

SANDIA REPORT

SAND2007-2653xx
Unclassified Unlimited Release
Month year

Supersedes SAND 2006-5780
Dated September 2006

Sandia National Laboratories, California Environmental Management System Program Manual



Prepared by
Environmental Management Department
Sandia National Laboratories
Livermore, California 94550

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Environmental Management Department
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Livermore, CA 94550

Abstract

The Sandia National Laboratories, California (SNL/CA) Environmental Management System (EMS) Program Manual documents the elements of the site EMS Program. The SNL/CA EMS Program conforms to the International Standard on Environmental Management Systems, ISO 14001:2004. Elements of the ISO standard overlap with those of Department of Energy (DOE) Order 450.1, thus SNL/CA's EMS program also meets the DOE requirements.

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Summary of Document Changes

Significant changes made to the April 2007 edition of the EMS Program Manual are marked with a sidebar within the document and summarized in Table 1.

Table 1 Summary of Changes to EMS Program Manual, April 2007

Section	Page	Change
1	9	EMS Program received certification to ISO14001:2004 in September 2006.
1.2	12	Updated with the 2007 EMS Calendar.
2	13	Sandia's corporate ES&H policy was revised. The modified policy is summarized.
3.1	15	SNL/CA's ES&H Executive Council was dissolved; management oversight of the EMS Program is transferred to the new Safety, Health, and Environment Action Committee.
6.2	29	Several new targets for non-significant aspects were established in 2007.
8.5	48	Pollution Prevention and Waste Minimization Program provides oversight of the universal waste program.
9.3	54	Table 8 has been updated to reflect new and modified requirements for 2006 and 2007.
11.2	61	Obsolete document controls provided in ES&H Manual, Section 21. Document control included in division management self-assessment process.
14.1	68	A new electronic data management system was implemented for the Interdisciplinary Team process.
14.2	68	Semi-annual ISO 14001 surveillance audits are now part of the EMS assessment and audit process.
15.1.2	71	Results of a 2007 gap analysis against the ISO 14001 standard have been added.
15.2.1	72 – 75	Added the results of the 2006 EMS self-assessment completed in November 2006.
17	78	Results of the March 2007 Management Review added.
20.1	82	Changed the description of the role served by the EMS advisory team.
App. A	87-91	Appendix A presents the 2007 objectives and targets.

Acronyms and Abbreviations

BAAQMD	Bay Area Air Quality Management District
CARB	California Air Resources Board
CBR System	Corporate Business Rules System
CEDT System	Corporate Education, Development, and Training System
CFR	Code of Federal Regulations
CPR	corporate process requirement
CPS	corporate policy statement
CPSR	corporate policy statement requirement
CWRCB	California Water Resources Control Board
DOE	Department of Energy
EMS	Environmental Management System
EP Rep	Environmental Programs Representative
EPCRA	Emergency Planning and Community Right to Know Act
ES&H	environment, safety, and health
IDT	Interdisciplinary Team
ISMS	Integrated Safety Management System
ISO	International Organization for Standardization
M&O Contract	management and operating contract
MSDS	material safety data sheet
NEPA	National Environmental Policy Act
PHS	primary hazard screening
QA	quality assurance
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act
SHEAC	Safety, Health & Environment Action Committee
SME	subject matter expert
SNL	Sandia National Laboratories
SNL/CA	Sandia National Laboratories, California
SNL/NM	Sandia National Laboratories, New Mexico
USC	United States Code

1 Program Introduction

Sandia National Laboratories, California (SNL/CA) has maintained functional environmental programs to assist with regulatory compliance for more than 30 years. During 2005, these existing programs were rolled into a formal environmental management system (EMS) that expands beyond the traditional compliance focus to managing and improving environmental performance and stewardship practices for all site activities. An EMS is a set of inter-related elements that represent a continuing cycle of planning, implementing, evaluating, and improving processes and actions undertaken to achieve environmental policy and goals. The SNL/CA EMS Program conforms to the International Standard for Environmental Management Systems, ISO 14001:2004 (ISO 2004). The site received ISO 14001 certification in September 2006.

SNL/CA's EMS Program is applicable to the Sandia, Livermore site only. Although SNL/CA operates as one organizational division of the overall Sandia National Laboratories, the EMS Program is site-specific, with site-specific objectives and targets. SNL/CA (Division 8000) benefits from the organizational structure as it provides corporate level policies, procedures, and standards, and established processes that connect to and support elements of the SNL/CA EMS Program. Each EMS element is further enhanced with site-specific processes and standards.

Division 8000 has several groups operating at Sandia National Laboratories, New Mexico (SNL/NM). Although these groups, from an organizational perspective, are part of Division 8000, they are managed locally and fall under the environmental requirements specific to their New Mexico location. The New Mexico groups in Division 8000 follow the corporate EMS Program for New Mexico operations.

1.1 Integration with Corporate EMS Standards

On January 15, 2003, the Department of Energy (DOE) issued *DOE Order 450.1, Environmental Protection Program*. Order 450.1 outlines the basic strategy for environmental compliance at DOE facilities. It became effective for all Sandia National Laboratories (SNL) facilities on August 21, 2003 through incorporation into the Sandia management and operating contract. The objectives of Order 450.1 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 (DOE 2005b). The order requires DOE sites to meet these objectives through an EMS. Sandia's corporate EMS standard follows the DOE requirements established in Order 450.1.

Under the corporate EMS umbrella, each SNL Division implements an EMS program tailored to the characteristics and operations of that division. Although the SNL/CA EMS Program conforms to the ISO 14001 Standard, it still meets the corporate standard and DOE Order 450.1, as the ten broad requirements of the order overlap with the 17 required elements of ISO 14001:2004. Table 2 provides a cross reference of SNL/CA's EMS program elements to the appropriate DOE and ISO requirement.

Table 2 Cross-reference of SNL/CA EMS Elements

EMS Element	DOE Order 450.1	ISO 14001
Site environmental policy		X
Structure and responsibilities		X
Environmental aspects	X	X
Quality assurance and risk management	X	X
Objectives and targets	X	X
Emergency preparedness and response	Separate DOE order	X
Environmental programs	X	Included in objective and target requirement ^a
Legal and other requirements		X
Operational control	X	X
Document control	Separate DOE order	X
Training, awareness, and competence		X
Evaluating compliance with environmental requirements	X	X
EMS monitoring, measurement, and maintenance	X	X
Nonconformity, corrective, and preventive action	X	X
Management review	X	X
EMS documentation	X	X
Records	Separate DOE order	X
Communications		X

^a The ISO 14001 standard combines environmental programs with objectives and targets as one element; however, environmental programs are addressed separately in this manual.

1.2 SNL/CA EMS Program Mechanics

SNL/CA prepared the *Sandia National Laboratories, California Environmental Management System Program Manual* (EMS Manual) to document and provide a roadmap to its EMS Program. Annually, the SNL/CA EMS Core Team updates the EMS Manual to document the aspects/impacts of current operations, the goals and objectives that respond to these impacts and the EMS changes and improvements that occurred during the year.

The SNL/CA EMS Program encompasses an annual cycle of planning, implementing, assessing, and improving operations in support of site-specific environmental goals. The EMS Program cycle is presented in Figure 1. As shown, the EMS cycle aligns with the budget cycle so that investment and resource requirements can be requested for the next budget year. To provide further detail of the timing of EMS actions throughout the year, an annual EMS calendar is maintained and included as Figure 2.

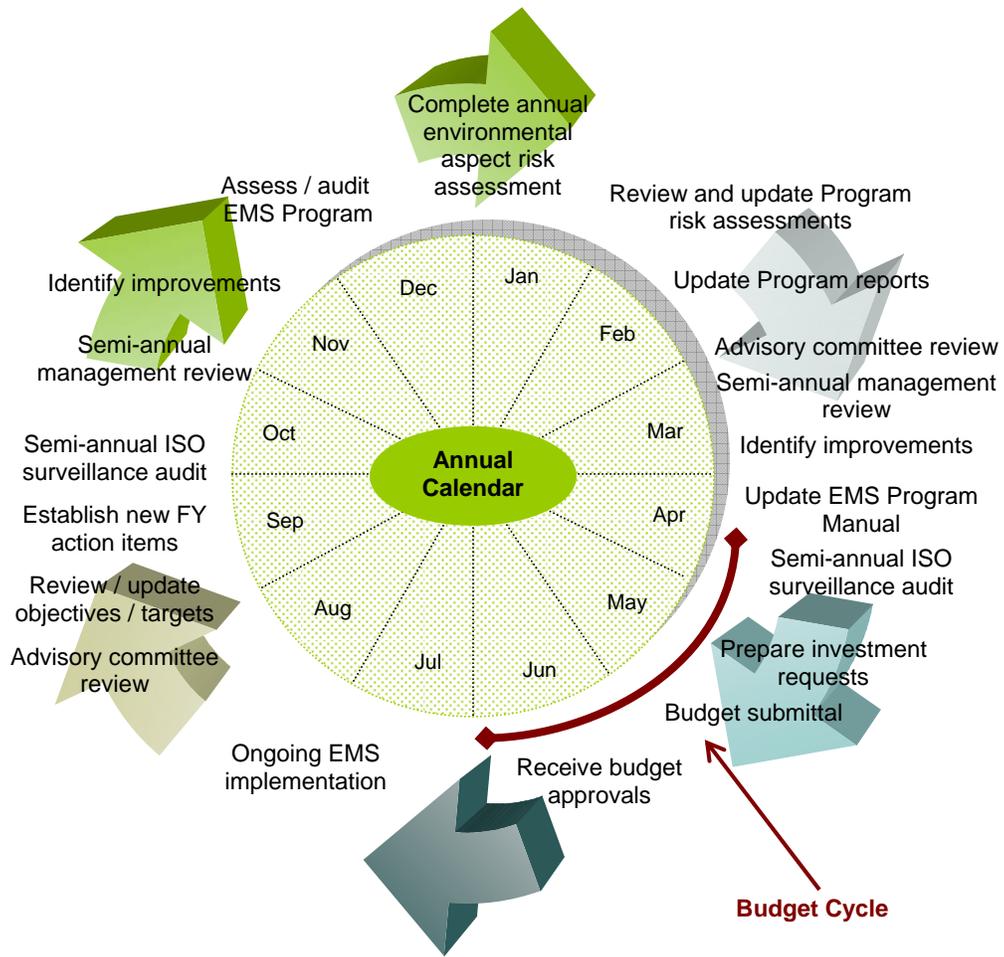


Figure 1 EMS Program Cycle

	Annual EMS Calendar of Major Events	Start Date	Finish Date	2007												
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	
1	Risk Assessment															
2	Annual Environmental Aspect Risk Assessment	8/1/07	8/31/07													
3	Program PHS Update	1/2/07	1/31/07	█	█											
4	Review / update program risk assessments	1/2/07	1/15/07	█	█											
5	Review / update program formality determinations	1/2/07	1/15/07	█	█											
6	Program Reports															
7	Update Individual Program Reports (CY Summary)	1/31/07	2/16/07		█	█										
8	Dept. Mgr. Review & Approval of Annual Program Reports	2/15/07	3/1/07		█	█										
9	Objectives/Targets /Actions Planning															
10	Quick review of expiring targets	1/2/07	1/17/07	█	█											
11	Establish / Modify Objectives and Targets for next year	9/1/07	9/14/07													
12	Establish actions supporting Objectives/Targets	9/14/07	10/5/07													
13	Modify objectives / targets / actions based on EEC feedback	11/1/07	11/13/07													
14	Reporting / Mgmt Review															
15	EEC EMS Review 1 - Past FY Year Performance, Metrics and New Objectives/Targets review & approval (Fiscal Year Summary)	10/1/07	11/1/07													
16	EEC EMS Review 2 - Audit results, external communications, corrective/preventive actions, follow up actions, recommendations for improvement.	3/1/07	3/31/07													
17	Annual SHEAC EMS Review	7/2/07	7/31/07													
18	EMS Program Manual															
19	EMS Program Manual Update	3/19/07	4/20/07													
20	EMS Program Manual Management Approval	4/2/07														
21	Publish Annual EMS Manual	4/16/07														
22	Earth Day															
23	Earth Day Planning	3/1/07	4/17/07													
24	Earth Day / EMS Awareness Survey	4/16/07	4/23/07													
25	Annual Site Earth Day Activities	4/18/07														
26	Annual Assessments															
27	Prepare / Mgr. Approve Annual Program Self Assessment Plans	10/2/06 10/1/07	10/31/06 10/31/07													
28	Perform Program Self and Line Assessments	10/29/07	12/20/07													
29	Env. Manager Annual EMS Self Assessment	11/1/07	12/14/07													
30	ISO Certification Actions															
31	Surveillance Audit	4/2/07	4/30/07													
32	Surveillance Audit	10/1/07	10/31/07													
33	Misc. EMS Actions															
34	Update communications calendar for CY	1/1/07	1/30/07	█	█											
35	Update Documents Spreadsheet	10/1/07	10/17/07													
36	Annual VP Delegation of Authority	10/22/07														
37	ASER Preparation - Draft Submission	1/1/07	3/9/07	█	█	█	█									
38	ASER Submission (Calendar Year Summary)	6/1/07														
39	Advisory															
40	Advisory Committee Review	3/7/07 9/5/07														
				J	F	M	A	M	J	J	A	S	O	N	D	

Figure 2 Annual EMS Calendar, 2007

2 SNL/CA Environmental Policies

SNL/CA follows corporate and site-specific environmental policies that are combined with broader environment, safety, and health (ES&H) requirements. The Sandia corporate policy (CPSR400.1) *is to protect and preserve the environment, and to ensure the safety and health of its Members of the Workforce by providing a place of employment that is free from recognized hazards that have the potential to cause physical harm to workers.* Principles outlined in the corporate policy related to environmental management include employee accountability for minimizing impact on the environment and the belief that environmental incidents are preventable and unacceptable. Sandia's ES&H performance objectives also include creating a work environment that strives for zero environmental incidents and zero operations fines, violations, or penalties.

In addition, the SNL/CA Vice President re-issued a Division 8000 ES&H standard of performance statement in January 2007. The statement reinforces individual accountability, environmental stewardship, and regulatory compliance - the basic elements of the corporate ES&H policy (SNL 2007a). The statement stresses the need to move beyond compliance requirements to nurture a positive ES&H culture at all levels of the workforce.

Annually, the SNL/CA EMS Core Team reviews the ES&H standard of performance statement to ensure that it remains aligned with the site vision and the corporate ES&H policy. This review is executed as part of the internal EMS program audit. If needed, the EMS team presents recommendations for revisions to site management during the management review process described in Chapter 17.

SNL/CA ES&H Standard of Performance

SNL/CA is firmly committed to meeting all corporate and regulatory ES&H policies and requirements that apply to its operations. The application of compliant ES&H principles and practices is considered a fundamental element of everyone's work assignment.

In this regard, SNL/CA commits to:

- **Nurture a safety and health conscious work ethic and culture.** We will all assume responsibility for creating and maintaining a worksite, as well as performing our work, in a manner that respects and supports the safety and health of every individual. SNL/CA believes that all accidents are preventable. We will all strive to create a workplace that is free of accidents and injuries.
- **Be a responsible steward of the environmental resources in our care.** We will integrate environmental risk assessment, planning and impact mitigation into every aspect of our work. SNL/CA programs, operations, processes, and facilities will be planned and managed such that they support environmental objectives and targets to minimize the creation of waste, pollution, and adverse impact on the public and the environment. SNL/CA will remain committed to an efficient and effective Environmental Management System as part of the laboratory's Integrated Safety Management System.
- **Comply with all applicable laws, regulations and permits.** Compliance with the letter and the spirit of ES&H laws and regulations is viewed as the minimum acceptable standard. When necessary and appropriate we will go beyond legal mandates in order to implement more effective approaches and to nurture a positive and learning ES&H culture. SNL/CA is committed to continual improvement in all aspects of our environment, safety, and health performance and commits to establish performance indicators to guide these efforts and measure our progress.

The Standard of Performance Statement resides on the SNL/CA ES&H website at <https://www.ran.sandia.gov/centers/8500/es-h-overview> and the Sandia external website at http://environment.sandia.gov/ESH-Poster_2007.pdf. It was also made into posters and distributed to the site management team for display in their respective organizations (at their discretion).

3 Structure, Responsibilities, and Authorities

3.1 Management Structure

The management structure for SNL/CA's EMS Program is depicted in Figure 3. As shown, the EMS Program is implemented through the Environmental Management Department under the Site Operations Center. Site Operations is one of six centers at SNL/CA reporting to the SNL/CA (Division 8000) Vice President. The site Vice President oversees the Safety, Health, & Environment Action Committee (SHEAC) comprised of the site vice president and center directors. SHEAC provides leadership and strategic management oversight of ES&H for Division 8000, and validates and approves the site EMS Program. The SNL/CA EMS Core Team manages day-to-day implementation and maintenance of the EMS Program. An advisory committee consisting of representatives from various functional areas also supports the EMS Program.

3.2 Key Responsibilities

SNL/CA personnel with key responsibility for the EMS Program include the site Vice President, the Director of Site Operations, the Level II Manager for ES&H, Facilities, and Security, the Manager for the Environmental Management Department, and the environmental functional program leads. The site Vice President holds overall responsibility for the success of the SNL/CA EMS Program and establishes the ES&H standard of performance for all site operations. The Director, Level II Manager, and Department Manager are responsible for providing the appropriate resources to implement and maintain the EMS, functional programs, and site infrastructure to support EMS objectives and targets. The Department Manager also serves as the designated management representative for the EMS. The functional program leads are responsible for day-to-day management of EMS elements and for assisting the site workforce in meeting established objectives and targets. The Environmental Programs Representative serves as an environmental liaison to the workforce. SNL/CA personnel assigned to each job function are listed in Table 3.

3.3 Authorities

EMS authorities at SNL/CA are defined in an internal memorandum issued by the Division 8000 Vice President on November 20, 2006. Authorities are defined for all levels of the workforce from the site VP, directors, and managers, to the basic worker. A copy of the authorities memorandum is provided in Figure 4.

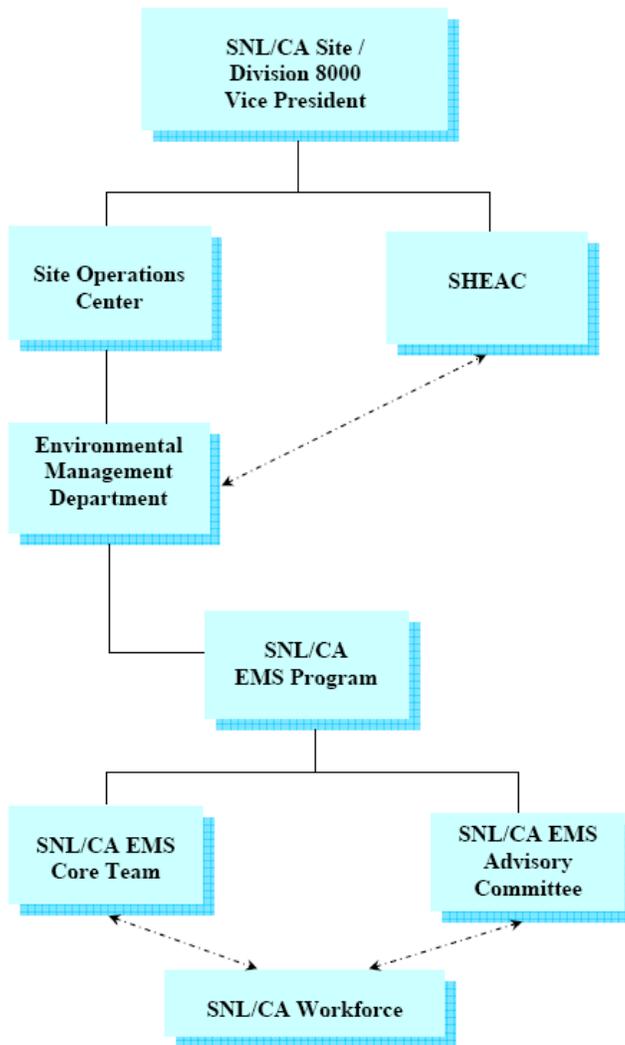


Figure 3 SNL/CA EMS Management Structure

Table 3 SNL/CA EMS Key Personnel, 2007

Job Function or Title	Name
Vice President, SNL/CA (Division 8000)	Paul Hommert
Director, Site Operations	Pat Smith
Level II Manager, ES&H, Facilities, and Security	Ed Cull
Department Manager, Environmental Management	Gary Shamber
Designated Management Representative	Gary Shamber
Environmental Programs Representative	Deanna Dicker
Functional Program Leads:	
Air Quality	Leslee Gardizi
Environmental Monitoring and Restoration	Robert Holland
Environmental Planning and Ecology	Barbara Larsen
Hazardous Materials Management	Mark Brynildson
Pollution Prevention and Waste Minimization	Janet Harris / Laurie Farren
Waste Management	Mark Brynildson

date: November 20, 2006

to: Division 8000 / CA Site Members of the Workforce



from: Paul Hommert, 8000, MS 9001

subject: Personal Authorities and Responsibilities regarding the SNL/CA Environmental Management System (EMS).

SNL/CA's Environmental Management System (EMS) is ISO14001:2004 certified. Certification requires that roles, responsibilities and authorities of persons working for or on behalf of the EMS be identified and approved. This memorandum constitutes this identification and approval by me. Please direct questions and concerns to the site EMS Management Representative, Gary Shamber, 4-2237.

