

# Sandia National Laboratories Integrating EMS with ISMS



**Bob Brandhuber**

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# SANDIA NATIONAL LABORATORIES



## FISCAL YEAR 2008

## ENVIRONMENTAL MANAGEMENT SYSTEM MANUAL



Sandia National Laboratories  
FY 2008 EMS Manual Approval

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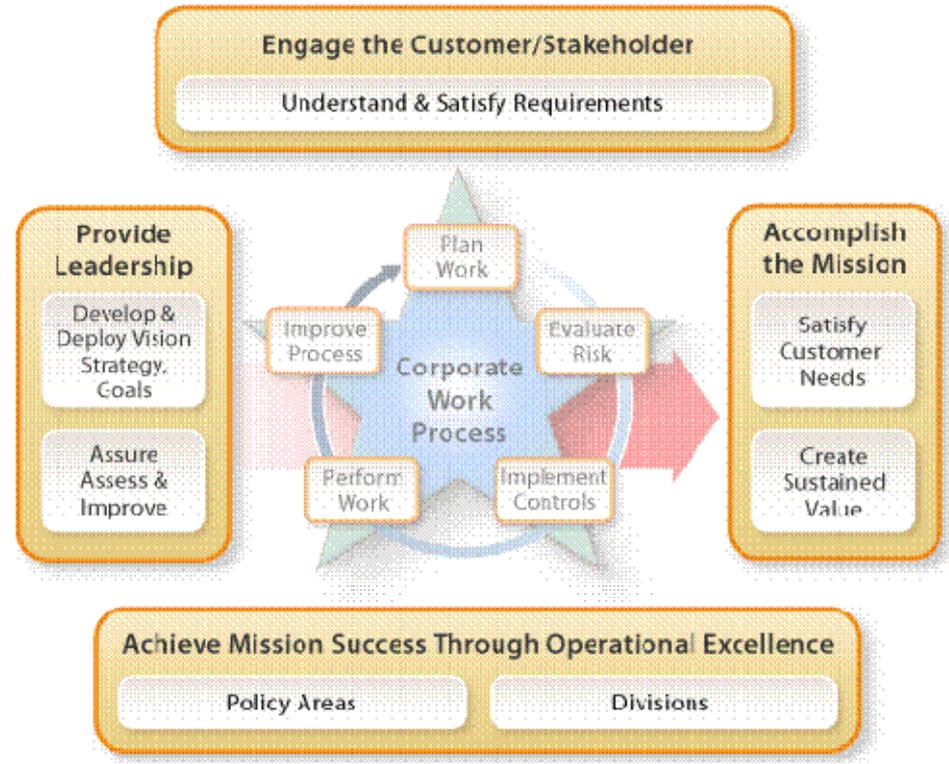
*Sept 28, 2007*  
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Date

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|---|----------|----|
| Author: How frequently does this document need to be reviewed and/or revised? | Annually |    |
| Manager: Does this document need to be tracked?                               | Yes      | No |

# Sandia's Implementation of EMS



- Element of the Integrated Laboratory Management System (ILMS)
- Implemented through the Integrated Safety Management System (ISMS)
- Executed through the following:
  - Division EMS Team
  - Environmental Programs
  - the EMS Core Team
  - The EMS Staff



# Environmental Programs



## ENVIRONMENTAL MANAGEMENT SYSTEM

- **Terrestrial Surveillance**
- **Environmental Compliance Coordinators (ECC)**
- **Meteorology**
- **Energy Management**
- **Storm Water**
- **Groundwater Monitoring**
- **Safe Drinking Water Protection**
- **Oil Storage**
- **Waste water Discharge**
- **Ecology**
- **Fleet Services**
- **National Environmental Policy Act (NEPA)**
- **Pollution Prevention (P2)**
- **Air Quality Compliance**
- **Surface Discharge**
- **Rad National Emission Standards for Hazardous Air Pollutants (NESHAPs)**
- **Long Term Environmental Stewardship (LTES)**
- **Hazardous Waste Permitting & Compliance**
- **Sustainable Design**

# Integration with ISMS



- **EMS description is included and integrated with the ISMS description.**
- **ISMS lead is a member of the EMS Core Team**
- **Synergy with Safety and Industrial Hygiene in mitigation of hazards**
- **Dashboard tracks ES&H metrics**
- **Division integration is implemented through ISMS and EMS reports and integrated with the MAR, an integrated ES&H report**

## FY08 ES&H Assurance Dashboard

Status as of 20-

ES&H Corp PI-3 Status Rpt. 1000 2000 3000 4000 5000 6000 8000 9000 10000 11000 1200

### BUSINESS PROCESSES

|           |                                    |  |
|-----------|------------------------------------|--|
| Plan Work | 6.1.1 - Worker Safety & Health Pgm |  |
|           | 6.1.2 - LTS/LTES                   |  |
|           | 6.1.3 - NEPA                       |  |

### MATERIAL MANAGEMENT

|                                 |  |
|---------------------------------|--|
| 6.1.4 - Chemical Management Sys |  |
|---------------------------------|--|

### HEALTH OF THE WORKFORCE

|                             |  |
|-----------------------------|--|
| 6.1.5 - Health of Workforce |  |
|-----------------------------|--|

### WORK PLANNING & CONTROL

|                                     |  |  |
|-------------------------------------|--|--|
| Analyze Hazards                     | 6.1.6 - Work Planning & Control          |  |
|                                     | 6.1.7 - Env Permits & Reporting ^        |  |
|                                     | 6.1.8 - Env Protection Processes         |  |
|                                     | 6.1.9 - Industrial Facility Safety Basis |  |
|                                     | 6.3.1 - Safety Basis Documents           |  |
| 6.4.3 - Startup/Restart Nuclear Fac |  |  |

