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Sandia National Laboratories, California
Air Quality Program
Annual Report
June 2009

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

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Appendices

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Summary of Document Changes

Updates made to the June 2009 edition of the Air Quality Program Annual Report are marked with a left-hand sidebar, with those of significance being noted below.

Section	Page	Change
2.2.2	6	Added discussion on CARB regulations affecting Off-Road Diesel Vehicles, Portable Diesel Engines, and On-Road Diesel Vehicles
4	11	Updated list of program documents and reports generated by the Air Quality Program
5.2	13	Added description of required training for the operator of a chromium plating facility
6.1	14	Updated Table 4 with 2008 information
6.2.1	14	Described how mobile source emissions were estimated for 2007 and the results of the emissions estimates. Compared 2007 emissions with baseline emissions and evaluated the progress of the emissions reduction EMS.
6.2.3	16	Updated Spare The Air discussion to include data from 2008.
6.2.3	17	Updated Spare The Air figure with 2008 data.
8.1	20	Updated discussion on BAAQMD inspections.
8.4	21	Updated discussion on 2008 Line Implementation Assessment.
9	22	Updated accomplishments to reflect previous year's activities.
10	24	Updated the Issues section to highlight the upcoming requirements for boiler upgrades/retrofits, diesel engine controls, and large spark-ignition controls. Provided cost estimates.
11	25	Complete rewrite of the Trends section, discussing in detail the numerous state, local and Federal regulations that have been promulgated (or are in development) that would affect operations at SNL/CA.
12	29	Updated Timeline Figure
App A	35	Updated tables
App C	39	Updated Air Quality Program Risk Assessment
App D	47	Updated Program Self Assessment
App E	49	Updated Line Implementation Assessment

1 Program Description

Sandia/CA's policy is to minimize the impact of its operations on the environment through responsible management of air emissions. To implement this policy, Sandia/CA complies with all applicable Federal, State and local environmental standards and regulations, submitting applications for permits when required, and operating in compliance with all applicable requirements.

The SNL/CA Air Quality Program's purpose is to obtain and maintain permits/registrations and assist and guide the line organizations in complying with all permit conditions and regulatory requirements. The Air Quality Program assesses the impact of new air quality laws and regulations on SNL/CA operations and develops future plans to maintain compliance. Potential impacts of new and modified air pollution sources are assessed through regulatory analysis, emissions calculations, and, when necessary, risk assessments.

The Air Quality Program is responsible for assessing and protecting air quality at SNL/CA and assisting SNL organizations in complying with applicable environmental laws and regulations, particularly those for air quality permitting and reporting.

Specific responsibilities of the Air Quality Program include:

- Keep SNL/CA organizations, the public, and the DOE appraised of air quality issues
- Obtain and maintain air quality permits and registrations and assist SNL/CA organizations in achieving compliance with all permit requirements
- Assess any applicable potential impacts of new and existing sources
- Maintain air quality compliance documents and records and ensure that all necessary reports are submitted to the appropriate agencies in a timely manner.

1.1 Air Quality Program Scope and Ownership

The applicability and requirements of the SNL/CA Air Quality Program pertain to all site operations that emit, or have the potential to emit, air pollutants. As of March 31, 2009, SNL/CA has 13 permitted emission sources with the Bay Area Air Quality Management District (BAAQMD), which is 2 fewer sources than the previous year. There are 15 sources listed as "Exempt from Permitting" on the BAAQMD Permit to Operate, which is also 2 fewer sources than the previous year. Appendix A lists the permitted and exempt sources in operation.

The SNL/CA Air Quality Program is developed and managed by the Environmental Management Department (8516). Air Quality Program staff interact regularly with (1) other Environmental Program staff (e.g., Hazardous Materials Management Program, NEPA, etc.), (2) internal customers (e.g., SNL line organizations, Facilities Planning Department, Maintenance Engineering Department, etc.), (3) NNSA/SSO, (4) the BAAQMD (the Permitting Division and the Compliance and Enforcement Division), and (5) the California Air Resources Board.

2 Program Drivers

The Federal Clean Air Act was passed in 1967 to protect and enhance the nation's air quality. It provides the statutory basis for regulating air contaminants through a national program to control emissions from motor vehicles and stationary sources. Through the CAA, congress has given authority for air protection to the U.S. EPA, who in turn delegates authority to states which have demonstrated a program to comply with the CAA. In California, the Air Resources Board has further delegated authority to local air districts. The County and regional air pollution control districts were created to assist the CARB in carrying out its mission. The BAAQMD is the regional agency that regulates air quality from stationary industrial sources in the Bay Area.

In the Bay Area, the BAAQMD regulates air emissions from stationary (i.e., nonvehicular) industrial air pollutant sources, and develops air resource strategies (implemented through rules and regulations) to comply with the CAA and to protect public health and welfare. The CARB has retained authority for control of vehicular emissions, develops rules regarding stationary sources which must be adopted and implemented by local districts, and has also developed a number of air toxics programs which are administered by the districts. The EPA has retained some authority for the regulation of sitewide emissions of radionuclides in the Bay Area through the NESHAPS program.

2.1 Federal

2.1.1 National Ambient Air Quality Standards

The Clean Air Act required the EPA to develop a list of air pollutants from all sources that could harm the public health or the environment. The EPA identified six substances as "criteria pollutants," and subsequently developed National Ambient Air Quality Standards (NAAQSs) for these pollutants to protect public health and the environment. The six criteria pollutants are:

- sulfur dioxide (SO_2),
- nitrogen dioxide (NO_2),
- carbon monoxide (CO),
- ozone,
- particulate matter (smaller than 10 microns in diameter), and
- lead.

The EPA program for attainment and maintenance of NAAQSs requires local agencies to develop a comprehensive permitting program. BAAQMD has developed a set of rules governing stationary sources of air pollution that are among the strictest in the U.S.

2.1.2 National Emission Standards for Hazardous Air Pollutants

In addition to the regulations for criteria pollutants, there is the EPA's NESHAPs program which prescribes emission limitations for the following substances:

- radionuclides
- beryllium
- mercury
- asbestos
- vinyl chloride
- benzene
- inorganic arsenic
- coke oven emissions.

The NESHAPs standards most relevant to SNL/CA operations include those for asbestos demolition and renovation operations and to a limited extent, radionuclides. While some of the other listed pollutants are used onsite, the regulatory threshold is often quite high or the standard is applicable for only selected industries or uses.

Asbestos: Asbestos emissions are controlled under NESHAP 40 CFR Part 61 Subpart M. The SNL/NM Facility Asbestos Implementaiton Team (FAIT) (Facilities ES&H Department, 108411) provides the necessary NESHAP notification prior to the start of any job relating to asbestos. The FAIT also has the responsibility for complying with permit conditions and managing necessary records.

Radionuclides: The NESHAP regulations for radionuclide emissions contain a subsection which applies soley to Department of Energy/National Nuclear Security Administration (DOE/NNSA) facilities. This subsection (40 CFR Part 61 Subpart H) establishes radiation protection standards, monitoring requirements, and annual reporting of radionuclide air emissions. To comply with the national emission standards, SNL/CA evaluates individual projects with the potential to release radionuclide emissions to determine the worst-case dose to the public. Additionally, dose calculations are compared to the requirements to determine the need for annual monitoring.

2.1.3 Refrigerants

Based on the requirements of the CAA, EPA has established regulations that effect many aspects of the refrigeration industry. The aspects of 40 CFR Part 82 that are most pertenant to SNL/CA operations are summarized below:

- the prohibition of venting,
- requires service practices that maximize recycling of ozone-depleting compounds during the servicing and disposal of air-conditioning and refrigeration equipement,
- certification of recovery and recycling equipment,
- certification of technicians who perform maintenance, service, repair, or disposal,
- evacuation of air-conditioning and refrigeration equipment to a specific vacuum when opening equipment
- requires owners of equipment with charges >50 pounds to repair leaks in the equipment when those leaks would result in the loss of more than a certain percentage of the equipment's charge over a year.
- safe disposal requirements ensuring the removal of refrigerants from small applicances that enter the waste stream with the charge intact
- special hazardous waste rules for refrigerants and refrigerant oils.

2.1.4 DOE Orders 450.1A and 430.2

DOE revised and issued DOE Order 450.1A, Environmental Protection Program, in June 2008. The objective of this Order is to implement sound stewardship practices that are protective of the air, water, land, and other natural and cultural resources impacted by DOE operations, and meet or exceed compliance with applicable environmental, public health, and resource protection requirements cost effectively. The revised Order provides specific expectations for implementation of Executive Order 13423, Strengthening Federal Environment, Energy, and Transportation Management.

DOE also issued a revised DOE Order 430.2, Departmental Energy, Renewal Energy and Transportation Management in February 2008. This Order defines requirements and responsibilities for managing the Department's energy, building and fleets. As directed by Executive Order 13423, the revised DOE order places greater emphasize on sustainable practices and alternative energy.

2.2 State

Requirements for air protection in the state are detailed in the California Health and Safety (H&S) Code and the California Clean Air Act. By Federal law, the state must adopt air quality standards and rules and regulations which are at least as strict as the federal. California has chosen to adopt State Ambient Air Quality Standards (AAQSs) which are more stingent than the Federal standards in many areas. The State AAQSs also include hydrogen sulfide (H_2S), sulfur acid mists, and visibility-reducing particulates, in addition to the Federally-designated criteria pollutants.

2.2.1 CARB Registrations and Certifications

CARB has retained authority for control of vehicular emissions, while the regional air pollution control districts (BAAQMD) assist CARB in carrying out its mission. CARB does not have authority to issue permits directly to stationary sources of air pollution. However, the CARB does have a number of certification/exemption processes which may be viewed by some to be "permitting authority." Pertinent to SNL/CA are (1) the Statewide Portable Equipment Registration Program for portable generators, and (2) the Asbestos NESHAP Demolition and Renovation Form.

2.2.2 Diesel Particulate Matter Emissions

In 1998, CARB identified diesel particulate matter (DPM) as a toxic air contaminant. In reponse, CARB developed a comprehensive Diesel Risk Reduction Plan with a goal to reduce DPM by 75 percent in 2010 and 85 percent by 2020 from a 2000 baseline. Of significance to SNL/CA are:

- Cleaner Diesel Fuel: sulfur levels in diesel fuel sold and distributed in California were lowered to less than 15 parts per million starting in June, 2006.
- Airborne Toxic Control Measure for Stationary Compression Ignition Engines: this rule was approved in 2004 and contains new emission and hourly usage limits and fuel and reporting requirements. Initial requirements applicable to SNL/CA went into affect on January 1, 2006.

- In-Use Off-Road Heavy-Duty Diesel Vehicles: in July 2007, the ARB approved a regulation to reduce emissions from existing off-road diesel vehicles used in California in construction, mining, and other industries. Beginning in 2010, fleets are required to apply exhaust retrofits that capture pollutants before they are emitted to the air, and to accelerate turnover of fleets to newer, cleaner engines.

- Portable Diesel-Fueled Engines: the Portable Diesel-fueled Engines Airborne Toxic Control Measure (Portable Diesel Engine ATCM) became effective April 27, 2007 and applies to portable engines having a rated brake horsepower of 50 or greater. The ATCM requires that such engines must be certified to Tier 1, 2, or 3 emission standards starting January 1, 2010 and that a fleet must satisfy PM emissions standards by 2013. Emergency engines and engines operated 80 hours or less in a calendar year (low use) do not need to meet the 2010 requirements nor the subsequent fleet average requirements if they choose to commit to replacing the engine with a Tier 4 engine within 2 years of such engine becoming available. Tier 4 engines are expected to be available in 2011. Hours used for emergency purposes do not need to be counted toward the 80 hour per year limit.

- In-Use On-Road Heavy-Duty Diesel Vehicles: in December 2008, the ARB approved a new regulation to significantly reduce emissions from existing on-road diesel vehicles. The regulation requires fleets to install exhaust retrofits that capture pollutants before they are emitted to the air, and to accelerate vehicle replacements to those with cleaner engines. For most fleets, the first performance requirements for PM do not begin until January 1, 2011, followed by engine replacement requirements to reduce NOx emissions starting January 1, 2013

Information on the proposed regulation is discussed in more detail in Section 11.

