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Sandia National Laboratories, California Pollution Prevention Program Annual Report

April 2011



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Prepared by
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Sandia National Laboratories, California Pollution Prevention Program Annual Report April 2011

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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 Environmental Management Department personnel the Project Engineering and Operations 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 2010 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
2.0	10-16	Regulatory changes that occurred in 2010 are summarized.
2.0	16	Updated summary of audits and assessments for 2010.
3.0	16-17	Updated Table 3 to reflect versions and dates for technical work documents. Added SOPs that replaced prior documents that provide operational control: specifically SP473635 Management of Universal Waste Batteries at SNL/CA, and SP473637 Management of Universal Waste Lamps at SNL/CA. Two new operating procedures for new equipment were added specifically OP472271 Operation of Vertical Cardboard Baler and OP472288 Operating the Portable Axle Scale.
4.0	17-19	Updated Table 4 to reflect additional quarterly waste management report to DOE NA-56.
5.0	19-20	Document requirements are discussed and included in Table 4.
5.0	19-20	Table 5 updated to reflect current assignments and backups. Removed job description and assignments for P2 Program Project Lead staff.
6.0	21-22	Table 6 updated to reflect removal of training requirements for P2 Project Lead.
7.0	22-26	Updated performance measures to include FY2010 data.
8.1	27	Updated risk assessment for 2011 risks.
9.1	27	This section describes follow-up on results from 2009 Line Performance assessment.
9.2	28-30	Includes an updated program document review form
9.3	31	Summarizes the results of the 2010 Line Performance assessment to evaluate the management of regulated wastestreams that are either recycled or reapplied offsite or onsite including certified appliances through Property Management.
10.0	31-32	Updated accomplishments to reflect 2010 activities
12.0	33	Updated discussion on trends to address concern and impact of reduced budgets and reduction in staff.
13.0	33-34	Updated targets and actions.
App A	35-37	Includes an updated spreadsheet of the management of waste streams recycled at SNL/CA in 2010.

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-two 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 containers and 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 volume recycling waste streams as well as 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 Reapplication 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 C&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.

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. 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 2010 the State Department of Resources Recycling and Recovery (CalRecycle) developed regulations that require any business including public entities that generate four cubic yards or more of trash to recycle solid waste by subscribing to a recycling service, source separating their material and self-hauling to a recycling facility or having their material processed in a mixed waste processing facility. The new regulation will meet the requirement placed on CalRecycle to reduce 5 million metric tons of CO₂ equivalent greenhouse gas emissions annually. A business must implement their recycling program by July 1, 2012.

Table 2 Compliance Drivers for Pollution Prevention Program

Driver	Summary	Regulating Authority
Federal Laws		
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
<u>Energy Policy Act of 2005</u>	<u>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.</u>	EPA

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

Driver	Summary	Regulating Authority
DOE Directives		
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.)

Driver	Summary	Regulating Authority
Executive Orders		
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
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.)

Driver	Summary	Regulating Authority
California Laws		
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.)

Driver	Summary	Regulating Authority
California Regulations		
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
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
Title 17 CCR, Division 3, Chapter 1, Article X Mandatory Commercial Recycling	Requires any business including public entities that generate four cubic yards or more of trash to recycle solid waste by subscribing to a recycling service, source separating their material and self-hauling to a recycling facility or having their material processed in a mixed waste processing facility.	California Department of Resources Recycling and Recovery (CalRecycle)

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 2010 the P2 Program activities were included in two surveillance audits conducted to maintain ISO 14001 registration. No non-conformances were identified in the Program.

SNL/CA P2 staff provided an overview of the SNL/CA P2 program to the Sandia Site Office staff. The overview included the following topics: awareness/outreach; EMS; environmental preferable purchasing; reuse/recycling and the changes in the PPTRS.

The P2 Program Lead communicates 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

Title	Current Version
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
SNL06A00127-006, Pollution Prevention/Waste Minimization Program Activities	1/10/2011
SP473635 Management of Universal Waste Batteries at SNL/CA	5/10/2010
SP473637 Management of Universal Waste Lamps at SNL/CA	6/8/2010
OP472271 Operating the Vertical Cardboard Baler	6/2/2010

OP472288 Operating the Portable Axle Scale	6/2/2010
AP800015 Division 8000 WP&C for Activity Level Work	3/8/2010
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 2010.

Table 4 Pollution Prevention Program Documents and Reports.

