

**SANDIA REPORT**  
SAND2012- 7241  
Unlimited Release  
Printed August 2012

Supersedes SAND2011-2672  
Dated April 2011

# **Sandia National Laboratories, California Waste Management Program Annual Report August 2012**



**J. S. Harris**

Prepared by  
Sandia National Laboratories/California  
PO Box 969 MS 9902  
Livermore, California 94551-0969

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Janet S. Harris  
Environmental Management Department  
Sandia National Laboratories, California  
7011 East Avenue  
Livermore, CA 94550

## **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, Occupational Health, Safety and Environmental Management Department, the Waste Management Program personnel and the Occupational Health, Safety and 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**

<b>Section</b>	<b>Page</b>	<b>Change</b>
0	7	Summary of Document Changes updated
3.4	15	Expiration/Effective Dates updated in Table 3.1
7.0	26	Performance Measure Figures 7-1 and 7-2 updated
8.1	27	Program Risk Assessment narrative updated
9.1	28	Follow-up on 2010 Program Assessments updated
9.2	30	Waste Management Program Self-Assessment Document Checklist updated
9.3	34	WM Program Self Assessment narrative updated
9.4	34	EP Rep Program Assessment narrative updated
10	34	Accomplishments updated
11	35	Issues narrative updated
12	36	Trends narrative updated
13	38	Goals and Objectives updated
App. A	41	Personnel Assignments updated
App. B	38	Waste Management Program Quality Significant Purchases Determination updated

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# 1 Program Description

The Waste Management (WM) Program is one of six environmental programs under the Occupational Health, Safety and Environmental Management Department at SNL/CA. The program oversees the management of hazardous, radioactive, mixed and medical waste at SNL/CA. The WM Program is part of the corporate Sandia (SNL) WM Program. The SNL/CA WM Program is funded through an Integrated Enabling Services (IES) service center. The Waste Management service center uses Chargeback to recover the costs for the services it provides. Generators are billed according to the type and quantity of waste submitted and the Site/Facility that receives the waste. Chargeback pays for direct and indirect costs associated with all waste management operations, including handling, storage, transportation, treatment, and disposal.

This program report 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 Report 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 hazardous waste.

The management of hazardous 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; the material composition of the waste and is responsible for the characterization of the waste before it is transferred to WM. The hazardous waste is characterized on a Waste Description and Disposal Request (WDDR) by the generator. Once the waste is adequately characterized to meet the waste acceptance criteria of the WMF, the waste is picked up and 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 an 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. TSDFs send the manifest copy that they are required to sign back to SNL/CA to document transfer of the waste from SNL/CA to the TSDF. The TSDF also documents the ultimate disposition of waste by sending the Certification of Destruction.

The management of hazardous waste at SNL/CA is tracked from cradle-to-grave using the Waste Information Management System (WIMS). 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 characterize the waste and print an electronic waste tag that describes the waste. The tag is placed on the waste container. After the container is considered

full, 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 Waste Management and Pollution Prevention Department (WMPPD) provides the oversight and management of the SNL/CA Radioactive Waste Management Program. SNL/NM WMPPD also oversees the shipment of Low-Level Radioactive and Mixed Waste from SNL/CA. SNL/CA Radiation Protection (RP) Program personnel support the on-site management and disposal of 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 is defined as waste that contains both radioactive constituents and 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; the material composition of the waste and is responsible for the characterization of the waste before it is transferred to WM. The radioactive or mixed 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.

Mixed waste shipments are accompanied by a Uniform Hazardous Waste Manifest and Land Disposal Restriction (LDR) certifications, as needed. TSDFs send the manifest copy signed by them to SNL/CA to document transfer of the waste from SNL/CA to the TSDF. The TSDF also documents the ultimate disposition of waste by sending the Certification of Destruction.