2.2.3 Air Toxics "Hot Spots"

The California air toxics regulations do not require additional permits (other than those already required by the BAAQMD). They do, however, require SNL/CA to inventory all routine emissions of air toxics from the site so that the CARB can assess the regional and state-wide risks to public health. The required biennial updates to the inventory are handled through the annual BAAQMD permit renewal process.

2.2.4 Climate Change

On September 27, 2006, California passed a law requiring that CARB monitor and reduce greenhouse gases (GHGs). As a result, CARB has been developing regulations and guidelines to reduce GHGs including establishing statewide emission caps, reduction strategies, and reporting requirements. More details are provided in Section 11.

2.3 Local

The BAAQMD is responsible for ensuring that the ambient air quality standards are attained and maintained in the San Francisco Bay Area. Their jurisdiction includes all of Alameda, Contra Costa,

Marin, Napa, San Francisco, San Mateo, and Santa Clara Counties, and the southern portions of Solano and Sonoma Counties. Among the many activities conducted to meet their clean air goal, the BAAQMD adopts and enforces rules for stationary sources of air pollution that are among the strictest in the U.S. Some elements of these rules applicable to SNL/CA include:

1. Limiting emissions of specific pollutants from sources
2. Curtailing open burning
3. Restricting impacts to visibility
4. Reducing emissions from handling of solvents
5. Limiting organic compound content of coatings and adhesives
6. Restricting types of fuels that can be used in sources
7. Prescribing equipment and operating conditions through a permitting system

Through BAAQMD's permitting system, permits are issued for stationary sources that may have a significant impact on air quality. Owners or operators of these sources must apply for an Authority to Construct and a Permit to Operate before constructing and operating the source. Depending on the potential emissions from the source, certain emission control equipment or Best Available Control Technology (BACT) may be needed before the permit can be approved. If approved, permits are then issued and specify conditions that the sources must meet to construct and operate the source. These conditions may include limiting hours of operations, restricting total emissions, and maintaining usage records.

Some of these rules have been developed because the BAAQMD has been delegated implementation and enforcement authority for many federal and state requirements. For example, authority for many of the federal NESHAP standards has been transferred to BAAQMD including those related to Asbestos. To satisfy the NESHAP requirements, SNL/CA must notify the BAAQMD for certain demolition or asbestos removal activities (See Section 2.1.2).

3 Operational Controls

Administrative controls are applied within the Air Quality Program to prevent exceedances and violations. These include Technical Work Documents (Table 1), the Interdisciplinary Team (IDT) review, Usage Log Sheets designed with checks and balances, and the Corporate ES&H Manual.

Table 1. Air Quality Program Technical Work Documents

Title	Current Version
OP471707, Operating Procedure for Air Quality Program	Issue D, 12/13/07
OP471799, Refrigerant Storage and Handling Procedure	Issue D, 5/01/08
ES&H Manual, Chapter 17, Air Emissions	Issue J, 02/1/08
SP473544, Standard Operating Procedure for Roof Access	Issue B, 08/06/08
PHS SNL06A00051-005, Air Quality Program Operations at SNL/CA	March 2009
Administrative Procedure for Spare the Air Day	Under Revision

In addition, a communications array is used to administratively control refueling operations on Spare The Air Days (an EMS Air Quality target, see Section 6.2.3). This array consists of e-mail notifications, banners, signs, and "soft" barriers (see Figure 1) to encourage site personnel to not refuel their gasoline-powered vehicles on Spare The Air Days.

Figure 1. Signage Used to Encourage the Postponement of Refueling Operations

Engineered controls provide a fixed "barrier" to prevent exceedances or violations. For example, the vapor recovery equipment installed on the gasoline pump (Source #32) significantly reduces the release of ozone-forming compounds from spillage and fugitive emissions.

4 Documents Produced

Table 2 identifies the documents produced by the Air Quality Program. The BAAQMD Annual Data Update Form is submitted to the BAAQMD to satisfy permitting requirements and is used by BAAQMD to calculate permit renewal fees. BAAQMD permit applications and CARB Statewide Portable Equipment Registration Program applications are prepared for new or modified processes or equipment identified in the BAAQMD and CARB regulations, which specify what types of process or equipment require a permit application and identify testing and reporting requirements. For example, an annual vapor recovery test on the Gasoline Dispensing Facility (GDF) (Source #32) must be conducted and results submitted to BAAQMD annually. Table 2 also identifies usage logs maintained for various permitted sources on site. The logs are based on data provided by the user of the source and are maintained by the Air Quality Program. These records are kept to satisfy the BAAQMD permit conditions for each source and to ensure allowable permit conditions are not exceeded. The records are also used for the BAAQMD Annual Data Update Form.

Table 2. Program Documents, Reports, and Logs

Document	Due Date	Frequency of Distribution	Distribution	Purpose
BAAQMD Annual Data Update Form	Mid April	Annually	BAAQMD	BAAQMD Requirements
In-Use Off-Road Diesel Annual Report (DOORS)	April 1	Annually	ARB (electronic)	ARB Requirements
BAAQMD Permit Applications	Prior to installing or modifying	As needed: prior to installing/modifying equipment/process	BAAQMD	BAAQMD Requirements
Hexavalent Chromium Compliance Status Report	February 1	Annually	BAAQMD	BAAQMD Requirements
Vapor Recovery Test of Above Ground Gas Tank (Source #32)	March	Annually	BAAQMD	BAAQMD Requirements
Asbestos/Demolition Notification	10 working days prior to start of demolition	Prior to demolition	BAAQMD	BAAQMD Requirements
CARB Statewide Portable Equipment Registration Program Applications	Prior to use of Portable Engine	As needed: when planning to use a new portable engine	CARB	CARB Requirements
Maintenance and Facilities Adhesives and Sealant Usage Log (Source #93)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
Sitewide Wipe Cleaning Usage Log (Source #95)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B9151 Emergency Diesel Generator with 390 HP Engine Usage Log (Source #101)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
Portable Emergency Diesel Generator with 699 HP Engine Usage Log (Source #102)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
Portable Diesel Generator with 96 HP Engine Usage Log (Source #103)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B964 Emergency Diesel Generator with 196 HP Engine Usage Log (Source #104)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B968 Emergency Diesel Generator with 575 HP Engine Usage Log (Source #105)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B9151 Emergency Diesel Generator with 394 HP Engine Usage Log (Source #108)	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements
B906/114 Vapor Degreaser	First Half of Each Month	Monthly	Air Quality Program	BAAQMD Requirements

5 Approved Job Descriptions, Qualifications, and Job-Specific Training

5.1 Air Quality Program Job Assignments and Qualifications

The job assignments in the Air Quality Program include the Air Quality Program Lead and Air Quality Engineer/Specialist. Occasionally, a college student intern is hired to support the Air Quality Program. Personnel in each position must have specific qualifications to carry out the applicable duties. In addition, Sandia views training, development, and education as a strategic investment in Sandia's future, and therefore has corporate and job specific training requirements for each assignment. The job assignments and required qualifications and training are described below. Appendix B provides a list of personnel currently supporting each job assignment.

5.1.1 Air Quality Program Lead

The Air Quality Program Lead is responsible for management and oversight of all program activities and serves as the air quality expert for SNL/CA. Management and oversight duties include, but are not limited to, budgeting, identifying investments needs, task assignment and oversight, contract management, conducting program self assessments, reporting, developing operational controls, and participating in department projects. The Air Quality Program Lead identifies applicable regulatory requirements and directly helps site personnel achieve and maintain compliance. As part of this effort, the Program Lead participates in the ES&H Interdisciplinary Team meetings where SNL/CA personnel present new and modified projects conducted on-site. The Program Lead assists site personnel in obtaining necessary operating permits for processes and equipment and then complying with the permit requirements. This assignment requires regular interaction with Federal and state agencies and monitoring of changes in regulations relevant to the site. Any applicable changes are then communicated to the site by the Program Lead. The Program Lead also prepares for and guides BAAQMD inspections.

At a minimum, the Air Quality Program Lead must hold a Bachelor of Arts or Science Degree in the environmental, science, or engineering fields and have more than 5 years of relevant work experience. The Program Lead must possess program management skills and strong communication skills (oral and written). Additionally, this assignment requires knowledge of California and Bay Area air quality regulations and permitting procedures. The formal training requirements are identified in Table 3.

5.1.2 Air Quality Engineer

The Air Quality Engineer assists with the day-to-day activities of the Air Quality Program and serves as the back-up for the Air Quality Program Lead. The day-to-day activities include maintaining usage records for on-site sources, preparing Annual Data Update Forms to the BAAQMD, and preparing and reviewing SOPs and reports. When the Program Lead is not available, the Air Quality Engineer attends the ES&H Interdisciplinary Team meetings. The Air Quality Engineer also assists with preparing permit applications and helping SNL/CA personnel understand the permit compliance requirements. In addition, the Air Quality Engineer provides assistance preparing for BAAQMD inspections.

The minimum qualifications for the Air Quality Engineer include possessing a Bachelors degree in an engineering field, although a Masters degree in the environmental and science fields is also acceptable. Three years of directly related work experience is also necessary. The Air Quality Engineer must h0ave good oral and written communication skills, be competent with Microsoft

Word and Excel, and be able to work independently. Desirable skills include familiarity with the California and Bay Area air quality regulations, particularly those relating to internal combustion engines. The formal training requirements are identified in Table 3.

Table 3. Formal Training Matrix

Training Requirement	Training Method	Air Quality Program Lead	Air Quality Engineer
WRT101 Effective Writing Skills	SNL classroom	X	
ESH100C California Site Specific ES&H Awareness	SNL classroom	X	X
ESH100 ES&H Awareness	Online	X	X
Visible Emission Evaluation Proficiency	CARB classroom and field	X	
ESH300 Self Assessment	Online	X	
FileMaker Pro Intermediate	Classroom		X

5.2 Specialized Assignments and Certifications

The EPA requires that HVAC technicians be certified by an approved technician certification program (40 CFR Part 82.161). There are four types of certification:

- Type I maintain, service, or repair small appliances
- Type II maintain, service, repair or dispose of high or very-high pressure appliances
- Type III maintain, service, repair, or dispose of low-pressure appliances
- Universal maintain, service or repair equipment as described in Type I, II, and III.

SNL/CA HVAC technicians will only service appliances for which they have the proper level of certification (e.g. Type I, Type II, Type III, or Universal). EPA does not currently require recertification or continuing education.

CARB's Airborne Toxic Control Measure for Chromium Plating and Chromic Acid Anodizing Facilities require the operator of a chrome plating facility to complete a CARB Compliance Assistance Training Course no later than October 24, 2009 and every two years thereafter. SNL/CA has one chrome plating source permitted with BAAQMD (though the source is currently not active), and so would be subject to this training requirement.

6 Performance Measures

6.1 Primary Performance Measures

The key indicator for the performance and effectiveness of the SNL/CA Air Quality Program is the outcome of periodic regulatory inspections. Although inspections can occur at any time, the BAAQMD typically inspects permitted sources every two years. The inspections are a rigorous and detailed review of permitted equipment and processes vis a vis applicable BAAQMD regulations and permit conditions. Inspections result in a source being declared one of the following: in compliance; in violation; not operating; or dismantled. Table 4 shows the results of BAAQMD inspections occurring over the past 14 years.

Table 4. Results Of BAAQMD Inspections For Past Thirteen Years

	1994	1996	1998	2000	2003	2004	2007	2008
Sources Inspected	24	46	54	18	7	26	30	11
In Compliance	23	39	45	14	6	25	29	11
Not Operating	1	6	8	4	0	1	1	0
Dismantled	0	1	1	0	1	0	0	0
In Violation	0	0	0	0	0	0	0	0
Violation Rate	0%	0%	0%	0%	0%	0%	0%	0%

A general Environmental Management Department EMS Target is to "Receive no Notices of Violation (NOV) as a result of any external regulatory Agency Audit". This target is a measure of how well Sandia is achieving the general EMS Environmental Objective of "Meeting or exceeding all applicable environmental requirements". The data from Table 4 show that the Air Quality Program is meeting the EMS general objective set for the department.

