INL/EXT-10-20387

Idaho National Laboratory Integrated Safety Management System 2010 Effectiveness Review and Declaration Report

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Approved by:

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EXECUTIVE SUMMARY

Idaho National Laboratory (INL) completes an annual Integrated Safety Management System (ISMS) effectiveness review per 48 CFR 970.5223-1, "Integration of Environment, Safety and Health into Work Planning and Execution." The annual review assesses ISM effectiveness, provides feedback to maintain system integrity, and helps identify target areas for focused improvements and assessments for the following year. Using one of the three Department of Energy (DOE) descriptors in DOE M 450.4-1 regarding the state of ISM effectiveness during Fiscal Year (FY) 2010, the information presented in this review shows that INL achieved "Effective Performance."

The evaluation of ISM, based on performance data between October 1, 2009, and September 30, 2010, identified strengths and areas for continuous improvement and led to the following overall conclusions about the status and effectiveness of the INL ISM.

All ISM elements have been maintained and many have been improved. The ISM processes have been functioning properly. No elements of the system were identified as having degraded and numerous improvements have been implemented.

Opportunities for ISM improvements were identified. INL programs and processes are sound and most work is completed without issues; however, when issues occur most are related to non-compliance with the process and/or program requirements. To help sustain high-performance event-free operation, INL is working to increase management presence in the field, to improve human performance, to reinforce personal responsibility, and to foster feedback and improvement.

The system is effective for performing work safely. Although events and deficiencies indicate specific problems with implementation, the system as a whole is sound and, when followed, it ensures safe performance of work as demonstrated by work accomplishments in FY 2010.

ISM at the INL is effective because Battelle Energy Alliance, LLC, strongly supports ISM functions and principles and is committed to continual improvement. The review of ISM effectiveness in this FY 2010 report summarizes the environmental, safety, health, and quality performance; the contractor assurance system effectiveness, highlights, and selected assessments; and the major initiatives, improvements, and corrective actions impacting safety and employee engagement. See Program Description Document (PDD)-1004, "INL Integrated Safety Management System," for a full description of INL ISM implementation, including how the five core functions and eight guiding principles are incorporated into work and management at all levels, addressing all types of work and hazards to ensure safety for the workers, public, and environment.

At INL, "safety" encompasses environment—including pollution prevention and waste minimization—safety, health, and quality, and security. ISM integrates with several key management systems and programs related to ES& H, Quality and Security including the Environmental Management System, Worker Safety and Health Program, Quality Assurance, Integrated Safeguards and Security Management, and Voluntary Protection Program. These key integrations add defense-in-depth to the INL safety posture and help management and workers understand that these systems focus on their safety.

The Contractor Assurance System (CAS) is vital to evaluating the effectiveness of ISM at INL. The CAS enables INL management to find, understand, report, and correct deficiencies and adverse performance as well as implement opportunities for program and process improvements. A review of CAS effectiveness was completed as part of this review to substantiate the effectiveness of the CAS in terms of its performance in relation to the six CAS functions. The overall conclusion regarding CAS is that while opportunities for improvement and further maturation were noted, the CAS is effectively implemented, robust, and enables mission execution.

All work at INL is managed by processes and procedures that implement the ISM five core functions and eight guiding principles. At the laboratory, facility, and activity levels, INL leaders and workers demonstrate a strong, genuine, continual and personal commitment to ISM elements. ISM is effectively implemented at INL through a Systems Integration Management System approach that provides the processes, guidance, tools, and expertise to ensure that issue identification, continual improvement, and disciplined methodology are integral to the INL employees' safe, effective, and compliant collaboration to meet laboratory objectives. In turn, throughout the year, work groups within each management system complete and document work assessments and appraisals that are directly related to the ISM core functions. The purpose of this review is to review the major "evidence" from assessments, focus on specific issues, and evaluate overall performance while providing a summary of strengths, weaknesses, and opportunities for improvement as they relate to ISM.

CONTENTS

FIGURES

ACRONYMS

AEB	Assessment Evaluation Board
ANL-W	Argonne National Laboratory West
ATR	Advanced Test Reactor
BBWI	Bechtel BWXT Idaho, LLC
BEA	Battelle Energy Alliance, LLC
CAP	Corrective Action Plan
CAS	Contractor Assurance System
CCR	Competence Commensurate with Responsibilities
CFA	Central Facilities Area
CUI	Controlled Unclassified Information
CWI	CH2M-WG Idaho, LLC
CY	Calendar Year
DART	Day Away, Restricted or Transferred
DEQ	Department of Environmental Quality
DOE	Department of Energy
DOE-HQ	Department of Energy Headquarters
DOE-ID	Department of Energy Idaho Operations Office
DOELAP	Department of Energy Laboratory Accreditation Program
DOE-OE	DOE Office of Enforcement
EFCOG	Energy Facility Contractors Group
EMS	Environmental Management System
EO	Executive Order
EPA	Environmental Protection Agency
ES&H	Environment, Safety, and Health
ESI	Electrical Severity Index
ESPC	Energy Savings Performance Contract
EST	Employee Safety Team
FCF	Fuel Conditioning Facility
FEC	Federal Electronics Challenge
F&SS	Facilities & Site Services
FY	Fiscal Year
FYTD	Fiscal Year to Date
HaRPS	Hazard and Risk Planning System

HFEF	Hot Fuel Examination Facility
HPI	Human Performance Improvement
HPIL	Health Physics Instrumentation Laboratory
HPT	Health Physics Technician
HSS	Office of Health Safety and Security
HW	Hazardous Waste
IAS	Independent Assessment System
ICAMS	INL Corrective Action Management System
ICARE	Issues Communication and Resolution Environment
INL	Idaho National Laboratory
ISM	Integrated Safety Management
ISMS	Integrated Safety Management System
ISO	International Organizations for Standards
LLW	Low Level Waste
LMT	Leadership Management Team
LO/TO	Lockout/Tagout
LTA	Less Than Adequate
LWP	Laboratory-wide Procedure
MFC	Materials and Fuels Complex
MLLW	Mixed Low Level Waste
MSA	Management Self-assessment
NEPA	National Environmental Policy Act
NGNP	Next Generation Nuclear Plant
NHS	National and Homeland Security
NOV	Notice of Violation
NRAD	Neutron Radiography Reactor
NSF	National Science Foundation
NSOC	Nuclear Safety Oversight Committee
NSSI	Nuclear Safety Severity Index
NTS	Noncompliance Tracking System
ORPS	Occurrence Reporting and Processing System
PAAA	Price Anderson Amendment Act
PDD	Program Description Document
PEL	Permissible Exposure Limit
PPE	Personal Protective Equipment

QA	Quality Assurance
QAP	Quality Assurance Program
QMS	Quality Management System
RCL	Radiochemistry Laboratory
RCRA	Resource Conservation and Recovery Act
RCT	Radiation Control Technician
RDD&D	Research Development, Demonstration, and Deployment
RGD	Radiation Generating Device
RWP	Radiation Work Permit
SIMS	System Integration Management System
SMC	Specific Manufacturing Capability
SME	Subject Matter Expert
SOAR	Safety Observations Achieve Results
SRS	Savanna River Site
SSDRP	Safety and Security DOE Regulatory Program
TAN	Test Area North
TLV	Threshold Limit Value
TRA	Test Reactor Area
TRCR	Total Recordable Case Rate
USQ	Unreviewed Safety Question
VPP	Voluntary Protection Program
WLAP	Wastewater Land Application Permit
WMPI	Work Management Process Index
WMS	Work Management System
WSHP	Worker Safety and Health Program

Idaho National Laboratory Integrated Safety Management System 2010 Effectiveness Review and Declaration Report

1 INTRODUCTION

This document describes Fiscal Year (FY) 2010 Integrated Safety Management System (ISMS) effectiveness at Idaho National Laboratory (INL). Integrated Safety Management (ISM) at INL is implemented in accordance with Department of Energy (DOE) policy, requirements, and guidance in a manner that applies controls and precautions tailored appropriately to the hazards of the projects and work being performed.

1.1 INL Integrated Safety Management

ISM at INL comprises:

- The governing policy that safety be integrated into work management and work practices at all levels
- The INL policies, programs, procedures, and culture that fulfill our environmental, safety, health, quality, security, and emergency management responsibilities.

ISM is inherent to our Laboratory's primary mission: to ensure the nation's energy security with safe, competitive, and sustainable energy systems and unique national and homeland security capabilities.

1.1.1 Six Essential Elements of ISM at INL

Department of Energy Policy 450.4, *Safety Management System Policy*, contains the following six essential ISM elements that provide guidance and requirements to the Department and its contractors for systematically integrating safety into management and work practices at all levels.

1. **Objective:** Integrate safety into management and work practices to ensure public, worker, and environmental protection during mission accomplishment.

2. **The Eight Guiding Principles** must be followed in establishing and performing the five core functions in #3 below to accomplish the objective in #1 above.
    1. Line management responsibility for safety
    2. Clear roles and responsibilities
    3. Competence commensurate with responsibilities
    4. Balanced priorities
    5. Identification of safety standards and requirements
    6. Hazard controls tailored to work being performed
    7. Operations authorization
    8. Employee involvement.

3. **Five Core Functions** must be applied, on a graded approach, to all work.
    1. Define the scope of work
    2. Analyze the hazards
    3. Develop and implement hazard controls
    4. Perform work within controls
    5. Provide feedback and continuous improvement.

4. **Mechanisms** define how the five core functions are applied at INL based on the specific activity, the associated hazards, and DOE expectations.
    a. DOE expectations are conveyed to INL through DOE directives and contract clauses
    b. INL policies, procedures, and documents outline how INL implements ISM, fulfills commitments to DOE, and meets DOE expectations.

5. **Responsibilities** are incorporated into the INL "Mechanisms," which include policies, procedures and documents (e.g., safety analysis reports; chemical hygiene plans) established to implement safety management and fulfill commitments made to DOE.
    a. INL responsibilities are defined in regulations, our contract, and INL procedures
    b. INL approval authorities, established by policies and procedures, apply a risk-based, graded approach
    c. DOE responsibilities are defined in DOE directives.

6. **Implementation** of ISM at INL
    a. Implementation is accomplished by applying the INL procedures, plans, and policies to work activities on a risk-based, graded approach.

