Proceedings

Joint DOE/EFCOG Chemical Safety '99 Workshop
Chemical Safety and Integrated Safety Management (ISM)

"Incorporating Chemical Safety in ISM Programs"

December 14-16, 1999

Workshop Location

DOE Forrestal Auditorium (GE-086)
1000 Independence Ave. SW, Washington, D.C. 20585

Sponsored by

EFCOG/DOE Chemical Safety Topical Committee (CSTC)*
EFCOG Safety Analysis Working Group/Chemical Safety Subgroup
DOE Office of Environment, Safety and Health
DOE Technical Standards Program Office

*Formerly the Chemical Safety Interest Group (CSIG)

Agenda

Tuesday, December 14, 1999
Overview and Status of Chemical Safety as an Integral Part of ISM

8:30 a.m. Registration/Name Tags and Packet Pick-up Forrestal Auditorium Entrance (GE-086)

9:00 – 9:15 Welcome/Opening Comments by EFCOG/DOE-HQ,
Co-Chairs: Doug Heal, Manager, Safety Services, WSMS
George Schlossnagle, Ph.D., P.E., DOE Chemical Safety Team Leader, DOE/EH-52

9:15 – 9:45 DOE Corporate Welcome, "Management Expectations for Chemical Safety"
David Michaels, Ph.D., MPH, Assistant Secretary, ES&H, DOE/EH-1

9:45 – 10:15 EFCOG Corporate Welcome by the Vice Chair, EFCOG, "The Changing Role of EFCOG in the DOE Complex"
Steve Polston, Senior Vice President, CH2M Hill, Oak Ridge

10:15 – 10:45 Defense Nuclear Facilities Safety Board (DNFSB) Comments
Joe DiNunno, DNFSB Board Member

10:45 – 11:00 BREAK

11:00 – 11:30 ISM Philosophy and Integration of Chemical Safety, "The Safety Management Implementation Team (SMIT) Perspective"
Ted Wyka, Director, SMIT

11:30 – 12:00 EFCOG ISM Working Group, "Chemical Safety as a Part of ISM"
Kenneth Yates, WSRC, for the Chair, EFCOG ISM Working Group

12:00 – 1:00 LUNCH

1:00 – 1:15 Update on Y-12 Incident of December 8, 1999
Bob Poe, Assistant Manager for Environment, Safety & Quality, DOE/OR

1:15 – 1:45 EFCOG Lessons Learned Task Group of the ISM Working Group
"Lessons Learned Perspectives on Chemical Safety and ISM"
Steven Etheridge, ESHQA Lessons Learned Program Manager, WSRC

Concurrent Sessions

1:45 – 3:00 Session I (Closed Session – Invitation Only), Small Auditorium, GJ-015
Small group briefing and discussions involving DOE line managers and field office representatives, senior HQ managers and chemical industry representatives, "Line Management, Field and DNFSB Perspectives on DOE Chemical Safety" Roger Rollins, Director Safety Division, DOE/SRS (Lead)
Background: CSTC WHITE PAPER, "Chemical Safety,"
Rick Jones, Director, DOE/EH-52
Industry Perspectives, "How the Chemical Industry Does It"
John Brigance, Director Responsible Care®, CMA
Jack Weaver, Director, CCPS
Path Forward for Improved Incorporation of Chemical Safety into ISM,
Ted Wyka, Director, SMIT
General Discussion: Senior Management Input on Path Forward Participants

1:45 – 3:00 Session II (Open Session – All welcome), Large Auditorium, GE-086

1:30 – 2:00 CSIG Name Change and the Technical Standards Program (TSP),
"The CSTC Charter,"
Rick Serbu, Manager, DOE Technical Standards Program, DOE/EH-31

2:00 – 2:45: Explosive Safety and Pressure Safety DOE-wide – A Status Report
Gerald Meyers, Chair, DOE Explosives Safety Committee, DOE/EH-52

3:00 – 3:15 BREAK

3:15 – 4:15 Line Management and Operations Office Panel – Field Perspectives on Chemical Safety at the DOE
Bob Poe, Assistant Manager for Environment, Safety & Quality, DOE/OR (Lead)
Milton Johnson, Associate Director, DOE/SC-80
Roger Rollins, Director, Safety Division, DOE/SRS
Shivaji Seth, Technical Advisor for Nuclear Safety, DOE/RL
Craig Zamuda, Director, Office of Environment, Security, Safety & Health, DOE/FE-7

