

## **SANDIA REPORT**

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# **Sandia National Laboratories, California Pollution Prevention Program Annual Report**

March 2010



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Prepared by  
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## **ABSTRACT**

The annual program report provides detailed information about all aspects of the SNL/CA Pollution Prevention Program for a given calendar year. It functions as supporting documentation to the *SNL/CA Environmental Management System Program Manual*. The program report describes the activities undertaken during the past year, and activities planned in future years to implement the Pollution Prevention Program, one of six programs that supports environmental management at SNL/CA.

## **Acknowledgement**

The authors thank Gary Shamber, Manager, Environmental Management Department, the Pollution Prevention Program personnel, the Environmental Management Department personnel and the Maintenance Engineering Department personnel for their leadership, guidance and support in the responsible stewardship of the environmental resources in our care.

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## Summary of Document Changes

Significant changes made to the 2008 edition of the Pollution Prevention Program Report are summarized in Table 1.

Table 1 Summary of Significant Changes to Pollution Prevention Program Report

Section	Page	Change
1.0	7-9	Updated program activities.
2.0	9-15	Regulatory changes that occurred in 2009 are summarized.
2.0	16	Updated summary of audits and assessments for 2009.
3.0	16	Updated Table 3 to reflect versions and dates for technical work documents. Added two new documents that provide operational control: AP800021 Management of Universal Waste Batteries at SNL/CA and AP800015 8000 Work Planning and Control for Activity Level Work
4.0	18-19	Updated Table 4 to reflect due date changes in submitting WasteWise report and types of information requested specifically Lockheed Martin no longer wants fuel use included in quarterly report. Document requirements are discussed and included in Table 4.
5.0	19-21	Table 5 updated to reflect current assignments and backups. Added job description and assignments for Universal Waste battery personnel.
6.0	21-23	Table 6 updated to reflect new training requirements.
7.0	23-28	Updated performance measures to include FY2009 data.
8.1	28-30	Updated risk assessment for 2010 risks.
9.1	31	This section describes follow-up on results from 2008 Line performance assessment.
9.2	32-33	Includes an updated program document review form
9.3	34	Summarizes the results of the 2010 Line Performance assessment to assess the management of universal waste specifically empty aerosol cans, batteries, electronic waste and lamps. The recycling waste stream for tires also was assessed.
10.0	35-36	Updated accomplishments to reflect 2009 activities
12.0	37	Updated discussion on trends to address concern and impact of decreasing budgets
13.0	37-38	Updated targets and actions.
App A	39-41	Includes an updated spreadsheet of the management of waste streams recycled at SNL/CA in 2009.
App B	42-46	Includes an updated Program Risk Assessment completed in January 2009.
App C	47-52	Includes an updated Line Assessment to evaluate each recycling waste stream managed by SNL/CA to determine cost effectiveness of recycling completed in December 2008.

# 1 Program Description

The Pollution Prevention (P2) Program is one of six programs under the Environmental Management Department at Sandia National Laboratories, California (SNL/CA). The P2 Program promotes the elimination or reduction of all types of wastes generated at SNL/CA. The Program works closely with the site's organizations to establish routine and project specific recycling programs. The Program provides guidance for resource and energy conservation and assists in identifying recycled-content products for use throughout the site. The P2 Program also implements the Universal Waste program to ensure proper handling and disposal of low-hazard waste specifically consumer electronics, batteries, cathode ray tubes (CRTs), and fluorescent tubes. The P2 Program is responsible for the collection, analysis, and reporting of waste generation, recycling and Environmentally Preferable Purchases (EPP) data. The P2 Program is part of the SNL/CA Environmental Management System (EMS) and maintains responsibility for implementing the DOE Pollution Prevention performance based goals. The Program is an indirectly funded program, supported through the Integrated Enabling Service.

This program report provides detailed information about all aspects of the P2 Program. It provides 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 Waste Minimization

Waste Minimization focuses on the elimination or reduction of all types of wastes generated at SNL/CA. The P2 Program researches new technology and equipment for waste minimization as well as provides guidance on Environmental Safety and Health (ES&H) Standard Operating Procedures (SOPs). Researchers, Maintenance and Waste Management staff, and the Environmental Programs (EP) Representative provide the P2 program with information about processes that should be evaluated for eliminating or reducing the amount of waste generated. This is accomplished by 1) reviewing projects at IDT, 2) conducting Pollution Prevention Opportunity Assessments and program self-assessments, 3) independent assessments performed by the EP Representative and 4) receiving recommendations and input from other environmental programs.

## 1.2 Recycling and Reuse

The P2 Program encourages recycling of solid waste by diverting materials suitable for reuse and recycling from landfills. The P2 staff assists Waste Management, Facilities, and Maintenance staff and researchers in implementing, maintaining and improving programs for recycling and reuse of routine and non-routine wastes. The P2 Program has established several contracts to obtain revenue for the recycling of waste streams specifically beverage containers, cardboard, electronic waste, lead acid batteries and scrap metal. The P2 staff continues to evaluate other waste streams for recycling. The P2 Program in addition conducts outreach and awareness campaigns to inform the SNL/CA site population of the recycling requirements and when

changes occur in the requirements. Appendix A contains information on the twenty waste streams recycled or reused at SNL/CA.

SNL/CA occupies approximately 60 facilities on the 410 acre campus. These facilities are comprised of offices, laboratories, warehouses, and storage areas. Each facility is provided with recycling services and collection hoppers dependent on the facility's activity. Area 8, located in the southern part of the site, is the staging area for trash and large recycling waste streams and the pallet-recycling program. The P2 Program's Recycling Yard is located east of Building 928 and is the staging area for auction and recycling activities, the truck scale and the P2 storage trailers. South of Building 967 is the staging area for scrap metal collection activities. The cardboard baling operations are conducted in Building 927 on the east side.

The P2 Program participates in site cleanout events as needed. These activities include assistance with cataloging and advertising of unneeded excess materials and equipment, and the disposition of items and recyclables not reclaimed. The P2 Program also works with Reclamation staff and the EP Representative to evaluate equipment to determine if it can be reused or recycled as scrap metal. The P2 Program works with Facilities staff to ensure construction waste generated from D&D activities is recycled.

The P2 Program works with the researchers and Waste Management staff to utilize the Chemical Exchange Program (CEP) to reuse chemicals onsite.

### **1.3 Environmentally Preferable Products**

The P2 Environmentally Preferable Products (EPP) Program concentrates on increasing the procurement of products that contain recycled and biobased content. The P2 staff works with Procurement, Maintenance, and Facilities staff and line organizations to increase EPP purchases.

The P2 Program implemented a Green Team to assist in the procurement of environmentally friendly products. The team includes Pollution Prevention, Procurement, Facilities, and Maintenance staff, and a representative from the OMA Council. The team meets as needed. Recently SNL/CA changed the vendor for office supplies, the P2 Program is working with the new vendor to develop a "Preferred List of Products".

The P2 Program in addition conducts outreach and awareness campaigns to inform the SNL/CA site population of the EPP requirements and when changes occur in the requirements.

### **1.4 Universal Waste Management**

The P2 Program manages the Universal Waste program at SNL/CA specifically batteries, electronic waste and fluorescent light tubes. Recently the process for collection of Universal Waste Batteries onsite was changed. The P2 Program works closely with the Electricians, Reapplication and Waste Management staff to implement the requirements of these waste streams.

## 1.5 Energy Conservation

The P2 Program provides assistance in developing and communicating strategies to reduce the use of SNL/CA's natural resources.

## 1.6 Data Analysis and Reporting

The P2 Program is responsible for the collection, analysis, and reporting of waste generation, recycling and EPP data. The information is provided by the Waste Management database WIMS, researchers, Facilities and Maintenance staff, and vendors. The reports are discussed in Table 4.

# 2 Regulatory / Corporate Drivers

Environmental compliance drivers include laws, regulations, orders, directives, and other corporate and site-specific requirements. The drivers that are applicable to the P2 Program are listed and summarized in Table 2.

The P2 Program uses a variety of sources to stay current on applicable compliance drivers. The primary source used is the Sandia corporate notification service provided by corporate ES&H Library staff. Sandia's library staff monitors DOE requirements and federal, state, and local government publications for regulatory issues applicable to SNL operations. P2 receives notifications weekly, which are then reviewed for applicability to SNL/CA operations. P2 also receives and reviews the *California Environmental Insider*, a California-specific publication, issued twice per month, which summarizes current regulatory issues and changes that affect activities in the state. Both federal and state issues of concern are addressed in this publication. Additional sources of information on regulatory changes include direct communication with NNSA/SSO 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 process, self-assessments, targeted presentations, and the P2 web page.

- In 2009, the state Universal Waste regulations were consolidated to simplify the requirements for the different waste streams i.e., requirements for batteries, lamps and mercury-containing equipment are discussed together while requirements for electronic devices and CRTs are described together. The standards for small quantity generators and large quantity generators were combined together and are referred to as Universal Waste handler requirements. The labeling requirements for the Universal Waste streams are now specifically defined as is the tracking requirements for offsite shipments.
- In 2009 the Executive Order 13514 established an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions (GHG) a priority for Federal agencies. In addition EO 13514 lays out the following numerical targets for agencies:

- \* Achieve 50% or higher diversion rate:
  - ⇒ Non-hazardous solid waste by FY2015.
  - ⇒ Construction and demolition materials and debris by FY2015.
- \* Ensure 95% of all new contracts, including non-exempt contract modifications, require products and services that are energy-efficient, water-efficient, biobased, environmentally preferable, non-ozone depleting, contain recycled-content, non-toxic or less-toxic alternatives.

This EO also sets non-numerical targets that agencies must reach, including:

- \* Implement source reduction to minimize waste and pollutant generation.
- \* Ensure procurement preference for EPEAT-registered electronic products.

Beyond these targets, EO 13514 calls for specific management strategies to improve sustainability including:

- \* Manage existing buildings to reduce energy, water, and materials consumption.
- \* Reduce paper use and acquire paper containing at least 30% postconsumer fiber.
- \* Minimize the acquisition, use, and disposal of toxic and hazardous materials.
- \* Employ environmentally sound practices for the disposition of all agency excess or surplus electronic products.
- \* Procure Energy Star and FEMP-designated electronic equipment.