<p>Vice President</p>	<ul style="list-style-type: none"> ○ Endorse and communicate expected site environmental practices and performance, ○ Set the tone and priority, and demonstrate full commitment and support to the EMS and the maintenance of ISO14001 certification, ○ Communicate the site's environmental stewardship commitment to the local community as the opportunities are presented, ○ Provide annual delegation of authority for the generation and submission of required environmental reports, documents and payment of fees.
<p>Director, Site Operations</p>	<ul style="list-style-type: none"> ○ Ensure adequate budget and resources for the EMS and the maintenance of site ISO14001 certification.
<p>ES&H Executive Council (VP and site Directors)</p> <p>NOTE: The EEC was disbanded in January 2007. Responsibilities transferred to SHEAC.</p>	<ul style="list-style-type: none"> ○ Review and approve proposed changes to environmental policies or practices, ○ Promote site awareness of environmental policies and issues, ○ Champion a culture of environmental stewardship as the way of conducting business, ○ Approve site environmental goals, objectives and targets, ○ Provide adequate routine review of

Figure 4 SNL/CA EMS Authorities and Responsibilities

	environmental performance and issues as required by ISO14001.
EMS Management Representative	<ul style="list-style-type: none"> ○ Ensure that an EMS is established, implemented and maintained in accordance with ISO14001, ○ Annually develop goals, objectives and targets (reflecting site operations) aimed at reducing environmental risks and impacts, ○ Annually report to site senior management (EEC) on the performance and status of the site EMS, ○ Recommend improvements of the site EMS.
Manager, Environmental Management	<ul style="list-style-type: none"> ○ Provide effective management of site environmental programs, ○ Direct the environmental programs towards meeting approved environmental goals, objectives and targets.
Procurement & Purchasing Management	<ul style="list-style-type: none"> ○ Develop, maintain and execute processes and procedures that support the procurement of environmentally supportive (friendly) products and services.
Facilities Management	<ul style="list-style-type: none"> ○ Develop, maintain and execute processes and procedures that support sustainable design principles in facilities design, construction and operations, ○ Develop, execute and maintain processes and procedures that minimize the environmental impacts of site and building construction and maintenance.
All Managers	<ul style="list-style-type: none"> ○ Assure operations remain compliant with all applicable environmental laws and requirements, ○ Develop, execute and maintain processes and procedures that minimize the production of waste (all types), minimize air and water pollutant emissions, promote water and energy conservation and encourage procurement of environmentally friendly products and services, ○ Promote environmental awareness and best practices.
Members of the Workforce	<ul style="list-style-type: none"> ○ Comply with all environmental laws and requirements, ○ Perform all operations and activities such that they support site environmental goals, objectives and targets, ○ Refrain from participating in operations or activities that are non-compliant with environmental laws and requirements, ○ Report all environmentally non-compliant operations or activities, ○ Suspend operations and activities they observe to be non-compliant with environmental laws and requirements.

Figure 4 SNL/CA EMS Authorities and Responsibilities, continued

4 Environmental Aspects

An environmental aspect is an element of an organization's activities, products, or services that can interact with the environment. Simply put, an environmental aspect is a pathway for an environmental impact, either beneficial or adverse. For 2007, the EMS Core Team reviewed the 19 environmental aspects identified for SNL/CA and reaffirmed their applicability to current operations. These aspects are presented in Table 4 along with the specific site activities that correspond to each aspect.

Table 4 SNL/CA Environmental Aspects

Environmental Aspect	Site activity
Water discharges	office operations, medical operations, laboratory and test activities, facilities construction and deconstruction, exterior maintenance and operations, building maintenance and operations, general environmental operations
Air emissions	laboratory and test activities, facilities construction and deconstruction, exterior maintenance and operations, building maintenance and operations, onsite receiving and transportation, offsite transportation
Material procurement and use	office operations, medical operations, laboratory and test activities, facilities construction and deconstruction, exterior maintenance and operations, building maintenance and operations, general environmental operations
Land use	general environmental operations, facilities construction and deconstruction, exterior maintenance and operations
General transportation	onsite receiving and transportation, offsite transportation, security operations
Hazardous materials	medical operations, laboratory and test activities, facilities construction and deconstruction, exterior maintenance and operations, building maintenance and operations, security operations
Radiological materials	laboratory and test activities
Radioactive and mixed waste	laboratory and test activities
Biological agents	laboratory and test activities
Contaminated sites	general environmental operations
Hazardous waste	medical operations, laboratory and test activities, facilities construction and deconstruction, exterior maintenance and operations, building maintenance and operations, security operations
Legacy asbestos	facilities construction and deconstruction, exterior maintenance and operations, building maintenance and operations
Solid waste (non-hazardous)	office operations, medical operations, laboratory and test activities, facilities construction and deconstruction, building maintenance and operations, security operations, onsite receiving and transportation
Hazardous material transportation	onsite receiving and transportation, offsite transportation
Natural gas use	office operations, medical operations, laboratory and test activities
Water use	office operations, medical operations, laboratory and test activities, exterior maintenance and operations, facilities construction and deconstruction, building maintenance and operations
Electricity use	office operations, medical operations, laboratory and test activities
Fire	emergency event
Earthquake	emergency event

4.1 Significant Environmental Aspects

Significant environmental aspects for SNL/CA were identified through the risk ranking process described in Section 5.3. The site's significant aspects are the five with the highest risk score under normal operations: water discharges, air emissions, material procurement and use, land use, and general transportation. Table 5 provides the complete list of SNL/CA aspects for 2007 along with the ranking score from the risk assessment process for both normal operations and off-normal events. Significant environmental aspects are highlighted in bold. The risk ranking for off-normal events is also shown in Table 5. Although the highest ranked aspects in off-normal situations (highlighted in italics) are not categorized as significant aspects, their high risks are addressed during the establishment of action items. There were no changes in SNL/CA's significant environmental aspects between 2006 and 2007.

Table 5 SNL/CA Environmental Aspects

Aspect	Ranking Score ^a		Aspect	Ranking Score ^a	
	Normal	Off-Normal		Normal	Off-Normal
Water discharges	10	20	Hazardous waste	5	16
Air emissions	9	13	<i>Legacy asbestos</i>	4	<i>34</i>
Material procurement and use	9	12	Solid waste (non-hazardous)	4	12
Land use	7	14	<i>Hazardous material transportation</i>	3	<i>43</i>
General transportation	7	2	Natural gas use	3	21
Hazardous materials	6	13	Water use	3	17
Radiological materials	6	24	Electricity use	1	10
<i>Radioactive and mixed waste</i>	5	42	EMERGENCY ASPECTS		
<i>Biological agents</i>	5	52	Fire	0	11
Contaminated sites	5	0	<i>Earthquake</i>	0	26

^aSee Section 5.3 for description of methodology used to rank environmental aspects.

5 Quality Assurance and Risk Management

The Sandia Corporate Quality Assurance (QA) Program, defined in CPR001.3.2 (SNL 2006a) is implemented in California through the Sandia National Laboratories Division 8000 QA Program. The Division 8000 QA Program establishes the quality management system for planning work, evaluating work, implementing controls, performing work, and improving processes. The Division QA Program directs all SNL/CA departments to evaluate the hazards associated with their activities using the ISMS primary hazard screening (PHS) software tool. It also requires each department to perform activity or program risk assessments in order to determine the formality that must be used in managing these department activities or programs. Additionally, SNL/CA's Environmental Management Department completed a third quality-related evaluation, a risk ranking of EMS aspects to assist the department in focusing EMS Program efforts and resources on those aspects that represent the greatest risks to the site. Figure 5 shows the quality assurance process for the Environmental Management Department.

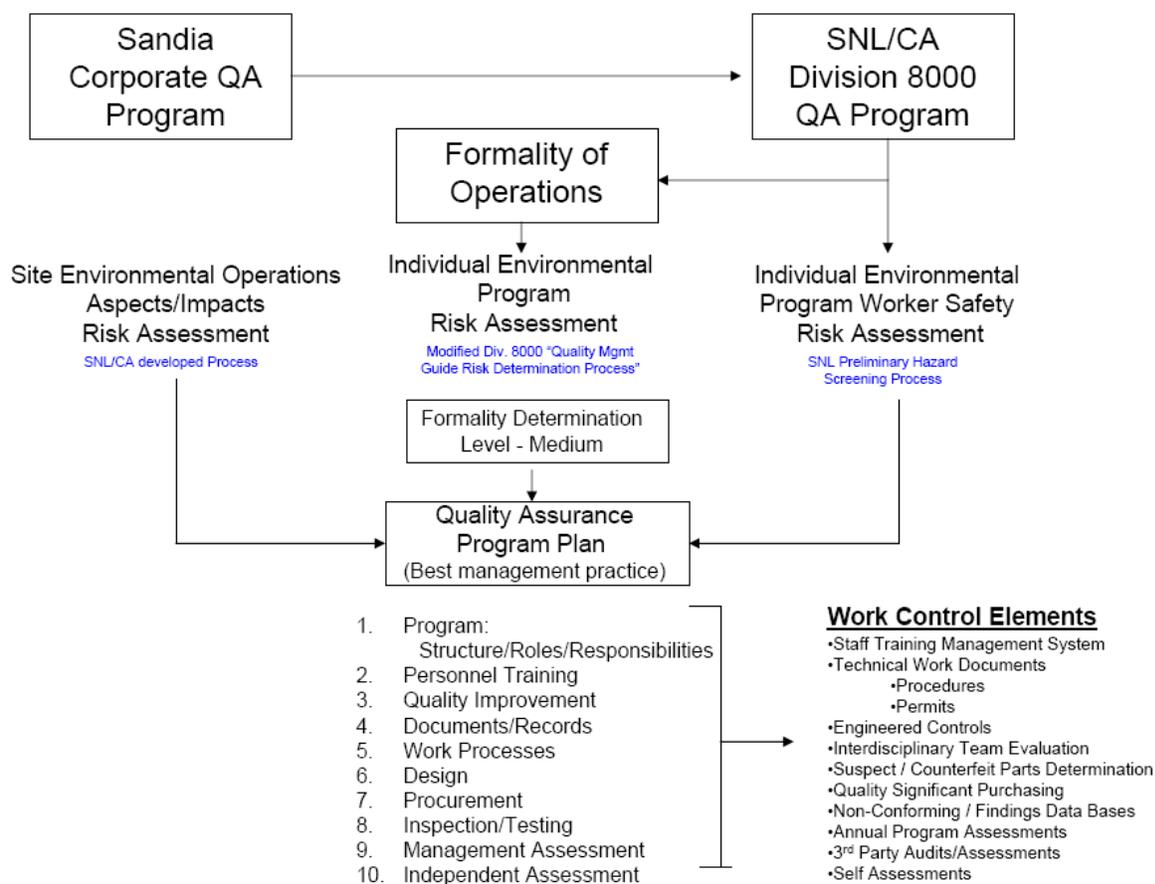


Figure 5 Environmental Management Department QA Process

5.1 Identifying and Managing Risk to Environmental Management Personnel

The execution of each of the six EMS environmental programs introduces personal risks to the staff performing the various actions of these programs. SNL/CA uses the corporate PHS software tool as the first step in managing risk to environmental management personnel. The PHS assists action owners in identifying hazards using a detailed set of questions about all aspects of environment, safety, and health. The PHS software generates a hazard evaluation based on the answers provided, and identifies training requirements and safety controls needed to protect the workforce. Each functional environmental program maintains a program-specific PHS to manage the safety risks associated with program activities.

5.2 Identifying and Managing Environmental Program Risk

The Environmental Management Department completed a formality determination to identify and manage risk associated with each SNL/CA environmental program. The formality determination is required and outlined in the Division QA Program. In general, a formality determination is made by conducting a risk assessment to identify the risk category of a particular activity, or in this case, program. Under the Division QA Program, programs that fall within the high-risk category require work-specific quality assurance plans. Programs that fall within the medium risk category require supplemental controls as outlined in one of four quality management guides.

The formality determination for the Environmental Management Department was completed by assessing the unique program risks associated with each of the six environmental programs. These assessments followed the Division 8000 process, which is a modified version of the corporate process. The results of the assessments show that risks associated with environmental programs fall within the low and medium risk categories. Department activities fall within the Exemplary Operations guide and the use of quality best practices as supplemental controls. Although not required, the Environmental Management Department prepared a department-specific quality assurance plan as its quality best practice supplemental control.

5.3 Identifying and Managing Risk Associated with Environmental Aspects

Annually, the EMS Core Team ranks the environmental aspects identified through the EMS Program to evaluate the risks of SNL/CA operations. Environmental aspects are ranked first under normal operating conditions using a modified risk assessment process that accounts for existing controls, compliance programs, and EMS improvements made during the previous year. Each aspect is evaluated against eight exposure pathways and rated on an impact scale from zero to 3 (negligible to high consequence). Figure 6 shows the assessment matrix for one

environmental aspect under normal operating conditions. A second assessment of each aspect is performed for a plausible off-normal event (determined by the core team and listed for each aspect) using a similar risk assessment process with the addition of a probability index of zero to 4 (zero to very high probability of an occurrence). Figure 7 shows the assessment matrix for an environmental aspect for an off-normal event. Ranking results are compiled and presented in Figure 8. Figure 9 graphically shows a summary of the ranking assessment for both normal operations and off-normal events. As shown, the highest risk aspects associated with normal operations are different from those identified for off-normal events.

The results of the aspects risk analysis are used to validate the resources applied to the environmental program that manages those risks. The results are also used to help establish the set of actions for the year that are designed to:

- Reduce the impacts of high-risk normal operations;
- Reduce the probability of high-risk off-normal events;
- Reduce the consequences of high-risk off-normal events should they occur.

5.4 Quality Assurance Program Plan

The Environmental Management Department QA Program Plan (QAPP), dated March 23, 2006 documents the activities that are vital to assuring the quality of work performed by the department. It applies to all environmental programs within the department. Although not required by the formality determination, the QAPP was selected as the quality best practice to manage medium risk category activities and to ensure consistent application of quality practices for functional environmental programs as well as for the EMS Program. The QAPP addresses the ten QA criteria of an effective quality program identified by DOE.

ASPECT: Water Discharges - Normal Operations		Consequences of Impact							Impact Score
Environmental Impact	Environmental Damage	Safety and Health	Programmatic Impact	Compliance	Financial liability or cost	Negative Reputation or Publicity	Total Consequence		
Contamination of air	0	0	0	0	0	0	0	0	
Contamination of ground water or surface water	1	0	1	1	1	0	4	4	
Contamination of soil	1	0	0	0	0	0	1	1	
Contamination of facilities (building or equipment)	0	0	0	1	1	0	2	2	
Offsite disposal (landfill or long term storage)	0	0	0	1	1	0	2	2	
Exposure to workforce	0	0	0	0	0	0	0	0	
Exposure to public	0	0	0	0	0	0	0	0	
Effect on Wildlife or Habitat	1	0	0	0	0	0	1	1	
								10	

Consequence	Value
Negligible	0
low	1
medium	2
high	3

Figure 6 Aspect Ranking Example - Normal Operations

ASPECT: Water Discharges - Off Normal		Consequences of Impact							Impact Score
Environmental Impact	Failure Probability	Environmental Damage	Safety and Health	Programmatic Impact	Compliance	Financial liability or cost	Negative Reputation or Publicity	Total Consequence	
Contamination of air	1	0	0	0	0	0	0	0	0.00
Contamination of ground water or surface water	1	2	1	1	1	3	2	10	10.00
Contamination of soil	1	0	0	0	0	0	0	0	0.00
Contamination of facilities (building or equipment)	1	0	1	0	0	0	0	1	1.00
Offsite disposal (landfill or long term storage)	1	1	0	0	0	0	0	1	1.00
Exposure to workforce	1	0	0	0	0	0	0	0	0.00
Exposure to public	1	0	1	0	0	1	2	4	4.00
Effect on wildlife or habitat	1	1	1	0	1	0	1	4	4.00
								20.00	

Probability	Value
zero or N/A	0
low	<20%
medium	20-50%
high	50-80%
very high	>80%

Consequence	Value
negligible	0
low	1
medium	2
high	3

Off Normal Scenario: An discharge from operations to the sanitary sewer that negatively affects operations at the Livermore sewer plant.

Figure 7 Aspect Ranking Example - Off-Normal Event

Aspects	Contamination of Air		Contamination of Ground Water or Surface Water		Contamination of Soil		Contamination of Facilities (bldgs or equip.)		Offsite Storage(landfill or long term)		Exposure to Workforce		Exposure to Public		Effect on Wildlife and Habitat		Total Impact Score - Normal Operations	Rank	Total Impact Score - Off Normal Event	Rank
	N	ON	N	ON	N	ON	N	ON	N	ON	N	ON	N	ON	N	ON				
Air Emission	4	6.00	0	0.00	0	0.00	2	0.00	0	0.00	3	7.00	0	0.00	0	0.00	9	2	13.00	11
Legacy Asbestos	1	4.00	0	0.00	0	0.00	3	8.00	0	4.00	0	9.00	0	9.00	0	0.00	4	12	34.00	4
Biological Agents	2	0.00	0	0.00	0	0.00	0	11.00	0	0.00	3	15.00	0	15.00	0	11.00	5	8	52.00	1
Contaminated Sites (Areas)	0	0.00	3	0.00	2	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	9	0.00	14
Water Discharges	0	0.00	4	10.00	1	0.00	2	1.00	2	1.00	0	0.00	0	4.00	1	4.00	10	1	20.00	7
Hazardous Material	0	0.00	0	0.00	0	0.00	1	0.00	0	0.00	3	12.00	2	1.00	0	0.00	6	7	13.00	11
Hazardous Waste	0	0.00	0	0.00	0	0.00	0	2.00	4	0.00	1	14.00	0	0.00	0	0.00	5	10	16.00	9
Hazardous Material Transportation	1	4.00	0	7.00	0	7.00	0	5.00	0	1.00	0	14.00	2	0.00	0	5.00	3	14	43.00	2
General Transportation	2	-3.00	0	0.00	0	0.00	1	0.00	1	1.00	1	5.00	1	-1.00	1	0.00	7	4	2.00	18
Solid Waste (Non-Hazardous)	0	0.00	0	0.00	0	0.00	0	0.00	3	12.00	0	0.00	0	0.00	1	0.00	4	13	12.00	12
Radiological Materials	0	0.00	0	5.00	0	6.00	4	5.00	0	3.00	2	5.00	0	0.00	0	0.00	6	6	24.00	5
Radiological and Mixed Waste	0	6.00	0	0.00	0	6.00	0	7.00	5	12.00	0	0.00	0	9.00	0	2.00	5	11	42.00	3
Use of Non Env. Friendly Material	1	1.00	1	1.00	1	1.00	0	0.00	3	7.00	2	0.00	0	1.00	1	1.00	9	3	12.00	12
Land Use	0	2.00	1	1.00	1	0.00	0	0.00	0	2.00	0	2.00	0	5.00	5	2.00	7	5	14.00	10
Natural Gas Use	3	3.00	0	1.00	0	0.00	0	0.00	0	3.00	0	14.00	0	0.00	0	0.00	3	15	21.00	6
Electricity Use	0	2.00	0	1.00	0	0.00	0	0.00	0	0.00	1	7.00	0	0.00	0	0.00	1	17	10.00	13
Water Use	0	0.00	1	2.00	0	1.00	0	7.00	0	1.00	0	6.00	0	0.00	2	0.00	3	16	17.00	8
Emergency Aspects																				
Site Fire		4.00		1.00		0.00		0.00		0.00		2.00		3.00		1.00			11	16
Seismic Event		2.00		1.00		1.00		10.00		6.00		5.00		1.00		0.00			26	5

Figure 8 Environmental Aspect Ranking Results, 2007

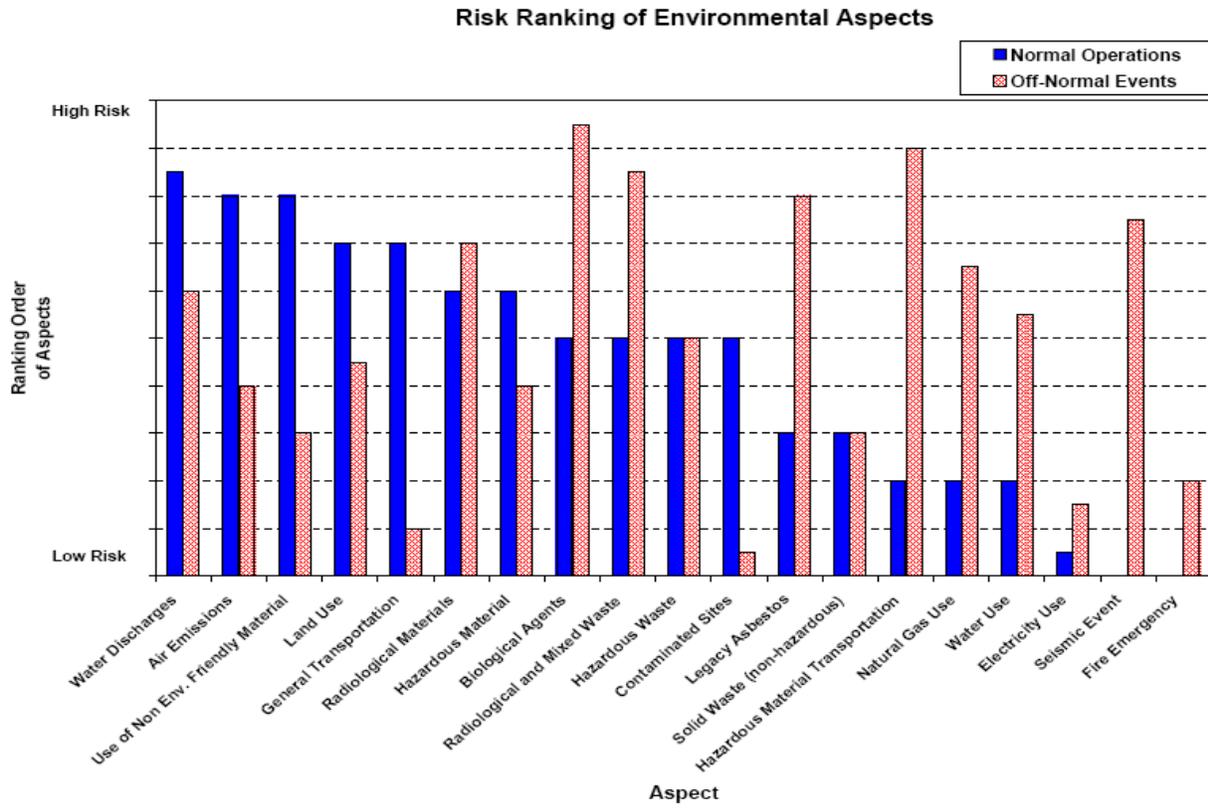


Figure 9 SNL/CA Aspect Ranking Summary

6 Objectives and Targets

Setting objectives and targets, and establishing actions to help achieve these is a continuous cycle as shown in Figure 10. Objectives and targets provide a measure of environmental performance and the effectiveness of an EMS. SNL/CA's objectives support efforts to reduce potential environmental risk from site operations and enhance environmental stewardship. Our targets are detailed measurable performance requirements directly linked to site objectives. At the end of each calendar year, the EMS Core Team reviews EMS objectives and targets and evaluates the sites progress in meeting them. Targets are modified and new action items are established for the upcoming calendar year. As part of this review process, the Core Team identifies additional resources needed to implement current or future action items and submits an investment request through the budget cycle.