4:15 – 4:30 Closing Remarks and Announcements, Doug Heal, Manager, Safety Services, WSMS

Wednesday, December 15, 1999
Integrating Chemical Safety in ISM Implementation

9:00 – 9:30 Management System Verification Pilots, "A Tool for ISM Validation"
Shivaji Seth, Technical Advisor for Nuclear Safety, DOE/RL

9:30 – 10:00 Chemical Safety and ISM Implementation at DOE, "Elements of an Adequate Chemical Management Program (CMP) under ISM: Requirements vs. Integration"
Pat Worthington, Acting Director, Office of ES&H Evaluations, DOE/EH-22

10:00 – 10:30 EH Technical Information System, "Available Technical Resources for Chemical Safety"
Steve Scott, Director, DOE/EH-72

10:30 – 10:45 BREAK

10:45 – 11:15 Identification and Assessment of Chemical Safety Vulnerabilities (CSIG Issue B.1)
Shivaji Seth, Technical Advisor for Nuclear Safety, DOE/RL

11:15 – 11:45 Requirements Roadmap – A DOE Network of Chemical Safety Requirements Information (CSIG Issue D.2) - Demonstration of the web-site link
Dave Quigley, Ph.D., Advisory Scientist, Occupational Safety & Fire Protection, INEEL

11:45 – 12:45 LUNCH

12:45 – 1:15 EFCOG Waste Management (WM) Working Group, "Waste Management Reengineering: An Exercise in Line Responsibility"
Earl Conway, Chair, EFCOG WM Working Group

1:15 – 1:45 Managing Chemical Hazards at Inactive Facilities – A Risk Rating System for Inactive Facilities,
David Freeman, Chief Engineer, Facilities Decommission, WSRC

1:45 – 2:15 Chemical Safety and ISM in D&D
Angela Arms, ETTP Project Industrial Hygienist, K-25, Bechtel-Jacobs - OR

2:15 – 2:45 Handling the Combined Consequence of Chemicals or the Combination of Chemicals and Radionuclides (CSIG Issue C.4)
Doug Craig, Ph.D., Toxicologist, Safety Analysis, WSMS

2:45 – 3:00 BREAK

3:00 – 3:30 The Role of Hazards Analysis in ISM
Irv Spickler, Physical Scientist, DOE/EM-4

3:30 – 4:25 CSTC Issues Summary and Discussion
Doug Heal, Manager, Safety Services, WSMS
George Schlossnagle, Ph.D., P.E., DOE Chemical Safety Team Leader, DOE/EH-52

What have been some of the problems we have faced and what can we do to prevent them in the future?
Issues completion and product distribution/implementation
CSIG WHITE PAPER review “Chemical Safety”
Where do we go from here?

4:25– 4:30 Closing Remarks and Announcements
Doug Heal, Manager, Safety Services, WSMS
George Schlossnagle, Ph.D., P.E., DOE Chemical Safety Team Leader, DOE/EH-52

Thursday, December 16, 1999
Path Forward to Improved Integration of Chemical Safety into ISM

9:00 – 9:15 Future Directions and Recognition of CSIG/CSTC Members
Joe Fitzgerald, Deputy Assistant Secretary, Office of Worker Health and Safety DOE/EH-5

9:15 – 9:45 Overview of the New Chemical Management Program (CMP) Handbook (CSIG Issues A.1/B.2) – "How to Create a Good CMP"
James Morgan, Manager, Chemical Commodity Management Center, WSRC

9:45 – 10:15 Safety Analysis for Chemical Hazards at Y-12
David Sheffey, Sr. Staff Engineer, Facility Safety, LMES

10:15 – 11:00 CMPs and Laboratory Safety

Chemical Safety in Laboratories and Principal Investigators (CSIG Issue C.1)
Gordon Miller, Chemical Hygiene Officer, LLNL

Savannah River Technology Center (SRTC) Laboratory Safety Program
Paul Deason, Manager, Measurement Technology Department, WSRC, SRTC

Report on PNNL Laboratory Safety Program
John Piatt, Sr. Research Engineer, Environmental Technology Division, PNNL

11:00 – 11:15 BREAK

11:15 – 12:00 Plenary Discussion – Chemical Safety Issues that Support ISM for the Next Millennium
Brainstorm next round of CSTC issues
Identify CSTC Issues and Teams for Y2K
Doug Heal, Manager, Safety Services, WSMS, George Schlossnagle, Ph.D., P.E., DOE