Table 2 Compliance Drivers for Pollution Prevention Program

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
<b>Federal Laws</b>		
Resource Conservation and Recovery Act (RCRA)	RCRA establishes a cradle to grave management framework and a regulatory system for solid waste. Waste generators must have a waste minimization program in place that reduces volume and toxicity of waste. Another section of the Act requires procurement of products that contain recycled-content or recovered materials.	Environmental Protection Agency (EPA)
Pollution Prevention Act of 1990	The Pollution Prevention Act of 1990 establishes a national policy for Pollution Prevention, and introduces what is known as the pollution prevention hierarchy. The hierarchy requires facilities to prevent pollution at the source whenever feasible, followed by reuse/recycle, then treatment, and disposal.	EPA
Clean Water Act (CWA)	The CWA requires industrial storm water discharge facilities to have an onsite Pollution Prevention plan. It also directs the EPA to promote the inclusion of pollution prevention technologies in industrial effluent standards and promote source reduction in industrial water effluent guidelines.	EPA
Energy Policy Act of 2005	The Energy Policy Act of 2005 requires the Secretary of Energy to work with federal agencies to significantly reduce the use of energy and promote energy efficiency and the use of renewable energy technologies.	EPA

Table 2 Compliance Drivers for Pollution Prevention Program (cont.)

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
<b>DOE Directives</b>		
DOE Order 413.3, Program and Project Management for the Acquisition of Capital Assets	DOE Order 413.3, Program and Project Management for the Acquisition of Capital Assets establish the general requirements for capital assets, and include numerous pollution prevention and sustainable design concepts and requirements.	DOE
DOE Order 435.1, Radioactive Waste Management	DOE Order 435.1, Radioactive Waste Management requires waste minimization and pollution prevention to be implemented at all facilities that manage radioactive waste.	DOE
DOE Order 450.1A Environmental Protection Program	DOE Order 450.1A, Environmental Protection Program outlines the basic strategy for environmental compliance at DOE facilities, including SNL/CA. The objectives of the Order are to implement sound environmental stewardship practices, and to meet or exceed compliance with environmental, public health, and resource protection laws, regulations, and DOE requirements. The order requires DOE sites to meet these objectives through an environmental management system (EMS) that integrates environment, safety, and health into work planning and execution. The Order establishes five performance-based sustainable environmental stewardship goals.	DOE
DOE Order 430.2B, Departmental Energy, Renewable Energy and Transportation Management	DOE Order 430.2B identifies requirements and responsibilities for efficient and effective management of energy, water, and vehicle fleets at DOE facilities. It requires DOE sites to incorporate objectives and targets into their EMS programs that contribute to achieving sustainable goals for energy, water, and fleet management.	DOE

Table 2 Compliance Drivers for Pollution Prevention Program (cont.)

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
<b>Executive Orders</b>		
Executive Order (E.O.) 12088, Federal Compliance with Pollution Control Standards	E.O. 12088, Federal Compliance with Pollution Control Standards makes the head of each Federal Agency responsible for the prevention of environmental pollution at Federal facilities and as well as for all activities that are under the control of that agency.	DOE as responsible federal agency for SNL facilities
E.O. 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention	E.O. 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention requires Federal agencies to reduce toxins entering waste streams and release to the environment through source reduction; to report toxic-chemicals entering the waste stream and released to the environment; to improve emergency planning, response, and accident notification; to encourage markets for clean technologies and safe alternative to hazardous substance and toxic-chemicals; and to set waste reduction goals.	DOE as responsible federal agency for SNL facilities
E.O. 13423 Strengthening Federal Environmental, Energy, and Transportation Management	E.O. 13423 Strengthening Federal Environmental, Energy, and Transportation Management strengthens and establishes new and updated goals, practices, and reporting requirements for environmental, energy, and transportation performances and accountability.	DOE as responsible federal agency for SNL facilities
“New” E.O. 13514 Leadership in Environmental, Energy, and Economic Performance	E.O. 13514 Leadership in Environmental, Energy, and Economic Performance establishes an integrated strategy towards sustainability in the Federal Government and to make reduction of greenhouse gas emissions (GHG) a priority for Federal agencies.	DOE as responsible federal agency for SNL facilities

Table 2 Compliance Drivers for Pollution Prevention Program (cont.)

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
<b>California Laws</b>		
California Health and Safety Code, Div 20, Ch 6.5, §§ 25244.12-25244.24.) Hazardous Waste Source Reduction Act of 1989	The Hazardous Waste Source Reduction and Management Review Act of 1989, also known as Senate Bill 14, requires hazardous waste generators to complete a Source Reduction and Evaluation Review and Plan. Each generator regulated under the Act must conduct the source reduction evaluation review and plan every four years.	Department of Toxic Substances Control (DTSC)
California Health and Safety Code, Div. 20, Ch. 6.5, §§25202.9	Waste Minimization Certification: The waste generator must certify annually that the facility has a program in place to reduce the volume and toxicity of all hazardous wastes.	DTSC
California Health and Safety Code, Div. 20, Ch. 6.5, §§25211	Appliance Recycling: DTSC established a certification program for individuals and businesses that process major appliances for scrap. Before an appliance can be scrapped it is required that special materials such as refrigeration fluid (CFCs), used oil, and mercury be removed prior to the disposal of the major appliances.	DTSC

Table 2 Compliance Drivers for Pollution Prevention Program (cont.)

<b>Driver</b>	<b>Summary</b>	<b>Regulating Authority</b>
<b>California Regulations</b>		
Title 22 Code of Regulations (CCR) Div. 4.5, Ch. 16. Recyclable Materials	Recyclable Materials: The management of recyclable materials. Mandates that specific waste streams are recycled instead of land filled.	DTSC
Title 22 CCR, Div. 4.5, Ch. 31. Waste Minimization (SB14)	Hazardous Waste Source Reduction and Management Review: Every four years the site must review its operations and prepare a report.	DTSC
Public Resource Code, §§ 42490-42499. Cell Phone Recycling Act	Cell Phone Recycling Act: Requires all vendors of cell phones to have a system in place to recycle their consumer cell phones.	DTSC
Public Resource Code, §§ 42961 Tire Waste Manifest System	Tire Waste Manifest System: Requires generators of waste tires to properly manage waste tires and participate in the Waste Tire Manifest Program.	County of Alameda Environmental Health Department
“Updated” Title 22 CCR, Division 4.5, Chapter 23, Standards for Universal Waste Management	Universal Waste Management: Requires universal waste generators register with the State, manage waste appropriately and report activity. In 2009 the regulations for Universal Waste Management were updated. The update consolidated specifically the requirements for various waste streams, the requirements for labeling of universal waste streams was specifically defined as was the tracking requirements for offsite shipments.	DTSC

The P2 Program is audited periodically by EPA, DTSC, DOE, Alameda County Environmental Health Department, Sandia Corporation, and Lockheed Martin, Sandia's parent company. In 2009 the P2 Program activities were included in two surveillance audits conducted to maintain ISO 14001 registration. No non-conformances were identified in the Program.

The P2 Program Lead and Project Lead communicate with NNSA/SSO counterparts regularly to keep them informed of issues and trends of importance to the program. The P2 Program staff at SNL/CA work together with the SNL/NM counterparts and NNSA/SSO to resolve concerns and to develop effective approaches to program implementation. The P2 Program and SSO maintain an open and cooperative relationship.

### 3 Operational Controls

The P2 Program uses technical work documents, and administrative and engineering controls to control operational aspects of the Program. Table 3 lists the technical work documents applicable to the P2 Program. They include the Hazardous Waste Facility Permit, corporate processes and procedures, administrative and operating procedures, preliminary hazard screening documents, hazard assessments, and other site-specific requirements. Administrative controls include checklists, reporting forms, site documentation review, and collection point locations for recyclables and construction debris to minimize trash generation and maximize recycling and reuse. Administrative controls also include blocking the ordering of virgin products or products that do not meet EPA Guidelines to improve the purchasing of required recycled-content products. Engineering controls include personal protective equipment and hearing protection.

Table 3 Technical Work Documents for the Pollution Prevention Program

<b>Title</b>	<b>Current Version</b>
California Environmental Protection Agency, Department of Toxic Substances Control (CAL-EPA, DTSC) Hazardous Waste Facility Permit	7/16/2007
Corporate Procedure ESH100.2.ENV15 Manage Hazardous Waste at SNL/CA	October 2009
Corporate Procedure ESH100.2.ENV20 Manage Other Waste at SNL/CA	October 2009
Corporate Procedure ESH100.2.ENV21 Recycle or Reuse Waste at SNL/CA	October 2009
SNL06A00127-005, Pollution Prevention/Waste Minimization Program Activities	1/13/2010
AP800020 Management of Waste Lamps at SNL/CA	6/09/2009
AP800021 Management of Universal Waste Batteries at SNL/CA	7/29/2009
OP472271 Operating the Vertical Cardboard Baler	3/2/2009
AP800015 8000 Work Planning and Control for Activity Level Work	1/13/2010
OP471680 IDT Process to Evaluate Proposed Projects & Action	1/26/2010

## **4 Documents Produced**

Table 4 identifies the documents and reports generated by the Pollution Prevention Program. There were no significant changes to Program documents in 2009.

Table 4 Pollution Prevention Program Documents and Reports.