6.2 Secondary Performance Measures

Secondary performance measures for the Air Quality Program are the EMS Air Quality Targets. These targets provide a means by which to measure progress towards meeting the Air Quality EMS Objective of "Minimize air emissions related to operations and transportation, with particular emphasis on Spare The Air Days". The Air Quality EMS Targets (i.e., performance measures) are discussed below. Over the next several years, progress towards meeting these targets will be assessed which will provide an indication of how well the EMS Objectives are being met.

6.2.1 Mobile Source Emissions

The Air Quality Program has an EMS Target of reducing the sitewide mobile source emissions by 10% by the end of 2008. A baseline for mobile source emissions was established using 2004 data.[1] Onsite mobile sources include vehicles, carts, landscaping equipment, and construction and maintenance equipment that are not permanently attached to a stationary foundation.

In order to determine the progress of this emissions reduction effort, an annual follow-up analysis was completed using 2007 activity data (i.e., hours of operation or miles driven). The methodology, calculations, results and recommendations of this 2007 analysis are documented in *2007 Emission Inventory of Mobile Sources – Progress Report* (SNL, 2008). The estimated emissions of reactive

[1] The *2004 Baseline Emission Inventory of Mobile Sources* was completed in December 2005 and was, in part, based on 2005 data because complete 2004 data were not available.

organic gases (ROG), carbon monoxide (CO), nitrogen oxides (NOx), and respirable particulate matter (PM_{10}) and relative change between the 2004 baseline and 2007 are presented in Table 5.

Table 5. Comparison of Baseline and 2007 Emissions (tons/yr)

	Baseline (tons/yr)	2007 (tons/yr)	2007 Change From Baseline
ROG	**13.0**	**8.0**	**-38%**
NO_x	**3.6**	**2.7**	**-25%**
PM_{10}	**0.5**	**0.2**	**-60%**
CO	**95**	**92**	**-3%**

Emissions estimates for CY07 (Sandia, 2008) indicate that ROG, NO_x and PM_{10} emissions from mobile sources are appreciably lower than 2004 baseline levels: ROG emissions have gone from 13 tons/yr to 8 tons/yr, a 38% reduction; NO_x emissions have gone from 3.6 tons/yr to 2.7 tons/yr, a 25% reduction; and PM_{10} emissions have been reduced 60%, from 0.5 tons/yr to 0.2 tons/yr. The *2007 Emissions Inventory of Mobile Sources Progress Report* (Sandia, 2008) describes the many uncertainties associated with calculating Sandia's mobile source emissions. However, the emissions reductions for ROG, NO_x, and PM10 are large enough that, even after factoring in the uncertainties in the data input, it can be concluded that the EMS target of a 10% reduction has been achieved. The overall reduction can be in part attributed to the following:

- Since 2005, old landscaping equipment (e.g. lawn mowers, blowers) have been replaced with more than 20 new, cleaner-burning landscaping equipment.
- An older street sweeper (model year 1990) was replaced with a new, cleaner street sweeper (model year 2005).

Carbon monoxide (CO) emissions were reduced from 95 tons/yr to 92 tons/yr, a 3% decrease. Considering the uncertainty involved in the emissions calculations, this decrease cannot be considered significant. The source of CO emissions is primarily the carts and it will be difficult to make any significant reduction in the CO emissions until emissions from the carts are specifically addressed.

The Air Quality Program staff recommended that this target be retired for ROG, NO_x, and PM_{10}. However, the target should remain active for CO, with a concerted effort to encourage Sandia management to adopt a Cart Management Policy that might lead to emission-reducing initiatives such as: cart fleet reduction, the retiring of older carts, the purchasing of new electric carts, etc.

6.2.2 Paint Shop VOC Emissions

Another Air Quality Program EMS Target is to reduce Paint Shop VOC emissions by 25% by the end of 2008, relative to a 2004 baseline. In 2005, the Air Quality Program was instrumental in acquiring two new pieces of cleaning equipment for Sandia's painting operations:

- A paint-gun cleaner acquired in 2005 provides a closed-loop cleaning process for the spray guns. Although this equipment still uses a solvent for cleaning, the closed-loop design greatly decreases the volatile organic compound (VOC)

emissions compared to the hand cleaning process previously employed. A total of <0.25 gallons of solvent evaporated from the use of the gun cleaner in 2007, compared to 10 gallons evaporating from the gun cleaning process in 2004.

- A parts wash-rack acquired in 2005 uses hot pressurized water to clean metal parts prior to painting. This piece of equipment replaces a hand cleaning method that used high VOC solvents. A total of 0.5 gallons of solvent was used for wipe cleaning/surface preparation tasks in 2007, compared to 6.75 gallons evaporated in 2004.

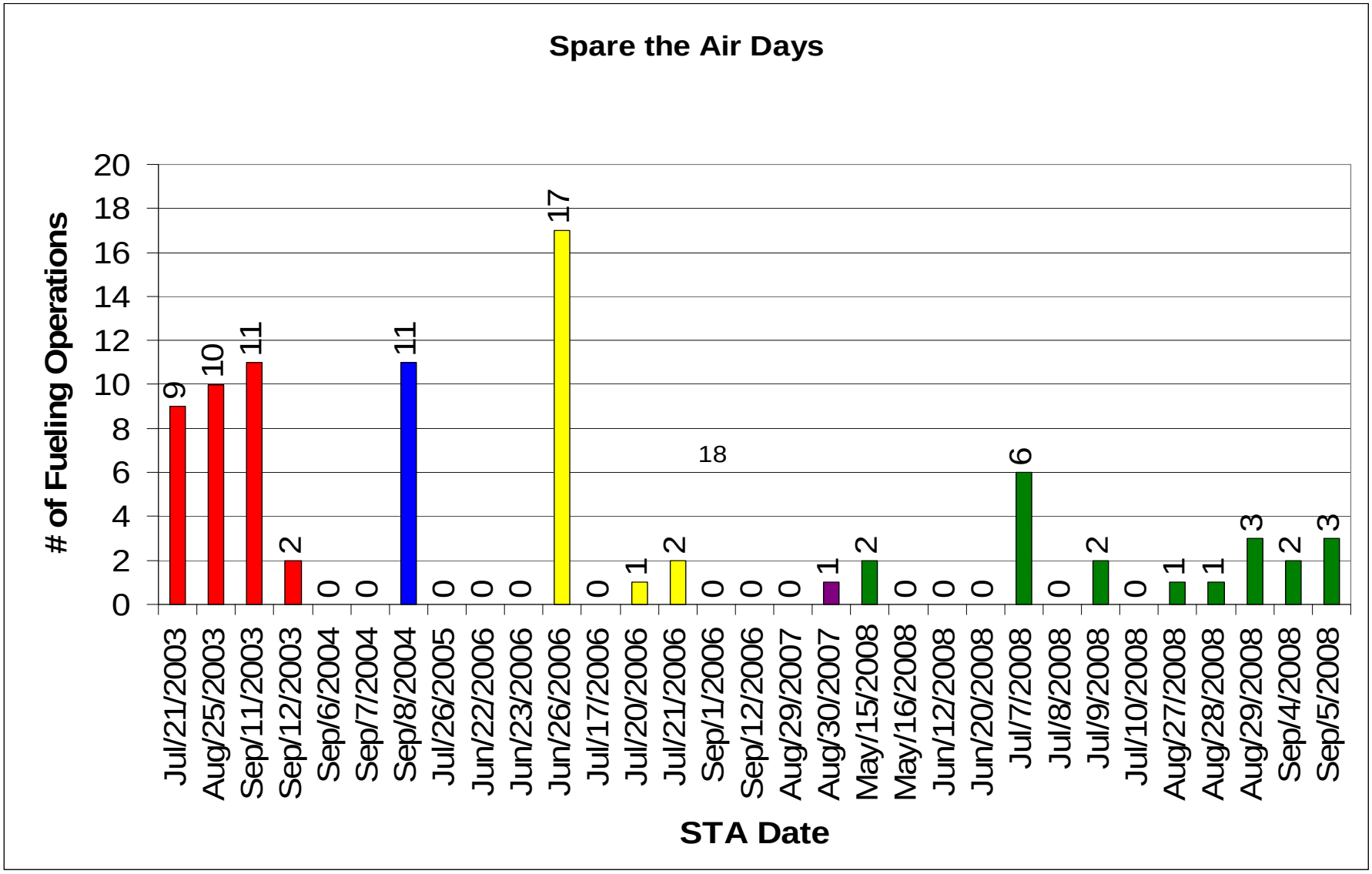
These two pieces of equipment contribute significantly to obtaining the target of reducing VOC emissions by 25%. In fact, total VOC emissions from paint-gun cleaning and parts cleaning have been reduced by about 97%. However, VOCs are also emitted from architectural coating operations. Because very strict BAAQMD limits on coating VOC content already exist, SNL/CA is limited on measures that can be implemented to reduce VOC emissions from the coatings.

6.2.3 Refueling on Spare The Air Days

The third EMS initiative is aimed at reducing the number of fill-ups at our B963 gasoline tank on Spare the Air Days by 50% from a 2003/2004 baseline. A program was developed and implemented that encourages site personnel to plan their gasoline fueling activities for either before or after a Spare The Air Day (see Figure 1). The original EMS Air Quality target was to reduce the number of fill-ups on Spare the Air Days to 3 or less. After this Target was achieved in 2006 it was modified to reflect an effort to "maintain" the reduced number of fill-ups on Spare The Air Days. Although strictly voluntary, the site's workforce appears to be committed to this initiative, and in fact, now seem to consider it a normal part of their summertime operations. Four years into implementing this initiative, many of the cart owners are registered with the BAAQMD's Spare The Air Program and receive notifications and alerts to their personal computers at work and home or their cell phones. In the 2008 season, there were 20 fill-ups at the B963 gasoline tank over the 13 Spare The Air Days. This is an average of 1.5 fill-ups per Spare The Air Day, down from an average of 7 on a typical work day. Figure 2 shows the number of fill-ups on Spare The Air Days over the last six years.

One anomaly shown in Figure 2 is the 17 fill ups three years ago which fell on a Monday. The prior Thursday and Friday were also Spare The Air Days during which time site personnel successfully deferred all fueling operations. However, personnel were not able to sustain the delay for three consecutive working days and thus had to fill up on that Monday.

Figure 2. Fill-ups on Spare The Air Days



7 Quality Assurance

7.1 Program Risk Assessment

The Air Quality Program Risk Assessment assesses the risks associated with not meeting programmatic requirements. The risk assessment was updated in March 2009 and identified six potential risks:

Table 6. Air Quality Program Risks

Risk #	Risk	Risk Category
1	Increased Regulation Leading To The Need For A Title V Permit	Low
2	Nuisance Complaint From Local Residents	Low
3	Release To The Atmosphere	Low
4	Operating A Source Without A Permit Or In Violation of Permit Conditions/Limits	High
5	Reduction In Program Funding By 10%	High
6	Increased Regulation of Diesel-Powered Vehicles and Equipment	High

Risk 4 received a risk category ranking of "high" primarily due to the "high" probability for a source to be unknowingly operated without a permit with a "medium" consequence. The "high" probability of occurrence is due to Sandia being a Research and Development laboratory that, by nature, has constantly changing processes, experiments, equipment, etc. This is compounded by the complexity and evolving nature of air regulations themselves. The Air Quality Program has several processes in-place to help reduce the probability of this type of event occurring:

- All projects are required to make presentations to the IDT
- The Air Quality Program receives monthly reports generated by the Chemical Information System (CIS) on the use of toxics
- Air Quality Program personnel are subscribed to numerous List Serves with Regulatory agencies to stay informed of new and changing laws and regulations
- Self-assessments performed by the Air Quality Program and the Line Organizations help to identify non-compliant operations.

