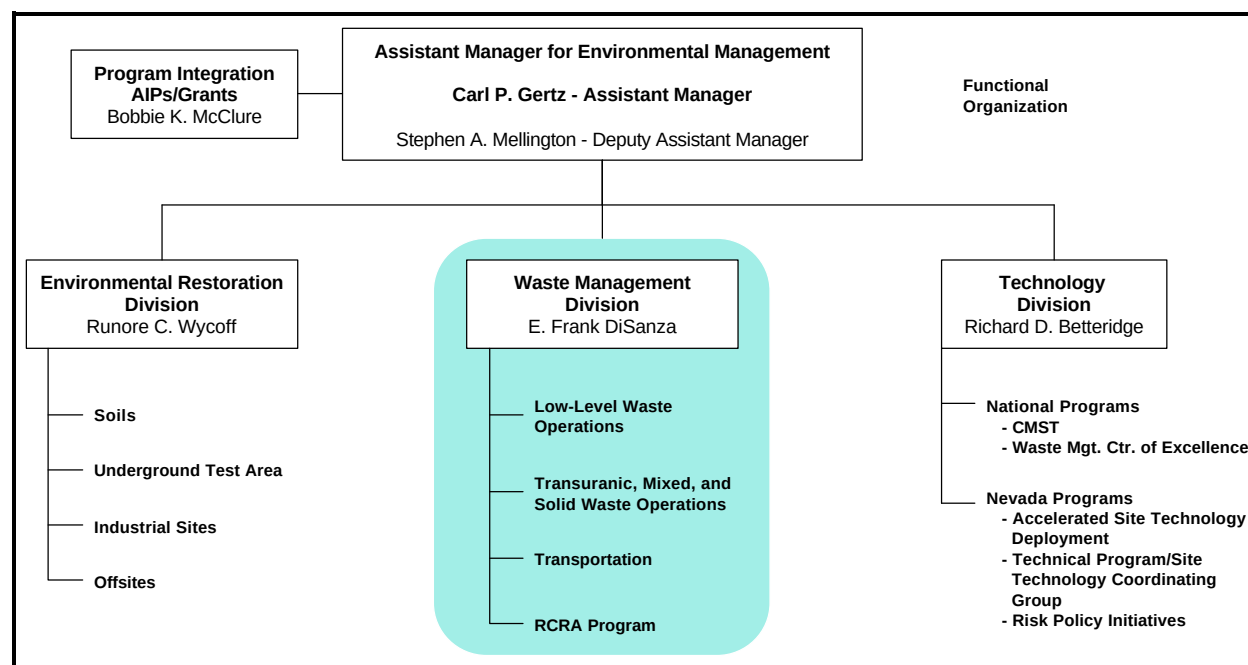


Figure 4-2
DOE Nevada Waste Management Division Organizational Structure

4.1.2 Other Project Participants

Several organizations share responsibilities in the DOE/NV WMD:

- Bechtel Nevada – Accepts role of M&O contractor for all waste management work. BN provides administrative support, technical expertise, operations management, and regulatory advice to WMD in all waste management matters.
- Sandia National Laboratories – Provides assistance to WMD in the preparation of a PA (and associated documentation) on the buried TRU waste. Also provides technical expertise in support of BN in the LLW PA(s).
- Desert Research Institute – Provides technical support and consultation, including laboratory and field analytical support in the areas of PA, SC, closure, and environmental monitoring.
- Wackenhut Services, Inc. – Provides security services for DOE/NV facilities; specifically, conducts routine patrols of

both waste management facilities.

- Community Advisory Board – This stakeholder organization provides recommendations and advice to resolve difficult issues within environmental restoration activities, including site-specific cleanup criteria and risk assessment, land use, priority setting, management effectiveness, cost-versus-benefit analysis, and strategies for site waste management and disposal facilities.
- Nevada Division of Environmental Protection (NDEP) – The state of Nevada Division of Environmental Protection has regulatory and oversight responsibility for Nevada. The NDEP ensures that the impacts associated with the release of hazardous substances, pollutants, solid wastes, and hazardous waste into the environment are thoroughly investigated and remediated per applicable regulations and agreements.

