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April 2011

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Sandia National Laboratories, California Waste Management Program Annual Report
April 2011

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Abstract

The annual program report provides detailed information about all aspects of the Sandia National Laboratories, California (SNL/CA) Waste Management Program. It functions as supporting documentation to the SNL/CA Environmental Management System Program Manual. This annual program report describes the activities undertaken during the past year, and activities planned in future years to implement the Waste Management (WM) Program, one of six programs that supports environmental management at SNL/CA.

Acknowledgement

The author thanks Gary Shamber, Manager, Environmental Management Department, the Waste Management Program personnel and the Environmental Management Department personnel for their leadership, guidance and support in the responsible stewardship of the environmental resources in our care.

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0 Summary of Document Changes

Significant changes made to this update of the Waste Management Program Report are summarized in Table 0-1.

Table 0-1 Summary of Significant Changes to the Waste Management Program Report

Section	Page	Change
0	7	Summary of Document Changes updated
3.4	15	Expiration/Effective Dates updated in Table 3.1
7.1	24	Program Risk Assessment narrative updated
9.1	29	9.1 Follow-up on 2009 Program Assessments updated
10	30	Accomplishments updated
11	30	Goals and Objectives updated
App. A	37	Personnel Assignments updated
App. B	38	Waste Management Program Risk Assessment updated
App. C	45	Waste Management Program Quality Significant Purchases Determination updated
App. D	48	Waste Management Program Self-Assessment updated
App. E	49	Waste Management Program Self-Assessment Document Checklist updated

1 Program Description

The Waste Management (WM) Program is one of six programs under the Environmental Management Department at SNL/CA. The program oversees the management of hazardous, radioactive and mixed waste at SNL/CA. The WM Program is part of the corporate Sandia (SNL) WM Program. It is funded through an Integrated Enabling Services (IES) service center chargeback of the WM customers at SNL/CA.

This program description provides detailed information about all aspects of the WM Program activities. It functions as supporting documentation to the *SNL/CA EMS Program Manual.* The Program Description is updated annually to reflect the dynamic nature of program operations, accomplishments, and goals.

1.1 Hazardous Waste Management Process

The effective management of hazardous waste requires a strong partnership between the hazardous waste generators and WM personnel. Under the Resource Conservation, and Recovery Act (RCRA) and the California Health and Safety Code (H&SC) all hazardous waste generators are required to properly characterize, label, store, and dispose of their waste.

The management of hazardous waste begins with the process and trained personnel that generate the waste. Key to waste management is a generator that has knowledge of the process that generated the waste and the material composition of the waste. The generator on a Waste Description and Disposal Request (WDDR), usually using process knowledge, before WM personnel approve the characterization and pick up the waste. Once the waste meets the Waste Acceptance Criteria and is packaged and stored correctly for pickup, the waste is brought into the Waste Management Facility (WMF, Buildings 961/9611). In the WMF it is managed according

to regulatory requirements appropriate for that specific waste stream and packaged to meet all Department of Transportation (DOT) requirements for transport to the off-site Treatment, Storage and Disposal Facility (TSDF). Shipments are accompanied by a Uniform Hazardous Waste Manifest and Land Disposal Restriction (LDR) certifications, as needed. Receipts for wastes received at off-site waste disposal facilities are returned to SNL/CA to document transfer on the signed manifest copy from the TSDF and ultimate disposition of waste documented on the Certification of Destruction from the TSDF.

Key to the Waste Management process is the Waste Information Management System (WIMS). It is a Sandia corporate information system that tracks the management of hazardous waste on-site from cradle-to-grave. The generators of the hazardous waste begin the data processing when they initiate a Waste Description and Disposal Request (WDDR) in WIMS. This allows the generator to print an electronic waste tag to place on the waste container. After the container is considered full by the generator, the generator submits the WDDR electronically to WM personnel for review. WM personnel review and approve the WDDR and the waste is picked up and transferred to the WMF. WM personnel use the WIMS to track the waste into the WMF to its temporary storage location. WIMS also generates the shipping documentation and the hazardous waste manifest. The Land Disposal Restrictions (LDR) document is hand prepared by the WM personnel to complete the document package for the waste to be transported offsite to a TSDF.

1.2 Radioactive and Mixed Waste Management Process

The SNL/NM Regulated Waste/Nuclear Material Disposition Department (RWNMDD) provides the oversight and management of the SNL/CA Radioactive Waste Management Program. SNL/NM RWNMDD also directs the shipment of Low-Level Radioactive and Mixed Waste from SNL/CA. SNL/CA Radiation Protection (RP) Program personnel supports the on-site management and the activities necessary to ship the LLW and MW from SNL/CA.

The management of radioactive and mixed waste also requires a strong partnership between the radioactive/mixed waste generators and WM personnel. Waste that is radioactive at SNL/CA includes both low-level radioactive waste and mixed waste. Under the Atomic Energy Act (AEA), low-level radioactive waste is defined as radioactive waste that is not high-level radioactive waste, spent nuclear fuel, transuranic waste, radioactive by-product waste, or naturally occurring radioactive materials. Mixed waste has radioactive constituents and contains hazardous chemical constituents. Under DOE Order 435.1 *Radioactive Waste Management* all radioactive and mixed waste generators must manage their radioactive and mixed waste in a manner that protects the environment and protects the worker and public health and safety.

The management of radioactive and mixed waste begins with the process and trained personnel that generate the waste. The generator has the most knowledge of the process that created the waste and the material composition of the waste and is responsible for the characterization of the waste before it is transferred to WM. The radioactive waste is characterized on a Disposal Request (DR) by the generator. Once the waste is adequately characterized to meet the acceptance criteria of the WMF, the waste is picked up and transferred to the WMF. The waste is

then packaged and certified by the Waste Certification Official (WCO) for shipment. After the certification is completed, the waste is transported to a TSDF for disposal.

1.3 Transportation of Hazardous and Radioactive Waste On-site

The WM Program personnel pick up hazardous and radioactive waste from the generator's location and transport it to the WMF. The waste must be transported onsite in accordance with DOE Order 460.2A *Departmental Materials Transportation and Packaging of Management*, the SNL Transportation Safety Document and the SNL Transportation Security Document.

1.4 Medical Waste Management and Transportation Process

SNL/CA accumulates medical waste at the on-site Medical Facility, (Building 925), where it is picked up for transportation to an off-site TSDF. By permit, medical waste cannot be stored at the WMF.

1.5 Waste Management Facility

SNL/CA operates an on-site RCRA Part B permitted storage facility for hazardous waste and mixed waste. By design, the WMF also stores low-level radioactive waste. The planned lengths of time for storage at the WMF cannot exceed one year unless the regulating authority approves an extension. The facility consists of two adjacent buildings. The low-level radioactive and mixed waste is stored in Building 961 as shown in Figure 1-1 and the hazardous waste is stored in Building 9611 as shown in Figure 1-2.

Figure 1-1 Waste Management Facility Building 961

Figure 1-2 Waste Management Facility Building 9611

2 Program Drivers

Environmental compliance drivers include laws, regulations, orders, directives and other corporate and site-specific requirements. The drivers that are applicable to the WM Program are listed in Table 1-1.

2.1 Compliance Driver Monitoring Process

The WM Program uses a variety of sources to stay current on applicable compliance drivers. The primary source used is the SNL corporate notification service provided by the SNL/NM ES&H Research Librarian. The Research Librarian monitors DOE requirements and federal, state, and local government publications for regulatory issues applicable to SNL operations. These notifications are then reviewed for applicability to SNL/CA operations. The WM Program also receives information on regulatory changes from additional sources. These include direct communication with DOE and regulating agencies, and periodic review of agency web sites. New requirements are incorporated into program activities and communicated to the site through

electronic notifications, the ES&H Interdisciplinary Team (IDT) process, self-assessments, targeted presentations and program documents.

During 2010, no significant changes occurred in compliance drivers applicable to WM Program responsibilities.

DOE, SNL, Lockheed Martin and other external regulating agencies periodically audit the WM Program. Under the Nevada Test Site Waste Acceptance Criteria (NTSWAC), DOE Nevada is free to audit the Low Level Waste (LLW) program at any time and generally conducts announced audits every two years. Under California law, the state of California Department of Toxic Substances Control (DTSC) is free to audit the program at any time and conducts unannounced audits annually. Also under California law, the Alameda County Department of Environmental Health is free to audit the tiered-permit program and the medical waste program at any time and also conducts unannounced audits every three years.

The WM Program Lead communicates with DOE/NNSA/SSO (SSO) counterparts regularly to keep them informed of issues and trends of importance to the program. WM Program staff at SNL/CA work together with the SNL/NM counterparts and DOE/NNSA/SSO to resolve concerns and to develop effective approaches to program implementation. The WM Program and SSO maintain an open and cooperative relationship.