Another ISM requirement is a program description document (PDD) that is updated each year and transmitted to DOE for approval. At INL, PDD-1004 details the "mechanisms" and shows how INL implements ISM and incorporates the five core functions and eight guiding principles of safety into work and management at all levels and addresses all types of work and hazards to ensure safety for the workers, public, and environment. PDD-1004 is not an implementing procedure and does not establish requirements; however, it does describe the overall ISM program, high-level key management system interfaces, and how the five core functions and eight guiding principles are integrated with management and work at the laboratory, facility, and activity levels. Section 1.2 below briefly describes the high-level INL ISM implementation. The greater part of this document will focus on specific ES&H and Quality activities, Contractor Assurance System (CAS) effectiveness, and other key topics as described below in Section 2.

1.2 INL Implementation of Integrated Safety Management

Laboratory implementation of ISM at INL begins by:

- Identifying the governing requirements, customer expectations, and responsibilities that must be fulfilled in the management and operation of laboratory activities. INL requirements management ensures that the "umbrella" of standards encompasses applicable laws, regulations, DOE directives, contractual requirements, and industry standards.

- Developing Laboratory policies, plans, and procedures to guide work activities ensures responsibilities and commitments based on the governing requirements and expectations are met.

These two steps, performed in a continuous cycle, form the foundation of ISM at the laboratory level.

To integrate safety, quality, security, and environmental considerations into management and work at all levels, INL implements ISM at the laboratory, facility, and project levels specific to each work activity being performed. Whether at the laboratory, project, or activity level, the main focus of ISM is that all work be performed safely. Laboratory staff are expected to be familiar with the established systems and documents.

2 ANNUAL EFFECTIVENESS REVIEW SCOPE AND APPROACH

INL continually strives to improve by focusing assessments on the elements and successful implementation of ISM. This review of FY 2010 ISM effectiveness evaluates ISM-relevant activities and assessments and summarizes effectiveness under the headings of the five core ISM functions. That is, the relevant ISM activities and assessments completed during FY 2010 are sorted into the following major document sections according to the most closely related ISM core function. For example, Section 3 describes activities and assessments related to ISM Core Function 1: Define the Scope of Work and Section 6 is Core Function 5: Feedback and Continuous Improvement. Section 7 is an overview of the INL maintenance and improvement of the eight guiding principles of ISM. Section 8 is the Summary and Conclusions.

3 CORE FUNCTION 1 - DEFINE THE SCOPE OF WORK

This core function is effectively implemented. At the laboratory level, work scope is defined by the INL mission, which guides the strategic actions, resources, and infrastructure activities of the Laboratory. Priorities are balanced to safely accomplish the mission. A well-defined scope of work at the laboratory level is essential for proper alignment and balancing of program, facility, and infrastructure activities. Proposed work scope for work to be performed at the Laboratory is aligned with the strategic vision and screened for risk prior to requesting funding.

At the facility level, work plans become the basis for facility- and program-level activities. The plans establish the high-level work activities, proposed schedules, and milestones for the scope, responsibility, and accountability for accomplishment. Subsequently, these high-level activities are structured into finite tasks and detailed in short-range work schedules such as the plan-of-the-week. These different activities become the basis for laboratory selection and the subsequent hazard analysis and control.

At the activity level, the fundamental premise of a well-defined work scope is that all injuries are preventable through engineering controls, administrative policies, and PPE. With substantial worker involvement in the teams that plan work, proper work definition is the first step in ensuring a thorough understanding of all hazards that might be encountered. INL's robust process for evaluating hazards and controls and incorporating them into work documents and procedures is contained in two work management process documents: (1) Laboratory-Wide Procedure (LWP)-21220, "Work Management," which applies to operations and laboratory research, and (2) LWP-6200, "Maintenance Integrated Work Control Process," which applies to maintenance work activities. The scope and application of these two systems is well defined, planners and workers are highly trained to implement the correct process applicable to their scope of work, and feedback and improvement are built in to the process.

3.1 VPP Worksite Analysis Onsite Review

In accordance with program requirements, Battelle Energy Alliance, LLC (BEA) had its first triennial Voluntary Protection Program (VPP) recertification in 2009. The Office of Health, Safety and Security

(HSS) DOE-VPP Team performed the review from October 19–30, 2009, and they recommended "that BEA/INL continue as a participant in DOE-VPP at the Star level." The onsite independent review is related to ISM because as part of their assessment, the HSS team reviewed the VPP tenet "worksite analysis." This VPP tenet mirrors several ISM core functions, so the HSS-identified improvement opportunities for VPP are applicable to ISM as discussed below.

The HSS review team said that for "high-hazard work and work designated by procedure as requiring documented hazard analysis, the process is systematic, thorough, and produces a procedure or work document that may be reviewed or revised at a later date, thereby maintaining the corporate memory for hazard analysis." However, HSS noted that "While the percentages for work control-related issues are low, there are vulnerabilities for low-hazard high-frequency work activities." That is, the team concluded that no hazard analysis is documented if the determination in the scope of work falls under "routine activity envelope" or "skill of craft" because the hazards and risks are considered low and the performer is considered to have sufficient training and knowledge to perform the work safely. The HSS team noted several examples where additional controls from a documented hazards analysis might have improved the performance and execution of low-hazard high-frequency work activities.

The HSS team recognized the reliance INL places on worker skill and awareness for routine, low-risk work and suggested that BEA should revise its work control processes to ensure hazard analysis is documented for all work and that definition as routine activity or skill of the performer is based on the documented hazard analysis. INL is currently evaluating the adequacy of controls when work falls under "routine activity envelope" or "skill of craft" per the HSS team's suggestion.

Overall, for worksite analysis the HSS team concluded that "BEA continues to improve and consistently seeks ways to achieve the next level of excellence with respect to identification and analysis of workplace hazards. This was evident throughout personnel interviews and observations of work activities. BEA meets the requirements of the Worksite Analysis tenet of DOE-VPP."

Additional improvement opportunities related to work definition, hazard analysis, and controls are discussed in Section 4.

4 CORE FUNCTIONS 2 AND 3 - ANALYZE THE HAZARDS, DEVELOP AND IMPLEMENT CONTROLS

This core function is effectively implemented. The objective of hazard identification, analysis, and control is the safe accomplishment of the INL mission by eliminating or mitigating hazards to protect the workers, the public, the environment, and INL facilities and programs.

INL has developed a number of viable and proven mechanisms to meet this objective. These mechanisms exist at the laboratory, facility, and activity levels and have been tailored to the different work functions and work areas of INL. They employ a hierarchy of controls to ensure that hazard exposures are minimized or mitigated. Engineered solutions are the first consideration, followed by administrative controls and personnel protective equipment (PPE).

4.1 INL Hazard Identification and Control Processes

Although a very high percentage of INL work is completed without issues, because INL is continually striving to improve, it focuses many assessments on actual events and observable issues related to ISM elements and implementation. For example, in response to a number of events, the INL Operations Council chartered a team to assess the connection between the events and the INL hazard identification

and control process. This assessment is documented in IAS101410. The team concluded that although the INL hazard identification and control process itself is effective and meets expectations, a common theme observed in the assessed events was that personnel did not perform work within the identified controls. Recommendations from the assessment team included:

- Senior line management/planner/supervisor must conduct hazard identification and control and lockout/tagout (LO/TO) workshops
- Line management must reinforce expectations during routine meetings and must complete interactive work observations focused on quality work plans and worker compliance with work orders.

As a result of this assessment, to address and improve upon work performance issues, a corrective action plan (CAP) was developed to address four key fundamental areas: (1) setting/reinforcing senior line management expectations, (2) engaging in dialogue with workers, (3) conducting interactive work observations, and (4) holding employees accountable. BEA has taken many actions in the CAP to address improvement opportunities dovetailing with several excellent initiatives already underway in the Laboratory such as Safety Leadership Strategy, Laboratory Health Community of Practice, and Human Performance activities.

As of November 2010, CAP "action owners" have completed all the specific actions (e.g., conducting workshops with target audiences). The overall effectiveness of the individual corrective actions will be independently verified in a final report (planned for completion March 31, 2011) to determine if the actions addressed the issues and recommendations are still being implemented and are effective for minimizing future events. The results of the effectiveness review will be discussed in the FY 2011 ISM effectiveness review.

An additional notable issue from the assessment was that the initial causal analysis reports for the events themselves were complete as far as "what" had happened; however, the causal analysis did not document the fundamental causes, or "why" they happened, and the assessment team had to dig further into the events for full understanding. This opportunity for improvement was addressed by the new event investigation process implemented in March 2010 and is discussed in Section 6.1.1. Most of the events subject to the assessment pre-dated the execution of the new event process. The new event process ensures that the causal analyses meet the requirements of the process and contain the appropriate level of detail.

5 CORE FUNCTION 4 - PERFORM THE WORK WITHIN CONTROLS

This core function is effectively implemented; opportunities for improvement exist. INL work is authorized and performed at the laboratory, facility, and activity levels through formal processes described in PDD-1004. Some measures of work performance include performance in the Safety and Security DOE Regulatory Program, environmental compliance, and radiological control compliance, injuries and illnesses, quality, and nuclear safety. These are discussed in the following subsections.

5.1 Safety and Security DOE Regulatory Program

INL utilizes a new centralized issue management tracking program called the INL Corrective Action Management System (ICAMS). Potential issues and/or problems entered into ICAMS are categorized based on severity. Entries considered high volume and low consequence are placed in pre-defined categories that are later reviewed for trends. The remainder of the entries undergo a screening process for identification of noncompliances with nuclear safety requirements contained in 10 CFR 830 and 835 or a noncompliance with worker safety and health requirements contained in 10 CFR 850 and 851. Those that

are screened as noncompliances undergo an additional review to determine if they meet the criteria for reporting to DOE in a noncompliance tracking system (NTS). The screenings are performed by compliance personnel that have undergone the training as required by Safety and Security DOE Regulatory Program (SSDRP) procedural requirements. The number of NTS reportable noncompliances identified during FY 2010 was:

- 14 worker safety and health reports
- 12 nuclear safety reports
- No reports met both worker safety and health and nuclear safety criteria.

Three SSDRP assessments were conducted during FY 2010 prior to the Issues Management tracking system changes to the ICAMS:

1. IAS10242, "Safety and Security DOE Regulatory Program Review of Nuclear S&T." Results: one observation and one recommendation.
2. IAS10244, "SSDRP Implementation Assessment Review." Results: one issue and one area for improvement.
3. IAS10241, "Safety & Security DOE Regulatory Program Review of Environmental, Safety and Health." Results: one issue and one observation.

