

NNSA EISM Workshop
“Bringing ISM into the 21st Century for NNSA”
Trip Report

Purpose:

To provide a workshop on expanding the Defense Department-sponsored Defense Occupational and Environmental Health Readiness System (DOEHRS) occupational exposure data management system in use at the National Nuclear Security Administration's (NNSA) Nevada Test Site (NTS) to establish the NNSA's common business model for occupational exposure data management. Secondly, the workshop will provide insight into a standardized Enterprise Integrated Safety Management (EISM) system that can be sustained through contractor assurance system participation. The expanded ISM capability would be beta tested by the NNSA NTS or other NNSA sites to validate applicability of the EISM application for use throughout NNSA. DOEHRS is a Government Off-The-Shelf (GOTS) application owned and managed by the Department of Defense (DOD).

Date: February 18-19, 2009

Location:

North Las Vegas, Nevada at the Nevada Site Office (NSO)

Attendees – see attached sheet

Background:

An enterprise wide solution for tracking, managing and trending employee health hazard exposure data in real time or near real time does not currently exist for NNSA. To be successful such a system must be integrated between environment, safety and health organizations and be integrated with work control, facilities management and other control functions. This reflects our DOE ISM policy. The technology for an integrated environment, safety and health data management system has been developed and successfully deployed in other federal agencies. The NTS via the NNSA-NSO partnered with Department of Defense Health Affairs to test the program and bring this technology to NNSA for relatively low cost. The initial test phase has been successfully completed. After several discussions with NNSA management it was decided that the logical next step was to showcase the technology and invite other NNSA sites to join into the process of testing and implementing this technology.

Discussion:

On Wednesday, February 18, introductions were provided by Dan Field, NNSA-Livermore Site Office (LSO) and DOE/NNSA Lead for EISM/DOEHRS-IH implementation. A keynote presentation was made by Don Harvey, NNSA Safety and Health (in lieu of Frank Russo). Mr. Harvey praised NNSA sites' efforts in implementing ISM but also noted that there exist barriers which keep NNSA from fully obtaining the ISM philosophy. Mr. Harvey then discussed the desirability of a

standardized approach to implementing ISM throughout NNSA and how the use of tools such as DOEHRS-IH would be of significant benefit in that effort. DOEHRS would provide the foundation for EISM.

Following Mr. Harvey's keynote address was a presentation by Shawn Dolan of Northrop Grumman Mission Systems (NGMS) who provided a detailed discussion of barriers which impact ES&H performance in various high-hazard low probability organizations such as NNSA. Mr. Dolan was instrumental in guiding the Department of Defense through the development and implementation of DOEHRS-IH. Using this experience Mr. Dolan was able to provide valuable insight into what lies ahead for NNSA as it pursues a similar system.

Martha DeMarre of National Support Technologies (NSTec), the Nevada Test Site M&O Contractor, gave an overview of a data management system for archived employee health hazard exposure records. The system had been developed in conjunction with University of Nevada- Las Vegas (UNLV) through a grant. The system contains the records and related documents for employee exposures to both radiological and industrial hygiene health hazards. Over 1,000,000 records reside on the system dating back to the early 1950s and are fully indexed and searchable. Records from paper, microfiche and microfilm are included. The system recognizes both type and hand-written text. Ms. DeMarre provided examples of "real-time" data searches using the system.

After lunch Mr. Field provided a discussion on the path that led to the cooperative agreement between DOD and DOE for use of DOEHRS-IH within NNSA.

Phil Tennyson, NGMS lead for DOEHRS-IH implementation within DOD, provided an overview of the DOEHRS-IH system using "real-time" IH data from the Nevada Test Site that had been entered by NSTec. All of the NTS facilities (over 600) have a fully documented baseline IH survey within the DOEHRS-IH system.

Michael Baghoomian, NGMS lead for EEOSH, along with Mr. Dolan provided a demonstration of how ES&H data such as that entered into DOEHRS-IH can be integrated to provide "real-time" data to users such that processes are reviewed and approved at the front end of the work authorization process. The demonstration used an excerpt of the NTS data set from the previous DOEHRS-IH demonstration to show data compatibility and linkage between the various pillars of Environmental, (using the EMS, HazMat, Waste, Air, Water to support ISM), Safety (using operational risk management and investigation to support ISM), Occupational Health (using exposure assessment to support ISM), all combined into a common Hazard analysis and controls function that supports the visibility required from work planning and control to effectively move the ISM function to the front end of the work planning process. This system, EISM, would also allow the development and use of leading indicators to maintain and drive ES&H performance. Several examples were provided.

Prior to breaking for the day a discussion of the next day's events was provided by Mr. Field.

On Thursday, February 19, attendees were divided into two discussion groups: ESH and IT/IS. The ES&H group also discussed ISM, Contractor Assurance System/Local Oversight Contractor Assurance System (CAS/LOCAS) and electronic medical records.