Table 2-1 Significant Compliance Drivers for the Waste Management Program

Driver	Summary	Regulating Authority
Federal Laws		
Resource Conservation and Recovery Act (RCRA)	RCRA regulates the generation, treatment, storage, and disposal of hazardous chemical waste, non-hazardous chemical waste, non-hazardous solid waste and hazardous or petroleum products stored in Underground Storage Tanks (UST).	California Environmental Protection Agency (Cal/EPA)
Toxic Substances Control Act (TSCA)	TSCA regulates a few wastes such as Poly Chlorinated Biphenyls (PCBs) and Asbestos.	EPA
Federal Facility Compliance Act (FFCA)	FFCA waives sovereign immunity with respect to RCRA for federal facilities; gives EPA and authorized states the authority to conduct annual inspections of federal facilities; and establishes requirements for management of hazardous and mixed waste.	EPA
Atomic Energy Act (AEA)	AEA assures the proper management of nuclear materials and radioactive waste.	DOE
Federal Regulations		
40 CFR 260-280	Implementing regulations for managing waste under RCRA.	EPA

Driver	Summary	Regulating Authority
49 CFR, subchapter C, Parts 171-178	Implementing regulations for transporting waste.	DOT
29 CFR 1910.120	Implementing regulations for the safety and health of hazardous waste workers by setting and enforcing standards.	OSHA
DOE Directives		
DOE Order 435.1, Radioactive Waste Management	Establishes requirements to manage radioactive waste in a manner that protects the environment, and worker and public health and safety.	DOE
DOE Order 5400.5, Radiation Protection of the Public and the Environment	Establishes radiation protection standards for DOE operations so that radiation exposures to members of the public and the environment are as low as reasonably achievable (ALARA) and maintained within established limits of the order.	DOE
DOE Order 460.1C Departmental Materials Transportation and Packaging Management	Establishes requirements and responsibilities for management of DOE materials including waste, transportation and packaging.	DOE
California Laws		
California Health and Safety Code, Div 20, Ch 6.5, §§ 25100-25250.) Hazardous Waste Control Law	Hazardous Waste Control Law provides a separate regulatory framework for hazardous waste management in California. The state law incorporates all RCRA requirements and imposes additional requirements that are stricter than RCRA standards.	Department of Toxic Substances Control (DTSC)
(California Health and Safety Code, Division 104, Part 14, §§ 117600-118360) Medical Waste Management Act	Medical Waste Management Act provides for regulation of medical waste generators, transporters, and treatment facilities.	Alameda County Department of Environmental Health
California Regulations		
Title 22 California Code of Regulations (CCR)	Implementing regulations for hazardous waste management, incorporating all RCRA requirements and imposes additional stricter standards.	DTSC

3 Operational Controls

The WM Program uses technical work documents, administrative and specialized equipment as operational controls. In addition, the WM Program operates under several Permits that specify operational controls.

3.1 Hazardous Waste Facility Permit

The primary driver for the WM Program is the California Environmental Protection Agency, Department of Toxic Substances Control (CAL/EPA, DTSC) Waste Management Facility Permit. The permit includes the Hazardous Waste Operations Plan (Part B Permit) for the Waste Management Facility (Bldg. 961 and Bldg. 9611) and all additional storage outside of the actual facility buildings.

The Part A Application is the SNL/CA application to permit the operation. The Part B Permit incorporates the waste acceptance criteria, as defined by Federal and State Codes, and quantities allowed in each building and the bays within Bldg. 9611. It also defines waste analyses and sampling procedures, chain of custody procedures, certification and transportation requirements. The permit also incorporates specific information on the physical equipment used to handle or transport hazardous waste.

3.2 Hazardous Waste Tiered Permits

SNL/CA has several tiered permits with the Alameda County Department of Environmental Health. A tiered permit authorizes a facility to treat or store hazardous waste, usually a specific waste stream, but does not require a hazardous waste permit under federal law.

SNL/CA has the following tiered permits:

- Two permit by rule permits (both in Building 910 and currently in a closure process due to be complete in 2011) and
- Two conditionally authorized permits for neutralization (at the sewer outfall and Building 968).

3.3 Medical Waste Permits

SNL/CA maintains two medical waste permits with Alameda County Department of Environmental Health. The medical waste permits authorize a facility to manage medical waste. SNL/CA is registered as a small quantity generator with no onsite treatment occurring at the medical facility (Building 925). SNL/CA is also registered as a small quantity generator with onsite treatment occurring at Building 968.

3.4 Administrative Controls

The WM Program prevents accidents, incidents, exceedances and violations through both administrative controls and engineering controls. The administrative controls are various Technical Work Documents (TWD) which include (but are not limited to) Corporate Process Requirements (CPR), Operating Procedures (OP), Preliminary Hazard Screening (PHS), Safe Work Permits (SWP), activity-specific plans, department guidance and other management directives. The WM program always follows the most recent version of the specific TWD. The TWDs applicable to the WM Program are presented in Table 3-1.

Table 3-1 Technical Work Documents Applicable to Waste Management

TITLE	
OPERATING PROCEDURES	**Expiration Date**
AP800000 Building Security Plan for the Waste Management Facility (WMF), Buildings 961 and 9611	September 7, 2011
AP800008 SNL/CA Environmental Program Representative (EP Rep) Program	July 31, 2012
OP471125 Nonconforming Item Identification and Tracking	November 17, 2011
OP471131 Data Validation and Verification for the Environmental Operations	July 01, 2011
OP471310 Control of Samples by the Environmental Operations Department	October 20, 2012
OP471613 Verification of Laboratory Chemical Analysis Data	December 7, 2013
OP471619 Building 961 LECS Sump Operation	July 14, 2011
OP471787 Hazardous Waste Operations at SNL/CA	December 1, 2012
OP472236 Management of Low-Level Radioactive and Mixed Waste at SNL/CA	November 13, 2011
STANDARD OPERATING PROCEDURE	
SP473525 Standard Operating Procedure for the Hazardous Waste Facility, Bldg. 9611	January 19, 2013
SP485007 Low-Level Radioactive Waste, Bldg. 961	November 12, 2011
PRIMARY HAZARD SCREENING	
SNL7A00686-019 Waste Management Program at SNL/CA	September 23, 2011
ES&H MANUAL SECTIONS	**Issue Date**
ESH100.2.IH.11 Perform Hazardous Waste Operations and Emergency Response	October 12, 2009
ESH100.2.ENV.3 Manage PCBs, PCB Containers, and PCB Sources Safely	October 12, 2009
ESH100.2.ENV.4 Manage Oil and Fuel Storage	October 12, 2009
ESH100.2.ENV.8 Manage Excess Metallic Lead	October 12, 2009
ESH100.2.ENV.23 Manage Radioactive Waste at SNL	October 12, 2009
ESH100.2.ENV.24 Manage Mixed Waste at SNL	October 12, 2009
ESH100.2.ENV.15 Manage Hazardous Waste at SNL/CA	October 12, 2009
ESH100.2.ENV.16 Manage Radioactive Waste at SNL/CA	October 12, 2009
ESH100.2.ENV.17 Manage Mixed Waste at SNL/CA	October 12, 2009
ESH100.2.ENV.20 Manage Other Waste at SNL/CA	October 12, 2009
ESH100.2.ENV.21 Recycle or Reuse Waste at SNL/CA	October 12, 2009
OTHER DOCUMENTS	
SNL Transportation Security Plan	April 15, 2008
SNL Transportation Safety Plan	February 14, 2009
Nevada National Security Site Waste Acceptance Criteria DOE/NV-325-REV. 8	September, 2010

4 Documents Produced

The WM Program produces a large number of electronic and paper documents in the normal course of business. A description of the routine documents follows. Other non-routine documents are also generated during the year.

4.1 Data Management

The Waste Description and Disposal Request (WDDR) is the primary document the customer uses to request hazardous waste pickup and disposal. This is an electronic document accessed through the Waste Information Management System (WIMS) on the Sandia Restricted Network (SRN). The customer initiates the document and the WM personnel review and approve the forms prior to pickup. These forms produce the requisite documents for processing the waste (e.g., waste ID tags for the waste containers and the shipping documents). The WDDR information is maintained in the WIMS database on a corporate server at SNL/NM. In addition to the review and approval of the WDDRs, WM personnel and the Environmental Programs Representative/Environmental Compliance Coordinator train the customers and provide ongoing support as needed.

A similar process exists for radioactive waste. The Disposal Request (DR) is the primary document the customer uses to request radioactive waste pickup and disposal. This is an electronic document with primary generator support provided by WM personnel. The customer initiates the DR, the WM program personnel at SNL/CA and SNL/NM review and approve the forms and the pickup is done. The information is maintained in the RadTrack database on a corporate server at SNL/NM. In addition to the review and approval of the DRs, WM personnel and the Environmental Programs Representative/Environmental Compliance Coordinator train the customers and provide ongoing support as needed.

Examples of the electronic forms created by the databases are:

- Waste Description and Disposal Request (WDDR)
- Radioactive or Mixed Waste Disposal Request Form (DR)
- Uniform Hazardous Waste Manifest
- Lab Pack and Drum Content Forms- lab pack/drum inventory
- Emergency Response Guidelines Numbers
- Bill of Lading

4.2 Internal Documents

The WM operating procedures (OP) require specific documentation for Program management and to meet regulatory requirements. The types of documentation are listed below under each OP.