The consequence is given a "medium" ranking primarily due to DOE and Sandia Management's aversion to any violation or occurrence, no matter how insignificant.

Evaluation of Risk 5 resulted in an overall risk category of "high". Reduced staffing levels would be the primary affect of a 10% reduction in funding. However, a reduced staffing level would be of particular concern over the next several years owing to the fact that the Air Quality Program's work load will be increasing in order to comply with California's new regulations governing diesel-powered vehicles/equipment and Green House Gas emissions. A 10% reduction in funding leading to a reduced staffing level would definitely increase the risk of SNL/CA's diesel fleet not meeting the mandated deadlines for retrofitting or retirement and would also put our compliance with state and Federal Green House Gas requirements in jeopardy.

Risk 6 considers the risk associated with the increased regulation of diesel-powered vehicles and equipment. The overall risk category determined for this risk was "high" due to the combination of the "high" probability that adequate funds will not be available to retrofit/repower the entire diesel fleet/equipment and the "medium" consequence of diesel vehicles/equipment not being available in a timely matter and increased response times to situations needing large scale equipment.

The complete Air Quality Program Risk Assessment is included as Appendix C.

7.2 Maintaining Program Quality

The Air Quality Program strives to ensure that data and documents are managed in a manner that optimizes accuracy, consistency, validity, and retrievability. The following tools and processes are used to maintain a high degree of quality:

- All raw data is reviewed for accuracy and reasonableness when received from source owner
- All data input is reviewed for accuracy after input is complete
- Reports, documents, permit applications and usage logs undergo an internal review and technical edit (note: usage logs are never edited)
- Electronic data and documents are stored on a corporate server, to ensure daily back-ups
- Program staff maintain required and desirable certifications, licenses and training
- The original copies of Program data and documents are submitted to the ES&H Records Center upon completion of a particular project
- Annual Air Quality Program Self Assessment.

8 Program Assessments

Assessments are generally performed to (1) measure the ES&H health of an organization, (2) identify, communicate and correct negative performance or compliance trends, (3) assess and improve work processes, and (4) identify findings, violations, observations and noteworthy practices.

8.1 BAAQMD Inspections

The BAAQMD routinely "assesses" SNL/CA's compliance with air district regulations and permit conditions. These particular type of assessments are more commonly referred to as "Inspections". The BAAQMD inspections are a rigorous and detailed review of permitted equipment and processes.

Although Inspections can occur at any time, they typically occur every two years. The last complete inspection of all permitted and exempt sources occurred between January and March of 2007 and is summarized in Section 9. In July 2008, the BAAQMD did a partial inspection, looking at Sandia's 11 boilers. The inspector found no violations of the District regulations or permit requirements. Table 4 shows the results of inspections occurring over the past 14 years.

8.2 Corporate Assessments

The Air Quality Program is regularly included in Sandia Corporate or Lockheed Martin assessments or audits. Most recently, the Air Quality Program was one element of a corporate audit focusing on environmental permitting conducted in October 2006. Although the Air Quality permitting process was not called out for any specific deficiencies, a general finding of the audit was that a corporate process for managing environmental permit applications, modifications, and compliance does not exist. The entire audit report can be viewed at Environmental Permitting Process Audit Report. To fully address the finding, a corporate policy regarding permitting will need to be developed. However, until then, SNL/CA Environmental Management Department has developed and implemented a procedure (Administrative Procedure 800030) to be used to ensure that environmental permits required by operations at SNL/CA are acquired, renewed, and maintained in accordance with requirements imposed by the regulatory agencies or internal SNL/CA policy.

Lockheed Martin last audited the Air Quality Program in December 1996 as part of an overall ES&H audit.

8.3 Program Self-Assessment

This assessment is conducted to determine the completeness, quality and efficiency of the Air Quality Program's structure and management. The 2008 assessment included a review of technical work documents, program processes, web pages and links, publications, calendars and communications to assure that they are streamlined, accurate and current. The Program Self Assessment Document Review Form, included as Appendix D, provides the results of this assessment.

8.4 Line Implementation Assessment

This assessment is performed in order to determine how well the line or site is implementing the requirements of the Air Quality Program or supporting specific program-related objectives and

targets. The 2008 Line Implementation Assessment focused on verifying that Sandia's 14 exempt sources are operating according to applicable BAAQMD regulations and that specified exemptions are still valid for current operations.

As part of this assessment, AQ Program personnel:

(1) visited ten laboratories and facilities, in order to review and update descriptions or source operations
(2) reviewed stated BAAQMD exemptions for each source, verifying current validity of exemption
(3) reviewed applicable regulations for each source, ensuring that source is operating within regulatory parameters, and
(4) reviewed Exempt Source paper files, charts, electronic files, log books, etc.

The assessment resulted in one Observation, which led to the assignment of 5 Improvement Actions, all related to new BAAQMD regulations affecting the site's boilers. Appendix E documents the Scope, Process, Results and Improvement Actions of the 2008 Air Quality Line Implementation Assessment.

8.5 Environmental Program Representative Assessment

During 2008, Air Quality did not request assessment support from the Environmental Program Representative.

8.6 Division 8000 Line Self-Assessment

During 2008, the Division 8000 Line Self-Assessment process did not address any air quality issues.

9 Accomplishments

The Air Quality Program accomplished the following activities from April 2008 to March 2009:

9.1 Assessments

Assessments were conducted on fourteen sources at SNL/CA to ensure these sources remained Exempt from Permitting with the BAAQMD. The fourteen sources are listed below:

- Nine boilers that burn natural gas
- Ultrasonic Cleaner in Building 961
- Laser Chemistry Lab in Building 906, room 153
- Materials Synthesis Lab in Building 906, room 101
- Macro Molecular Chemistry Lab in Building 941, room 1132
- Confined Abrasive Blaster in Building 906, Machine Shop

All operations/equipment were determined to still be Exempt from BAAQMD Permitting. Details of this assessment are provided in Section 8.4 and Appendix E.

9.2 Compliance Plan for CARB Mobile Source Rules

A draft Compliance Plan that addresses SNL/CA's plan for complying with four CARB regulations designed to control PM and NOx from diesel fueled vehicles and large spark-ignition engines has been prepared. In December of 2008, CARB finalized the regulation affecting on-road diesel vehicles and those final requirements were incorporated into the Compliance Plan. In parallel, SNL/CA has submitted the required initial reporting to CARB for off-road vehicles that was due by April 1, 2009. Based on this submittal, CARB will be providing its own suggested compliance plan which will be incorporated into SNL/CA's Compliance Plan.

9.3 Spare The Air

During the 2008 Spare The Air season, there were 20 fill-ups over 13 Spare The Air Days. This averages to 1.5 fill-ups per Spare The Air Day, compared to an average of 7 on a typical work day. Section 6.2.3 discusses this EMS Air Quality Target in more detail.

9.4 BAAQMD Control Measure for Architectural Coatings

In 2007, the Air Quality Program evaluated the impact of CARB's suggested control measure (SCM) for Architectural Coatings on SNL/CA's painting activities. The SCMs are suggested measures that local air districts can use for their own architectural coating rules. The evaluation revealed that if BAAQMD adopted the SCM, some definitions and coating categories may change but SNL/CA's painting operations would remain in compliance with the SCM. BAAQMD is now in the process of revising their architectural coatings rules based on the SCM, and the Air Quality Program has been reviewing those proposed changes to ensure SNL/CA will be in compliance with the revised rule.

9.5 Idling Requirement for In-use Off-road Diesel Vehicles

As part of their In-Use Off-Road Diesel Vehicle Regulation, CARB requires that vehicles subject to the regulation limit idling to no more than 5 consecutive minutes. As required by the regulation, the Air Quality Program developed a Sandia Idling Fact Sheet that describes the State's idling restrictions and the few exceptions. The Fact Sheet was distributed to personnel that either (1) operate Sandia's equipment themselves or (2) might bring contractors with off-road diesel equipment on site. Maintenance Department management and staff were briefed on the idling limitation. Numerous Operating Procedures have been identified for inclusion of this idling limitation and are currently being revised. Idling limitation stickers were designed and will be placed on all off-road diesel vehicles. Tags will also be placed on the key chains of affected vehicles/equipment to remind operators of the idling restrictions.

9.6 Chrome Plating

In 2008 new CARB requirements for chrome plating operations became effective. Sandia/CA has a permit for chrome plating (Source #77) but the process has not been operational for more than 15 years. Nevertheless, the new requirements do apply and required (1) the acquisition of a chemical fume suppressant, (2) an Initial Compliance Report be submitted to the BAAQMD, and (3) the process operator taking a CARB training course by October 2009. The Air Quality Program followed the development of the regulation and kept affected management and staff informed of impending legislation. The Initial Compliance Report was submitted to the BAAQMD in June 2008 and an appropriate chemical fume suppressant was purchased.

9.7 Sulfur Hexafluoride (SF6)

CARB is developing regulations that would limit GHG emissions from semiconductor and non-semiconductor industry, particularly emissions of SF6. The Air Quality Program has actively monitored progress of these new regulations including attending the CARB Board Hearing held in February 2009. The regulation that applies to non-semiconductor applications was originally written to completely ban the use of SF6. However, based on discussions with LLNL, UC Office of the President and Sandia/CA Air Quality Program staff, the CARB Board has directed staff to revise the proposed regulation to allow limited use of the chemical. Based on current uses at SNL/CA, the regulations are not expected to prevent SNL/CA from continuing to use SF6. However, SNL/CA will likely be subject to reporting and recordkeeping requirements.

10 Issues

10.1 Mobile Sources (Diesel and Large Spark-Ignition Engines)

CARB has developed several regulations to control PM and NOx from diesel fueled vehicles and equipment (see Section 11 for more information on these regulations). These regulations would require that mobile equipment and vehicles either meet fleet average emission standards or are retrofitted to meet best available control technology standards. Based on preliminary estimates, potential costs (in FY2007 dollars) to satisfy these requirements are listed below:

- Off-road Diesel Vehicles = $225,000.
- On-road Diesel Vehicles = $40,000
- Portable Diesel Equipment = $150,000
- Off-road Spark-ignition equipment (primarily forklifts)= $21,000

Section 7.1 and Appendix C discuss the risks to SNL/CA operations due to the State's increased regulation of diesel-powered vehicles and equipment.

10.2 New Requirements for Boilers

Recent regulatory revisions to BAAQMD Regulation 9 Rule 7 will impose new requirements on Sandia/CA's nine natural-gas boilers having a rated input greater than 2 MM BTU/hr. The new regulations address (1) annual inspections, (2) insulation requirements, (3) limits on stack gas temperature, and (4) emissions limits on NOx and CO. At this time, regulatory guidance on implementing these new requirements is minimal and the industry's understanding of how to bring existing boilers into compliance is still in the very early stages. Air Quality Program staff and Facilities Maintenance personnel are actively working with Sandia's boiler maintenance contractor (one of the largest companies in the industry and one of the most proactive in developing approaches for implementation) to determine a compliance strategy for the site's nine boilers. Initial estimates of compliance range from $1 million to 1.5 million dollars over the next four years.

11 Trends

As will be discussed below, a number of emission sources have been removed from SNL/CA reducing the number of permitted and exempt sources on Sandia/CA's operating permit. However, facility wide, this reduction has been more than offset by a large number of new regulations currently promulgated or being developed at the local, state, and federal levels addressing mobile sources, GHGs, combustion sources, etc.