12:00 – 1:00 LUNCH

1:00 – 1:15 Plenary Session: Introduction to Breakouts

1:15 – 2:15 Breakout Sessions – New CSTC Issues Teams meet to develop project descriptions, strategies and proposed paths forward for new CSTC Teams

2:15 – 3:15 Plenary Session: New CSTC Issues Teams Report-outs Team Champions

Team member lists
Proposed titles
Draft project descriptions and goals
Proposed project products
Proposed Timelines

3:15 – 3:30 Path Forward for Improved Integration of Chemical Safety into ISM
Rick Jones, Director, DOE/EH-52

3:30 – 3:40 Closing Remarks and Announcements
Doug Heal, Manager, Safety Services, WSMS
George Schlossnagle, Ph.D., P.E., DOE Chemical Safety Team Leader, DOE/EH-52

Highlights of Proceedings of the EFCOG/DOE Chemical Safety '99 Workshop December 14-16, 1999 [Full Proceedings Follow Highlights]

The Energy Facility Contractors Group (EFCOG) and the Department of Energy (DOE) held their second Chemical Safety Issues Workshop on December 14-16, 1999, at the DOE Forrestal building. Over 100 people attended. The workshop was co-sponsored by the EFCOG Safety Analysis Working Group (SAWG) Chemical Safety Subgroup, the DOE Office of Worker Health and Safety (EH-5) and the DOE Technical Standards Program Office.

The theme of this Workshop, "Incorporating Chemical Safety in Integrated Safety Management (ISM) Programs," provided a forum for line and environment, safety, and health (ES&H) managers and professionals to discuss ISM-related chemical safety issues and ways to better integrate chemical safety into the ISM process. Participants discussed opportunities for improvement in chemical safety; best practices, lessons learned; the work of the Chemical Safety Topical Committee (CSTC) Teams and identified follow-on actions for the coming year.

Dr. David Michaels, Assistant Secretary for Environment, Safety and Health (EH), provided the DOE corporate welcome. He discussed DOE management perspectives on chemical safety and made note of the importance of EFCOG's contributions to furthering chemical safety throughout DOE. Chemical safety continues to be a major concern requiring strong commitment and involvement from senior management to ordinary workers. He said that DOE line management must assume a leadership role in improving chemical safety performance by partnering with industry and supporting the CSTC in its efforts to integrate chemical safety issues with the ISM initiative. The ISM framework provides the opportunity. Management commitment, leadership and focus are needed to make it a reality.

Steve Polston, Vice Chair of EFCOG, provided the corporate welcome and discussed the changing role of EFCOG in DOE. He reviewed the status of EFCOG's efforts and their work with the DOE Safety Management Implementation Team (SMIT). EFCOG proposes to improve performance measures, validate site performance data and communicate the results among members, recognize good performance and provide on-site assistance by trained teams. He said that performance failures are often due to a lack of management commitment, involvement, and ongoing follow-up.

Joseph DiNunno, Member of the Defense Nuclear Facilities Safety Board (DNFSB) stated that safety management required DOE contractors to have a perspective broader than nuclear safety and line management must be involved. DOE and its contractors must agree on the specific applicable requirements for achieving chemical safety in the same way as is done for nuclear safety. It's not enough to require a contractor to meet applicable chemical safety federal and state regulations. The ISMS Guide can describe chemical safety program expectations, however, implementation must be as rigorous as it is for nuclear safety. The problem of chemical vulnerability has historically been the failure to effectively implement requirements, not the lack of requirements. In addition, chemical safety must be fully integrated into an overall safety program and not treated as a separate entity. DOE can benefit from what's available from the chemical industry.

Ted Wyka, Director of the SMIT, addressed the integration of chemical safety and ISM. The success of both ISM and chemical safety require line management and worker participation and ownership. Chemical safety is already a part of ISM but must be more clearly reflected in ISM descriptions and included wherever possible. He suggested some ways to effectively address chemical safety in ISM implementation.

Kenneth Yates, Westinghouse Savannah River Corporation, representing the EFCOG ISM Working Group, discussed the integration of chemical safety into ISM and the applicability of ISM principles to a chemical safety program structure, demonstrating that both need to establish Line Management's clear responsibility for safety, including chemical safety.