### TRAINING

|                                     |  |
|-------------------------------------|--|
| 6.1.10 - ES&H Training Completion ^ |  |
|-------------------------------------|--|

### INCIDENT MANAGEMENT

|                 |                                    |  |
|-----------------|------------------------------------|--|
| Control Hazards | 6.1.11 - Analyze ORs & NOTES ^     |  |
|                 | 6.1.12 - Improve Critique Process  |  |
|                 | 6.1.13 - Analysis of Near Misses   |  |
|                 | 6.1.14 - Late Occurrence Reports ^ |  |

### INCIDENT MANAGEMENT

|                                      |  |
|--------------------------------------|--|
| 6.5.1 - Emergency Mgmt Interfaces    |  |
| 6.5.2 - Emergency Training/Drills    |  |
| 6.5.3 - Emergency Public Information |  |
| 6.5.4 - Emergency Response Actions   |  |
| 6.5.5 - Emergency Self Assessment    |  |

### WORKER SAFETY

|                                  |  |
|----------------------------------|--|
| 6.1.15 - FY2008 DART Case Rate ^ |  |
| 6.1.16 - FY2008 TRCR ^           |  |
| 6.1.17 - Electrical Safety ^     |  |
| 6.1.18 - Radiation Exposure ^    |  |

### ASSESSMENT

|                                  |  |
|----------------------------------|--|
| 6.4.1 - Self Assess Nuclear Fac. |  |
| 6.1.19 - Repeat Findings         |  |
| 6.1.20 - % Self Assess On Time   |  |

### LESSONS LEARNED

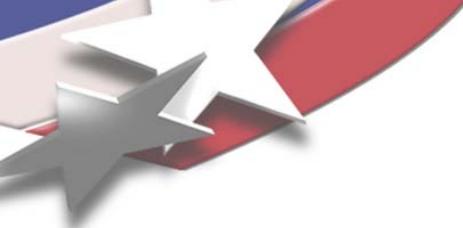
|                                  |  |
|----------------------------------|--|
| 6.1.21 - Lessons Learned Program |  |
|----------------------------------|--|

6.1.18 (POCs->Brad Elkin/Donnie Brady) - Management Control of Radiation Exposure - Implement Sandia requirements for controlling radiation exposures and preventing unplanned radiation doses above Administrative Control Limits (ACLs). Management is actively engaged in the investigative process of ACL exceedances. Due to desirability



| <b>ISMS Core Function</b> | <b>Environmental Activity</b>  |
|---------------------------|--|
| <b>Plan Work</b>          | Complete NEPA reviews  |
|                           | Complete PHS (Preliminary Hazard Analysis)   |
|                           | Complete and annually update Environmental Program Plans   |
|                           | Review and update the ES&H Manual, ISMS Description, Operating Procedures, & Quality Control Plans |

NEPA and PHS modules are part of ISMS (web-based) software



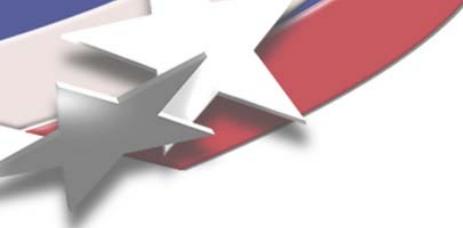
| <b>ISMS Core Function</b> | <b>Environmental Activity</b>   |
|---------------------------|---|
| <b>Analyze Hazards</b>    | <b>Obtain and maintain environmental permits</b>                              |
|                           | <b>Complete division and corporate aspects and impacts analysis</b>           |
|                           | <b>Monitor environmental conditions using calibrated monitoring equipment</b> |
|                           | <b>Conduct environmental baseline studies</b>                                 |
|                           | <b>Conduct Pollution Prevention Opportunity Assessments</b>                   |



| <b>ISMS Core Function</b> | <b>Environmental Activity</b>  |
|---------------------------|--|
| <b>Control Hazards</b>    | <b>Develop Technical Work Documents (TWDs) and operating procedures to control environmental hazards</b> |
|                           | <b>Review aspects and impacts, set objectives and targets for improvement</b>                            |
|                           | <b>Substitute chemicals for less hazardous alternatives</b>  |



| <b>ISMS Core Function</b> | <b>Environmental Activity</b>                                    |
|---------------------------|--|
| <b>Perform Work</b>       | Comply with requirements outlined in the ES&H Manual             |
|                           | Implement environmental program plans and division EMS plans     |
|                           | Perform work following guidance in TWDs and operating procedures |



| <b>ISMS Core Function</b>   | <b>Environmental Activity</b>  |
|-----------------------------|--|
| <b>Feedback and Improve</b> | Identify effectiveness of environmental controls and mitigation techniques (waste minimization, chemical substitutions, water and energy conservation) |
|                             | Use Lessons-learned and Corrective Action programs (ES&H Manual, Chapter 22)   |
|                             | Complete self-assessments  |
|                             | Quarterly track progress in meeting division and corporate EMS targets   |
|                             | Review waste generation and environmental monitoring reports   |



# Challenges and Planned Improvements



- **CHALLENGE:** Full integration is difficult given the fact the Safety and Environmental programs have separate regulatory drivers, professionals with different education and technical skills and separate budgets.
- **ES&H Dashboard will be improved to track EMS Objectives and Targets**
- **Full integration of environmental considerations into the Work Planning and Control process**