## **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

*OP471787 Management of Hazardous Waste at SNL/CA, OP472236 Management of Low-Level Radioactive and Mixed Waste at SNL/CA, 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. Building 961 has a Liquid Effluent Control System (LECS) sump used to collect wastewater. The wastewater is discharged once approved.



**Figure 1-1 Waste Management Facility Building 961**



**Figure 1-2 Waste Management Facility Building 9611**

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## 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 2-1.

### 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, offsite training 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 2011, 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 National Security Site Waste Acceptance Criteria (NNSSWAC), 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 Livermore Pleasanton Fire Department is free to audit the tiered-permit program and conducts unannounced audits every three years. The Alameda County Department of Environmental Health is free to audit the medical waste program at anytime. See Section 9 for external audits.

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**

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
<i><b>Federal Laws</b></i>		
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	California Environmental Protection

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
	and hazardous or petroleum products stored in Underground Storage Tanks (UST).	Agency (Cal/EPA)
Toxic Substances Control Act (TSCA)	TSCA regulates the management and disposal of specific 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
<b><i>Federal Regulations</i></b>		
40 CFR 260-280	Implementing regulations for managing waste under RCRA.	EPA
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
<b><i>DOE Directives</i></b>		
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 460.2A Departmental Materials Transportation and Packaging Management	Establishes requirements and responsibilities for management of DOE materials including waste, transportation and packaging.	DOE
<b><i>California Laws</i></b>		
California Health and Safety Code, Division 20, Ch. 6.5, §§ 25100-25250.) Hazardous	Hazardous Waste Control Law provides a separate regulatory framework for hazardous waste management in California. The state law incorporates all RCRA requirements and imposes	Department of Toxic Substances Control (DTSC), Livermore

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
Waste Control Law	additional requirements that are stricter than RCRA standards.	Pleasanton Fire Department
(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
<b><i>California Regulations</i></b>		
Title 22 California Code of Regulations (CCR)	Implementing regulations for hazardous waste management, incorporating all RCRA requirements and imposes additional stricter standards.	DTSC, Livermore Pleasanton Fire Department

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## 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 Livermore Pleasanton Fire Department. 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 - one is for a Ni-Cu Process Water recycling system and the other is for a gold electrowinning process. Both permit by rule operations are located in Building 943.
- Two conditionally authorized permits for neutralization – one is for the neutralization of wastewater samples at the sewer outfall and the other is for the Building 968/120 Neutralization System.

### 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 utilizing both administrative controls and engineering controls. The administrative controls are 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**

<b>TITLE</b>	
<b>OPERATING PROCEDURES</b>	
	<b>Expiration Date</b>
AP800000 Building Security Plan for the Waste Management Facility (WMF), Buildings 961 and 9611	August 24, 2012
AP800008 SNL/CA Environmental Program Representative (EP Rep) Program	August 2, 2015
AP800009 SNL/CA Environmental Programs Representative Line Assessment Process	October 17, 2014
OP471125 Nonconforming Item Identification and Tracking	April, 16, 2015
OP471131 Data Validation and Verification for the Environmental Operations	June 15, 2014
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	June 15, 2014
OP471787 Hazardous Waste Operations at SNL/CA	December 1, 2012
OP472180 Operating the RAM FLAT Compactor	May 10, 2014
OP472236 Management of Low-Level Radioactive and Mixed Waste at SNL/CA	October 26, 2014
OP472245 Measuring and Testing Equipment Calibration	July 22, 2013
<b>STANDARD OPERATING PROCEDURE</b>	
SP473525 Standard Operating Procedure for the Hazardous Waste Facility, Bldg. 9611	January 19, 2013
SP485007 Low-Level Radioactive Waste, Bldg. 961	October 13 2014
<b>PRIMARY HAZARD SCREENING</b>	
SNL7A00686-021 Waste Management Program at SNL/CA	September 6, 2012
<b>ES&amp;H MANUAL SECTIONS</b>	
	<b>Issue Date</b>
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
<b>OTHER DOCUMENTS</b>	
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. 9	February 2012

## 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. There were no significant changes to Program documents in 2011.

