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# Sandia National Laboratories, California Hazardous Materials Management Program Annual Report February 2009



**Mark E. Brynildson, Hazardous Materials Management Program Lead**

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Sandia National Laboratories, California

## **ABSTRACT**

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

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# 0 Summary of Document Changes

Significant changes made to this Hazardous Materials Management (HMM) Program Report are summarized in Table 1.

**Table 0-1 Summary of Significant Changes to the Hazardous Material Management Program Report**

Section	Page	Change
7.2	18	Updated metric data
7.3	19	Updated metric data
11	24	Issues section added
13.1	26	EMS Objective & Targets Updated
13.2	26	HMMP Objective & Targets Updated
Table 3-1	14	TWD table updated
Table 6-1	17	HMMP Training Matrix updated
Table 8-1	20	HMMP Risks updated
Appendix B	28	Risk Assessment Updated
Appendix D	38	HMMP Self Assessment Report updated
Appendix E	47	HMMP Assessment Document Checklist updated

# 1 Program Description

## 1.1 INTRODUCTION

The HMM Program is one of six programs under the Environmental Management Department at Sandia National Laboratories, California (SNL/CA). The program applies to all projects and activities involving hazardous materials, excluding explosives and radioactive materials, at SNL/CA. The program is part of the corporate HMM Program known as the “Chemical Information System Program” at Sandia National Laboratories/New Mexico (SNL/NM) managed by the Industrial Hygiene Program Department (04127).

SNL/CA is responsible for tracking hazardous materials (chemical and biological hazardous materials), providing Material Safety Data Sheets (MSDS) and for regulatory compliance reporting according to a variety of hazardous material regulations. The principal regulations for hazardous materials tracking are the Emergency Planning Community Right-to-Know Act (EPCRA) and the California Right-to-Know regulations. The regulations, the Hazard Communication/Lab Standard of the Occupational Safety and Health Administration (OSHA) are also key to the HMM Program. The HMM Program is also responsible for supporting hazardous material safety and information requirements for a variety of Integrated Enabling Services (IES) programs primarily the Industrial Hygiene, Waste Management, Fire Protection, Air Quality, Emergency Management, Environmental Monitoring and Pollution Prevention programs.

The principal program tool is the Chemical Information System (CIS) that was completely redeveloped in a multi-year effort and put into production in December 2004. The system contains two key elements: the MSDS library and the hazardous material container tracking database that is readily accessible to all Members of the Sandia Workforce.

## 1.2 Material Safety Data Sheet (MSDS) Library

The [MSDS library](#) in CIS contains almost 90,000 MSDSs which is comprised of commercial MSDS documents and data supplemented with vendor specific MSDS images and data. The MSDS library is available on Sandia's unclassified internal/external web (login required) 24 hours a day, seven days a week with new MSDSs being added as available or by request. The CIS database and ES&H archives store MSDSs for a period of 75 years according to a DOE epidemiological record destruction moratorium requirement. Manufacturer-specific MSDSs are maintained for products if their MSDS is not available in the commercial library. Just-In-Time (JIT) vendors with contractual chemical tracking requirements are required to provide MSDSs to the HMM Program. Hazardous material users also send MSDSs that accompany their chemical shipments to the HMM Program as outlined in MN471001, ES&H Manual, [Section 6U](#), "Hazardous Material (Chemical and Biological) Inventory." In addition, the HMM Program request MSDSs from manufacturers as needed or utilize commercially available MSDS library references. MSDSs for new chemical mixtures can be authored in-house by request. The HMM Program processes MSDSs according to internal program procedures.

The web link for access to the MSDS library is:

<http://cis.sandia.gov>

## 1.3 Hazardous Material Container Tracking Database

The CIS database tracks individual hazardous material containers with the use of unique hazardous material inventory barcodes. There are over 33,000 barcoded containers at SNL/CA distributed site-wide managed by nearly every SNL/CA organization. Each individual hazardous material container, as defined by ES&H Manual [Attachment 6U-1](#) is barcoded and all relevant hazardous material inventory information is collected and entered in the CIS database. Information collected includes hazardous material or product name, vendor, storage location, quantity, hazardous material owner/requester information, and container storage information for regulatory reporting purposes.

This electronic inventory allows hazardous material users and Integrated Enabling Services (IES) professionals to assess and manage workplace hazards. CIS data is also key in completing annual federal and state regulatory reporting requirements. Easy access to this inventory facilitates quick availability searches, sharing of chemicals, source reduction, as well as minimizing hazardous material purchases and waste disposal expenses.

Hazardous material tracking in CIS is based on the premise that if the baseline inventory is known and all incoming and outgoing hazardous materials are tracked, the inventory will be up-to-date at any given time. All SNL sites complete annual wall-to-wall hazardous materials

inventory reconciliation. The SNL/CA 2008 reconciliation “found” percent was 95 % compared to 93 % in 2007 exceeding the improvement goal.

Just-In-Time (JIT) gas products vendor, Matheson Tri-Gas barcodes all incoming gas products and forwards the hazardous materials inventory information to the HMM Program electronically. The HMM Program and/or Line hazardous material users are responsible for barcoding all other incoming hazardous materials (non-JIT purchases). Inventory information is then forwarded to the HMM Program using the corporate [Chemical Inventory Incoming Form](#) or the “[Add Chemical Inventory](#)” on the CIS home page. Hazardous materials users are responsible for storage location changes if a chemical is used, disposed, or transferred to a new location. See MN471001, *ES&H Manual*, [Section 6U](#), "Hazardous Material (Chemical and Biological) Inventory," for responsibilities and procedures for chemical users. Hazardous materials tracking requirements are part of the contract requirements in the JIT vendor contract. The HMM Program processes inventory information according to internal HMM procedures.

## 2 Regulatory / Corporate Drivers

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

### 2.1 General Compliance

The HMM Program uses a variety of sources to stay current on applicable compliance drivers. The primary source used is the Sandia corporate notification service provided by the legal staff. Sandia legal monitors DOE requirements and federal, state, and local government publications for regulatory issues applicable to Sandia operations. These notifications are then reviewed for applicability to SNL/CA operations. The HMM Program also receives additional sources of information on regulatory changes include direct communication with DOE and regulating agencies, and periodic review of agency web sites. New requirements are incorporated into program activities and communicated to the site through electronic notifications, the ES&H Interdisciplinary Team process, self-assessments, targeted presentations and program documents.

DOE Order 151.1C *Emergency Management* was approved in 11/2005. This driver had significant impact to the HMM Program in 2006 and will for the foreseeable future. Executive Order 13423 *Strengthening Federal Environmental, Energy, and Transportation Management*, approved in 1/2007.

The HMM Program is audited occasionally by DOE, Sandia Corporation, and Lockheed Martin, Sandia’s parent company. Under California law, Alameda County Department of Environmental Health is required to audit the program every three years.

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

**Table 2-1 Compliance Drivers for the Hazardous Material Management Program**

Driver	Summary	Regulating Authority
<b>Federal Laws and Regulations<sup>a</sup></b>		
40 CFR 300 - 372 Emergency Planning Community Right-to-Know (EPCRA)	The regulations provide for Emergency Planning, Emergency Notification, Community Right-to-Know Reporting and Toxic Chemical Release Reporting for hazardous chemicals at a facility.	EPA
29 CFR 1910.1200 Hazard Communication Standard (Worker Right-to-Know Rule)	OSHA's Hazard Communication Standard (HCS) is designed to ensure that information about these hazards and associated protective measures is disseminated to workers and employers.	OSHA
29 CFR 1910.1450 Lab Standard	The Standard outlines the strategy for laboratories to maintain employee exposures at or below the permissible exposure limits specified for the hazardous chemicals in 29 CFR part 1910, subpart Z.	OSHA
40 CFR 68 Risk Management Plan	Section 112(r) of the Clean Air Act focuses on the efforts to prevent the accidental release of chemicals and limit the consequences of such releases.	EPA
<b>Executive Orders (EO)</b>		
Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements	The order directs federal agencies and their facilities to comply with the provisions of EPCRA and the Pollution Prevention Act	DOE as responsible federal agency for SNL facilities
Executive Order 13423 Strengthening Federal Environmental, Energy, and Transportation Management	The order directs federal agencies and their facilities to a variety of things but the action directly relevant to HMM program is: Title 3, Section 2, (e) ensure that the agency (i) reduces the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of by the agency, (ii) increases diversion of solid waste as appropriate, and (iii) maintains cost-effective waste prevention and recycling programs in its facilities	DOE as responsible federal agency for SNL facilities
<b>DOE Directives</b>		
Order 450.1A Environmental Protection Program / 2008	The order outlines the basic strategy for environmental compliance at DOE facilities, requires DOE facilities to implement an EMS that addresses protection of site resources and long-term stewardship of these resources	DOE

Order 151.1C, Emergency Management / 2005	The order outlines the basic strategy and requirements for the Emergency Management Program at DOE facilities. Emergency Management Hazards Surveys and Emergency Management Hazards Assessments (EPHAs) require extensive HMMP support.	DOE
<b>California Laws and Regulations<sup>a</sup></b>		
State of California, Hazardous Materials Release Response Plans and Inventory Law (AB 2185).	California Health and Safety Code requires businesses to provide information on hazardous substances	Alameda County Department of Environmental Health

<sup>a</sup>The effective date for federal and state regulations represents the most recent revision.