Robert Poe, Oak Ridge DOE Operations Office, updated the group on the December 8th chemical incident at the Oak Ridge Y-12 Plant and Steven-Etheridge, Westinghouse Savannah River Company, (WSRC) gave an overview of the EFCOG Lessons Learned Working Group. This EFCOG group is working on a lessons learned "driver" and participating in development of a management standard for Lessons Learned, which will be published soon.

DOE managers met in closed session to review the CSTC Proposed Draft Chemical Safety White Paper, listen to industry presentations on Responsible Care and ISM, and discuss a path forward for better incorporation of chemical safety into ISM. In a concurrent session open to all Workshop attendees, Richard Serbu, DOE Technical Standards Program (TSP) manager, reviewed the TSP and the role of the CSTC and Gerald Meyers, discussed the mandatory DOE Explosive Safety Program and its Manual.

A DOE panel of line management and Operations Office representatives addressed field perspectives on chemical safety. The panelists briefed the group on the DOE managers' closed session discussions and

answered questions from attendees. They didn't see a need for a separate chemical safety "driver", generally agreeing that ISM and other requirements sufficed. While some gaps exist and raise practical issues, and several sites have included chemical safety requirements in their contracts from cancelled DOE Orders, they favored a consistent approach that uses ISM to drive chemical safety.
Shivaji Seth, DOE-RL, opened the second day of the Workshop with a presentation on a pilot for ISM Validation at Hanford that uses a Management System Verification (MSV) tool adapted from the Chemical Manufacturers Association (CMA) Responsible Care program. They use MSV concepts within the ISM framework, focussing on management commitment and direct worker and public involvement.

Ray Hardwick, DOE/EH-24, Office of Oversight spoke on Chemical Safety and ISM Implementation. They determine the presence and effectiveness of management systems and oversight is not a substitute for line management involvement. They look at integration of ISM guiding principles and core functions for all hazards; the extent and effectiveness of line management responsibility for safety; and the effectiveness of chemical safety programs.

Steve Scott, Office of Technical Training and Professional Development (EH-74), demonstrated the EH Information Portal, its information resources and centralized approach to getting information to the sites. Portal access is available to the DOE community at no cost, but it's necessary to register to use it.

CSTC Issue Champions gave status reports of their activities. Shivaji Seth, DOE-RL, reviewed the status of the 1999 CSIG/CSTC Issue B.1, "Identification and Assessment of Chemical Safety Vulnerabilities." At Hanford, corrective actions are being managed through ISM, and those for chemical vessels are being tracked. DOE's challenge is to sustain the vulnerability assessment process. Dave Quigley, INEEL, addressed the 1999 CSIG/CSTC Issue D.2, "A Requirements Road map: A DOE Network of Chemical Safety Requirements Information". All DOE contractors basically live by the same requirements and ISM requires complete coverage of all applicable requirements, but many do not know which requirements they need to follow and consolidation can be difficult. Earl Conway, Sandia Laboratories, addressed the issue of "Waste Management Re-engineering as an Exercise in Line Responsibility." Changes in waste management practices can affect chemical safety and minimizing wastes early in work planning and process design can minimize hazards. Doug Craig, WSMS, addressed the 1999 CSIG/CSTC Issue C.4, "Handling the Combined Consequence of Chemicals or the Combination of Chemicals and Radionuclides." In chemical emergencies exposure to either chemicals or radionuclides may exacerbate the effects of the other. The current approach may not adequately protect people exposed to mixtures.

Angela Arms, Bechtel Jacobs Company at East Tennessee Technology Park, discussed chemical safety and the application of ISM to D&D operations, emphasizing the importance of involving industrial hygienists early in the hazards recognition and control process. John Serocki, DOE Office of Environmental Management, talked about the role of integrated hazard analysis in ISM and addressed the conflicts that exist between DOE's nuclear safety approach and OSHA requirements.

The second day of the Workshop ended with an open discussion of CSTC issues for Y2K and development of a list of tentative topics for discussion at Thursday's breakout sessions. A list of some of the original CSIG/CSTC issues that are still active was provided to participants for their consideration.