### 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 pick up. 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 train the customers and provide ongoing support as needed.

A similar process exists for radioactive and mixed waste. The Disposal Request (DR) is the primary document the customer uses to request radioactive and mixed 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 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, 2013	Every 2 years	CA/EPA/DTSC	Regulatory
Biennial Generators Report	March 1, 2012	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

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## 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 10 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 regulations and DOE orders for hazardous, radioactive, mixed and medical 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 04144 – *Waste Management and Pollution Prevention*. 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 regulations and DOE orders for hazardous, radioactive, mixed and medical 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 (have or able to obtain)

- 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 Waste 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:

- Bachelor 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. Eight hours of annual refresher training is required to keep the Hazardous Waste Operators Training certification current. 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 Occupational Health, Safety and Environmental Management (OHSEM) 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 Occupational Health, Safety and Environmental Management Department). Examples include:

- external classroom courses or seminars,
- on the job training,

- web-based training,
- videos,
- other methods approved by SNL or the OHSEM 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	R	R	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

<b>Training Courses Requirements</b>	<b>Training Frequency</b>	<b>Waste Program Lead</b>	<b>Waste Program Engineer</b>	<b>Field Chemist</b>	<b>Radioactive Waste Representative</b>	<b>Hazardous Waste Technician</b>	<b>Emergency Response Backup</b>
Radworker Training (RAD 210, RAD 230)	Biennial	R	R	O	R	O	N
Cyanide Waste handling (PBR Req., 22CCR 67450.11(d)(4))	Annual	O	O	R	R	R	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

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## 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:

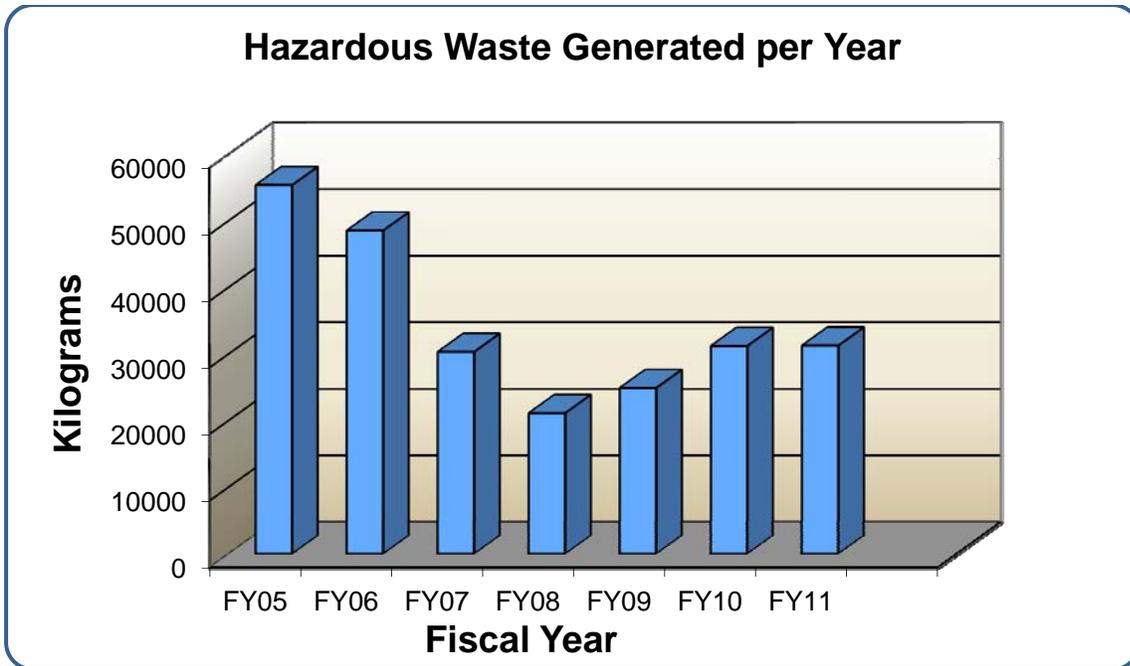
- Meet all regulatory monitoring requirements (Hazardous Waste (HW), Low-Level Radioactive Waste (LLRW), and Mixed Waste (MW))
- Meet regulatory report due dates (usually annual)
- Direct involvement with the Line and the EP Rep. about WM issues
- Meet quality assurance goals
- Compliance with Cal/EPA/DTSC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