Document	Due Date	Frequency	Distribution	Purpose
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

Quarterly Reporting: Provides quarterly data for hazardous waste, solid waste, C&D waste and water purchased.	Quarterly	Quarterly	Lockheed Martin	Information
Quarterly Reporting: Provides quarterly data for radioactive/mixed waste, hazardous waste and solid waste.	Quarterly	Quarterly	DOE NA-56	Information
Monthly Report: Provides updates of Pollution Prevention monthly activities	10 th 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 P2 Laborer and various Universal Waste Technicians. 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	None
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	Janet Harris

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, identifying new recycling waste streams, task assignment and oversight, contract management, conducting program self assessments, maintaining the program website, data collection, 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 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.

5.3 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	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	●			Monthly (ESN & FEC) Quarterly (EPP)
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
PKX 100 Basic Hazardous Material Transportation Training	Sandia class	●			Triennial
PKX 112 Basic Hazardous Waste Transportation Training	Sandia class	●			Triennial
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 established for this objective was for purchases made by the Affirmative Procurement Program to equal or exceed 95 percent of available procurements. During 2009, SNL/CA exceeded this target by achieving 97 percent for affirmative procurement purchases. In 2010, DOE changed the reporting requirements for affirmative procurement to focus on 16 of the applicable 66 categories of products; consequently, a comparison for 2010 is not available. This target was retired in 2010. Figure 1 presents affirmative procurement data for 2004 through 2009.

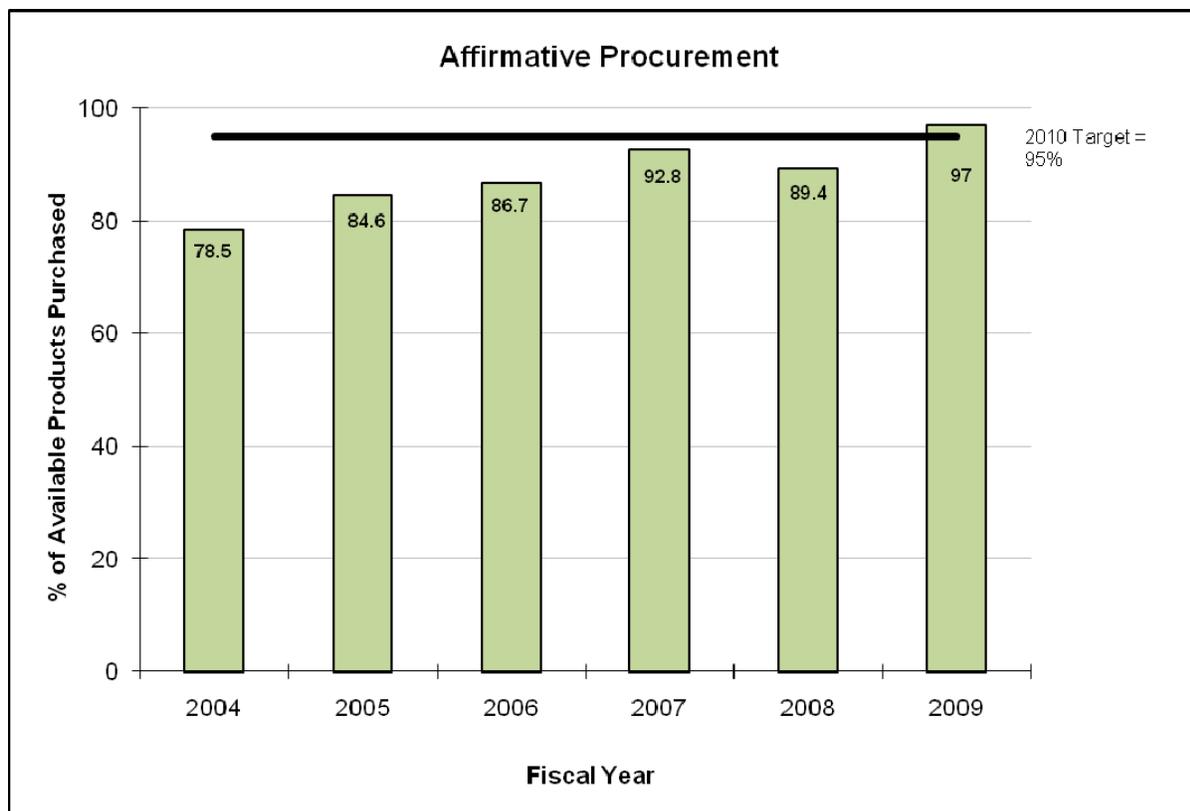


Figure 1 Procurement of Environmentally Friendly Products

7.2 Hazardous and Radioactive Waste Objectives

Although SNL/CA does not have a specific target for this objective, we strive to minimize generation of radioactive and hazardous 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 2005, respectively. As shown, waste generation in both categories fluctuates from year to year depending on the nature and scope of research and facilities projects conducted. Over the last several years, SNL/CA has undertaken a number of campaigns to identify and remove old chemicals from the site inventory. These activities contributed to an increase in hazardous waste for 2009 and 2010. SNL/CA also experienced an increase in radioactive waste in 2010; however, the total quantity generated is small and consistent with quantities generated since 2005.