## 2.2 Requirements Source Documents

### *40 CFR 300-372 Emergency Planning and Community Right-to-Know Act (EPCRA)*

The Emergency Planning and Community Right-to-Know Act (EPCRA), enacted on October 17, 1986, represents a significant first step toward a major federal role in areas previously regulated by state and local governments. EPCRA was enacted by Congress as a stand-alone provision, Title III, of the Superfund Amendments and Reauthorization Act of 1986 (SARA).

SARA Title III (EPCRA) was passed in response to concerns regarding the environmental and safety hazards posed by the storage and handling of toxic chemicals. These concerns were triggered by the disaster in Bhopal, India, in which more than 2,000 people suffered death or serious injury from the accidental release of methyl isocyanate. To reduce the likelihood of such a disaster in the United States, Congress imposed requirements on both states and regulated facilities. Facilities must notify the local emergency planning districts regarding materials stored at and released from sites.

EPCRA contains three subtitles. Subtitle A, Emergency Planning and Notification, establishes mechanisms to enable states and communities to prepare to respond to unplanned releases of hazardous substances.

Subtitle B, Reporting Requirements, contains three distinct reporting provisions concerning two different groups of chemical substances. The first two sets of reports require submission of inventory-related data on hazardous chemicals [i.e., those substances for which a Material Safety Data Sheet (MSDS) is mandated under the hazard communication regulations of the Occupational Safety and Health Administration]. The third reporting provision requires annual reporting to EPA and the state in which the reporting facility is located on environmental releases of listed toxic chemicals manufactured, processed, or otherwise used at the facility in excess of specified threshold quantities.

Subtitle C, General Provisions, contains a variety of provisions, including, but not limited to, civil, criminal, and administrative penalties for violations of the statute's reporting requirements;

enforcement actions that can be brought by citizens, states, and emergency planning and response entities; and restrictions on an owner's or operator's rights to make trade secrecy claims in the reports required by EPCRA.

Appendix A of 40 CFR 355 defines extremely hazardous substances. Any DOE facility that manages any such substances in quantities exceeding the Threshold Planning Quantities noted in the appendix must comply with EPCRA.

Under 40 CFR 355 facilities must notify the emergency response commission that they are subject to these requirements. The facilities must notify the local emergency planning unit of releases exceeding a Reportable Quantity (RQ) of Extremely Hazardous Substances, as defined under Title III, and Hazardous Substances, as defined under CERCLA. In addition, the facilities must report their chemical inventories and provide MSDSs to the local emergency planning organizations as outlined in 40 CFR 370.

### ***29 CFR 1910.1200 Hazard Communication Standard.***

Chemicals pose a wide range of health hazards (such as irritation, sensitization, and carcinogenicity) and physical hazards (such as flammability, corrosion, and reactivity). OSHA's Hazard Communication Standard (HCS) is designed to ensure that information about these hazards and associated protective measures is disseminated to workers and employers. This is accomplished by requiring chemical manufacturers and importers to evaluate the hazards of the chemicals they produce or import, and to provide information about them through labels on shipped containers and more detailed information sheets known as MSDSs. All employers with hazardous chemicals in their workplaces must prepare and implement a written hazard communication program, and must ensure that all containers are labeled, employees are provided access to MSDSs, and an effective training program is conducted for all potentially exposed employees.

### ***29 CFR 1910.1450 Occupational Exposure to Hazardous Chemicals in Laboratories (Lab Standard).***

The standard entitled "Occupational Exposure to Hazardous Chemicals in Laboratories" (§ 1910.1450; the "Standard") applies to laboratories that use hazardous chemicals in accordance with the Standard's definitions for "laboratory use of hazardous chemicals" (2) and "laboratory scale." (3) The Standard requires these laboratories to maintain employee exposures at or below the permissible exposure limits specified for the hazardous chemicals in 29 CFR part 1910, subpart Z. At SNL/CA this is implemented by the Industrial Hygiene Program in Section 6E of the ES&H Manual "Laboratory Standard - Chemical Hygiene Plan" (CHP) that describes: Standard operating procedures for using hazardous chemicals; hazard-control techniques; equipment-reliability measures; employee information-and-training programs; conditions under which the employer must approve operations, procedures, and activities before implementation; and medical consultations and examinations. The CHP also designates personnel responsible for implementing the CHP, and specifies the procedures used to provide additional protection to employees exposed to particularly hazardous chemicals.

Other information-collection requirements of the Standard include: Documenting exposure-monitoring results; notifying employees in writing of these results; presenting specified information and training to employees; establishing a medical-surveillance program for overexposed employees; providing required information to the physician; obtaining the physician's written opinion; using proper respiratory equipment; and establishing, maintaining, transferring, and disclosing exposure-monitoring and medical records. These collection-of-information requirements, including the CHP, control employee overexposure to hazardous laboratory chemicals, thereby preventing serious illnesses and death among employees exposed to such chemicals.

***Executive Order 12856, Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements***

Executive Order 12856 published August 6, 1993, 58 FR 41981, directs federal agencies and their facilities to comply with the provisions of EPCRA. Thus, all DOE facilities, including national laboratories, research facilities, power administrations, and petroleum reserves, are potential reporters under EPCRA, if they meet any reporting thresholds.

***Executive Order 13423, Strengthening Federal Environmental, Energy, and Transportation Management***

FR Vol. 72, No. 17 published Friday, January 26, 2007 Title 3, Section 2, (e) ensure that the agency (i) reduces the quantity of toxic and hazardous chemicals and materials acquired, used, or disposed of by the agency, (ii) increases diversion of solid waste as appropriate, and (iii) maintains cost-effective waste prevention and recycling programs in its facilities.

***State of California, Hazardous Materials Release Response Plans and Inventory Law (AB 2185).***

The California legislature passed Assembly Bill 2185 in 1987, incorporating the provisions of SARA Title III into a state program. The legislature delegated implementation of emergency planning and community-right-to-know programs to the state Office of Emergency Services (OES). OES has in turn authorized local government agencies to implement the program. The Alameda County Department of Environmental Health is responsible for AB 2185 oversight at Sandia/CA.

AB 2185 has been codified in state law as Chapter 6.95 of the California Health and Safety Code. The chapter requires that Sandia/CA complete an annual inventory or "Business Plan" listing specified hazardous materials.

What Chemicals Need to Be Listed On The Inventory? Section 25501.1 of the California Health and Safety Code requires businesses to provide information on all hazardous substances on the federal Environmental Protection Agency (EPA) list at Title 49, Parts 172 and 173 of the Code of Federal Regulations. This list essentially duplicates the class of materials for which a MSDS must be produced. Thus, any chemical for which an MSDS had been produced is considered

reportable under Chapter 6.95. Additionally, state law requires that businesses list materials classified as hazardous wastes on the annual inventory.

## **2.3 Implementing Documents**

SNL, MN471001, *ES&H Manual*, [Section 6U](#), *Hazardous Material (Chemical and Biological) Inventory*.

## **2.4 Related Documents**

SNL, *Chemical Safety Vulnerability Review Management Response Plan*, May 27, 1994.

SNL, [GN470094](#), *Handling Chemicals at SNL/CA*.

SNL, MN471001, *ES&H Manual*, [Section 6D](#), *Hazard Communication*.

SNL, MN471001, *ES&H Manual*, [Section 6E](#), *Laboratory Standard*.

[DOE-HDBK-1139/1-2006 September 2006 Chemical Management Volume 1 of 3](#)

[DOE-HDBK-1139/2-2006 August 2006 Chemical Management Volume 2 of 3](#)

[DOE-HDBK-1139/3-2008 July 2008 Chemical Management Volume 3 of 3](#)

## 3 Operational Controls

### 3.1 HMM Program Operational Controls

The HMM program uses technical work documents, administrative and engineered controls, and specialized equipment as operational controls. Table 2. lists the technical work documents applicable to the program. They include the corporate ES&H manual and a Primary Hazards Screening (PHS) document.

The [summer reconciliation](#) is another operational control implemented to improve the quality of the inventory data and capture information about hazardous materials not encountered in the primary receiving process. Additional information on the reconciliation is found in Section 7.2

### 3.2 Additional Operational Controls

Additional controls are owned by the Corporate and Strategic Purchasing Department at SNL/NM and the Procurement and Service Center Management Department at SNL/CA. These controls include a Just-in-Time purchasing contract with Matheson Tri-Gas for gas products, a site exemption to procure hazardous materials using a corporate procurement card (ProCard) expired 3/1/2007. An updated procurement process was introduced in 2/2007 to better control hazardous material procurement. The [BioReceiving](#) process, under redevelopment, manages biohazardous materials as they are ordered, received, barcoded and delivered to the customer. This redevelopment effort has been delayed due to the departure of the BioReceiving Redevelopment Lead, Susan Weekly, BioSafety Officer. The new BioReceiving process will be a component of the Biological Use Authorization (BUA) process owned by the BioSafety Program in the Health and Safety Department, 08517. It will be determined in 2009 how to proceed with this effort due to BioSafety program personnel changes.

In the early 1990's, an effort to improve the procurement process for low cost items, including hazardous materials, was introduced at SNL/CA. This process utilized the corporate procurement credit card that allowed select site personnel to directly order hazardous materials from suppliers. While this greatly streamlined the purchasing process of the low cost items, it relaxed a number of operational controls including the ES&H/Industrial Hygiene review of all hazardous materials purchase orders. A post receiving approval process was implemented through automatic e-mail notifications to Industrial Hygiene and other interested parties. This has provided adequate notification of all items newly received on-site and entered into the CIS database.