In 2011, the Program met all regulatory report due dates with the exception of the DTSC Annual Report. Due to WIMS database problems, a due date extension for the Annual Report was granted by DTSC. The Annual Report was submitted within the extension period to satisfy report requirements. The WM Program staff continues to have direct communication with the line and EP Rep through IDT meetings, direct phone calls, SAA visits and presentations to department personnel.

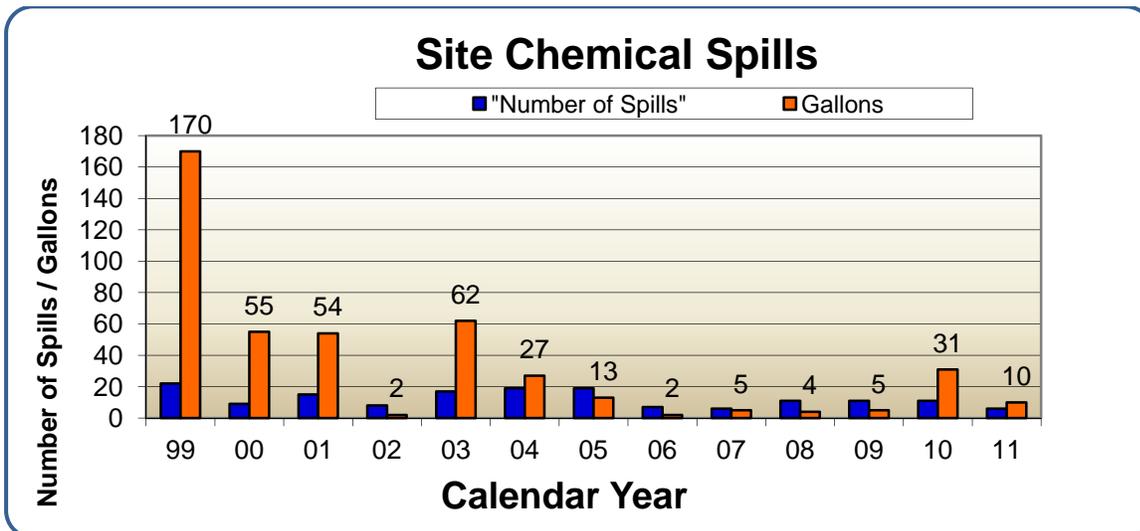
FY2011 EMS environmental targets and objectives were approved in January of 2011. The performance measures will indicate the degree of success in meeting those targets. One of the EMS environmental objectives was to minimize the site's generation of waste including hazardous waste.

The EMS uses metrics to show progress in achieving goals. These metrics are updated on the Environmental Management web page. Figure 7-1 represents the site's generation of hazardous waste per year. Waste generation fluctuates from year to year depending upon the nature and scope of the research and facilities projects conducted.

Figure 7-2 represents the site's chemical spills. Typical materials spilled include motor oil, hydraulic oil and coolants. 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 Year**



**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

In January 2012, the WM Program completed a program risk assessment. The risk assessment identified eight potential risks associated with WM. Table 8-1 lists each risk and the calculated risk category.