The DOE Office of Enforcement (OE) conducted two investigations during FY 2010. The first, conducted in October 2009, involved a classified information security event. An enforcement conference was held in July 2010. To date, there has been no word on a decision.

The second investigation, conducted in May 2010, involved an unplanned radiation exposure in the INL Health Physics Instrumentation Laboratory (HPIL). An enforcement conference was held in September 2010. As a follow-up to the conference, BEA requested that DOE consider a consent order as a path forward. A draft consent order was prepared by OE and BEA is awaiting a response.

5.2 Environmental Regulatory Compliance

The Environmental Management System (EMS) is the key INL system that helps ensure continued environmental protection and maintenance. The EMS supports the INL science and engineering mission with cost-effective, innovative, and user-friendly guidance for compliance with environmental requirements, addressing legacy and emerging environmental issues, enabling meaningful environmental stewardship initiatives, and monitoring environmental performance. The FY 2010 performance of the EMS is measured by reportable environmental releases, notices of violation (NOVs), and office materials recycled.

One reportable environmental release occurred during FY 2010 involving the discovery of stained soil related to historic storage of refueling pipes. Because the investigation indicated that the spill could not be cleaned up within twenty-four hours as required by Idaho regulations, it was reportable.

During an external regulatory inspection in FY 2010, the Idaho Department of Environmental Quality (DEQ) noted a potential violation at MFC related to samples stored in a facility that was not authorized for the Resource Conservation and Recovery Act (RCRA) waste codes they carried. INL had previously self-disclosed this issue and although DEQ does not typically issue NOVs for self-disclosed issues, because the condition had existed for 841 days prior to being identified, on June 8, 2010, DEQ issued an NOV with an assessed penalty of $3,800. In a July 22, 2010 compliance conference, based on INL response to corrective and preventive actions, DEQ proposed a penalty of $2,280, which represented the

maximum percent reduction allowed by regulations. INL, DOE, and DEQ executed a consent order on September 7, 2010, to resolve the NOV, and INL completed agreed-to corrective actions and paid the $2,280 penalty.

INL's recycling initiative, which includes co-mingled recycling and paper shredding, expanded to additional facilities through FY 2010. See Section A-6 in Appendix A for additional information.

5.3 Radiation Control Compliance

In FY 2010 the number of radiological noncompliance events decreased significantly from FY 2009 due to BEA improvement initiatives, assessments, and corrective actions. However, two notable events occurred in FY 2010: one at the HPIL and one at the Materials and Fuels Complex (MFC).

On March 22, 2010, a radiation-generating device operator at HPIL entered the gamma beam irradiator room while a cesium-137 radiation source was stuck in the exposed position, resulting in an unplanned extremity exposure to the operator's right hand. INL requested an independent management assessment team (IAS101885) to review BEA's response to the HPIL event. The August 2010 assessment identified two issues, seven observations, and one noteworthy practice that were subsequently entered in ICAMS for corrective actions. The corrective actions documented in IAS101885 include developing and implementing on-the-job-training for abnormal events, procedure updates, retraining irradiator operators in nuclear activation and response actions, sharing lessons learned with radiography program personnel, and reviewing INL safety culture issues. The independent assessment team noted that during the assessment, HPIL management continually looked for ways to improve, suggested additions to the original CAP, and implemented improvements to HPIL operations beyond the scope of the CAP. An effectiveness review of the IAS101885 corrective actions will be completed in the spring of 2011. The results of the effectiveness review will be discussed in the FY 2011 ISM effectiveness review.

The MFC glovebox hold point event, which occurred in FY 2010, is still being investigated. Like the effectiveness review for the HPIL event, the results of the MFC glovebox hold point event assessment, corrective actions, and effectiveness review will be discussed in the FY 2011 ISM effectiveness review.

In May 2010, the Operations Council requested that the INL Independent Oversight team perform an effectiveness review on the actions associated with report, "INL Radiological Workers Noncompliance Trend with Radiological Work Controls" (NTS-ID-EA-INLPROGRM-2009-002) and the associated CAP that was implemented May 28, 2009. The CAP included 16 separate corrective actions in response to the increase in noncompliance with radiological work controls in 2009. The review team included subject matter experts from Oak Ridge National Laboratory (UT-Battelle). The team compared RadCon incidents from before and after the corrective actions and noted similarities in the incidents, which possibly indicates that some corrective actions were insufficient or ineffective. Although the team commended management for their "extensive campaign to communicate expectations and for their commitment to foster a lab-wide recognition of the importance of adhering to RadCon requirements," they recommended that existing corrective actions be reevaluated to determine if additional corrective actions are needed to modify and sustain behaviors. In response, INL is currently conducting a follow-up common cause analysis on the RadCon non-compliances and the results will determine the path forward.

There has been a significant decrease of radiological events in FY 2010 compared with FY 2009 due to improvement initiatives, assessments, and corrective actions. Given that a high percentage of radiological work at INL is performed compliantly, it follows that the INL Radiological Controls program is well defined, documented, and seeking continual improvement. However, given that not all work is being performed within the controls, it follows that the current Radiological Controls program feedback and

continuous improvement initiatives could benefit by teaming with the ongoing safety leadership initiative (see Section 6.3.2) that focuses on the same types of issues occurring Sitewide. Some goals of the safety culture initiative are aimed at increasing organizational learning, personal responsibility, management/employee involvement, knowledge of requirements, situational awareness, and skills.

5.4 Injury Performance

One measure of worker safety and health are the total recordable case rate (TRCR) and days away, restricted or transfer (DART) case rate. In FY 2010, the TRCR and DART case rates exceeded the levels attained during FY 2009.

The TRCR for FY 2010 is 1.29, which represents a 34 percent increase compared with the FY 2009 rate of 0.96. The FY 2010 TRCR also represents an 8.4 percent increase compared with the FY 2004 baseline rate of 1.19. The DART case rate for FY 2010 is 0.61, which represents an increase of 13 percent compared to the FY 2009 rate. The FY 2010 DART case rate of 0.61 is unchanged from the FY 2004 baseline rate of 0.61. BEA has committed to a 50 percent reduction in the TRCR and DART case rate from the 2004 baseline by the end of its contract in FY 2014.

A significant majority of the TRCR and DART cases resulted from situational awareness, rather than systemic problems. Changing employee behaviors to increase and maintain situational awareness is much more difficult than fine tuning existing work processes to further mitigate risks associated with work being performed. Modifying employee behaviors means changing the culture of the work force. BEA is addressing this challenge with the official roll-out of the Safety Culture Strategy at the All Manager's Meeting that was held on March 22, 2010 and at the all employee safety meetings held in June. There has also been a subsequent initiation of a revised management observation process for the Leadership Management Team. During June 2010, a motivational speaker was brought in to introduce safety strategy leadership to all employees across the site. These actions were directed at improving the existing culture of the work force, ultimately reducing at-risk behaviors by employees. Overall, subsequent performance during the fourth quarter was the best of any quarter in FY 2010.

Figure 1 shows a graphical representation of historical TRCR and DART case rates.

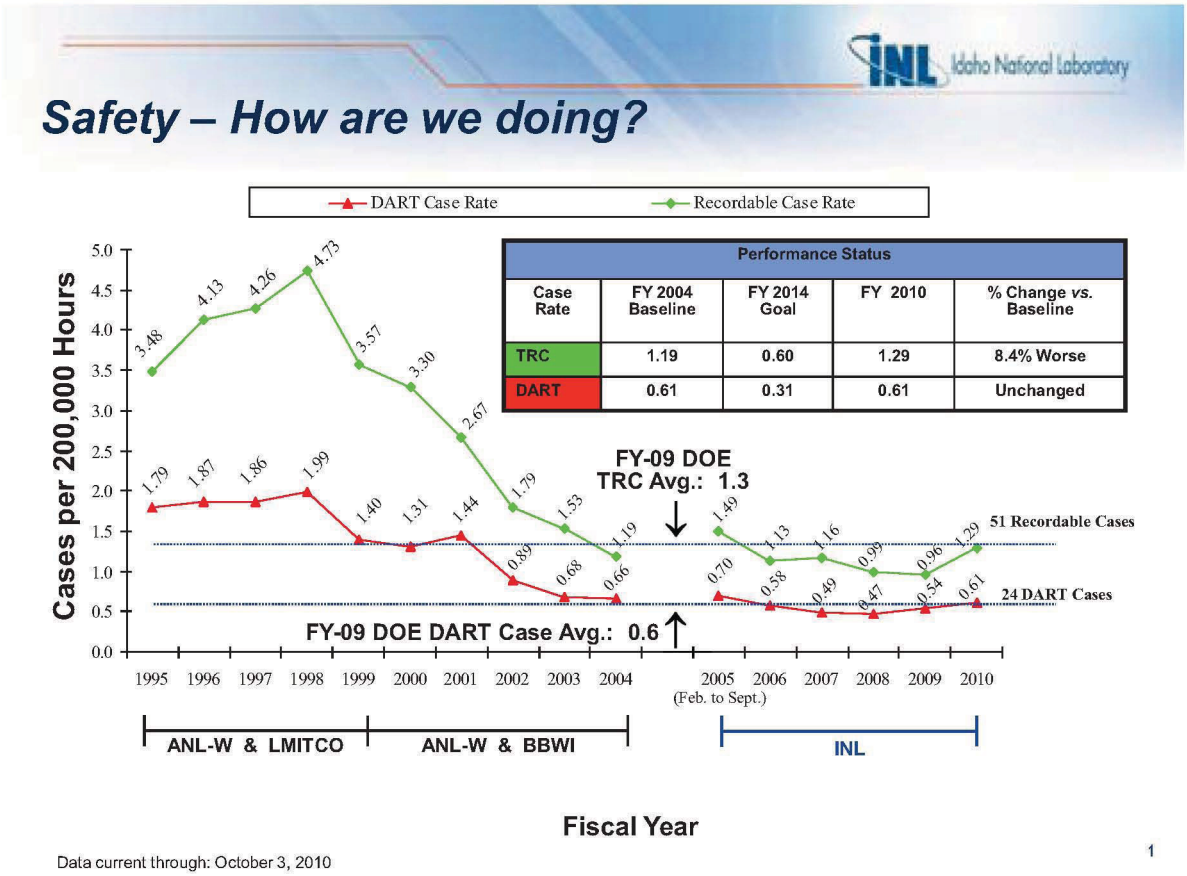

Figure 1: DART and TRCR Case Rates

Historical data indicate that sprain/strain injuries and cut/abrasion injuries comprise the majority of the TRCR and DART cases, and as a result, drive these rates. As a result, reducing the occurrence of these specific types of occupational injuries should reflect positively in reducing BEA's overall TRCR and DART case rates. VPP awareness campaigns focusing on injuries resulting from slips and falls and having a body part struck by, struck against, or caught in an object specifically address these leading injuries at INL. In addition, a draft fitness for duty strategy was completed in FY 2010 that focuses on raising standards for fitness for duty over a five year term. Figure 2 shows the FY 2010 and BEA injury/illness by type.