**Table 3-1 Technical Work Documents Applicable to the HMM Program**

<b>Title</b>	<b>Current Version</b>
ES&H Manual Section 6U Hazardous Material (Chemical and Biological) Inventory	12/11/2008
PHS SNL0A00433 Hazardous Material Management Program at SNL/CA	10/21/2008
AP800003 CIS/HMMP Inventory Procedures at SNL/CA	11/10/2008

## 4 Documents Produced

**Table 4-1 HMM Program Documents Produced**

Document	Due Date	Frequency of Submittal	Distribution	Purpose
EPCRA 302, 311 and 312 Reporting	March 1	Annual	DOE/NNSA/SSO, EPA, Alameda County CUPA and Alameda County Fire Dept. at LLNL	Regulatory requirement
EPCRA 313 Toxic Release Inventory (TRI) Form R	July 1	Annual	DOE/NNSA/SSO and EPA	Regulatory requirement
California Hazardous Material Business Plan	March 1	Annual	DOE/NNSA/SSO, EPA, Alameda County CUPA and Alameda County Fire Dept. at LLNL	Regulatory requirement
Chemicals New To Room Report	NA	Monthly	IH/Medical/HMMP	IES/Line Operations
Chemicals >= 55 Gallons Per Storage Room Report	NA	Quarterly	HMMP	IES Operations
Toxic Gas Report	NA	Quarterly	HMMP	IES Operations
Cyanide Report	NA	Quarterly	IH/Medical/HMMP	IES Operations
Expiration Date Report	NA	Quarterly	HMMP	IES Operations
EOC Emergency Response Report	NA	Monthly	Emergency Management/HMMP	IES Operations
SNL/CA Air Quality Chemical Received Report	NA	Monthly	Air Quality/HMMP	IES Operations
SNL/CA Bay Area Toxic Air Chemical Received Report	NA	Monthly	Air Quality/HMMP	IES Operations
SNL/CA Deuterium Inventory Report	NA	Monthly	SNM Management/HMMP	IES Operations
SNL/CA Deuterium RECEIVED Report	NA	Monthly	SNM Management/HMMP	IES Operations
SNL/CA Maintenance Adhesives Disposal Report	NA	Monthly	Air Quality/HMMP	IES Operations
SNL/CA Peroxide Report	NA	Monthly	HMMP	IES Operations
SNL/CA Solvent Disposal Report	NA	Monthly	Air Quality/HMMP	IES Operations
SNL/CA Weekly Disposal Report	NA	Weekly	HMMP	IES Operations
SNL/CA Weekly Purchase Report	NA	Weekly	IH/Security/HMMP	IES Operations

## **5 Approved Job Descriptions / Current Assignments**

### **5.1 Program Staffing**

The HMM Program personnel consists of the Program Lead, an HMM Technologist and one or two Summer Student Interns. A description and associated responsibilities for each position are described below. Current personnel assignments to these positions are found in Appendix A.

### **5.2 Program Lead**

The HMM Program Lead is responsible for managing and overseeing operations, administering permits, reporting requirements and developing special program activities as needed. The program lead also directs the activities of the HMM Technologist who in turn directs the activities of the Student Interns in the program. Primary duties include interpretation of technical/scientific requirements in federal and state laws, regulations, and orders as they apply to hazardous materials management practices; advises management, makes recommendations. Guides the development of hazardous materials management tools and procedures to ensure that these practices are in compliance with the appropriate statutes and regulations, and that regulatory reporting requirements are met. The Program Lead also supports other IES programs on hazardous materials management related activities. In support of these primary duties, the Program Lead sees that Line organizations have knowledge and the tools to effectively manage their hazardous materials. Additional activities include general hazardous material consultation for ES&H programs and the IES Interdisciplinary Team (IDT). The Program Lead also supports the Emergency Management (EM) Hazards Screening/Hazards Assessment Team and serves as the “Chemical Hazards SME” for the EM Program.

### **5.3 Program Technologist**

The HMM program efficiently collects and manages hazardous material information for the Line, regulators, DOE, and ES&H customers. This technologist provides assistance to customers, prepares regulatory compliance reports, performs data, Line and Program quality assurance and manages the Material Safety Data Sheets (MSDS). The HMM Technologist also serves as the lead in the annual chemical reconciliation, supervises student interns, and manages day-to-day operations for the HMM Program. An additional duty includes serving as a back-up for Emergency Spill Response Team in the Waste Management Program.

### **5.4 Student Intern**

The Student Intern position has three main components: hazardous material inventory reconciliation and data collection and data entry. During the lab and other field work, Student Interns work under the direct supervision of the HMM Technologist. During reconciliation they visit every hazardous material storage location and scan the barcodes on the hazardous materials containers, add barcodes and collect all relevant hazardous material data. The computer data entry portion involves entering data collected from the field and entered into the CIS. A

additional component of the position entails answering calls from customers, entering information from MSDSs, locating MSDSs, and analyzing and manipulating data.

## 6 Training and Competency

Student Interns must have a positive attitude and good oral and written communication skills. Prior experience in other service organizations is desired but not required. Interns must have experience working in a chemical laboratory environment and must be an independent and self-motivated worker. Additional required skills include general computer experience and high school chemistry coursework. Must have a GPA greater than 3.2.

**Table 6-1 HMMP Program Training Matrix**

Training Requirement	Training Method	Program Lead	Program Technologist	Student Intern
Advanced degree in chemistry or related physical/biological science	Graduate degree	O	O	N
Bachelor's degree in chemistry or related physical/biological science	Bachelor's degree	R	O	N
Associates of Arts/Science degree in chemistry or related physical/biological science	AA/AS degree	O	R	N
Hazardous Materials Manager Certification	HMM Certificate program	O	O	N
40-hr HAZWOPPER certified	Off-site classroom	R	R	N
FRP106 Fire Extinguisher Training Hands-on	SNL classroom	R	R	N
MED104CA Adult CPR and Automated External Defibrillator for Non-Medical Personnel	SNL classroom	R	R	N
MED113 Blood Borne Pathogens Training for Non-Medical Personnel	SNL classroom or on-line	R	R	N
ESH100 ES&H Awareness	SNL classroom or on-line	R	R	R
HAZ101 Employee Basic Hazard Communication Training	SNL classroom or on-line	R	R	R
HAZ103 Site Specific Hazard Communication Training	SNL classroom or on-line	R	R	R
RAD102 General Employee Radiological Training	SNL classroom or on-line	R	R	R
ENV190 Oil Spill Plan Awareness	SNL on-line	R	R	N
ENV191 Annual Site Specific Discharge Prevention Briefing	SNL classroom	R	R	N

R = required, O = Optional, N = Not Required

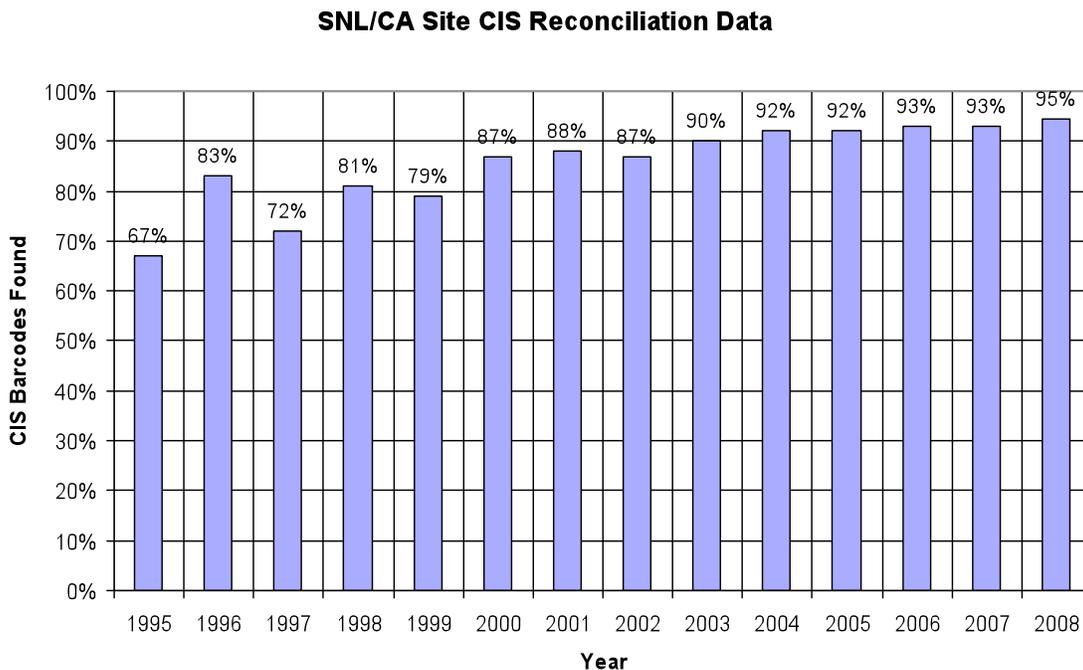
# 7 Performance Measures

## 7.1 Regulatory Reporting

Regulatory reporting will be completed as prescribed in Table 4-1 HMM Program Documents Produced.