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5.0 PUBLIC PARTICIPATION

The public's interest in past, present, and future activities at the NTS has increased. To keep interested parties informed, the following efforts have been undertaken:

- A Community Advisory Board for NTS programs, comprised of local and affected stakeholders, has been established. The board addresses and provides advice to the DOE on environmental restoration, waste management, and technology development issues.
- Numerous fact sheets are available to the public that explain environmental restoration, waste management, and technology development activities.
- The *Environmental Management Update*, a publication dealing with environmental restoration and waste management activities, is distributed to stakeholders in Nevada and other affected areas.
- Tours of the NTS are conducted for environmental and leadership groups; legislative bodies; media; federal, state, and local agencies; and other members of

the public.

- Applicable documents are issued to stakeholders for their review.
- A DOE/NV EM Exhibits Program provides local and state governments, universities, and the general public with portable exhibits that can be set up and staffed at a variety of locations including libraries, shopping malls, city halls, and other locations.
- An EM Speakers Bureau provides audiences with information about environmental restoration, waste management, and technology development activities.
- Community interviews were conducted in the spring of 1994 to gain a better understanding of the public's attitudes, opinions, and knowledge of DOE/NV environmental management activities.
- Public meetings are held periodically to discuss the DOE/NV EM Program, including issues such as budgets, priorities, and transportation of waste.

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6.0 WASTE MANAGEMENT STRATEGY

6.1 Introduction

The strategy for waste management is based on the DOE EM Program vision to serve as a major waste disposal facility for the DOE Complex. To implement this vision, programmatic assumptions were developed to guide all sites in developing their specific plans.

6.2 National Program Assumptions

- DOE/EM Program-level funding at \$5.75 billion per year (unless additional resources are required for compliance) will be required from FY 1999 through program completion.
- A stable scope of facilities will be addressed in the EM baselines.
- After FY 2000, newly generated waste will be the responsibility of the DOE programs that generated it.
- The WIPP will continue to receive TRU waste.
- Recognize the value of strong stakeholder involvement in the planning and understanding of the decisions to be made.

6.3 Site-Specific Program Assumptions

- Institutional control of the NTS is assumed to continue in perpetuity during the life cycle of this program.
- Significant programmatic changes will

not occur during the foreseeable future and funding will be received as identified in project and programmatic baselines.

- Regulatory requirements will not change significantly during the life cycle of DOE/NV projects. Mixed and hazardous waste project activities will continue to be driven primarily by RCRA.
- The waste disposal facilities located at Areas 3 and 5 on the NTS will continue to receive LLW from currently approved generators.
- The DOE Complex will continue environmental restoration activities and the NTS will continue as a Complex-wide LLW disposal site through at least FY 2010, receiving waste from on-site operations and other designated DOE Complex facilities. After FY 2010, the landlord may continue LLW disposal activities at NTS.
- The legacy MLLW currently stored at the NTS will be treated off site and disposed by 2001.
- Most NTS MLLW generated in the future is expected to be derived primarily from deactivation and decommissioning activities. MLLW generated on site will be stored on the Area 5 TRU Pad under the existing Mutual Consent Agreement, prior to treatment, if waste does not meet Land Disposal Restrictions, and a suitable treatment option is not immediately available.
- By FY 2009, the legacy TRU currently stored at the NTS will be shipped off site.

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7.0 PROJECT SCHEDULE AND CONTROL

Project Management, Measurement, and Planning and Control Systems

Project management, progress measurement, control, and reporting of project activities to DOE/HQ is structured by the WBS. The DOE/NV WMD project activities are planned, managed, measured, controlled, and reported through the NPMIS.

7.1 Work Authorization

The DOE/HQ has established a number of policies and requirements that govern project work. Planning processes include development of Project Baseline Summary Sheets, Life Cycle Project Baselines, and Task Plans. These processes involve establishing work scope, resource requirements, schedules, and milestones; identifying project assumptions, issues, and constraints; and specifying project control parameters. Project control functions established by DOE/HQ include issuance of performance measurements which identify performance that DOE/HQ wishes to track within EM programs at the field level.