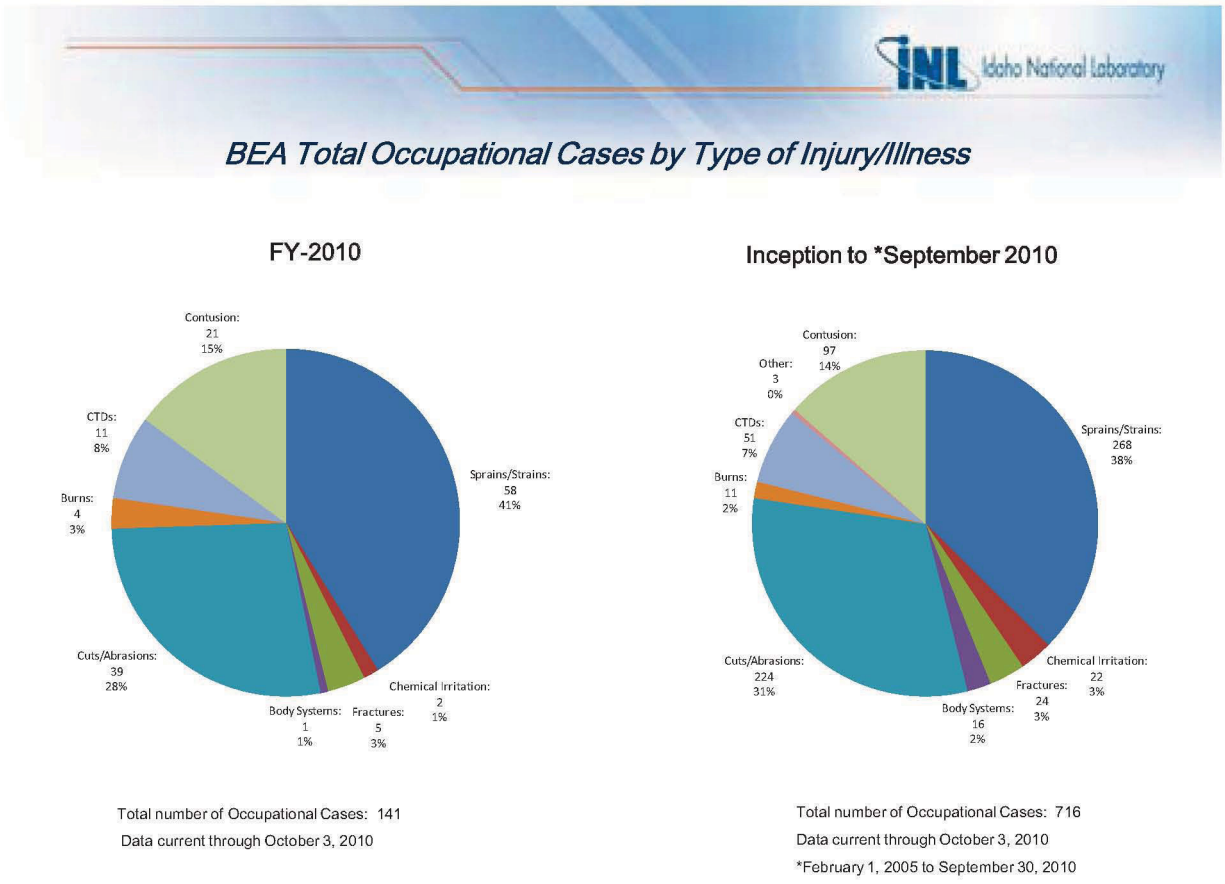

Figure 2: FY 2010 and BEA total occupational cases by type of injury/illness

5.5 Quality Assurance

The Quality Management System (QMS) provides the strategic functionality to assure the Quality Assurance Program (QAP) enables the Idaho National Laboratory (INL) mission in the production of high quality products, services, and solutions using a variety of cost-effective, innovative, and technical processes for the performance and assessment of work. The QMS is influenced, designed, and implemented from National Consensus Standards, Department of Energy requirements, and internal organizational policies and procedures formulated to mitigate risks associated with particular mission objectives. The QMS commitment to provide each customer with the highest quality deliverable in support of their desired performance results and outcomes applies to all INL activities including research, design, development, demonstration, manufacture, test, examination, and operational acceptance.

The QAP serves as the foundational basis for most laboratory processes and other management systems, including the Integrated Safety Management System (ISMS), and promotes the achievement of quality by collaboration with internal stakeholders through:

- planning and documenting requirements for items, processes, and services,
- controlling activities affecting the quality of those items, processes and services,
- verifying the achievement of required quality, and
- analyzing and correcting conditions adverse to quality in a continuing process of self-improvement.

During FY 2010, PLN-13000, "Quality Assurance FY-11 Management Plan," was developed and communicated to provide an overall description of the business aspects and the major performance objectives for achieving the Quality Assurance (QA) organizational vision. The QA organization is aligned with Applied Engineering to bring together complementary yet independent functions that support accomplishment of INL missions. QA models a customer-centered service organization providing education and expertise on quality assurance requirements as well as the tools for process improvement across the INL.

5.6 Nuclear Safety

Nuclear Safety Engineering implements all aspects of ISM guiding principles of integrating work and safety. Assurance activities have shown that all aspects of nuclear and criticality safety compliance at INL are effectively implemented and robust based on performance assurance during FY 2010. Results of various assessments, audits, inspections, surveillances, and other mission-related assessment results are provided below.

The unreviewed safety question (USQ) process helps to preserve the safety basis of a nuclear facility. It establishes the level of approval required to make a physical change in the nuclear facility, make a change to a procedure described in the safety analysis, or conduct a test or experiment not described in the safety analysis. It is also used to evaluate new information that can affect the safety basis. The USQ process is implemented in LWP-18001, "INL Unreviewed Safety Questions." A Management Assessment of the INL USQ training and qualification program was performed during FY2010. USQ training materials and personnel USQ qualification records were reviewed for accuracy and completeness. Effectiveness of the training was evaluated by reviewing a sample of completed USQ evaluations for electronic change requests (procedure revisions) and work orders. Although there was one "finding" and four "opportunities for improvement," the results of this assessment determined that the INL USQ Training and Qualification program is effective.

At the beginning of FY 2010, Nuclear Safety Engineering completed an independent assessment to evaluate radioactive material inventory tracking for various facilities at the Materials and Fuels Complex (MFC), Central Facilities Area (CFA), and Advanced Test Reactor (ATR) Complex. The overall performance rating for the facilities assessed was "Highly Effective" in accordance with LWP-13760, "Performing Independent Reviews and Assessments." Although issues were identified that indicate failure to monitor and maintain an active radioactive material inventory for each facility assessed, upon reviewing the radioactive material inventories of each facility, all of the facilities were found to be in compliance with their hazard categorizations as documented in the respective safety bases documentation.

During FY 2010, it was identified that Nuclear Safety Engineering was lacking in the area of performing assessments with regard to Applied Engineering's Assurance portfolio. The issue was entered into ICAMS, resolved, and then closed showing complete. With the initiation and implementation of strategic improvements to the nuclear safety engineering program this fiscal year, a rating of *'effective performance'* is given to this area.

Nuclear safety continues to work closely with DOE-ID on upgrades to MFC's DSAs as defined and approved by NS-18308, MFC Work Plan for Safety Basis Upgrade. This is a multi-year effort that was originally identified at contract transition.

5.7 Criticality Safety

The purpose of the Criticality Safety Program is to ensure appropriate actions are taken to prevent and mitigate the consequences of a criticality accident. The requirements of the Criticality Safety Program are documented in Laboratory Requirements Document, LRD-18001, "INL Criticality Safety Program Requirements Manual." LRD-18001 complies with the requirements of 10 CFR 830.204, applicable DOE Orders/Standards, and the ANSI/ANS-8-Series Standards.

A mature and effective criticality safety program requires the involvement of multiple organizations. These organizations include Criticality Safety, Emergency Management, Engineering, Fire Protection, Nuclear Operations, Safety Analysis, Safeguards & Security, and Training. Because of this multi-organizational involvement, the INL Criticality Safety Program relies on, and is part of the Integrated Safety Management System (ISMS). The Laboratory ISM Program, which includes Criticality Safety, is documented in PDD-1004, "Integrated Safety Management System." The Criticality Safety Program is in fact based on the core functions and guiding principles of ISM.

The Criticality Safety Program is built on the first principle of ISM, "line management is responsible for safety." A strength of the INL Criticality Safety Program is that line management owns, accepts, understands and participates in the criticality safety of their operations and facilities. Criticality Safety Engineering is responsible for developing and documenting the requirements for the INL Criticality Safety Program, but the real owners of the program are facility ("line") management. Management defines the scope of work. The Criticality Safety Engineering Department works with line management to analyze the hazards and develop controls for the prevention and mitigation of a criticality accident. Criticality safety evaluations (CSEs) are performed that identify and document controls. Criticality Safety Engineering assists line management in the implementation of controls and has a program in place to provide feedback and continuous improvement, which includes assessments and lessons learned.

LRD-18001, "INL Criticality Safety Program Requirements Document" was revised and issued on March 30, 2010. The revision was a process improvement action to improve consistency, effectiveness, and efficiency of requirements through benchmarking and customer feedback. The review for LRD-18001 was "site-wide" and included most Laboratory organizations. Comments were resolved in face-to-face meetings to establish relationships and improve mutual understanding. The resulting document is much improved while still maintaining compliance with Contractual Requirements providing increased buy-in from Nuclear Operations and R& D personnel.

Criticality Safety Engineering initiated a site-wide fissionable material equivalency to standardize equivalencies, which will increase the efficiency of transportation of fissionable material between facilities.

6 CORE FUNCTION 5 - FEEDBACK AND CONTINUOUS IMPROVEMENT

This core function is effectively implemented; opportunities for improvement exist. Feedback is gathered for analysis through various reporting systems and communication mechanisms to ensure continual improvement in processes and performance. This section describes the primary mechanisms used by the INL ISM to ensure effective feedback and improvement. These mechanisms also comprise the CAS required by DOE Order 226.1A.

