

INTEGRATED SAFETY MANAGEMENT AND QUALITY ASSURANCE

WORKING GROUP

2009 ANNUAL REPORT

Chair: Norm Barker, EnergySolutions

First Vice-Chair: John McDonald, Washington River Protection Solutions

Second Vice-Chair: Susan Kimmerly, Bechtel National Inc.

INTRODUCTION

Vision - The vision of the Integrated Safety Management (ISM) & Quality Assurance (QA) Working Group is to be recognized by both the Department of Energy (DOE) and EFCOG as a driving force for complex-wide performance improvement throughout the full spectrum of Integrated Safety Management and Quality Assurance activities.

Purpose - The purpose of the ISM&QA Working Group is to promote excellence in the development, implementation and validation of ISM and QA programs and processes by sharing information and lessons learned, and by facilitating the application of ISM information, techniques, and best practices at DOE (including National Nuclear Security Administration (NNSA)) sites.

Objectives - The primary objectives of the Working Group are to:

- Promote, coordinate and facilitate the active exchange of successful programs, practices, procedures, lessons learned and other pertinent information of common interest to ISM and QA
- Promote ISM and QA awareness and understanding by sharing management and technical information
- Facilitate integration of existing ISM and quality-related processes and work practices
- Identify streamlined techniques and best practices that enable cost-effective and accelerated implementation of validated ISM and QA processes and programs
- Facilitate coordinated contractor input to DOE on ISM and QA-related issues
- Provide an efficient mechanism for interfacing between DOE and senior contractor executives and subject matter experts responsible for development, implementation and continuous improvement of ISM

Scope - The scope of the Working Group is selected processes and activities directly associated with ISM system (ISMS) core functions and guiding principles such as:

- Feedback and improvement
- Assessment processes
- Causal analysis
- Corrective action processes
- Human performance improvement
- ISMS program management and integration
- Occurrence reporting

- Operating experience review
- Performance metrics/analysis
- Quality assurance policy & program
- Quality engineering
- Safety culture
- Supply chain quality
- Software quality assurance
- Quality control and inspection

MEMBERSHIP AND ORGANIZATION

MEMBERSHIP

Membership on the Working Group includes representatives from the majority of DOE sites, with approximately 150 active members from 38 EFCOG member companies

To ensure the Working Group continued to include a focus on industry best practices and lessons learned, liaison membership has been established with the Institute of Nuclear Power Operations (INPO), the Defense Nuclear Safety Board (DNFSB), and the National Laboratories Improvement Council (NLIC). The Working Group has also established effective horizontal communications with the other key EFCOG Working Groups.

ORGANIZATION

Leadership in the ISM&QA Working Group is comprised of:

Chair: Norm Barker, EnergySolutions

1st Vice-Chair: John McDonald, CH2M Hill

2nd Vice-Chair: Susan Kimmerly, Bechtel National Inc.

Secretary: Connie DeGrange, Lawrence Livermore National Laboratory

The Working Group has four subgroups: Feedback and Improvement, ISM Program Management and Integration, QA, and Work Management, with associated task groups. The subgroups are chaired by:

- Feedback and Improvement Subgroup Chair: Patricia Allen, Washington Savannah River Company
- ISM Program Management and Integration Subgroup Chair: Roy Schepens, Parsons
- QA Subgroup Chair: Mike Mason, Bechtel National
- Work Management Subgroup Chair: Tim Flake, Savannah River Nuclear Solutions

EFCOG Sponsoring Director: Al Konetzni, EnergySolutions

DOE and NNSA Sponsors: Pat Worthington, Office of Health, Safety, and Security; and, Frank Russo, NNSA

Currently, succession planning is conducted by incumbent officers based on future anticipated

vacancies. A Vice-Chair will typically move into the Chair position as the position becomes available, but not always. This allows for a flexible transition of openings in the Working Group.

ACHIEVEMENTS

Semi-annual ISM&QA Working Group meetings in FY 2009 were held at the Nevada Site Office in Las Vegas, Nevada on November 18-20, 2008, and at the Oak Ridge National Laboratory Conference Center in Oak Ridge, Tennessee on May 5-7, 2009. Attendance at the semi-annual meetings averaged approximately 150 personnel. A Training and Communications Forum is provided the first day of each meeting covering topics such as hot topics, human performance improvement (HPI), and Nuclear Quality Assurance (NQA)-1 training.

Periodic conference calls were held to discuss priority ISM issues and share lessons learned. One strategy session was held with DOE sponsors at the annual DOE ISMS Conference in August in Knoxville, Tennessee. The Working Group leadership team supported this conference by supplying track leads, reviewing abstracts, and general meeting support.

Improvements were made to the EFCOG Best Practices website which provides a single reference point for all contractors and the DOE. The Best Practice Enhancement Initiative applied significant effort into improving the best practices process during the year.

The Work Management Subgroup was transferred from the newly formed Energy and Infrastructure Working Group and integrated into the ISM&QA Working Group during 2009.