Authorization of work scope for the DOE/NV WMD is a process that combines planning, cost estimation, budget allocation, and budget approval processes. Work scope at this level is accomplished through task agreement plans that establish the scope, costs, schedule, milestones, and spending plan for specific work to be accomplished by a contractor or user organization within a given fiscal year. Upon approval of the task agreement plans, work scope is incorporated into Task Orders that become a contractor's programmatic authorization to perform work for the project. Modifications to task plans

are through formal change control processes.

7.2 Funds Management

Cost estimates within task plans follow guidance established in the following documents:

- *EM CAT Handbook* (DOE, 1990)
- *Cost Estimating – Office of Infrastructure Acquisition*, (DOE, 1994b)

Cost estimates form the basis for budget requests. The annual budget request considers both the required resources and the annual distribution of the estimated costs with the *Paths to Closure* document. Budget formulation and execution are accomplished in accordance with DOE Order O130.1, "Budget Formulation Process" (DOE, 1995). Upon designation of funding by DOE/HQ EM, the work authorization is reviewed and revised, as applicable, based on the funding received. Allocated funds are tracked by DOE/HQ through the *Paths to Closure* process. The DOE/NV WMD input to the system is coordinated with the DOE/NV Resource Management Division to ensure that reported funds reflect information in the Financial Information System.

7.3 Performance Measurement and Control

Performance measurement consists of monitoring progress against the established project baselines, analyzing variances and the impacts of variances, and implementing corrective actions. The project life cycle baselines and Task Agreement Plans provide the basis against which project performance is measured and controlled. The DOE/NV NPMIS provides the foundation for reporting information to DOE/HQ.

The task planning effort establishes the baseline scope, budget, and schedule for each task where contractor performance is

measured and controlled for the current year. The NPMIS is depicted in Figure 7-1. Contractors are responsible for monitoring performance on assigned tasks and reporting to DOE/NV on a monthly basis. Contractor performance measurement and control systems retain flexibility, but must be capable of providing the following information at a minimum:

- Cost Performance
 - Budgeted cost of work scheduled
 - Actual cost of work performed
 - Budgeted cost of work performed (earned value)
 - Cost variances
 - Estimates at completion
 - Variance analysis
- Schedule Performance
 - Approved baseline schedule
 - Schedule variances
 - Major commitment tracking
 - Milestone tracking

Specific performance measurement and control requirements are contained in DOE Order O430.1A (DOE, 1998a) and are further defined in the *Joint Program Office Direction on Project Management in Support of DOE Order O430.1* (DOE, 1996a).

The DOE/NV WMD total project cost and the baseline schedules are depicted in the Life Cycle Baseline.

All contractor reporting must be consistent with the project's WBS. Variances from

baseline budgets and schedules are reported using a Variance Analysis Report, in addition to a recommended corrective action or proposed change control action.

The WBS depicts the Statement of Work in a hierarchy in which the work is subdivided into increasingly detailed work elements or tasks containing each successive lower level of the hierarchy. The WBS breaks down the Statement of Work to the level of detail where responsibility for performance of the work is assigned to individual contractors. Each WBS work element is assigned a unique number that readily identifies that work element in the total WBS. The WBS numbering system logically relates lower-level work elements to their upper-level parent elements. The WBS is depicted in Figure 7-2. The WBS Dictionary describes the content of each work element in the WBS, and lists the WBS element code, title, index line number, revision number and authorization, approved changes, and element task description which describes the work to be performed.

Centralized sitewide systems for performance measurement, baseline management and change control, policies and procedures, and DOE/HQ reporting requirements have been developed and are being used to track and control thresholds.

Monthly performance data is reviewed by the project managers, the Division Director, and the DOE/HQ EM Site Lead Team to identify potential impacts to technical requirements criteria, the validity of cost estimates, necessary corrective actions for significant variances, and the progress of critical-path activities within the project. Quarterly reports are also prepared to detail project progress against the approved project baseline.