6.1 Contractor Assurance System

The CAS enables INL management to find, understand, report, and correct deficiencies, and adverse performance as well as implement opportunities for program and process improvements.

6.1.1 Event Investigation

A new incident investigation process was implemented via INL LWP-13815, "INL Investigation Process" in March 2010. The new process merged reporting and investigation requirements from all major disciplines into one guidance document that is the first of its kind within DOE. The new process has improved the quality and timeliness of investigations. INL trained 843 managers on the new investigation process and as a result, the average number of days to complete an Occurrence Reporting and Processing System (ORPS) report has dropped from 63.5 days in 2009 to 43.8 days since implementation in March 2010.

The expectation for what is investigated *and how it is investigated* has changed as well, with significant emphasis placed on identifying and analyzing "high frequency/low *consequence*" issues in a manner that reduces the burden for entering such issues into the system, hence producing a more rapid initial analysis of what occurred. The purpose of the new process is to increase efficiency, timeliness, robustness, and ownership of the INL investigation process, with a stated outcome of allowing BEA employees and researchers to better focus on their jobs/tasks and RDD&D outcomes. In a recent email from the DOE Headquarters (DOE-HQ) Occurrence Reporting and Operating Experience Program Manager, DOE recognized the impact of INL's process changes and stated that they were pleased with INL's ability to investigate, recognize, and report latent organizational weaknesses present in even relatively uncomplicated events.

The new process initiates with a problem or deviation (positive or negative), which is evaluated against a series of criteria that guide the user through the many potential time-sensitive actions that are evaluated for being applicable to that particular issue. The user is then guided through a matrix that communicates ORPS reporting criteria, environmentally sensitive requirements, Price Anderson Amendment Act (PAAA) concerns, RadCon, Emergency Management criteria, etc., with the intent of providing "one-stop shopping" for identifying required actions such as reportability, investigating rigor, critique requirements, report writing, corrective action development, etc.

The new process has four outcomes related to the level of rigor (learning) desired. The lowest level of rigor is a simple evaluation for tracking and trending using the company's issues management process. The next level is a Level III investigation, which is typically satisfied with the information gathered at a critique with a primary focus on gathering information at the task/job level. A Level II investigation is intended to gather and analyze information at the job/task and facility/program focus. And finally, a

Level I investigation is intended to gather information at the task/job, facility/program, and Laboratory focus with the intended outcome of working toward an institutional level of learning across INL.

6.1.2 Contractor Assurance System Effectiveness

The Contractor Assurance System (CAS) has a major role in evaluating ISM effectiveness. Through CAS activities, laboratory-wide management approaches and systems are evaluated to determine if they are comprehensive and sufficient to identify and address significant risks before mission impact occurs.

Because of its importance to determining ISM effectiveness, an assessment of CAS effectiveness in relation to its six functions has been included as part of this ISM Effectiveness Review. The six CAS functions include:

- Identify and Prioritize Risks
- Plan Assurances
- Implement Assurance Activities
- Report Issues, Understand Causes and Take Corrective Action
- Monitor and Evaluate
- Learn and Improve

Overall, the CAS is effective. Major improvements have been made over the past fiscal year. However, there are opportunities for improvement: (1) An opportunity exists to improve organizational understanding of required assurance implementation activities (2) An opportunity exists to even better link risk mitigation with assurance; (3) An opportunity exists to improve the timeliness of identification and documentation of issues, potential weaknesses, or conditions needing management attention and ensuring entry into the Issues Management process from all types of assurance activities; and (4) In general, an opportunity exists to improve timeliness of Lessons Learned reviews and usage of the Lessons Learned database. A brief discussion of each of the six CAS function's effectiveness is included in the following subsections.

6.1.2.1 Identify and Prioritize Risks

CAS is effective at identifying and prioritizing risks with opportunities for improvement. Risk identification was a noted weakness early in FY 2010, and actions by Laboratory Performance and others improved performance and will continue to enhance performance. Improvement actions taken during FY 2010 included teaching Mandate to Manage classes on CAS, holding risk workshops with each organization, working with Internal Audit to ensure risk identification consistency, and institutionalizing a quarterly update of a Lab-level risk register. Additional actions being taken in FY 2011 to further enhance identification and prioritization or risks include continuing presentations on CAS to the Mandate to Manage classes, planned collaborative efforts between CAS and Internal Audit for risk identification guidance for FY 2012, and a review of each assurance portfolio is planned with the SME for Management Systems in FY 2011.

6.1.2.2 Plan Assurances

CAS performance in this function is effective. During FY 2010, assurance activities were completed in a timely manner with approximately 87% (goal was >80%) being completed on time and 100% of organizations entering their schedules into the Integrated Assurance System database (IAS). There are opportunities to improve organizational understanding of required assurance activities implementation; especially those required by contract or procedure when their frequency is based on risk. FY 2011

improvement actions include working with assurance portfolio owners to ensure planned assurance activities are adequate for the risk and requirements, evaluating integrating assurance activities across management systems and organizations, and revising the IAS to include Work Evolution Observations and providing training to performers and mentors.

6.1.2.3 Implement Assurance Activities

CAS performance in this function is effective as determined by (1) assurance activities are completed on-time at least 80% of the time; (2) Assurance activities are properly categorized; (3) Personnel performing assessments are adequately trained and/or qualified and are knowledgeable of the areas evaluated; (4) Assurance activities are appropriately focused, self-critical, and identify important issues and opportunities to improve performance; and (5) Issues and opportunities for improvement are being entered into the issues management system.

6.1.2.4 Report, Understand, and Correct Issues

This CAS function is marginally effective and showing improvement. INL deployed ICAMS Lab-wide on March 23, 2010. This resulted in improved performance in proactively finding issues with a 400% increase in issues reported over FY 2009. INL has far exceeded the goal of proactively finding issues (more than 90%) before they become incidents or events.

In conjunction with the new ICAMS software, key INL organizations also implemented daily issues management meetings to help quickly screen and disposition issues reported through ICAMS. The meetings proved to be highly synergistic, resulting in a better understanding and appreciation of facility problems and a better sense of whether the issues are isolated incidents or are occurring elsewhere.

INL brought in an independent assessment team to evaluate the INL Issues Management Program in September 2010. NWI Consulting, who specializes in assessing issues management systems, performed the assessment. NWI focused their assessment on ICAMS implementation and stated that, although some areas for improvement exist, they consider the ICAMS tool as a best in class compared to all the other issues management systems they had previously reviewed.

INL made significant progress during FY 2010 in using various tools to track, trend, analyze, manage, and report organizational and management system data. Of particular note are the generation of drill-down capabilities and graph generation with upper and lower control limits for data contained in ICAMS.

6.1.2.5 Monitor and Evaluate

The Monitor and Evaluate CAS function is effective. Councils, Committees and the Board of Managers continue to monitor performance and discuss risks, assessments, incidents, and corrective actions. Quarterly assurance reports are presented to the appropriate Council, as required, and are, for the most part, self-critical and appropriately focused on high risk items. Results from the Assessment Evaluation Board indicate improvement in assessment quality and performance exceeds the goal in this area. Opportunities for improvement in FY 2011 exist for strengthening metrics and the use of ICAMS data in reporting.

6.1.2.5.1 Committee/Council Oversight of Key Operational Events and Issues

Leadership and direction for the INL ISM is the responsibility of the Operations Council. The Operations Council provides senior management leadership and strategic direction for implementation of the ISM. The Operations Council is chartered to identify risks and understand issues, to make or recommend decisions to the INL Executive Council, and to provide direction to the operational elements of the INL to ensure that operational excellence in the facilities associated with the INL is maintained and is constantly improving. The Operations Council works with the Battelle Energy Alliance Operations Committee (the Committee), which is responsible for corporate oversight of operational risks at INL. The continuing and increasing oversight of the Operations Council provides additional defense in depth to ISM effectiveness. Some examples of the Council and Committee involvement and oversight of operational events are listed in the following subsections.

6.1.2.5.2 Example: Committee Evaluation and Management System Alignment

Twelve sub-committee charters that rolled up to the Operations Council were reviewed in FY 2010 (ICARE 45753). Of those, two (Indirect Review Committee and Operational Safety Board) are facility specific, convene only when there is an applicable issue, and report directly to the Operations Council. No update to their charter was necessary as neither is currently convened and the existing charters cover what type of issues warrant convening as well as governance. Two committees (Hoisting and Rigging Committee and Facility Operations Review & Implementations Boards) were realigned to be covered by Management System processes, and their charters were canceled. Teams reviewed and revised the remaining eight committee charters to reflect current practices. With the exception of the Environmental Stewardship Committee and the Corrective Action Review Boards (Facility/issue specific), all were realigned with a Management System for governance versus the Operations Council. Membership on the committees was also reviewed and updated to reflect appropriate business practices. The reporting of the committees is included in the specific Management System quarterly assurance reports. The final charter was complete and entered into EDMS August 2, 2010. The action has been closed out in ICARE.

6.1.2.5.3 Example: Integrated Budget Priority List – Balanced Priorities

Broad-based changes have been made to the indirect budgeting and investment processes including additional guidance regarding the importance of considering the hazards associated with the work scope and for including resources to mitigate those hazards in budget proposals ensuring that the budget is adequate for performing work safely. These improved processes emphasize more balanced indirect funding and investment, ensuring adequate budget to support strategic mission objectives and ensuring ES&H, Quality, and Nuclear Safety funding and resources are integrated in the annual budgeting processes. Balancing mission accomplishment with the protection of the public, workers and the environment is a key element of an effective ISM program.

6.1.2.5.4 Example: Electrical Safety Committee Recommendation to Transition to NFPA 70E 2009

Per a request by DOE-ID, BEA was asked to evaluate the implementation of NFPA 70E 2009 versus 2004 designated in 10 CFR 851. During the course of review, the Operations Council asked for and used a recommendation by the Electrical Safety Committee on the appropriate path forward to migrate to the 2009 version. A draft formal cost estimate has been performed. Implementation costs are significant, $2.7 M the first year with a possible cost of $17M. The schedule will be dictated by available funds. The Operations Council agreed to a graded approached for implementation. An implementation plan and strategy have been developed. There is also a procedure being developed for energized work.