OP461613 Verification of Laboratory Chemical Analysis Data
Documents produced according to this OP are:

- Chemical Analysis Report Verification Record Form
- Chain-of-Custody Report

Applicable Limits List
Analysis Data Report

OP471619 Building 961 LECS Sump Operation
Documents produced according to this OP are:
Health Physics Survey Form
Analytical analysis package
Sump Logbook
Chain of Custody Record and Analytic Instructions
WDDR

OP471787 Hazardous Waste Operations at SNL/CA
Documents produced according to this OP are:

Building 9611 Security Briefing
Building 961 Security Briefing
Forklift Inspection Report
Waste Management Vehicle Inspection Report
Building 961 Inspection Report
Building 9611 Inspection Report
Monthly Inspection Verification Report
Compactor Log Sheet
Drum Compactor Log Sheet
Hazardous Waste Disposal Tag
Chain of Custody Record and Analytic Instructions
Shipper, current year file
Chemical Analysis Report Verification record
The analytical results from the contract laboratory
Training Certificates or class enrollment records
Profiles
WM-Hazards Communication Summary
Uniform Hazardous Waste Manifest
Land Disposal Restrictions
SNL/CA Bill of Lading
DOT Exemption
Waste Management Emergency Response Record
Purchase Requisition
Emergency Response Guides
Certificate of Disposal
SNL/CA Hazardous Waste Shipment Checklist
Waste Management Facility Weekly Inventory Report
SNL/CA Hazardous Waste Transporter Vehicle Checklist
Weekly Waste Management Facility Restricted Chemicals Inventory

OP472236 Management of Low-Level Radioactive and Mixed Waste at SNL/CA
Documents produced according to this OP are:

Radioactive and mixed waste disposal tags
Radioactive Waste Accumulation Sheets
SNL/CA LLW/MW Pickup Form
Photographs
Waste Information Management System Printouts
Scale Functional Check
Reject Tag
Nonconforming Item Tag

4.3 Document Control

Program documents and other technical work documents are managed in accordance with governing OPs and OP471347 *Administrative Procedures for Managing SNL/CA ES&H Recorded Information*.

Electronic documents such as the WDDR are maintained in WIMS but a paper information copy may be kept in the WMF for the convenience of the WM personnel while waste is in the facility. Once shipped, the paper documents are filed in the ES&H Record Center.

Electronic documents such as the DR are maintained in RadTrack but a paper information copy may be kept in the WMF for the convenience of the WM personnel while waste is in the facility. Once shipped, the paper documents are filed in the ES&H Record Center at SNL/NM or SNL/CA as appropriate.

4.4 External Reports

Table 4-1 Waste Management Reports

Document	Due Date	Frequency of Distribution	Distribution	Requirements
Annual Hazardous Waste Report	March 1	Annual	CA/EPA/DTSC	Regulatory
Biennial Generators Report	March 1	Every 2 years	CA/EPA/DTSC	Regulatory
Hazardous Waste Facility Permit	March 30, 2014	Every 10 years	CA/EPA/DTSC	Regulatory
Part B Permit Modifications	As needed	As needed	CA/EPA/DTSC	Regulatory
Transporter Permit	June 30	Annual	CA/EPA/DTSC	Regulatory
Site Treatment Tiered Report	30 days from receipt	Annual	CA/EPA/DTSC	Regulatory
Waste Minimization Certification	March 1	Annual	CA/EPA/DTSC	Regulatory

5 Approved Job Descriptions / Current Assignments

Job assignments in the WM Program include Program Lead, Waste Program Engineer, Hazardous Waste Technician, Radioactive Waste Representative, and Field Chemist. Job descriptions and qualifications for each assignment follow. Appendix A provides a list of personnel supporting each job assignment. In general:

The Department Manager overseeing WM is responsible for ensuring the completeness of qualification requirements as defined.
The Waste Program Lead is responsible for verifying and ensuring that WM Program personnel are trained and qualified to perform their job responsibilities.
WM personnel are responsible for maintaining their training as current and providing updated information (including completion certificates, cards, and course content information) to the designated technician within 20 working days after completion of their training or receipt of certification.

Before personnel may work independently in any of the Hazardous Waste Treatment and Storage Facilities, the individual must be qualified to work proficiently and safely. This is accomplished by completing and passing 40 hours of Hazardous Waste Operator Training to meet the requirements of 29 CFR 1910.120. Additionally, three days of on-site supervised training must be completed and documented.

5.1 Waste Program Lead

The Waste Program Lead directs the WM Program to assure SNL/CA compliance with EPA, OSHA, DOT, DTSC and DOE regulations and orders for hazardous, radioactive and mixed wastes by providing regulatory and permitting requirement assistance. The Waste Program Lead is the staff point-of-contact between SNL/CA WM and SNL/NM Waste Management programs in Organization 04139 - *Regulated Waste/Nuclear Material Disposition*. Additionally, the Waste Program Lead secures funding to support the required activities for WM operations on-site. Problem solving of technical issues relative to waste generation, minimization, waste treatment options, disposal and permitting are necessary. Regulatory and technical assistance is provided to researchers, maintenance and support personnel to implement the WM program.

Qualifications:
The Waste Program Lead should meet the following minimum requirements:
B. S. degree in Environmental Management or equivalent (advanced degree preferred)
Member of Technical Staff
DOE "L" Clearance
Knowledge of hazardous and radioactive materials
Working knowledge of the following:
DOT (49 CFR 171-178)
EPA (RCRA and 40 CFR 260-280)
OSHA (29 CFR 1910.120)
DTSC (H&SC and Title 22 CCR)
DOE Orders

Training:
The Waste Program Lead will also serve as a Waste Program Engineer and meet all the training requirements for that position (see below). The Waste Program Lead Backup is an administrative position similar to the Manager of Environmental Management Department and does not require any specific training.

5.2 Waste Program Engineer

The Waste Program Engineer supports the WM Program Lead to assure SNL/CA compliance with EPA, OSHA, DOT, DTSC and DOE regulations and orders for hazardous, radioactive and mixed wastes by providing regulatory and permitting requirement assistance. Additionally, the Waste Program Engineer solves problems of technical issues relative to waste generation, waste minimization, waste treatment options, disposal and permitting are necessary. Regulatory and technical assistance is provided to researchers, maintenance and support personnel to implement the WM program.

Qualifications:
The Waste Program Engineer should meet the following minimum requirements:

- B. S. degree in Environmental Management or equivalent (advanced degree preferred)
- Member of Technical Staff/Contractor
- DOE "L" Clearance
- Knowledge of hazardous and radioactive materials
- Working knowledge of the following:
  - DOT (49 CFR 171-178)
  - EPA (RCRA and 40 CFR 260-280)
  - OSHA (29 CFR 1910.120)
  - DTSC (H&SC and Title 22 CCR)
  - DOE Orders

Training:
The Waste Program Engineer will attend professional training courses offered by specialists at least once per year. This includes at least one course in environmental issues and regulations. Eight hours of annual refresher training is required to keep the Hazardous Waste Operators Training certification current. Additionally the Waste Program Engineer is responsible for completing DOT training to meet the requirements of 49 CFR 172.700. A course in transportation as required by the DOT will be attended triennially.

5.3 Field Chemist

The Field Chemist reviews hazardous waste disposal requests, assists generators in the chemical characterization of hazardous waste, coordinates the packaging, storage, and shipment of lab pack, non-bulk and bulk quantities of hazardous wastes. The Field Chemist works with other Environmental Management personnel to ensure that the hazardous waste that are stored and processed in the Waste Management Facility are in compliance with the Part B Permit and current local, State and Federal regulations. The Field Chemist is a key customer support position interacting with on-site hazardous waste generators. The Field Chemist also supports the on-site Radioactive/Mixed Waste, Hazardous Materials Management and Pollution Prevention Programs including state regulated Universal Waste.

Qualifications:
The Field Chemist should meet the following minimum requirements:
- Bachelors Degree in a scientific field or 10 or more years of applicable experience,
- Working knowledge of regulations and hazards associated with hazardous materials/wastes,
- DOE Level L Clearance (have or able to obtain).

Training:
The Field Chemist must be qualified to work at the SNL/CA Waste Management Facility. Eight hours of annual refresher training is required to keep the Hazardous Waste Operators Training certification current. Additionally the Field Chemist is responsible for completing DOT training to meet the requirements of 49 CFR 172.700. A course in transportation as required by the DOT will be attended triennially.

5.4 Hazardous Waste Technician

The Hazardous Waste Technician provides assistance to waste generators; collects, transports, and packages waste; and supports the general WMF operations. The Field Chemist and the Hazardous Waste Technician work closely together in a variety of WM activities. The technician may not necessarily be trained in all aspects of the listed responsibilities, as training is function-specific. As new responsibilities are added to a technician's duties, the technician will be trained accordingly.

Qualifications:
The Hazardous Waste Technician should meet the following minimum requirements:

- High School Equivalency

Training:
The Hazardous Waste Technician must be qualified to work at the Waste Management Facility. Additionally, the technician is required to complete an annual review of classroom and on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the EPA, OSHA, DTSC and DOE. Eight hours of annual refresher training is required to keep the Hazardous Waste Operators Training certification current. Additionally the Hazardous Waste Technician is responsible for completing DOT training to meet the requirements of 49 CFR 172.700. A course in transportation as required by the DOT will be attended triennially.

5.5 Radioactive Waste Representative

The Radioactive Waste Representative conducts waste operations to assure compliance with state and federal regulations governing the handling, treatment, storage, and disposal of radioactive and mixed wastes. The Radioactive Waste Representative also performs support activities for the hazardous waste operations in compliance with OSHA, EPA, DOT, DTSC and DOE. The Radioactive Waste Representative will have knowledge of basic health physics as it applies to collecting samples and safe handling techniques for radioactive and mixed wastes.

Qualifications:
The Radioactive Waste Representative should meet the following minimum requirements:

- High School Equivalency
- Meet the training requirements of a Hazardous Waste Technician
- Complete RAD Worker II training

Training:

Before Radioactive Waste Representatives are permitted to handle radioactive and mixed wastes, that individual must meet the requirements of a Hazardous Waste Technician in addition to receiving 8 hours of Radiation Safety Training. Once determined that the employee/contractor meets the training requirements of the operating procedures, that person will be permitted to work without direct supervision.