The site's senior management team (VP and directors) are responsible for approving new EMS objectives and targets, and validating existing objectives and targets annually. The management team approved and validated EMS objectives and targets in August 2006. Several targets that expired at the end of 2006 were replaced with new targets, established in February 2007. These new targets were approved by the management team on March 12, 2007.

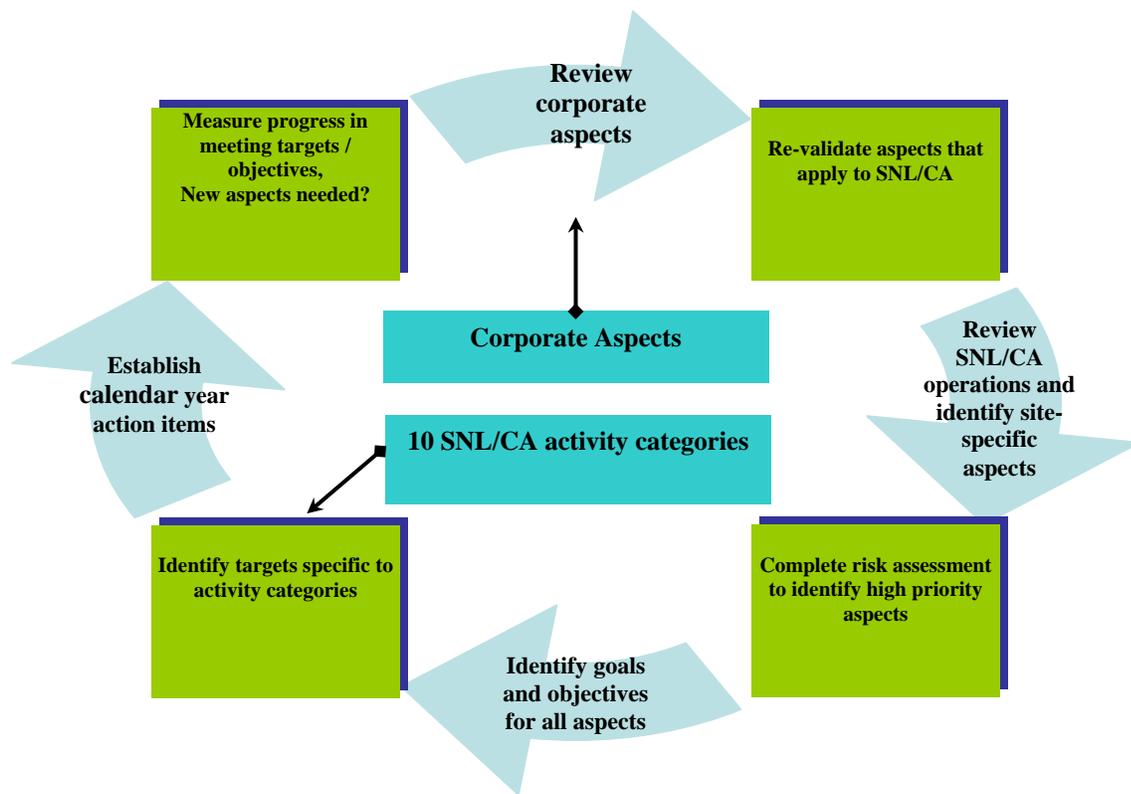


Figure 10 Cycle of Setting and Evaluating EMS Objectives and Targets

6.1 Defining Objectives

In 2006, the EMS Core Team established broad, multi-year objectives for each of the 19 environmental aspects applicable to SNL/CA activities. The inclusion of objectives for each aspect rather than only significant aspects serves as a best business practice by providing an expectation of overall environmental stewardship across the spectrum of activities conducted on site. An additional objective for general environmental operations was also established.

Each EMS objective was formed around the concept that the site's negative environmental impacts cannot be eliminated, in most cases, but should be minimized to the extent practical. For example, site operations will continue to generate waste, use hazardous materials, etc, but these could be managed to reach a minimum level appropriate to the level of operations and mission of the site. SNL/CA EMS objectives are shown in Table 6. Objectives associated with significant environmental aspects are highlighted in green.

Table 6 SNL/CA EMS Objectives

Environmental Aspect/Area	Objective
General Environmental Operations	Provide exceptional environmental management for the SNL/CA site.
Water Discharges	Minimize the volume and contamination of sewer water. Minimize the volume and pollution of storm water runoff.
Air Emissions	Minimize air emissions related to operations and transportation with particular emphasis on Spare-the-Air days.
Material Procurement and Use	Procure and use environmentally friendly products and materials.
Land Use	Enhance the natural habitat. Design and manage all buildings and facilities using "green" principles.
General Transportation	Minimize the use of vehicles by members of the workforce.
Hazardous Materials	Minimize the use of hazardous materials.
Radiological Material	Minimize the use of radiological materials.
Radioactive and Mixed Waste	Minimize the generation of radioactive and mixed waste.
Biological Agents	Minimize the use of biological materials.
Contaminated Sites	Minimize the environmental impacts of site contaminated areas.
Hazardous Waste	Minimize the generation of hazardous waste.
Legacy Asbestos	Reduce site legacy asbestos material.
Solid Waste (non-hazardous)	Minimize the quantity of landfill waste through reduced consumption and/or reuse/recycling.
Hazardous Material Transportation	Minimize the potential environmental effects of hazardous material due to transportation.
Natural Gas Use	Minimize site natural gas consumption.
Water Use	Minimize site water consumption.
Electrical Use	Minimize site electrical consumption.
Fire	Minimize the environmental effects of a site fire emergency.
Earthquake	Minimize the environmental effects of a site seismic event.

6.2 Defining Targets and Assigning Actions

At the beginning of each fiscal year², the EMS Core Team establishes new targets and updates existing targets to support site environmental objectives. At a minimum, targets are established for significant environmental aspects. The Core Team identifies specific actions, timeframes, and personnel assignments needed to meet these targets. Completion of actions and progress towards meeting established targets is tracked using standard project management software (i.e., FastTrack Schedule). Project management schedules for significant environmental aspects are presented in figures 11 through 15.

The EMS Core Team may also establish targets for environmental aspects that are not categorized as significant to support specific environmental program activities (e.g., activities that receive special funding, support corrective actions, or implement site initiatives). For example, in 2007, the Core Team established a target to decrease the amount of copy paper purchased by 5% by 2010 (aspect = solid waste; objective = minimize the quantity of landfill waste through reduced consumption and/or reuse/recycling). Actions to support targets not associated with significant environmental aspects are incorporated into routine environmental program activities and tracked to completion by functional program leads. The complete list of targets for 2007 is provided in Appendix A.

² Sandia's fiscal year is October 1 to September 30.

	Activity Name	Assigned To	Start Date	Finish Date	2005				2006				2007				2008				2009				2010				2011				2012				2013				2014			
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
35	Communicate progress on Arroyo Seco Improvement Program to the workforce by posting updates on the ES&H website	Schermesse	6/1/06	10/31/06																																								
36	Obtain updates on arroyo projects from Project Managers at least once per month	Schermesse	6/1/06	10/31/06																																								
37	Periodically photograph progress	Schermesse	6/1/06	10/31/06																																								
38	Post photos and updates on web monthly	Schermesse	6/1/06	10/31/06																																								
39	Prepare completion text for five tasks and post on web	Larsen	11/1/06	11/30/06																																								
40																																												
41	Target 3: Design and manage all buildings and facilities using "green" principles																																											
42	100% of all future new building and renovation project designs will meet minimum equivalent LEED Silver level design/construction point value (rating)																																											
43	Arrange for SNL/NM to conduct LEED training to facilities engineering/PM	Harris, Garc	6/1/07																																									
44	Review site comprehensive plan annually to identify planned construction and renovation projects	Larsen	10/31/06 10/31/07 10/31/08																																									
45																																												
46	Actions without targets																																											
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Figure 14 Land Use Objectives, Targets, and Actions (continued)

	Activity Name	Assigned To	Start Date	Finish Date	2005				2006				2007				2008				2009				2010				2011				2012				2013				2014			
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
47	Perform a gap analysis between current maintenance practice and green maintenance practice	Harris, Farre	3/30/07																																									
48	Complete the consultation process with U.S. Fish and Wildlife Service to backfill recharge basin	Larsen	3/31/10																																									
49	Submit letter to USFWS requesting approval to backfill basin																																											
50	Prepare draft letter and submit to SSO for review	Larsen	5/17/06																																									
51	4-month follow-up with SSO	Larsen	9/29/06																																									
52	SSO to finalize letter to USFWS	SSO	10/6/06																																									
53	SSO to submit request to USFWS	SSO	10/6/06																																									
54	Follow-up with USFWS on status of request to backfill recharge basin																																											
55	Identify contact person at USFWS	Larsen	10/25/06																																									
56	Conduct on site meeting with FWS and SSO	Larsen	12/13/06																																									
57	Discuss results of FWS meeting and options to proceed (or not) with basin backfill	Larsen	1/29/07																																									
58	Review FWS meeting results and SSO recommendations with Sandia site management - identify path forward	Shamber	3/30/07																																									
59																																												
60																																												
					1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Figure 14 Land Use Objectives, Targets, and Actions (continued)

7 Emergency Preparedness and Responses

SNL/CA has an established Emergency Plan (SNL/CA 2005b) and procedures to provide an effective and timely response to emergency conditions. The site's Emergency Management Program was established in accordance with a separate DOE order, *Order 151.1C, Comprehensive Emergency Management System* (DOE 2005a). SNL/CA's Emergency Plan establishes guidelines and procedures to mitigate the potential consequences of an operational emergency. The Emergency Management Program maintains implementing procedures for all assigned roles that support emergency events on site. SNL/CA conducts annual training exercises to validate elements of the Emergency Management Program. Routine training drills and communication tests are also completed. The Emergency Plan and Emergency Plan Implementing Procedures are available to the site workforce on SNL/CA's web site at <https://www.ran.sandia.gov/centers/8500/?q=security/emergency-management>.

Emergency response actions support our EMS Program by managing and mitigating the potential environmental risk from site operations. During site emergencies, members of the Environmental Management Department provide support with hazardous materials spill response and clean-up. Through these efforts, potential long-term environmental effects are avoided or minimized. The Chemical Inventory System, managed by the Hazardous Material Management Program, one of the six environmental programs, provides invaluable information in support of the Emergency Management Program.

8 Environmental Programs

SNL/CA maintains an Environmental Management Department that manages six functional program areas supporting the site EMS Program. The program leads from each of these six programs are part of the EMS Core Team responsible for developing, implementing, and modifying the site EMS. Functional program areas are:

- Air Quality
- Environmental Monitoring and Restoration
- Environmental Planning and Ecology
- Hazardous Materials Management
- Pollution Prevention and Waste Minimization
- Waste Management

The program lead for each functional area prepares an annual report that provides detailed information about all aspects of program operations. The program reports are provided in Appendix B and include the following:

- A detailed summary of program activities
- Program drivers
- Operational controls
- Documents produced
- Job descriptions, qualifications, and training
- Performance measures
- Quality assurance / program risk assessment
- Program assessments
- Accomplishments in the last 12 months
- Trends
- Goals and objectives (short-term)

8.1 Air Quality

The Air Quality Program provides compliance assistance for all nonradiological air emission sources at SNL/CA. Program staff review all directives, laws, and regulations relevant to air emissions for applicability to the site. This program manages the air permit process, from the initial steps of preparing permit applications through implementation of permit conditions and annual renewals. The Air Quality Program is responsible for evaluating proposed projects, assessing chemical use, and assessing emissions of all criteria pollutants and toxic air contaminants.

The Air Quality Program assists the site in complying with the Clean Air Act, California Air Resources Board (CARB) regulations, and local Bay Area Air Quality Management District (BAAQMD) regulations.

8.2 Environmental Monitoring and Restoration

The Environmental Monitoring and Restoration Program routinely monitors wastewater, storm water, and groundwater systems at SNL/CA to assess the effect of site operations on the public and local environment. Storm water is evaluated for general water quality, and for non-radiological and radiological constituents. Wastewater effluent resulting from site operations is monitored for non-radiological constituents. Liquid effluent control systems are operated and maintained by the program to capture wastewater from laboratory activities for analysis prior to release to the sanitary sewer. Groundwater is sampled and analyzed for non-radiological and radiological constituents to assess the extent of groundwater contamination from past operations. In addition, monitoring of external radiation at the site perimeter is conducted using thermo luminescent dosimeters. Comparisons are made of site data to offsite dose rates. The program also conducts project specific soil sampling to assess potential soil contamination from past or current operations and implements restoration activities, as needed.

The Environmental Monitoring and Restoration Program assists the site in complying with federal requirements (Clean Water Act, National Emission Standards for Hazardous Air Pollutants Rule for Radionuclides); state of California requirements (Porter-Cologne Water Quality Act); and state and local permits for storm water and wastewater discharges.

8.3 Environmental Planning and Ecology

The Environmental Planning and Ecology Program provides oversight for ecological resource management, site-wide National Environmental Policy Act (NEPA) review, and cultural and historic resource reviews. The program coordinates and oversees wildlife, vegetation, and historic building surveys; prepares routine environmental reports that cross over multiple program areas; and implements the NEPA process.

The Environmental Planning and Ecology Program assists the site in complying with the Endangered Species Act; Migratory Bird Treaty Act; California Endangered Species Act; Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as it applies to wildlife and habitat; National Historic Preservation Act; NEPA; DOE NEPA Implementing Procedures; DOE Order 231.1 Environment, Safety, and Health Reporting (DOE 2003); and Executive Order 11990 Protection of Wetlands.

8.4 Hazardous Materials Management

The Hazardous Materials Management Program is responsible for tracking hazardous materials (chemical and biological), managing the Material Safety Data Sheets (MSDS) library, providing MSDS information to site personnel, and for regulatory compliance reporting required under various hazardous materials regulations. The program is also responsible for supporting hazardous material safety and information requirements site-wide.

The Hazardous Materials Management Program assists the site in complying with the Emergency Planning and Community Right-to-Know Act and California Right-to-Know

(EPCRA) regulations. The Hazard Communication/Lab Standard of the Occupational Safety and Health Administration is also key to program operations.

8.5 Pollution Prevention and Waste Minimization

The Pollution Prevention and Waste Minimization Program promotes the elimination or reduction of all types of wastes generated at SNL/CA. Program staff work closely with Facilities 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. Pollution Prevention and Waste Minimization also implements the universal waste program to ensure proper handling and disposal of low-hazard waste such as consumer electronics, mercury wastes, cathode ray tubes, and fluorescent tubes.

The Pollution Prevention and Waste Minimization Program assists the site in complying with the Pollution Prevention Act; Resource Conservation and Recovery Act (RCRA), California Hazardous Waste Source Reduction and Management Review Act; Energy Policy Act of 2005; and numerous executive and DOE orders. A complete list of orders is provided in the Pollution Prevention and Waste Minimization Program Annual Report (Appendix B).

8.6 Waste Management

The Waste Management Program manages hazardous, radioactive, and mixed wastes generated by SNL/CA operations. Program personnel collect waste from the point of generation and transfer it to either the Hazardous Waste Storage Facility or the Radioactive Waste Storage Facility for storage, consolidation, and packaging. The program establishes and maintains contracts for offsite treatment and disposal of wastes, manages the RCRA permit process and implements conditions of the permit, conducts process knowledge evaluations to characterize waste types generated from specific operations, and provides training to all SNL/CA waste generators.

The Waste Management Program assists the site in complying with Federal requirements (RCRA, Toxic Substances Control Act, Federal Facilities Compliance Act, FIFRA); State of California requirements (Hazardous Waste Control Law, Medical Waste Management Act); DOE orders for radioactive waste management and packaging and transportation of waste; and the RCRA Part B Permit for SNL/CA.

9 Legal and Other Requirements

SNL/CA is subject to many federal, state, and local environmental laws, regulations, and requirements. Sandia operations are also subject to DOE directives identified in Sandia Corporation's contract with DOE for management and operation of Sandia National Laboratories. Sandia is committed to managing all activities in accordance with these policies, directives, and processes within the boundaries of the prime contract, applicable laws, DOE and corporate directives, and best management practices (SNL 2006e). As part of our mission, we strive to serve our customers by anticipating their needs, meeting their requirements, and exceeding their expectations (SNL 2005b). DOE and Sandia establish an annual performance evaluation plan that outlines the expectations for performance.

9.1 Current Requirements

Environmental requirements applicable to SNL/CA operations are detailed in annual program reports prepared for each environmental program area (Appendix B). Table 7 provides a list of primary environmental requirements that are applicable to each environmental aspect. In addition to the requirements listed in Table 8, DOE and Sandia establish a set of operational expectations each year. DOE's expectations of Sandia for 2007 can be found in the *Fiscal Year 2007 Performance Evaluation Plan for Sandia Corporation in the Operation and Management of Sandia National Laboratories* at <http://www-irn.sandia.gov/lab-appraisal/agreement/agreement.htm>. The 2007 Performance Evaluation Plan includes a performance measure for ES&H performance through EMS and Integrated Safety Management System (ISMS) implementation.