<b>Document</b>	<b>Due Date</b>	<b>Frequency</b>	<b>Distribution</b>	<b>Purpose</b>
Source Reduction and Evaluation Review and Plan (SB-14)	September 2011	Every 4 years	CAL-EPA/DTSC	State requirement
Notification for Handlers/Handlers-Recyclers of Universal Waste Electronic Devices and/or CRTs: Provides one-time notification site generates universal waste.	February	One-time	CAL-EPA/DTSC	State requirement
Annual Report for Handlers/Handlers-Recyclers of Universal Waste Electronic Devices and/or CRTs: Requires annual reporting of a facility's universal waste electronic devices and/or CRTs generation, treatment and disposition data.	February	Annual	CAL-EPA/DTSC	State requirement
Annual Waste Generation and Pollution Prevention Progress Report: Provides waste generation data, recycling data, and accomplishments.	December	Annual	DOE/SSO	DOE requirement
Annual Affirmative Procurement Report: Provides data for AP purchases including successes and failures.	December	Annual	DOE/SSO	DOE requirement
Federal Electronic Challenge Annual Report	February	Annual	FEC	DOE requirement
WasteWise Annual Report	March	Annual	EPA	DOE requirement
Sandia Annual Program Report: Provides a summary of Pollution Prevention activities, program and goals.	February	Annual	DOE/SSO, SNL Management	Information
Quarterly Reporting: Provides quarterly data for radioactive/ mixed waste, hazardous waste and solid waste.	Quarterly	Quarterly	DOE/Service Center, SNL Management	Information

Document	Due Date	Frequency	Distribution	Purpose
Quarterly Reporting: Provides quarterly data for hazardous waste, solid waste, and wastewater discharged.	Quarterly	Quarterly	Lockheed Martin	Information
Monthly Report: Provides updates of Pollution Prevention monthly activities	10 <sup>th</sup> of each month	Monthly	DOE/SSO SNL Management	Information

## 5 Approved Job Descriptions and Current Assignments

Job assignments in the P2 Program include a Program Lead, a Project Lead, and a P2 Laborer. Job descriptions and qualifications for each assignment follow. Table 5 provides a list of personnel supporting each job assignment.

Table 5 Current Program Staff Assignments

Job Assignment	Personnel	Back-Up
Pollution Prevention Program Lead	Janet Harris	Laurie Farren
Pollution Prevention Project Lead	Laurie Farren	Janet Harris
Pollution Prevention Laborer	Paul Wilson	Harold Hernandez
Communications Technologist-Universal Waste (UW) cell phones	Marcia Jacobs	None
Facilities Technologist-UW lamps	Carlise Smith	None
Reapplication Technologist-UW CRTs and electronic devices	Harold Hernandez	None
Universal Waste Technologist-UW batteries	Pamela Irish	Laurie Farren

## **5.1 Pollution Prevention Program Lead**

The Program Lead is responsible for management and oversight of all program activities, interacting with the DOE/SSO on all pollution prevention issues, interacting with local, state and federal regulatory agencies, and participating on the ES&H Interdisciplinary Team. Management and oversight responsibilities encompass a range of activities including budgeting, monitoring costs, identifying investments needs, task assignment and oversight, contract management, conducting program self assessments, maintaining the program website, reporting, developing operational controls, and participating in special site events and department projects. The Program Lead serves as the Pollution Prevention subject matter expert for SNL/CA. The Program Lead is responsible for monitoring changes in program compliance drivers and for communicating these changes to the site.

At a minimum, the Program Lead is required to hold a Bachelor of Art degree with at least 10 years experience in an environmental field, or a Bachelor of Science degree in an engineering, environmental, or science field with three years of related work experience. Desirable qualifications for this position include proficiency in technical writing, project management skills, and pollution prevention or waste management expertise. Registration as an environmental manager is optional, but encouraged, for the Program Lead position.

## **5.2 Pollution Prevention Project Lead**

The Project Lead is responsible for management and coordination of all program activities, maintaining a positive relationship with the DOE/SSO and SNL/NM on all Pollution Prevention issues, interacting with local, state and federal regulatory agencies, and participating on the ES&H Interdisciplinary Team. Management and coordination responsibilities encompass a range of activities including creative thinking and implementing new ways to improve the program in its support to the site, identifying new recycling streams, task assignment and oversight, conducting program self assessments, maintaining the program website, providing Pollution Prevention awareness, data collection, reporting, developing operational controls, and providing backup support to the Pollution Prevention Laborer.

At a minimum, the Project Lead is required to hold an Associate Arts degree or a minimum of 5-years of relevant experience in pollution prevention or waste management. Desirable qualifications for this position include proficiency in technical writing, project management skills, and Pollution Prevention expertise. Registration as an Environmental Technician is optional, but encouraged, for the Program Lead-Technician position.

## **5.3 Pollution Prevention Laborer**

The Pollution Prevention Laborer is responsible for providing labor support to the Pollution Prevention Program for implementation of the recycling programs. The responsibilities include monitoring recycling containers and delivering the containers as needed, collecting and transporting recyclables by means of forklift, cart or pickup truck as well as documentation. The responsibilities also include overseeing the onsite documentation shredding conducted through a

contract with an offsite vendor, conducting the cardboard baling activities and maintaining equipment in a clean orderly fashion.

At a minimum, the Pollution Prevention Laborer is required to have a high school diploma. Desirable qualifications include experience in vehicle operations including forklifts, good customer relation skills, experience with site operations, and attention to detail. Computer skills are optional, but encouraged, for the Pollution Prevention Laborer position.

## **5.4 Communications/Facilities/Reapplication/Universal Waste Technologists**

The Communications/Facilities/Reapplication/Universal Waste Technologists are responsible for providing support to the Pollution Prevention Program for implementation of the Universal Waste Program. The responsibilities include collecting, transporting universal waste onsite specifically batteries, cell phones, CRTs, electronic devices and lamps by means of cart or pickup truck and processing universal waste for offsite recycling.

# **6 Training and Competency**

Sandia views training, development, and education as a strategic investment in Sandia's future. The policy of Sandia Corporation is to maintain a high level of technical and administrative competence in support of its mission. In support of this policy, Sandia maintains a set of general corporate training requirements that cover a wide range of areas such as security (physical, information, computer), business ethics and diversity, general ES&H, and general business processes. Standard corporate requirements are identified for each individual in the online Corporate Education, Development, and Training database at <https://hrprod.sandia.gov/cfdocs/prod/hris/ctd/apps/cedtweb/comp/comp.cfm>. The online database tracks completion status for all corporate training requirements and provides electronic reminders when a course is due to all Pollution Prevention personnel. Sandia training coordinators identify corporate training requirements for new hires. Sandia 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, Program Lead, or Department ES&H Coordinator may identify job-specific training requirements. Most of these requirements are tracked in the online database. Table 6 presents job-specific training requirements for the Pollution Prevention Program.

Table 6 Pollution Prevention Training Matrix

Training Requirement	Training Method	Program Lead	Project Lead	Laborer	Comm/Fac/ Reapp/UW Technologists	Frequency
Pollution Prevention Workshops	Offsite	●	●			When Available
Environmental Sustainability Network; (ESN) Federal Electronic Challenge; (FEC) and (EPP) Teleconferences	Onsite	●	●			Quarterly
Program Workshops-seminars	Offsite	●	●			When Available
ESH100 ES&H Awareness	Web based	●	●	●		Annual
FKL 153R Forklift: Operation Refresher	Sandia class		●	●		Triennial
FKL 153 Forklift: Hands on Use	Sandia class		●	●		One time only
FRP 106 Fire Extinguisher: Hands on Use	Sandia class	●	●	●		Annual
NSE100 Occupational Noise	Sandia class			●		Annual
PKX 100 Basic Hazardous Material Transportation Training	Sandia class	●	●			Annual
PKX 112 Basic Hazardous Waste Transportation Training	Sandia class	●	●			Annual
Universal Waste Training	Sandia class	●	●	●	●	Annual

## **6.1 Specialized Training**

The P2 Program has identified staff in other SNL/CA organizations that are required to be trained in the management of Universal Waste as required in Title 22 CCR Ch. 23 Universal Waste Management, specifically proper handling and emergency spill procedures. This is an annual training and the P2 Program retains the records. These individuals support the site by collecting, transporting and preparing universal waste for offsite recycling.

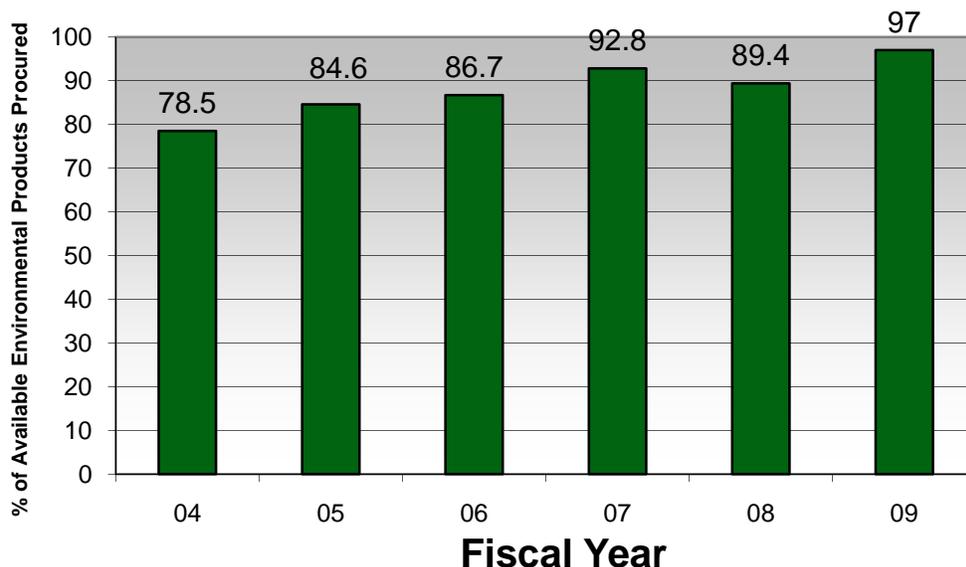
# **7 Performance Measures**

EMS objectives that are applicable to the P2 Program include the procurement and use of environmentally friendly products and materials, the minimization of the generation of hazardous and radioactive waste, and the minimization of the generation of solid waste. To assess performance in meeting these objectives the P2 Program monitors waste generation, recycling of waste streams, and environmentally friendly products and material purchases. The following summarizes the P2 Program's progress in the last year.

## **7.1 Material Procurement and Use Objective**

SNL/CA's target for environmentally preferable purchasing (EPP) is by FY10 purchases made that meet the EPP requirements will equal or exceed 95% of available procurements. Figure 1 shows the percentage of EPP has steadily increased over the last few years. The percentages are based on cost, quantity and justification. During 2009 the P2 staff saw an increase of approximately 7.6 percent in EPP from 2008. The increase in fiscal year 2009 was primarily due to a change in determining if toner cartridges met the EPP criteria. In 2009 SNL/CA received a letter from HP stating new HP toners meet EPP requirements and are considered "remanufactured" because they are made with recovered materials. With concurrence from DOE/NNSA/SSO, SNL/CA categorized all HP LaserJet print toner and inkjet cartridges as "remanufactured".