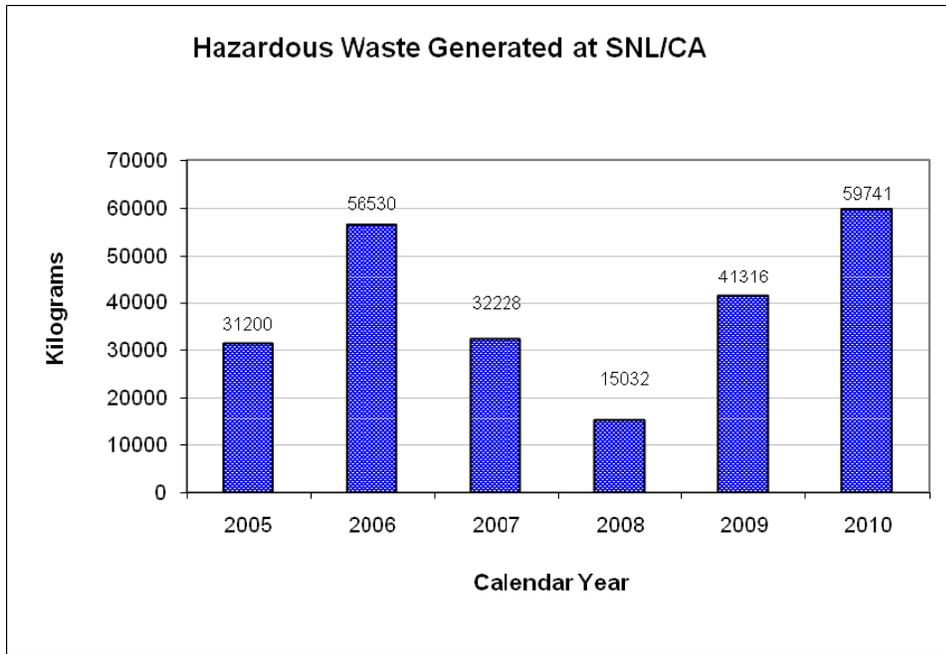


Figure 2 Hazardous Waste Generated at SNL/CA

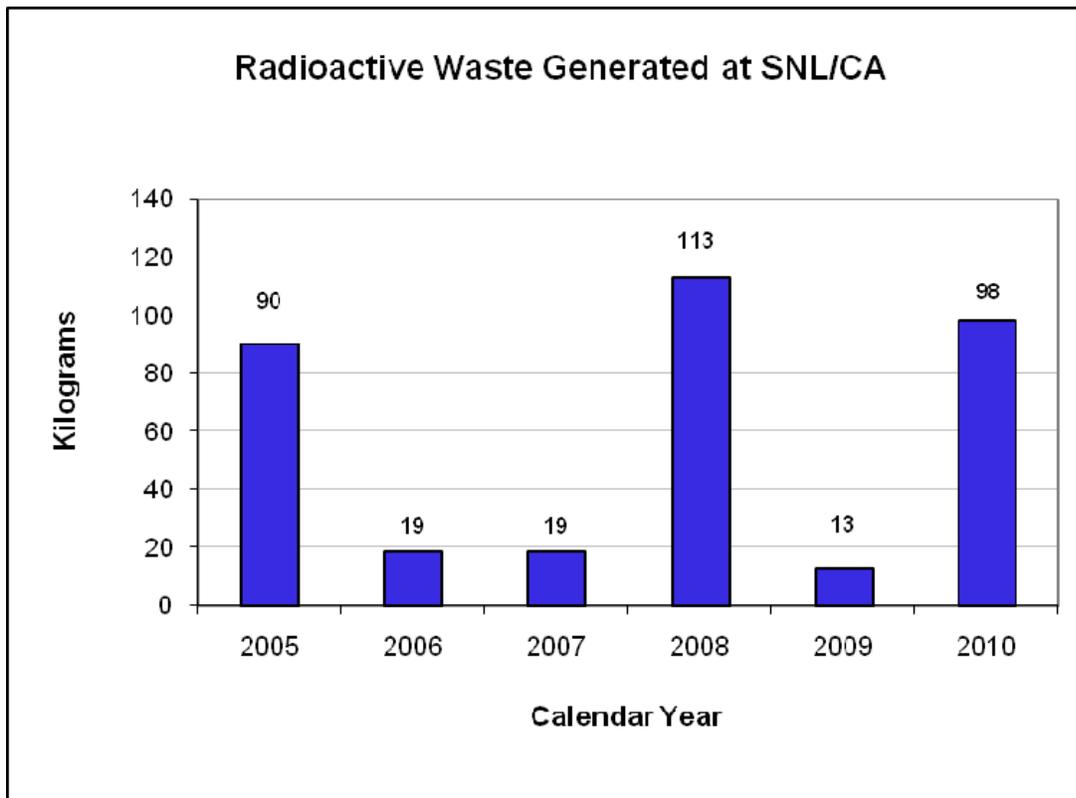


Figure 3 Radioactive Waste Generated at SNL/CA

7.3 Solid Waste Objective

In 2010, SNL/CA established two targets to support our objective of minimizing the quantity of solid waste that is sent to the landfill. The targets are to divert from disposal 50% of non-hazardous waste and 50% of construction/demolition debris by fiscal year 2015. These targets are also consistent with the goals of Executive Order 13514. As shown in Figures 4 and 5 Sandia met both targets in 2010 through recycling of fifteen waste streams. The quantity of routine non-hazardous solid waste (excludes construction debris) sent to the landfill in 2010 also decreased from 2009, by 7 metric tons. Figure 6 presents routine landfill waste data for fiscal years 2003 to 2010.