Joseph E. Fitzgerald, Jr., DOE Deputy Assistant Secretary for Worker Safety and Health (EH-5) opened the final day of the workshop by indicating future directions for chemical safety and recognizing CSTC members for their accomplishments. DOE must recognize its continuing wide use of chemicals, partner with industry to learn from their experience, leverage information and borrow from the nuclear industry. First level supervisors must be held accountable for chemical safety. There is some confusion over DOE's expectations for chemical safety and what contractors will be held accountable for. DOE expectations must be clear and uniformly defined and applied and chemical safety better integrated into these expectations and ISM guides. Model programs should be documented and communicated to all.

Jim Morgan, WSRC, champion of the CSIG/CSTC Issues A.1/B.2: The DOE Chemical Management System Guide -- now the Chemical Management Handbook, gave an overview of the Handbook and an update on its status. It provides "cradle-to-grave" guidance for management of chemicals and emphasizes what needs to be done in a chemical management program, not how to do it. The Team will review the comments received on the draft Handbook and hopes to publish it in February as a "living" document with new information continually considered for use in its revisions.

David Sheffey, Lockheed Martin, Oak Ridge, discussed their use of Safety Analysis for chemical hazards at the Y-12 plant and discussed their use of lessons learned and their hazard evaluation goals.

Gordon Miller, LLNL reviewed the CSIG/CSTC Issue C.1 (originally CSIG #3-1) on "Chemical Safety in Laboratories and Principal Investigators (PIs)." Laboratory safety training is a major concern for PIs since both the OSHA Chemical Hygiene Plan and the DOE ISM requirements put the burden of safety on the PI. Paul Deason, SRTC, discussed their ISM-compatible chemical management program. They build ISM into all of their systems so they don't even notice that they're doing "safety" and their researchers regard ISM

implementation as an integral part of their tasks. John Piatt, PNNL, discussed their Laboratory Safety Program, that uses an automated tool for tracking regulations and safety compliance and is available lab-wide on their home page along with their most recent procedures and guidelines. They use ISM's seven guiding principles and line management is responsible for ES&H laboratory-wide and facility-wide, including R&D labs.

A plenary discussion of chemical safety issues that support ISM for Y2K followed. Rick Jones asked that the group select 5-6 key issues that reflect what's happening in the field, with a focus on end products. Workshop participants developed the following list of topics for the afternoon's breakout sessions:

Building Chemical safety into ISM
Continue efforts on the identification and consolidation of chemical safety requirements
Engaging DOE HQ and Field Office managers in chemical safety issues using ISM and other existing programs
Handbook [combined with Projects E., F. and I.]
Improve access to chemical safety technical information [combined with Project D.]
Provide guidance on identifying significant chemical vulnerabilities [combined with Project D.
Develop consistent DOE expectations and approach to chemical safety analysis
Develop performance measures for chemical safety and chemical management [combined with project A.] and
Develop DOE expectations for managing legacy chemicals [combined with Project D.]

Participants reconvened in breakout rooms to select team leaders and propose project titles, draft project descriptions, goals, products and timelines. Four new projects and two continuing 1999 projects were identified for CSTC work in Y2K. Participants reported the results of their discussions as follows:

Project 2000 A. "Building Chemical Safety into ISM" -- [combined Topics A. and H.]
Team Leads: Roger Rollins, DOE-SRS and Jim Morgan, WSRC
Tentative Issue Definition: Identify where chemical management expectations and criteria can be added to ISM documents, provide input and identify or develop additional tools for ISM verifiers and for site self-assessments and develop performance measures for chemical management.

Project 2000 B. "Requirements Flow-down: A Clearinghouse Network for Identification and Consolidation of Chemical Safety Requirements Information" [Continuation of CSTC/CSIG '99 Issue D.2]
Team Leads: Dave Quigley, INEEL, and RaeAnna Sharp-Geiger, LANL
Tentative Issue Definition: Continue developing a network of electronic tools for identifying and tracking consolidated requirements. Provide sites with a "gap analysis" tool to check the applicable requirements of chemical management programs and possibly for checking DOE chemical safety expectations.

Project 2000 C. "Identify Ways to Engage DOE HQ and Field Office Managers in Chemical Safety Issues to Provide Direction and Oversight Using ISM and Other Existing Programs"
Team Lead: Lydia Boada-Clista, DOE-OH
Tentative Issue Definition: Will be provided after first meeting.

Project 2000 D. "Publish a Chemical Management Program Handbook" [combined Topics D.,E., F., and I]
Team Lead: Jim Morgan, WSRC
Tentative Issue Definition: Revise the current draft Handbook using ISM terminology and include clear DOE expectations (including those for managing legacy chemicals), chemical safety lessons learned and resources for best practices; and provide guidance on identifying significant chemical vulnerabilities.