## Environmentally Preferred Procurement



**Figure 1 Procurement of Environmentally Friendly Products**

## 7.2 Hazardous and Radioactive Waste Objectives

Although SNL/CA does not have a specific target for this objective, we strive to minimize the generation of hazardous and radioactive waste through process controls, recycling, and reapplication of chemicals from one activity to another. Figures 2 and 3 show hazardous and radioactive waste generated since 2000, respectively. Figure 2 includes the following types of hazardous waste: routine and non-routine RCRA, non-RCRA, TSCA and medical. The amount of hazardous waste generated in CY 2009 increased. The increase was due to several events: a site cleanout that targeted chemicals over a specified age; the cleanup and closure of the wastewater treatment facility for the Circuit Board Prototyping Lab; and several asbestos projects. Figure 3 includes both radioactive and mixed waste. The trend for radioactive waste shows a steady decline in quantities generated.

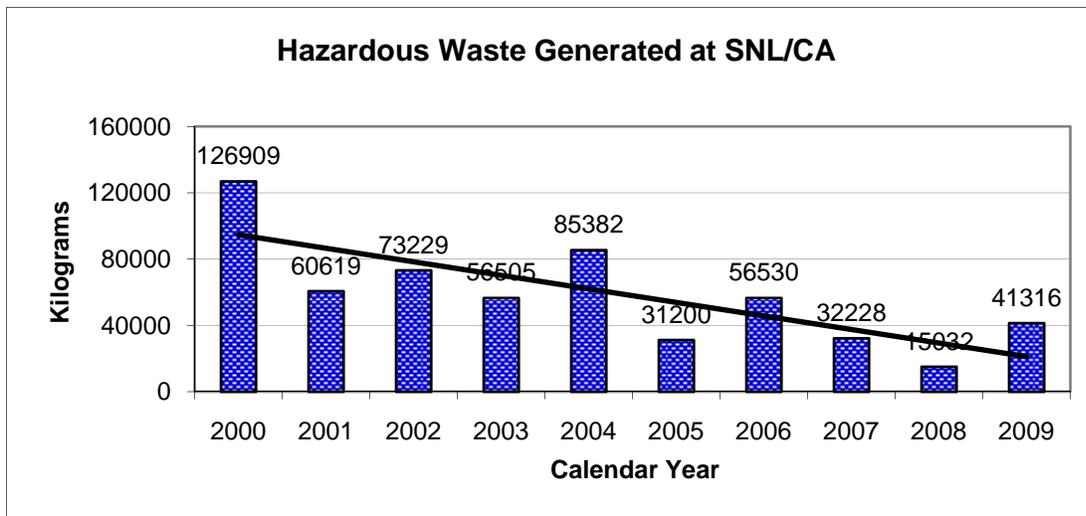


Figure 2 Hazardous Waste Generated at SNL/CA

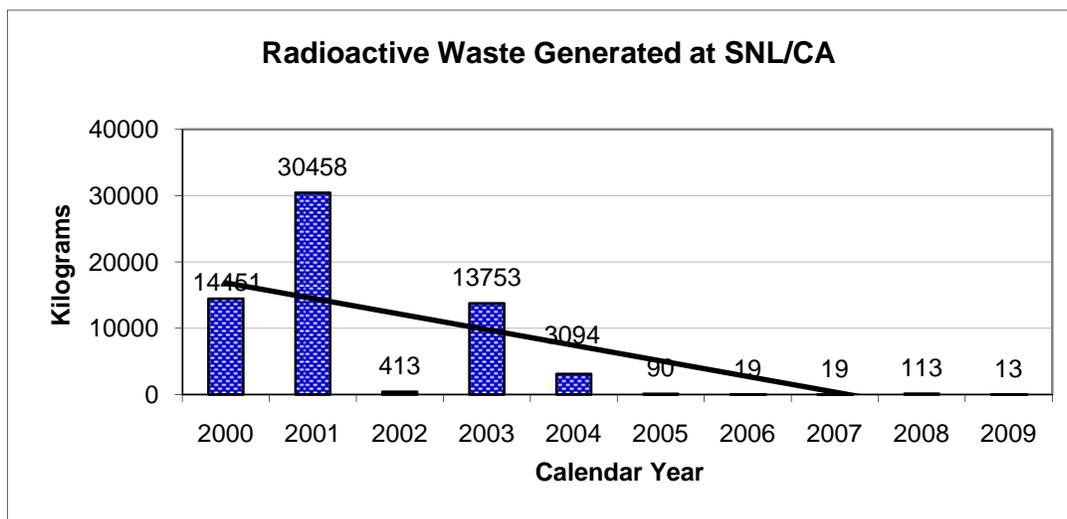


Figure 3 Radioactive Waste Generated at SNL/CA

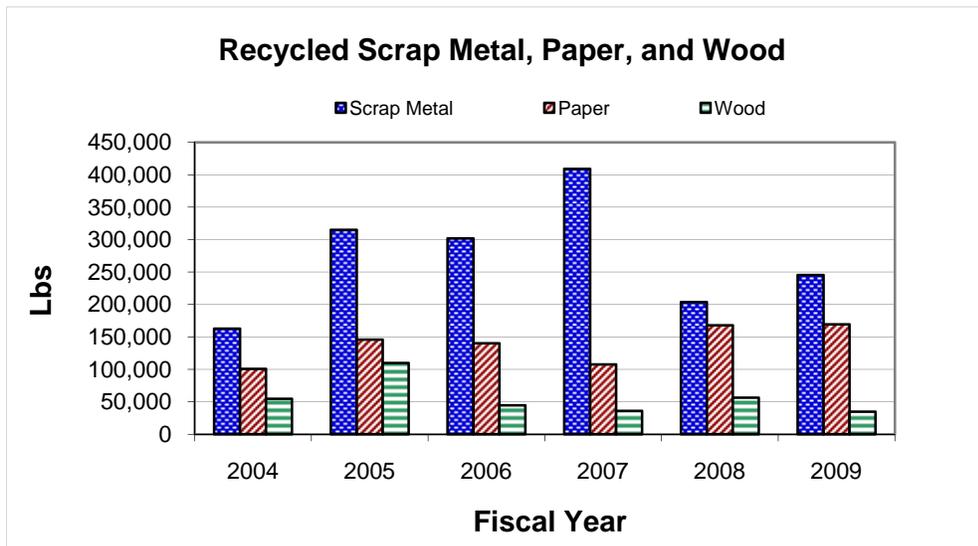
### 7.3 Solid Waste Objective

SNL/CA transports non-hazardous solid waste (trash) generated from site operations to local landfills for disposal. In fiscal year 2009, SNL/CA transported 99 metric tons of solid waste to landfills, a decrease of 3 metric tons from fiscal year 2008. SNL/CA attributes this reduction to our continued recycling and reuse efforts. Figure 4 presents solid waste data for fiscal years 2003 to 2009. The solid waste data includes routine trash.



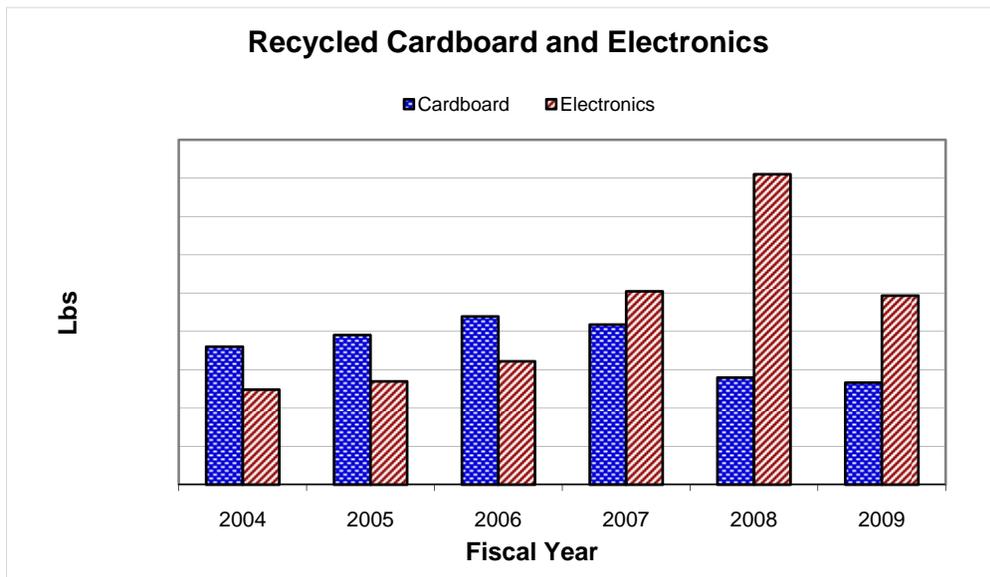
**Figure 4 SNL/CA Landfill Waste**

SNL/CA recycles scrap metal, paper, and wood from routine and non-routine site operations. Figure 5 shows an increase in the amount of scrap metal recycled during 2009. The increase of scrap metal recycled was due to the demolition of a building onsite in the late summer. The decrease in the amount of wood recycled is partially due to a new auction process where equipment to be sent for auction is shipped on old pallets. The decrease is also due to the successful pallet recycling program P2 implemented.



**Figure 5 Recycled Scrap Metal, Paper and Wood**

SNL/CA recycles cardboard and electronics from routine and non-routine site operations. Figure 6 indicates a decrease in cardboard. In February 2009 P2 installed a cardboard baler. The vendor prefers to pick up 20 bales for recycle. It takes P2 staff about six months to generate 20 bales of cardboard. In fiscal year 2009 there was only one pickup in late summer. There should be an increase in the amount of cardboard generated in fiscal year 2010 due to the pickup cycle will incorporate two pickups.