Continuing support was provided to the DOE Occurrence Reporting and Processing System (ORPS) group on lessons learned.

The Working Group continued liaison efforts with INPO, DNFSB, and NLIC.

The Contractor Assurance Working Group and the ISM&QA Working Group initiated two joint sessions during the year to identify scope boundaries and share ideas for focus over the next year.

A number of specific activities were completed during FY 2009 including:

- The EFCOG/DOE Safety Culture task pilot was conducted over the past year with the expected completion of this task in early 2010. The task's goal was to develop a consensus set of safety culture principles and implementation practices, so that through the ISM continuous improvement the existing safety culture could be improved building on operating experience from similar industries such as the domestic and international commercial nuclear and chemical industries. The focus areas (with associated attributes) recommended as those judged to offer the most impact on safety for contractor implementation and evaluation were: leadership, employee/worker engagement, and organizational learning. EFCOG also supported the August DOE ISMS Conference in the safety culture track and encouraged participation by the pilot facilities.
- Completion of the initial five tasks by the EFCOG-EM QA task force in support of the EM QA Corporate Board including
 - Flow-down of QA requirements
 - Adequacy and qualification of NQA-1 suppliers

- Commercial grade dedication
- Graded approach to QA in procurement
- Line managers understanding of QA and oversight
- Supported DOE EM audits
- Initiation of two tasks for the new NNSA-EFCOG QA Improvement Initiative
 - Construction QA lessons learned
 - Baselineing NNSA QA implementation status of NQA-1
- Established roles and responsibilities of the quality engineer (QE) function
 - Developed QE roles and responsibilities training
 - Developed flow chart of procurement and QE interface
- Developed a QA attributes matrix
- Defining the differences in safety vs. non-safety quality-affecting activities
- Expanded supply chain common audit program
 - Developed audit schedule which included the performance of 12 audits
 - Accumulated the lead auditor certifications for each lead auditor who participated in the 2009 audits
 - Continued to stabilize the audit format
 - Worked with EM to develop a plan for performance and funding of joint DOE/contractor audits
- Supported DOE lessons learned efforts
- Initiated a Software QA Task Group
 - Developed guidance on graded approach of QA practices for non-safety software
 - Reviewing complex software products for commonality
- Initiated activities within the new Work Management Subgroup
 - Conducted a Y-12 National Security Complex assist visit to assess implementation of work planning and control attributes for activity level work
 - ORPS reporting – categorized work planning and control issues
 - Conducted work planning and control assessors peer review training for assist visits
 - Worked on incorporating the work planning and control Criteria Review & Approach Document (CRAD) into the DOE-Headquarters ISM Phase II verification template
 - Aided DOE sites to expand ISM/work planning and control concepts beyond maintenance
 - Revised the joint contractor audit schedule to reflect needs and to obtain commitments from the contractors
- Developed a draft integrated assessment plan
- Evaluated need for a guidance document for developing “Leading Indicators”
- Conducted training sessions on ORPS
- Supported, as requested, the DOE-Headquarters Occurrence Reporting Program Manager through the ORPS Task Group activities; the ORPS Task Group reviewed study results of DOE recurring-type ORPS reports from 2003-2007 to address several areas including: are there any positive or negative trends; what causal analysis methods are used within the complex; what is the frequency of human performance cause coding & couplets; are any novel corrective actions being implemented across the complex; and, determining if “R” reports minimize the risk of recurrence within the project as well as across the complex
- Continued support of DOE in the implementation of DOE Order 210.2, “DOE Corporate

Operating Experience Program”

- Shared lessons learned on effective transition activities and ISM verification actions
- Shared lessons learned on development of EM QA metrics

PLANNING FOR THE NEXT YEAR

The ISM&QA Working Group identified the following activities for FY 2010:

- Completion of the Safety Culture task pilot
- Two Working Group meetings are scheduled over the next year in the Fall (November 3-5, 2009 at the Nevada Site Office, Las Vegas, Nevada) and Spring 2010. At least one conference call with Working Group leadership per quarter is planned
- Continue the Training and Communications Forum, focused on hot topics and HPI tools training
- Completion of the HPI Tool Kit task
- Completion of two best practices for posting on the EFCOG website, including a best practice for the consolidation of annual ISMS related reports
- Continue support to EM on quality improvement projects:
 - EM EFCOG vendor qualification audits
 - EM QA improvement next set of QA issues
 - Support EM audits
- Continue support to NNSA on quality improvement projects
- Issue a white paper on quality control hold and witness points during performance of maintenance
- Review and focus QA priorities in areas of software QA and quality control/inspection
- Pilot the Integrated Assessment Plan
- Evaluate the use of the DOE ORPS database in mining the information for use in prioritizing assessments, management activities, and corrective action strategies
- Continue to collaborate with the Contractor Assurance Working Group
- Continue to support the DOE-Headquarters Occurrence Reporting Program Manager through the ORPS Task Group activities
- Continue to support DOE in the implementation of DOE Order 210.2
- Support the September 2010 DOE ISM Champions Conference in Augusta, Georgia
- Identify key process elements within engineering, procurement and construction to ensure that quality requirements are appropriately identified, flowed down in procurements and installed in accordance with previously identified quality control acceptance criteria
- Expand the supply chain common vendor audit program
 - Revise the common commodities and suppliers listing providing a bases on contractors needs
 - Develop base QA audit requirements for each site needs (e.g., NQA-1)
 - Develop a central database for managing the supply chain audit results
 - Update supplier evaluation procedure on lessons learned identified during the joint contractor audits that have already been performed.
 - Develop an electronic management database where audit information can be stored and available to other contractors.