Project 2000 G. [Re-designated as Project 2000 E.]
"Develop Consistent DOE Expectations and Approach to Chemical Safety Analysis"
Team Lead: Ingle Paik, WSMS
Tentative Issue Definition: Identify Safety Analysis documents for various types of facilities and activities; develop guidance for a graded approach to chemical safety analysis; and request DOE Field Offices to provide expectations for contract statements on chemical safety analysis.

Project 2000 J. [*Re-designated as Project 2000 F.]
"Chemical Safety in Laboratories: Guidelines for the Identification and Control of Hazards by Principal Investigators (PIs)" [Continuation of CSTC/CSIG '99 Issue C.1]
Team Lead: Gordon Miller, LLNL
Tentative Issue Definition: Finalize 1999 CSTC/CSIG Issue C.1 document; provide guidance for use in DOE documents; present this approach to National Industrial Hygiene and Chemical Safety communities.

In his closing remarks, Rick Jones described a path forward for the CSTC and chemical safety. He commended the participants for their commitment and hard work during 1999 and at this Workshop and said that good opportunities were identified for the CSTC to make a difference in chemical safety throughout DOE in the coming year.

Proceedings of the

EFCOG/DOE Chemical Safety '99 Workshop

December 14-16, 1999

The Energy Facility Contractors Group (EFCOG) and the U.S. Department of Energy (DOE) held their second joint Chemical Safety Issues Workshop, December 14-16, 1999. This Chemical Safety '99 Workshop was co-sponsored by the EFCOG Safety Analysis Working Group (SAWG) Chemical Safety Subgroup, the DOE Office of Worker Health and Safety (EH-5) and the DOE Technical Standards Program Office. It was hosted by the DOE-Headquarters (DOE-HQ) and was held at the DOE Forrestal Building in Washington, D.C. with over 100 participants in attendance. Audio access to the first days' plenary sessions was provided for those who could not be present.

The theme of this Workshop was "Incorporating Chemical Safety in Integrated Safety Management (ISM) Programs." The prime purpose of the workshop was to provide a forum for EFCOG and DOE line and environment, safety, and health (ES&H) managers and professionals to discuss ISM-related chemical safety issues of Complex-wide concern. It provided participants with the opportunity to explore ways in which chemical safety can be better integrated into the ISM process across the Complex. The Workshop facilitated the continuing dialogue on DOE's strengths and opportunities for improvement in chemical safety; best practices and lessons learned; the work of the CSTC Teams; and the identification of priority follow-on actions to be addressed by the CSTC in the year 2000.

The Chemical Safety '99 Workshop opened with introductions, welcomes, and opening remarks for the workshop by the 1999 co-chairs of the Chemical Safety Topical Committee (CSTC), **George Schlossnagle**, Chemical Safety Team Leader, DOE Office of Worker Protection Programs and Hazards Management (EH-52) and **Douglas Heal**, of Westinghouse Safety Solutions, Chair of the EFCOG Chemical Safety Subgroup.

Tuesday, December 14, 1999

Dr. David Michaels, Assistant Secretary for Environment, Safety and Health (EH) provided the DOE corporate welcome. In his brief remarks, Dr. Michaels discussed DOE management perspectives on chemical safety and made note of the importance of EFCOG's contributions to furthering chemical safety throughout the Complex. He said that, as evidenced by the December 8, 1999 Class 1 chemical occurrence at the Y-12 Plant in Oak Ridge, it is clear that chemical safety continues to be a major issue of concern for the Department, requiring strong commitment and ongoing involvement from Senior Management on down to the first line workers. He said that chemical incidents have historically equaled or exceeded nuclear incidents in frequency and severity, with inadequate hazard analysis and human error playing a large role, noting that all workers must be educated on chemical safety. Dr. Michaels said that the Department could accomplish a vast improvement its chemical safety performance and its public image through a focused partnership with Industry to efficiently share and import lessons learned and best practices within the framework of ISM. He emphasized the need for Line Management to partner with the Chemical Industry to advance chemical safety in the field across DOE and added that EH stands ready to serve as the catalyst and facilitator to help the DOE line programs accomplish this. He said that Line Management must assume a leadership role to provide a clear focus to better integrate chemical safety as an important component of ISM implementation. He added that the Department can achieve an appropriate level of chemical safety through full support of a complex-wide committee, such as the Chemical Safety Topical Committee, specifically designated to

address chemical safety issues fully integrated with the ISM Initiative. Dr. Michaels closed by calling for a united effort to advance chemical safety in the DOE and said that while the ISM framework provides the opportunity, management commitment, leadership and focus from the top down are needed to make it a reality.