The DOE/HQ EM Site Lead Team conducts midyear and year-end reviews to assess project status, identify current or impending problems, establish preliminary requirements for the upcoming year, and

identify areas where management assistance would be beneficial. Midyear reviews examine the progress of all activities and their impact on accomplishing approved project plans.

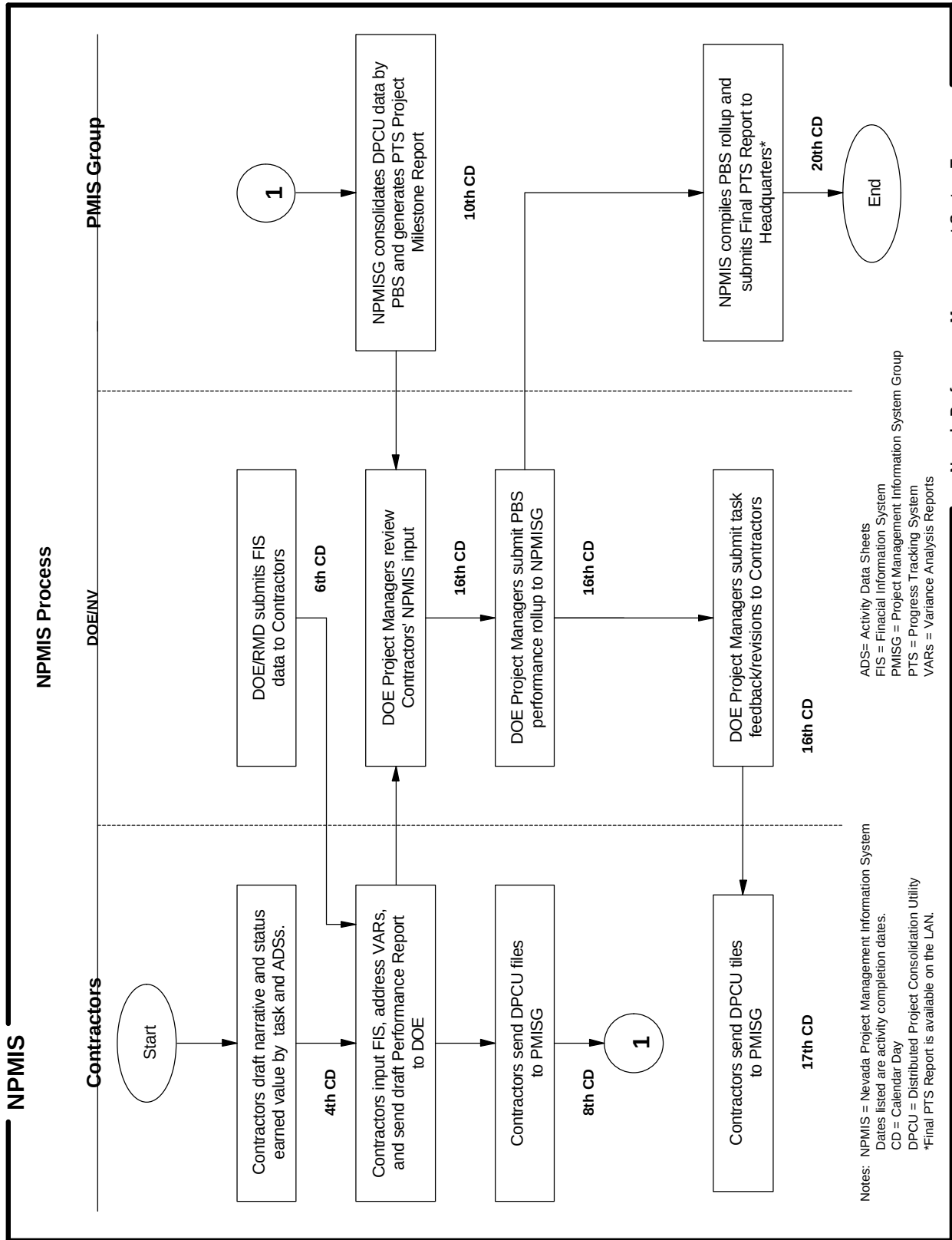


Figure 7-1
 Nevada Project Management Information System Process

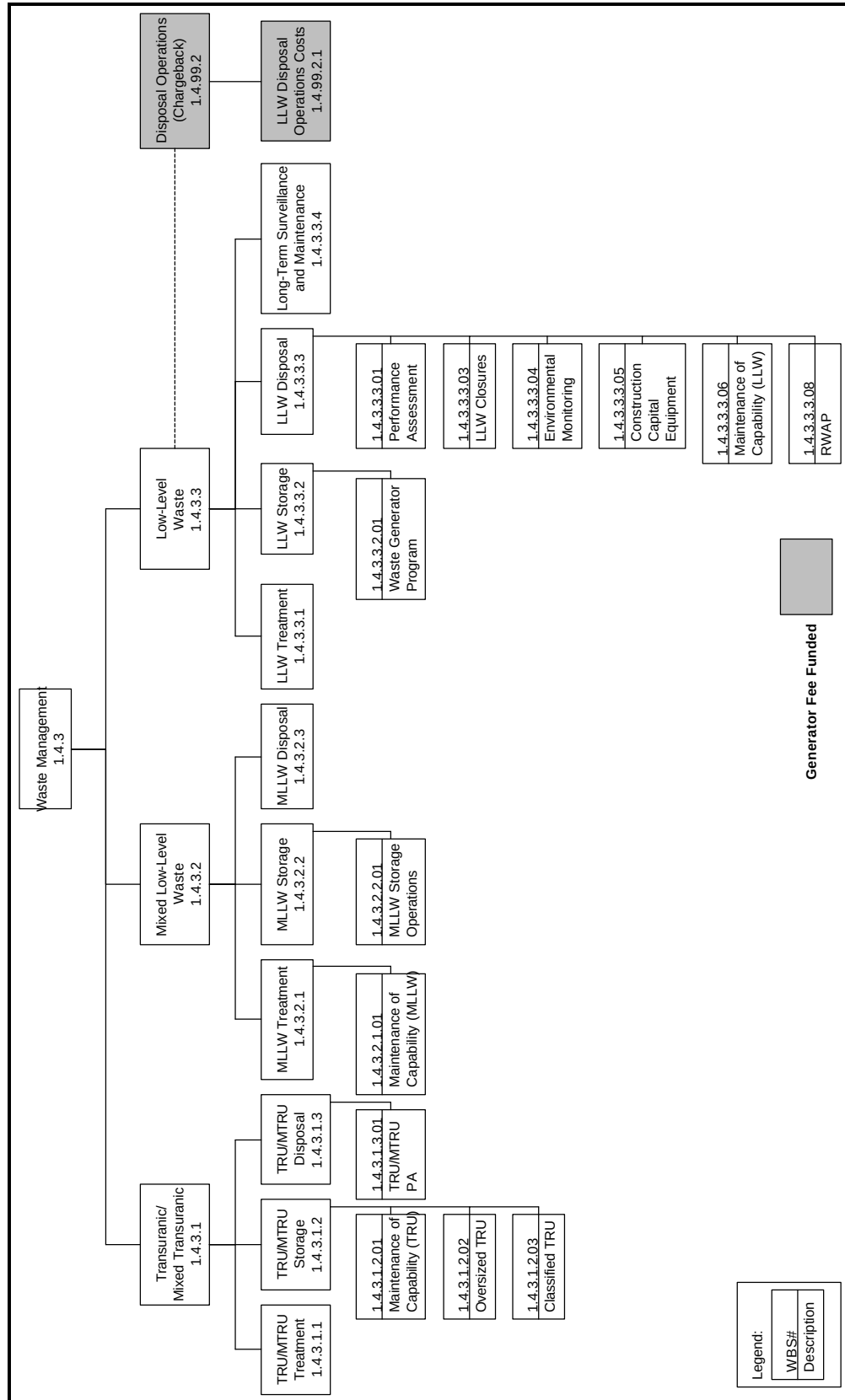


Figure 7-2
DOE/NV Waste Management Project Work Breakdown Structure

Year-end reviews document completed work and detail plans and related funding for the upcoming year.