**Figure 6 Recycled Cardboard and Electronics**

SNL/CA also recycles small quantities of various waste streams. In Figure 7 an increase in batteries was due to changes in the management process in 2009. There were also several projects during fiscal year 2009 to replace UPS batteries. In Figure 7 the decrease in light tubes over the last two years was a result of 1) a higher than normal generation of light tubes from a site-wide replacement project in fiscal year 2007 and 2) light tubes being removed in fiscal year 2008 from a building scheduled to be demolished in fiscal year 2009.

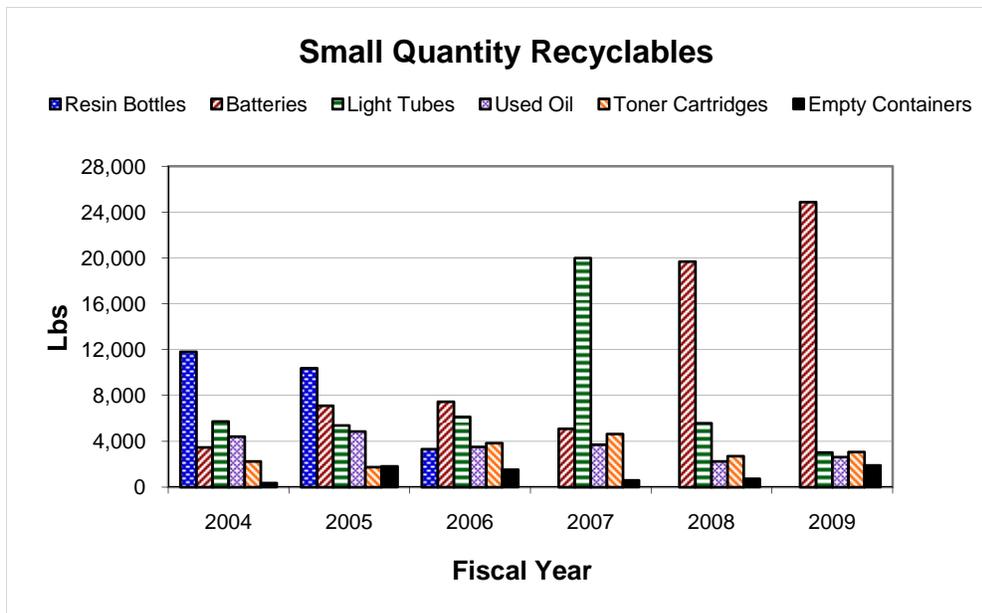


Figure 7 Small Quantity Recyclables

## 8 Quality Assurance

### 8.1 Program Risk Assessment

In January 2010, the P2 Program completed a program risk assessment. The risk assessment identified three potential risks associated with P2.

1. Potential Risk of a Contaminated Container or Equipment Being Released to the Public Sector.

Given the large number of containers and the amount of equipment sent off-site, it is considered a **High** probability that a contaminated container or piece of equipment will be sent off-site at some point during the life of the facility.

The impacts of contact with a contaminated container or piece of equipment are considered **Low**.

A risk rating of **Medium** was calculated for this risk.

In response to the **Medium** risk rating the P2 Program has worked with Waste Management, Reclamation and Facilities staff to identify recyclable types that have the highest potential to be chemically contaminated. The following measures have been implemented:

- 1.) Empty chemical containers are inspected and if applicable are placed into an access controlled collection bin.

- 2.) Scrap metals and excess equipment are surveyed for radioactive contamination and, if clean, are transported offsite for recycle. The scrap metal bins are also surveyed to ensure aerosol cans placed in the hoppers meet the requirements for empty aerosol cans.
- 3.) Facilities-generated construction debris is identified during the IDT process, and debris is surveyed for asbestos, lead, and other contaminants. Disposal for contaminated construction debris is handled on a case-by-case basis.

## 2. Mismanagement of Disposition of Equipment from an Outside Organization

Given the amount of equipment managed by other outside organizations and the potential for the lack of oversight, it is considered **High** that a piece of equipment could be mismanaged by an organization, internal or external, at some point during the life of the facility.

The mismanagement of a piece of equipment could result in a notice of violation or a fine from the State of California EPA-Department of Toxic Substances Control. SNL/CA could also lose its privileges to dispose of waste at the local landfill. The consequence is considered **Low**.

A risk rating of **Medium** was calculated for this risk.

In response to the **Medium** risk rating the P2 Program has worked with Reclamation and Facilities staff to identify recyclable types that have the highest potential to be mismanaged specifically universal waste streams. The following measures were implemented:

- 1.) Universal Waste training is provided annually to the technicians that implement the programs.
- 2.) P2 oversees the contracts utilized to recycle the ewaste and scrap metal waste streams.
- 3.) A new checklist to evaluate the hazardous aspects of excess equipment has been developed and implemented

## 3. Inaccurate Data Reported to Internal and External Organizations

Data is provided to the P2 staff by various mechanisms. In the past there have been multiple problems in the data i.e., the data has been modified, however, unbeknownst to the P2 staff the modifications made in the date are not globally changed within all of the sections of the database and inaccurate reports are generated; data received from other staff or vendors is not complete i.e., data is missing. The data is analyzed and reported to various internal and external organizations. Consequently, the probability that inaccurate data is provided to the Pollution Prevention Program or the Program distributes inaccurate data is High.

If the data received is not accurate, complete and comparable this results in misrepresentation of information; invalidates trending, setting and meeting organizational goals; and hinders decision-making. Other consequences include mistrust by other entities' of the organization's ability to produce accurate, complete and comparable reports. The consequence is considered Low.

A risk rating of Medium was calculated for this risk.

In response to the medium risk rating the P2 Program has been working with Waste Management, Facilities and the vendors to develop procedures to reduce the potential for data to be inaccurate. The following measures are being implemented:

- 1.) Waste Generation/Recycling data is captured by WIMS and provided in a report developed by SNL/NM staff. SNL/CA P2 staff is providing the WIMS report to SNL/CA Waste Management for review to confirm if the data is accurate and if a modification of the data has occurred ensure the modifications are accurately indicated in the report.
- 2.) SNL/CA P2 is receiving data from vendors and matches the data to vendor invoices received by Facilities as well as verbal verification of data by Facilities.

The complete risk assessment is included in Appendix B.

## **8.2 Maintaining Program Quality**

Pollution Prevention applies the following program-specific elements to assure quality is maintained in data collection, analyses, and reporting.

- Affirmative Procurement data is reviewed and checked against the vendors electronic ordering system, contracted computer suppliers, Pro Card purchases, catalog or suppliers.
- Internal reports and documents are subjected to internal review and technical editing before finalizing.
- Published reports are reviewed before finalizing by NNSA/SSO, applicable SNL/CA staff, and technical editors.

# **9 Program Assessments**

## **2009 Program Self-Assessment**

The P2 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 looking part of 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 2009 Program Self-Assessment results are discussed in Sections 9.2 and 9.3.

The Pollution Prevention program is assessed by the NNSA/SSO located in New Mexico with participation from the Sandia Site Office. SNL/CA was not assessed in 2009.

The DTSC audits Waste Management and Pollution Prevention annually. The Pollution Prevention aspect of the DTSC audit consists of a review of affirmative procurement practices,

SB-14 Source Reduction Evaluation Review and Plan, and training as required by the Part B Permit. Pollution Prevention did not receive any findings in 2009.

The Alameda County Environmental Health Department audits the Waste Tire Manifest program. The Alameda County Environmental Health Department did not audit SNL/CA's Waste Tire Manifest program in 2009.

## **9.1 Follow-up on 2008 Program Assessments**

In 2008 P2 evaluated each recycling waste stream managed by SNL/CA to determine cost effectiveness of recycling. The assessment team reviewed the current management of each recycling waste stream and evaluated it against alternative to recycling. The review included

- 1) understanding the current management process for each recycling waste stream
- 2) investigating if alternative methods were available
- 3) determining the volume generated in FY08
- 4) confirming if regulatory drivers exist for the waste stream

Four observations were noted as a result of this assessment. A copy of this part of the self-assessment is included in Appendix C. During 2009, P2 will

- investigate other options including on-site options for management/recycling of several waste streams specifically asphalt, concrete, green waste, mixed recycled and wood.
- complete the installation of the cardboard baler. Modify current on-site pickup and storage process to manage cardboard to be baled and sent offsite for recycling. Prepare a contract with a cardboard recycler to pickup and recycle cardboard include revenue for cardboard recycled.
- conduct an evaluation to determine if less expensive to use an oil recycler for management of waste oil and oil filters.
- conduct an evaluation of different toner cartridge recyclers to determine best option for SNL/CA.

In early February 2009 a cardboard baler was installed onsite. The training for operation and maintenance of the baler was conducted in late February. An operating procedure was approved in early March. The baler became operational in early March. A contract was placed in July 2009 with a cardboard recycler; included revenue for cardboard recycled.

In March SNL/CA P2 Team hosted an informational meeting with a toner remanufacturing company on the use of remanufactured toner cartridges. The company provided remanufactured toners to be tested in several printers onsite. The test period was conducted during the month of April. The test period indicated several concerns with the vendor's remanufactured toners: color bleeding on the documents, printers squealing, row of colored dots being printed on the page and toner cartridge leaking as it was being placed into printer. In August we met with another office supply company to again discuss remanufactured toner cartridges. Vendor recommended options for black toner remanufactured cartridges but could not recommend options for color toner remanufactured cartridges. In January 2010, SNL/CA changed its office supply vendor. The P2 staff is working with the vendor to develop a list of options for black remanufactured toners.

In October and November 2009 the P2 team met with LLNL staff to evaluate the potential of several recyclable waste streams specifically asphalt, concrete, green waste, wood waste and pallets to be managed as one operation. The group decided these waste streams could be managed as one operation and are currently developing a proposal. SNL/CA P2 staff anticipates joint operations by end of calendar year 2010.