**Table 8-1 Waste Management Program Risks**

Risk #	Risk	Risk Category
1	Spill or accident during waste pick up	Medium
2	Spill or accident during waste shipment	Low
3	Spill or accident at SNL/CA waste facility	Medium
4	Incident at the off-site Treatment, Storage and Disposal Facility	Medium
5	Site-wide Earthquake Induced Spill or Accident	Medium
6	Reduction in Program Funding by 10 - 30%	High
7	Regulatory Noncompliance	High
8	Critical System Breakdown	High

A copy of the complete risk assessment is available upon request.

### 8.2 Quality Significant Purchases Determination

A Quality Significant Purchases Determination, see Appendix B, 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 Waste Management and Pollution Prevention Department 04140 (WMPPD) according to their procedures as defined in relevant SNL/NM technical work documents.

## 9 Program Assessments

### 2011 Program Self-Assessment

The WM staff completes a self-assessment annually that includes two parts:

Part 1 is an assessment of the mechanisms and workings of the program to include, but not necessarily limited to: program procedures; program web site, directory and other communications information; field infrastructure and signage; program documents; and program financials and contracts. This is an inward look at the program during the assessment.

Part 2 is an assessment of the effectiveness of the environmental program as evidenced by compliance of requirements performed by the line. The 2011 Program Self-Assessment results are discussed in Sections 9.2 and 9.3.

The Waste Management program is assessed by the NNSA/SSO located in New Mexico with participation from the Sandia Site Office. SNL/CA was not reviewed in 2011.

The WM program /facility was audited by DTSC twice in 2011. One minor violation was identified in the first audit conducted in May. The minor violation involved an inaccurate operating record generated from an incorrect scan of location. The record was corrected immediately upon discovery. No violations were identified in the second audit conducted in December.

The Livermore-Pleasanton Fire Department also audited the WM Program/facility. No violations were identified.

The medical waste program was audited by Alameda County Environmental Health Department. No violations were identified in the medical waste program.

### **9.1 Follow-up on 2010 Program Self Assessments**

In 2010 WM assessed the management of hazardous waste in less than ninety-day storage areas and the Line's Hazardous Waste Satellite Accumulation Areas (SAAs). The assessment determined that 1) the less the ninety day storage areas contingency plans and inspections needed to be improved and 2) the waste management practices observed at SAAs during assessments (formal and informal) and during routine operations such as waste pick-ups and chemical inventory reconciliation did not always reflect proper management procedures outlined in written guidance and training.

In 2011 WM personnel developed templates for both Contingency Plans and inspection sheets to be used in future less than ninety-day storage areas. The templates make the correct management of hazardous waste in a less than ninety-day storage area easier. In addition WM personnel conducted additional training and education outreach as well as conducted periodic checks on satellite accumulation areas in an effort in order to raise the level of compliance site wide and better prepare for outside regulatory inspections

## **9.2 2011 Program Self-Assessment Part 1 - Program Mechanics**

In 2010, P2 completed a self-assessment that reviewed all of our technical work documents, processes, and web pages. The results of this assessment are documented on the Annual Program Assessment Program Management form below.

**Annual EMS Program**  
**Document Review Checklist**

**Organization:** 08516      **Program:** Waste Management

**Date:** 5/2/2012      **Signature:** Janet Harris  
Program Lead

Document Type	Document Title	Review Complete / Date	Changes Made	Comments
PHS	Waste Management Program at SNL/CA (SNL7A00686-21)	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	PHS updated 9/11. Next review 9/12 will update as well as change Program Lead information at that time.
Operating Procedures	OP471125 - Nonconforming Item Identification and Tracking	<input checked="" type="checkbox"/> 4/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	OP was updated 4/12.
	OP471310 - Control of Samples by the Environmental Operations Dept	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Environmental Monitoring owns OP Waste Management uses procedure to collect and transport samples.
	OP471613 – Verification of Laboratory Chemical Analysis Data	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	OP471619 – Building 961 LECs Sump Operation	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	OP471787 – Waste Management Operations at SNL/CA	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	OP needs to be reviewed and updated by 12/1/12
	OP472180 – Operating the RAM FLAT Compactor	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	OP472236 – Management of	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes	