Table 7 Primary Environmental Requirements Associated with Environmental Aspects

Environmental Aspect	Environmental Requirement
Water discharges (significant aspect)	CPR 400.1.1 ES&H Manual and Supplements
	DOE Order 450.1, Environmental Protection Program
	Clean Water Act
	40 CFR 112, Oil Pollution Prevention
	40 CFR 122 - 125, National Pollutant Discharge Elimination System
	40 CFR 129 Toxic Pollutant Effluent Standards and Prohibitions
	40 CFR 403 General Pretreatment Regulations for Existing and New Sources of Pollution
	40 CFR 433 Metal Finishing Point Source Category
	23 California Code of Regulations (CCR), Division 3
	17 CCR Public Health
California Safe Drinking Water and Toxic Enforcement Act of 1986	

Environmental Aspect	Environmental Requirement
Air emissions (significant aspect)	CPR 400.1.1 ES&H Manual and Supplements DOE Order 450.1, Environmental Protection Program Clean Air Act National Emissions Standards for Hazardous Air Pollutants, Subpart H California Health and Safety Code California Clean Air Act California Air Resources Board Regulations Bay Area Air Quality Management District Regulations Executive Order (EO) 12843, Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances
Material procurement and use (significant aspect)	CPR 400.1.1 ES&H Manual and Supplements DOE Order 450.1, Environmental Protection Program DOE Order 413.3 Program and Project Management for the Acquisition of Capital Assets Executive Order (EO) 12843, Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances EO 13101, Greening the Government through Waste Prevention Recycling and Federal Acquisition (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management Resource Conservation and Recovery Act California Health and Safety Code
Land use (significant aspect)	CPR 400.1.1 ES&H Manual and Supplements DOE Order 450.1, Environmental Protection Program National Environmental Policy Act Endangered Species Act Migratory Bird Treaty Act Clean Water Act Federal Insecticide, Fungicide, and Rodenticide Act 10 CFR 1022 Compliance with Floodplain and Wetlands Environmental Review Requirements EO 11988 Floodplain Management EO 11990 Protection of Wetlands California Endangered Species Act California Fish and Game Code Biological and Conference Opinion for SNL/CA Operations DOE Order 4700.1 Project Management System DOE Order 413.3 Program and Project Management for the Acquisition of Capital Assets DOE Order 430.2A Departmental Energy and Utilities Management EO 13148 Greening the Government through Leadership in Environmental Management (replaced by EO 13423, January 2007) EO 13101 Greening the Government through Waste Prevention Recycling and Federal Acquisition (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management
General transportation (significant aspect)	DOE Order 450.1, Environmental Protection Program EO 13149 Greening the Government through Federal Fleet and Transportation (replaced by EO 13423, January 2007) Energy Policy Act of 2005 EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management

Environmental Aspect	Environmental Requirement
Hazardous materials	CPR 400.1.1 ES&H Manual and Supplements GN470094 Handling Chemicals at SNL/CA DOE Order 450.1, Environmental Protection Program Emergency Planning and Community Right-to-Know Act 29 CFR 1910.1200 Hazard Communication Standard 29 CFR 1910.1450 Lab Standard 40 CFR 68 Risk Management Plan EO 12856 Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements DOE Order 151.1C Emergency Management California Hazardous Materials Release Response Plans and Inventory Law EO 13148 Greening the Government through Leadership in Environmental Management (replaced by EO 13423, January 2007) EO 13101 Greening the Government through Waste Prevention Recycling and Federal Acquisition (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management California Health and Safety Code Division 20, Chapter 6.7 (underground storage tanks) Resource Conservation and Recovery Act (underground storage tanks) Toxic Substances Control Act Federal Insecticide, Fungicide, and Rodenticide Act
Radiological materials	Atomic Energy Act CPR 400.1.1 ES&H Manual and Supplements MN471016 Radiological Protection Procedures Manual DOE Order 450.1, Environmental Protection Program DOE Order 5400.5, Radiation Protection of the Public and Environment DOE/EH-0173T, Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance 10 CFR 835, Radiological Protection
Radioactive and mixed waste	CPR 400.1.1 ES&H Manual and Supplements GN470075 Guidelines for Waste Generators at SNL/CA DOE Order 450.1, Environmental Protection Program Atomic Energy Act DOE Order 435.1 Radioactive Waste Management DOE Order 5400.5 Radiation Protection of the Public and the Environment Federal Facility Compliance Act Hazardous Waste Facility Permit Part B Hazardous Waste Operation Plan California Health and Safety Code, Division 20, Chapter 6.5, Hazardous Waste Control Nevada Test Site Waste Acceptance Criteria
Biological agents	CPR 400.1.1 ES&H Manual and Supplements Biohazardous Waste Management Plan Medical Waste Management Plan
Contaminated sites	CPR 400.1.1 ES&H Manual and Supplements DOE Order 450.1, Environmental Protection Program California Regional Water Quality Control Board, San Francisco Bay Region Waste Discharge Requirements

Environmental Aspect	Environmental Requirement
Hazardous waste	CPR 400.1.1 ES&H Manual and Supplements GN470075 Guidelines for Waste Generators at SNL/CA DOE Order 450.1, Environmental Protection Program Resource Conservation and Recovery Act Federal Facility Compliance Act RCRA Implementing Regulations 29 CFR 1910.120 California Hazardous Waste Control Law California Medical Waste Management Act Title 22 CCR California Implementing Regulations for RCRA Pollution Prevention Act of 1990 EO 13101 Greening the Government through Waste Prevention Recycling and Federal Acquisition (replaced by EO 13423, January 2007) EO 13148 Greening the Government through Leadership in Environmental Management (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management California Hazardous Waste Source Reduction and Management Review Act of 1989 California Health and Safety Code, Division 20, Chapter 6.5, Hazardous Waste Control California Health and Safety Code, Division 20, Chapter 6.5, Waste Minimization Certification Toxic Substances Control Act Hazardous Waste Facility Permit Part B Hazardous Waste Operation Plan
Legacy asbestos	CPR 400.1.1 ES&H Manual and Supplements DOE Order 450.1, Environmental Protection Program National Emissions Standards for Hazardous Air Pollutants Toxic Substances Control Act
Solid waste (non-hazardous)	DOE Order 450.1, Environmental Protection Program Pollution Prevention Act of 1990 EO 13101 Greening the Government through Waste Prevention Recycling and Federal Acquisition (replaced by EO 13423, January 2007) EO 13148 Greening the Government through Leadership in Environmental Management (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management California Public Resources Code § 42961.5, Waste Tire Manifest Program
Hazardous material transportation	CPR 400.1.1 ES&H Manual and Supplements DOE Order 450.1, Environmental Protection Program Department of Transportation Regulations Transportation Safety Document Transportation Security Plan
Natural gas use	DOE Order 450.1, Environmental Protection Program Energy Policy Act of 2005 DOE Energy Reduction Goals EO 13123 Greening the Government through Efficient Energy Management (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management
Water use	DOE Order 450.1, Environmental Protection Program DOE Order 430.2A Departmental Energy and Utilities Management EO 13123 Greening the Government through Efficient Energy Management (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management
Electricity use	DOE Order 450.1, Environmental Protection Program Energy Policy Act of 2005 DOE Energy Reduction Goals EO 13123 Greening the Government through Efficient Energy Management (replaced by EO 13423, January 2007) EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management
Fire (emergency aspect)	CPR 400.1.1 ES&H Manual and Supplements DOE Order 151.1C Emergency Management

Environmental Aspect	Environmental Requirement
Earthquake (emergency aspect)	CPR 400.1.1 ES&H Manual and Supplements DOE Order 151.1C Emergency Management

9.2 Monitoring Requirements

The process for monitoring ES&H requirements is identified in Administrative Procedure (AOP 04-02 (SNL 2006b)). At the corporate level, Sandia monitors DOE directives, DOE Acquisition Regulation activity, Federal Register, and federal, state, and local government publications for regulatory changes and issues applicable to SNL operations. New requirements are communicated to the workforce through established internal mechanisms and incorporated into the Sandia ES&H Manual, a comprehensive document that guides the workforce through the compliance process (SNL 2007b). New requirements are then incorporated into facility- and operation-specific work planning and control documents.

Environmental subject matter experts (SMEs) at SNL/CA monitor state and local issues to augment corporate monitoring. Subscriptions to electronic and paper publications and interactions with regulators are two primary ways that SNL/CA's SMEs stay current on environmental requirements. SNL/CA SMEs work directly with regulating agencies to obtain information on new and changing requirements well in advance of requirements becoming effective. Such advance notice allows the SNL/CA EMS Core Team to identify resources and implement effective and cost efficient processes for compliance. Environmental staff members attend conferences routinely and participate as members of environmental organizations that publish newsletters and discipline-specific informational materials. Environmental consultants that support Sandia's staff also keep abreast of regulatory changes that may affect their clients.

SMEs at both SNL/CA and SNL/NM interact regularly with their DOE counterparts and regulators. Through these customer and stakeholder interactions, some changes (i.e., executive orders and policies, applicable litigation results, best management practices, etc.) may be identified that are not incorporated into Sandia's Management and Operating Contract (M&O Contract) as formal requirements. Although such changes are not necessarily contract requirements, where appropriate, they are incorporated into the EMS and implemented through functional environmental programs. However, because this process is informal, some changes that may be appropriate may not be captured.

9.3 Recent Modifications to Requirements

Table 8 summarizes information from the annual program reports pertaining to new and modified environmental requirements that were implemented in 2006 or are pending.

Table 8 New and Modified Environmental Requirements, 2006/2007

Requirement Summary	Effective Date	Driver	Program Modification	Environmental Aspect
New Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management requires: energy efficiency goals; reduce greenhouse gas emissions; use of renewable energy sources; reduce water consumption; sustainable environmental products in acquisition of goods and services; reduce quantity of toxic and hazardous chemicals and materials; sustainable building practices; fleet management to reduce consumption of petroleum products, increase alternative fuels, increase use of hybrid vehicles; purchase EPEAT-registered products	signed January 24, 2007; DOE implementation pending	EO 13423	Incorporate into EMS Program	Air emissions; Material procurement and use; Land use; General transportation; Hazardous materials; Hazardous waste; Natural gas use; Water use; Electricity use
USFWS issued final rule for critical habitat for the California red-legged frog	April 2006	Endangered Species Act	SNL/CA no longer included in critical habitat for the frog.	Land use
Settlement agreement between EPA and Center for Biological Diversity restricts use of 66 pesticide ingredients in California red-legged frog habitat until biological opinions are issued by the USFWS	October 17, 2006	Endangered Species Act	Maintenance Operations are restricted from using the 66 pesticides along the Arroyo Seco corridor	Land use
Authorization from US Army Corp of Engineers for remaining tasks under the Arroyo Seco Improvement Program	pending	Clean Water Act	SNL/CA must initiate these tasks over next ten years	Land use
Recycling requirements for consumer appliances	January 1, 2006	Assembly Bill (AB) 2277	Implement process to remove hazardous materials (fluids, oils, mercury) from appliances prior to disposal.	Solid waste
Recycling requirements for cell phones	July 1, 2006	Cell Phone Recycling Act (AB2901)	Implement process to recycle cell phones.	Solid waste
Requirements for universal waste management and disposal. Requires one-time notification to DTSC that SNL/CA generates universal waste. Requires annual universal waste report to DTSC.	February 8, 2006	Electronic Waste Recycling Act (22 CCR 66273)	Implement process for management and disposal of universal waste.	Solid waste
Include qualified oil-filled operational equipment in Spill Prevention Control and Countermeasure (SPCC) Plan	October 31, 2007	40 CFR 112	Amend SPCC Plan.	Water discharges
Monitoring and reduction of greenhouse gas emissions	September 2006	AB 32	SNL to monitor development & implementation of State regulations	Air emissions
Sulfur content of diesel fuel used for vehicular and non-vehicular engines must be ≤ 15 ppm by weight	September 2006	California Air Resources Board (CARB)	Verify diesel fuel supplier is delivering legal fuel to SNL/CA	Air emissions

Requirement Summary	Effective Date	Driver	Program Modification	Environmental Aspect
Limit on hours allowed for maintenance and reliability-related activities for stationary emergency generators was lowered from 100 to 20	January 2006	CARB	Implement tighter controls and increased communications between generator operator and AQ Program to ensure lower limits are not exceeded	Air emissions

10 Operational Control

Sandia maintains a structured system of operational controls that tiers from the M&O Contract to site-specific controls. Table 9 summarizes each tier and identifies the primary control documents that connect to SNL/CA's EMS Program.

Table 9 SNL Operational Controls System

Level	General Requirements Documents/Systems	Primary Requirements Document in the SNL/CA EMS Program Hierarchy
0	M&O Contract – Prime contract between Sandia Corporation and DOE/NNSA	M&O Contract (only one contract)
1	Corporate Policy Statement (CPS) – An official statement of Sandia's fundamental values, communicates the philosophies of the Laboratories, and establishes the boundaries of operations (SNL 2005a)	CPS001 (only one CPS)
2	Corporate Policy Statement Requirements (CPSR) – Overarching policy requirements for each policy area	CPSR400.1 ES&H Policy Statement Requirement
2	Corporate Process Requirements (CPR) – Standardized requirements for corporate processes, used to implement Corporate Policy Statement Requirements	CPR400.1.2 ISMS Description CPR400.1.1 ES&H Manual & Supplements
3	Local Requirements and Control Systems	SNL/CA ES&H Standard of Performance Technical Work Documents Interdisciplinary Team Environmental permits/compliance documents Contract specifications

10.1 Corporate Controls

Sandia maintains a Corporate Business Rules System (CBR System) (SNL 2005a) that is structured and administered to help achieve balanced governance of SNL under the M&O contract. The CBR System (Levels 1 and 2 in Table 9) is part of Sandia's Integrated Laboratory Management System, and managed by the Corporate Contracts & Policy Department. Corporate business rules are reviewed at least every two years or on a more frequent basis as deemed appropriate by the sponsor. The CBR System includes requirements for executive leadership, institutional elements, integrated management systems, partnerships, people and training, ES&H, integrated security, and finance and facilities.

Many of the CBR System requirements support the SNL/CA EMS Program. References to specific corporate business rules are made throughout this manual when appropriate.

10.1.1 ES&H Manual and Supplements (CPR400.1.1)

The primary corporate control document for environmental requirements is the ES&H Manual. It provides basic operational controls for the Sandia workforce (SNL 2007b) at all Sandia locations. It describes the basics of Sandia's ES&H Program. It identifies the boundaries of the program, describes how requirements flow down to Sandia organizations, and defines ES&H roles and responsibilities. The ES&H Manual is a compilation of process requirements and general procedures for complying with ES&H laws, regulations, DOE Orders, and Sandia requirements. The ES&H Manual is supplemented by site-specific process requirements when needed to address state and local requirements that are applicable at SNL/CA.

10.2 Local Controls

SNL/CA maintains a variety of operational controls that are site specific. These include technical work documents, an ES&H, Facilities, and Security Interdisciplinary Team, environmental permits and compliance documents, and contract specifications.

The process used at SNL/CA to identify operational controls is depicted in Figure 16. The process follows standard Sandia ISMS/EMS steps to plan work, analyze hazards, control hazards, perform work, and improve. Relevant significant environmental aspects for specific activities are determined during analyses of hazards.

10.2.1 Technical Work Documents

Technical work documents are required for all operations. The procedure for preparing and maintaining technical work documents is identified in Section 21 of the ES&H Manual. The initial step in identifying operational controls is accomplished through Sandia's PHS process. The PHS is online tool used to identify potential hazards associated with new and continuing activities. Through execution of the PHS tool, technical work documents, training, and personal protective equipment are identified to control safety conditions and environmental releases. All active PHSs are reviewed and updated annually. At SNL/CA, the center ES&H coordinators assist the site workforce with preparation and update of PHSs. The PHS database is available online to all Sandia workers at http://www-irn.sandia.gov/iss/isms_software/.

Technical work documents are used to define administrative and engineered controls required to address the hazards identified through the PHS. Technical work documents include operating procedures, standard operating procedures, safe work permits, and radiological work permits. These documents are updated every one to five years, or more frequently as needed. Technical work documents are maintained in an online database that can be found at <http://www.ran.sandia.gov/centers/8500/tools-resources>.

10.2.2 Interdisciplinary Team Process

The Interdisciplinary Team (IDT) process is a review process for new and changing projects at SNL/CA. IDT reviews occur during project planning so that environmental requirements and controls can be identified early and incorporated into project schedules. The IDT process has

been used for more than ten years and is recognized by internal and DOE stakeholders as a successful best management practice and operational control mechanism. Additional information about IDT is provided in Chapter 14.

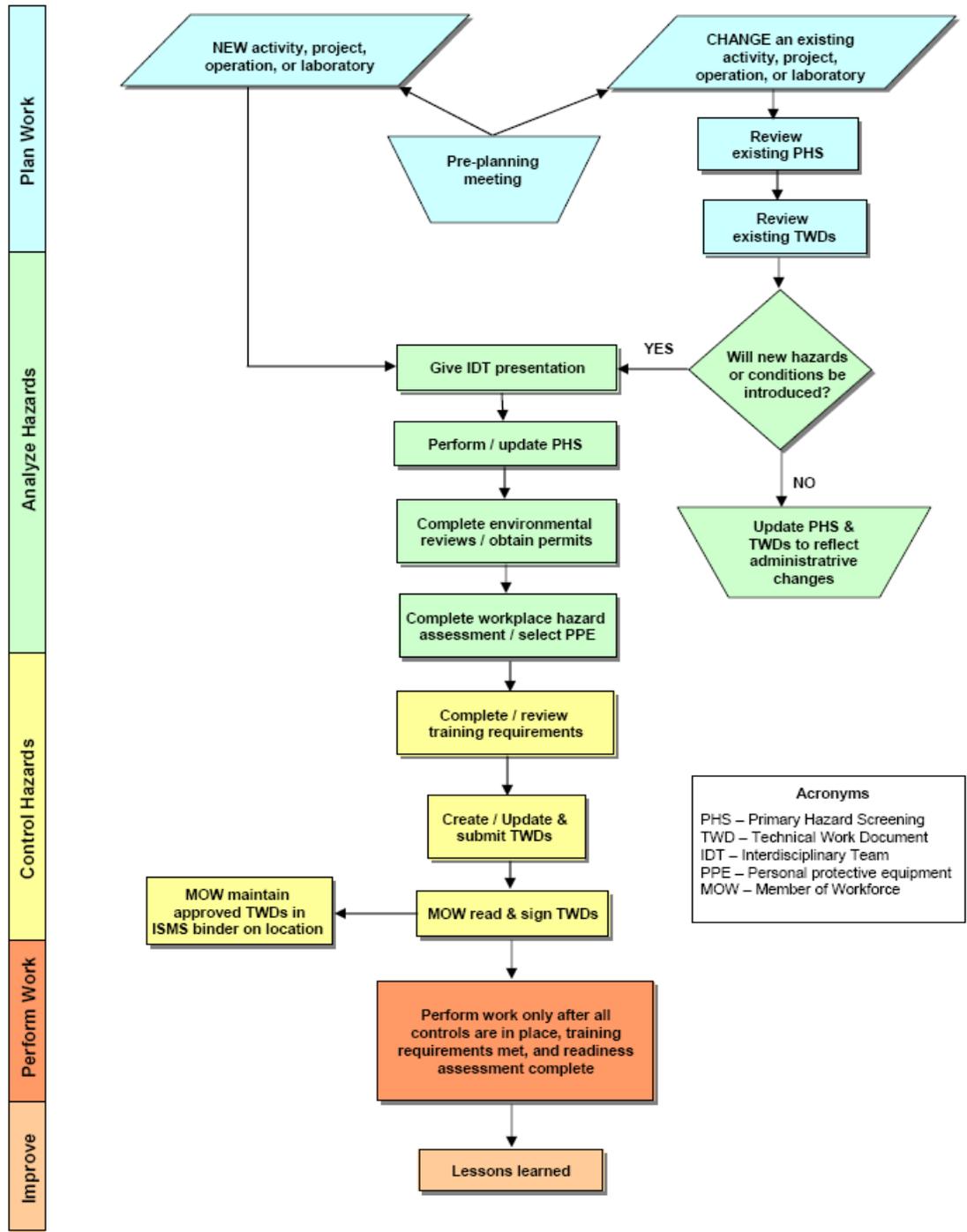


Figure 16 SNC/CA ES&H Review Process

10.2.3 Environmental Permits and Compliance Documents

Environmental permits and compliance documents function as activity-specific operational controls. They provide conditions under which the SNL/CA site may operate to meet federal, state, and local environmental regulatory requirements. Table 10 provides a list of the permits and documents valid in 2007. The individual environmental program annual reports provide additional information about each type of permit or compliance document (Appendix B).

Table 10 Environmental Permits and Compliance Documents, 2007

Type	Description	Statute / Regulation	Agency /Authority
Air	Permit to Operate emission sources (15 sources for 2006/2007)	Clean Air Act	BAAQMD
Environmental restoration	Site Clean-up Order No. 89-184	California Water Code	Regional Water Quality Control Board, San Francisco Bay
Hazardous materials	Business Plan Permit to Operate	California Health and Safety Code	Alameda County Environmental Health Department
Hazardous waste	RCRA Hazardous Waste Facility Permit	RCRA	California Department of Toxic Substances Control
Hazardous waste	Permit by Rule	RCRA	Alameda County Environmental Health Department
Hazardous waste	Conditionally Authorized Permit to Operate	California Health and Safety Code	Alameda County Environmental Health Department
Medical waste	Small Quantity Generator with Onsite Treatment	California Health and Safety Code	Alameda County Environmental Health Department
Medical waste	Small Quantity Generator without Onsite Treatment	California Health and Safety Code	Alameda County Environmental Health Department
Wastewater	Wastewater Discharge Permit	Clean Water Act	City of Livermore Water Reclamation Plant
Storm water	State of California General Industrial Permit	Clean Water Act	State of California Water Resources Control Board
Jurisdictional waters of the U.S.	Nationwide Permit Authorization	Clean Water Act	Army Corp of Engineers
Underground storage tank	Permit to Operate	Resource Conservation and Recovery Act and California Health and Safety Code	Alameda County Environmental Health Department
Aboveground storage tanks	Storage statement	Aboveground Petroleum Storage Act	State of California Water Resources Control Board
Environmental assessment	Final Site-wide Environmental Assessment of the SNL/CA	NEPA	DOE
Biological resources	Biological and Conference Opinion for SNL/CA	Endangered Species Act	U.S. Fish and Wildlife Service
Universal waste	Generator statement	California Electronic Waste Recycling Act, 22 CCR § 66273	California Department of Toxic Substances Control

10.2.4 Contract Specifications

SNL/CA's contract specifications function as operational controls for contractor-directed work activities. The specifications include requirements for contractors to apply environmental controls in all appropriate work activities to maintain regulatory compliance and support environmental stewardship efforts at SNL/CA. Contractors are also required to report to SNL/CA on their efforts in waste reduction, recycling, and reuse of materials.

11 Document Control

11.1 Corporate Documents

The CBR System Standard (CPR001.1) identifies the document control procedures for the corporate policy statement, corporate policy statement requirements, and corporate process requirements (SNL 2005a). The official version of all CBR System documents is the electronic watermarked version available electronically on the Sandia Restricted Network. These documents are disseminated to the workforce exclusively through the CBR System. They are reviewed and updated at least every two years. Each document is assigned an Executive Policy Sponsor. Only the sponsor or their delegate can approve changes to these documents.

11.2 Technical Work Documents

ES&H requirements and concerns related to activities and operations at SNL/CA are addressed through technical work documents such as operating procedures, hazard assessments, safety plans, and other similar documents. The procedure for updating and controlling technical work documents is identified in Chapter 21 of the ES&H Manual (SNL 2007b). Technical work documents are marked with an issue identifier for version control, date of publication, review period, and due date of next issue. The most current version of technical work documents is maintained in an online database. Outdated versions are removed from the online system when new versions are issued to prevent unintended use of obsolete documents.

Safety procedures and plans contain authorized users lists. Personnel must read updated versions of technical work documents when issued and sign the authorized users list indicating their understanding and agreement to operate in accordance with new and modified procedures. Reference copies of technical work documents are routinely kept at the point of use. ES&H coordinators recommend keeping a list of applicable technical work documents with a link to the online documents instead of reference copies. Program and project leads are responsible for replacing reference copies when updated procedures are issued, and for ensuring that personnel have reviewed appropriate procedures and signed the authorized users list before conducting operations.