5.6 Emergency Response Backup

The Emergency Response Backup serves as a backup to WM personnel as needed.

Qualifications:
The Emergency Response Backup should meet the following minimum requirements:

- High School Equivalency
- 24 hour HAZWOPER training at a minimum

Training:

Before the Emergency Response Backup is permitted to support a site spill response the employee/contractor must meet the training requirements of the operating procedures.

6 Training and Competency

6.1 Corporate and ES&H Training

SNL views training, development and education as a strategic investment in SNL's future. The policy of SNL is to maintain a high level of technical and administrative competence in support of its mission. In support of this policy, SNL maintains a set of general corporate training requirements that cover a wide range of areas such as security (physical, information, and computer), business ethics and diversity, general ES&H and general business processes. Standard corporate requirements are identified for each individual in the online Corporate Learning & Professional Development database known as TEDS. The online database tracks

completion status for all corporate training requirements and provides electronic reminders to WM Program personnel when a course is due. SNL training coordinators identify corporate training requirements for new hires. SNL has developed online training courses to meet these requirements.

In addition to corporate training requirements, each program assignment has job-specific training requirements. These training requirements address safety as well as specific job functions. The Environmental Management Department Manager or Program Lead may identify job-specific training requirements. Most of these requirements are tracked in the online database. Table 6-1 presents job-specific training requirements for WM Program personnel. Some of the courses are internal to SNL, while others are provided by outside contractors or agencies.

Specific training requirements described for each WM Program position are described above and outlined in the Part B Operations Plan. The training requirements meet applicable regulatory requirements, including:

- U. S. Environmental Protection Agency (EPA), Title 40 CFR
- Occupational Safety and Health Act (OSHA), Title 29 CFR
- Department of Transportation (DOT), Title 49 CFR
- California Department of Toxic Substances Control (DTSC), Title 22 CCR
- DOE and SNL/CA requirements
- Corporate ES&H training

DTSC, OSHA, DOT, EPA or SNL will define the frequency and duration of refresher training. WM personnel will take the refresher courses and document training as necessary. WM maintains personnel training records in order to ensure all personnel remain current on their training.

Acceptable means of training include the both external and internal resources (e.g., Operating Procedures, courses provided by Health & Safety Department). Examples include:

- external classroom courses or seminars,
- on the job training,
- web-based training,
- videos,
- other methods approved by SNL or the EM department manager.

Table 6-1 Waste Management and Emergency Response Backup Training Requirements

Training Courses Requirements	Training Frequency	Waste Program Lead	Waste Program Engineer	Field Chemist	Radioactive Waste Representative	Hazardous Waste Technician	Emergency Response Backup
Emergency Preparedness (ESH100)	Annual	R	R	R	R	R	R
ES&H Rights (ESH100)	Annual	R	R	R	R	R	R
Lockout/Tag Out Awareness (ESH100)	Annual	R	R	R	R	R	R
Fire Extinguisher: Awareness (ESH100)	Annual	R	R	R	R	R	R
Fire Extinguisher: Hands On Use (FRP106CA)	Annual	R	R	R	R	R	N
HAZWOPER: 40 Hours Initial (ENV100) + Three Days Supervised Training (ENV102X)	One Time	R	R	R	R	R	O
HAZWOPER: 24 Hours Initial (ENV102) + One Day Supervised Training (ENV100X)	One Time	N	N	N	N	N	R
HAZWOPER: 8 Hours Refresher (ENV103)	Annual	R	R	R	R	R	R
Hazardous Waste & Environmental Management Training (ENV112CA)	Annual	R	R	R	R	R	N
DOT: Basic Hazardous Materials Transportation (PKX100)	Triennial	R	R	R	R	R	N
DOT: Radioactive Materials Transportation (PKX111)	Triennial	R	R	O	R	O	N
DOT: Basic Hazardous Waste Transportation (PKX112)	Triennial	R	R	R	R	R	N
Respiratory Protection For Users (RSP215)	Annual	R	R	R	R	R	N
Confined Spaces Awareness (CNF105)	Triennial	O	O	R	R	R	N
Confined Spaces Entry (CNF107)	Triennial	O	O	O	O	O	N
Heart Saver CPR & First Aid (MED104CA)	Triennial/ Annual	O	O	O	O	O	N
Blood Borne Pathogens (MED113)	Annual	O	O	R	R	R	N
Forklift: Hands On Use (FKL153)	Triennial	O	O	R	R	R	N
Forklift Operator Refresher (FKL153R)	Triennial	O	O	R	R	R	N
Radiation Safety Orientation (RAD102)	Biennial	R	R	O	R	O	N
Radworker Training (RAD 210, RAD 230)	Biennial	R	R	O	R	O	N
Annual Site Specific Discharge Prevention Briefing/Oil Spill Plan Awareness (ENV190/191)	Annual	R	R	R	O	R	N

Notes: R = Required, O = Optional, N = Not Required

7 Performance Measures

EMS objectives that are applicable to WM include full compliance with regulatory requirements for the management of waste generated. To assess performance in meeting these objectives, WM tracks the amount of waste generated, compliance reports and regulatory agency correspondence.

The WM Program has performance measures that are continuously used to assess the performance and effectiveness of the program. The measures are:

Meet all regulatory monitoring requirements (Hazardous Waste (HW), Low-Level Radioactive Waste (LLRW), and Mixed Waste (MW)
Meet regulatory report due dates (usually annual)
Direct involvement with the Line and the EP Rep. about WM issues
Meet quality assurance goals
Compliance with Cal/EPA/DTSC permit requirements
Compliance with DOE 435.1 requirements

In 2010, the Program met all regulatory report due dates with the exception of the Biennial Report. Due to WIMS database problems, a due date extension for the Biennial Report was granted by DTSC. The Biennial Report was submitted with the extension period to satisfy report requirements. The WM Program staff continues to have direct communication with the line and EP Rep./ECC through IDT meetings, direct phone calls, SAA visits and presentations to department personnel.

FY2010 EMS environmental targets and objectives were approved in October of 2009. The performance measures will indicate the degree of success in meeting those targets. One of the EMS environmental objectives was to reduce the site's generation of routine hazardous waste. This objective requires actions by other departments. Activities performed directly by the WM personnel in 2010 that support this multi-year objective include a range of efforts from Line generator education to supporting chemical inventory cleanout campaigns led by the Hazardous Materials Management Program.

The EMS uses metrics to show progress in achieving goals. These metrics are updated on the Environmental Management web page. Figure 6-1 represents the site's generation of hazardous waste per quarter. WM actively supports the Pollution Prevention Program team, as needed, to reach EMS targets for the reduction of hazardous waste generation on site.

Figure 6-2 represents the site's chemical spills. While not tied to a specific EMS target, there has been a reduction in the number of site chemical spills as well as the total number of gallons spilled over the years. This suggests improved Line processes and procedures coupled with additional training have reduced this pathway for hazardous waste generation.