## 7.2 Annual Hazardous Material Inventory Reconciliation “Found” rate

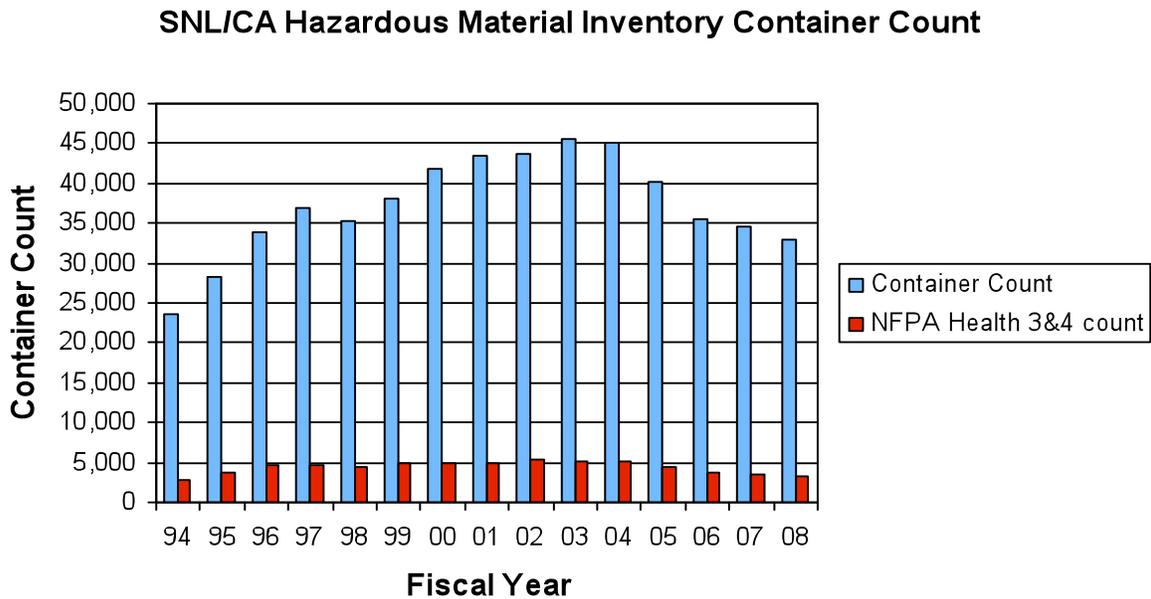
The annual hazardous material inventory reconciliation “found” rate performance target is greater than or equal to 90%. In 2008, the HMM Program achieved the highest reconciliation “found rate” of 95% in the ten years the HMM Program has been doing an annual hazardous material inventory reconciliation. This exceeds the corporate performance target (90%). Figure 7-1. illustrates the “found” rate performance over the last decade and shows steady progress toward a rate consistently in the low 90% range. Although improvement is desired, additional resources are needed (or redirecting existing resources) to increase Line education, increase data surveillance and improve site business processes to achieve improved results.



**Figure 7-1. Annual Hazardous Material Inventory Reconciliation “Found” Rate.**

### 7.3 Annual Hazardous Material Inventory Container Count

Figure 7-2. illustrates the total site hazardous material container count and the site container count of NFPA Health 3 & 4 rated materials. The general trend observed from the first site inventory in 1994 until 2002 was the increasing of the total container count. Some of the increase was due to the improvement of the inventory process to account for more containers but the majority of the increase was likely due to the implementation of the Waste Management chargeback. The chargeback process requires waste generators to directly pay a portion of the cost of disposal in an effort to encourage waste minimization. The chargeback likely resulted in excessive inventories as generators avoided disposal costs and waste generation by keeping unnecessary material in inventory. Thus, the chargeback works as a disincentive to reduce hazardous material inventory, essentially deferring waste disposal and requiring periodic campaigns to “right size” the hazardous material inventory.



**Figure 7-2. Annual Hazardous Material Inventory Container Count**

## **8 Quality Assurance**

### **8.1 Data and Reporting Quality Assurance**

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

- Online and hardcopy validation tools, screens and forms ensure that a standard process is followed for collection and management of inventory data.
- All data input is reviewed for accuracy after the input is complete.
- All regulatory lists are periodically reviewed and updated.
- Internal reports and documents are subjected to internal review and technical editing before finalizing.
- DOE/SSO, applicable SNL/CA staff and technical editor's review published reports before finalizing.

### **8.2 Annual Hazardous Material Inventory Reconciliation**

Summer reconciliation is a quality assurance process where a team of Student Interns is led by the HMM technologist.

- The reconciliation uses portable barcode readers to find all barcoded containers on-site.
- Reconciliation results are e-mailed to the location owners for verification.
- Location ownership is verified with the annual reconciliation.

### **8.3 Additional Assurance Activities**

- Requested ad hoc reconciliations/transfers of hazardous material inventory are performed to assure data quality.
- Ad Hoc e-mail notification is provided to inform the resigning, retiring, or terminated employee's manager that that person was or has been responsible for specific locations and/or hazardous materials. This ensures that the ownership of inventory is up-to-date.

### **8.4 Program Risk Assessment**

In January 2009, the HMM Program updated a risk assessment (Appendix B) as part of the decision making process to determine the appropriate level of formality required for Program activities and identified seven potential risks related to program activities. Table 6 lists each risk and the calculated risk category. The overall risk for HMM Program issues were determined to be medium. Measures taken by the HMM Program to mitigate this risk are 1) routine HMM personnel training, 2) maintaining operational controls, 3) improve processes and systems (CIS) and 4) Line training.

**Table 8-1 Hazardous Materials Management Program Risks 2008**

<b>Risk #</b>	<b>Risk</b>	<b>Overall Risk Category</b>
1	Hazardous materials not being tracked in CIS	low
2	Aging chemicals or containers	medium
3	Hazardous materials misidentified in CIS	low
4	Storage incompatibility	medium
5	Excess inventory	medium
6	Site-wide Earthquake Induced Spill or Accident	low
7	Reduction of program funding by 10%	medium
8	Regulatory Noncompliance	low

For the low risk category for Risk 1, the hazardous materials not being tracked are usually the result of local procurement and site personnel not obtaining a barcode for the container. The risk is minimized by the summer inventory reconciliation, additional Line training of their barcoding responsibilities and tighter procurement controls restricting local purchasing.

In response to the medium risk category for Risk 2, the risk is minimized by the inventory reduction campaigns and targeted chemical safety surveillance of the peroxidizable/autopolymerizable materials.

For the low risk category for Risk 3, updating incorrect data as it is observed minimizes the risk.

For the medium risk category for Risk 4, correcting problems observed during a variety of Line assessment processes minimizes the risk.

For the medium risk category for Risk 5, the risk mitigation is addressed by an explicit EMS goal for 2007.

For the low risk category for Risk 6, the risk is minimized by correcting problems observed during a variety of Line assessment processes and through inventory reduction.

For the medium risk category for Risk 7, the risk is minimized by a review of program activities that could be streamlined. A 10% reduction in program funding would result in decreased staffing, training, and purchases. Only those program activities that are required by regulation, Sandia policy, technical work documents, or DOE/NNSA would be conducted. Discretionary training and travel for program staff would be eliminated. Purchases for replacement equipment and equipment repair would be reduced. A reduction in Line training and support would occur.

For the low risk category for Risk 8, a recent example of this is the unreported Lead Acid Batteries in UPSs and equipment battery banks because they were not being tracked in 2007. This was the result of mischaracterizing these batteries as non-reportable (exempted) articles. Now that these batteries are in CIS, the risk of underreporting is minimized.

## **8.5 Quality Significant Purchases Determination**

A Quality Significant Purchases Determination, Appendix C, has been completed in accordance with the Environmental Management Quality Assurance Program Plan. The HMM Program does not have any quality significant items.

# **9 Program Assessments**

## **9.1 Follow-up on the 2008 Program Self-Assessment**

The 2008 Program Self Assessment identified issues with Line under-compliance with requirements and HMM Program documents out-of-date. The early FY2009 Program Self Assessment showed considerable improvement in up-to-date documentation. Line under-compliance continues to be identified in EP Rep. Assessments and site Management Self Assessments. Activities in 2008 included additional training for the Line as new procedures were introduced due to corrective actions at SNL/NM.

## **9.2 FY 2009 Program Self-Assessment**

The early FY 2009 HMM program self-assessment was completed in November 2008. The program self-assessment is included in Appendix D. The assessment resulted in an Observation for the inventory management in building 968 and the Hazardous Material Business Plan documentation, a Noteworthy Practice for the Gas Cylinder Reduction Process, and an Acceptable Practice for program documentation.

## **9.3 Line Performance Assessment**

The Line Performance Assessment focused on inventory activities in building 968. No findings were identified during this Line performance self-assessment but one Observation was recorded. Due to the unusual nature of the workflow in the biological laboratories in building 968, the HMMP team should continue to work with the ES&H Coordinator/Building Manager for building 968 to help streamline and improve the inventory and reconciliation processes. In addition, the HMMP team will need to monitor the SNL/CA site inventory on a monthly basis for changes in the HMBP to meet reporting requirements.

## **9.4 Environmental Programs Representative Assessment**

The year-round Environmental Programs Representative (EP Rep.) assessment led by the Division 8000 EP Rep. at Sandia/CA, Deanna Dicker, reports issues to the Hazardous Material Management Program Lead. If necessary, Line Self-Assessment findings are issues. See section 9.5 for the findings HMM program findings issued since they are not reported separately.