- Research and recommend a set of performance metrics for use by the complex
- Evaluate a graded approach
- Post the QA program and attributes matrices on the EFCOG website
- Establish a set of draft QA program performance metrics
- Complete software QA projects
 - Define differences in safety versus non-safety software
 - Review complex software products for commonality
 - Develop software quality engineering guidelines for the development and support of software supporting research
 - Publish software QA work products on the EFCOG website
 - Complete white paper on application of DOE Order 414.1C, "Quality Assurance", to non-safety software
 - Publish software QA practices for deterministic algorithms
- Continue working with other DOE sites to expand work planning and control beyond maintenance
 - Increase contractor participation for the Work Management Subgroup
 - Establish DOE sponsorship for the Work Management Subgroup
 - Conduct two work planning & control assist visits of the Nevada Test Site and Lawrence Livermore National Laboratory
 - Consolidate work planning & control CRADs
 - Categorize work planning & control issues across complex by ISMS core function (through ORPS), develop metrics, and trend data
 - Expand HPI tools into work planning & control

The ISM&QA Working Group will continue collaborating with other EFCOG Working Groups in FY 2010 as follows:

- Continuing focus on the interface between contractor assurance and feedback and improvement. This will provide more focus with clear lines of responsibility between the Contractor Assurance Working Group and the ISM&QA Working Group.
- Continue collaboration with the Engineering Practices Working Group and the Project Management Working Groups on:
 - Flow-down of technical and product quality
 - Requirements - management and construction quality

EFFECTIVENESS EVALUATION

During this year, the positive impact of the Working Group to the customer was continued through the various participating contractor operations. Sharing of ISM and QA processes and practices, which were made available for implementation at the various DOE locations resulted in cost savings to all EFCOG member companies. Activities are focused around two central meetings where all members of the subgroups can assemble at one place at one time. Use of DOE facilities has minimized meeting costs. Focused workshops will also continue to be held at locations and in facilities convenient to the business and in a cost effective manner to the customer in accordance with EFCOG operational requirements.

Individual subgroup activities and sharing of operating experiences and best practices which filter

back to each member company continues to be seen as a “cost savings.” A few examples of activities which have provided visible results for EFCOG and DOE are provided below.

There is great positive interest in safety culture related activities around the complex, with DOE, the DNFSB, INPO, and the American Nuclear Society. Evidence of this is the large number of high quality papers presented at the annual DOE ISM Conference, and interest by various organizations in the products of the Safety Culture task team. This effort has been characterized as “taking ISMS to the next level” and should be associated with continuing safety and operational performance improvement in the complex.

Related to safety culture is the area of Human Performance Improvement. Interest continues to grow at Working Group meetings, training sessions, and other industry forums in this area. EFCOG has provided leadership for the complex in this area and continues to expand the awareness and application of the associated principles and tools.

The ISM&QA Working Group activities in the QA area are filling a need created by increasing attention to QA activities by DOE. The Working Group meetings provide a forum to address key issues identified by EM and NNSA on improving quality assurance program results particularly in appropriate application of NQA-1 to nuclear projects.

LESSONS LEARNED

Regarding the Best Practice Enhancement Initiative, there is great benefit from putting significant effort into improving the “Best Practices” process during the year. Clear roles and responsibilities for the program owner with regular updates are necessary.

The Working Group identified the following objectives that need continuing focus to ensure products provide the most value to DOE and EFCOG participants:

- DOE buy-in and resources available to support initiatives
- Communication with other EFCOG Working Groups on interface issues
- Need to clearly identify objectives between EFCOG Working Groups
- Provide a balanced set of activities at EFCOG meetings that includes training, information exchange, and activities to address common DOE and EFCOG priorities

RECOMMENDATIONS

The ISM&QA Working Group should continue in FY 2010. There continues to be a great deal of overlap between the Feedback and Improvement Subgroup and the Contractor Assurance Working Group. This has been discussed between groups. The recommendation of the ISM&QA Working Group leadership team is to review the charters of each group, revise them as necessary to clarify respective scope boundaries, and to provide better focus for each group to improve understanding of when joint activities are warranted versus carrying out separate efforts.