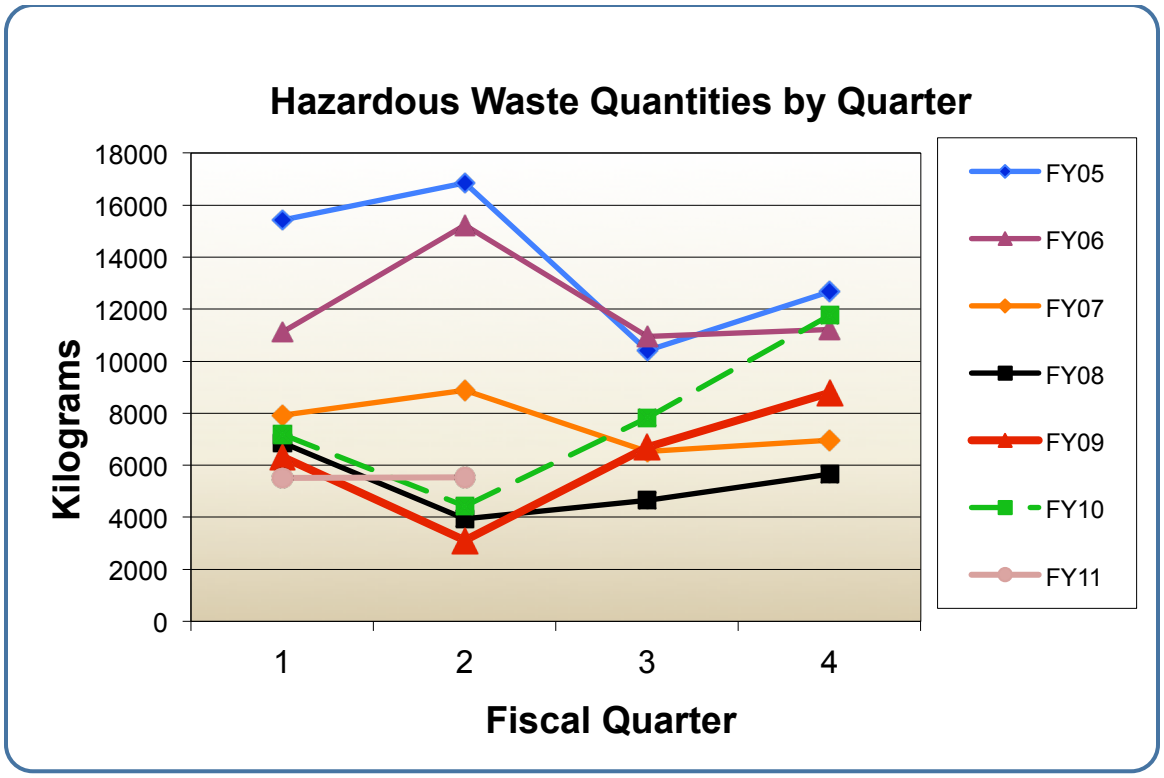

Figure 7-1 SNL/CA Hazardous Waste Quantities by Quarter

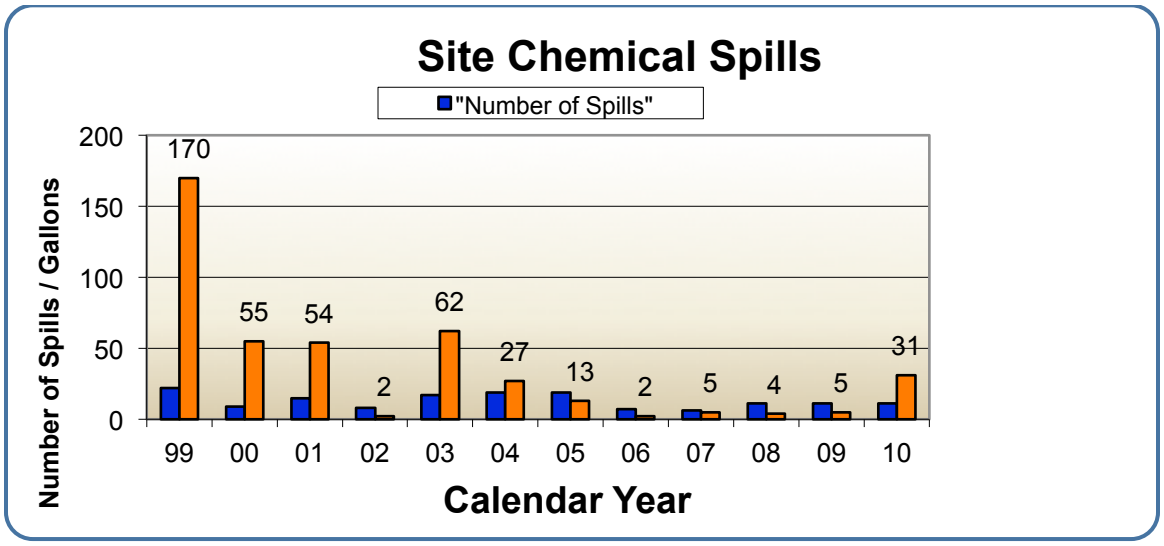

Figure 7-2 SNL/CA Chemical Spills

8 Quality Assurance

The WM Program applies the following program-specific elements to assure quality is maintained in data collection, analyses, and reporting:

- Online and hardcopy forms ensure that a standard process is followed for collection and management of waste data.
- All data input is reviewed for accuracy after the input is complete.
- Internal reports and documents are subjected to internal review and technical editing before finalizing.
- DOE/SSO and applicable SNL/CA staff review published reports before finalizing.
- Samples are collected for waste stream verification according to the Waste Analysis Plan in the Part B Permit.
- Sample results are compared to established criteria for the acceptability of data in *OP471131 Operating Procedure for Data Validation and Verification for the Environmental Monitoring Program*. This procedure contains methods for determining the accuracy, precision, completeness, comparability and applicability of the data.

8.1 Program Risk Assessment

The March 2011, WM Program updated a risk assessment (Appendix B) as part of the decision making process to determine the appropriate level of formality required for Program activities and identified six potential risks related to program activities. Table 7-1 lists each risk and the calculated risk category. It was determined that the risk associated with the WM Program was the risk of an accident or hazardous waste spill during pick-up, transport or at the waste facility or an incident at the waste facility. The overall risk for WM Program issues was determined to be High. Measures taken by the WM Program to mitigate this risk are 1) routine WM personnel training, 2) maintaining operational controls including secondary containment, 3) building, vehicle and container inspections and 4) improve processes and Line training.

Table 8-1 Waste Management Program Risks

Risk #	Risk	Risk Category
1	Spill or accident during waste pick up	Low
2	Spill or accident during waste shipment	Low
3	Spill or accident at SNL/CA waste facility	Low
4	Incident at waste disposal facility	Low
5	Site-wide Earthquake Induced Spill or Accident	Low
6	Under recovery of program funding by 10 - 30%	High
7	Regulatory Noncompliance	High

For the Low risk category for Risk 1, the small quantities transported ensure that any spill would be small, requiring a minor cleanup effort. Given the nature of the waste currently transported by the Waste Management Program, the likelihood of injury to personnel from a spill is remote.

For the Low risk category for Risk 2, regulations governing the packing of waste drums and other waste transportation regulations are intended to mitigate the severity of such accidents. A worst-case scenario would involve the breaching of several drums of SNL/CA waste during a highway accident. Such an accident would require minor environmental cleanup, and would not likely involve injury to the public or personnel.

For the Low risk category for Risk 3, release scenarios could range from a small chemical bottle (e.g. 100 mL) to several 55-gallon drums (in the event of an earthquake). The waste facility incorporated secondary containment in its design, so no release outside of the facility is envisioned but minor cleanup would be necessary

For the Low risk category for Risk 4, SNL/CA would be responsible for the portion of the clean up apportioned to SNL/CA waste. A larger portion could be assigned if was determined that SNL/CA was the *cause* of the incident. It is assumed that the dollar amount of the SNL/CA liability would be less than 1% of the SNL/CA annual operating budget ($250 million in FY 2009).

For the Low risk category for Risk 5, SNL/CA would be responsible for the on-site clean up and cost of waste disposal. It is assumed that the dollar amount of the SNL/CA liability would be less than 1% of the SNL/CA annual operating budget ($250 million in FY 2009).

For the High risk category for Risk 6, an under recovery 10-30% reduction in program funding would result in decreased staffing, training, and purchases. Only those program activities that are required by regulation, Sandia policy, technical work documents, or DOE/NNSA would be conducted. Discretionary training and travel for program staff would be eliminated. Purchases for replacement equipment and equipment repair would be reduced. A reduction in Line training and support would occur adding significant risk to site compliance.

For the High risk category for Risk 7, a regulatory non-compliance could be a safety hazard that puts personnel, facilities and the environment at risk. It could also result in a Notice of Violation that can result in a significant fine and loss of corporate reputation for Sandia, Lockheed Martin and DOE.

8.2 Quality Significant Purchases Determination

A Quality Significant Purchases Determination, Appendix C, has been completed in accordance with the Environmental Management Quality Assurance Program Plan. The Hazardous Waste activities of the WM Program do not have any quality significant items. This determination is consistent with the SNL/NM Hazardous Waste Operations determination of “Quality Significant Items”.

However, sorbents, solidifiers, drums, boxes, contractor support, transporter and commercial Treatment Storage and Disposal Facilities (TSDFs) used for Low-Level Radioactive Waste and Mixed Waste are quality significant items. These items or services are procured or managed by SNL/NM's Radioactive Waste/Nuclear Material Disposition Department 04139 (RWNMDD) according to their procedures as defined in relevant SNL/NM technical work documents.

9 Program Assessments

WM performed the assessments described below. All assessments were documented and retained in accordance with *OP471347 Administrative Procedures for Managing Sandia/CA ES&H Recorded Information*.

9.1 Follow-up on 2009 Program Self Assessments

The 2009 Program Self Assessment identified issues with documentation relating to the radioactive waste activities and routine WM Program documents out-of-date. Nearly all Waste Management technical work documents were updated as a result of the 2009 Program Assessment.

9.2 2010 Program Self Assessment

The Program Self Assessment is an annual effort to determine the completeness, quality and efficiency of the program structure and management. It is also used to determine the alignment of the program with ISO14001 EMS requirements and principles.

The objective of this assessment was on the Waste Management tools and resources and Line Satellite Accumulation Area management. This assessment included a review of all procedures, processes, technical work documents, web pages, publications, communications, etc., of the program to assure that they are streamlined, accurate and current. The *Programmatic Document Review Form* is used to document this part of the self-assessment, as referenced in the *Quality Assurance of Data, Documents and Select Activities of the Environmental, Safety and Healt*h *Departments, 8516 and 8517.* The results were reported in the January 5, 2011, *Self-Assessment Report: EMS Waste Management Program assessment for FY10 Assessment Number 11479* (see Appendix D*)*.

9.3 Environmental Programs Representative Program Assessment

The Environmental Programs Representative (EP Rep.) performs and records informal assessments of line implementation of critical program elements. The annual center reports were completed in this annual report period. All issues that the EP Rep. refers to the WM Program Lead are resolved by working with the owner of the issue or are given a finding and resolved as a routine part of the Line Self-Assessment Process. A common issue identified by the EP Rep. assessments is the on-going challenge to the Line waste generator to setup and properly manage their Satellite Accumulation Areas (SAA). This issue was focus for the WM program in 2010 and will continue in 2011. The EP Rep. and the WM personnel routinely assess the Line for proper SAA management and provided on the spot training or annual instruction via *ENV112CA*

Hazardous Waste & Environmental Management Training (CA). The objective of this course is to provide SNL/CA personnel with the necessary information to ensure compliance with federal and state environmental regulations, Department of Energy requirements and SNL waste generator and satellite accumulation area (SAA) requirements.