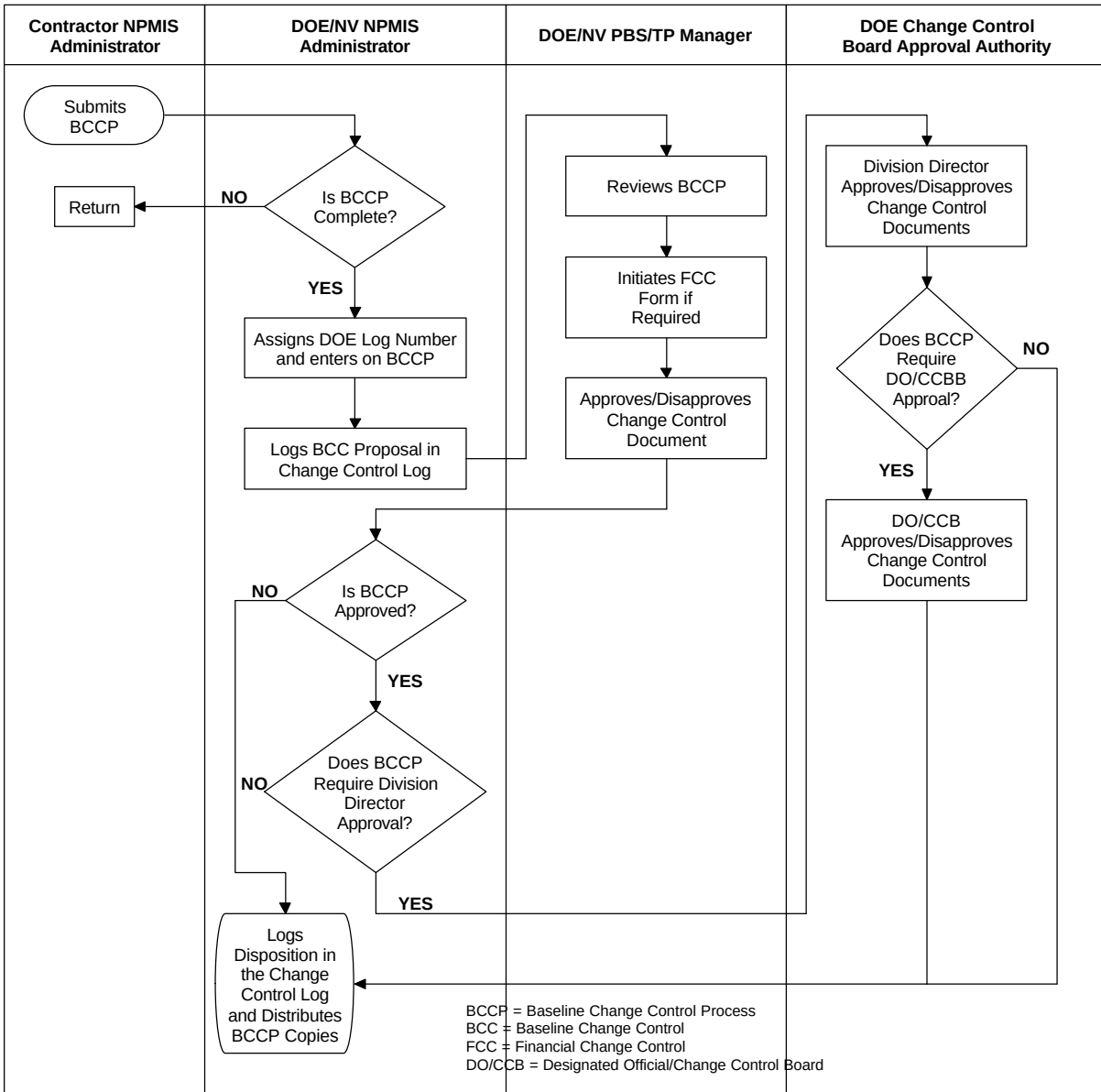
7.3.1 Change Control

Baseline management is part of a planned program to monitor and control project performance. The process designates variance thresholds above which approvals must be secured, as well as the procedural requirements for securing the approvals. Thresholds and approvals vary for the level of the WBS at which the change occurs. When actual or projected variances exceed the variance thresholds for an approved cost, schedule, or technical baseline, formal baseline change control action is initiated in response to requirements established in *Baseline Change Control* (AMEM-02-003, 1999).