	Low-Level Radioactive and Mixed Waste at SNL/CA		<input checked="" type="checkbox"/> No	
	OP472245 – Measuring and Testing Equipment Calibration	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	SP473525 – Standard Operating Procedures for the Hazardous Waste Facility, Bldg 9611	<input checked="" type="checkbox"/> 2/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	SOP needs to be reviewed and updated by 1/19/13
	SP485007 – Low-Level Radioactive Waste, Bldg 961	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	AP800000 - Building Security Plan for the Waste Management Facility (WMF), Buildings 961 and 9611	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	AP needs to be reviewed and updated by 8/24/12
	AP800008 – SNL/CA Environmental Program Representative Program	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	EP Rep owns AP. Waste Management works with EP Rep to provide guidance and requirements to the line for management of hazardous waste.
	AP800009 – SNL/CA Environmental Program Representative Program	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	EP Rep owns AP. EP Rep conducts audits based on risk of the various site operations. These audits are used to monitor the line's compliance with the regulatory requirements of the management of hazardous waste.
WPC Documents	JWQA forms (Harris, Irish, Oteri, Tidwell)	<input checked="" type="checkbox"/> 4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
ES&H	ESH100.2.ENV.15 Manage	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes	ESH100.2ENV.2

Corporate Procedures	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 ESH100.2.ENV.21 Recycle or Reuse Waste at SNL/CA		<input checked="" type="checkbox"/> No	0 Manage Other Waste. Information regarding management of medical waste and biohazardous waste needs to be updated to reflect new storage procedures.
Contracts	Staff Augmentation for Field Chemist	<input checked="" type="checkbox"/> 4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	Clean Harbor PO 878425	<input checked="" type="checkbox"/> 4/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Contract was renewed in 12/11.
	Advanced Chemical Transport (ACT) PO 1153533	<input checked="" type="checkbox"/> 4/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	New vendor for Medical Waste disposal. Contract POP effective 10/11
	Calibration of Equipment – Technical Safety Services PO 1180867	<input checked="" type="checkbox"/> 4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Web Pages	General ES&H Web Page	<input checked="" type="checkbox"/> 4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	Program Web Page	<input checked="" type="checkbox"/> 4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Web pages need to be updated to reflect new program lead and new chargeback charges and categories.
	Metric Web Page	<input checked="" type="checkbox"/> 2/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Chargeback	<input checked="" type="checkbox"/> 1/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Webpage updated to reflect FY12 charges
	WDDR	<input checked="" type="checkbox"/> 4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New webpage being developed for SNL/CA guidance
	Get Rid Of It	<input checked="" type="checkbox"/> 2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Other Program Document	SNL/CA Waste Management Program Annual Report	<input checked="" type="checkbox"/> 5/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Document is currently being updated to reflect

S				FY 11 information
	Guide Sheets	☒4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Guide sheets need to be updated to reflect new program lead and new chargeback charges and categories.
	Environmental Fees	☒2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	SNL Transportation Security Plan	☒2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	SNL Transportation Safety Plan	☒2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	Nevada National Security Site Waste Acceptance Criteria DOE/NV-325-REV 9	☒2/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Permit	RCRA Part B Permit	☒3/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Permit update was submitted to DTSC in March to reflect personnel changes and operational changes. As of 5/2/12 Have not received acknowledgement letter.
	PBR – 943 Ni-Cu Plating Process Water Recycling System	☒1/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Phase 1 Assessment needs to be completed by 6/12.
	PBR – 943 Gold Plating	☒1/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	CA – SNL/CA 968/120 Neutralization System	☒1/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	CA – Sanitary Sewer Outfall	☒1/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	Transporter Permit	☒4/12	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Reports	Waste Minimization Certification	☒2/12	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Updated to reflect personnel changes.
	Biennial Generators Report	☒2/12	☒ Yes	Updated to reflect