10 Accomplishments

In the past year, WM accomplished the following activities:

- The two major California-based regulators, CA/EPA/DTSC audited the Waste Management Program and the Line generators. No findings were issues and the reports were complementary of Environmental Management Department's Waste Management operations in Building 961/9611.

- All the mixed waste stored in WMF-961 was shipped to Perma-fix in July 2010. This effort was led by the Radioactive Waste/Nuclear Material Disposition Department 04139 and supported by SNL/CA personnel in WM.

- Significant progress has been made in the cleanout and permit closure of the 910/310 circuit board prototyping laboratory. Full permit closure is expected in Spring 2011.

- WM continues to offer process evaluations for waste generators as part of the IDT process, waste generator training and as a separate site visit when requested.

- The Waste Management Service Center costs vs. recoveries came within 1%, as required by the SNL/NM Integrated Enabling Services management target.

11 Issues

11.1 Contract Issues

No significant contract issues were identified in 2010. However, the contract with Clean Harbors Environmental Services will expire on December 31, 2011 with no renewal options remaining. A replacement contract with a TSDF company will be in place starting January 1, 2012.

11.2 Funding Issues

Funding issues continue to be a very significant issue in Waste Management at SNL/CA and at SNL/NM. With the loss of RTBF funding at the end of FY 2007 and the lack of stable IES funding the Waste Management programs at SNL/CA and SNL/NM, the programs have struggled to maintain efficient and regulatory compliant operations. A number of cost cutting measures have degraded the personnel team chemistry in the program and the general teamwork within the Environmental Management Department. The "one site/two labs" initiative with

Lawrence Livermore National Laboratory and the new corporate "Cost Austerity" for 2009/2010 is expected to further damage the already strained relationships between Line and Integrated Enabling Services (IES) and the relationships within IES organizations.

11.3 WIMS Application Issues

The WIMS application continues to age and breakdown as the Sandia network infrastructure changes. It is clear the software development team needs a significant increase in funding for additional developers to improve the software design to where it should be for effective, efficient and reliable use. Funding shortfalls are expected to prevent the software from being improved in the near term leading to operational inefficiencies, general user frustration and regulatory compliance issues and risks.

11.4 Regulatory Issues

Regulatory oversight from the Alameda County Department of Environmental Health significantly increased in 2010, which has resulted in frequent inspections of the hazardous materials and hazardous waste programs. Review of key environmental program elements, including container management, labeling and storage of hazardous waste, will need to be conducted in 2011 to better prepare for future regulatory inspections. The perceived high cost of hazardous waste disposal creates incentives for the Line organizations to manage hazardous waste in ways that are considered "treatment" in California. These treatment operations often require permitting or can be considered illegal treatment of hazardous waste if proper management procedures are not in place. This places the laboratory at increasing risk. Frequent and comprehensive laboratory audits by waste management staff with Line management involvement will help to increase the Line's regulatory audit readiness. Funding of waste management staff to perform such audits, as well as onetime costs associated with updating non-compliant activities will need to be considered.

The Waste Management Facility Permit Modification process was started in 2010 resulted in a submission to the California Department of Toxic Substance Control in April 2011. These permit modifications are administrative in nature and do not include any significant operational changes.

12 Trends

12.1 Budget Trends

The FY 2008, FY2009 and FY2010 budgets were zeroed from FY 2007 due to the loss of the NW RTBF funding. This required Waste Management both at SNL/NM and SNL/CA to implement a full cost recovery chargeback. An old chemical management process has been initiated in April 2011 to help reduce the number of old and expired chemicals on-site. This will help increase the Waste Management Service Center recoveries.

12.2 Waste Generation Trends

Over the past few years SNL/CA has seen a significant reduction in the volume of radioactive waste generated onsite. However, there are still several areas onsite, such as Building 927 vault that contain radioactive sources or contaminated materials. These materials will eventually have to be disposed of as radioactive or mixed waste and will result in a large volume of waste being generated and disposed of at that time. Once these areas are cleaned, the generation of radioactive waste should be minimal.

Over the past decade, SNL/CA has seen a decrease in the generation of hazardous waste (see Figure 7-1). SNL/CA anticipates the generation of hazardous waste will continue to decrease with the more successful pollution prevention program activities. However, an old chemical management process has been initiated in April 2011 to help reduce the number of old and expired chemicals on-site. This will increase to increase the waste generate rates in FY2011.

12.3 Waste Regulatory Trends

There are more products falling under the new Universal Waste regulations. This could potentially lead to more waste streams for the Pollution Prevention Program to manage. Universal waste rules allow common, low-hazard wastes to be managed under less stringent requirements than other hazardous wastes (e.g. batteries, mercury containing devices, electronic devices, cathode ray tubes (CRTs) and fluorescent lamps). However, SNL/CA manages some of these Universal Wastes as Hazardous Waste.

Sandia/California has been receiving additional attention from environmental regulators especially in the area of hazardous materials and hazardous waste. This has also resulted in an increase in DOE and corporate SNL attention too. Efforts have been increased to ensure that site activities are audit ready and compliant with all federal, state, local, DOE and Sandia regulations and procedures.

12.4 Waste Information Management System Application Development Trends

The Waste Information Management System (WIMS) and radioactive waste tracking system (RADTRACK) need redevelopment to modernize and standardize their database/application tools and technology. This is required to work more efficiently and appropriately in the corporate computing environment at SNL. This multi-year redevelopment project has not been funded for either system. ES&H champions, Waste Management stakeholders and customers groups along with reinvigorated WIMS and RADTRAK application teams needs to come together to begin these difficult and costly projects before system failure is realized. This is a serious operational and regulatory risk that should not be tolerated by ES&H management.

13 Goals and Objectives

A general EMS environmental goal for SNL/CA is to reduce the quantity of waste generated at SNL/CA. WM will continue to support the Pollution Prevention Program and other programs to achieve this goal. SNL/CA EMS WM objectives, targets, and actions that support this goal are discussed below.

13.1 FY2011 SNL/CA Environmental Objectives and Targets

SNL/CA Environmental Objectives

(Recommended by EMS Core Team on: 12/23/2010)

1. Demonstrate exceptional environmental performance and management.
2. Minimize consumption (energy, water, non-renewable resources).
3. Minimize the production of waste (non-hazardous, hazardous, radiological, wastewater).
4. Minimize air pollutant and green house gas emissions.
5. Preserve and, when possible, enhance the site's natural habitat.
6. Design and manage all buildings and facilities using "green" principles.
7. Maintain sewer effluent within regulatory discharge limits.
8. Minimize the volume and pollution of storm water runoff and other water discharges.
9. Procure and use environmentally friendly products and materials.
10. Minimize pollutants released to the ground or ground water (spills, landscape chemicals, metals, etc.).

Approved:

Rick Stulen, VP 8000 Date

SNL/CA Environmental Targets

(From the SNL FY2010 Site Sustainability Plan approved on 12/14/10)
(Approved by SSHEAC on Dec 2, 2010)

Corporate 1: By FY15, reduce energy intensity by 30 percent. (FY03 Baseline)

Corporate 2: By FY20, reduce Scope 1 and Scope 2 Green House Gas emissions by 28 percent. (FY08 Baseline)

Corporate 3: By FY20, reduce scope 3 GHG emissions by 13 percent. (FY08 Baseline)

Corporate 4: By FY20, reduce water intensity by 26 percent. (FY07 Baseline)

Corporate 5: By FY20, reduce the use of petroleum (diesel, gasoline and 15% E85) by 30 percent. (FY05 Baseline)

Corporate 6: By FY15, increase fleet alternative fuel consumption by 10 percent per year. (FY05 Baseline)

Corporate 7: By FY12, divert at least 65 percent of non-hazardous solid waste, excluding construction and demolition debris.

Corporate 8: To the maximum extent practical install advanced metering for electricity (by Oct 2012), steam and natural gas (by Oct 2015) and standard meters for water.

Corporate 9: Achieve LEED Gold for all new construction >$5M and HPSB principles for projects <$5.

SNL/CA Specific: None for FY11.

Approved:

Rick Stulen, VP 8000 Date

13.2 Internal Waste Management Activities for 2011

Other internal activity goals set for WM include

1) Continue to assist the site in achieving a reduction of hazardous materials onsite. WM will continue to incorporate laboratory cleanouts into their routine schedule and offer process evaluations for waste generators as part of the IDT process, waste generator training and as a separate site visit when requested.
2) Close the treatment permit for 910/310 facility.
3) Obtain Permit by Rule (PBR) permits for the 943 plating facility.
4) Modify the RCRA Part B permit for the Waste Management Facility.
5) Increase Line assessment and support opportunities by increasing our visits to laboratories and other waste generating areas.
6) Manage the Waste Management Program such that the Waste Management Service Center costs vs. recoveries come within 1%, as required by the SNL/NM Integrated Enabling Services management target.