## 9.5 Corporate Line Self Assessment

The year-round corporate Line self assessment team led by the 8000 Division ES&H Coordinator at Sandia/CA issued 5 HMM program related findings for missing barcodes on hazardous material containers. These findings were all resolved by barcoding the containers soon after the finding were issued. Missing barcodes are typically the result of items purchased and brought on-site by the Line and the owner fails to notify the HMMP that the item needs barcoding. This problem has been minimized by additional training of the Line on the requirements specified in the ES&H Manual Section 6U "Hazardous Material (Chemical and Biological) Inventory".

## 10 Accomplishments

### 10.1 System Upgrades

The HMM Program continues to actively update or enhance the CIS as needed. During 2008, the major upgrade to CIS was the integration of the Chemical Exchange Program (CEP). This provides the Pollution Prevention with a effective, sustainable solution to implement the Chemical Exchange Program.

### 10.2 Inventory Reconciliation

The HMM Program performs an annual hazardous material inventory reconciliation during the Summer months. In 2008, the HMM program team surpassed the highest "found rate" with a 95% rate. This exceeds the corporate performance target (90%). Hazardous material inventory process improvements, part of other goals, should result in a gradual improvement in the "found rate". Therefore, no specific tasks are proposed to increase the "found rate" and the performance target (90%) remained the same in 2008.

### 10.3 Inventory Reduction

After nearly a year of effort to reduce the number of gas cylinders on-site the SNL/CA site exceeded the site-wide EMS reduction target (10%) with a **12% reduction** of gas cylinders on 10/1/2008. This inventory reduction effort was designed to reduce the number of cylinders at the request of the JIT gas vendor Matheson-TriGas. It also reduced some of the most hazardous materials on-site, toxic gases.

### 10.4 Emergency Management - Hazards Survey & EPHA

A Hazards Survey compliant with DOE O 151.1C was conducted by AlphaTRAC for the SNL/CA Emergency Management Program during the summer of 2008. This effort was supported by the HMM Program through site tours and data reviews. The Hazards Survey indicated the only two area of concern that require Emergency Planning Hazards Assessments (EPHAs) are 961/9611 and 968 to further assess the hazards of concern to the Emergency Management Program. In 2008, the HMM program continued to support the Emergency

Planning Hazards Assessments lead by the Emergency Management Program and their contractor AlphaTRAC.

## **11 Issues**

### **11.1 Line Housekeeping Issues**

The most significant program issue falls in the general category of Line chemical storage housekeeping. General housekeeping issues continue to be the focus in the DOE initiative started several years ago on Unneeded Materials and Chemicals. At SNL/CA, some Line chemical storage locations are kept in good condition. However, some are neglected and overstocked with unneeded and often unusable materials. Some of the neglected locations also include hazards such as Black Widow spiders, rodent feces and excess equipment that add significant personnel safety issues and operational inefficiencies.

## **12 Trends**

### **12.1 Opportunities**

The HMM Program's greatest advancement opportunity came from the implementation of the modernized CIS software. In 12/2004 the team introduced a robust set of tools in the new CIS software that allow for much greater effectiveness in the management of the hazardous material inventory. These tools also provide an unprecedented opportunity to gather information about the inventory. This information can be used principally by the ES&H Subject Matter Experts (SMEs) to manage their programs more effectively. One example of this is the Emergency Planning Community Right-to-Know Toxic Release Inventory (TRI) reporting. The CIS can provide information so effectively that the effort to prepare the TRI report is extensively reduced saving tens of thousands of dollars per year. Hazards assessments can also be done in a fraction of time saving resources. The Line can more effectively access their inventory and associated material safety data to minimize purchasing and waste disposal costs while reducing personnel potential exposure to hazardous chemicals. To take advantage of these opportunities addition training needs to be provided to the Line and ES&H SMEs. Only when personnel see the tools available to them will they begin to take advantage of the innovation inherent in the new CIS. The CIS continues to be upgraded with additional features and bug fixes.

### **12.2 Political/Regulatory/Legal Trends**

Prior to 9/11/2001, hazardous material inventories were considered necessary for operations and regulatory reporting. However, post 9/11/2001, there has been a renewed interest in the importance of hazardous material inventories especially from the risk of hazardous material related terrorism. The concern of misused hazardous materials also is focused on drug and drug precursor materials with new regulations complicating the purchasing process of some materials. The DOE is especially concerned in the area of Hazards Surveys and Hazards Assessments for

Emergency Management programs and the health affects of hazardous materials such as beryllium and NFPA Health 3 and 4 rated material. DOE at various levels from DOE HQ to DOE/NNSA/SSO have begun to raise the concern that chemical management throughout the DOE complex needs to be improved to meet operational needs and Emergency Management planning requirements. Sandia is addressing these concerns through an Issues Management Team at SNL/NM focused on chemical management. This resulted in a variety of improvements to CIS in 2008.

### **12.3 Vulnerabilities/Failures**

The success of hazardous material inventory management at SNL/CA depends on hundreds of personnel performing a variety of tasks to maintain the required accuracy of the information. This is an ongoing struggle because inventory management is not the primary activity of Line personnel. Hazardous materials that are consumer commodities are routinely purchased from local stores and brought on-site. Since these items do not go through receiving, the Line is required to notify the HMM program for barcoding service. The Line frequently fails to notify the HMM program when they purchase these items, however, the containers are barcoded when they are found in the summer reconciliation. Ongoing effective training and monitoring of the data is required to maintain the desired data quality objectives of the information. A variety of improvements to CIS were implemented in 2007 addressing some of these vulnerabilities and system failures and better inventory accuracy in 2008 suggests that these changes were effective.

### **12.4 Funding Projections**

ES&H general funding projections for FY 2009 are for zero baseline increase and zero increase for inflation. As labor costs increase, a shortfall is likely. The HMM program has no independent budget but is funded by a matrix of funding sources with primary funding coming from the Industrial Hygiene budget (~ 1.25 FTE). Significant secondary funding comes from the Waste Management Program (~ 0.25 FTE). Additional minor funding (0.1 FTE) is provided from the SNL/NM CIS Program for technical support.

No significant purchases are required apart from minor desktop software upgrades for Calendar Year 2008. Travel and training costs are usually minimal at < \$6,000 per year.

The Alameda County Department of Environmental Health, the site Certified Unified Program Agency (CUPA), annually bills Sandia ~\$35,000 on or about September 1. This fee is based on the amount of hazardous materials reported on the Business Plan submitted by SNL/CA in the preceding February. The funds for this bill have come from the HMM portion of the Industrial Hygiene budget.

## **13 Goals and Objectives**

The HMM Program is subject to internal goals and objectives established by Sandia's Integrated Enabling Services Strategic Management Unit and by SNL/CA's EMS Program.

The primary goal of the HMM Program is to ensure safe and effective hazardous materials inventory management at Sandia/CA. This is done by efficiently collecting and managing hazardous material information for our customers who include Line, regulators, DOE and ES&H programs to ensure compliance with regulations and to streamline customer business processes that require hazardous material information.

### **13.1 General Environmental Management EMS Objectives and Targets**

#### **FY2009 SNL/CA Environmental Objectives - Targets**

(Reviewed by EMS Core Team on 8/19/08)

(Reviewed by EMS Advisory Committee on 9/17/08)

(Approved by SHEAC on 10/30/08)

#### **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 audits.
- Receive no more than 2 minor non conformances as a result of ISO14001 certification audits.
- Receive no Notices of Violation (NOVs) 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).
- Maintain a level of environmentally-related outreach activities at 4 per month (total of 48/FY).
- By the end of FY2010 achieve a 20% increase in the EMS awareness survey average score from an FY2008 baseline.

### **13.2 Hazardous Materials Management Specific EMS Objectives and Targets**

#### **Hazardous Material.....**

Objective: Minimize the use of hazardous material.

#### **Targets:**

- Maintain an annual overall Chemical Information System reconciliation of >94%.
- Maintain an annual Chemical Information System reconciliation of 100% for the NFPA 704 health hazard rated 4 materials greater than 10% of laboratory scale quantities (4 lbs solid, 0.5 gal liquid, 1 lb gas).

## Appendix A. Personnel Assignments

<b>Job Assignment</b>	<b>Personnel</b>	<b>Back-Up</b>
Program Lead	Mark Brynildson	Robert Holland/Randy Castillo
Program Technologist	Susie Ayers	Pam Irish
Student Intern	None assigned	None assigned

# Appendix B. Hazardous Materials Management Program Risk Assessment

## Hazardous Materials Management Program Risk Assessment (Jan 2009)

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

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

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

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

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

<b>Medium</b>	<ul style="list-style-type: none"> <li>• Has the potential for adverse impact on Sandia’s programmatic performance or the achievement of corporate strategic or operational objectives</li> <li>• Significant injury/illness -fully recoverable with a long recovery time</li> <li>• Significant environmental impact resulting in recovery actions lasting up to 5 years (e.g., major oil spill)</li> <li>• Results in Site/Area Emergency (affects multiple onsite facilities)</li> <li>• One of regulator “hot buttons” (e.g., NNSA, NMED)</li> <li>• Results in increased oversight of limited number of functions</li> <li>• Actions, inactions, or events that pose threats to DOE security interests or that potentially degrade the overall effectiveness of DOE’s safeguards and security protection program (i.e., IMI-3) †</li> <li>• Unallowable costs or fines &gt;\$500K and &lt;\$1M</li> <li>• Adverse public opinion – moderate interest, limited PR problems of short duration (days)</li> <li>• Customer dissatisfaction results in partial loss of program</li> <li>• Significant failure to meet internal requirements</li> <li>• Loss of program within division (&gt;\$1M)</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>• Minimal injury/illness – Fully recoverable with a short recovery time</li> <li>• Minimal environmental impact that can be improved within days</li> <li>• Results in increased short-term oversight</li> <li>• Results in an Operational Emergency (affects a single onsite facility)</li> <li>• Actions, inactions, or events that could pose threats to DOE by adversely impacting the ability of organizations to protect DOE safeguards and security interests (i.e., IMI-4) †</li> <li>• Unallowable costs or fines &lt;\$500K</li> <li>• Adverse public opinion with short-term local negative publicity or embarrassment</li> </ul>
<b>Negligible</b>	<ul style="list-style-type: none"> <li>• Little or no attention, might be discussed as lesson learned</li> </ul>

