

INTEGRATED SAFETY MANAGEMENT AND QUALITY ASSURANCE WORKING GROUP

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
- Work Management
- Assessment processes
- Causal analysis
- Corrective action processes
- Human performance improvement
- ISM Safety Culture
- Occurrence reporting
- Operating experience review
- Performance metrics/analysis

- Quality assurance policy & program
- Quality engineering
- 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 37 EFCOG member companies.

To ensure the Working Group continues 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, Washington River Protection Solutions, LLC

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 Safety Culture, 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 Safety Culture Subgroup Chair: John McDonald, Washington River Protection Solutions
- QA Subgroup Chair: Mike Mason, Bechtel National Inc.
- Work Management Subgroup Chair: Tim Flake, Savannah River Nuclear Solutions

EFCOG Sponsoring Director: Robert Milazzo, Tetra Tech, Inc.

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

The ISM&QA Working Group achieved the following during FY 2010:

Semi-annual ISM&QA Working Group meetings in FY 2010 were held at the Nevada Site Office in Las Vegas, Nevada on November 3-5, 2009, and at the Department of Energy Headquarters Forrestal Building in Washington, D.C on June 15-17, 2010. 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 and QA issues and share lessons learned.

The Working Group leadership team supported the DOE ISMS Conference in September 2010 in Augusta, Georgia 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 continued to focus on improving the best practices process.

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.

This year was spent transforming the Feedback and Improvement Subgroup to better support the needs of the DOE contractors. As the contractors have matured many of their programs over the years, the previous focus of the subgroup was no longer needed by most contractors. The leadership team evaluated the needs of the contractors moving forward with a better understanding of the increased expectations by DOE:

- For developing leading indicators
- Conducting more in-depth analyses of the data to enable mid-course corrections before major events and significant decrease in performance occurs
- Translating the data analysis into actions that improve and sustain performance long term

The transformation started with the June meeting when the subgroup focused on these areas. The new focus areas were validated as areas of interest by the various contractors by the response to the ISM Champion's meeting. The workshop received over 30 abstracts for the track and during the workshop the session attendance was standing room only.

A number of specific activities were completed during FY 2010 including:

- The EFCOG/DOE Safety Culture task pilot was conducted over the past year with the completion of this task in 2010. The task's goal was met 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 DOE and similar 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.

- The HPI Task Team provided support to HPI assessments at SRS and Pantex. The HPI Task Team also completely revised the documents section of the EFCOG HPI web page to add material of use to HPI practitioners.
- There was significantly increased participation in the development of EFCOG Best Practices due to increased focus by the Executive Council and the ISMS/QA Working Group. Since 2002, the average number of Best Practices has averaged between 8-9 per year. During the past fiscal year that number has doubled to 17. Also during the past fiscal year the respective working groups were queried to determine if old Best Practices remained pertinent and applicable to the present. All responses were affirmative and no Best Practices were archived. There was continued work to maintain the Best Practices Website up to date.
- The QA support from EFCOG to the EM Corporate QA Board continued. After the completion last year for the first five QA tasks, work was started on the next four tasks approved by the EM Corporate Board.
- Completed the NNSA-EFCOG QA Improvement Initiative with follow-on tasks being supported by NNSA through the EFCOG QA 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 activities within the new Work Management Subgroup.
 - Expanded Work Planning and Control (WP&C) beyond Maintenance by:
 - Continued working with other DOE sites to expand WP&C beyond Maintenance
 - Increased Contractor participation for WM subgroup
 - Established DOE sponsor for WM subgroup
 - Continued DNFSB partnership
 - Performed WP&C assist visit assessments at NTS and LLNL
 - Continued to work with DOE to consolidate WP&C CRADS
 - Developed a process to categorize WP&C issues across the complex
 - Expanded the use of HPI tools that apply to WP&C
- Actively supported the Feedback and Improvement track at the DOE ISM Champions Conference in Augusta, Georgia. The track focused on four areas that are the foundation for feedback and improvement for a contractor: what to measure for improvement, data analysis, developing leading indicators, and human performance improvement initiatives.
- Shared several templates for Integrating Assessment Plans. These plans integrate self-assessments and required assessments such as radiological, quality assurance, environmental compliance, etc. The goal of these plans is to enable the contractor to review at one time the depth and breadth of the planned assessments and evaluate opportunities to consolidate assessments and reduce the number by elimination of low value assessments.
- Shared improvement opportunities for successful ISM verifications.
- Shared lessons learned for developing and sustaining an effective corrective action program.
- Shared lessons learned on integrating performance assurance systems.
- Shared approaches to developing leading indicators at a company level.