11.1 Increased Regulatory Activity

Federal, state, and local agencies continue to develop measures to reduce exposure to toxic air contaminants and criteria pollutants. In addition, particularly at the state level, efforts are underway to reduce emissions from diesel engines and greenhouse gases such as carbon dioxide (CO_2) and sulfur hexafluoride. Air Quality Program staff are currently actively following the development and/or implementation of 12 new regulations that are applicable to SNL/CA operations. These are:

a) four CARB regulations aimed at diesel and large spark-ignition (LSI) engines and equipment
b) new CARB and BAAQMD emissions limits on internal combustion engines
c) three CARB regulations addressing high-warming potential (HWP) GHGs
d) one CARB regulation and 1 EPA regulation addressing GHG emissions from stationary combustion sources
e) one BAAQMD regulation requiring additional maintenance, annual inspections, insulation, and emissions controls for industrial boilers
f) revision of the BAAQMD Architectural Coatings rule
g) new CARB and BAAQMD requirements for chromium plating operations

The new regulations are described in more detail below.

11.1.1 CARB Regulations Aimed at Diesel and LSI Engines

CARB has been developing several regulations to control diesel particulate matter (DPM) and NOx from diesel fueled vehicles and equipment. SNL/CA will be subject to three CARB regulations that are designed to reduce diesel PM and NOx from mobile sources powered by diesel fuel:

- In-Use Off-Road Diesel Vehicles Regulation (CCR Title 13, Section 2449) for engines greater than 25 HP. SNL/CA has identified 11 vehicles subject to this regulation.
- Airborne Toxic Control Measure (ATCM) for Diesel-Fueled Portable Engines (CCR Title17, Section 9316) for engines greater than 50 HP. SNL/CA has two engines subject to this regulation.
- On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation (CCR Title 13, Section 2025) for vehicles with a gross vehicle weight rating (GVWR) of greater than 14,000 lb. SNL/CA has identified six engines subject to this regulation.

In addition, SNL/CA will be subject to the regulation below that focuses on reducing NOx and hydrocarbons (HC) from mobile gasoline powered equipment:

- Off-Road Large Spark-Ignition (LSI) Engine Rule (13 CCR Section 2430, 2431, 2438, 2775) for engines greater than 25 HP. SNL/CA has identified six gasoline powered forklifts subject to this regulation.

11.1.2 CARB and BAAQMD Emission Limits on Internal Combustion Engines

To reduce PM_{10} and NOx emissions in the region, BAAQMD amended their Regulation 9, Rule 8, "Nitrogen Oxides and Carbon Monoxide From Stationary Internal Combustion Engines." BAAQMD defines a stationary engine as one that remains at a facility for more than one year. As a result of this regulation, two emergency generators (S#102 and S#108) will need to reduce the hours of use from 100 hours of reliability-related operations to 50 hours starting in 2012. One portable generator used for non-emergency purposes (S#103) will need to meet the new emission limits in 2012.

In addition, the BAAQMD has imposed permit conditions on two of SNL/CA's portable diesel-powered generator to implement CARB's ATCM for diesel-fueled portable engines. To comply with the permit conditions, two portable generators (S#102 and S#103) must satisfy more stringent emission standards.

11.1.3 CARB Regulations Regarding High-Warming Potential - Green House Gasses

CARB is developing three regulations related to sulfur hexafluoride (SF6) and other high-warming potential green house gasses (GHGs):

1. Reduction of SF6 from Non-Utility & Non-Semiconductor Manufacturing
2. Reduction of GHG Emissions from Semiconductor Operations
3. SF6 Emission Reductions from the Electricity Sector and Particle Accelerators

The first two are very close to being finalized. The third regulation is just now being developed, and a draft of the regulation is expected in July with actual implementation expected in October 2011. All three of these regulations will have applicability to Sanida/CA operations. Once final, these regulations will be analyzed and applicable requirements will be identified and implemented.

11.1.4 Regulations Addressing GHG from Stationary Combustion Sources

In California, Assembly Bill Number 32 was signed into law on September 27, 2006 and made CARB responsible for monitoring and reducing GHGs. Originally, significant sources of GHG emissions were required to submit an emissions inventory to CARB starting April 1, 2009 but that was delayed to June 1, 2009. Generally, significant sources are those facilities that emit 25,000 metric tons of CO_2 from stationary combustion sources. Emissions from cars, carts, permitted emergency generators, and mobile equipment do not count toward the 25,000 metric tons limit. In addition, CARB has been developing action measures to reduce GHG emissions including those discussed previously regarding high-warming potential GHGs.

The Environmental Protection Agency (EPA) has also proposed its own GHG mandatory reporting rules. Under the proposed rules, facilities subject to reporting would need to submit their first report on March 31, 2011.

Given the relatively limited emission-causing activities associated with SNL/CA compared to other facilities in the state, SNL/CA is not expected to be considered a significant source. For

example, a review of natural gas consumption by onsite boilers in 2005, the primary stationary combustion source of GHG emissions at SNL/CA, showed that natural gas consumption during that year was about 15 percent of the consumption that CARB believes would normally trigger the need to report under the state regulations. Therefore, CARB reporting requirements are not anticipated to apply to SNL/CA. However, SNL/CA will closely monitor the EPA proposed regulation as it is being developed and any source specific requirements that may be promulgated to reduce high-warming potential GHGs.

11.1.5 BAAQMD Boiler Regulation

As discussed in Section 10.2, recent regulatory revisions to BAAQMD Regulation 9 Rule 7 will impose new requirements on Sandia/CA's nine natural-gas boilers having a rated input greater than 2 MM BTU/hr. Air Quality Program staff and Facilities Maintenance personnel are actively working with Sandia's boiler maintenance contractor to determine a compliance strategy for the site's nine boilers.

11.1.6 BAAQMD Architectural Coatings Regulation

As discussed in Section 9.4, BAAQMD is revising their architectural coating rules based on recommendations from CARB. The Air Quality Program will continue to review the proposed changes to ensure SNL/CA will be in compliance with the revised rule.

11.1.7 CARB and BAAQMD Requirements for Chrome Plating Operations

As described in Section 9.6, BAAQMD is implementing CARB's new requirements regarding chrome plating operations. The Air Quality Program had been following the development of the regulation and kept affected management and staff informed of impending legislation and regulatory requirements.

11.2 Reduction in Number of Permitted and Exempt Emission Sources

During the past year, the following four permitted or exempt sources were dismantled and removed from SNL/CA:

- Diesel tank located in Building 907 (Exempt Source #30)
- Soldering unit located in Building 910 (Exempt Source #41)
- Perchloroeethylene Cold Cleaner located in Building 910 (Permitted Source #33)
- Paint Spray Booth located in Building 963 (Permitted Source #96)

The diesel tank and soldering units were exempt sources and did not have any limiting conditions in SNL/CA's Permit To Operate and were not subject to any annual fees. However, the cold cleaner and paint spray booth were permitted sources and were therefore subject to usage limits, recordkeeping requirements, inspections and annual fees. As a result of removing these sources from the site, emissions from permitted and exempt sources are expected to be reduced. These four sources will be removed from the 2009/2010 Permit To Operate (valid July 1, 2009 thru June 30, 2010).

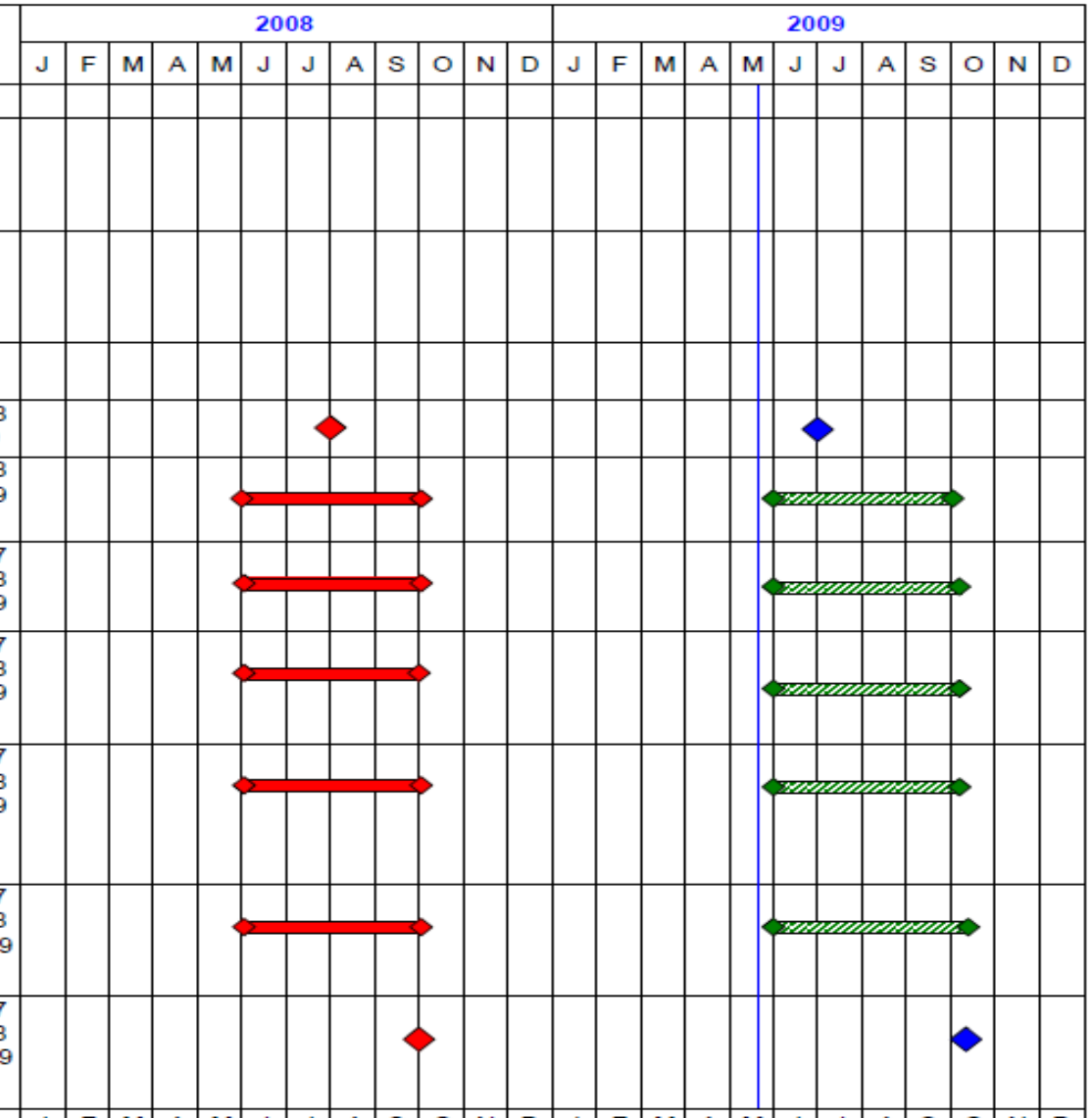
12 Goals and Objectives

The Air Quality Program has developed goals and objectives as part of the SNL/CA EMS Program. There are two primary Air Quality EMS Objectives: (1) reducing air emissions related to operations and transportation in general, and (2) reducing air emissions relating to operations and transportation with particular emphasis on Spare The Air Days. Figure 3 lists the Targets and Actions that have been identified to support these Objectives. These Targets and Actions have both short term (within the next year) and near term (within 3 years) completion dates.

Although there is one Target addressing stationary sources (i.e., the Paint Shop), the primary focus is on reducing the emissions from mobile sources. Most of SNL/CA's stationary sources of emissions are permitted with the BAAQMD, and therefore already have strict control measures applied to them. SNL/CA's mobile sources (carts, trucks, lawn mowers, leaf blowers, garbage truck, bus/van, etc.) are relatively less regulated, and therefore offer the greatest opportunity for emissions reduction.