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

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

## Identified Risks Associated with the Hazardous Materials Management Program

1. Hazardous materials not being tracked in CIS
2. Aging chemicals or containers
3. Hazardous materials misidentified in CIS
4. Storage compatibility
5. Excess Inventory
6. Site-wide Earthquake Induced Spill or Accident
7. Reduction in Program Funding by 10%
8. Regulatory Noncompliance

### 1. Hazardous materials not being tracked in CIS

#### a. Identification of Risk

There are two methods whereby hazardous materials may come on-site and not be entered into the CIS database. These are 1) hazardous materials are purchased off-site and hand-carried on-site by the purchaser, and 2) hazardous materials arriving at shipping and receiving are not clearly marked as such, and are thus delivered directly to the customer's location.

#### b. Probability of Occurrence

The probability is low for high risk items (higher hazard), since these items can not usually be purchased at local retailers. Higher hazard items are also usually clearly identified on shipping containers. The probability for low hazard materials is fairly significant, since not all members of the workforce are aware of the universe of materials tracked by CIS. Therefore, the overall probability is graded as **LOW**.

#### c. Consequence of Occurrence

If materials are not included in CIS, it is possible that they will be stored in areas not authorized for that material. Another risk is the exceedances of the safety envelop for a specific location. This could result in a change to emergency response protocols for that facility. The consequence is graded as **LOW**.

#### d. Overall Risk Category

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

## 2. Aging chemicals or containers

### a. Identification of Risk

Some chemicals become unstable with age. Examples are chemicals such as ethers that form explosive peroxides with aging.

Certain chemical containers deteriorate with age, causing a spill hazard.

### b. Probability of Occurrence

The Hazardous Materials Management Program tracks the age of chemicals that form explosive compounds with age. Notices are sent to owners reminding them to remove such chemicals before they become a hazard. Approximately 20 containers per year are dealt with in this fashion.

Deteriorating containers are minimized through the efforts of the Hazardous Materials Management Program to minimize old, unused chemicals on-site.

These processes are partially manual, in that although the CIS can generate reports on age of chemicals, Hazardous Materials Management Program personnel must then manually send notices to the owners.

The probability of this risk is graded as **MEDIUM**.

### c. Consequence of Occurrence

Aging chemicals pose a potential explosion or spill hazard. Consequences of an explosion or spill are mitigated by the fact that only small containers are typically purchased, and that they are stored in appropriate locations. The consequence is graded as **LOW**.

### d. Overall Risk Category

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

## 3. Hazardous materials misidentified in CIS

### a. Identification of Risk

Chemicals are occasionally found to be misidentified in CIS. Usually the misidentification occurs when the CIS bar-code label is attached to the chemical bottle (e.g. the bar code label for a different bottle is accidentally attached).

**b. Probability of Occurrence**

A few containers per year are found to be misidentified; therefore the probability is graded as **LOW**.

**c. Consequence of Occurrence**

Misidentification in CIS does not imply that the user is not aware of the true identity of the chemical. However, the CIS database will be incorrect until the item is caught and corrected. This can lead to improper storage or the exceedances of safety envelopes, as noted above in item 1.

The consequence of this is graded as **LOW**.

**d. Overall Risk Category**

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

**4. Storage incompatibility**

**a. Identification of Risk**

Given the large number of chemicals on-site, there is a risk of incompatible chemicals being stored in proximity to each other.

**b. Probability of Occurrence**

During the reconciliation process, it has been determined that although most chemicals on-site are stored properly, a few problems can be found in most areas where large numbers of chemicals are stored. The probability is graded as **MEDIUM**.

**c. Consequence of Occurrence**

Only small quantities of the most hazardous materials are purchased and stored. Storage within chemical sheds, or other types of secondary containment serves to minimize the amount of incompatible materials subject to mixing. The consequence is graded as **LOW**.

**d. Overall Risk Category**

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

**5. Excess Inventory**

**a. Identification of Risk**

If the inventory of certain hazardous materials exceeds a regulatory threshold, SNL/CA would be required to prepare and implement an Emergency Management Program. Also, excess inventory poses an increased risk during an accidental release to personnel and the environment. Periodic surveillance of the inventory for chemical safety concerns such as explosive forming peroxidizables and autopolymerizable materials minimizes this higher risk inventory. Annual reconciliation of the inventory provides a review of the general condition of all containers and the storage conditions of these materials to minimize the risk of container failure and incompatible storage.

**b. Probability of Occurrence**

Given that the nature of SNL/CA's business entails the use of some extremely hazardous materials, and given the very low thresholds of some of these materials for requiring an Emergency Management Hazards Assessment, the probability of being required to prepare and implement an Emergency Management Hazardous Materials Program is considered to be High. Chemical safety issues relating to improper storage or the accidental release of hazardous materials impacting personnel and/or the environment from excess inventory is also considered to have a **HIGH** probability of occurrence.

**c. Consequence of Occurrence**

The preparation and implementation of a site-wide Emergency Management Hazardous Materials Program would very likely entail costs in the range of several hundred thousand dollars per year. These costs would be primarily borne by the Site Operations Center, since most of the activities would be carried out by the Security Operations Department and the ES&H departments. This cost would be less than 5% of the Site Operations budget (\$42.6 million in 2005), so the consequence assigned is **LOW**.

**d. Overall Risk Category**

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

**6. Site-wide Earthquake Induced Spill or Accident**

**a. Identification of Risk**

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

**b. Probability of Occurrence**

Given the recent history, the probability of occurrence is considered **Low** that an earthquake of sizable magnitude will occur affecting SNL/CA at some time during

the lifetime of the SNL/CA facility. A moderate earthquake in 1981 cause significant damage to SNL/CA include minor chemical spillage.

**c. Consequence of Occurrence**

SNL/CA would be responsible for the on-site clean-up and cost of waste disposal. A post cleanup inventory reconciliation would be required to verify the accuracy of the remaining inventory costing about \$50k would be required. It is assumed that the dollar amount of the SNL/CA liability would be less than 1% of the SNL/CA annual operating budget (\$310 million in FY 2008), therefore the consequence is **Low**.

**d. Overall Risk Category**

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

**7. Reduction in Program Funding by 10%**

**a. Identification of Risk**

SNL/CA is experiencing pressure to reduce expenses for indirect-funded and direct-funded organizations, including Environmental Management. Because the majority of Waste Management Program expenditures are for labor, a 10% reduction in funding would impact staffing. A reduction in staffing would result in a reduced level of service to line organizations.

**b. Probability of Occurrence**

Increasing constraints on site budgets is expected to continue for the next several years. Consequently the probability that funding for the Hazardous Materials Management Program will decrease by 10% from FY 2008 levels is **Medium**.

**c. Consequence of Occurrence**

A 10% reduction in program funding would result in decreased staffing, training, and purchases. Only those program activities that are required by regulation, Sandia policy, technical work documents, or DOE/NNSA would be conducted. Discretionary training and travel for program staff would be eliminated. Purchases for replacement equipment and equipment repair would be reduced. A reduction in Line training and support would occur.

An occurrence could occur as a result Line under compliance and documentation inaccuracies. For these reasons, the consequence of a 10% reduction in program funding is identified as **Medium**.

**d. Overall Risk Category**

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

## **8. Regulatory Noncompliance**

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

The Hazardous Material Management Program was identified during a November 2007 Lockheed Martin ES&H Assessment to be under reporting Lead Acid Batteries in the annual EPCRA 312 reports. This situation has been corrected by the inclusion of UPS and equipment Lead Acid Batteries in CIS. This information is now be reported correctly in future EPCRA 312 reports beginning in CY2007. The remaining identified risk is related to the potential fines and negative publicity.

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

The probability of an EPA or Alameda County audit resulting in a fine and/or negative publicity is **Low**.

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

The consequence of a fine and/or negative publicity would likely be an “Unallowable cost or fine <\$500K” and the “adverse pubic opinion would be short-term local negative publicity or embarrassment”. Therefore, the consequence is identified as **Low**.

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

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

# Appendix C. Hazardous Materials Management Quality Significant Purchases Determination



**Sandia National Laboratories**

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

*date:* March 24, 2006

*to:* Gary Shamber, 8516  
Manager, Environmental Management Department

*from:* Mark Brynildson, 8516  
Hazardous Material Management Program Lead

*subject:* Quality Significant Purchases

1. Program title: Hazardous Material Management Program

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

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

- PPE
- Communication devices (phones & pagers)
- Barcodes and Barcode Scanners
- CIS database
- Desktop computers and printers

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

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

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

5. Determination on quality significant items: The Hazardous Material Management Program does not have any quality significant items.