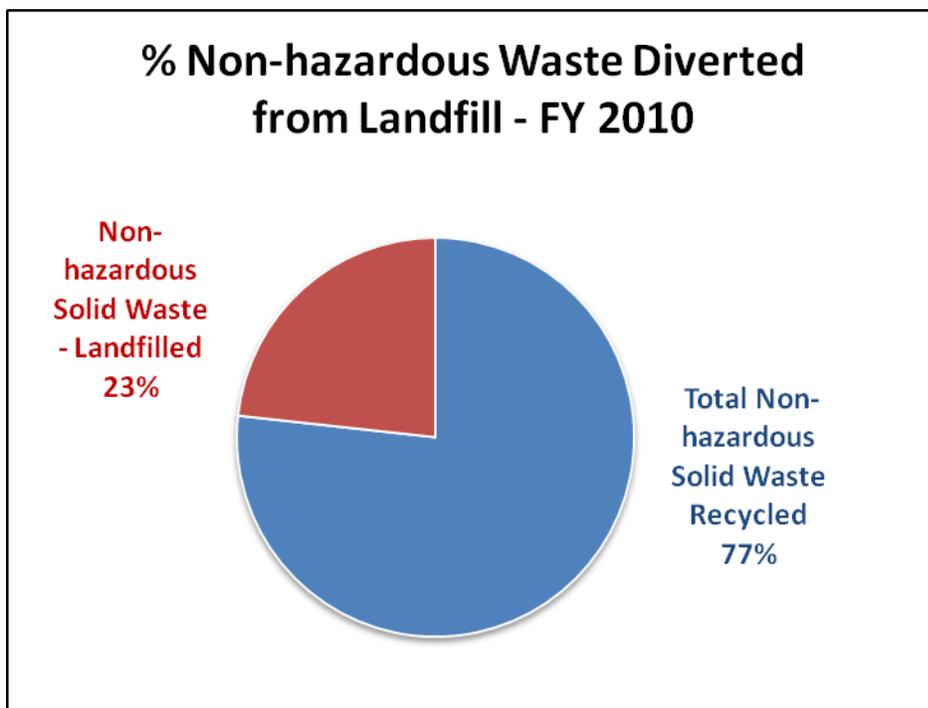


Figure 4 Non-Hazardous Solid Waste Diverted From Landfill Disposal

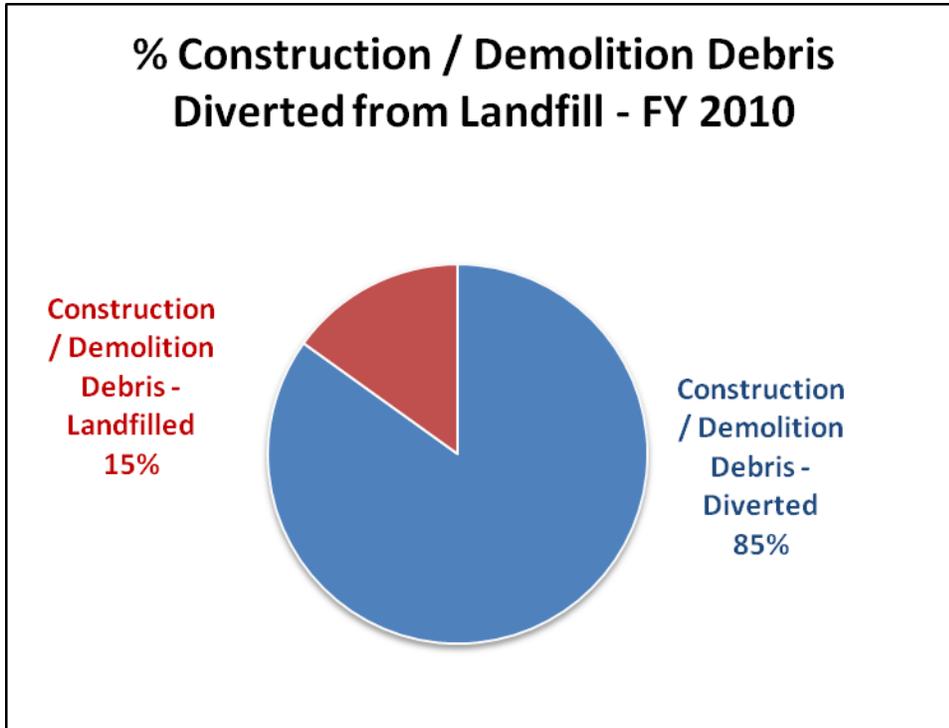


Figure 5 Construction / Demolition Debris Diverted From Landfill Disposal

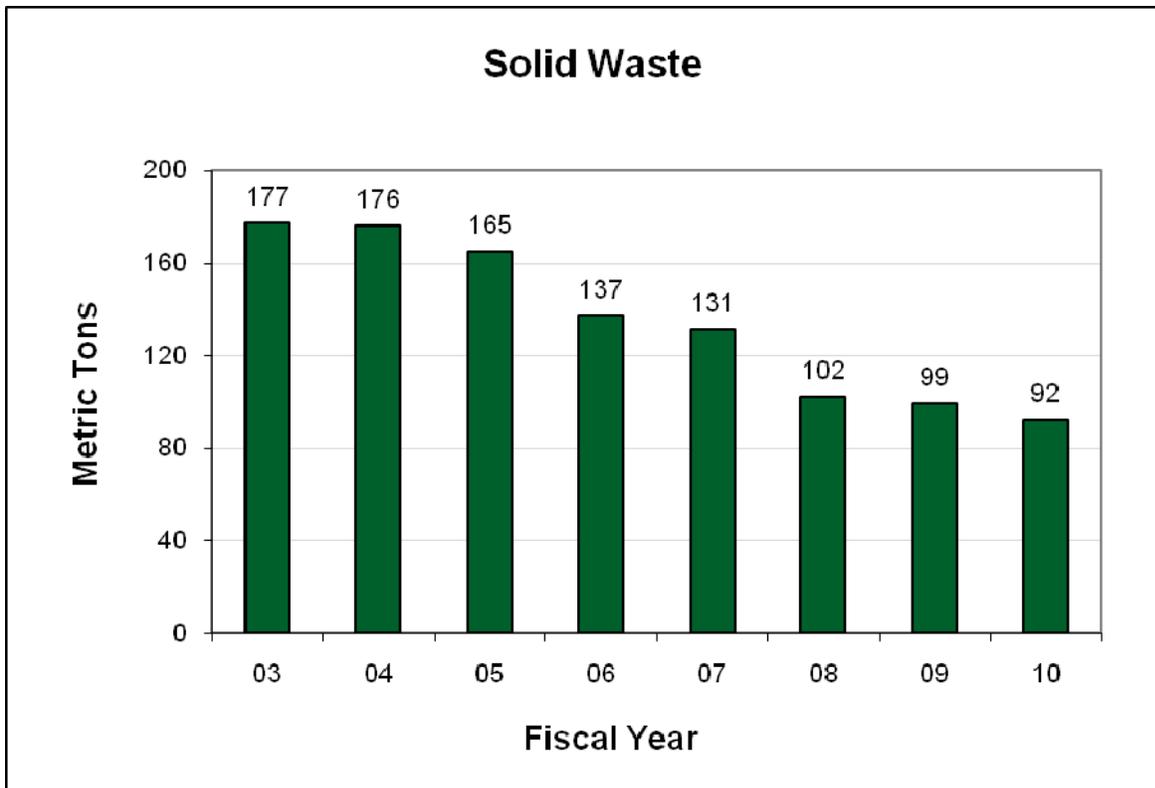


Figure 6 SNL/CA Landfill Waste

8 Quality Assurance

8.1 Program Risk Assessment

In January 2011, the P2 Program completed a program risk assessment. The risk assessment identified four potential risks associated with P2. These included