6.1.2.5.5 Example: Health Physics Instrument Laboratory Assessment

As discussed in Section 5.3, in FY 2010 the number of radiological noncompliance events decreased significantly due to BEA improvement initiatives, assessments, and corrective actions. However, the Operations Council noted the increased significance of the HPIL event and requested an independent management assessment team (IAS101885) to review BEA's response to the HPIL event. The August 2010 assessment identified two issues, seven observations, and one noteworthy practice that were subsequently entered in ICAMS for corrective actions. The corrective actions documented in IAS101885 include developing and implementing on-the-job-training for abnormal events, procedure updates, retraining irradiator operators in nuclear activation and response actions, sharing lessons learned with radiography program personnel, and reviewing INL safety culture issues. The independent assessment team noted that during the assessment, HPIL management continually looked for ways to improve, suggested additions to the original CAP, and implemented improvements to HPIL operations beyond the scope of the CAP. An effectiveness review of the IAS101885 corrective actions will be completed in the spring of 2011. The results of the effectiveness review will be discussed in the FY 2011 ISM effectiveness review.

6.1.2.5.6 Example: INL Hazard Identification and Control Processes

Although very high percentage of INL work is completed without issues, because INL is continually striving to improve, it focuses many assessments on actual events and observable issues related to ISM elements and implementation. One example of Operations Council intervention came in response to a number of events, when the INL Operations Council chartered a team to assess the connection between the events and the INL hazard identification and control process that is discussed in section 4.1 and in management assessment IAS101410. The team concluded that although the INL hazard identification and control process itself is effective and meets expectations, a common theme in the assessed events was that personnel did not perform work within the identified controls.

6.1.2.5.7 Example: Battelle Energy Alliance Operations Committee Interaction

The Battelle Energy Alliance Operations Committee is responsible for corporate oversight of operational risks at INL. During FY 2010, the Committee evaluated management system performance, key project performance, and other risk areas to ensure that management is initiating the necessary actions to achieve strategic objectives while mitigating risks in an appropriate manner.

In summary, the Committee concluded that INL is effectively engaged in managing risks and challenges, and also noted some issues and opportunities for improvement. The Committee noted concerns with issues related to work management performance, but stated that INL was on the right track to improve performance by completing a crosscutting internal assessment, holding a series of workshops with employees, and initiating a comprehensive CAP. The Committee expressed concern with the current safety performance that is related to situational awareness. It was recognized that management has initiated initiatives to heighten safety awareness and encouraged management to continue the sustained effort. The chairman of the committee was also present at the HPIL enforcement conference in their oversight role.

6.1.2.6 Learn and Improve

This function is marginally effective. This function measures the timeliness of response to Lessons Learned review actions, and underwent a slight improvement as evidenced in the metrics. Laboratory Performance is also examining Operating Experience Information (OEI) documents usage to drive improvement.

Of the 120 OEI documents, 90% of the OEI documents were responded to on time, which is a slight improvement over the previous quarter's performance. Based on overall FY 2010 analyses, there is room for improvement in the usage of the Lessons Learned database and timely response to Lessons Learned reviews.

6.1.3 Contractor Assurance System Continuous Improvement

An effective CAS is the product of incremental continuous improvements. Some examples of CAS improvements are discussed below.

6.1.3.1 Hubert J. Miller Assessment

An independent assessor was contracted by DOE to assess results of the DOE-ID Operational Assurance Pilot Program as it neared completion. The pilot program was initiated to determine if BEA's improvements in its operational assurance programs and its more aggressive approach to identification and resolution of problems would allow DOE to fulfill its oversight responsibilities with a reduced level of interaction and contractor burden. The assessor visited the INL in September 2009 and identified issues that needed improvement. When he returned in May 2010, he noted that significant progress had been made on the issues, noted the advantages of the modified DOE oversight approach, recommended that the pilot program be closed, and made additional recommendations to fully develop and institutionalize the revised oversight process and to sustain progress.

6.1.3.2 Senior Operations Working Group

The DOE/BEA Senior Operations Working Group was created to foster a culture where BEA line organizations routinely identify problems and actively seek gaps to excellent performance in daily operations. The working group provides a mechanism for assuring alignment between BEA and DOE-ID and provides a forum where BEA and DOE-ID management can surface and discuss implementation issues and questions that arise.

This working group was declared a success with the result of a Pilot that ran through June 2010. The Working Group continues to meet and discuss issues, barriers to success, recommendations, etc.

6.1.3.3 Operations Council Dashboard

A Dashboard tool that was under development in July, 2010 was presented in a meeting to DOE-ID as a potential addition to the FY 2011 ISM safety performance objectives, measures, and commitments, which were under discussion. The Dashboard tool has since been implemented for the Operations Council and is being used during the DOE/BEA working group meetings as an additional communication tool, adding to BEA/DOE "transparency" and improving the DOE/BEA working group forum.

6.1.3.4 Assessment Evaluation Board / Inspections/Surveillance Evaluation Board

An Assessment Evaluation Board (AEB) is chartered with senior management representatives from across the laboratory to conduct focused evaluations of selected management and independent assessments to determine their effectiveness. The board communicates the strengths and weaknesses of each assessment back to the responsible management and assessment team. Performance patterns, trends, or process weaknesses identified during the evaluations may be considered for assessment program improvements and continuing training. As stated above, overall the quality of assessments exceed the goal of 80%.

An Inspection and Surveillance Evaluation Board is comprised of three managers (one from each Council). Similar to the AEB, they conduct focused evaluations of inspections and surveillances to determine their effectiveness and provide feedback to those that conducted them for improvement opportunities. During FY 2010, baseline performance was established.

6.2 Major Continuous Improvement Actions

6.2.1 Continuous Third Party Verifications

6.2.1.1 ISO 14001:2004 Audit

The ISO 14001:2004 Independent Surveillance Audit was conducted October 19 and 20, 2010, by an independent assessor from National Science Foundation – International Strategic Registrations. INL reregistered its EMS to the ISO 14001 standard on November 17, 2008. INL's ISO 14001 registration is valid for three years, subject to semi-annual surveillance audits. The purpose of the assessment was to evaluate continual conformance to ISO 14001:2004 requirements. The following notable practices were included in the report:

- The EMS continues to benefit from top management support and to function according to plans and procedures.
- There were no active reportable releases that occurred during the previous year. Although not noted in the ISO 14001:2004 Independent Surveillance Audit report, as mentioned in Section 5.2, because a historic (>20 years) fuel oil soil stain could not be safely cleaned up within twenty-four hours after its discovery as required by Idaho regulations, it was considered reportable.
- There were no external violations of compliance regulations noted by agency inspectors in the last year.
- INL achieved the silver level (for the fourth time) in the Federal Electronics Challenge (FEC).
- No corrective actions requests were identified by the audit team and two opportunities for improvement were identified.
- There is an opportunity to improve linkage between EMS objectives-targets and sustainability activities and special initiatives in various departments.
- There is an opportunity to improve operational controls related to significant aspects at the Central Facilities Area Big Shop. Written work instructions covering environmental aspects (e.g., waste handling procedures) could not be located.

Based on the audit team's evaluation and evidence collected during the audit, the team recommended that INL continue its ISO 14001:2004 certification.

6.2.1.2 Federal Electronics Challenge

INL was recently awarded the FEC silver award for its efforts to use electronics in an environmentally conscious manner. INL has received an FEC award each year since 2007, and this is the second year the Laboratory earned the prestigious silver award status. INL's Pollution Prevention program teamed up with Property Management, Procurement, and Information Management to achieve this year's award, which was based on BEA activities only (previous awards have included the other contractors and DOE-ID). Plans are under way to apply for the 2011 FEC award based on FY 2010 activities.

6.2.1.3 External Dosimetry Program

BEA's new external dosimetry program was granted accreditation by the DOE Performance Evaluation Program Administrator and the Oversight Board on June 17, 2010. The period of accreditation is one year through June 30, 2011. During this time period, the DOE Laboratory Accreditation Program (DOELAP) will conduct an on-site assessment of BEA's program to verify compliance with 10 CFR 835.402(b) and the DOELAP Handbook (DOE/EH-0026). Based on the assessment findings, DOELAP can recommend continuing accreditation for one additional year through June 30, 2012. Continued accreditation of BEA's dosimetry program will be necessary every two years thereafter. BEA's new dosimetry program started issuing external dosimetry badges as scheduled on July 1, 2010.

6.2.2 Safety Leadership Strategy

During FY 2010, enhanced worker engagement became an area of management focus and emphasis. This initiative creates a cross-organizational strategy to optimize safety performance since many continuous improvement actions already exist to elicit input and encourage engagement. At a company level, various forums solicit input from employees including, for example, an intranet blog and Q&A forum, employee meetings, a Gallup survey, and a monthly INL Team Talk publication. A safety culture survey added to the annual ES&H refresher is helping determine focus areas for the ongoing strategy. Ownership is exemplified through employee safety teams, and the VPP 3-year recertification was achieved; worker engagement was a significant element of the VPP criteria. Safety Observations Achieve Results (SOAR) observations continued to yield unprecedented levels of employee participation. During the year, employees approached the 100,000 observation milestone. Worker engagement measurement tools were established to create a feedback system through the Gallup survey and a company survey provided at the front-end of the annual ES&H refresher training. Last and most recently, BEA launched a multi-year effort to enhance our safety culture and journey to world-leading safety behaviors and performance.

The enhancement of safety culture is outlined in a 3- to 5-year strategy where INL is positioning itself to be a high-reliability organization—one of a strong safety culture and organizational learning enterprise. This strategy further reinforces the ISM foundation and leverages and consolidates existing continuous improvement actions between management systems and further improves integrated work activities. The strategy will leverage off the positive safety culture established by ISM, VPP, employee safety teams (ESTs), and SOAR, and will further enhance communications on the importance of safety, strengthen mutual trust and teamwork, and enhance sharing lessons learned for the efficacy of preventive measures and organizational learning. The strategy focuses on organizational factors, safety attitudes, and safety behaviors. Ultimately the goal of the safety culture strategy is to deepen the commitment to safety leadership, concern for hazards and mitigation controls, shared concern for the impacts on people, and continual reflection upon practices through monitoring analysis and feedback systems. Figure 3 summarizes key elements of the existing INL programs, processes, and initiatives as associated with priority safety culture attributes. The italics highlight ongoing continuous improvement actions. The collective whole of these actions enhance our safety culture. Quarterly meetings are conducted to monitor progress. This effort was also recognized as a pilot for the EFCOG ISM Safety Culture Subgroup. Special recognition was given to Carol Mascareñas, acting INL ES&H Director, by the EFCOG Executive Committee.