Appendix A: Personnel Assignments

Name	Position	Date associated with the Waste Management Program	Radioactive & Mixed Waste Management Field Activities	Hazardous Waste Management Field Activities
G. Shamber	Manager, Environmental Management Department Emergency Response Backup	Oct 2004	No	No**
M. Brynildson	Waste Program Lead Waste Program Engineer	July 2005	Yes	Yes
J. Harris	Waste Program Lead Backup Emergency Response Backup	May 2002	No	No**
L. Ford*	Waste Program Engineer	Jun 1997	Yes	Yes
L. Tidwell	Waste Program Engineer	Oct 2010	Yes	Yes
R. Oteri	Waste Management Technician	Jul 2001	Yes	Yes
M. Clark*	Emergency Response Backup	Apr 2002	No	No**
P. Irish*	Field Chemist	Jan 2005	No**	Yes
S. Ayers	Waste Management Technician	Jan 2000	No**	Yes
R. Holland	Emergency Response Backup	Jan 1997	No	No**
D. Dicker	Emergency Response Backup	Mar 1996	No	No**
L. Farren	Emergency Response Backup	Jul 1994	No	No**
J. Chavarria	Emergency Response Backup	Jan 1997	No	No**
D. Ross	Emergency Response Backup	Jan 1997	No	No**
A. Sandoval	Emergency Response Backup	Jan 1997	No	No**

**** Contractor Personnel***
***** Backup Field Position Only***

Appendix B: Waste Management Program Risk Assessment

Waste Management Program Risk Assessment (FY11) (Mar 2011)

The risk assessment process for the Waste Management Program follows the general steps of

1. Identify the risk
2. Identify the probability of the event occurring
3. Identify the consequence if the event occurs.

The following tables will be used to assign a numeric value to the probabilities and consequence categories.

Likelihood/Probability Of Occurrence Level	Likelihood/Probability Criteria
Very High	• Everything points to this occurring
High	• *High chance • Lack of relevant processes or experience contribute to a high chance of occurrence*
Medium	• *Even chance*
Low	• *Not much of a chance*
Negligible	• Negligible chance this will occur

CONSEQUENCE/ SEVERITY LEVEL	CONSEQUENCE/SEVERITY CRITERIA
High	*damage (e.g., ozone depletion, rad soil contamination) • Serious environmental impact resulting in recovery actions lasting 5 years or more (e.g., TCE in aquifer) • Results in General Emergency (affects both onsite and offsite) • Unsatisfactory rating by external regulators or cease and desist order • Affects lab leadership, including prime contract • Actions, inactions or events that pose the most serious threats to national security interests and/or critical DOE assets, create serious security situations, or could result in deaths in the workforce or general public (i.e., IMI-1)* ₁ *• Actions, inactions or events that pose threats to national security interests and/or critical DOE assets or that potentially create dangerous situations (i.e., IMI-2)* † *• Unallowable costs or fines >$1M • Adverse public opinion – high interest/widespread open public attention or debate (lasting weeks to months) • Customer dissatisfaction results in permanent loss of lab customer • Catastrophic failure to meet internal requirements* • Loss of major program within the division (>$10M)

Medium	*• Has the potential for adverse impact on Sandia's programmatic performance or the achievement of corporate strategic or operational objectives • Significant injury/illness -fully recoverable with a long recovery time • Significant environmental impact resulting in recovery actions lasting up to 5 years (e.g., major oil spill) • Results in Site/Area Emergency (affects multiple onsite facilities) • One of regulator "hot buttons" (e.g., NNSA, NMED) • Results in increased oversight of limited number of functions • Actions, inactions, or events that pose threats to DOE security interests or that potentially degrade the overall effectiveness of DOE's safeguards and security protection program (i.e., IMI-3) † • Unallowable costs or fines >$500K and <$1M • Adverse public opinion – moderate interest, limited PR problems of short duration (days) • Customer dissatisfaction results in partial loss of program • Significant failure to meet internal requirements* • Loss of program within division (>$1M)
Low	*• Minimal injury/illness – Fully recoverable with a short recovery time • Minimal environmental impact that can be improved within days • Results in increased short-term oversight • Results in an Operational Emergency (affects a single onsite facility) • Actions, inactions, or events that could pose threats to DOE by adversely impacting the ability of organizations to protect DOE safeguards and security interests (i.e., IMI-4) † • Unallowable costs or fines <$500K • Adverse public opinion with short-term local negative publicity or embarrassment*
Negligible	• Little or no attention, might be discussed as lesson learned

The risk level will be graded according to the following matrix. Adapted from DOE O 471.4.

RISK GRADING LEVELS					
		Consequence/Severity			
		Negligible	***Low***	***Medium***	***High***
Likelihood of Occurrence	***Very High***	*Low*	*Medium*	*High*	*High*
	High	*Low*	*Medium*	*High*	*High*
	Medium	*Low*	*Medium*	*Medium*	*High*
	Low	*Low*	*Low*	*Low*	*Medium*
	Negligible	*Low*	*Low*	*Low*	*Low*

Risks Associated with the Waste Management Program

1. **Spill or accident during waste pick up**
2. **Spill or accident during waste shipment**
3. **Spill or accident at SNL/CA waste facility**
4. **Incident at waste disposal facility**
5. **Site-wide Earthquake Induced Spill or Accident**
6. **Reduction of program funding by 10%**
7. **Regulatory Noncompliance**

1. Spill or Accident During Waste Pick-up.

a. Identification of Risk

During the transport of waste from the generator's location to the on-site waste transport truck, there is the possibility of an accidental spill. There is also the possibility of the waste transport truck having an accident on-site, causing a spill. There is also a potential for an accidental spill during the unloading of the on-site waste transport truck.

b. Probability of Occurrence

Given the number of waste pick-ups, the frequency of waste transport on-site and the care taken during the waste pickups it is considered Low that there will be an accidental spill during the year at SNL/CA.

c. Consequence of Occurrence

The small quantities transported ensure that any spill would be small, requiring a minor cleanup effort. Given the nature of the waste currently transported by the Waste Management Program, the likelihood of injury to personnel from a spill is remote. The overall consequence assigned is Low.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability Low with a Low severity, the risk category is **Low.**

2. Spill or Accident During Waste Shipment

a. Identification of Risk

Small spills could occur during loading and unloading of a waste truck. These spills would typically be on the order of a single 55-gallon drum. Larger spills involving the entire contents of the truck could occur from highway accidents.

b. Probability of Occurrence

Given that several waste shipments are performed each year, and the number of highway miles traveled by each shipment, it is considered Low that an accident will occur during our annual shipments.

c. Consequence of Occurrence

Regulations governing the packing of waste drums and other waste transportation regulations are intended to mitigate the severity of such accidents. A worst-case scenario would involve the breaching of several drums of SNL/CA waste during a highway accident. Such an accident would require significant environmental cleanup, and would likely involve injury to the public or personnel. The consequence category assigned is Medium.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability of Low, with a Medium severity, the risk category is **Low.**

- **Accident at SNL/CA Waste Facility**

a. Identification of Risk

There is the possibility of an accident involving the release of hazardous materials.

b. Probability of Occurrence

Given the number of waste containers handled at the facility, it is considered Low that there will be an accident involving the release of hazardous materials that there will be an accidental spill during the year at SNL/CA Waste Management Facility.

c. Consequence of Occurrence

Release scenarios could range from a small chemical bottle (e.g. 100 mL) to several 55-gallon drums (in the event of an earthquake). The waste facility incorporated secondary containment in its design, so no release outside of the facility is envisioned. Minor cleanup would be necessary, so the consequence category assigned is Low.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability of Low, with a Low severity, the risk category is **Low.**

4. Incident at the off-site Treatment, Storage and Disposal Facility

a. Identification of Risk

Incidents, such as fires are not unknown at waste disposal facilities. During 2005, there was a fire at the primary waste incineration facility SNL/CA sends waste to in Arkansas. No SNL/CA waste was involved in the fire, but the potential exists.

b. Probability of Occurrence

Given the recent history, the probability of occurrence is considered Low that an incident will occur at a waste management facility handling SNL/CA waste at some time during the year.

c. Consequence of Occurrence

SNL/CA would be responsible for the portion of the clean-up apportioned to SNL/CA waste. A larger portion could be assigned if was determined that SNL/CA was the *cause* of the incident. It is assumed that the dollar amount of the SNL/CA liability would be less than 1% of the SNL/CA annual operating budget ($250 million in FY 2010), therefore the consequence is Low.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability of Low, with a Low severity, the risk category is **Low.**

5. Site-wide Earthquake Induced Spill or Accident

e. Identification of Risk

Incidents, such as spills and fires are not unknown due to earthquakes at facilities.

f. Probability of Occurrence

Given the recent history, the probability of occurrence is considered Low that an earthquake of sizable magnitude will occur affecting SNL/CA at some time during the year of the SNL/CA facility. A moderate earthquake in 1981 cause significant damage to SNL/CA include minor chemical spillage.

g. Consequence of Occurrence

SNL/CA would be responsible for the on-site clean-up and cost of waste disposal. It is assumed that the dollar amount of the SNL/CA liability would be less than 1% of the SNL/CA annual operating budget ($250 million in FY 2010), therefore the consequence is Medium.

h. Overall Risk Category

In accordance with the chart above, for a risk with a probability of Low, with a Medium severity, the risk category is **Low.**

6. Under-recovery in the Waste Management Service Center by 10 - 30%

A. Identification of Risk

SNL is experiencing pressure to reduce expenses for indirect-funded and direct-funded organizations, including Environmental Management. The loss of NW funding for Waste Management has required Waste Management to be a full recovery chargeback program beginning in FY 2008. Because the majority of Waste Management Program expenditures are for labor, a 10 - 30% under-recovery in the service center would significantly impact staffing. A reduction in staffing would result in a reduced level of service to line organizations and a significant increase to perform WM operations.