Figure 3. Air Quality EMS Targets and Actions Timeline

	Activity Name	Assigned To	Start Date	Finish Date
1	**Air Emissions**			
2	Objective: Minimize Air emissions related to operations and transportation with particular emphasis on Spare-the-Air days			
3	**Target 1: Maintain on site fueling operations on Spare-the-Air days at (an average of) less than or equal to 3 fill ups / STAD**			
4	Increase communications to the workforce			
5	Give annual presentation on STAD to Maintenance	Gardizi	7/31/08 7/1/09	7/31/08 7/1/09
6	Monitor weather projections and alert for the possibility of STAD a week ahead.	AQ Intern Gardizi	6/1/08 6/1/09	10/2/08 10/2/09
7	Post banners the day before and day of Spare-the-Air days	Gardizi	6/1/07 6/2/08 6/1/09	10/2/07 10/2/08 10/6/09
8	Distribute site wide email notification the day before Spare-the-Air days containing specific instructions	Gardizi	6/1/07 6/2/08 6/1/09	10/2/07 10/1/08 10/6/09
9	Display Spare-the-Air posters at fueling station on Spare-the-Air days	Gardizi	6/1/07 6/2/08 6/1/09	10/2/07 10/2/08 10/6/09
10	Lock out fueling station on Spare-the-Air days		6/1/07 6/2/08 6/1/09	10/2/07 10/2/08 10/13/09
11	Collect and compile data for fill-ups on STAD		9/28/07 9/30/08 10/12/09	9/28/07 9/30/08 10/12/09



Red milestones and bars indicate action is complete.

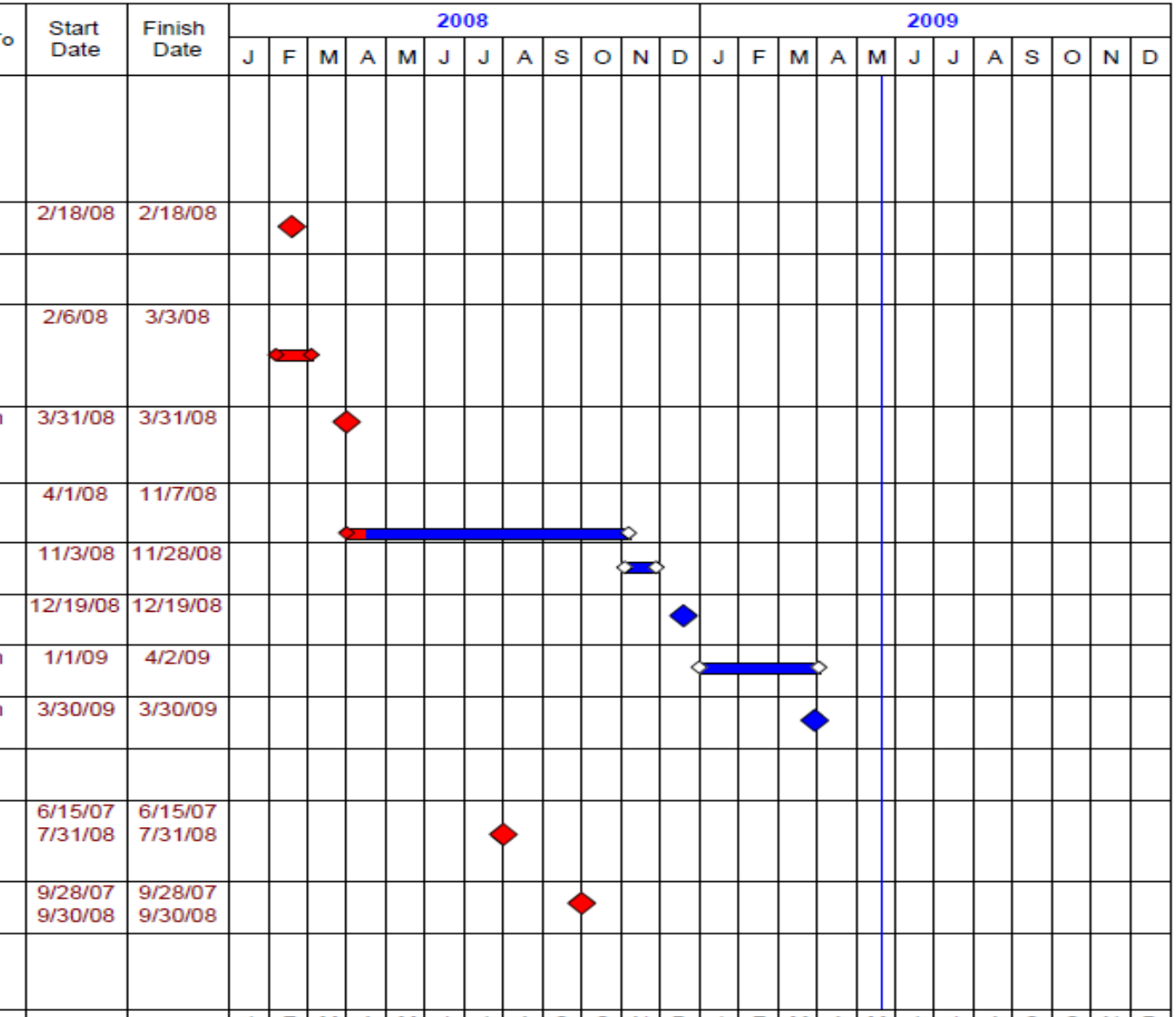
	Activity Name	Assigned To	Start Date	Finish Date	2008												2009											
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
12	Create AP for Spare-the-air day actions																											
13	Determine if there is a safety policy on siphoning	Larsen	7/31/08	7/31/08							◆																	
14	Determine if there is a safety policy on use of portable gas cans	Larsen	7/31/08	7/31/08							◆																	
15																												
16																												
17	**RETIRED TARGETS**																											
18	**Target met: By the end of FY06, reduce the number of on site fueling operations by 50% on Spare-the-Air days from an FY03/04 baseline (from 6.14 fill ups to 3.07 fill ups on Spare-the-Air days)**	Gardizi	9/25/06	9/25/06																								
19	**Target re-evaluated and retired without further action: By the end of FY08 reduce paint shop emissions (VOCs) by 25% from FY04 baseline**																											
20	Prepare PPOA	Farren/NM	3/1/05	4/4/05																								
21	Research state of the art equip technologies	Painter	4/1/05	5/3/05																								
22	Review equipment specs vis-a-vis air quality regulations	Gardizi	5/2/05	6/2/05																								
23	Prepare and submit purchase order for equip.	Gardizi/Painte	5/30/05	6/13/05																								
24	Equipment delivery and install	Painters	7/1/05	8/1/05																								
25	Inspect installation of equip.	Gardizi /Paint	8/12/05	9/1/05																								
26	Review PPOA	Gardizi	7/29/06	10/2/06																								
27	Determine if additional improvements are warranted for paint shop operations	Gardizi	9/29/06	9/29/06																								
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

Red milestones and bars indicate action is complete.

	Activity Name	Assigned To	Start Date	Finish Date	2008												2009											
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
28	Prepare a 2005 emissions estimate for the Paint Shop	Gardizi	8/1/06	11/2/06																								
29	Re-evaluate target and determine next course of action	Gardizi	2/28/07	2/28/07																								
30																												
31	Retired actions																											
32	Implement a Cart Management Plan																											
33	Management meeting to assign lead and supporting team members	Shamber	6/9/06	6/9/06																								
34	Obtain corporate Cart Management Plan and distribute to Core Team for review	Larsen	3/16/07	3/16/07																								
35	Review corporate plan and identify areas needing improvement / update	Core Team	4/30/07	4/30/07																								
36	Complete PPOA of electric vs. gas carts - Sandia wide	NM P2 / Harr	7/2/07	11/5/07																								
37	Complete transportation study for SNL/CA	NM P2 / Harr	7/2/07	5/6/08																								
38	Determine plan of action after review of results of PPOA and transportation study	Shamber	3/3/08	6/2/08																								
39	Collect and compile data on # of spills per year due to overfilling gas carts in prior years	Gardizi	8/1/06	9/25/06																								
40	Investigate modifications to cart gas tanks that will prevent overfilling	Gardizi	9/29/06	10/30/06																								
41	Check with Maintenance to determine if gas tanker delivery can be delayed when a STA day is identified.	Gardizi	6/30/06	6/30/06																								
42																												
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

Red milestones and bars indicate action is complete.

	Activity Name	Assigned To	Start Date	Finish Date
43	**Target met for at least 3 of 4 emission categories: In FY08, reduce site wide mobile source emissions by 10% from an FY04 baseline**			
44	Correct source data used in baseline	Gardizi	2/18/08	2/18/08
45	Implement a Cart Management Plan			
46	Compile existing cart management information and previous input from program leads	Larsen	2/6/08	3/3/08
47	Meet to discuss cart management and develop outline for plan	Core Team	3/31/08	3/31/08
48	Prepare draft site transportation plan	Shamber	4/1/08	11/7/08
49	Socialize transportation plan with site management	Shamber	11/3/08	11/28/08
50	Obtain SHEAC approval for transportation plan	Shamber	12/19/08	12/19/08
51	Develop implementation strategy	Core Team	1/1/09	4/2/09
52	Begin implementation of transportation plan	Core Team	3/30/09	3/30/09
53	Permanently Reduce Overfilling of Gas Carts			
54	Communicate about overfilling in June of each year (TNTs and emails)	Gardizi	6/15/07 7/31/08	6/15/07 7/31/08
55	Monitor gas spills	Gardizi	9/28/07 9/30/08	9/28/07 9/30/08
56	Replacement of landscaping equipment with less polluting types			



Red milestones and bars indicate action is complete.

	Activity Name	Assigned To	Start Date	Finish Date	2008												2009											
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
57	Survey of maint. equipment	Clevenger	3/26/07	7/3/07																								
58	Develop replacement options	Clevenger	7/2/07	8/13/07																								
59	Implement replacement	Clevenger	8/10/07	11/25/09																								
60	Calculate final emissions reduction achieved through various options	Gardizi	10/30/09	4/6/10																								
					J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D

13 References

SNL, 2005. 2004 *Baseline Emission Inventory of Mobile Sources*. Prepared by Richard Shih. December 2005.

SNL, 2007. *2005 Emission Inventory of Mobile Sources Progress Report*. Prepared by Richard Shih. April 2007.

APPENDIX A

Permitted and Exempt Sources

Permitted Sources

Source #	Building	Description	Type of Emission	Permit Owner
32	963	Above Ground Gas Tank	Organics	Dwight Soria
55	961	Decontamination Sink	Solvents	Gary Shamber
56	961	Waste Compactor	Particulates	Gary Shamber
60	961	Drum Crusher	Solvents & Particulates	Gary Shamber
77	943	Chromium Plating Ops	Not Operational	John Hachman
93	Sitewide	Maintenance & Facilities Adhesive & Sealant Use	Organics	Dwight Soria
95	Sitewide	Sitewide Wipe Cleaning	Organics	AQ Program
101	9151	Emergency Diesel Generator - 20 Hours for Maintenance and Testing	Particulates, Organics NOx, SO2, CO	Mark Padilla
102	Portable	Emergency Diesel Generator - 100 Hours for Maintenance and Testing	Particulates, Organics NOx, SO2, CO	Mark Padilla
103	Portable	Diesel Generator - 300 Hours for Discretionary Use	Particulates, Organics NOx, SO2, CO	Mark Padilla
104	964	Emergency Diesel Generator - 20 Hours for Maintenance and Testing	Particulates, Organics NOx, SO2, CO	Mark Padilla
105	968	Emergency Diesel Generator - 20 Hours for Maintenance and Testing	Particulates, Organics NOx, SO2, CO	Mark Padilla
108	9151	Emergency Diesel Generator - 100 Hours for Maintenance and Testing	Particulates, Organics NOx, SO2, CO	Mark Padilla