1. Potential risk of a contaminated container or equipment being released to the public sector.
2. Mismanagement of disposition of equipment from an outside organization
3. Inaccurate data reported to internal and external organizations
4. Impacts of reduction in Program funding

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

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

2010 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 2010 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 reviewed in the fall 2010. No issues were found.

The DTSC audits Waste Management and Pollution Prevention. 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. DTSC did not conduct an audit in 2010.

The DTSC California Integrated Waste Management Board (CIWMB) audits the Waste Tire Manifest program. The DTSC audited SNL/CA's Waste Tire Manifest program in April 2010. The Waste Tire Manifest program was in compliance.

9.1 Follow-up on 2009 Program Assessments

In 2009 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.

During 2010, P2

- Conducted 8 Universal Waste Training courses to members of the workforce responsible for managing these waste streams.
- Conducted a monthly inspection for three months to confirm Universal Waste regulations are implemented.

In 2010 SNL/CA and LLNL upper management decided discontinue the investigation to evaluate the potential of several recyclable waste streams specifically asphalt, concrete, green waste, wood waste and pallets to be managed as a joint operation.

9.2 2010 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
Review Checklist**

Organization: 8516 **Program:** Pollution Prevention

Date Completed: 12/16/10 **Signature:** Janet Harris
Program Lead

Document Type	Document Title	Review Complete / Date	Changes Made	Comments
PHS	Pollution Prevention/Waste Minimization Program Activities (SNL06A00127-005)	<input checked="" type="checkbox"/> 1/13/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Annual rollover complete.
Operating Procedures	AP800020 "Management of Waste Lamps at SNL/CA" replaced by SP 473637 "Management of Universal Waste Lamps at SNL/CA"	<input checked="" type="checkbox"/> 5/10/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	It was recommended during the IDT/WPC review of the P2 Program Activities the procedure be upgraded to an SP.
	AP800021 "Management of Universal Waste Management Batteries at SNL/CA" replaced by SP 473635 "Management of Universal Waste Batteries at SNL/CA"	<input checked="" type="checkbox"/> 6/10/09	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	It was recommended during the IDT/WPC review of the P2 Program Activities the procedure be upgraded to an SP.
	OP 472271 "Operating the Olympic Vertical Cardboard Baler"	<input checked="" type="checkbox"/> 12/16/09	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	OP472288 "Operating the Portable Axle Scale in the Recycling Center"	<input checked="" type="checkbox"/> 6/2/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	New procedure for FY10.
	CA-PM-WI-04 "Reapplication Process"	<input checked="" type="checkbox"/> 12/16/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Property Management owns procedure. P2 reviewed regarding e-waste.
	CA-PM-WI-06 "Media Destruction Process"	<input checked="" type="checkbox"/> 12/16/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Property Management owns procedure. P2 reviewed regarding e-waste.
	CA-PM-JA-05 "Hardware/Software Reapplication"	<input checked="" type="checkbox"/> 12/16/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Property Management owns procedure. P2 reviewed regarding e-waste.
	CA-PM-OP-04 "CA Site Property Management and Reapplication Operations"	<input checked="" type="checkbox"/> 12/16/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Property Management owns procedure. P2 reviewed regarding e-waste, CARS, PM.
WPC Documents	JQWA forms (Harris, Farren., Wilson)	<input checked="" type="checkbox"/> 06/01/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Farren's JQWA will be deleted due to change in job.
ES&H Corporate Procedures	ESH100.2.ENV.15 Manage Hazardous Waste at SNL/CA ESH100.2.ENV.20 Manage Other Waste at SNL/CA ESH110.2.ENV.21 Recycle or Reuse Waste at SNL/CA	<input checked="" type="checkbox"/>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Other Program Documents	Annual Pollution Prevention/Waste Minimization Program Report	<input checked="" type="checkbox"/> 3/15/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