			<input type="checkbox"/> No	personnel changes and current wastestream management.
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### 9.3 2011 Program Self-Assessment - Part 2 - Line Performance Assessment

The 2011 WM Program self-assessment focused on evaluating the current Waste Management program resources including labor, facilities, equipment, WIMS, and chargeback to identify potential compliance vulnerabilities and opportunities for improvement. The assessment determined the program is vulnerable in two staff positions specifically the Field Chemist and EP Representative. The Field Chemist position was converted from a contractor to a Sandia position in July 2012. The position was filled in August 2012. The assessment also determined the two computer/data systems specifically Waste Information Management System and Radioactive Waste Tracking System need redevelopment or to be replaced. SNL/NM and SNL/CA are currently evaluating replacement databases for these two systems. A copy of the 2011 Program Self-Assessment is available upon request.

### 9.4 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 2011 and will continue in 2012. 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.

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## 10 Accomplishments

During 2011, WM accomplished the following activities:

The two operations in Building 943 specifically the Ni-Cu Process Water recycling system and the gold electrowinning process were fully permitted under Permit by Rule.

The cleanout and permit closure of the 910/310 circuit board prototyping laboratory was completed.

The CUPA regulator for SNL/CA was changed due to the incorporation of LLNL and SNL property to the city of Livermore. The new regulator is Livermore Pleasanton Fire Department.

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.

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# 11 Issues

## 11.1 Contract Issues

In 2011 WM changed the vendor for the biomedical waste contract.

## 11.2 Funding Issues

In 2011 funding issues continue to be a very significant issue in WM 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.

## 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

In 2011, regulatory oversight for hazardous materials and hazardous waste programs changed from the Alameda County Department of Environmental Health to the Livermore Pleasanton Fire Department—Additional Review of key environmental program elements, including container management, labeling and storage of hazardous waste, will need to be continued in 2012 to 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 and training 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 and trainings, as well as onetime costs associated with updating non-compliant activities will need to be considered.

A Waste Management Facility Permit Modification was submitted to the California Department of Toxic Substance Control in April 2011. These permit modifications were administrative in nature and do not include any significant operational changes. The permit modifications were acknowledged by DTSC in April 2011.

In 2011, there were two environmental occurrences at SNL/CA. The first occurrence was a result of additional findings associated with an August 9, 2010 Notice of Violation related to hazardous waste treatment and permitting requirements. An addendum to the 2010 Notice of Violation was issued on January 7, 2011 by Alameda County Environmental Health. The addendum NOV cited two hazardous waste treatment and permitting deficiencies. Alameda County Environmental Health sought enforcement action for these two hazardous waste treatment processes. Sandia has settled with Alameda County and both operations are now properly permitted.

## **12 Trends**

### **12.1 Budget Trends**

The FY 2008, FY2009, FY2010 and FY2011 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 the waste generation 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) needs 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

(Approved by January 31, 2011)

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:

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Rick Stulen, VP 8000

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Date

## 13.2 Internal Waste Management Activities for 2012

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

<b>Name</b>	<b>Position</b>	<b>Date associated with the Waste Management Program</b>	<b>Radioactive &amp; Mixed Waste Management Field Activities</b>	<b>Hazardous Waste Management Field Activities</b>
G. Shamber	Manager, Occupational Health, Safety and Environmental Management Department Emergency Response Backup	Oct 2004	No	No**
J. Harris	Waste Program Lead Waste Program Engineer	May 2002	Yes	Yes
L. Tidwell	Waste Program Lead Backup Waste Program Engineer	Oct 2010	Yes	Yes
R. Oteri	Waste Management Technician Radioactive Waste Representative	Jul 2001	Yes	Yes
M. Clark*	Emergency Response Backup	Apr 2002	No	No**
P. Irish	Field Chemist Radioactive Waste Representative	Jan 2005	Yes	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**
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 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 Magazine
- 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.

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