Exempt Sources

Source #	Building	Process or Equipment	Owner	Status
6	907	Boiler	Russ Kellman	Exempt from Permitting
7	907	Boiler	Russ Kellman	Exempt from Permitting
25	912	Boiler	Johnny Vargas	Exempt from Permitting
26	968	Boiler	Russ Kellman	Exempt from Permitting
27	968	Boiler	Russ Kellman	Exempt from Permitting
28	910	Boiler	Johnny Vargas	Exempt from Permitting
29	910	Boiler	Johnny Vargas	Exempt from Permitting
40	961	Ultrasonic Cleaner	Gary Shamber	Exempt from Permitting
61	906/153	Laser Chemistry Lab	Craig Taatjes	Exempt from Permitting
65	906/101	Materials Synthesis Lab	Tony McDaniel	Exempt from Permitting
74	941/1132	Macro Molecular Chemistry Lab	Andy Vance	Exempt from Permitting
81	943	Boiler	Mike Replogle	Exempt from Permitting
82	943	Boiler	Mike Replogle	Exempt from Permitting
91	906/Machine Shop	Confined Abrasive Blaster	Ken St. Hilaire	Exempt from Permitting
32100	Sitewide	Fugitive Emissions from Research Lab	N/A	Exempt from Permitting

APPENDIX B

Air Quality Program Assignments

Job Assignment	Personnel	Back-Up
Air Quality Program Lead	Leslee Gardizi	Barbara Larsen; Rick Shih
Air Quality Specialist	Rick Shih	None
Air Quality Specialist	Eric Rivero	None

APPENDIX C

Air Quality Program Risk Assessment

Air Quality Program Risk Assessment
(March 2009)

The risk assessment process for the Air Quality 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**
Very High	• Everything points to this occurring
High	*• High chance • Lack of relevant processes or experience contribute to a high chance of occurrence*
Medium	*• Even chance*
Low	*• Not much of a chance*
Negligible	• Negligible chance this will occur

CONSEQUENCE/ SEVERITY LEVEL	**CONSEQUENCE/SEVERITY CRITERIA**
High	*• 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)* [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 >$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 (>$10M)

Medium	*• Has the potential for adverse impact on Sandia's programmatic performance or the achievement of corporate strategic or operational objectives • Significant injury/illness -fully recoverable with a long recovery time • Significant environmental impact resulting in recovery actions lasting up to 5 years (e.g., major oil spill) • Results in Site/Area Emergency (affects multiple onsite facilities) • One of regulator "hot buttons" (e.g., NNSA, NMED) • Results in increased oversight of limited number of functions • Actions, inactions, or events that pose threats to DOE security interests or that potentially degrade the overall effectiveness of DOE's safeguards and security protection program (i.e., IMI-3)* † *• Unallowable costs or fines >$500K and <$1M • Adverse public opinion – moderate interest, limited PR problems of short duration (days) • Customer dissatisfaction results in partial loss of program • Significant failure to meet internal requirements* • Loss of program within division (>$1M)
Low	*• Minimal injury/illness – Fully recoverable with a short recovery time • Minimal environmental impact that can be improved within days • Results in increased short-term oversight • Results in an Operational Emergency (affects a single onsite facility) • Actions, inactions, or events that could pose threats to DOE by adversely impacting the ability of organizations to protect DOE safeguards and security interests (i.e., IMI-4)* † *• Unallowable costs or fines <$500K • Adverse public opinion with short-term local negative publicity or embarrassment*
Negligible	• Little or no attention, might be discussed as lesson learned

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

RISK GRADING LEVELS					
		Consequence/Severity			
		Negligible	***Low***	***Medium***	***High***
Likelihood of Occurrence	***Very High***	*Low*	*Medium*	*High*	*High*
	High	*Low*	*Medium*	*High*	*High*
	Medium	*Low*	*Medium*	*Medium*	*High*
	Low	*Low*	*Low*	*Low*	*Medium*
	Negligible	*Low*	*Low*	*Low*	*Low*

Risks Associated with the Air Quality Program

1. **Increased Regulation to require Title V permit**
2. **Nuisance Complaint filed with BAAQMD**
3. **Large Quantity Accidental Release to Atmosphere**
4. **Operating a Source Without a Permit**
5. **Reduction in Program Funding by 10%**
6. **Increased Regulation of Diesel-Powered Vehicles and Equipment**

1. Increased Regulations that will require a Title V permit

a. Identification of Risk

California (and EPA) has been increasing the number of regulated substances (especially toxics). The emission limits for some toxics are quite low. There is the potential that the increased regulations would require the SNL/CA site to obtain a Title V permit (for toxics emission).

b. Probability of Occurrence

Given the nature of a Research and Development laboratory having many different chemicals but in very small quantities the probability is considered to be LOW.

c. Consequence of Occurrence

A Title V permit would require new reporting requirements. Instrumentation for control or monitoring of the emissions would also be required. Manpower would be expended during the initial permit process, and during renewal cycles. Ongoing increased regulatory oversight could be expected. The consequence is considered LOW.

d. Overall Risk Category

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

2. Nuisance Complaint filed with BAAQD

a. Identification of Risk

Odors or visible emissions emanating from the SNL/CA site could cause local residents to file a nuisance complaint with the Bay Area Air Quality Management District.

b. Probability of Occurrence

SNL/CA has had a few instances in the recent past of visible emissions being released from site operations. SNL/CA has also experienced breaks in gas lines, which could possibly cause off-site odor issues. Nuisance odors from chemical releases are considered unlikely due to controls on use and storage. The probability is considered LOW.

c. Consequence of Occurrence

Response to a nuisance complaint would be handled by cessation of the operation causing the release (for the short term). Long term fixes could involve modifications to operations. Nuisance complaints are taken very seriously by the local regulatory agency and would undoubtedly lead to increased regulatory oversight. The consequence is considered LOW.

d. Overall Risk Category

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

3. Large Quantity Accidental Release to Atmosphere

a. Identification of Risk

The risk to be considered here is a release of a large quantity of contaminant to the atmosphere.

b. Probability of Occurrence

Given the large number of chemicals used on-site, an accidental release at some point in the lifetime of the facility is likely. However, most of the chemicals are not present in large quantities and therefore the likelihood of a large-quantity accidental release is LOW.

c. Consequence of Occurrence

Modeling has shown that the worst-case scenario of the release of a toxic gas from a SNL/CA facility has no detrimental impact on off-site persons. Impact to site personnel is not considered here, since that possibility falls under the purview of the Industrial Hygiene and Emergency Management Programs.

Compared to the totality of emissions in the San Francisco Bay Area, or the Livermore Valley, any credible release from SNL/CA is NEGLIGIBLE.

d. Overall Risk Category

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

4. Operating a Source without a Permit or in Violation of Permit Conditions/Limits

a. Identification of Risk

An operation or a piece of equipment that would require a permit from the Bay Area Air Quality Management District could be operating without the knowledge of Air Quality Program personnel, and without a permit. Or, a permitted source could be operating outside the boundaries or limits set forth in the BAAQMD regulations or the Sandia National Laboratories/CA Operating Permit.

b. Probability of Occurrence

There are numerous processes in use at the SNL/CA site to help reduce the likelihood of such an occurrence: (1) all projects are required to make a presentation to the IDT before operations begin; (2) the Air Quality Program receives reports generated by the Chemical Information System on the use of toxics; (3) self-assessments performed by ES&H and line organizations can identify air quality issues; (4) Usage Log Sheets designed with checks and balances; and (5) engineered controls, such as a fixed barrier, when appropriate.

However, given the complexity and dynamic nature of R&D operations, the probability of a source operating without a permit or a permitted source not operating in conformance with applicable requirements is considered to be HIGH.

c. Consequence of Occurrence

Consequences of operating without a permit or not operating in accordance with applicable requirements would typically involve a temporary shutdown of the process while a permit is obtained, and potentially a fine (probably <$5,000) from the regulatory agency, both of relatively low consequence. However, we would also likely see an adverse impact on Sandia's operational performance, an increase in oversight, and a significant failure to meet internal requirements (DOE, EMS, etc.), all of which are of a medium significance. This consequence is therefore graded as MEDIUM.

d. Overall Risk Category

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

5. Reduction in Program Funding by 10%

a. Identification of Risk

The Environmental Management Department, like other organizations with indirect-funded programs, is experiencing flat and possibly reduced budgets over the next several years. Nearly all of the Air Quality Program's expenditures are for labor costs; therefore any reduction in the programmatic budget would affect staffing.

b. Probability of Occurrence

Due to budget constraints that are expected to continue for the next couple of years, it is a HIGH probability that funding for the Air Quality Program will be reduced by 10% from FY2009 levels.

c. Consequence of Occurrence

Reduced staffing levels would be the primary affect of a 10% reduction in funding. Air Quality Program activities that are done in order to be a good-corporate citizen or are good business practices would be eliminated or greatly reduced. Such projects are: activities relating to Spare The Air Days; mobile source emissions inventory; programmatic self assessments; site communications (TNTs, Communicator articles, New Hire Orientation training, organizational outreach, Earth Day activities, etc.), and Employee Commuter issues and initiatives. Every effort would be made to not negatively impact regulatory required activities. However, a reduced staffing level would be of particular concern owing to the fact that the Air Quality Program's work load will be increasing over the next several years in order to comply with California's new regulations governing diesel-powered vehicles and equipment (see Risk 6). A reduced staffing level would definitely increase the risk of SNL/CA's diesel fleet not meeting the mandated deadlines for retrofitting or retirement. Based on the criteria presented in the table, the consequences of a 10% reduction in funding for the Air Quality Program are considered to be MEDIUM.

d. Overall Risk Category

According to the Consequence/Severity Table presented above, a risk with a HIGH probability and a MEDIUM consequence falls into the **HIGH** risk category.

6. Increased Regulation of Diesel-Powered Vehicles and Equipment

a. Identification of Risk

The California Air Resources Board (CARB) has been developing several regulations to control particulate matter (PM) and oxides of nitrogen (NOx) from diesel fueled vehicles and equipment (forklifts, backhoes, tractors, portable compressors and electric generators ≥50 hp, trash truck, water truck). A preliminary estimate of the cost for SNL/CA to comply with California's diesel regulations over the next 12 years would be approximately $600K (in 2007 dollars). If the funds for retrofitting or repowering engines were not available, the vehicles and equipment would need to be retired or transferred to a location outside of California (both of which would also have an undetermined cost).

b. Probability of Occurrence

During this era of budget cuts, especially for IES operations, there is a HIGH likelihood that adequate funds will not be available to retrofit/repower the entire diesel fleet/equipment.

c. Consequence of Occurrence

Although the Diesel Compliance Plan is just in the initial stages of development, it is anticipated that many of the ≈ 35 vehicles/equipment impacted will need to be retired or transferred out-of-state due to (1) lack of funds to retrofit or (2) their inability to meet current emissions limits even with the use of state-of-the-art emissions control equipment. This could pose the situation where a critical piece of equipment for a particular project (e.g., a forklift or a generator) would not be available when needed and could affect programmatic timelines. In addition, depending on which equipment was retired or transferred from the fleet, activities such as sewer work, buffer zone maintenance, garbage disposal, street sweeping, trenching, etc. would need to be contracted out. Response times to situations needing heavy equipment (e.g., vehicles stranded in off road locations) would be significantly increased. This consequence is graded as MEDIUM.

d. Overall Risk Category

According to the Consequence/Severity Table presented above, a risk with a HIGH probability and a MEDIUM consequence falls into the **HIGH** risk category.