	Annual Waste Generation and Pollution Prevention Progress Report:	<input checked="" type="checkbox"/> 12/1/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Affirmative Procurement Report	<input checked="" type="checkbox"/> 12/1/10	<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"/> 2/1/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Contracts	Staff Augmentation for P2 laborer	<input checked="" type="checkbox"/> 9/10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Web Pages	General Web Page	<input checked="" type="checkbox"/> 9/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewed general web pages. Updates complete
	Program Web Page	<input checked="" type="checkbox"/> 8/10	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Reviewed program web pages. Changes should be completed early January 2010.
	Program Metrics	<input checked="" type="checkbox"/> 11/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewed Program Metrics. Updates complete.
	Get Rid of It	<input checked="" type="checkbox"/> 9/10	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Reviewed Get rid of It web page. Updates complete
Outlook Task Calendar		<input checked="" type="checkbox"/> 12/10	<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 regulated wastestreams that are either recycled or reapplied offsite or onsite including certified appliances through Property Management. The assessment determined the requirements and regulations associated with these wastestreams and reviewed the management procedures and practices to ensure compliance.

As a result of this assessment, P2 will provide an option for management/recycling of the wastestream generated from CDs/DVDs shredding including picking a vendor and setting up contract.

9.4 Environmental Program Representative Assessment

During 2010, 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 2010 included:

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

9.5 Corporate / Line Self Assessment

During 2010, the corporate / line self assessment process did not assess any elements of the Pollution Prevention Program.

10 Accomplishments

During 2010, Pollution Prevention accomplished the following activities:

- SNL/CA and LLNL jointly sponsored Recycled Art Contest for Earth Day. The contest theme was “Creative Ways to Save the Earth”. SNL/CA and LLNL jointly participated in the city of Livermore Earth Day Festival - Saturday April 17th. The entries from the Recycled Art contest were displayed at the Festival. Over 500 people participated in the annual event, which included vendors, arts & crafts and activities for the kids. The entries were also displayed at LLNL during the week of April 19th and the winners were announced at a ceremony on Earth Day. SNL/CA Director Pat Smith participated as a judge and as a presenter in the awards ceremony. LLNL also invited SNL/CA to come to their Green Vendor Showcase. The vendors were displaying many different types of environmentally friendly products. Finally SNL/CA P2 staff hosted a Virtual Earth Day web page. The web page included information such as how to determine your carbon footprint and commuting costs.

- In January SNL/CA changed vendors for office supply products. SNL/CA P2 staff worked with the new vendor to help them provide products that meet the EPP requirements. A hands-on training was held in January to learn how to order office supplies from the new vendor. The new vendor also held an office supplies show in early January to answer questions, hand out 2010 catalogs, and introduce vendor representatives.
- SNL/CA P2 staff worked with SNL/CA Property and SNL/CA Health and Safety staff in the cleanout of the Radiation Machine Shop. Several pieces of contaminated excess equipment tools (approximately 100,000 pounds) were shipped offsite in mid-June to a recycling vendor to be processed for reuse. This option saved SNL/CA approximately four million dollars in disposal costs.
- During the week of September 20-26, SNL/CA celebrated National Pollution Prevention Week. The theme for 2010 highlighted the sustainable practices being conducted onsite. The P2 staff submitted daily announcements for each day of that week. Topics discussed were the Chemical Exchange program, the requirements for purchasing printing and writing paper, the amount of material SNL/CA recycled in FY 2009 and finally activities being conducted onsite to reduce water consumption.
- In February 2011, SNL/CA received a DOE/NNSA P2 Environmental Stewardship Award for our Depleted Uranium Contaminated Machine Tools Removal Project. The application was submitted in December 2010.
- In March, 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 2010. 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 bio-based products, toner cartridges, tissue with aloe and sticky notes.

12 Trends

Budgets for indirect funded programs, such as Pollution Prevention, continue to be cut. The majority of Pollution Prevention resources are used for labor. In October 2010, the Pollution Prevention Project Lead position was eliminated as a cost cutting measure. This budget reduction will 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

Pollution Prevention supports the goals and objectives to increase the procurement and use of environmentally friendly products and materials and minimize the generation of waste (nonhazardous, hazardous, radiological, wastewater). Through participation on the Interdisciplinary Team P2 provides guidance for integration of environmentally friendly purchasing and waste minimization requirements into projects during the planning phase.

Table 7 presents SNL's corporate objectives and targets that support the elements of the Pollution Prevention program.