The ES&H discussion was led by Mr. Field. During the first discussion session Mr. Field discussed the foundation of DOE ISM philosophy and although DOE policy was successful in decreasing incidents and injuries there remained gaps in fully attaining the DOE ISM philosophy. Several examples were provided by Mr. Field but could be summarized by ineffective work control processes at the activity level. During the next discussion session Mr. Field discussed the development and use of leading and lagging indicators and how important leading indicators are to driving ES&H performance and continued improvement. Several inputs were provided by the group. Mr. Field noted that the best leading indicators tend to have an employee based element (i.e. behavior based (BBS) or human factors (HPI)). The reason for this was to involve employees into the ES&H process thereby building a positive and reinforcing safety culture. Mr. Field provided several examples and noted that with the proper tools such as an integrated ES&H data management system the sites and NNSA could attain the DOE ISM philosophy while at the same time establishing their CAS/LOCAS programs. During the next discussion session Mr. Field expanded on the CAS/LOCAS theme and provided several examples of how an integrated ES&H data management system such as EISM could assist sites and NNSA in the planning and completing of assessments, thus allowing efficient use of limited resources.

The IT/IS solutions discussion group was led by Mr. Dolan and John Halas from NSTec. Discussion centered on the basic technical resources required to operate DOEHRS-IH and EISM which were demonstrated on Wednesday. Mr. Dolan explained that the application is web based, written in J2EE, the database is Oracle 10G release 2, and that Oracle Forms are used as well as Fusion. The application can be run on a variety of platforms including Sun and Linux. Mr. Dolan queried the group about these requirements and the consensus was that all the sites had Oracle DBA's on staff and would be able to support the application. Specifically, the application requirements consist of the following:

DOEHRS/EISM:

ORACLE 10g DB and AS running JSP, using Oracle Internet Directory (OID) for single sign-on

APIMS/CCS:

ORACLE 10g DB and AS running Oracle Forms and Reports

Mr. Dolan then discussed the different types of interfaces that would be required such that EISM would function as an integrated solution for ISM. These systems include work management systems, human resource systems, procurement systems and facility management systems. Each of these systems may be different for each site. The discussion group agreed that Enterprise Service Bus (publish and subscribe) technology

was the desired approach to obtaining data for EISM that was “owned” sustained by other functions, e.g. Personnel, Ordering, Financials, etc.

Mr. Dolan then led the discussion into what system might be best to provide personnel information. The Personnel discussion lead the group to determine that the in process security badging system would likely provide the best source for person information because it contains all the employees and the contractors performing work on a site.

The discussion then turned to management and control of hazardous materials. Each site explained their current status with respect to Hazardous Material “chemical” management and their difficulty in maintaining current chemical and material reference information such as Material Safety Data Sheets (MSDSs) and regulatory listings of covered substances. The group agreed that each site needs real-time “cradle to grave” management of their hazardous materials. The group determined that this capability can be integrated with other ES&H and work control processes using the application presented. The group acknowledges that central repository of MSDSs and other material reference information would be a significant improvement for NNSA. A central repository would allow for use of the chemical information by other organizations, e.g. safety basis, fire protection, environmental management, emergency management, etc.

Discussion continued regarding work control. Group members indicated that their sites have various applications in place to manage the work control process. However, the capability to integrate with data from other systems as well as ESH was required to fully obtain the EISM model. EISM would also be a platform for establishing CAS and LOCAS at the various sites.

The conversation turned to data stewardship and Mr. Dolan explained the need for stewarding of data so that the data may be shared through out the application. This data sharing sets the foundation for integrating ES&H with work control, facility management, personnel, medical and facility management.

The discussion then turned to the desired architecture of the “To/Be” EISM and all sites agreed that data capture needed to be localized (within the site) and thus there should be two tiers of the enterprise with each site “enterprise” feeding information to the NNSA “enterprise” for knowledge management, decision support and longitudinal health (exposure) record compliance.

The discussion concluded with agreement that the platforms required for DOEHRs/EISM/APIMS where in place and sustained at each NNSA site. The data required was being managed in a variety of systems, some very good and some not so, but could be made available via existing systems and/or use of DOEHRs/EISM/APIMS components at the sites. Data should be stewarded for a variety of good reasons and thus the flow of data between the sites and NNSA needed to be bi-directional to facilitate the delivery of stewarded data sets and the receipt/storage of site maintained records, e.g. surveys performed, samples taken results, exposure calculations, etc.

The morning session adjourned and the recommendations captured to support the afternoon session.

After lunch, Mr. Field and Mr. Dolan summarized the discussion sessions. All attendees were supportive of moving forward with an NNSA standardized integrated data management system similar to DOEHRHS-IH and EISM as presented at the workshop. With that agreement, Mr. Field then discussed short-term and long-term elements of a path forward for NNSA. Mr. Field noted that with the existing MOU and ISA and building on the success of DOEHRHS-IH at NTS the next logical steps were to: 1) request DOD to provide a copy of the system which is government owned (i.e. GOTS) to DOE/NNSA (Action – Field, Dolan, Harvey); 2) Brief senior NNSA management (Action: Field, Harvey), 3) Inform NNSA CIO of workshop proceedings and discuss IT path forward (Action – Field, Dolan); 4) Work with sites who want/need DOEHRHS-IH this year and begin planning activities for transitioning to DOEHRHS-IH (Action – Field, Dolan to work with Site POCs, LLNL, NTS, SRS and NR sites), 5) Review existing MOU/ISA and update if required (Action – Field).

Long term path forward includes: 1) Develop Long-term (5-yr) Plan, 2) Establish Change Configuration Board (CCB) for DOEHRHS-IH and EISM; 3) Establish user defined work groups to act as data stewards (each site to be represented); 4) Determine and align DOE/NNSA IT infrastructure to support implementation.