APPENDIX D

Air Quality Program Review Checklist

Annual Air Quality Program Review Checklist

Organization: 8516 **Program: Air Quality**

Date Completed: 2/18/09 **Signature:** *Leslee Gardizi*

Program Lead

Document Type	Document Title	Review Complete / Date	Changes Made	Comments
PHS	Air Quality Program Operations at SNL/CA, # SNL06A00051-004	☒ Feb 2009	☐ Yes ☒ No	Annual roll-over to occur in March. No significant changes needed.
Operating Procedures	OP471707 Operating Procedure for Air Quality Program at SNL/CA	☒ Feb 2009	☒ Yes ☐ No	Minor changes regarding Mail Stop, location and contact information
	OP471799 Refrigerant Storage and Handling Procedure	☒ May 2008	☒ Yes ☐ No	Comments provided to OP owner (M. Frisch)
	AP47800011 Spare The Air Program	☒	☐ Yes ☒ No	
Other Program Documents	Program Report	☒ April 2008	☒ Yes ☐ No	Next annual update will occur in March 2009
	ES&H Manual Section 17B Air Permits	☒ Feb 2008	☐ Yes ☐ No ☒ Not Yet	Under the Applicability section, need to correct "regulated air contaminant" link so that it takes reader to BAAQMD Table 2, not to a NM definition.
	ES&H Manual Section 17C Air Emissions Control Measures	☒ Feb 2008	☐ Yes ☒ No	
	ES&H Manual Section 17D Ozone Depleting Substances (ODSs)	☒ Feb 2008	☐ Yes ☒ No	
	BAAQMD Permit To Operate	☒ July 2008	☒ Yes ☐ No	Corrections were identified and communicated to BAAQMD staff.
	Air Quality Source Usage Logs	☒ Feb 2009	☒ Yes ☐ No	Updated log book to reflect dismantlement of Perc Cold Cleaner and Paint Shop.
Contracts	Air Quality Engineering Services with ERM-West	☒ 1/20/09	☒ Yes ☐ No	In January, the POP was extended. Money will be added to contract, rates will be increased, new ERM staff will be added to SOW, and the renewal finished in March/April, once Procurement staff are available.
Web Pages	General Web Page	☒ Feb 2009	☐ Yes ☒ No	
	Program Web Pages	☒ Feb 2009	☒ Yes ☐ No	Updates needed for resource links.
	Program Metrics	☒ Nov 2008	☒ Yes ☐ No	Updated AQ metric info provided to G. Shamber
Outlook Task Calendar		☒ 2/16/09	☒ Yes ☐ No	Added tasks from Diesel Compliance Schedule to Outlook Task Calendar

APPENDIX E

Line Implementation Assessment

of the Air Quality Program

Self Assessment Report
Assessment ID: 6758

EMS Air Quality Program FY09

Assessment Information

ID:	6758
Title:	EMS Air Quality Program FY09
Description:	With the BAAQMD regulatory framework, a source can be exempt from permitting yet still be subject to regulations governing the source's operation. Because an actual permit is not issued, these exempt sources can be overlooked and, over the years, drift away from compliance either because the regulations change or the operating parameters of the source change. This assessment will verify that the 14 exempt sources are operating according to applicable BAAQMD regulations and that specified exemptions are still valid for current operations.
Originating Mgt. Entity:	Policy Area » Environmental Safety & Health
Assessing Organization:	08516 Manager: SHAMBER,GARY W. Division: 08000
Org Being Assesssed:	N/A
Type:	Line Assess the Line
Status:	Conducted
Dates:	12/16/2008 - 02/03/2009

Section 1 *Executive Summary*

1.1 Who/What was assessed
The 14 air pollution point sources that are Exempt From BAAQMD Permitting will be assessed.

1.2 Overview of Scope
Not Specified

1.3 Why Assessment was performed
Because an actual permit is not issued to these exempt sources they can be overlooked and, over the years, drift away from compliance either because the regulations change or the operating parameters of the source change.

1.4 The Assessment resulted in the following:
0 Significant Finding(s)
0 Minor Finding(s)
1 Observation(s)
0 Noteworthy Practice(s)
5 None - Acceptable Practice(s)

Not Specified

1.5 What happens next
The Air Quality Program will convey the upcoming regulatory requirements applicable to the boilers to the Bob Clevenger and Preston Oliver. The AQ Program staff will assist the Preventative & Corrective Maintenance Group (8513-1) with bringing the site's nine boilers into compliance according to the regulatory schedule.

1.6 Who to contact if there are questions
Leslee Gardizi (925)294-3680

Section 2 *Introduction*

2.1 Background
With the BAAQMD regulatory framework, a source can be exempt from permitting yet still be subject to regulations governing the source's operation. Because an actual permit is not issued, these exempt sources can be overlooked and, over the years, drift away from compliance either because the regulations change or the operating parameters of the source change.

2.2 Purpose of assessment
This assessment will confirm that the 14 exempt sources at SNL/CA are operating according to applicable BAAQMD regulations and that specified exemptions are still valid for current operations.

2.3 Location(s) Assessed

Site - Area	Building/Structure	Room	Other
California	907	OUTSIDE	Boilers(2)
California	968	OUTSIDE	Boilers(2)
California	910	n/a	Boilers(2)
California	943	n/a	Boilers(2)
California	906	n/a	Machine Shop
California	906	101	laboratory
California	941	1132	Macro Molecular Chemistry Laboratory
California	906	153	Laser Chemistry Laboratory
California	961	100	Ultrasonic Cleaner
California	912	OUTSIDE	Boiler

2.4 Planning Documents Reviewed
None

2.5 Scope/Criteria
ES&H » Environmental Protection » Air Quality Compliance

2.6 Associated Document Link(s)
None

Section 3 *Assessment Performance*

3.1 Assessment Team Members

Name	Org.	Role
GARDIZI,LESLEE P.	08516	Lead Assessor
GARDIZI,LESLEE P.	08516	Creator
SHIH,RICHARD	08516	Subject Matter Expert
RIVERO-MONTES,ERIC	08516	Subject Matter Expert

3.2 Personnel Interviewed

Name	Org.	Responsibility	Date	Phone
MCDANIEL,ANTHONY H.	08367	Principle Investigator for the B906/101 laboratory	02/19/2009	4-1440
VANCE,ANDREW	08223	Principle Investigator for the Macro Molecular Chemistry Lab (Source 74)	02/12/2009	4-1357
JUSINSKI,LEONARD E.	08353	Operator of Laser Chemistry Lab (Source 61)	02/12/2009	4-3215
ST. HILAIRE,KENNETH N.	08362	Owner of Confined Abrasive Blaster (Source 91)	02/05/2009	4-1363
GARCIA,TOFF B.	08517	Owner of Ultrasonic Cleaner (Source 40)	02/05/2009	4-2149

3.3 Documents Reviewed

Document	Number	Description	Revision	Type	Date of Review
BAAQMD Regulation 2		The local air district's regulations pertaining to permitting requirements.		Regulation	02/05/2009
BAAQMD Regulation 9		The local air district's regulations pertaining to Inorganic Gaseous Pollutants		Regulation	TBD

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 1 Observation(s).

Observation No. 1

The nine boilers evaluated remain exempt from BAAQMD permitting because they are less than 10 million Btu/hr and their only fuel source is natural gas. However, recent regulatory changes to BAAQMD Reg 9 will impose new requirements on boiler operations. The boilers are not currently out of compliance but have regulatory deadlines for numerous actions over the next three years.

Trending Code: Quality Improvement

Result Location(s):

Site - Area	Building/Structure	Room	Other
n/a	n/a	n/a	Boilers in B907, B912, B968, B910, B943

Result Criterion: ES&H » Environmental Protection » Air Quality Compliance

Result Associated Document Link(s)
None

Section 7 *Noteworthy Practices*

This Assessment resulted in 0 Noteworthy Practice(s).

Section 8 *None - Acceptable Practices*

This Assessment resulted in 5 None - Acceptable Practice(s).

None - Acceptable Practice No. 1

The Ultrasonic Cleaner in B961 (BAAQMD Source 40) was evaluated to verify that the exemption from BAAQMD permitting remains applicable. Through an interview with the source owner, an inspection of the equipment, and VOC concentration calculations it was determined that the Ultrasonic Cleaner remains exempt from BAAQMD permitting requirements per Regulation 2-1-118.5

None - Acceptable Practice No. 2

The Confined Abrasive Blaster in B906/105 (BAAQMD Source 91) was evaluated to verify that the exemption from BAAQMD permitting remains applicable. Through an interview with the source owner (Ken St Hilaire), an inspection of the equipment, and calculations it was determined that the Confined Abrasive Blaster remains exempt from BAAQMD permitting requirements per Regulation 2-1-118.1 and that no other BAAQMD Regulations apply.

None - Acceptable Practice No. 3

The Macro Molecular Chemistry Laboratory in B941/1132 (BAAQMD Source 74) was evaluated to verify that the exemption from BAAQMD permitting remains applicable. Through an interview with the source owner (Andy Vance, PI), an inspection of the lab and equipment, a review of CIS inventory and calculations it was determined that the Macro Molecular Chemistry Laboratory remains exempt from BAAQMD permitting requirements per Regulation 2-1-126.2 and that no other BAAQMD Regulations apply.

None - Acceptable Practice No. 4

The Materials Synthesis Laboratory in B906/101 (BAAQMD Source 65) was evaluated to verify that the exemption from BAAQMD permitting remains applicable. Through an interview with the source owner (Tony McDaniel, PI), an inspection of the lab and equipment, and a review of CIS inventory it was determined that the Materials Synthesis Laboratory remains exempt from BAAQMD permitting requirements per Regulation 2-1-126.2 and that no other BAAQMD Regulations apply.

None - Acceptable Practice No. 5

The Laser Chemistry Laboratory in B916/153 (BAAQMD Source 61) was evaluated to verify that the exemption from BAAQMD permitting remains applicable. Through an interview with the laboratory technician, Leonard Jusinski, an inspection of the lab and equipment, and a review of CIS inventory it was determined that the Laser Chemistry Laboratory remains exempt from

BAAQMD permitting requirements per Regulation 2-1-126.2 and that no other BAAQMD Regulations apply.

Section 9 *Improvement Action Details*

Observation No. 1

The nine boilers evaluated remain exempt from BAAQMD permitting because they are less than 10 million Btu/hr and their only fuel source is natural gas. However, recent regulatory changes to BAAQMD Reg 9 will impose new requirements on boiler operations. The boilers are not currently out of compliance but have regulatory deadlines for numerous actions over the next three years.

Result Criterion: ES&H » Environmental Protection » Air Quality Compliance

Organization Being Assessed:
N/A

IA No: 6758-O1-IA1

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

Owner: Name: CLEVENGER,ROBERT J. Org: 08513 **Assigned Date:** 03/02/2009

Estimated Completion Date: 12/16/2009 **Revised Completion Date:** n/a

Actual Completion Date: TBD

Description: By December 31, 2009, and once every calendar year thereafter, inspect and tune-up all site boilers in accordance with BAAQMD Regulation 9-7-604. Document tune-up results.

Comments: None

IA Associated Document Link(s):
http://www.baaqmd.gov/dst/regulations/index.htm

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

IA No: 6758-O1-IA2

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

Owner: Name: CLEVENGER,ROBERT J. Org: 08513 **Assigned Date:** 03/02/2009

Estimated Completion Date: 12/16/2009 **Revised Completion Date:** n/a

Actual Completion Date: TBD

Description: By December 31, 2009 meet insulation requirements for each of the site's boilers as specified in BAAQMD Regulation 9-7-311.

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

IA No: 6758-O1-IA3

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

Owner: Name: CLEVENGER,ROBERT J. Org: 08513 **Assigned Date:** 03/02/2009

Estimated Completion Date: 12/31/2012 **Revised Completion Date:** n/a

Actual Completion Date: TBD

Description: By December 31, 2010 meet NOx and CO emission limits for 2 of the ≤5 MM Btu/hr boilers. By December 31, 2011 meet emission limits for an additional 3 of the ≤5 MM Btu/hr boilers. By December 31, 2012 meet emission limits for the final 2 ≤5 MM Btu/hr.

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

IA No: 6758-O1-IA4

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

Owner: Name: CLEVENGER,ROBERT J. Org: 08513 **Assigned Date:** 03/02/2009

Estimated Completion Date: 12/31/2011 **Revised Completion Date:** n/a

Actual Completion Date: TBD

Description: By December 31, 2011 meet NOx and CO emission limits for the 2 >5MM Btu/hr boilers.

Comments: None

IA Associated Document Link(s):
http://www.baaqmd.gov/dst/regulations/index.htm

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

IA No: 6758-O1-IA5

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

Owner: Name: CLEVENGER,ROBERT J. Org: 08513 **Assigned Date:** 03/02/2009

Estimated Completion Date: 12/31/2010 **Revised Completion Date:** n/a

Actual Completion Date: TBD

Description: By December 31, 2010 all site boilers must limit stack gas temperature as specified in BAAQMD Regulation 9-7-312.

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