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

Objective	Target	2010 Action Items Completed
Procure and use environmentally friendly products and materials	In FY10 purchases made by Affirmative Procurement Program will equal or exceed 95% of available procurements	Target Completed
	IN FY10, increase the use of bio-based products by 25% from the FY08 amounts.	Target Removed
Minimize consumption (energy, water, non-renewable resources).	<u>CORPORATE</u> : By FY15, reduce energy intensity by 30 percent. (FY03 baseline). (2010 SSP) (Total Bldgs)	New Target
Minimize the production of waste (non-hazardous, hazardous, radiological, wastewater).	<u>CORPORATE</u> : By FY12, divert at least 65 percent of non-hazardous solid waste, excluding construction and demolition debris.	New Target
Minimize the quantity of landfill waste through reduced consumption and/or recycling/reuse.	By FY15 divert from disposal 50% of non hazardous waste (trash, green). (EO 13514)	The baseline for the amount of non-hazardous waste (trash, green) diverted from disposal in FY10 is 76.7 %
	By FY15 divert from disposal 50% of construction and demolition debris. (EO13514)	The baseline for the amount of construction and demolition debris diverted from disposal in FY10 is 84.9 %

Appendix A Management of Recycling Waste Streams

Wastestream	CY2010 (lbs)	Charge/Revenue	Potential cost/revenue
Aluminum beverage containers	680	125% CRV Value (current price is \$1.57/lb)	680 lbs at \$1.57 = \$1806 (REV)
Asphalt	0	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)	701 lbs	Boxes hold approximately 40 lbs and are \$60 each.	604/40 = 18 at \$60 ea = \$1080(CHG)
Batteries (Rechargeable batteries specifically lithium, nickel cadmium, and nickel hydride batteries)	697 lbs	Box can hold approximately 40 lbs and are provided at no charge	Free
Batteries (lead acid)	5398 lbs	1st shipmt \$0.10/lb 2nd shipmt \$0.15/lb	589(REV)
Cardboard	61683 lbs	\$0.0195-\$0.02786 per pound Note: 8758 lbs cardboard managed by Facilities contractor as part of contract.	52925 lbs at various prices = \$1194(REV)

Concrete	11460 lbs	\$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)
Empty containers	1478 lbs	No charge	0
Electronic waste	48209 lbs	\$0.10/lb	\$4821(REV)
Fluorescent tubes (various types)	4077 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. Average two pickups per year. \$3200(CHG)
Glass beverage containers	1254 lbs	100% CRV Value (current price 0.11 per lb)	1254 at \$0.11 = \$138(REV)
Green waste	170608 lbs	\$450 per 30 yard rolloff plus \$40.00 per ton	$153348/2000 = 77$ tons at \$40 = \$3080 (tonnage) + $77/3 = 26$ at \$450 = \$11700 (total bin cost) = \$14780 (CHG) Note 17260 lbs managed by Facilities contractor as part of contract.
Mercury items	42 lbs	\$324 per 5 gallon drum	2 5-gallon drums in CY10 at \$324 is \$648 (CHG)
Mixed recycled waste	40000 lbs	\$600 per 40 yard rolloff plus \$60.00 per ton	$33940/2000 = 17$ at \$60.00 = \$1020(tonnage)+ 6 bins at \$600 = \$3600 (total bin cost) = \$4620(CHG) Note: 6060 lbs managed by Facilities contractor as part of contract.

Oil filters	283 lbs	\$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)	231750 lbs	\$680.00 per service visit up to four hours.	\$680 at 26 visits = \$17,680(CHG)
Plastic beverage containers	1010 lbs	100% CRV value (current price is \$0.91-\$0.93 per lb)	1010 lbs at \$0.96 per lb = \$929(REV)
Scrap metal	27918 lbs	Pricing based on AMM Scrap Iron and Steel Prices, Export Yard Buying (fluctuates \$103-\$153 per ton as well as \$0.65 per pound if meets premium criteria)	27300/2000 = 14 tons @ various \$ per ton = \$14121(REV) Note 618 lbs managed by Facilities contractor as part of contract.
Tires	2215 lbs	\$850 per 20 yd box	(Based on receipt from Waste Management) \$850 (CHG)
Toner cartridges	5061 lbs	No charge	0
Waste oil	3583 lbs	\$50 per 55 gallon drum	8 55-gallon drums in CY10 at \$50 is \$400(CHG)
Wood	60046 lbs	\$450.00 per 30 yd rolloff plus \$40.00 per ton	54700/2000=27 at \$40.00 = \$1080(tonnage) + 27/2.5 = 11 bins at \$450 = \$4950(total bin cost)= \$6030(CHG) Note: 5346 lbs managed by Facilities contractor as part of contract.

Distribution:

- 1 MS9002 Smith, Pat, 08500
- 1 MS9956 Garcia, John, 08510
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