To control obsolete documents at point of use, Sandia identifies five methods of document control in the ES&H Manual, Section 21 (SNL 2007b). Methods range in formality from use of a formal document control center or numbered controlled copies to posting electronic copies on an internal Sandia network. Document control and the use of obsolete documents at the point of use is assessed annually during management review self-assessments coordinated by the Division 8000 ES&H Coordinator.

The EMS Management Representative presented a proposal to SHEAC in July 2006 to include a summary of changes in new and revised technical work documents. With a change summary, users will be able to easily identify changes in documents. SHEAC approved the change

summary in November 2006. A new template for technical work documents is under development and expected to be released by May 2007.

11.3 Environmental Program Documents

EMS program and other environmental program documents are controlled by the Environmental Management Department (Organization 8516). These documents are reviewed annually as part of the program assessment process outlined in *Quality Assurance of Data, Documents and Select Activities of the Environmental, Safety, and Health Departments, 8516 and 8517* (Appendix C). Each program lead controls and approves changes to their documents. The department manager controls and approves changes to EMS-specific documents. Current versions are maintained in active records storage in the ES&H Records Center, and displayed on the SNL/CA ES&H web site. Paper copies are not distributed to the workforce.

Environmental documents of external origin (e.g. permits, regulatory authorizations, etc.) are maintained by the Environmental Management Department. Many of these documents are marked as valid for a specified period of time. Environmental program leads coordinate updates to external documents to ensure that documentation remains current. Permits and other regulatory authorizations that require posting at point of use are controlled and distributed by environmental program leads to ensure that obsolete documents are not used unintentionally.

12 Competence, Training, and Awareness

Operations at SNL/CA fall within two categories, Sandia-directed and contractor-directed. The mechanisms used to ensure that the workforce is competent, trained, and aware differ depending on the category of operation. To foster general site awareness of EMS and ES&H issues, SNL/CA routinely disseminates information through brochures, fact sheets, newsletter articles, the ES&H website, electronic announcements, project reviews, and line assessments. Chapter 20 provides additional information on EMS communications.

12.1 Sandia-directed Operations

Members of the workforce involved in Sandia-directed operations are subject to the requirements of Sandia's ES&H Manual. These requirements apply to Sandia employees (full and part-time staff, student interns, post-doctoral appointees), contractors performing under Sandia-directed contracts, and visitors (conference and meeting attendees, visiting researchers, industry partners). Chapter 11 of the ES&H Manual summarizes training for Sandia-directed operations. All Sandia workers and visitors are accountable and responsible for meeting applicable ES&H requirements, including those related to training.

SNL/CA provides general EMS awareness training to the site work force through the following mechanisms.

- New-hire orientation is a one time basic orientation to ES&H for employees and contractors performing under Sandia-directed contracts.
- ESH100 is an annual training requirement for the entire site workforce.
- ENV112CA is an annual training requirement for generators of hazardous waste at SNL/CA.
- Presentations tailored to site organizations.

12.1.1 Employee Competence, Training, and Awareness

It is Sandia's policy to select the best qualified individuals on the basis of demonstrated competence and to provide opportunities for, and encourage, professional development (*CPR300.3.2, Staffing: Sourcing and Selection Manual*) (SNL 2006f). To support this policy, Sandia maintains a CPSR for continuing education, training, and development (*CPSR300.7*) (SNL 2005c) and a set of general corporate training courses that cover a wide range of areas such as information and physical security, business ethics and diversity, ES&H, and general business processes. General corporate training requirements are identified at the time of hire by Sandia managers and training coordinators. Job-specific training and competencies are identified through the PHS process, by ES&H coordinators, and by project and department managers.

Sandia maintains an online Corporate Education, Development, and Training System (CEDT System) at <https://hrprod.sandia.gov/cfdocs/prod/hris/ctd/apps/cedtweb/cedtmain/index.cfm> to track completion status for all corporate training requirements and to provide electronic

reminders to an employee and their manager when a course is due. ES&H Coordinators also communicate past due training statistics with Center Directors on a routine basis.

SNL maintains a structured performance management system³ to evaluate employee performance in meeting requirements and established goals (*CPR300.2.1*) (SNL 2006d). The performance of every Sandia employee is reviewed annually and performance management goals are established for the upcoming year. ES&H compliance is a mandatory performance requirement for all Sandia employees and included in individual performance goals. During the performance review process, managers communicate ES&H goals and requirements with their employees. Managers address non-conformances with ES&H requirements on an as needed basis in accordance with *CPR300.4.3 Disciplinary Action* (SNL 2005d).

12.1.1.1 Environmental Program Workforce

Each of the six SNL/CA functional environmental program areas (Chapter 8) supporting the site's EMS Program maintain job descriptions, qualifications, and training requirements for each environmental program job position. Program leads review job descriptions, qualifications, and training requirements annually, update them as needed, and document the results of the review in annual program reports (Appendix C). The annual review and update provides an opportunity to modify training and competencies for existing environmental positions, or to identify new environmental positions, that are needed to support new or changing requirements.

EMS Program awareness and training for members of the Environmental Management Department is accomplished through monthly department meetings. Updates on current EMS Program efforts and improvements made to the program are provided to the environmental program workforce during these meetings. Additionally, EMS information specific to functional environmental programs is relayed routinely to the appropriate personnel through established and informal meetings promoted by functional program leads.

12.1.2 Contractor Training, Awareness, and Competence

Contractors involved in Sandia-directed operations must meet basic competencies required to perform the assigned functions. Contracting companies also provide any general certifications needed for the assignment. Sandia communicates competency requirements and required qualifications with a job statement. Contracting companies provide resumes of potentially qualified workers to Sandia for review. Sandia managers or program leads review contractor resumes and screen against the job statement, conduct interviews, and select the preferred candidate. Sandia augments contractor training for Sandia-specific requirements identified through the PHS system or by the manager directing the contractors work. Sandia-required courses are tracked in the CEDT System. Similar to Sandia employees, contracted workers and the appropriate manager are notified when courses become due.

Contracting companies are responsible for addressing ES&H performance issues communicated by Sandia for their employees.

³ Applicable to SNL employees only. The performance of contract workers is evaluated through applicable contract mechanisms.

12.1.3 Visitor Competence, Training, and Awareness

The level of training required for visitors is dependent on the length of stay and activity that they will perform. ES&H training for visitors at SNL/CA is addressed in Chapter 11 of the ES&H Manual. Sandia hosts and their managers determine the level of training required for visitors. At a minimum, visitors performing hands-on work in SNL/CA facilities receive ES&H awareness training. Laboratory- and equipment-specific training is also provided for visiting researchers performing hands-on work at SNL/CA user facilities.

12.2 Contractor-directed Operations

Contractors performing under contractor-directed contracts are subject to standard specifications established by SNL/CA and included in the contract. Sandia identifies specialized training, credentials, or certifications required for contractors in the contract specifications. For contractor-directed operations, contractor companies must submit a health and safety plan for review by SNL/CA's Construction Safety Engineer. Work does not begin until the health and safety plan is approved by Sandia. The health and safety plan also addresses environmental issues, such as air quality, waste management, storm water pollution prevention, and cultural resources preservation.

SNL/CA requires contractors to provide a project safety officer when conducting work at Sandia, and to provide written documentation that the safety officer meets the qualifications defined in the contract specifications. Additionally, specifications require contractors to maintain appropriate contractor training records on site and make available to Sandia oversight personnel upon request.

All construction projects or construction-like activities at SNL/CA are presented to the ES&H IDT for review. The IDT process functions both as an awareness and compliance mechanism. SNL/CA executes the IDT process to identify ES&H requirements and to disseminate EMS information to the respective SNL Project Manager. Requirements and other applicable information identified during the IDT review are provided to contractors through contract specifications and during the safety plan review process. A pre-construction conference is held to determine if the pre-work contract requirements have been met (e.g. approved safety plan, activity hazard assessment, construction site requirements, etc.). Environmental staff routinely attend pre-construction conferences to provide awareness training on topics of concern such as storm water pollution prevention, wildlife, and recycling/reuse of materials.

Sandia provides oversight throughout the length of projects. Oversight personnel identify non-conformances through deficiency notices, non-compliance notices, and safety violation notices. All non-conformance notices are tracked by Sandia and used during evaluations for contract renewals.

13 Environmental Monitoring and Measurement

Each SNL/CA functional environmental program routinely monitors and measures the key characteristics of site operations that can affect the environment. Monitoring and measurement information supports our compliance requirements as well as assessment of overall progress in meeting site environmental objectives. For instance, the Environmental Monitoring and Restoration Program routinely samples and analyzes wastewater and storm water for contaminants of concern and other parameters. Data collected provide a measure of the quality of water discharges that can be used to determine if site operations meet permit conditions (compliance), or show improvement in sewer water quality (wastewater discharge objective). Program leads report the monitoring results as site metrics and publish these on the SNL/CA ES&H webpage. Table 11 identifies the monitoring activities conducted at SNL/CA and the EMS objective that the activities support.

Table 11 EMS Monitoring Activities

Key Characteristics of Site Operations	Monitoring Activity	Supports EMS Objective
Laboratory wastewater discharges	Routine sampling/analyses of sewer water; weekly monitoring of continuous flow meter at sewer outfall	Minimize the volume and contamination of sewer water
Industrial and construction activities	Routine sampling/analyses of storm water (2 storm events per year)	Minimize the volume and pollution of storm water runoff
Emissions generated from site operations and onsite transportation	Annually monitor number of spills due to overfilling gas carts; collect and compile data on fill-ups on Spare-the-Air days	Minimize air emissions related to operations and transportation with particular emphasis on Spare-the-Air days
Emissions generated from Paint Shop operations	Annually compare emissions estimates against baseline estimate	Minimize air emissions related to operations and transportation with particular emphasis on Spare-the-Air days
Material procurement and use	Monitor annual affirmative procurement purchases	Procure and use environmentally friendly products and materials
Use of land where sensitive wildlife and habitat are present	Annually monitor wildlife species richness; annually monitor habitat improvements from Arroyo Seco project and compare against success criteria	Enhance the natural habitat
Commuter site	Establish baseline for number of miles by commuter type to support future monitoring	Minimize the use of vehicles by members of the workforce
Hazardous and biological material use	Annually conduct chemical inventory reconciliation	Minimize the use of hazardous material; minimize the use of biological material
Hazardous waste generation	Continuous monitoring of quantities and types of hazardous waste generated	Minimize the generation of hazardous waste
Radioactive and mixed waste generation	Continuous monitoring of quantities and types of radioactive and mixed waste generated	Minimize the generation of radioactive and mixed waste
Solid waste generation	Continuous monitoring of quantities of solid waste generated and quantities and types of materials recycled	Minimize the quantity of landfill waste through reduced consumption and/or reuse/recycling
Use of energy and water resources	Monthly monitoring of resources used	Minimize site water consumption; minimize site natural gas consumption; minimize site electrical consumption
Previously contaminated areas	Quarterly monitoring of groundwater at previously contaminated areas	Minimize the environmental impacts of site contaminated areas

13.1 EMS Metrics

SNL/CA uses various metrics to measure environmental affects or impacts from site operations. Additionally, SNL/CA established metrics to measure general environmental management and awareness. Table 12 provides a list of site EMS metrics. Graphical representation of each metric is displayed on the SNL/CA ES&H website at https://www.ran.sandia.gov/centers/8500/ca_environmental_metrics.

Table 12 List of EMS Metrics

Impact Metrics	EMS Management Metrics
Mobile source emissions	Published communications
Fueling operations on Spare-the-Air days	Outreach activities
Wildlife species diversity	Environmental awareness
Energy use	Chemical inventory reconciliation
Sewer flow	IDT reviews of site projects and activities
Sewer water contamination	NEPA reviews
Storm water system controls	Environmental violations
Water use	
Hazardous material inventory	
Hazardous waste	
Environmentally preferred procurement	
Landfill waste	
Recycling	

14 Evaluating Compliance with Environmental Requirements

SNL/CA evaluates compliance with all environmental requirements through the IDT process, self-assessments, and audits.

14.1 IDT Process

The IDT process is used to review SNL/CA projects early in the planning stages and to provide guidance to project proponents on ES&H, security, facilities issues (engineering, maintenance, and operations) and general operational/logistical issues. The IDT meets weekly to review new activities and significant changes to existing activities. This process also serves as an avenue for project proponents to provide feedback that can be used for both project and ES&H process improvement. Each functional environment, safety, security, and facility operations program has a representative on the IDT. The environmental program representatives provide project proponents with information and guidance on environmental objectives, compliance, requirements, and other EMS-related topics.

In 2007, SNL/CA began using an electronic data management system to record IDT reviews and compile the results of the review into an electronic report. The electronic report is accessible to the presenter, IDT members, and other designated participants in the process. A paper copy of the report is printed and maintained in the ES&H Records Center. The IDT record includes an IDT evaluation request, a list of IDT members in attendance, comments and requirements provided by IDT members; and presentation materials. A digital recording of each presentation that serves as meeting minutes is also maintained as a record in the Web File Share database, a corporate database for electronic files.

14.2 Self-assessments and Audits

Compliance evaluations are supported by a wide variety of assessments and audits. Implementation of requirements across all SNL/CA operations, as well as management processes, are evaluated through self-assessments and audits. Self-assessment and audit results are maintained as Sandia records either in the ES&H Records Center or in an online database. Table 13 identifies the types of self-assessments and audits routinely conducted for SNL/CA operations, and the records that result from each.

In 2006, SNL/CA's EMS Program received certification under the international standard for environmental management systems, ISO 14001:2004. The ISO 14001:2004 standard requires annual or semi-annual surveillance audits of certified EMS programs. SNL/CA's surveillance audits will be done semi-annually in April and October 2007.

Table 13 SNL/CA Environmental Assessment and Audit Types

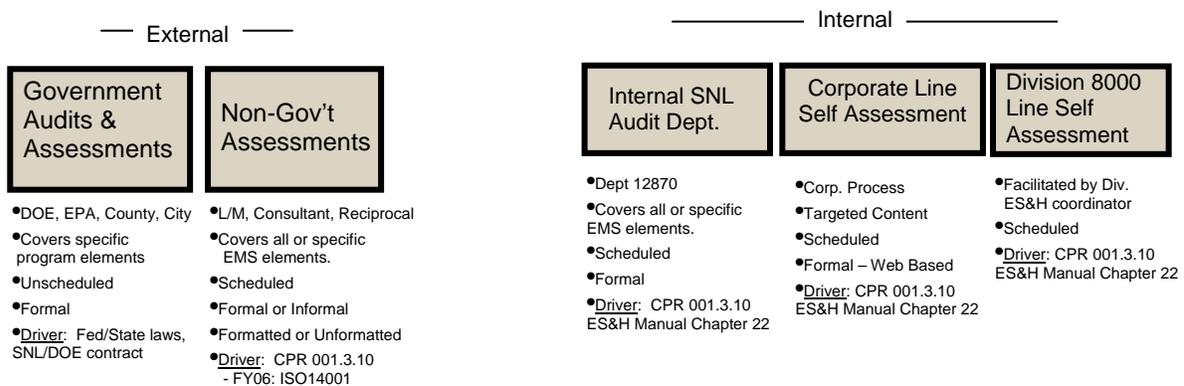
Type	Guidance Document / Driver	Conducted By	Schedule	Scope	Record Type	Record Maintenance
Line Implementation						
Corporate Line Self-assessment	ES&H Manual Section 22A	All members of the workforce	Monthly	Select ES&H areas	Corporate self-assessment database	Online
Division 8000 Line Self-assessment	ES&H Manual Section 22A	Line manager	Annual	Select ES&H areas	Division 8000 ES&H self-assessment database	Online
Program line assessment	Administrative procedure – AP800005	Functional program lead	Annual	Adequacy and effectiveness of processes, adequacy of resources, communication of requirements, line ownership of requirements	Assessment report	SNL/CA ES&H Records Center
EP Representative assessment	Administrative procedure – AP800009	EP Representative	Routine / ongoing	Informal, focus on critical environmental requirements and trouble spots	Informal report	SNL/CA ES&H Records Center
Audits						
External regulating agency audits and inspections	Federal, state, and local regulations and permits	Regulatory Inspectors	Annual	All aspects of facility operations, record keeping, program processes, and adherence to permit conditions / requirements, audits are generally unplanned and unannounced	Official correspondence	SNL/CA ES&H Records Center
DOE audits	M&O Contract, DOE policies and requirements	DOE auditors	Annual	Subset of ES&H programs audited each year	Audit report	SNL/CA ES&H Records Center
Management System audits	M&O Contract, Corporate Policy Statement CPS001.3, Corporate Policy Requirement CPR001.3.5	Sandia ES&H, Quality, and Safeguards & Security Assessments Department	Annual	Internal, independent audit of laboratory systems associated with ES&H, Quality, and Safeguards & Security	Audit report	SNL/CA ES&H Records Center
Third party certification	ISO 14001	External third party auditor	Recertify every three years; surveillance semi-annually	Requirements of the ISO 14001 Standard	Audit report	SNL/CA ES&H Records Center

15 EMS Internal Audit and Self-Assessment

Annually, SNL/CA completes an internal audit of the EMS Program to determine if it conforms to the ISO 14001 Environmental Management System standard, and to ensure that it is properly implemented and maintained. Additionally, the various assessments and audits described in Chapter 14 support management and maintenance of the EMS. SNL/CA maintains an administrative procedure for conducting assessments used in support of the EMS Program (SNL/CA 2007). Figure 17 summarizes the assessment sources that assist in keeping SNL/CA's EMS on track.

SNL/CA EMS Assessments

Independent Assessments



Self Assessments

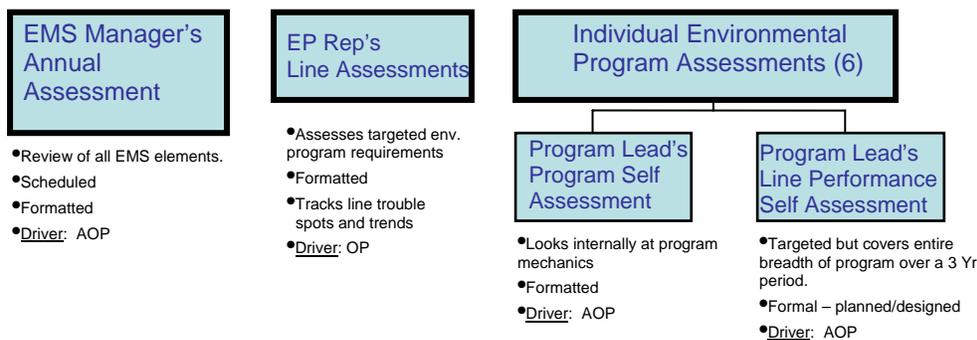


Figure 17 Assessments Supporting SNL/CA's EMS Program

15.1 Internal EMS Audits

Sandia's corporate assessment team in the ES&H, Quality, and Safeguards & Security Assessments Department (Organization 12870) will conduct periodic internal audits of SNL/CA's EMS Program. Internal audits will be completed every three years and will evaluate the EMS Program against the requirements of the ISO 14001 standard. The next internal audit is planned for 2008. During interim years, the EMS Core Team will complete a gap analysis of select ISO elements. Internal audit reports and gap analyses are EMS records and maintained in the ES&H Records Center.

15.1.1 2006 Audit

In 2006, SNL/CA modified its EMS Program to meet the requirements of the ISO 14001 Standard for EMS. The EMS Core Team completed a quick-check gap analysis of SNL/CA's EMS Program against the ISO 14001 Standard in April 2006. Several potential gaps were noted, some of which were identified as minor non-conformances during the ISO 14001 onsite readiness review (see Section 14.2). Corrections are underway to resolve the non-conformances and bring the SNL/CA EMS Program into full compliance with the requirements of the standard.

15.1.2 2007 Audit

In March 2007, the EMS Core Team completed a gap analysis of SNL/CA's EMS Program against the ISO 14001 Standard. Potential gaps were noted in the following areas.

- Communication of the environmental policy; roles and responsibilities; benefits of improved performance; and requirements to suppliers
- Consideration of technological options; financial, operational, and business requirements; and external views when setting objectives and targets
- Adjustments in targets to reflect decreasing resources
- Document control and obsolete documents
- Identifying scope of internal audit with Organization 12870

Corrective actions have been identified to address these potential gaps and implementation is underway.

15.2 EMS Program Self-Assessments

The primary self-assessment used for the EMS Program is the annual EMS Management Representative assessment. Other self-assessments may also be used to evaluate the EMS Program, including corporate and DOE assessments. EMS Program self-assessment results are EMS records and maintained in the ES&H Records Center.

15.2.1 2006 Assessment

The EMS Management Representative completed an EMS Program self-assessment in November 2006 with a focus on identifying improvements. The results of the assessment are documented on an assessment checklist and submitted to the ES&H Records Center. The results of the 2006 assessment are presented in Figure 18.