Figure 3: Summary of key elements of INL safety culture

7 Eight Guiding Principles Overview

PDD-1004 describes how INL follows the ISM eight guiding principles in establishing and performing the ISM five core functions to integrate safety into management and work practices to ensure public, worker, and environmental protection during mission accomplishment. The following Sections provide a brief overview of the process.

7.1.1 Guiding Principle 1 - Line Management Responsible for Safety

This Guiding Principle is effectively implemented. As described in detail in PDD-1004, line management at the institutional, facility, or individual activity level, ensures hazardous work is planned, analyzed, controlled, and authorized by line managers who understand the technical basis and associated hazards of the work, are aware of all activities, knowledgeable of institutional and facility safe operating requirements, and manage change control (Defense Nuclear Facilities Safety Board [DNFSB] Technical Report 36). Line management is responsible for safety and assumes the direct responsibility to achieve the commitment to safety and protection of the environment through the active identification, evaluation, prevention, and mitigation of hazards.

This year enhancements occurred in three areas discussed below:

(1) POL-111 was updated in its entirety. In particular Policy 7, "Safety and Security Leadership and Environmental Stewardship." was updated to combine line management responsibility for safety and security. This was done because similar behaviors are associated with both.
(2) Mandate to Manage, a 29 hour course delivered to managers on four consecutive days, was initiated this year. In particular the ES&H module includes elements of basic ISM roles and responsibilities for managers.
(3) At the Leadership Management Team (LMT) level, the Laboratory Director's office has required LMT members, once a month, to discuss the injuries occurring in their organization, the cause as well as actions taken to prevent similar situations. A new subcategory of injuries was baselined in order to identify elements that are within BEA control. (This is used only for LMT not for company-wide distribution).

Guiding Principle 1 implementation follows a robust, effective INL process that is closely related to Guiding Principles 2 and 7. Opportunities for improvement are being evaluated that relate to ensuring full understanding of line management, roles and responsibilities, and operations authorization when work space is shared between different organizations and management systems.

7.1.2 Guiding Principle 2 - Clear Roles and Responsibilities

This Guiding Principle is effectively implemented. As described in detail in PDD-1004, work performance expectations for managers and employees are communicated in a variety of ways. Initially, contract requirements are translated into laboratory-level documents and processes, with roles and responsibilities assigned to organizations, managers, and individual employees. General roles and responsibilities for INL management and employees are described in LWP-9500 and in employee position descriptions (PDs). Roles and responsibilities are further defined at the facility level. Activity-level roles and responsibilities are even more prescriptive and are associated with specific jobs or activities. Controlled documents provide roles and responsibilities for safe performance of work at the laboratory, facility, and activity levels.

The annual revision of PDD-1004 will include laboratory organizational structure information that was included in cancelled document, PDD-9000, but is not included in LWP-9500, which was updated in March, 2010 to better support laboratory excellence implementation after several management system improvements.

As a result of the hazard identification and control assessment (discussed in Section 4.1) employee position descriptions of key management involved in work executions were reviewed to ensure the expectation of management work evolution observations were included.

In general, while specific actions have been taken to improve management systems, INL will continue in FY 2011 to look for improvement opportunities related to Guiding Principle 2.

7.1.3 Guiding Principle 3 - Competence Commensurate with Responsibilities

This Guiding Principle is effectively implemented. People and their professional capabilities, experiences, and values are the Laboratory's most valuable asset. INL's process for ensuring an employee has competence commensurate with responsibilities (CCR) places a high priority on recruiting, selecting, and retaining staff that have an in-depth understanding of both the safety and the technical aspects of their jobs.

INL's diverse set of work activities dictates the need for a highly flexible and robust CCR process, which is described in detail in PDD-1004. The CCR requirements for processes such as work control are defined based on the risks, hazards, and complexity of the type of activity, facility, and worker. Management is responsible for understanding the specific ES&H hazards and implementing the appropriate mitigation strategies in conjunction with the applicable regulatory drivers and process requirements.

Training is the subject of a current ongoing assessment scheduled to be complete by the end of calendar year 2010. Initial results indicate that, while the process is effective, additional enhancement and restructuring may be required. INL will evaluate the assessment results for opportunities for improvement.

7.1.4 Guiding Principle 4 - Balanced Priorities

This Guiding Principle is effectively implemented. During 2010, BEA has continued efforts to integrate our business and budget process used to define laboratory scope and work activities and balance safety, programmatic, and operations priorities. As described in detail in PDD-1004, these processes translate laboratory strategies into work scope and ensure that ES&H, Quality and Nuclear Safety requirements are met and resources are allocated to balance mission accomplishment with protection of the public, workers, and the environment. A well-defined scope of work, together with related resource cost and schedule elements is vital to the ISM for the following reasons:

- Its sets the stage for the scope and depth of hazards identification analysis, and work controls
- Is the primary factor in establishing expectations and accountability
- Provides the foundation for budget formulation allocation process to identify and fund key ES&H, Quality and Nuclear Safety resources required to perform work safely.

Key improvements to BEA's business and budgets process include:

- Significant modifications to key elements of the Work Planning Cycle and Project Management Enterprise (PME), LWP-7390, used to flow down laboratory requirements to work planning activities and ensure ES&H, Quality and Nuclear Safety review of budget/funding requests and planning documents. This included the:
    - Consolidation, clarification, simplification and tailoring of INL work scope management procedures and forms used for both projects and direct-funded work scope and for indirect-funded non-project work scope. This resulted in the implementation of the INL Work Authorization and Documentation (IWAD) Form 415.19.
    - Modification, alignment and automated required use of the Environment, Safety and Health Nuclear Safety Budget Planning Checklist (Form 130.06) within the INL work authorization process. Form 130.06 is required prior to approval of the IWAD and provides guidance, and documents the hazards and risks associated with all INL work activities, and directs line management to consider ES&H, Quality and Nuclear Safety resources required to mitigate the risks and perform work safely. It is also required as a part of making baseline change requests.
- Making BEA Councils, versus the financial management organization responsible for budget target evolution. Integrated priority lists were developed by organizations and reviewed and prioritized through the Councils. Final adjustments to the budgets were made the institution level through the Executive Council. The Councils are a key instrument to balancing priorities and effectively integrate ISM across the laboratory.

A review of the key elements of processes demonstrates that the objective of Guiding Principal 4, Balanced Priorities is implemented consistently with the PDD-1004.

7.1.5 Guiding Principle 5 - Identification of Safety Standards and Requirements

This Guiding Principle is effectively implemented. As described in detail in PDD-1004, identification of safety standards and requirements begins with the development of a set of requirements primarily identified in laws and regulations and DOE directives, List B, contained in the INL contract (DE-AC07-05ID14517), and it also includes requirements identified in such overarching documents as the scope of work and contract clauses. These requirements form the basis for the development of work processes, guided by the ISM guiding principles and core functions that permeate the INL organization from management through the facilities and activities to the employee, with a primary focus on the employee. List B can be found on the INL intranet and includes the DOE directives that contain requirements relevant to the scope of work under the contract. In most cases, the requirements applicable to the contract are contained in a Contractor Requirements Document attached to the DOE directive.

Several improvements were made to the identification of safety standards and requirements process during FY 2010. For example, Requirements Management initiated an effort to consolidate Laboratory contract requirements into a central database. With the consolidation of the requirements, the capability to map requirements directly to implementing documents and other applicable methods was incorporated into the requirements management process and database. Prior to this accomplishment, implementing documents for each management system were identified in separate applications and documents. With this enhancement, Requirements Management can now provide the link to the implementing mechanism for each requirement and deliver the information through the SIMS reports, demonstrating accurate traceability of requirements implementation across management systems. Due to this consolidation of requirements, current, centralized, and easily accessible requirements implementation data is available to INL employees across the Laboratory.

In addition, after recent changes to contract requirements, INL identified the need for more in-depth, cross-cutting implementation strategies. Due to the high costs and significant schedule impacts of implementing specific requirement changes, INL has adopted more comprehensive and integrated impact analysis efforts to address implementation of high impact requirements. A pilot project consisting of a cross-organizational project team was conducted to develop an implementation strategy for National Fire Protection Association (NFPA) 70E 2009, "Standard for Electrical Safety in the Workplace," and was led by the Occupational Safety and Health MS with help from BEA's Project Management Office. PLN-14103, NFPA 70E 2009 Implementation Strategy and Analysis, describes the proposed strategic approach for addressing the impacts and mitigating potential risks associated with implementation of NFPA 70E 2009. It was presented to DOE-ID on November 10, 2009, and deemed a success. This pilot process resulted in the appropriate engagement of both INL and DOE-ID leadership in risk and cost/benefit decision making and engaged work planning already in place to more efficiently enable the implementation of the revised standard.

7.1.6 Guiding Principle 6 - Hazard Controls Tailored to Work Being Performed

This Guiding Principle is effectively implemented. The objective of hazard identification, analysis, and control is the safe accomplishment of the INL mission by eliminating or mitigating hazards to protect the workers, the public, the environment, and the INL facilities and programs.

As described in detail in PDD-1004, the INL has developed a number of viable and proven mechanisms to meet this objective. These mechanisms exist at the laboratory, facility, and activity levels and have been tailored to the different work functions and work areas of INL. This Guiding Principle is directly related to core functions 2 and 3. See Section 4.1 for assessments and improvement actions taken in FY 2010.

7.1.7 Guiding Principle 7 - Operations Authorization

This Guiding Principle is effectively implemented. Work is authorized and performed at the INL at the laboratory, facility, and activity level through formal processes as described in PDD-1004. At the laboratory level, the INL contract provides INL legal authority to plan and conduct the INL work scope. At the facility level, operating boundaries are established for each facility in accordance with functional area requirements. These facility limits are identified in documents such as safety basis documents, fire hazard analysis, and project environmental hazards and controls. Limits established in these documents are evaluated as part of the project management and work control processes prior to approval of work. At the activity level, accomplishing work safely is the end result of the planning, budgeting, scheduling, analysis, evaluation, and management activities. Line management ensures the proposed activity will be conducted in compliance with facility/project requirements, such as safety basis documents, and environmental regulations and permits, by appropriately trained and qualified personnel following approved work control documents or instructions.

While Guiding Principle 7 implementation follows a robust, effective INL process that is closely related to Guiding Principles 1 and 2, opportunities for improvement are being evaluated that relate to ensuring full understanding of line management, roles and responsibilities, operations authorization authority, especially when work space is shared between different organizations and management systems. Ensuring personnel know who authorizes work is an area that has been recommended to be assessed in FY 2011 and reported on in next year's ISMS Effectiveness Review.