## **9.2 2009 Program Self-Assessment - Part 1 - Program Mechanics**

In 2008, 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  
Review Checklist

Organization: 8516 Program: Pollution Prevention

Date Completed: 12/21/09 Signature: Janet Harris/Laurie Farren (signature on file)  
Program Lead

Document Type	Document Title	Review Complete/Date	Changes Made	Comments
PHS	Pollution Prevention/Waste Minimization Program Activities (SNL06A00127-004)	<input checked="" type="checkbox"/> 2/5/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Annual rollover complete. Added cardboard baler activities.
Operating Procedures	AP800020 "Management of Waste Lamps at SNL/CA"	<input checked="" type="checkbox"/> 6/9/09	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Issue B issued
	AP800021 "Management of Universal Waste Management Batteries at SNL/CA"	<input checked="" type="checkbox"/> 7/29/09	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Issue A issued
	CA-PM-WI-04 "Reapplication Process"	<input checked="" type="checkbox"/> 10/15/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Property Management owns procedure. P2 reviewed and provided comments regarding e-waste.
	CA-PM-JA-05 "Hardware/Software Reapplication"	<input checked="" type="checkbox"/> 10/15/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Property Management owns procedure. P2 reviewed and provided comments regarding e-waste.
	OP for General Recycling Activities needs to be finalized.	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Draft should be complete 2/10
Other Program Documents	Annual Pollution Prevention/Waste Minimization Program Report	<input checked="" type="checkbox"/> 4/30/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	ES&H Manual Section 20G, "Recycle or Reuse Waste Management at SNL/CA" now CPR ES&H100.2.ENV.20	<input checked="" type="checkbox"/> 9/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	ES&H Manual was updated and replaced by CPR ES&H100.2.ENV.20
	Annual Waste Generation & Pollution Prevention Progress Report	<input checked="" type="checkbox"/> 12/1/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Affirmative Procurement Report	<input checked="" type="checkbox"/> 12/1/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Source Reduction and Evaluation Review and Plan (SB-14)	<input checked="" type="checkbox"/> 9/1/07	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Report is every 4 years. Next report is due 9/1/2011
	Cal-EPA Department of Toxic Substances Annual Report for Handlers/Handlers-Recyclers of Universal Waste Electronic Devices and/or CRTs	<input checked="" type="checkbox"/> 2/1/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Contracts	Staff Augmentation for P2 laborer	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Web Pages	General Web Page	<input checked="" type="checkbox"/> 9/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewed general web pages. Updates complete
	Program Web Page	<input checked="" type="checkbox"/> 9/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewed program web pages. Updates complete
	Program Metrics	<input checked="" type="checkbox"/> 11/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewed program metrics. Updates complete.
Outlook Task Calendar		<input checked="" type="checkbox"/> 12/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

### **9.3 2010 Program Self-Assessment - Part 2 - Line Performance Assessment**

P2 assessed the management of the regulated recycling waste streams specifically Universal Waste i.e., empty aerosol containers, batteries, electronic waste, and lamps. The recycling waste stream for tires also was assessed. The assessment reviewed the management practices regarding accumulation areas, labeling, container management, and storage times to ensure compliance. The training of the staff managing these waste streams was also reviewed to ensure compliance.

One minor finding and two observations were noted as a result of this assessment. A copy of this part of the self-assessment is included in Appendix C. During 2010, P2 will

- Conduct a Universal Waste Training course to members of the workforce responsible for managing these waste streams.
- Conduct a monthly inspection for three months to confirm Universal Waste regulations are implemented.

### **9.4 Environmental Program Representative Assessment**

During 2009, P2 worked with the Environmental Protection Representative (EP Rep) to correct concerns found during the EP Rep assessments. The EP Rep submitted a formal assessment to the line and notified P2 of any concerns found during the assessments. The P2 staff worked with the Line to mitigate concerns. The final resolutions are communicated to the EP Rep. Typical concerns found during 2009 included:

- Customer wanted recycling containers.
- Customer incorrectly recycling a waste stream.
- Customer unaware of recycling requirements.

### **9.5 Corporate / Line Self Assessment**

During 2009, the corporate / line self assessment process did not assess any elements of the Pollution Prevention Program.

## 10 Accomplishments

During 2009, Pollution Prevention accomplished the following activities:

- On April 20, 2009 SNL/CA P2 launched a web page to celebrate a virtual Earth Day. The webpage included general information about Earth Day, an environmental footprint exercise for individuals, information on green travel, cars, organic foods, and finally links to surrounding cities' activities. An article was also published in the SNL/CA Communicator, which discussed the history of Earth Day and SNL/CA and nearby cities' activities.
- SNL/CA P2 staff hosted Bike, Hike or Share a Ride Day on July 15, 2009. This annual event encourages and supports use of alternative transportation. The P2 staff use this event to advertised their "SNL/CA Commuter Exchange" website for commute options. Personnel who biked, hiked or shared a ride that day were asked to send an email with the type of alternative means of travel they used to get to work. An energizer station with healthy snacks and water was manned from 6:00 AM to 8:00 AM for walkers and bikers. 61 people participated in the event.
- In March 2009, the SNL/CA P2 Team hosted an informational meeting with a toner remanufacturing company on the use of remanufactured toner cartridges. There were about 30 office management assistants that attended. The company provided remanufactured toners that were tested in several printers onsite for one month. The remanufactured toners had several problems: color bleeding on the documents, printers squealing, row of colored dots being printed on the page and toner cartridge leaking as it was being placed into printer. SNL/CA changed vendors for office supply products in January 2010. SNL/CA P2 staff is working with the new vendor to provide products that meet the EPP requirements.
- In summer and fall 2009, the P2 staff worked with the SNL/CA line and Logistics to reapply several unwanted cargo containers to outside agencies specifically several went to the California Department of Forestry and Fire Protection.
- In February 2009 a cardboard baler was installed onsite. The baler became operational in early March after training was completed and an operating procedure was prepared. A contract was placed in July 2009 with a cardboard recycler; included revenue for cardboard recycled.
- In September 2009 SNL/CA P2 staff with SNL/CA Facilities completed the installation of a portable axle truck scale, digital weight indicator, and ticket printer at the Recycling Yard.
- An MOU was signed between LLNL and SNL/CA for managing the recycling of certified appliances. The MOU became effective June 29, 2009 and is valid for five years.

- During the week of September 21-27, SNL/CA celebrated National Pollution Prevention Week. The theme for 2009 highlighted the sustainable practices some of the different programs were conducting onsite. The P2 staff submitted daily announcements for each day of that week. Topics discussed were reducing water consumption using a new landscape irrigation system, implementing Green Chemistry in the laboratory, and reducing air pollution on Spare the Air Days.
- In April 2009 SNL/CA received the FEC Bronze level award from OFEE and EPA for our success in reducing the environmental impacts of electronics.
- In December 2009, SNL/CA received a DOE/NNSA P2 Environmental Stewardship Award for our new approach for processing hazardous excess equipment/material.
- In March 2009, coordinated SNL/CA staff attendance at the NNSA Green Gas conference held at LLNL. Those attending from Sandia were Air Quality and P2 Staff.
- In March 2009, attended the Green California Summit and Exposition in Sacramento. SNL/CA staff obtained information about rental car pods and investigated if applicable to SNL/CA.
- Participated as a core member of the team that continues to evaluate and improve the process used for maintaining SNL/CA's Environmental Management System. The process was audited twice during 2009. The P2 Program participated during both audits.

## 11 Issues

The P2 Program is responsible for the collection, analysis, and reporting of waste generation, recycling and EPP data to multiple groups. The P2 staff relies on other programs and databases to provide the data for these reports. At times there have been concerns regarding the accuracy and validity of the data resulting in notification to the federal, state or SNL group that the data is inaccurate and needs to be corrected.

The P2 Program is responsible for maximizing the procurement and use of environmentally friendly products and materials at SNL/CA. Each organization is responsible for purchasing environmentally friendly items. As a result any MOW can buy what they want, not what is appropriate. SNL/CA struggles specifically with biobased products, toner cartridges, tissue with aloe and sticky notes.

## **12 Trends**

Budgets for indirect funded programs, such as Pollution Prevention, were cut in FY 2010. The majority of Pollution Prevention budget is used for labor; reductions in the hours for the Laborer contractor and the Pollution Prevention Program Lead were implemented. For FY 2010, these budget reductions could result in some aspects of the program not being able to be accomplished. P2 will continue to conduct program activities that are required by regulation.

P2 has modified the management of several recyclable waste streams to recover revenue for the P2 program. The changes have also resulted in a reduction in disposal costs. P2 continues to value the management of recyclable waste streams to ensure cost effectiveness of recycling.

## **13 Goals and Objectives**

Table 7 presents SNL/CA EMS objectives, targets, and actions that support the elements of the Pollution Prevention program. The selected targets and actions are intended to increase the procurement and use of environmentally friendly products and materials, minimize the generation of hazardous waste, minimize the quantity of solid waste disposed of through reduced consumption and/or recycling/reuse.

Table 7 EMS Objectives, Targets and Actions Supporting P2 Program Elements

Objective	Target	2009 Action Items Completed	2010 Action Items
Procure and use environmentally friendly products and materials	In FY10 purchases made by Affirmative Procurement Program will equal or exceed 95% of available procurements	- Published information about recycled products in TNTs. - Provided training to OMA's and Procurement on remanufactured toner cartridges. Conducted one-month trial on remanufactured toner cartridges.	Work with new Office Supply vendor to provide list of recycled products as well as block inappropriate items. Continue to publish information about recycled products. Continue to provide training to OMA's and Procurement on green purchasing.
	In FY09 100% of purchased general use computers will meet or exceed EPEAT silver requirements.	Target Completed	.
	By 2010 increase the recycled content of paper products purchased by 10% from a baseline year of 2006	Target Removed (EPA canceled Performance Track Program in March 2009)	
	IN FY10, increase the use of bio-based products by 25% from the FY08 amounts.	Researched and provided bio-based products to line.	Continue to research new bio-based products and identify suppliers. Communicate availability of new bio-based products to MOW.
	In FY09 seek to obtain Federal Electronics Challenge bronze award	Target Completed	
Minimize the generation of hazardous waste		Developed Construction Specifications (spec) that includes environmental requirements. The spec is required to be included in all outside construction contracts.	Execute PPOA for use of bio products for maintenance oils, lubricants, pesticides.
Minimize the quantity of landfill waste through reduced consumption and/or recycling/reuse.	By Oct 1, 2010 decrease the amount of copy paper purchased by 5% from the FY05/06 average.	Target Removed	
	By FY15 divert from disposal 50% of non hazardous waste (trash, green). (EO 13514)	New Target	Establish a baseline for amount of non-hazardous waste trash diverted in FY 2009.
	By FY15 divert from disposal 50% of construction and demolition debris. (EO13514)	New Target	Establish a baseline for FY 2009.