EMS Management Representative Annual EMS Assessment – CY2006

November 2006

Review Element	Review Comments	Improvements Identified	Status
EMS Policies	ES&H Standard of Performance statement needs to be modified to change word "continuous" to "continual".	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Legal Requirements		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Table showing applicability to aspects current?	Table mapping legal requirements to site environmental aspects has been completed and is part of the EMS manual.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Environmental Aspects	Aspect "Use of Non Environmental Friendly Material" should be changed to "Procurement and Use of Material and Products".	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Objectives & Targets	1. General Transportation target needs to be re-thought/modified or an additional target needs to be added to take credit for employees who convert from a standard to a hybrid vehicle. 2. Targets need to be reviewed against new calendar that encourages targets on a FY basis. 3. Targets that expired at end of FY06 need to be evaluated to see if there is a follow on for FY07.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Environmental Programs		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Environmental Planning and Ecology	1. Recharge pond issue needs to be resolved with Fish and Wildlife. 2. Need to obtain 10 year permit from the Corp of Engineers for remaining Arroyo Improvements.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Environmental Monitoring	Need to establish a budget (either within the existing environmental project # or with division support) to fund the maintenance of the LEC systems at the site beginning in FY08.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Waste Management	1. Chapter 20 of the ES&H Manual needs to be completed for WM at CA. 2. TWD changes to reflect the Rad Program changes need to be completed. 3. Root cause analysis needs to be performed to see if we can correct the continued violations we see at the line in managing their hazardous waste.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hazardous Material Management	1. Targets for chemical inventory need to be established. Prior targets completed.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Figure 18 EMS Self-Assessment, 2006

	2. Need to increase inventory surveillance / reconciliation for those most hazardous as to be defined by a joint CA/NM collaboration. Possible changes to CIS.		
Pollution Prevention/Waste Minimization	1. Improvements in Electronics Waste processing needed. 2. Better integration of energy management into P2 program.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Air Quality	1. Need to study results of survey and make recommendations for SNL support to commuting programs.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Structure & Responsibility		<input type="checkbox"/> Yes <input type="checkbox"/> No	
EMS Authorities Memo reviewed and re-authorized?	Yearly documents delegation memo approved by Paul in early Oct 2006. Further updates needed for: 1. Roles, Responsibilities and Authorities memo. 2. Annual Top Mgmt review memo needed. Need to evaluate/discuss whether to augment EMS core team with some other outside critical members (i.e. communications, procurement)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Training	Need to review training matrix and eliminate excess training.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Communications	Need to begin to move web content over to new Drupal format of 8500.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Review external communications memo	Memo reviewed. No changes made.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Significant aspects communicated externally?	Top 5 aspect risks were identified. The next edition for CY2006 will use the term "Significant Aspects".	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
EMS Documentation		<input type="checkbox"/> Yes <input type="checkbox"/> No	
EMS Manual Review using Checklist	EMS Manual has been updated incorporating all needed mods.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Document Control	1. Modifications to technical work documents needed to identify changes from prior edition. SHEAC presentation scheduled Nov 29. 2. Need improved line practice of displaying/communicating applicable tech work documents of a work area without use of the document – to prevent obsolete documents. SHEAC presentation scheduled Nov. 29.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Operational Control	Need to look at standardization of waste containers used by the line – to increase line management of their waste.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Emergency Preparedness		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Monitoring &	1. Need to evaluate metrics for integration	<input checked="" type="checkbox"/> Yes	

Figure 18 EMS Self-Assessment, 2006 (continued)

Measurement	with new calendar. (New timeframes). 2. Need to think about and incorporate new metrics for energy as well as recycling as well as follow-up to the many that expired at the end of FY06.	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Records	Need a list of all EMS supporting documents and which ones are to be considered records and when they are to be placed in record center.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Non-Conformities		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Core Team understands and uses corrective action process?	Core team probably needs to be reminded again of the assessment process and how preventive/corrective actions are established and managed.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Core team using CATs for tracking corrective actions? (Report all issues to 8518)	1. CATs is still in development but is being used for all corrective actions. 2. Need to assure that everything that needs to be there is there.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Internal Assessments		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Self Assessments being documented in report form and submitted to records center?	All self assessments are being documented in report form and submitted.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Management Review - contains all elements?	New management review document approved by Paul Hommert stating calendar and content for two reviews per year containing all ISO management review elements.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Document Review			
Quality Assurance Project Plan	1. Still want to convert QAPP to a EMS Quality Manual as a companion to the EMS Manual	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Env. Mgmt. Website	1. Content being moved into new Drupal software as part of 8500. Old website up until all has been moved. 2. Some content needs to be updated.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
EMS Annual Action Calendar	1. Action items are up to date. 2. Status needs to be updated by assigned individuals.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
EMS Communications Calendar	1. Needs to be updated for 2007. 2. More communications focused on specific site operational activities.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
EMS Metrics	1. Need to be adjusted as much as possible to a FY basis.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Figure 18 EMS Self-Assessment, 2006 (continued)

	2. Need to evaluate whether we are measuring the right thing.		
Staff Training Matrix	Need to review matrix for possibility of eliminating some excess training.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Annual Program Report format	Report format is working well.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
EMS Forms		<input type="checkbox"/> Yes <input type="checkbox"/> No	
TWDs include Change Histories?	SHEAC presentation on this issue to be given on 11/29. EMS documents already have incorporated the change.	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	

Org: 8516

Program: Environmental Management System (EMS)

Date: 11/21/06

Signatures: Original signed and placed in document center on 11/21/06
SNL/CA EMS Management Representative (G. Shamber)

Figure 18 EMS Self-Assessment, 2006 (continued)

15.2.2 2007 Assessments

During the fourth quarter of 2007, the EMS Management Representative will complete a self-assessment of the EMS Program. This self-assessment will evaluate each element of the program for improvements in implementation and management. To date, there are no other corporate, division, or DOE assessments planned for the EMS Program in 2007.

16 Nonconformity, Corrective, and Preventive Action

SNL/CA maintains a procedure for identifying nonconformities through a system of audits and assessments. *Administrative Procedure AP800005, Environmental Management System Assessment Process* (SNL/CA 2007) describes the various audit/assessment types that are conducted to assess site compliance with environmental regulations and requirements, and continually improve the site EMS. The procedure also describes scheduling, tracking, and management of results. Audits and assessments conducted at SNL/CA are described in Chapters 14 and 15 of this manual.

16.1 Audit and Assessment Tracking

All SNL/CA environmental and EMS-related audits and assessments are tracked and documented in the Division 8000 Assessments Tracking System, a site-specific online database. All information associated with an audit/assessment is input into the system through a series of data entry screens. The system is also used to track and record validation of the effectiveness of corrective actions, and it serves as a repository for stand-alone reports, corrective action plans, and other documents linked to an individual audit/assessment file.

16.2 Corrective and Preventive Action

The EMS Core Team and SNL/CA Assurance Department evaluate the results of environmental and EMS-related audits/assessments to identify findings, observations, opportunities for improvement, and noteworthy practices⁴. Corrective actions are established for all findings and preventive actions are established for observations and opportunities for improvement. SNL/CA uses the corporate Corrective Action Tracking System (CATS) to record and track implementation of environmental and EMS-related corrective and preventive actions. Verification of corrective actions is conducted by an independent verifier, generally a member of SNL/CA's Quality Assurance organization. With CATS, a root cause determination is required for all findings.

16.3 Validating Effectiveness of Actions

SNL/CA's process for validating the effectiveness of corrective and preventive actions for environmental and EMS-related issues is documented in *Administrative Procedure AP800010, Validation of Environmental or EMS-Related Corrective / Preventive Actions* (SNL/CA 2006b). The EMS Core Team and SNL/CA Assurance Department determine which actions require validation. Actions are selected for validation based on the significance of the nonconformity. For example, actions that address serious nonconformities with potential for a fine, significant

⁴ Definitions of terminology are provided in AP800005.

negative environmental impact, or actions attempting to correct recurring issues, may be selected for effectiveness validation. The validation of an action is documented on a validation form and linked to the audit/assessment file in the Division 8000 Assessment Tracking System.

17 Management Review

Annually, the EMS Management Representative reviews SNL/CA's EMS Program with SHEAC (Section 3.1). Management reviews are intended to ensure continued suitability, adequacy, and effectiveness of the EMS Program. Reviews include the following topics.

- Results of internal audits and evaluations of compliance with legal and other requirements
- Communications from external parties
- Site environmental performance
- Progress in meeting EMS objectives and targets
- Status of corrective and preventive actions
- Follow-up actions from previous management reviews
- Changing circumstances including developments in legal and other requirements related to environmental aspects
- Recommendations for improvements
- Modifications and additions to environmental objectives and targets

In the past year, management reviews were completed in August 2006 and March 2007.

During the August management review (conducted August 28, 2006), the EMS Management Representative summarized EMS status in each of the nine topics listed above. A written summary, provided to the management team several weeks in advance of the meeting, served as a starting point for discussion. Recommendations from the August review for EMS improvement include:

- Continued communications to the workforce to affect and improve the site ES&H culture.
- Continued communications to the workforce on requirements and expectations for managing hazardous waste.
- Include fleet reduction in addition to conversion of site diesel vehicles to non-diesel types to meet upcoming changing emission limits.
- Include our environmental excellence award winners in communication and outreach efforts as ambassadors for our environmental programs.
- More engagement from site leadership with EMS.
- Show averages for utility data in the metric graph.

During the March management review (conducted March 12, 2007), the EMS presentation included a follow-up on issues from August review, results of audits and assessments, compliance and changes to requirements, communications with external parties, the status of corrective and preventive actions, and recommendations for improvements. Recommendations resulting from this management review are:

- Present implementation plan to meet new mobile diesel emissions requirements at SHEAC
- Investigate feasibility of infrastructure improvements for reduction of energy use

18 EMS Documentation

Documentation to support SNL/CA'S EMS Program is comprised of both EMS-specific and general corporate and site documents and information sources. The SNL/CA EMS Program Manual is the primary EMS document for the site. It describes all elements of the EMS Program, how these elements connect, and it provides reference to other general documents that support the program. The EMS Program Manual documents the process used to identify significant environmental aspects applicable to site operations, and to establish objectives and targets that are measurable and relevant. It serves as a roadmap for continual EMS implementation, assessment, and improvement. The SNL/CA EMS Program Manual is reviewed and updated annually. Other documentation established for the SNL/CA EMS Program includes a communication plan (Appendix D), ES&H policy/standard of performance (Chapter 2), annual environmental program reports (Appendix B), annual EMS communications calendar (Figure 20), and project management schedules for significant environmental aspects (Chapter 6). EMS documents also include procedures developed specifically for the EMS Program, EMS decision documents, EMS internal audit and self-assessment results, communications with external parties, and results of management reviews. All documents created under the EMS Program are records in accordance with the definition of a record used at Sandia.

Other SNL/CA site-specific and corporate policies, document systems, and databases also support the EMS Program. Figure 19 identifies the documents and document systems that support the SNL/CA EMS Program.

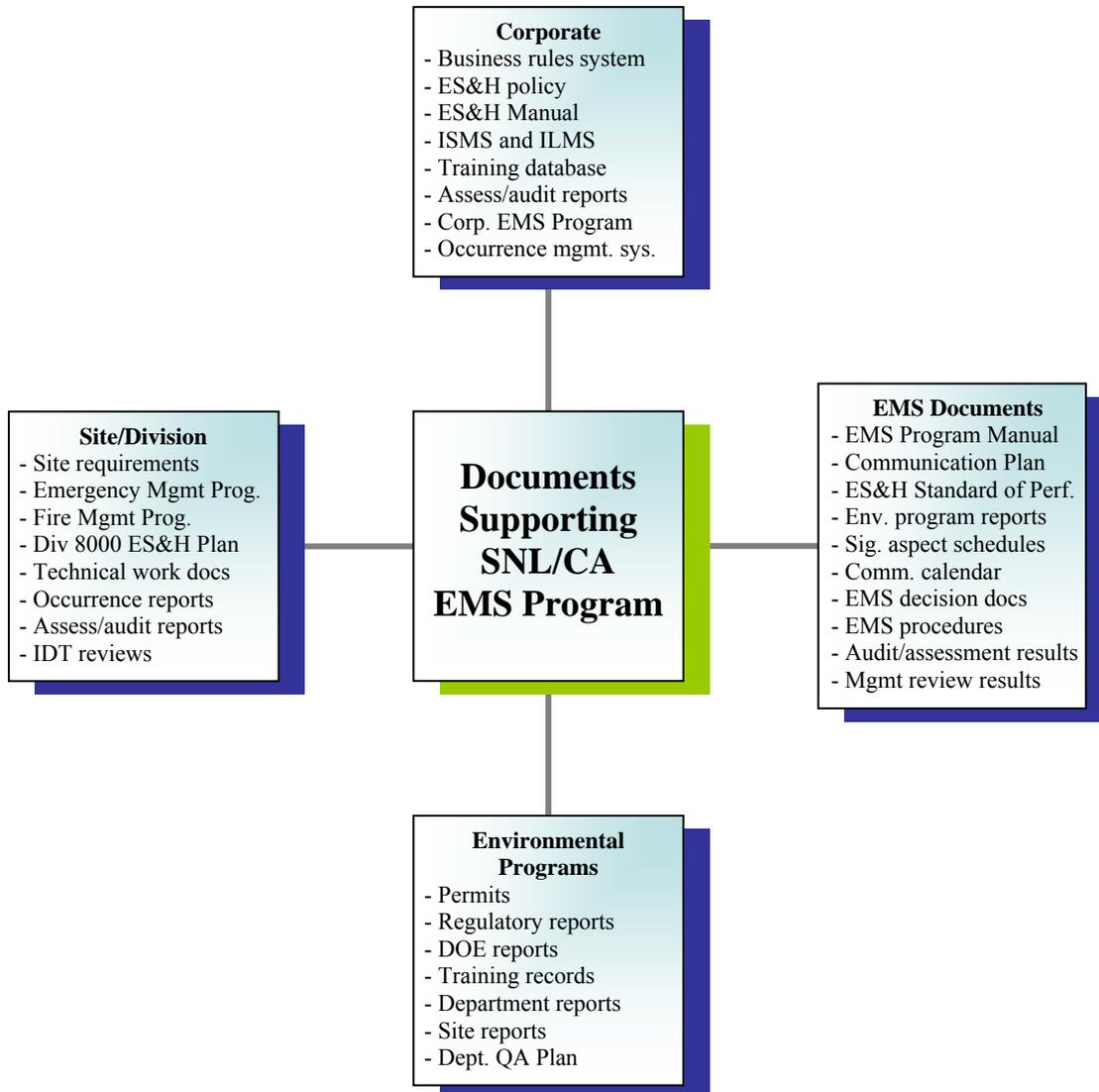


Figure 19 EMS Documentation

19 Records

Sandia manages all information created by Sandia work in accordance with *CPSR400.2, Information Management* (SNL 2004). As defined in this CPSR, information encompasses data, records, published material, and knowledge in written, pictorial, electronic, audio, oral, or other form. To assist the workforce with the requirements for managing information, Sandia developed a Records Management Manual. The Records Management Manual provides guidance on identifying records and non-records, provides a list of federal and DOE requirements governing records management, and summarizes the records retention and disposition schedule. The complete manual is available on the Sandia intranet at <http://www-irm.sandia.gov/recordsmgmt/rmm/Requirements.htm>.

SNL/CA maintains an additional procedure for managing ES&H records, *OP471347 Administrative Procedures for Managing Sandia/CA ES&H Recorded Information* (SNL/CA 2005a). This procedure incorporates corporate policies, requirements of the Records Management Manual, best business practices, program-specific regulatory requirements, and the requirements of the ISO 14001 standard. Under this procedure, ES&H programs are responsible for transmitting recorded information to the SNL/CA ES&H Record Center for storage and protection. The Record Center establishes file guides for categories of records and assigns a file code number. The file guide describes the record, identifies the retention period, describes the disposition instructions (where applicable), and provides filing instructions. Record Center personnel log all transmitted records into an electronic database. Document titles, dates, authors, and key words are included in the database to assist with tracking and retrieval of records.

SNL/CA established a file guide and code for EMS records in March 2005. The file code is AD-MAN-07.05. EMS program documents and supporting information are filed under this code with a permanent retention. SNL/CA maintains separate file guides and codes for other functional environmental program records that also support the EMS Program.

SNL/CA also uses a corporate database, Web File Share, to maintain digital recordings of IDT meetings. The Web File Share system has been established and is managed as a permanent record.

20 Communications

SNL maintains an active communication system with established tools and processes to share information both internally and externally. As a result, SNL/CA has many options available to communicate EMS information to the site workforce and to external stakeholders. SNL/CA's Communication Plan Supplement (Appendix D) builds on the corporate EMS communication plan. The supplement identifies the communicators and their roles, outlines the site-specific communication tools used at SNL/CA, and provides a typical list of communication activities.

20.1 Internal Communications

The SNL/CA EMS Core Team communicates EMS information to the site workforce through the IDT process, publications, the internal web site, briefings, assessments, and promotional materials. The EMS Core Team receives input on environmental issues, including aspects and impacts, through the IDT process, the NEPA process, an ES&H telephone hotline, the self-assessment process, and the ES&H internal web site contacts list. SNL/CA also established an EMS Advisory Committee to facilitate communication between the EMS Core Team and the various organizations on site. The Advisory Committee consists of representatives from various functional areas including administrative support, facilities organizations, research and testing organizations, emergency planning, and procurement. Advisory Committee meetings are held semi-annually to seek input on current issues and concerns related to EMS implementation.

Figure 20 provides a list of actions scheduled and completed in 2007 to promote internal communications.

20.2 External Communications

SNL/CA's decision to communicate externally about the EMS program, including significant environmental aspects, is documented in a Memo-To-File (Figure 21). SNL/CA accomplishes external EMS communications through the annual site environmental report and Sandia's external web site at <http://environment.sandia.gov/>. Figure 21 provides a list of EMS topics included in the annual report. A comment response card is distributed with the annual report and a link is provided on the web site to gather input from external stakeholders. All published information distributed externally must be reviewed and approved for public release in accordance with Sandia requirements.

The EMS Core Team routinely communicates with external parties about elements of the SNL/CA EMS. These communications follow the *Administrative Procedure (AP800007), Receiving, Documenting, and Responding to EMS Communications from External Parties* (SNL/CA 2006a).

Regulating authorities also conduct scheduled and unannounced site audits. These audits provide an additional avenue for communicating with our stakeholders and keeping them abreast of our

EMS Program. Finally, SNL corporate is working to include a statement on the external procurement web page to communicate corporate EMS information to current and prospective contractors and suppliers.

	2007 EMS Calendar of Communication Events	Assigned To:	Start Date	Finish Date	2007													
					J	F	M	A	M	J	J	A	S	O	N	D		
1	2007 Communications & Outreach Elements																	
2																		
3	1st Semi-Annual EMS Review with BLT	Shamber	3/12/07				▼											
4	2nd Semi-Annual EMS Review with BLT	Shamber	10/31/07														▼	
5	EMS Message from Paul "Why Environmental Stewardship is so Important"	Shamber	6/29/07								▼							▼
6																		
7	New Hire Orientation																	
8	Jan	Dicker	1/16/07		▼													
9	Feb	Gardizi	2/20/07			▼												
10	Mar	Brynildson	3/20/07				▼											
11	Apr	Shamber	4/17/07					▼										
12	May	Larsen	5/15/07						▼									
13	May	Dicker	5/22/07							▼								
14	Jun	Shamber	6/12/07								▼							
15	Jun	Harris	6/26/07									▼						
16	Jul	Farren	7/10/07										▼					
17	Jul	Holland	7/17/07											▼				
18	Aug	Shamber	8/21/07												▼			
19	Sep	Farren	9/18/07													▼		
20	Oct	Dicker	10/16/07														▼	
21	Nov	Gardizi	11/20/07															▼
22	Dec	Shamber	12/18/07															▼
23																		
24	Organizational Presentations																	
25	Managing spent light tubes - to Maintenance	Harris/Farren	1/31/07		▼													
					J	F	M	A	M	J	J	A	S	O	N	D		

Figure 20 EMS Communications Calendar, 2007

	2007 EMS Calendar of Communication Events	Assigned To:	Start Date	Finish Date	2007																	
					J	F	M	A	M	J	J	A	S	O	N	D						
47	How's Our Air - Condition of the Bay Area, Livermore and San Joaquin Valleys	Gardizi	7/5/07									▼										
48	Chemical Information System - Terrific Tool	Brynildson	7/19/07									▼										
49	Recycling Successes at SNL/CA	Farren/Harris	8/16/07										▼									
50	SNL/CA Wildlife	Sartor	8/30/07											▼								
51	Storm Water Statistics - Arroyo Drainage System	Holland	9/13/07												▼							
52	New Environmental Targets for FY08	Shamber	9/27/07													▼						
53	SNL/CA Wildlife	Sartor	10/25/07														▼					
54																						
55	Sandwich Boards																					
56	Storm Water Mgmt.	Holland	1/1/07	1/31/07	▶																	
57	Energy (Lights, Equip)	Farren	2/1/07	2/28/07		◀▶																
58	Hazardous Materials (Barcoding, CIS, Chem to Min)	Brynildson	3/1/07	3/30/07			◀▶															
59	ISO Information	Larsen	3/21/07	4/13/07				◀▶														
60	Site Targets	Larsen	4/2/07	4/30/07					◀▶													
61	Pollution Prevention (Recycling, Electronic Waste)	Farren	5/1/07	6/7/07						◀▶												
62	Waste Management (Office Waste, WDDRs)	Dicker	6/1/07	6/29/07							◀▶											
63	Air Quality (STAD)	Gardizi	7/2/07	7/31/07								◀▶										
64	Commuting	Gardizi	8/1/07	8/31/07									◀▶									
					J	F	M	A	M	J	J	A	S	O	N	D						

Figure 20 EMS Communications Calendar, 2007 (continued)



Sandia National Laboratories

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

date: July 18, 2006

to: Memo-to-File

from: Gary Shamber

SNL/CA EMS Management Representative

A handwritten signature in blue ink, appearing to read 'G. Shamber', written over the 'from:' field.

subject: External Communications of the SNL/CA EMS

This Memo-to-File documents SNL/CA's decision to communicate externally on the various elements of its EMS Program. External communications shall be accomplished through an annual environmental report as required by *DOE Order 231.1A, Environment, Safety, and Health Reporting*. The annual report shall provide information of significant site EMS elements including:

- o The site's environmental policy
- o Significant environmental aspects and impacts
- o Legal and other requirements
- o Environmental objectives, targets and programs
- o Pollution Prevention and waste minimization
- o Resources, roles, responsibilities and authorities
- o EMS competence, training and awareness
- o Communication and community involvement
- o Environmental documentation
- o Control of documents
- o Operational control
- o Emergency preparedness and response
- o Monitoring and measurement
- o Evaluation of compliance
- o Nonconformity and corrective and preventive actions
- o Control of records
- o Internal audits
- o Management Review

SNL/CA's annual report shall include other content items as required by the annual content guidance issued annually by DOE.