The Department of Energy (DOE) Energy Facilities Contractor Group (EFCOG) and Environmental Management (EM) have consolidated resources to form a national Joint Supplier Evaluation Program (JSEP). The EM/EFCOG JSEP is a cooperative effort between all DOE sites aimed at sharing audit results and eliminating or reducing redundant audits of common suppliers. As part of this joint effort, the following activities have been performed:

- Updated Commodities Listing and Audit Schedule to integrate the commodities and suppliers needs of Environmental Management (EM).
- The NQA-1 Applicability Matrices have been updated to include subparts as discussed during the 2010 Spring meeting. These matrices are used to identify requirements that will be used in the evaluation process.
- Revision to the Supplier Evaluation Program Procedure and integrate lessons learned from audit conducted. This JSEP program adopts a typical standard audit protocol that includes audit scheduling, planning, performance, reporting, follow up and verification, and closure of the audit process. It also identifies lines of communication to ensure the proper reporting of audit/evaluation information. Implementation of this standardized methodology ensures that audits are documented and performed in a consistent manner by trained and qualified professionals.
- As a participant in the JSEP, users will have authorized access to a database that provides supplier audit information, audit schedules, program documentation, auditor qualifications and a listing of other site users. This database has been developed and is currently being populated with current information and performed audits.
- Develop cost tracking mechanisms associated with the actual audit costs.

The Software Quality Assurance Task Group focused on the following issues during the past fiscal year:

- Providing guidance on the risk-informed graded approach
- Evaluating tools, techniques and methodologies for algorithm analysis
- Identifying interface usability for closed form calculations
- Providing guidance on the application of SQA principles to numerical analysis
- Evaluating self-analysis tools for SQA management assessment
- Reviewing Agile Methods for software lifecycle activities
- Providing guidance on application of DOE Order 414.1C to Non-Safety Software

PLANNING FOR THE NEXT YEAR

The ISM&QA Working Group has the following activities planned for FY 2011:

- Continuation of the Safety Culture Task Team activities in a newly formed subgroup that has merged with the ISM Program Management and Integration Subgroup. The group will look at capturing lessons learned from pilot facilities and establish on-going dialogue to promote organizational learning. The HPI task group will report through this subgroup.
- Two Working Group meetings are scheduled over the next year in the Fall (November 30-

December 2, 2010 at the Nevada Site Office, Las Vegas, Nevada) and Spring 2011. 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 two best practices for posting on the EFCOG website.
- The F&I subgroup will continue focusing on the following areas:
 - Developing leading indicators that support sustained performance and continuous improvement
 - Conducting more in-depth analyses of the data to enable mid-course corrections before major events and significant decrease in performance occurs
 - Translating the data analysis into actions that improve and sustain performance long term
- Continue support to EM on the Joint Supplier Evaluation Program (JSEP) through finalization of the integration efforts, development of the description document for the program and full execution of the JSEP database.
- Continue to support the DOE-Headquarters Occurrence Reporting Program Manager through the ORPS Task Group activities.
- Support the September 2011 DOE ISM Champions Conference in Hanford, Washington.
- The Best Practice receives primary exposure through the HSS OE/LL website and through other less informal conduits. For example, Oak Ridge Operations sends out a daily “Items of Interest” email that makes it to several other sites around the complex and lists links to all new Best Practices. The Best Practices Task lead is developing an internal distribution contact listing that includes primary leaders in the EFCOG and a broader list of contacts who will be asked if they wish to receive notifications. In addition, a white paper is under development to define options for enhancing the Best Practices program. For example, other Best Practices programs include Benchmarking efforts to measure the efficacy of Best Practices endorsed by the senior leadership.
- Develop a set of performance metrics based on QA program elements to assist the DOE complex in monitoring performance.
- Issue white paper on SQAS37.01.00-2008, *Software Quality Assurance for Deterministic Algorithms (Numerical Calculations)*.
- Software QA issues that will be addressed next year include:
 - Graded Approach for Software QA
 - Software Risk Management
 - Software Safety Review
 - SQA Personnel Qualification
- Continue working with DOE headquarters (EM and NNSA) personnel to develop and implement an improvement plan for Work Planning and Control processes across the DOE Complex, focusing on the following areas:
 - Identify Performance Measures
 - Develop Tools
 - Apply WP&C in Contractor Assurance and Federal Oversight
 - Shared Results
 - Federal Initiatives

The ISM&QA Working Group will continue collaborating with other EFCOG Working Groups in FY 2011 as follows:

- Continue collaboration with the Engineering Practices Working Group and the Project Management Working Group 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 continued 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. The Safety Culture and HRO interest has resulted in the elevation of the task team into the standing subgroup of the ISM&QA Working Group.

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.

RECOMMENDATIONS

The ISM&QA Working Group should continue in FY 2011. There continues to be some overlap between the Feedback and Improvement (F&I) Subgroup and the Contractor Assurance Working Group. This has been discussed between groups and the respective charters have been reviewed. The Feedback and Improvement Subgroup will focus on the performance/implementation aspects of F&I, specifically skill development.