Approved changes are incorporated in the NPMIS to ensure that performance measurement for the project reflects the most current cost, schedule, and technical status. The process for change is outlined in Figure 7-3. The approval authority and threshold level are established in the Assistant Manager for Environmental Management Baseline Change Control Process.

Upon approval of the change request, a Task Order Change Order is issued to the contractor. Contractors are not to proceed with any out-of-scope work that is the subject of a change request until the Change Order is issued by DOE/NV.

Contractor-requested changes at the task level are reviewed by the Contractor's Change Control Board and the DOE/NV Project Manager.



**Figure 7-3
Baseline Change Control Process Flowchart**

8.0 OPERATIONAL READINESS

8.1 Definition

Operational readiness is a systematic, documented review of the readiness for startup of a facility, process, or activity. The purpose is to provide a framework for an integrated team effort to effectively complete the task Statement of Work. The DOE/NV WMD Project Managers are responsible for ensuring that operational readiness reviews are properly developed, conducted, and documented.

8.2 Oversight

The Project Manager or Supervisor will conduct a site survey to ensure that plans and procedures are appropriate and that the requirements contained therein can be implemented. At a minimum, the following activities shall be performed prior to initiation of field work:

- Identify required resources (e.g., personnel, equipment, and material) and ensure availability.
- Verify that personnel performing the work have a copy of all appropriate work instructions and procedures, including any applicable change notices.
- Prepare a required-reading checklist for project personnel.
- Verify that all periodic calibrations and calibration standards used for measuring and test equipment are current and that all calibration and maintenance documentation is on file.
- Verify that proper work authorizations, permits, and site access have been obtained.

- Assemble the necessary equipment, material, and forms.
- Assemble copies of the approved project plans.

8.3 Readiness Review and Determination

Readiness reviews shall verify that all planning documents and systems are formally approved and in place for the successful and efficient accomplishment of the project objectives. A readiness review checklist shall be completed to document the performance of a readiness review. At a minimum, the Project Manager or a designee shall accomplish the following:

- Review the project plans, the Site-Specific Health and Safety Plan (SSHASP), the QA Program Plan, and any applicable procedures to ensure that they are appropriate for the planned activities.
- Verify that variances to procedures and plans are documented on the applicable contractor's Change Notice Process.
- Review the qualifications of potential field personnel to verify that the personnel selected are qualified to perform their assigned duties and that documentation of qualifications is on file.
- Verify that subcontractors have been prequalified by Health and Safety and QA.
- Verify that subcontractors have had the necessary training and that any required certifications/documentation are in the project files.

8.4 Prefield Briefing

A prefield briefing shall be conducted prior to commencement of field activities. At a

minimum, the prefield briefing shall be attended by appropriate personnel, such as project management, project field personnel, any subcontractors involved in the project, a health and safety representative, and a QA representative. Prefield briefings shall be documented on a prefield briefing summary form. The prefield briefing should:

- Present a brief overview of the project and the objectives of the upcoming field activity.
- Establish a clear line of communication for questions or problems that may arise in the field.
- Review the SSHASP and ensure that all personnel sign the plan.
- Identify the means of emergency communication and “walk-through” emergency actions, as identified in the SSHASP.
- Review QA requirements and quality control activities to be performed.
- If appropriate, conduct “dry runs” or “mockups” to demonstrate that health and safety, QA, and activity-related procedures are suitable.
- Define what activities each team or individual shall be responsible for

performing. Include contingency plans for reassignment of duties.

- Discuss the work site (a map is desirable) and each location where activity is to take place. Discuss any constraints the site may present.
- For sampling activities, identify what samples are to be collected at each sample location, the number of samples to be collected, and the sample types and analyses. Review the sampling technique to be implemented.
- Identify what equipment requires field decontamination, where decontamination shall take place, and the logistics of the field decontamination process.
- Discuss any waste management issues.
- Identify, to the extent possible, any potential problems that may be encountered, and discuss possible contingencies.
- Discuss any lessons learned from prior field activities or similar events involving other projects.
- Review information required on field documentation and discuss how field variances to plans and procedures should be executed.