The report shall be made available to the external community on Sandia's external website and by direct distribution to interested parties upon request.

Exceptional Service in the National Interest

Figure 21 External Communication Decision Memo

Appendix A - EMS Targets for 2007

The following targets were approved by EMS Core Team on January 3, 2007 and by the SNL/CA senior management team on March 12, 2007. Targets are grouped under each aspect (green) and objective (blue). Targets that are new for 2007 are shown in orange.

General Environmental Operations

Objective: Provide exceptional environmental management for the SNL/CA site.

Targets:

- Receive zero findings per audit per environmental program as the result of annual DOE audit and any external regulatory agency audits.
- Receive no Notices of Violation (NOV) as a result of any external regulatory agency audit.
- **Maintain a level of published environmentally-related communications at 6 per month (total of 72/FY). Approximately 50% should be related to line activities/operations.**
- **Maintain a level of environmentally-related outreach activities at 4 per month (total of 48/FY).**
- In CY2007 increase site awareness of site objectives / targets by 50% from CY2005 baseline. (from a score of 2.8/5 to a score of 4.2/5.0)

Water Discharges

Objective 1: Minimize the volume and contamination of sewer water.

Target:

- Maintain Zinc and Copper concentrations in sewer effluent that is at or below 30% of the regulatory limits. (0.3 mg/L for Cu and 1.0mg/L for Zn)

Objective 2: Minimize the volume and pollution of storm water runoff.

Targets:

- 100% of new construction will have post-construction runoff equal to or less than pre-construction runoff.
- 100% inspection / cleaning of on site storm drain system including drop structures by October 1 of each year.

- By Sept 1 of each year implement runoff controls for 100% of bulk erodable landscape and construction material.

Air Emissions

Objective: Minimize air emissions related to operations and transportation with particular emphasis on Spare-the-Air days.

Targets:

- In FY08 reduce site wide mobile source emissions by 10% from a FY04 baseline.
 - ROG from 10 tons/yr to 9 tons/yr
 - CO from 16 tons/yr to 14.4 tons/yr
 - NOx from 49 tons/yr to 44.1 tons/yr
 - PM10 from 27 tons/yr to 24.3 tons/yr
- **Maintain on site fueling operations on Spare-the-Air-Days at less than or equal to 3 fill ups/STAD.**

Material Procurement and Use

Objective: Procure and use environmentally friendly products and materials.

Targets:

- In FY07 purchases made by Affirmative Procurement Program will increase by 10% from a FY04/05 average. (from 81.5% to 89.6%)

Land Use

Objective 1: Enhance the natural habitat.

Targets:

- Update the site Landscape Master Plan to integrate improved environmental design elements including the greater use of native plants, the incorporation of storm water runoff controls, erosion controls and natural shading, etc. (December 31, 2008)
- Complete the most critical actions identified in the Arroyo Seco Management Plan by September 30, 2014.

Objective 2: Design and manage all buildings and facilities using “green principles.

Target:

- 100% of all future new building and major renovation project designs will meet minimum equivalent LEED Silver level design/construction point value (rating).

General Transportation

Objective: Minimize the use of vehicles by members of the workforce.

Target:

- By 2015 reduce the number of single driver mile commutes by MOW by 25% from 2006 baseline.

Hazardous Material

Objective: Minimize the use of hazardous material.

Targets:

- Maintain an annual **overall** chemical inventory reconciliation of >90%.
- **In FY07 reduce Center 8700 hazardous material container inventory by weight of NFPA health 3 and 4 chemicals greater than 10 years in age by 20% from the Oct. 1, 2006 baseline.**
- **By the end of FY10 achieve an annual chemical inventory reconciliation of NFPA health category 3 and 4 materials of >98%.**

Solid Waste

Objective: Minimize the quantity of landfill waste through reduced consumption and/or reuse/recycling.

Targets:

- **By Oct 1, 2010 decrease the amount of copy paper purchased by 5% from the FY05/06 average.**
- By the end of FY07 implement clear recycling criteria and processes for all construction related debris.
- By the end of FY07 increase the number of recycling waste streams from 21 to 25.
- In FY08 recycle 100% of the site's recyclable quality wood waste.
- In FY08 recycle 100% of the site's recyclable quality concrete and asphalt waste.

Natural Gas Use

Objective: Minimize site natural gas consumption.

Targets:

- Reduce energy used per square foot of building by 2% per year beginning in FY2006 through FY2015 with respect to a FY2003 baseline. (Energy Policy Act of 2005)

Electrical Use

Objective: Minimize site electrical consumption.

Targets:

- Reduce energy used per square foot of building by 2% per year beginning in FY2006 through FY2015 with respect to a FY2003 baseline. (Energy Policy Act of 2005)

Objectives with no Current Established Targets

Use of Biological Agents

Objective: Minimize the use of biological materials.

Radiological Material

Objective: Minimize the use of radiological materials.

Radiological & Mixed Waste

Objective: Minimize the generation of radiological and mixed waste.

Hazardous Waste

Objective: Minimize the generation of hazardous waste.

Contaminated Areas

Objective: Minimize the environmental impacts of site contaminated areas.

Legacy Asbestos

Objective: Reduce site legacy asbestos material.

Hazardous Material Transportation

Objective: Minimize the potential environmental effects of hazardous material due to transportation.

Water Use

Objective: Minimize site water consumption.

Fire

Objective: Minimize the environmental effects of a site fire emergency.

Earthquake

Objective: Minimize the environmental effects of a site seismic event.

Appendix B - Environmental Program Reports

Annual environmental program reports are available on the SNL/CA ES&H website. Listed are the links to each report. The official record of this manual stored in the ES&H Records Center contains a hard copy of each report.

Air Quality Program

https://www.ran.sandia.gov/centers/8500/snl_ca_air_quality_program_annual_report

Environmental Monitoring and Restoration Program

https://www.ran.sandia.gov/centers/8500/snl_ca_environmental_monitoring_program_annual_report

Environmental Planning and Ecology Program

https://www.ran.sandia.gov/centers/8500/snl_ca_environmental_planning_and_ecology_program_annual_report

Hazardous Materials Management Program

https://www.ran.sandia.gov/centers/8500/snl_ca_hazardous_material_management_program_annual_report

Pollution Prevention and Waste Minimization Program

https://www.ran.sandia.gov/centers/8500/snl_ca_pollution_prevention_program_annual_report

Waste Management Program

https://www.ran.sandia.gov/centers/8500/snl_ca_waste_management_program_annual_report

Appendix C - ES&H Quality Assurance

**Quality Assurance of Data, Documents and
Select Activities of the
Environmental, Safety and Health
Departments, 8516 and 8517**

Sandia National Laboratories, California

Approved:

Gary Shamber, 8516 Date

Donn Wright, 8517 Date

Ed Cull, 8510 Date

1.0 ORGANIZATION

Environmental Operations Department (8516) at Sandia National Laboratories, California manages the following site environmental programs:

- Air Quality
- Environmental Planning
- Environmental Monitoring and Restoration
- Waste Management
- Pollution Prevention / Waste Minimization
- Hazardous Materials Management
- Chemical Inventory System

Health and Safety Department (8517) manages the following worker health and safety programs:

- Industrial Hygiene
- Safety Engineering
- Radiation Protection
- Self Assessments
- ES&H Coordination
- Occurrence Reporting
- Injury/Illness Reporting

2.0 SCOPE

This document defines general procedures, actions and activities implemented to ensure that all ES&H data and documents produced by these departments are managed and maintained in a manner that ensures their accuracy, consistency, validity and retrievability. It applies, but is not limited to the following:

- all data collected, used or generated
- technical work documents
- technical reports and official correspondence
- SNL/CA ES&H web pages and associated/included links
- directory and reference information
- Internal and External Audit Corrective Action Plans

This document also addresses certain procedures, actions and activities implemented to ensure the high quality of two department processes including:

- training
- annual program assessments for program effectiveness

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Each ES&H program will determine the need to produce a program-specific quality assurance plan. If required, these plans are expected to vary based on the requirements of the individual programs, but should contain, at a minimum, the 10 QA criteria listed in DOE Order 414.1B and 10 CFR 830.122.

This document tiers from the SNL/CA Quality Assurance Program Plan found at <https://wfsprod01.sandia.gov/groups/srn-uscitizens/documents/document/wfs070514.pdf>

3.0 DATA – Collected, Used or Generated

Data collected, used or generated by the staff within ES&H must be representative, complete, comparable, accurate, and precise as follows:

- **Representative.** Determine data collection or sampling methods. Establish rationale for sampling scheme. Samples collected will be handled in accordance with *OP471310 Administrative Procedure for Control of Samples by the Environmental Operations Department*. All data must be accompanied with appropriate and consistent units of measure.
- **Complete.** Determine the acceptable quantity of data actually collected compared to the quantity of data planned to be collected.
- **Comparable.** When possible, sample collection strategies and methods will be based on published guidelines or standards, such as Occupational Safety and Health Standards, Federal Standards, or national consensus standards such as ASTM, ANSI, or other industry standard.
- **Accurate.** Determine appropriate methods to assure the accuracy of the data.
- **Precise.** Determine appropriate methods to assure the precision of the data.

All chemical analytical data must meet the requirements of *OP471613 Verification of Laboratory Chemical Analysis Data*.

3.1 Data Management

Hardcopies of data will be maintained in accordance with *OP471347 Administrative Procedures for Managing Sandia/CA ES&H Recorded Information*.

Where feasible and desirable data may be maintained electronically. This may take many forms, and is left to the discretion of the Program Leads. At a minimum, the data maintained electronically will be verified to be complete and accurate on an annual basis. Electronic data will either be stored on a corporate server (to ensure daily back-ups), or backed-up monthly using removable media (i.e. CDs or DVDs).

3.2 Data Analysis

Any required statistical analyses of data will be carried out in accordance with either: 1) guidance on statistical analyses provided by a regulatory agency, or

- 2) guidance pertinent to the type of data, quantity of data, and end use of the analysis. This guidance may be found in textbooks, statistics software or obtained from specialized training.

4.0 TECHNICAL WORK DOCUMENTS

Technical Work Documents (TWD) are formally approved work documents used to identify activity-specific hazards and their associated work control measures. TWDs may include the following:

- standard operating procedures (SOPs)
- health and safety plans (HASPs)
- operating procedures (OPs)
- permits, such as safe work permits (SWPs) and radiological work permits (RWPs)
- data packages for pressure and vacuum systems
- safety and health programs for hazardous waste operations (HAZWOPER)
- plans, such as emergency response plans and facility- or building-specific evacuation/emergency plans.

TWDs will be produced in accordance with *ES&H Manual Chapter 21 Technical Work Documents (TWDs)*.

TWDs must be reviewed and approved before the work activities are performed. If a TWD expires before a planned revision or scheduled update is completed, the responsible Department Manager will issue a memorandum to file extending the previous revision expiration date. The extension shall be for a period of no longer than 60 days.

Substantive changes require an Interim Change Notice to be submitted and approved as described in *EP401502 Procedure for Control of Environment, Safety, and Health (ES&H) Documents*.

For minor changes to TWDs, it is acceptable to line through text and write in new text on the working copy, sign and date the changes. These changes should also be reflected on electronic versions of the TWD. The original shall be updated during the next revision cycle to reflect all minor changes recorded on the working copy.

Each ES&H program lead will conduct an annual review of TWDs supporting their respective program as part of the program annual self assessment. The review will be documented using the *Programmatic Document Review Form*. (Attachment A). The review shall consider the TWDs as a “system” of documents and assure that each is appropriately cross referenced and use consistent content. Upon completion, the form shall be submitted to the ES&H Records Center and incorporated as part of the annual program self assessment documentation.

4.1 Operating Procedures

Operating Procedures will be developed in accordance with GN470098 Developing ES&H Procedures. Operating Procedures are assigned a review period by the author between one to three years. An email notification is sent to the author 60 days and 30 days before the procedure is due to expire. It is recommended that each program keep an updated list of procedures and their expiration dates in order to assure that the document does not become expired.

4.2 Primary Hazard Screens and Hazard Analyses

Primary Hazard Screens (PHSs) and Hazard Analyses (HAs) are required to be produced before any new activity or operation that represents significant risks. PHSs and HAs must be reviewed on an annual basis. Notification of impending expiration is given to the author by the ES&H Coordinators. In addition the corporate data base issues a notice 30 days in advance of the expiration.

5.0 TECHNICAL REPORTS, DOCUMENTS and OFFICIAL CORRESPONDENCE

All SAND reports will be produced in accordance with the current guidance for producing SAND documents. Guidance for producing SAND reports is available as SAND 2002-2068P.

Other program documents include plans, reports, permit applications, or other documents required by DOE or other regulatory agencies. These will be reviewed and updated as required by the pertinent regulation or other published guidance.

5.1 Style Guide

The ES&H Departments will follow the Center 6300 Writer's Guide for all documents produced with the exception of SAND reports. The Center 6300 Writer's Guide can be found at: <http://www-irm.sandia.gov/corpdata/esh-manuals/eshmc/WriterGuide/writerguide.htm>.

5.2 Approved ES&H Acronyms and Definitions

Acronyms commonly used by the ES&H Departments will be consistently applied in all documents. The approved list of acronyms is included as Attachment B. Word definitions will be consistent with the ES&H Manual Glossary.

5.3 Approved ES&H Job Positions/Titles

Approved job positions/titles within the ES&H Departments are included as Attachment C. These titles should be used consistently throughout all department TWDs, technical reports and official correspondence.

6.0 SNL/CA ES&H WEB PAGES AND LINKS

Web pages will be designed in accordance with the *How to Write Web Pages for SNL's Webs*, which can be found at:

<http://www-irm.sandia.gov/webmentor/write-pages/index.htm>.

Each Department Manager and Program Lead will review for completeness and accuracy the web pages and the included or associated links that support the department or respective programs. This will be completed during the annual program self assessments. The review shall include, but not necessarily be limited to:

- Review content for concurrence with the referenced program requirements and activities.
- Review contact information to ensure that current program personnel are listed.
- Test all links on web pages.

The review of these will be documented using the *Programmatic Document Review Form* (Attachment A).

7.0 DIRECTORY AND REFERENCE INFORMATION

All department directories and staff reference information will be reviewed no less than quarterly by the department office management assistant for accuracy and completeness.

8.0 JOB QUALIFICATIONS AND TRAINING

Each position within the ES&H Departments provides unique support to the EMS and ISMS. It is important that each staff member of the department be qualified and well trained to perform the duties of the position.

8.1 Job Qualifications

The required job qualifications of each staff position are determined by the department manager. These qualifications are based on a combination of academic credentials, prior applicable experience, specialized credentials, and subjective attributes determined to be necessary for the position. The department manager will follow the corporate guidance for filling vacancies or new positions within the department. The department manager will exercise the right to move existing staff to new positions within the department as necessary for improved operations and/or staff development or growth.

8.2 Job Training

There are three types of training applicable to members of the workforce within the ES&H Departments. These are:

- General corporate required training.
- Specific training required to perform the assigned job function (as determined by the department manager and/or program lead).
- Specific training required by regulations (as determined by the program lead).

It is the responsibility of the department manager, in consultation with the program leads (where appropriate) to identify the required training for each member of the workforce within the ES&H departments. Required training shall be identified for each position listed in Attachment C “Approved ES&H Job Positions/Titles.”

It is the responsibility of each member of the workforce to ensure that their training requirements are met and remain current.

8.3 Lapses in Training

For training that includes a requirement for periodic re-training or re-certification, a lapse is considered to have occurred after a member of the workforce does not meet the deadline for re-training or re-certification.

When such a lapse occurs, the staff member will discontinue all activities governed or associated with the training until such time the re-training or re-certification is completed, unless a temporary authorization is approved by the Department manager

9.0 ENVIRONMENTAL PROGRAM'S ASSESSMENT

Annually, each program within the ES&H Departments will conduct assessments to determine the program's efficiency and effectiveness. Assessments need not cover the entire breadth of the program in a given year; they may be focused on a specific subset of elements of the program. It is anticipated, however, that all program elements will be assessed at least once in a three year period.

The ES&H Departments will follow the Self Assessment Program Operating Procedure OP471726.

For the Environmental Operations Department the following two program assessments are to be performed annually for each environmental program:

9.1 Program Self Assessment

The Program Self Assessment is an annual effort to determine the completeness, quality and efficiency of the program structure and

management. It shall also be used to determine the alignment of the program with ISO14001 EMS requirements and principles.

The objective of this assessment is to assure that the program provides all of the required elements and continually strives for areas of improvement. This assessment will include a review of all procedures, processes, technical work documents, web pages, publications, communications, etc. of the program to assure that they are streamlined, accurate and current. The *Programmatic Document Review Form* should be used to document this part of the self assessment. (Attachment A).

9.2 Program Line Implementation Assessment

The Program Line Implementation Assessment is an annual effort to determine how well the line or site is implementing the provisions or requirements of the program or supporting specific program-related objectives/targets. The success or failure of the line or site to implement program requirements or provisions can be attributed to many things: culture, line management support, communications, program management, etc. (Note: Poor program implementation by the line may not necessarily indicate poor program management or execution, but the Program Lead should consider whether these are contributing factors and take appropriate action.)

Significant line violations to program requirements that are discovered during this assessment shall be input into the ES&H Self Assessment database for communications and tracking. (Note: the assessment should be “big picture” and not just conducted to find violations.) See Attachment D for the *Assessment Finding Form*. The completed form is submitted to the Division 8000 ES&H coordinator for entry into the self-assessment tracking system.

In conducting these assessments the Program Lead shall consider aligning with the scheduled Line Self Assessments conducted by the ES&H Coordinators. This will minimize the disruption to the line and gain the manager’s attention.

For Dept 8516 each assessment and its results shall be summarized in the annual update of each environmental program’s Program Plan. It shall include:

- A discussion of the scope of the assessment and the rationale,
- The methods used to conduct the assessment,
- A clear summary of the results,
- A discussion of the findings, strengths/weaknesses, recommendations, and areas for improvement.
- A summary of actions taken.

For Dept 8516 two additional department assessment activities will be conducted within the department to determine the implementation of environmental program requirements by the line. The results of each of these shall be provided to the Program Leads to be used as additional input to either of the above two required program assessments:

9.3 Environmental Programs Representative Assessment

The Environmental Programs Representative will perform and record informal assessments of line implementation of critical program elements as negotiated with each program lead. These are not formally scheduled but are conducted on an on-going basis as part of the EP Reps scope of duties. See OP472165.

9.4 IDT Requirements Follow-Up Assessment

IDT reviews may generate environmental program requirements that the line presenter must address as part of the execution of his project. The IDT Requirements Follow-Up Assessment is a random “spot check” on a percentage of projects presented at IDT to determine if the requirements that were given as a result of IDT were implemented by the line. The Environmental Program Representative / IDT Coordinator will perform this follow-up assessment. The results of these follow-up assessments may be useful input into the program self assessments. See OP471680.

All four assessments described above shall be documented and retained in accordance with OP471347 Administrative Procedures for Managing Sandia/CA ES&H Recorded Information.

Attachment A
**PROGRAMMATIC DOCUMENT
REVIEW FORM**

PROGRAMMATIC DOCUMENT REVIEW FORM

Document Type	Document Title	Review Complete / Date	Changes Made
Operating Procedure	Sanitary Sewer Outfall Monitoring (OP471410)	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Incident Reporting (OP471608)	<input type="checkbox"/>	
	Categorical Process Monitoring (OP471409)	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
PHS	SNL8A00186-009 Environmental Monitoring	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other Program Documents	Environmental Program Description	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Stormwater Pollution Prevention Plan for Construction Activities	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Stormwater Pollution Prevention Plan (Industrial + MS4)	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Web Pages	Program General Web Page	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Stormwater Web Page	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Sanitary Sewer Web Page	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
	SPCC Training Page	<input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

Organization: _____

Program: _____

Date: _____

Signature: _____
Program Lead

Directions:

- Use this form to track review of all programmatic TWDs.
- Fill in the type and title of your program documents
- After completion, file form with your program records.