## Appendix A Management of Recycling Waste Streams

Wastestream	CY09 (lbs)	Charge/Revenue	Potential cost/revenue
Aluminum beverage containers	1,150	125% CRV Value (current price is \$1.57/lb)	1150 lbs at \$1.57 = \$1806 (REV)
Asphalt (nonroutine only)	119,380	Managed by Facilities contractor as part of contract	0
Batteries (alkaline, carbon-zinc, lithium (non-rechargeable), mercury, nickel cadmium (non-rechargeable), nickel metal hydride (non-rechargeable) and silver oxide batteries)	738 lbs	Boxes hold approximately 40 lbs and are \$58.00 each.	738/40 =19 at \$58 ea = \$1102 (CHG)
Batteries (Rechargeable batteries specifically lithium, nickel cadmium, and nickel hydride batteries)	572 lbs	Box can hold approximately 40 lbs and are provided at no charge	Free
Batteries (lead acid)	22169 lbs	1st shipmtt \$0.05/lb 2nd shipmt 0.12/lb 3068 lbs were managed by P2/WM remainder was managed by Security or Facilities	\$221(REV)
Cardboard	18,720	0.01275 per pound Note 1600 lbs cardboard managed by Facilities contractor as part of contract.	17120 lbs at .01275 = \$218(REV)

Concrete	1,706,020	\$188.03 per 6-yard bin (average 5-6 tons) plus \$15.00 per ton	$14020/2000 = 7$ tons at \$15 = \$105 (tonnage) + 7/6 (total bin cost) = 2 at \$188 = 376 Total - \$481(CHG) Note 1692000 lbs managed by Facilities contractor as part of contract.
Empty containers	1188	No charge	0
Electronic waste	46,578	\$0.10/lb	4658(REV)
Fluorescent tubes (various types)	1927 lbs	straight tubes .8/lb utubes 2.60/lb hid 2.90/lb broken lamps 3.50/lb	Due to varying prices average bill is \$1600 at 2 times per year is \$3200 (CHG)
Glass beverage containers	828	100% CRV Value (current price 0.11 per lb)	828 at 0.11 = \$91(REV)
Green waste	293,500	\$450 per 30 yard rolloff plus \$40.00 per ton	$153500/2000 = 77$ tons at \$40 = \$3080 (tonnage) + 77/3 = 26 at 450 = \$11700 (total bin cost) = \$14780 (CHG) Note 140000 lbs managed by Facilities contractor as part of contract.
Mercury items	5.22 lbs	\$464 per 5 gallon drum	1 5-gallon drums in CY09 at \$464 is \$464 (CHG)
Mixed recycled waste	53,560	\$550 per 40 yard rolloff plus \$55.00 per ton	$53560/2000 = 27$ at \$55.00 = \$1485(tonnage)+ 9 bins at 550 = 4950 (total bin cost)= \$6435CHG

Oil filters	295	\$1350 per 55 gallon drum	2 55-gallon drums in FY08 at \$1350 is \$2700 (CHG)
Paper (books, catalogs, envelopes, folders, glossy printed materials, newspapers, pamphlets-brochures paper, white and colored paper (staples, adhesives, clips, ok), phone books, Post-it notes, and transparencies/viewgraphs)	143,220	\$600.00 per service visit up to four hours.	\$600 at 26 visits = \$15,600(CHG)
Plastic beverage containers	1,242	100% CRV value (current price is 0.96 per lb)	1242 lbs at 0.96 per lb = \$1192(REV)
Scrap metal	246,003	Pricing based on AMM Scrap Iron and Steel Prices, Export Yard Buying (fluctuates \$103-153 per ton if meets premium criteria)	132883/2000 = 66 tons @various \$ per ton = \$8557 (REV) Note 113120 lbs managed by Facilities contractor as part of contract.
Tires	768	\$550 per 20 yd box	(Based on receipt from Waste Management) \$850 (CHG)
Toner cartridges	5,178	No charge	0
Waste oil	2,268.00	1350 per 55 gallon drum	9 55-gallon drums in CY09 at \$1350 is \$12150(CHG)
Wood	31,160	\$450.00 per 30 yd rolloff plus \$40.00 per ton	27740/2000=14 at \$40.00 = \$560 (tonnage) + 14/2.5 = 6 bins at \$450 = \$2700(total bin cost)= \$3260(CHG) Note 3420 lbs managed by Facilities contractor as part of contract.

# Appendix B Pollution Prevention Program Risk Assessment

## Pollution Prevention/Waste Minimization Program Risk Assessment (Jan 2010)

The risk assessment process for the Pollution Prevention/Waste Minimization 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
<b>Very High</b>	• Everything points to this occurring
<b>High</b>	• <i>High chance</i> • <i>Lack of relevant processes or experience contribute to a high chance of occurrence</i>
<b>Medium</b>	• <i>Even chance</i>
<b>Low</b>	• <i>Not much of a chance</i>
<b>Negligible</b>	• Negligible chance this will occur

CONSEQUENCE/ SEVERITY LEVEL	CONSEQUENCE/SEVERITY CRITERIA
-----------------------------	-------------------------------

<p><b>High</b></p>	<p><i>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) † • 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 &gt;\$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 (&gt;\$10M)</i></p>
<p><b>Medium</b></p>	<p><i>• 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 &gt;\$500K and &lt;\$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 (&gt;\$1M)</i></p>
<p><b>Low</b></p>	<p><i>• 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 &lt;\$500K • Adverse public opinion with short-term local negative publicity or embarrassment</i></p>
<p><b>Negligible</b></p>	<p><i>• Little or no attention, might be discussed as lesson learned</i></p>

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

RISK GRADING LEVELS					
		Consequence/Severity			
		<i>Negligible</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>
Likelihood of Occurrence	<i>Very High</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>High</i>
	<i>High</i>	<i>Low</i>	<i>Medium</i>	<i>High</i>	<i>High</i>
	<i>Medium</i>	<i>Low</i>	<i>Medium</i>	<i>Medium</i>	<i>High</i>
	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Medium</i>
	<i>Negligible</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>	<i>Low</i>

**Risks Associated with the Pollution Prevention/Waste Minimization Program**

1. Release of Contaminated Container or Equipment
2. Mismanagement of Disposition of Equipment from an Outside Organization
3. Inaccurate Data Reported to Internal and External Organizations

**1. Release of Contaminated Container or Equipment**

**a. Identification of Risk**

SNL/CA sends empty chemical containers off-site for recycling. Used equipment may also be sold or recycled. There is a chance that a chemical container could be recycled before it is empty, or that equipment contaminated with a chemical or radioactivity could be inadvertently sent off-site.

**b. Probability of Occurrence**

In the past, there has been at least one incident of radioactive material inadvertently being sent to the landfill.

Given the number of containers and the amount of equipment sent off-site, it is considered **High** that a contaminated container or piece of equipment will be sent off-site at some point during the life of the facility.

**c. Consequence of Occurrence**

Contact with a contaminated container or piece of equipment could result in minor injury to personnel handling such items. Minor cleanup of the receiving facility could also be a cost imposed on SNL/CA. SNL/CA could also lose its privileges to dispose of waste at the local landfill. The consequence is considered **Low**.

**d. Overall Risk Category**

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

## **2. Mismanagement of Disposition of Equipment from an Outside Organization**

**a. Identification of Risk**

SNL/ CA Pollution Prevention (P2) assists other organizations, both internal and external, to recycle or dispose of equipment offsite. Some processes, such as electronic waste collection and disposition of equipment are not controlled by P2. The management of these processes by another organization allows for the chance that the disposition of the equipment may not be managed correctly. An example is if universal waste such as batteries is not managed under the universal waste regulations then it must be managed under hazardous waste regulations. Another example is if a piece of equipment is disposed of to the landfill with waste oil or solvents still present in it. If it is not managed as required this could result in a notice of violation or a fine from the State of California EPA-Department of Toxic Substances Control.

**b. Probability of Occurrence**

Given the amount of equipment managed by other outside organizations and the potential for the lack of oversight, it is considered **High** that a piece of equipment could be mismanaged by an organization, internal or external, at some point during the life of the facility.

**c. Consequence of Occurrence**

The mismanagement of a piece of equipment could result in a notice of violation or a fine from the State of California EPA-Department of Toxic Substances Control. SNL/CA could also lose its privileges to dispose of waste at the local landfill. The consequence is considered **Low**.

**d. Overall Risk Category**

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

### **3. Inaccurate Data Reported to Internal and External Organizations**

#### **a. Identification of Risk**

SNL/ CA Pollution Prevention Program is responsible for the collection, analysis, and reporting of waste generation, recycling and environmentally preferred purchasing data. The information is provided to P2 staff by various mechanisms: the Waste Management database WIMS, researchers, Facilities and Maintenance staff, and vendors. The data is analyzed and reported to various internal and external organizations: DOE, Lockheed Martin, SNL/NM, California Department of Toxic Substances Control, and EPA Federal Electronic Challenge. The P2 staff relies on the data being received to be accurate, complete and comparable. If the data received does not meet these criteria the P2 staff unknowingly distributes inaccurate, incomplete and incomparable data which results in other entities mistrust of the organization's ability to produce accurate, complete and comparable reports and causes less effective decision making.

#### **b. Probability of Occurrence**

Data is provided to the P2 staff by various mechanisms: the Waste Management database WIMS, researchers, Facilities and Maintenance staff, and vendors. In the past there have been multiple problems in the data received i.e., the data has been modified, however, unbeknownst to the P2 staff the modifications are not forwarded to the other sections of the database and inaccurate reports are generated; data received from other staff or vendors is not complete i.e., data is missing. The data is analyzed and reported to various internal and external organizations: DOE, Lockheed Martin, SNL/NM, California Department of Toxic Substances Control, and EPA Federal Electronic Challenge. Consequently, the probability that inaccurate data is provided to the Pollution Prevention Program or the Program distributes inaccurate data is **High**.