9.0 ENVIRONMENTAL SAFETY AND HEALTH

The elements of the environmental safety and health program are discussed in the following subparagraphs.

9.1 Plans and Guidance

Federal and state regulations, DOE Orders and guidance documents, and site-specific health standards mandate activities in this task. Guidance has been provided in the Health and Safety Plan which was written to comply with DOE Order O440.1, “Worker Protection Management for DOE Federal and Contractor Employees” (DOE, 1998b); DOE Order 5480.4, “Environmental Protection, Safety, and Health Protection Standards” (DOE, 1993a); DOE Order 5400.5, “Radiation Protection of the Public and the Environment” (DOE, 1993b); DOE Order 5480.23, “Nuclear Safety Analysis Reports” (DOE, 1994a); *OSHA Training Requirements for Hazardous Waste Operations* (DOE, 1991); OSHA regulations Titles 29 CFR 1910.120 and 1926.65 (CFR, 1998a); Title 49 CFR (CFR 1998b); and Title 10 CFR 1021 (CFR, 1995).

9.2 Work Performance

To ensure readiness prior to the start of work, Operational Readiness Reviews, hazard assessments, and as low as reasonably achievable reviews (when required by the *NV/YMP Radiological Control Manual* [Bechtel Nevada, 1999]) are conducted. Measures used to monitor the adequacy of health and safety controls include surveillance of works in progress by project management and health and safety personnel. Site monitoring is used to verify the effectiveness of contamination controls. If unforeseen health and safety hazards arise (not already covered by contingency planning), work activities are suspended

until the hazard is properly addressed by health and safety professionals. Stop Work Orders are issued in the event of an inherent hazard. Change control is a mechanism used to manage major project changes.

As a project progresses from planning through implementation to closure, resource allocation will necessarily shift. Health and safety resources necessary during the planning phase of a project may include industrial hygienists, health physicists, safety professionals, risk assessors, waste management specialists, health and safety and waste-handling training programs, and medical surveillance. During this phase, health and safety professionals ensure the project planned will be conducted in accordance with Title 29 CFR 1910 (CFR, 1998a), Title 29 CFR 1926 (CFR, 1998a), Title 49 CFR (CFR, 1998b), and Title 10 CFR 1021 (CFR, 1995) requirements. Resources necessary during the implementation phase will include industrial hygienists, health physicists, safety professionals, waste management specialists, monitoring technicians, internal and external dosimetry programs, respiratory protection programs, medical surveillance programs, personal protective equipment, and engineering controls. During the closure phase of a project, resources may include industrial hygienists, health physicists, safety professionals, waste management specialists, internal and external dosimetry programs, medical surveillance programs, and a records retention and management program.

9.3 Feedback and Continuous Improvement

Various assessments and surveys of project activities are performed to determine the adequacy and efficiency of performance, and to evaluate the success of an integrated health and safety approach. These

assessments and surveys involve oversight reviews, internal self-assessments, external inspections, and audits. This Integrated Safety Management program (and its attendant seven principles) has been adopted and is in use by DOE/NV. The assessments and surveys are conducted for both administrative functions and on-site field activities. Worker and management feedback is actively sought at all levels during these evaluations and is then directed at projected improvement. In addition, the feedback is shared with the involved personnel and evaluated for trends. Appropriate actions are then taken as needed, and ongoing monitoring is conducted to ensure success. Management also identifies areas for improvements based on overall performance. Workers are requested to identify additional

areas for improvement and to provide information and ideas for those improvements.

9.4 Risk Evaluation

Safety Analysis Reports, Auditable Safety Analyses, Site-Specific Safety and Health Plans, and Job Safety Analyses, as appropriate, are prepared for each project under the auspices of WMD. The appropriate level of evaluation is determined by the requirements of applicable codes, standards, and DOE Orders applicable to the project under consideration.

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