Attachment B
APPROVED ACRONYMS

Acronyms

AAQS – Ambient Air Quality Standards
ABIH – American Board of Industrial Hygiene
ACGIH – American Conference of Government Industrial Hygienists
ADA – Americans with Disabilities Act
ALARA – As Low As Reasonably Achievable
ANSI – American National Standards Institute
ASER – Annual Site Environmental Report
ASLL – facility code assigned to SNL/CA by Nevada Test Site
ATC – Authority to Construct
ASTM – American Society for Testing and Materials
AWCO – Alternate Waste Certification Official
BA – Biological Assessment
BAAQMD – Bay Area Air Quality Management District
BCSC – Biological Chemistry Safety Committee
BiOp – Biological Opinion
BMBL – Biosafety in Microbiological and Biomedical Labs
BSL – Biosafety Level, e.g. BSL-1 is biosafety level 1, etc.
BTEX – Benzene, Toluene, Ethylbenzene, and Xylene
CAA – Clean Air Act
CAAA – Clean Air Act Amendments
CARB – California Air Resources Board
CCR – California Code of Regulations
CDC – Centers for Disease Control
CDFG – California Department of Fish and Game
CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
CESA – California Endangered Species Act
CFC – Chlorofluorocarbons
CFR – Code of Federal Regulations
CIH – Certified Industrial Hygienist
COC – Chain-of-Custody
CRD – Confidential Restricted Data
CRLF – California Red-Legged Frog
CRMP – Cultural Resources Management Plan
CTS – California Tiger Salamander
DOD – US Department of Defense
DOE – US Department of Energy
DOT – US Department of Transportation
DQO – Data Quality Objective
DR – Disposal Request
DTSC – Department of Toxic Substances Control
EA – Environmental Assessment
EIS – Environmental Impact Statement
EIR – Environmental Impact Report

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EMS – Environmental Management System
EO – Executive Order
EPA – US Environmental Protection Agency
EPP – Environmentally Preferable Purchasing
ERG – Emergency Response Guide
ES&H – Environment, Safety, and Health
ESA – Endangered Species Act
FIFRA – Federal Insecticide, Fungicide, and Rodenticide Act
FONSI – Finding of No Significant Impact
GPMPP – Groundwater Protection Management Program Plan
GSA – General Services Administration
HA – Hazards Analysis
HAP – Hazardous Air Pollutants
HBV – hepatitis B virus
[HCP – Hearing Conservation Program](#)
HEPA – High Efficiency Particulate Air
HIV – Human Immunodeficiency Virus
HWT – Hazardous Waste technician
HWTSF – Hazardous Waste Treatment and Storage Facility
IAQ – Indoor Air Quality
[IARC – International Agency for Research on Cancer](#)
IBC – Institutional Biosafety Committee
IBDC – Inhabited Building Distance Calculations
[IDLH – Immediately Dangerous to Life and Health](#)
IDT – Interdisciplinary Team
[IH – Industrial Hygiene](#)
[IHSR – Industrial Hygiene Services Report](#)
IS – Initial Study
ISMS – Integrated Safety Management System
LC – Lethal Concentration
LD – Lethal Dose
LDR – Land Disposal Restriction
LECS – Liquid Effluent Control System
LEL – Lower Explosives Limit
LFL – Lower Flammability Limit
LLNL – Lawrence Livermore National Laboratory
LOD – Limit of Detection
LOQ – Limit of Quantitation
LWIS – Low-Level Waste Information System
[MAWP – Maximum Allowable Working Pressure](#)
MBTA – Migratory Bird Treaty Act
MC&A – Material Control and Accountability
MCLs - Maximum Contaminant Levels
MLLW – Mixed Low-Level Waste
[MSD – Musculoskeletal Disease](#)
Mt – Metric Ton

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NAAQS – National Ambient Air Quality Standards
ND – non detectable
NDDDB – California Natural Diversity Database
NegDec – Negative declaration
NEPA – National Environmental Policy Act
NESHAP – National Emission Standard for hazardous Air Pollutants
NEW – Net Explosive Weight
NFA – No Further Action
NFPA – National Fire Protection Association
NIH – National Institutes of Health
NIOSH – National Institute of Occupational Safety and Health
NNSA – National Nuclear Security Administration
NPDES – National Pollutant Discharge Elimination System
NQA – Nuclear Quality Assurance
NSO – Nevada Site Office
NTP – National Toxicology Program
NTS – Nevada Test Site
ODC – Ozone Depleting Substances
OEA – Occupational Exposure Assessment
OP – Operating Procedure
OSHA – Occupational Safety and Health Administration
P2 – Pollution Prevention
PAPR – Power Air Purifying Respirator
PCB – Polychlorinated biphenyl
PEL – Permissible Exposure Limit
PK – Process Knowledge
PKE – Process Knowledge Evaluation
PM₁₀ – respirable particulate matter
POTW – Publicly Owned Treatment Works
PPE – Personal Protective Equipment
PPOA – Pollution Prevention Opportunity Assessment
PQL – Practical Quantification Limit
PSDR – Package Storage and Disposal Request
PSIG – Pound per square inch, gauge
PTO – Permit to Operate
QA – Quality Assurance
QAP – Quality Assurance Plan
QAPP – Quality Assurance Program Plan
QC – Quality Control
QDC – Quantity Distance Calculation
RCA – Root Cause Analysis
RCRA – Resource Conservation and Recovery Act
RCT – Radiological Control Technician
RDL – Reportable Detection Limit
RG – Risk Group, e.g. RG1 is risk group 1, etc.
[RMI – Repetitive Motion Injury](#)

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RMWSF – Radioactive and Mixed Waste Storage Facility
RP – Radiation Protection
[RSI – Repetitive Strain Injury](#)
RWAP – Radioactive Waste Acceptance Program
RWP – Radiological Work Permit
RWQCB – Regional Water Quality Control Board
RWR – Radioactive Waste representative
SAW – Sampling and Analysis Worksheet
SB-14 – Source reduction Evaluation Review and Plan; Hazardous Waste Management
Performance Report; Summary Progress Report; State of California Senate Bill
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[SE – Safety Engineering](#)
SIP – State Implementation Plan
SLB – Shallow Land Burial
SME – Subject Matter Expert
SOP – Standard Operating Procedure
SSO – Sandia Site Office
STLC – Soluble Threshold Leaching Procedure
SWEA – Final Site-Wide Environmental Assessment
SWP – Safe Work Permit
SWPP – Stormwater Pollution Prevention Plan
TAC – Toxic Air Contaminants
TCLP – Toxicity Characteristic Leaching Procedure
TI – Transport Index
TID – Tamper Indicating Device
TLD – Thermoluminescent Dosimeter
TLV – Threshold Limit Value
TPHD – Total Petroleum Hydrocarbons, diesel
TRI – Toxic Release Inventory
TRU – Transuranic
TSCA – Toxic Substances Control Act
TSD; TSDF – Treatment, Storage, and Disposal Facility
TTLC – Total Threshold Limitation Concentration
TTO – Total Toxic Organics
TWD – Technical Work Document
UEL – Upper Explosive Limit
UFL – Upper Flammability Limit
UN – United Nations
USFWS – US Fish and Wildlife Service
UST – Underground Storage Tank
VOC – Volatile Organic Compound
WAC – Waste Acceptance Criteria
WCO – Waste Certification Official
WCPP – Waste Certification Program Plan
WDDR – Waste Description and Disposal Request
WDT – Radioactive Waste and Mixed Waste Disposal Tag

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WET – Waste Extraction Test
WIMS – Waste Information Management System
WMS – Waste Management System
WMS- California Waste Management System
WPE – Waste Program Engineer
WSE – Workstation Evaluation

Attachment C
**APPROVED ES&H JOB
POSITIONS/TITLES**

Job Positions/Titles

Environmental Operations

General

- Environmental Operations Department Manager
- Environmental Operations Technician
- Assessment Team Leader
- ES&H Coordinator
- Field Chemist
- Quality Assurance Coordinator
- Purchaser
- Sampler
- Traffic Manager

Air Quality Program

- Air Quality Program Lead
- Air Quality Contractor Support

Environmental Monitoring Program

- Environmental Monitoring Program Lead
- Associate Engineer, Environmental Monitoring Program
- Senior Engineer, Environmental Monitoring Program

Environmental Planning Program

- Environmental Planning Program Lead
- Environmental Planning Program Technologist
- Wildlife Biologist
- Wildlife Biology Intern
- Wildlife Technologist

Hazardous Material Program

- Hazardous Materials Management Program Lead
- Hazardous Materials Technician

Waste Management Program

- Waste Management Program Lead
- Waste Management Program Engineer
- Waste Certification Official
- Waste Management Training Coordinator
- Waste Stream Evaluator
- Hazardous Waste Technician
- Nonconforming Reporting Coordinator
- Nuclear Materials Representative
- Radiation Protection Staff Program Lead
- Radiation Protection Staff Technologist

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- Radioactive Waste Representative
- Radiological Control Technician

Pollution Prevention / Waste Minimization Program

- Pollution Prevention / Waste Minimization Program Lead
- Pollution Prevention / Waste Minimization Technician

Health and Safety

Industrial Hygiene

- Industrial Hygienist
- Industrial Hygiene Technologist
- Bio safety Officer
- Ergonomics Technologist

Safety Engineering

- Safety Engineer
- Safety Engineering Technologist
- Construction Safety Inspector
- Injury/Illness Reporting Clerk

Radiation Protection

- Health Physicist (Radiological Engineer)
- Radiological Control Technician
- Division Laser Safety Officer

ES&H Coordinator

- Division ES&H Coordinator
- Center ES&H Coordinator
- Self Assessment Program Lead
- Self Assessment Program Coordinator

Attachment D
**ENVIRONMENTAL OPERATIONS
ASSESSMENT FINDING FORM**

Environmental Program	
Assessment Date	
Location	
<i>Finding</i>	
<i>Standard and Code #</i>	
<i>Corrective Action</i>	
Has corrective action been completed? If so, when?	Yes ___ Date: _____ No _____
Due Date	
Responsible SNL Manager/Org:	
Environmental Program	
Assessment Date	
Location	
<i>Finding</i>	
<i>Standard and Code #</i>	
<i>Corrective Action</i>	
Has corrective action been completed? If so, when?	Yes ___ Date: _____ No ___
Due Date	
Responsible SNL Manager/Org:	

Note: In August 2006, this form was modified. The new form was distributed for use to the EMS Core Team on August 16, 2006.

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By my signature below, I affirm that I have read and understood this OP and all references called out in procedural steps, and I agree to operate within the stated constraints.

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Name Signature Org./Company Date

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Name Signature Org./Company Date

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Name Signature Org./Company Date

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Name Signature Org./Company Date

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Name Signature Org./Company Date

Appendix D - SNL/CA Communication Plan Supplement

Sandia National Laboratories, California Communication Plan Supplement



Approval by:

Original approved
Gary Shamber, Manager, 8516
SNL/CA Environmental Management Representative

3/24/05
Date

The following provides a description of the additional EMS program communications related elements incorporated at the Sandia National Laboratories, California (SNL/CA) site.

1. SNL/CA Communications Staff Elements

In addition to the corporate staff elements used in the communications of EMS, the CA site has the following:

1.1 Interdisciplinary Team (IDT):

IDT is a team of subject matter experts in ES&H, facilities and security who sponsor regular presentations by line on proposed projects and actions. During and following the presentation the IDT determines and communicates environmental requirements and recommendations that will be important for the line to incorporate in their planning and execution of the project or action.

Role as Audience:

- Presentation by line elements on proposed actions or projects that may have ES&H implications.

Role as Communicator:

- Communicate environmental regulations/requirements so these can be incorporated into the project planning and execution
- Communicate and discuss alternatives to proposed actions that can help support environmental objectives / targets and best business practices.

1.2 SNL/CA Senior Management EMS Steering Committee

The EMS Steering Committee consists of the site VP, the Site Operations Director, the site's Environmental Level II and Department Managers and a Line Director

Role as Audience:

- Receive an annual briefing by the site appointed Environmental Management Representative on the status, progress and issues of the EMS

Role as Communicator:

- Provide senior management guidance on site goals and objectives
- Provide site environmental policy execution and standards of performance
- Approve annual site environmental objectives and targets
- Communicate EMS with site senior management

1.3 SNL/CA EMS Advisory Team

This team consists of the SNL/CA EMS Core Team and line representatives.

Role as Audience:

- Receive information on site EMS implementation and status
- Receive information on future EMS plans and direction.

Role as Communicator:

- Communicate line/program issues that may affect EMS application in the line
- Recommend EMS execution actions with the line
- Recommend types of EMS communications that will be most effective
- Provide feedback to the SNL/CA EMS Core Team on EMS execution

1.4 SNL/CA Environmental Management Representative and SNL/CA EMS Core Team

This team manages the day to day execution and application of EMS for the CA site. This team is chaired by the site's VP appointed Environmental Management Representative.

Role as Audience:

- Receive and process feedback and recommendations from SNL/CA EMS Advisory Team and SNL/CA EMS Steering Committee
- Receive and process feedback from site surveys and line assessments
- Participate on corporate EMS team

Role as Communicator:

- Provide EMS status and information to SNL/CA EMS Advisory Team and SNL/CA EMS Sr. Mgmt. Steering Committee
- Provide EMS status and information to the site workforce in targeted as well as scheduled briefings and presentations.
- Communicate EMS goals, objectives and targets to site workforce using a variety of communications devices.
- Conduct an annual presentation to the site's Safety, Health and Environmental Advisory Committee (SHEAC).

Note: Because of the size of the site, the differences in management structure/elements and the role of the SNL/CA EMS Core Team, the EMS at SNL/CA will not utilize the SNL/CA ES&H Coordinators to the extent as those at the SNL/NM site.

2. Communication Tools

In addition to the corporate tools available for communications the SNL/CA site has the following:

2.1 Publications

The Communicator – Provides occasional stories about SNL/CA's endeavors in the area of environmental management.

TNT- Timely CNL/CA environmental announcements will be presented on a regular basis. Included will be statistics, reminders to think environmentally, and ways people can incorporate environmentally friendly practices in their daily activities.

Environmental Scorecard- A quarterly published report to all site managers and members of the workforce that provides a status on environmental objectives and targets.

2.2 Web Based Communications

SNL/CA ES&H web site (Internal) – A comprehensive ES&H web site that is being modified to provide an environmental Standard of Performance statement from the site VP as well as quick links to corporate and site environmental goals, objectives and targets and other related site.

SNL/CA External 8000 web page – An external website designed for communications to the external community. Will provide links to appropriate corporate environmental web sites and site environmental policies and EMS activities.

2.3 Other –

New Hire Orientation Briefings – The new hire briefing will cover an EMS introduction and site environmental policies and activities.

EMS Information for Recruitment – SNL/CA recruiters will be provided with a brochure on the site EMS to give to potential new hires

Annual Site EMS Presentation - Each year the EMS Core Team will sponsor a site wide presentation on environmental issues, progress and challenges.

Environmental Program's Line Implementation Assessments – Each environmental program will conduct a line assessment of its implementation of environmental practices and actions in support of approved site objectives and targets. Program line audits or assessments have been reported by other sites as a highly effective communications exchange.

3. SNL/CA Specific EMS Communication Methods

The table below provides information on unique SNL/CA methods of communicating EMS-related information and the annual schedule for these actions.

SNL/CA EMS Communication Methods				
Action	Communicator	Audience	Method	Schedule
Interdisciplinary Team (IDT) Project Reviews	Subject Matter Experts/Members of IDT	Presenters of Proposed Projects	Meeting, Minutes, SME written responses	Weekly
"Communicator" articles	EMS Core Team	Members of Workforce	Publication	Bi-monthly
"Environmental Scorecard"	EMS Core Team	Members of Workforce	Publication	Quarterly
Annual Site Environmental Presentation	EMS Core Team	Members of Workforce	Presentation	July
Annual Site Environmental Report	EMS Core Team	External Community	Publication	July
Earth Day Activities	EMS Core Team	Members of Workforce	Various	April
Target Organizational Presentations	EMS Core Team	Select Line Organizations	Presentation	Various
Senior Management Annual Presentation	EMS Management Representative	Senior Site Management	Presentation	February
External 8000 Web Page	EMS Core Team	External Community and Potential Hires	Web	Continuous
SNL/CA ES&H Web Site	EMS Core Team	Members of Workforce	Web	Continuous
New Hire Orientation Briefings	EMS Core Team	New Members of Workforce	Presentation	Routine
Contractor EMS Supplement	EMS Core Team	Site Contractors	Letters / Brochure	Routine
External News Articles	EMS Core Team	External Community	News Article	Routine
EP Rep Line Visits and Assessments	EP Rep	Line Organizations	One-on-one	Routine
TNT	EMS Core Team	Members of Workforce	Publication	Varies
ENV 233	EMS Core Team	Waste Generators	Classroom Training	Annual
Banners / Posters / Handouts	EMS Core Team	Members of Workforce	Misc. Distribution	Routine
Recruiting	Recruiters	Potential New Hires	Brochures	Varies

References

- 10 CFR 1021, Department of Energy, National Environmental Policy Act Implementing Procedures, January 1997.
- 29 CFR 1910, Occupational Safety and Health Administration, Hazard Communication Standard, 1986.
- 40 CFR Part 61, National Emissions Standards for Hazardous Air Pollutants, Subpart H – National Emissions Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities, December 1989.
- 7 United States Code (USC) § 136, Federal Insecticide, Fungicide, and Rodenticide Act, 1972.
- 15 USC § 2601 et. seq., Toxic Substances Control Act of 1976.
- 16 USC § 470, National Historic Preservation Act of 1966.
- 16 USC § 703 et. seq. Migratory Bird Treaty Act of 1918.
- 16 USC § 1531 et. seq., Endangered Species Act of 1973.
- 33 USC § 1251, Clean Water Act of 1977.
- 42 USC § 4321 et. seq., National Environmental Policy Act of 1969.
- 42 USC 6901 et. seq., Resource Conservation and Recovery Act of 1976.
- 42 USC § 6961, Federal Facility Compliance Act of 1992.
- 42 USC § 7401, Clean Air Act Amendments of 1990.
- 42 USC §11001 et. seq., Superfund Amendments and Reauthorization Act of 1986, Emergency Planning and Community Right-to-Know Act.
- 42 USC § 13101 et. seq., Pollution Prevention Act of 1990.
- Assembly Bill (AB) 2185, California Hazardous Materials Release Response Plans and Inventory Law, 1987.
- AB 2277, Appliance Recycling, 2004.
- AB 2901, Cell Phone Recycling Act, 2004.
- CARB 2005a, Diesel Risk Reduction Plan, <http://www.arb.ca.gov/diesel/dieselrrp.htm>, August 15, 2005.

California Fish and Game Code, §§ 2050-2068, California Endangered Species Act.

California Health and Safety Code, Division 20, Chapter 6.5, § 25100 et. seq., Hazardous Waste Control Law.

California Health and Safety Code, Division 104, Part 14, §§ 117600-118360, Medical Waste Management Act.

California Integrated Waste Management Board (CIWMB) 2005, Waste Tire Manifest System, <http://www.ciwmb.ca.gov/Tires/Manifest/>, September 27, 2005.

California Water Resources Control Board (CWRCB) 1990, Aboveground Petroleum Storage Act, January 1, 1990.

CWRCB 1997, State of California, NPDES General Permit for Storm Water Discharge Associated with Industrial Activities, April 1997.

California Water Code, Division 7, Water Quality § 13000 et. seq., Porter-Cologne Water Quality Control Act, January 1, 2005.

Congressional Record 2005, Energy Policy Act of 2005, July 27, 2005.

DOE 2003, DOE Order 231.1A, Environment, Safety, and Health Reporting, August 19, 2003.

DOE 2005a, DOE Order 151.1C, Comprehensive Emergency Management System, November 2, 2005

DOE 2005b, DOE Order 450.1, change 2, Environmental Protection Program, December 7, 2005.

Executive Order (EO) 11990, Protection of Wetlands, Federal Register, Vol. 42, pp. 26961, May 25, 1977.

EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management, Federal Register, Vol. 72, No. 17, pp 3919, January 26, 2007.

ISO 2004, ISO 14001, second edition, Environmental management systems – Requirements with guidance for use, November 15, 2004.

SNL 2004, CPSR 400.2, Information Management, September 29, 2004.

SNL 2005a, CPR 001.1, Corporate Business Rules System Standard, March 25, 2005.

SNL 2005b, CPS 001, Corporate Policy Statement, June 10, 2005.

SNL 2005c, CPSR 300.7, Education, Development and Training, June 14, 2005.

SNL 2005d, CPR 300.4.3, Employee Conduct and Corrective Discipline, August 12, 2005.

- SNL 2006a, CPR 001.3.2, Corporate Quality Assurance Program, <http://www-irn.sandia.gov/policy/leadership/quality.html>, February 20, 2006.
- SNL 2006b, ES&H and Emergency Management Administrative Procedure AOP 04-02, Requirements Management Process, March 10, 2006.
- SNL 2006c, CPR 400.1.2, Integrated Safety Management System Description, April 6, 2006.
- SNL 2006d, CPR 300.2.1, Performance Management, June 22, 2006.
- SNL 2006e, CPSR001.3, Integrated Laboratory Management System, August 22, 2006.
- SNL 2006f, CPR 300.3.2, Staffing: Sourcing & Selection Manual, November 14, 2006.
- SNL 2007a, CPSR 400.1, Environment, Safety & Health, January 23, 2007.
- SNL 2007b, CPR 400.1.1, ES&H Manual & Supplements (MN471001), March 26, 2007.
- SNL/CA 2005a, OP471347, Administrative Procedure for Managing Sandia/CA ES&H Recorded Information, April 13, 2005.
- SNL/CA 2005b, Emergency Management Plan,
http://www.ran.sandia.gov/security/Emergency_Management/SNLCAEplan.doc,
November 2005.
- SNL/CA 2006a, Administrative Procedure AP800007, Receiving, Documenting, and Responding to EMS Communications from External Parties, June 10, 2006.
- SNL/CA 2006b, Administrative Procedure AP800010, Validation of Environmental or EMS-Related Corrective / Preventive Actions, August 16, 2006.
- SNL/CA 2007, Administrative Procedure AP800005, Environmental Management System Assessment Process, March 27, 2007.
- Senate Bill 14, California Hazardous Waste Source Reduction and Management Review Act of 1989, as amended July 21, 1997.
- Senate Bill 20, as amended by Senate Bill 50 (SB20/SB50), California Electronic Waste Recycling Act of 2003.