7.1.8 Guiding Principle 8 - Employee Involvement

This Guiding Principle is effectively implemented. Employee involvement was added as an eighth guiding principle by INL to DOE's seven guiding principles. As shown in Figure 3, many mechanisms are in place to help ensure every employee accepts responsibility for safe mission performance. INL strives to create a culture where individuals demonstrate questioning attitudes by challenging assumptions, investigating anomalies, and considering potential adverse consequences of planned actions. All employees are mindful of work conditions that may impact safety and assist each other in preventing unsafe acts or behaviors. Regardless of complexity, activities are undertaken with full understanding by each employee involved that they are individually responsible for their own safety and the safety of others involved in or affected by the activity. Personnel are qualified through training and experience to perform the assigned activity. They understand that they are required to follow established instructions or work control documents for the activity being undertaken. They also actively participate in developing and changing the instructions or work control documents they are required to follow. Personnel clearly understand that they not only have the right, but are obligated to stop work at any time if they are aware that a potentially unsafe condition exists. Some of the mechanisms that encourage employee involvement are discussed below.

7.1.8.1 Safety Observations Achieve Results

SOAR observations yielded unprecedented employee participation levels during the year with a 100,000 observation milestone being accomplished. SOAR is an actively caring, peer-to-peer and self-observation process that empowers employees to view their safe behaviors as well as that of their co-workers. It is a behavior-based application that allows employees to participate on a voluntary basis and focuses on safe behaviors and at-risk behaviors as well as positive reinforcement.

The essence of the SOAR process is the observation itself, and the benefit is that observers and observees participate in a process of on-the-spot awareness and critical reflection to help correct and prevent at-risk behaviors. The data derived from SOAR is not the essence of the process but a secondary benefit. For the most part, the data is positive, as the observation is an on-the-spot prevention tool. ESTs can drive focused observations to address recent areas of risk (i.e., Transportation promoting bus passenger observations following curtailment and other ESTs focusing on pedestrian safety observations, and most recently cyber security observations, etc.). SOAR coaches review the data and observations looking for trends or conditions (comments provided) to be addressed by the respective and impacted EST. Due to the nature of the process, at-risk data is minimal. The EST then provides some means of awareness, action (sometimes DO ITs) or intervention if there are any trends or conditions. When crosscutting trends or conditions appear, similar means are provided for the INL population (refer to online safety meetings, iNotes, etc.). SOAR process efforts are published on a monthly basis by each EST at their respective meetings and at the Laboratory EST meeting.

A study at the University of California at Santa Barbara (as well as follow-on cooperative research with Stanford University and the University of British Columbia) revealed that our minds wander 5.4 times in a 45-minute session even when trying to concentrate on the task at hand. Human Performance and SOAR training facilitate an understanding of this aspect of human nature and explain how influences around us can bring about such at-risk behaviors. Because of this training, we are able to identify and correct potential hazards in our behaviors during execution of work and our surroundings that we might not have otherwise recognized. Organizations such as Security, Radiological, and Cyber Security have experienced incidents associated with at-risk behaviors and have employed the SOAR process to facilitate and disseminate the appropriate behaviors by means of SOAR checklists.

SOAR is not meant to be a stand-alone process to impact safety—it is merely one option for employees to actively participate. Myriad tools are required to further enhance our safety. Management support sustains the process for overall performance and impact, and some organizations have begun to develop management observations processes that will not only address safety and behaviors but process flow, conditions in the workplace, and efficiency.

As the 24/7 safety framework continues to be a focus, non-work-related observations are also a focus as transference of awareness and learning at all times.

Presently, 70 checklists are available in the SOAR process with the most recent checklist, Cold Waste Pickup, developed by crafts at ATR.

Due to security issues within National and Homeland Security (NHS), a campaign to reduce the number of security incidents (controlled unclassified information [CUI] and incidents of a security concern) was initiated in FY 2009 that included focus on behaviors and SOAR observations. For NHS in FY 2009, there were 32 CUI incidents and 16 incidents of security concern. In FY 2010, those incidents are down to 1 and 4 respectively.

Participation in SOAR from 2009 to 2010 has increased 50% and in recent months, craft participation at ATR has more than tripled.

Energy Solutions requested information to obtain the SOAR web-application code from DOE for use at their Savanna River Site operation.

7.1.8.2 Labor Relations

The INL faced several challenging labor union contract negotiations in FY 2010. INL management was able to successfully negotiate collective bargaining agreements that balanced the competing needs of the labor unions within the financial constraints established, thereby satisfying both parties.

7.1.8.3 Gallup Survey

In 2010, the INL workforce participated in their second Gallup Employee Engagement Q12Survey, which is a key element of the INL Safety Leadership Strategy and is in alignment with ISM guiding principle 8 "Employee Involvement" and Core Function 5, "Feedback and Continuous Improvement." As part of the INL Safety Leadership Strategy, INL proactively added an additional question to the survey regarding safety leadership in order to measure and promote safety at INL.

The results provide INL with important "employee engagement" and "safety leadership" measures that indicate the extent to which employees are psychologically and emotionally committed to their jobs, and if they believe their leaders demonstrate a commitment to safety every day. An engaged work force and connected leaders demonstrating a safety commitment result in improved retention, productivity, and safety, all of which are critical to an effective ISM program and INL mission success.

Participation was excellent in 2010, with 79 percent of employees taking part. The overall engagement score for 2010 was 3.63 on a scale of 1-5. This increase of 0.21 from the 2009 score, according to Gallup, "is double the rate needed to make meaningful progress." The overall safety leadership score for 2010 of 4.19, up from the 2009 score of 4.02, also representing meaningful progress. Results also show that workforce engagement is highly correlated to safety leadership. Building an engaged culture starts with an engaged management team. Manager engagement rose dramatically from the 19th to the 50th

percentile in Gallup's manager database. In 2010 58 percent of INL managers were engaged. In addition, BEA requested an additional question "My leader demonstrates safety leadership on a day to day basis" be added to the Gallup list of questions. This metric also increased significantly from 4.02 to 4.19 in 2010. During the next year, managers and work groups will meet to discuss their workgroup Q12 results and to develop and communicate "impact plans' to enhance the INL work experience and promote safety leadership at INL.

This year's meaningful progress in employee engagement and safety leadership is the result of employees and managers working together to make safety a priority. Conducting the Gallup Q12Survey to actively involve employees and get feedback will continue to be priority for INL.

7.1.8.4 HPI

The Human Performance Improvement (HPI) process refines human performance to enable desired outcomes by ensuring that the human performance concepts, principles, and tools are incorporated into INL procedures, processes, and daily work activities. The HPI program conducted a management assessment (IAS10340) to assess its FY 2010 effectiveness. The results showed that HPI could be better integrated throughout the INL. Increasing the use of HPI tools and training make it likely that more employees will recognize error-likely situations and prevent errors. The HPI program is planning to more actively promote the suite of proven HPI tools and processes, qualification programs, and personnel training and mentoring. These tools and processes have also been integrated into the safety leadership strategy.

8 SUMMARY AND CONCLUSIONS

The information presented in this review shows that INL achieved "Effective Performance."

During FY 2010, INL implemented a fully effective ISM program with built-in feedback and improvement mechanisms. INL performance actively sustains efforts to ensure effective ISM implementation and a positive culture that supports environmentally safe and highly productive operations. Considerable progress has been made toward ensuring the safety of our workers and environment. It is recognized that continuous improvement is always a goal and expectation.

The evaluation of ISM, based on performance data between October 1, 2009 and September 30, 2010, identified strengths and weaknesses and led to the following overall conclusions about the status and effectiveness of the INL ISM:

All ISM elements have been maintained and many have been improved. The ISM processes have been functioning properly. No elements of the system were identified as having degraded and numerous improvements have been implemented.

Opportunities for ISM improvements were identified. INL programs and processes are sound and most work is completed without issues; however, when issues occur most are related to non-compliance with the process and/or program requirements. To help sustain high-performance event-free operation, INL is working to increase management presence in the field, to improve human performance, to reinforce personal responsibility, and to foster feedback and improvement. Specific opportunities and ongoing improvement activities include:

- In response to the HSS DOE-VPP team, INL is currently evaluating the adequacy of controls when work falls under "routine activity envelope" or "skill of craft." (Section 3.1)
- In response to the hazard identification and control process assessment, INL is verifying the effectiveness of individual corrective actions to determine if the actions addressed the issues and recommendations are still being implemented and are effective for minimizing future events. (Section 4.1)
- For the CAS (1) An opportunity exists to improve organizational understanding of required assurance implementation activities (2) An opportunity exists to even better link risk mitigation with assurance; (3) An opportunity exists to improve the timeliness of identification and documentation of issues, potential weaknesses, or conditions needing management attention and ensuring entry into the Issues Management process from all types of assurance activities; and (4) In general, an opportunity exists to improve timeliness of Lessons Learned reviews and usage of the Lessons Learned database. (Section 6.1.2)
- Opportunities for improvement in FY 2011 exist for strengthening metrics and the use of ICAMS data in reporting. (Section 6.1.2.5)
- There is an opportunity to improve linkage between EMS objectives-targets and sustainability activities and special initiatives in various departments. (Section 6.2.1.1)
- There is an opportunity to improve operational controls related to significant aspects at the Central Facilities Area Big Shop. Written work instructions covering environmental aspects (e.g., waste handling procedures) could not be located. (Section 6.2.1.1)
- The Battelle Energy Alliance Operations Committee expressed concern with current safety performance related to situational awareness. (6.1.2.5.7) They recognized the Safety Leadership Strategy (discussed in Section 6.2.2) and encouraged management to continue the sustained effort. The goal of the ongoing Safety Leadership strategy is to deepen the commitment to safety leadership, concern for hazards and mitigation controls, shared concern

for the impacts on people, and continual reflection upon practices through monitoring analysis and feedback systems.

- Opportunities for improvement are being evaluated that relate to ensuring full understanding of line management, roles and responsibilities, and operations authorization when work space is shared between different organizations and management systems. (Section 7.1.1)
- INL will evaluate results of a current training assessment for improvement opportunities. (Section 7.1.3)

The system is effective for performing work safely. Although events and deficiencies indicate specific problems with implementation, the system is sound and, when followed, it ensures safe performance of work as demonstrated by work accomplishments in FY 2010.