6. Determination on S/CI concerns/issues: The Hazardous Material Management Program does not have items that have the potential for suspect/counterfeit items that would be of a concern to the program.

# Appendix D. Hazardous Materials Management Program Self Assessment

Self Assessment Report

Assessment ID: 5371

## EMS Hazardous Material Management FY09

### *Assessment Information*

ID: 5371  
Title: EMS Hazardous Material Management FY09  
Description: EMS Hazardous Material Management assessment for FY09.  
Originating Mgt. Entity: Division » 8000 California Laboratory  
Assessing Organization: 08516      Manager: SHAMBER,GARY W.      Division: 08000  
Org Being Assessed: 08000      Manager: HOMMERT,PAUL J.      Division: 08000  
Type: Line Assess the Line  
Status: Conducted  
Dates: 10/01/2008 - 12/18/2008

### Section 1 *Executive Summary*

#### 1.1 Who/What was assessed

The Hazardous Material Management Program 2008 Assessment focused on the Chemical Safety and Lifecycle Management (CLMS) requirements and guidelines including the inventorying reduction campaign.

#### 1.2 Overview of Scope

The assessment included reviewing the Hazardous Material Business Plan (HMBP), the inventorying management of building 968, and the 2008 Gas Cylinder reduction process. The staff also conducted a Programmatic Document Review.

#### 1.3 Why Assessment was performed

This was the annual EMS Hazardous Materials Management Program self-assessment.

#### 1.4 The Assessment resulted in the following:

- 0 Significant Finding(s)
- 0 Minor Finding(s)
- 2 Observation(s)
- 1 Noteworthy Practice(s)
- 1 None - Acceptable Practice(s)

The assessment resulted in an observation for the inventory management in building 968 and the Hazardous Material Business Plan documentation, a Noteworthy Practice for the Gas Cylinder Reduction Process, and an Acceptable Practice for Program documentation.

#### 1.5 What happens next

The HMMP team should work with the ES&H coordinator/Building Manager for building 968 to help streamline and improve the inventory and reconciliation processes. In addition, the HMMP team will need to monitor the SNL/CA site inventory on a monthly basis for changes in the HMBP.

#### 1.6 Who to contact if there are questions

Susie Ayers  
Mark Brynildson

### *Section 2 Introduction*

#### 2.1 Background

Not Specified

#### 2.2 Purpose of assessment

To assess the SNL/CA Chemical Safety and Lifecycle Management (CSLM) requirements and guidelines designed to manage inventory management and regulatory compliance.

#### 2.3 Location(s) Assessed

None

#### 2.4 Planning Documents Reviewed

PHS  
TWD  
Paper Checklists

Training Records

## 2.5 Scope/Criteria

ES&H » Industrial Hygiene » Chemical Information System  
ES&H » Industrial Hygiene » Chemical Barcoding & Inventory  
ES&H » Environmental Protection » Environmental Management System

## 2.6 Associated Document Link(s)

None

### Section 3 Assessment Performance

#### 3.1 Assessment Team Members

Name	Org.	Role
AYERS,SUSANNE L.	08516	Lead Assessor
BARNES,BRENT DAVID	08518	Creator
BRYNILDSON,MARK E.	08516	POC Assessed

#### 3.2 Personnel Interviewed

Name	Org.	Responsibility	Date	Phone
VOLPONI,JOANNE V.	08621		11/13/2008	
MARKEL,MARCI L.	08624		11/18/2008	
WANG,YING-CHIH	08621		11/25/2008	
KAISER,JULIA N.	08621		11/18/2008	
KOZINA,CAROL L.	08621		11/19/2008	

#### 3.3 Documents Reviewed

Document	Number	Description	Revision	Type	Date of Review
ES&H Manual Section 10J	MS471001	Registering, Naming, a and Labeling bulk storage tanks		Document	10/21/2008

ES&H Manual Section 6U	MS471001	ES&H Manual SECTION 6U - HAZARDOUS MATERIAL (CHEMICAL AND BIOLOGICAL) INVENTORY	G		10/21/2008
CIS Forms		CIS Forms		Forms	10/21/2008
CIS Homepage		CIS Webpages	1.0.36	Webpage	10/21/2008
Hazardous Material Management Program webpages		Hazardous Material Management Program webpages	10/21/2008	Webpage	10/21/2008
Hazardous Material Management Program at SNL/CA	SNLOA00433- PHS 012			PHS	10/21/2008
CIS/HMMP Procedures	AP800003	CIS/HMMP procedures for reconciliation, highly hazardous materials, & daily inventory	B	ap	11/10/2008
Quarterly Fire Run Card Hazardous Material Review	OP471758	Quarterly Fire Run Card Hazardous Materials Review	D	OP	10/21/2008

### 3.4 Definitions

Finding: A statement of fact based on objective evidence documenting an act or condition that does not meet requirements, policies, or procedures required by law, a regulatory agency, DOE, Sandia CPR, or a formally-invoked, site-specific, standard.

Significant Finding: From self-assessments, any Finding that rate High or Medium in risk level (probability of occurrence and consequence criteria per the Risk Management process) and requires formal causal analysis, corrective action planning, verification, and entry into the Corporate CATS application.

Minor Finding: Any Finding from self-assessments that rate Low in risk level (probability of occurrence and consequence criteria per the Risk Management process).

Observation: A statement of fact based on objective evidence documenting an act or condition that does not violate a requirement but may need improvement.

Noteworthy Practice: A process or condition indicating exceptional or innovative policy, practice, or performance.

None - Acceptable Practice: A process or condition with no observed problems.

#### *Section 4 Significant Findings*

This Assessment resulted in 0 Significant Finding(s).

#### *Section 5 Minor Findings*

This Assessment resulted in 0 Minor Finding(s).

#### *Section 6 Observations*

This Assessment resulted in 2 Observation(s).

### **Observation No. 1**

Upon completion of the 2008 Annual CIS Reconciliation, the building with the lowest accuracy percent was 968. Over the past two years, this building has had a building accuracy of 89%. HMMP has implemented several changes to building 968 in the hope of improving the overall inventory accuracy for this building. Changes included turning off the incoming chemical verification, creating more sub-locations, exempting certain materials from requiring a barcode, creating static barcodes for the exempted materials, and sending the Line's manager reconciliation e-mail notifications. The Line has felt that the barcode exemption has been a great improvement but that it does not solve all of the problems. HMMP has tried to minimize the problems with inventorying the freezers and requesting that the Line participates by using dry ice to help keep the containers frozen. However, this does not resolve the issues with barcodes falling off the containers, becoming lost, and not being removed out of CIS. Along

with the freezers being disorganized, over packed, and stored with containers from researchers who no longer work at Sandia. Additionally, the Line feels that CIS is being under utilized because the limited the access to CIS and barcode scanners since materials move frequently from lab to lab. To help improve the inventory accuracy for this building 1) the Line will need to respond to the reconciliation email notifications; 2) the access to CIS and/or a barcode scanner should be available in every location; 3) the incoming chemical verification could be turned back on; 4) a solution needs to be found to help prevent barcodes from falling off in the freezers; 5) the freezers need to be cleaned and organized to help make inventorying easier; 6) HMMP could provide more training to new employees.

Trending Code: Work Processes

Result Location(s):

Site - Area	Building/Structure	Room	Other
California	968		n/a

Result Criterion: ES&H » Industrial Hygiene » Chemical Barcoding & Inventory

Result Associated Document Link(s)

None

## Observation No. 2

The Hazardous Materials Business Plan (HMBP) is a state required document that contains detailed information on the storage of hazardous materials at a facility. The HMBP provides basic information for use by first responders and satisfies federal and state Community Right-To-Know laws. A facility must complete a HMBP, if it handles or uses a hazardous material or mixture containing a hazardous material that has a quantity at any one time during the reporting year equal to or greater than 55 gallons, 500 pounds, or 200 cubic feet. A facility must revise and submit the revision of the hazardous material inventory form within 30 days if the quantity of previously disclosed material increases 100% or more; a previously undisclosed material is at or above the reporting thresholds; the facility changes address; the facility ownership changes; or a change in the business name. In addition, a facility must submit the HMBP certification form annually on or before March 1 and review the entire HMBP every three years. Currently, HMMP reviews the CIS inventory and submits the HMBP annually to the Alameda County's CUPA by March 1 of every calendar year. The business plan includes 1) Business Owner/Property Owner information; 2) Emergency Response plan; 3) Record Keeping & Training record information; 4) Underground Storage Tank information; 5) Onsite Hazardous Waste treatment information; 6) Site Map; 7) Hazardous Material Inventory Forms (one page per material per building that exceeds threshold); 8) SNL/CA Fire Run Cards; 9) Tier II report. Additionally, Alameda County's CUPA has requested that the CalARP report be included into the HMBP. In reviewing the entire HMBP and submitting it annually, HMMP has not been reviewing the inventory monthly to determine if a reported hazardous material has increased 100% or more; if a hazardous material has dropped below the threshold reporting limit; or if a new hazardous material has exceeded the threshold reporting limit. HMMP will have to monitor the inventory on a monthly basis to determine if any revisions need to be completed and submitted.

Trending Code: Documents and Records

Result Location(s):

None

Result Criterion: ES&H » Industrial Hygiene » Chemical Information System

Result Associated Document Link(s)

None

### Section 7 *Noteworthy Practices*

This Assessment resulted in 1 Noteworthy Practice(s).