B. Probability of Occurrence

Increasing constraints on site budgets is expected to continue for the next several years. This increasing budget pressure and the likely shortfall in the chargeback recovery makes it probable that the funding for the Waste Management Program will decrease by 10 - 30% from FY 2011 levels is High. The under-recovery in FY2008 ($255,000) was covered by corporate IES funding. SNL/CA over-recovery in FY2009 ($60,000) was absorbed by the corporate Waste Management Service Center. The under-recovery in FY2010 ($5,000) was covered by corporate IES funding.

C. Consequence of Occurrence

A 10 - 30% under-recovery in the service center would result in decreased staffing, training, and purchases. Only those program activities that are required by regulation, Sandia policy, technical work documents, or DOE/NNSA would be conducted. Discretionary training and travel for program staff would be eliminated. Purchases for replacement equipment and equipment repair would be reduced. A reduction in Line training and support would occur. Additional consequences include involuntary loss of personnel due to stressed induced illness and job changes. This results in loss of quality personnel with difficult and expensive to replace institutional and process knowledge.

An occurrence could also occur as a result Line under compliance and documentation inaccuracies. For these reasons, the consequence of a 10 - 30% under-recovery in the service center is identified as Medium.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability of High, with a Medium severity, the risk category is **High.**

7. Regulatory Noncompliance

a. Identification of Risk

The Waste Management Program was identified during the Fall 2008 Alameda County Department of Environmental Health (CUPA) Assessment to be under managing permitted hazardous waste treatment units in 968 and 943. This situation has been improved by active interactions between the CUPA, the Waste Management Regulatory Specialist and the Line process owners. Full compliance, however, will be an on-going activity due to the assertive nature of the CUPA. This identified risk is dependent on the extent the CUPA chooses to regulate at SNL/CA. All California facilities struggle with these regulations and full compliance.

b. Probability of Occurrence

The probability of an EPA, DTSC, DOE, or Alameda County (CUPA) audit resulting in a fine and/or negative publicity is High.

c. Consequence of Occurrence

The consequence of a fine and/or negative publicity would likely be an "Unallowable cost or fine >$500K" and <1$M, increased regulatory oversight and the "adverse public opinion would be short-term local negative publicity or embarrassment". Therefore, the consequence is identified as Medium.

d. Overall Risk Category

In accordance with the chart above, for a risk with a probability of High, with a Medium severity, the risk category is **High.**

Appendix C: Waste Management Program Quality Significant Purchases Determination

Sandia National Laboratories

Operated for the U.S. Department of
Energy by Sandia Corporation
Livermore, California 94551-0969

date: September 25, 2008

to: Gary Shamber, 8516
Manager, Environmental Management Department

from: Mark Brynildson, 8516
Waste Management Program Lead

subject: Quality Significant Purchases - Updated

1.Program title. Waste Management Program

2. Risk level of the program: The highest risk level was determined to be medium.

3. Types of material/instruments/equipment used in the program:

- Chemicals for preserving samples
- Chemicals (mineral oil for stabilization of reactive metal powders)
- Absorbent (vermiculite, solidisorb, pigs, dikes)
- Solidifiers
- pH probes/paper
- Oxidizer test paper
- Chlorinated oil test kit
- PPE
- Communication devices (phones & pagers)
- Scales
- Barcode Scanners
- Compactors
- Forklift, forklift charger, drum grabber, slings and straps
- Drum Dolly
- Waste (radioactive, mixed and hazardous) containers (drums, boxes)
- Explosives Magazette
- Portable tanks
- Secondary containment pallets

- Bung wrench
- Drum wrench
- Torque wrench
- Impact wrench
- Miscellaneous hand tools
- Waste Truck
- Pickup truck
- HEPA Filters
- Geiger counter
- WIMS database
- Desktop computers and printers
- Hazardous Waste Transporter
- Hazardous Waste TSDF
- Rad/Mixed waste transporter
- Rad/Mixed Waste TSDF

4. Criteria used to evaluate these to determine quality significance:

A potential failure of the items listed was evaluated against corporate quality-significant criteria. It was determined that such a failure:

- Will not cause a significant adverse impact to program cost, schedule, or performance in the event of a failure;
- Will not significantly impact the safe operation of a facility or activity;
- Will not involve the use, handling, or storage of radioactive material or radiation-generating devices, or involve exposure to ionizing radiation;
- Do not relate to the design, analysis, manufacture, or assembly of hardware, equipment, and software for present or future use with radioactive material;
- Will not be used in any safety-significant or safety-critical system, component, or application whose failure could adversely affect people, property, or the environment.

5. Determination on quality significant items:

The Hazardous Waste activities of the Waste Management Program has only one quality significant item used in operations - forklifts. This determination is consistent with the "Quality Significant Items" determination in the Hazardous Waste Operations at SNL/NM. When a forklift is procured it will be done according to the quality significant procurements requirements.

However, sorbents, solidifiers, drums, boxes, contractor support, transporter and commercial Treatment Storage and Disposal Facilities (TSDFs) used for Low-Level Radioactive Waste and Mixed Waste are quality significant items. These items or services are procured and managed by SNL/NM's Regulated Waste/Nuclear Material Disposition Department 04139 (RWNMDD) according to their procedures as defined in relevant SNL/NM technical work documents.

6. Determination on S/CI concerns/issues:

The Waste Management Program **does have a piece of equipment (forklift) that have the potential for suspect/counterfeit items that would be of a concern to the program. These items include bolts used in the critical lifting mechanisms of the forklifts**. The forklifts will be maintained and routinely inspected for suspect/counterfeit items by the SNL/CA Maintenance Engineering Department or their approved maintenance contractors.

Appendix D: Waste Management Program Self-Assessment

LESA Assessment Final Report
Assessment ID: 11479

8516 EMS Waste Management FY11

Assessment Summary

ID: 11479

Title: 8516 EMS Waste Management FY11

Description: The self-assessment will focus on the Waste Management tools and resources and Line Satellite Accumulation Area management. The assessment will also include the standard review of the Waste Management Web Pages and Tech...

Purpose: An assessment of Line implementation of Waste Management at the Line Hazardous Waste Satellite Accumulation Areas will determine the status by organization of the Line's relative compliance to WM requirements.

Originating Mgt. Entity: Policy Area » Environmental Safety & Health

	Org	*Manager*	*Division*
Assessing Org:	08516	Shamber,Gary W.	08000

Org(s) Being Assessed: None

Lead Assessor: Brynildson,Mark E. (08516)

POC Assessed: None

Type: Line Assess the Line

Status: Conducted

Dates: 10/12/2010 - 01/05/2011

Result Summary: 0 Significant Findings, 1 Minor Findings, 2 Observations, 0 Noteworthy Practices, 0 None (Acceptable Practices)

IA Summary: 2 Total IAs, 2 Open IAs, 0 IAs Pending Verification, 0 Closed IAs, 0 Required IAs Missing, 2 On Track IAs, 0 Past Due IAs, 1 Causal Analyses

Assessment Final Report Review

Submitted To: Shamber,Gary W. (08516)
Submitted By: Brynildson,Mark E. (08516)
Submitted Date: 01/18/2011

Appendix E: Waste Management Program Self-Assessment Document Checklist

Program Documents Review

Organization: 08516 **Program:** Waste Management

Date: 11/04/2010 **Signature:** Mark E. Brynildson
Program Lead

Document Type	Document Title	Review Complete / Date	Changes Made
Operating Procedures	OP471125 - Nonconforming Item Identification and Tracking --- Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	OP471310 - Control of Samples by the Environmental Operations Dept --- Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	OP471613 – Verification of Laboratory Chemical Analysis Data --- Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	OP471619 – Building 961 LECs Sump Operation --- Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	OP471787 – Waste Management Operations at SNL/CA --- Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	OP472180 – Operating the RAM FLAT Compactor --- Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	OP472236 – Management of Low-Level Radioactive and Mixed Waste at SNL/CA ---	☒11/10	☐ Yes ☒ No

	Note: Reviewed 11/10 No changes required		
	OP472245 – Measuring and Testing Equipment Calibration --- Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	SP473525 – Standard Operating Procedures for the Hazardous Waste Facility, Bldg 9611 Note: Reviewed 11/10 No changes required	☒11/10	☒ Yes ☐ No
	SP485007 – Low-Level Radioactive Waste, Bldg 961 Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
	AP800000 - Building Security Plan for Buildings 961 and 9611 Note: Updated 09/10 No changes required	☒11/10	☐ Yes ☒ No
ES&H Corporate Procedures	ESH100.2.ENV.15 Manage Hazardous Waste at SNL/CA ESH100.2.ENV.16 Manage Radioactive Waste at SNL/CA ESH100.2.ENV.17 Manage Mixed Waste at SNL/CA ESH100.2.ENV.20 Manage Other Waste at SNL/CA Note: Reviewed 11/10 No changes required	☒11/10	☐ Yes ☒ No
PHS	SNL7A00686 Note: Updated 09/10	☒11/10	☐ Yes ☒ No
Web Pages	General ES&H Web Page Note: Reviewed 11/10 Changes completed	☒11/10	☒ Yes ☐ No
	Waste Management Program Web Pages Note: Reviewed 11/10 Changes completed	☒11/10	☒ Yes ☐ No
Permit	RCRA Part B Permit Note: Permit update is required to reflect personnel changes and operational changes. Permit update in progress.	☒11/10	☐ Yes ☒ No

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