#### **c. Consequence of Occurrence**

If the data received is not accurate, complete and comparable this results in misrepresentation of information; invalidates trending, setting and meeting organizational goals; and hinders decision-making. Other consequences include mistrust by other entities' of the organization's ability to produce accurate, complete and comparable reports. The consequence is considered **Low**.

#### **d. Overall Risk Category**

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

# Appendix C Pollution Prevention Line Program Assessment

## LESA Assessment Final Report Assessment ID: 8214

### 8516 EMS Pollution Prevention/Waste Minimization FY10

#### Assessment Summary

<b>ID:</b>	8214						
<b>Title:</b>	8516 EMS Pollution Prevention/Waste Minimization FY10						
<b>Description:</b>	The assessment will focus on the management of the regulated recycling waste streams specifically universal waste i.e., empty aerosol containers, batteries, electronic waste, and lamps. The recycling waste stream tires...						
<b>Purpose:</b>	The assessment will determine the status of compliance for these waste streams compared to the requirements. The information will assist in directing the programs effort to improve communication and training in the area...						
<b>Originating Mgt. Entity:</b>	Division » 8000 California Laboratory						
<b>Assessing Org:</b>	<table><thead><tr><th><i>Org</i></th><th><i>Manager</i></th><th><i>Division</i></th></tr></thead><tbody><tr><td>08516</td><td>SHAMBER,GARY W.</td><td>08000</td></tr></tbody></table>	<i>Org</i>	<i>Manager</i>	<i>Division</i>	08516	SHAMBER,GARY W.	08000
<i>Org</i>	<i>Manager</i>	<i>Division</i>					
08516	SHAMBER,GARY W.	08000					
<b>Org(s) Being Assessed:</b>	<table><thead><tr><th><i>Org</i></th><th><i>Manager</i></th><th><i>Division</i></th></tr></thead><tbody><tr><td>08000</td><td>STULEN,RICHARD H.</td><td>08000</td></tr></tbody></table>	<i>Org</i>	<i>Manager</i>	<i>Division</i>	08000	STULEN,RICHARD H.	08000
<i>Org</i>	<i>Manager</i>	<i>Division</i>					
08000	STULEN,RICHARD H.	08000					
<b>Lead Assessor:</b>	SHAMBER,GARY W. (08516)						
<b>POC Assessed:</b>	CULL JR.,EDWARD T. (08510)						
<b>Type:</b>	Line Assess the Line						
<b>Status:</b>	Conducted						
<b>Dates:</b>	09/02/2009 - 12/21/2009						
<b>Result Summary:</b>	0 Significant Findings, 1 Minor Findings, 2 Observations, 0 Noteworthy Practices, 0 None (Acceptable Practices)						
<b>IA Summary:</b>	3 Total IAs, 0 Open IAs, 0 IAs Pending Verification, 3 Closed IAs, 0 Required IAs Missing, 0 On Track IAs, 0 Past Due IAs, 1 Causal Analyses						

#### Assessment Final Report Review

**Submitted To:** SHAMBER,GARY W. (08516)  
**Submitted By:** HARRIS,JANET S. (08516)  
**Submitted Date:** 12/22/2009

## Assessment Detail

### Description

The assessment will focus on the management of the regulated recycling waste streams specifically universal waste i.e., empty aerosol containers, batteries, electronic waste, and lamps. The recycling waste stream tires will also be assessed. The assessment will review the management practices regarding accumulation areas, labeling, container management, and storage times to ensure compliance. The training of the staff managing these waste streams will also be reviewed to ensure compliance.

### Purpose

The assessment will determine the status of compliance for these waste streams compared to the requirements. The information will assist in directing the programs effort to improve communication and training in the areas that need improvement.

### Analysis, Conclusions, and Additional Comments

Analysis:

Conclusions:

Additional Comments:

### Location(s) Assessed

<i>Site - Area</i>	<i>Building/Structure</i>	<i>Room</i>	<i>Other</i>
n/a	n/a	n/a	sitewide

### Scope/Criteria

- ES&H » Environmental Protection » Environmental Management System
- ES&H » Regulated Waste Management » Other: Universal Waste Management

### Checklist Used

SELF-ASSESSMENT CHECKLIST FOR UNIVERSAL WASTE MANAGEMENT

### Associated Document Link(s)

None

### Assessment Team Members

<i>Name</i>	<i>Org.</i>	<i>Role</i>	<i>Additional Role Description</i>
HARRIS,JANET S.	08516	Assessor	
BARNES,BRENT DAVID	08521	Creator	

SANDOVAL,ANGELINA 08517 Authorized User

### Personnel Interviewed

None

### Documents Reviewed

None

## Significant Findings

This Assessment resulted in 0 Significant Finding(s).

## Minor Findings

This Assessment resulted in 1 Minor Finding(s).

### Minor Finding No. 1

The light tube shed located in the Maintenance Yard had open and unlabeled boxed of light tubes. The California Code of Regulations (CCR) Title 22 sections 66273.33, 66273.34 and 66273.35 require that light tubes be stored in a box that is kept closed and labeled. The label must have the following: Universal Waste-Lamps and the date the first lamp was placed in the box. This location was written up by the EPA as an observation in the fall of 2009 for the same issues.

**Trending Code:** Training and Qualification

**Result Location(s):**

*Site - Area Building/Structure Room Other*  
California 963 YARD

**Result Criterion:** ES&H » Other » Training & Qualifications

**Result Associated Document Link(s):**

None

**Improvement Actions(s):**

**IA No:** 8214-MF1-IA1

**IA Type:** Further Action Required      **IA Status:** Closed

**Owner:** Name: CLEVINGER,ROBERT J.      Org: 08513      **Assigned Date:** 01/19/2010

**Estimated Completion Date:** 01/30/2010      **Revised Completion Date:** n/a

**Actual Completion Date:** 01/13/2010

**Description:** Applicable staff should attend a Universal Waste Training course held by P2. P2 staff will conduct a monthly inspection for 3 months to confirm universal waste regulations are implemented.

**Comments:** Completed training

**Causal Analysis Summary:** There is no need for a causal analysis summary

**Causal Analysis Associated Document Link(s):**

None

**IA Associated Document Link(s):**

None

**Actions taken to verify satisfactory completion:**

Discussed with Lead

**Evaluation of improvement actions** (satisfactory completion, not satisfactory / why):

TBD

**Verified By:** Name: SHAMBER,GARY W. Org: 08516 **Verification Date:** 01/19/2010

## Observations

This Assessment resulted in 2 Observation(s).

### Observation No. 1

One of the Universal Waste Battery containers in the tool crib in Building 963 did not have the date the first battery was placed in the container. The California Code of Regulations (CCR) Title 22 section 66273.35 requires that batteries be stored in a container that is labeled. The label must have the following: Universal Waste-Batteries and the date the first battery was placed in the box.

**Trending Code:** Training and Qualification

**Result Location(s):**

*Site - Area Building/Structure Room Other*  
California 963 SHOP

**Result Criterion:** ES&H » Other » : Universal Waste Management

**Result Associated Document Link(s):**

None

**Improvement Actions(s):**

**IA No:** 8214-O1-IA1

**IA Type:** Further Action Required **IA Status:** Closed

**Owner:** Name: CLEVENGER,ROBERT J. Org: 08513 **Assigned Date:** 01/19/2010

**Estimated Completion Date:** 01/30/2010 **Revised Completion Date:** n/a

**Actual Completion Date:** 01/19/2010

**Description:** Applicable staff should attend a Universal Waste Training course held by P2. P2 staff will conduct a monthly inspection for 3 months to confirm universal waste regulations are implemented.

**Comments:** None

**Causal Analysis Summary:** None

**Causal Analysis Associated Document Link(s):**

None

**IA Associated Document Link(s):**

None

**Actions taken to verify satisfactory completion:**

Discussed with Lead

**Evaluation of improvement actions** (satisfactory completion, not satisfactory / why):

TBD

**Verified By:** Name: SHAMBER,GARY W. Org: 08516 **Verification Date:** 01/19/2010

## Observation No. 2

One of the Universal Waste Battery containers in Building 928 room 113 was stored open and unlabeled. The California Code of Regulations (CCR) Title 22 sections 66273.33, 66273.34 and 66273.35 require that batteries be stored in a container that is kept closed and labeled. The label must have the following: Universal Waste-Batteries and the date the first battery was placed in the container.

**Trending Code:** Training and Qualification

**Result Location(s):**

<i>Site - Area</i>	<i>Building/Structure</i>	<i>Room</i>	<i>Other</i>
California	928	113	

**Result Criterion:** ES&H » Other » : Universal Waste Management

**Result Associated Document Link(s):**

None

**Improvement Actions(s):**

**IA No:** 8214-O2-IA1

**IA Type:** Further Action Required **IA Status:** Closed

**Owner:** Name: SHAMBER,GARY W. Org: 08516 **Assigned Date:** 01/28/2010

**Estimated Completion Date:** 01/30/2010 **Revised Completion Date:** n/a

**Actual Completion Date:** 01/19/2010

**Description:** Applicable staff should attend a Universal Waste Training course held by P2. P2 staff will conduct a monthly inspection for 3 months to confirm universal waste regulations are implemented.

**Comments:** None

**Causal Analysis Summary:** None

**Causal Analysis Associated Document Link(s):**

None

**IA Associated Document Link(s):**

None

**Actions taken to verify satisfactory completion:**

Closed

**Evaluation of improvement actions** (satisfactory completion, not satisfactory / why):

TBD

**Verified By:** Name: SANDOVAL,ANGELINA    Org: 08517    **Verification Date:** 01/28/2010

### **Noteworthy Practices**

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This Assessment resulted in 0 Noteworthy Practice(s).

### **None** (Acceptable Practices)

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This Assessment resulted in 0 None(s) (Acceptable Practices).

**Distribution:**

- 1 MS9002 Smith, Pat, 08500
- 1 MS9956 Cull, Ed, 08510
- 1 MS9902 Shamber, Gary, 08516
- 1 MS0184, Carolyn Holloway, DOE/NNSA/SSO
- 1 MS0899 Technical Library, 09536 (electronic copy)
- 1 Sweitzer, Mike, DOE/NNSA/ALB