#### Noteworthy Practice No. 1

The Hazardous Material Management EMS Target for FY08 was to reduce the SNL/CA gas cylinder inventory by 10%. Even with four straight years of implementing a reduction effort onsite, the HMMP successfully reduced the gas cylinder inventory by 12%. This success was contributed to the efforts made by the HMM and Waste Management Programs as well as the support from our JIT gas Vendor, Matheson-TriGas, the Line and several ES&H Coordinators. Fortunately, many of the gas cylinders were returned to Matheson-TriGas without a disposal fee. Without disposal fees associated with returnable gas cylinders, the Line was more receptive in reviewing and reducing their inventory. Additionally, the ES&H coordinators showed great support by helping the Line and coordinating the pickup of gas cylinders. During the gas cylinder campaign, the HMMP program identified one issue. The JIT gas vendor's delivery/pick-up driver routinely does not look for gas cylinders that are ready to be picked up unless a request has been made. To help avoid unwanted or unneeded gas cylinders from accumulating onsite, the Line should be reminded to periodically review their inventory and submit pickup requests to the JIT vendor.

Result Location(s):

None

Result Criterion: ES&H » Industrial Hygiene » Chemical Information System

Result Associated Document Link(s)

None

### Section 8 *None - Acceptable Practices*

This Assessment resulted in 1 None - Acceptable Practice(s).

#### None - Acceptable Practice No. 1

The Hazardous Materials Management Program documents (PHS, administrative procedure, operating procedure, forms, web pages, and ES&H Manual Section 6U, 10J) have been reviewed and updated as needed. The ES&H Manual section 6U Hazardous Material (Chemical and Biological) Inventory was reviewed and updated in October 2008. The updated document states the updated requirements of the chemical inventory responsibilities. These requirements include the rotation of stock, limiting chemical inventory quantities to what is required for the process, and avoiding excess ordering. In addition, updates were made in all the sections of

this document. The updates better define the requirements of the chemical inventory process. In addition, HMMP was updated in October 2008. The updated document describes the day-to-day barcoding process as well as the NFPA HH rated 4 requirements for SNL/CA.

## Section 9 Improvement Action Details

### Observation No. 1

Upon completion of the 2008 Annual CIS Reconciliation, the building with the lowest accuracy percent was 968. Over the past two years, this building has had a building accuracy of 89%. HMMP has implemented several changes to building 968 in the hope of improving the overall inventory accuracy for this building. Changes included turning off the incoming chemical verification, creating more sub-locations, exempting certain materials from requiring a barcode, creating static barcodes for the exempted materials, and sending the Line's manager reconciliation e-mail notifications. The Line has felt that the barcode exemption has been a great improvement but that it does not solve all of the problems. HMMP has tried to minimize the problems with inventorying the freezers and requesting that the Line participates by using dry ice to help keep the containers frozen. However, this does not resolve the issues with barcodes falling off the containers, becoming lost, and not being removed out of CIS. Along with the freezers being disorganized, over packed, and stored with containers from researchers who no longer work at Sandia. Additionally, the Line feels that CIS is being under utilized because the limited the access to CIS and barcode scanners since materials move frequently from lab to lab. To help improve the inventory accuracy for this building 1) the Line will need to respond to the reconciliation email notifications; 2) the access to CIS and/or a barcode scanner should be available in every location; 3) the incoming chemical verification could be turned back on; 4) a solution needs to be found to help prevent barcodes from falling off in the freezers; 5) the freezers need to be cleaned and organized to help make inventorying easier; 6) HMMP could provide more training to new employees.

Result Criterion: ES&H » Industrial Hygiene » Chemical Barcoding & Inventory

Organization Being Assessed:

Org: 08000    Manager: HOMMERT,PAUL J.    Division: 08000

IA No: 5371-O1-IA1

IA Type: None

Justification: The HMMP team should work with the ES&H coordinator/Building Manager for building 968 to help streamline and improve the inventory and reconciliation processes.

Comments: None

IA Associated Document Link(s):

None

### Observation No. 2

The Hazardous Materials Business Plan (HMBP) is a state required document that contains detailed information on the storage of hazardous materials at a facility. The HMBP provides basic information for use by first responders and satisfies federal and state Community Right-To-Know laws. A facility must complete a HMBP, if it handles or uses a hazardous material or mixture containing a hazardous material that has a quantity at any one time during the reporting year equal to or greater than 55 gallons, 500 pounds, or 200 cubic feet. A facility must revise and submit the revision of the hazardous material inventory form within 30 days if the quantity of previously disclosed material increases 100% or more; a previously undisclosed material is at or above the reporting thresholds; the facility changes address; the facility ownership changes; or a change in the business name. In addition, a facility must

submit the HMBP certification form annually on or before March 1 and review the entire HMBP every three years. Currently, HMMP reviews the CIS inventory and submits the HMBP annually to the Alameda County's CUPA by March 1 of every calendar year. The business plan includes 1) Business Owner/Property Owner information; 2) Emergency Response plan; 3) Record Keeping & Training record information; 4) Underground Storage Tank information; 5) Onsite Hazardous Waste treatment information; 6) Site Map; 7) Hazardous Material Inventory Forms (one page per material per building that exceeds threshold); 8) SNL/CA Fire Run Cards; 9) Tier II report. Additionally, Alameda County's CUPA has requested that the CalARP report be included into the HMBP. In reviewing the entire HMBP and submitting it annually, HMMP has not been reviewing the inventory monthly to determine if a reported hazardous material has increased 100% or more; if a hazardous material has dropped below the threshold reporting limit; or if a new hazardous material has exceeded the threshold reporting limit. HMMP will have to monitor the inventory on a monthly basis to determine if any revisions need to be completed and submitted.

Result Criterion: ES&H » Industrial Hygiene » Chemical Information System

Organization Being Assessed:

Org: 08000    Manager: HOMMERT,PAUL J.    Division: 08000

**IA No: 5371-O2-IA1**

IA Type: Further Action Required    IA Status: Past Due

Owner: Name: AYERS,SUSANNE L.    Org: 08516    Assigned Date: 12/01/2008

Estimated Completion Date: 01/31/2009    Revised Completion Date: n/a

Actual Completion Date: TBD

Description: HMMP will need to monitor the SNL/CA site inventory on a monthly basis for changes in the HMBP. The HMBP must be revised and revisions submitted to Alameda County within 30 days if any of the following should occur: 1) If a reported hazardous material has increased 100% or more; 2) if a new hazardous material has exceeded the threshold reporting limit; 3) The facility changes address; 4) Ownership of the facility changes; or 5) There is a change of business name.

Comments: None

IA Associated Document Link(s):

None

Actions taken to verify satisfactory completion:

TBD

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

TBD

Verified By: Name: TBD    Org: TBD    Verification Date: TBD

# Appendix E. Hazardous Materials Management Program Self Assessment Document Checklist

## Program Documents Review Form

Organization: 8516 Program: Hazardous Material Management

Date: 11/2008 Signature: Susie Ayers

Document Type	Document Title	Review Complete / Date	Changes Made	Comments
Operating Procedures	AP800003	<input checked="" type="checkbox"/> 11-10-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	AP has been reviewed and updated
PHS	Hazardous Material Management Program Operations at SNL/CA (SNL0A00433)	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	MEDMDP was added to training
Other Program Documents	ES&H Manual Section 6U Hazardous Material (Chemical and Biological) Inventory	<input checked="" type="checkbox"/> 10-21-08	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	CIS Program Plan PG470198, Issue B	<input checked="" type="checkbox"/> 10-21-08	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	CIS Program plan is being reviewed by SNL/NM
	ES&H Manual Section 10J – Registering, Naming, and Labeling bulk storage tanks MS471001, Issue A	<input checked="" type="checkbox"/> 10-21-08	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
	Static Inventory Form <a href="http://www-irn.sandia.gov/corpdata/corpforms/2001cif.dot">http://www-irn.sandia.gov/corpdata/corpforms/2001cif.dot</a>	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Request has been made to update corporate form. CIS/CA mailstop needs to be updated
	Gas Cylinder Form <a href="http://www-irn.sandia.gov/corpdata/corpforms/2001cig.dot">http://www-irn.sandia.gov/corpdata/corpforms/2001cig.dot</a>	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Chemical Inventory Incoming form <a href="http://www-irn.sandia.gov/corpdata/corpforms/2001cii.dot">http://www-irn.sandia.gov/corpdata/corpforms/2001cii.dot</a>	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Biological Agent Inventory form <a href="http://www-irn.sandia.gov/corpdata/corpforms/2001bai.doc">http://www-irn.sandia.gov/corpdata/corpforms/2001bai.doc</a>	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Location Description form <a href="http://www-irn.sandia.gov/corpdata/corpforms/2001cil.dot">http://www-irn.sandia.gov/corpdata/corpforms/2001cil.dot</a>	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Chemical Transfer/Disposal form <a href="http://www-irn.sandia.gov/corpdata/corpforms/2001cit.dot">http://www-irn.sandia.gov/corpdata/corpforms/2001cit.dot</a>	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
	Web Pages	General Web Page <a href="http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/HazardousMat/index.php">http://www.ran.sandia.gov/ESH/EnvManagement/EnvPrograms/HazardousMat/index.php</a>	<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Program Web Pages <a href="http://cis.sandia.gov">http://cis.sandia.gov</a>		<input checked="" type="checkbox"/> 10-21-08	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Note:

- Use this form to document review of all programmatic TWDs.
- After completion file form with your program assessment documents in the EMS adlan server.