Steve Polston, Vice Chair of EFCOG, provided the EFCOG corporate welcome and discussed the changing role of EFCOG in the DOE Complex. He said there was a need to increase safety margins at the sites and that EFCOG was moving towards an Institute of Nuclear Power Operations (INPO)-like intervention for performance improvement. He said that there are 27 corporations represented on the EFCOG with nine senior managers serving on the EFCOG Board and that there is great variation in the safety performance of member companies. Mr. Polston said that 70-80% of the problems identified at EFCOG member sites has been the result of (1) non-enforcement of procedures and (2) non-conservative decision-making by line management. He said that corrective actions are frequently only 25% implemented and effective -- this needs to be increased to 90% or better. He said that EFCOG would intensify their efforts to improve safety performance by sharing lessons learned, focussing the Board's attention on ISM and chemical safety and sponsoring working groups on safety. Their goal will be to cut down the variability among the sites and bring all to a level of excellence. Mr. Poston noted that EFCOG has proposed plans to improve performance measures, validate performance data of sites and communicate the results among members recognize good performance and provide on-site assistance by trained teams. He said that performance failures are often due to a lack of management commitment and ongoing follow-up and involvement. Mr. Polston reviewed the status of EFCOG's efforts. He said that the EFCOG's ISM Subgroup has been working with the DOE Safety Management Implementation Team (SMIT) on ISM measurements to be tested at Rocky Flats; that EFCOG has completed a draft MOU with INPO to promote INPO's interest in adopting ISM principles; and that they will be considering working with the Chemical Manufacturers Association (CMA) and the Center for Chemical Process Safety (CCPS). He said that the EFCOG was also working on development of a management driver for lessons learned.

Joseph DiNunno, member of the Defense Nuclear Facilities Safety Board (DNFSB) provided his thoughts on a path forward for chemical safety within the larger DOE initiative of integrated safety management (ISM). He noted that to promote a greater awareness of chemical hazards and the need to address them, those who are responsible for the design and execution of hazardous activities must be involved, yet despite all efforts, few attendees at this Workshop are line managers. Mr. DiNunno said that while nuclear safety has long been the dominant focus of the DOE's safety management programs, the safety management required of DOE contractors is much more than nuclear safety -- Line Management must be involved in developing ES&H programs, policies and Orders. Mr. DiNunno went on to say that DOE and its contractors must mutually agree on the specific applicable requirements for achieving chemical safety in the same way as is done for nuclear safety. He said that it is not enough to require a contractor "…to meet all applicable federal and state regulations…" to cover chemical safety. He added that the ISMS Guide (450.4-1A, May 27, 1999) provides a listing of such requirements and while it is not yet well used, it can provide the clear expectations that are being sought to drive chemical safety programs. Mr. DiNunno also said that while there are already enough requirements for ensuring chemical safety, the response to those requirements has not been as rigorous or as systematically developed as are those for nuclear safety. Every site must set specific requirements for chemical safety and must effectively respond to those requirements in the context of ISM. Mr. DiNunno suggested that the SMIT look at the contractors' Lists A and B to see how they are actually integrating chemical safety requirements into those lists. He emphasized that under ISM safety must be managed as an integral whole and not in parts. While this has not yet been achieved, in our efforts to better address chemical safety, we must be careful to manage chemicals as an

integral part of the DOE's approach to safety and not as a separate entity. He noted that since many applicable legal requirements for non-nuclear hazards are the same for the DOE and the chemical industry that many of the practices devised by the chemical industry should be particularly useful to the DOE. He said that neither the EFCOG nor the DOE has made effective use of practices commonly used in the chemical industry. Mr. DiNunno concluded his talk with the following points:

1. ISM is a standards-based management program and every site must identify a set of requirements, including chemical safety requirements, to which they will conform when contractually performing their work;

2. chemical safety is an integral part of ISM and should be explored in that context;

3. it is the lack of effective implementation of requirements that has historically been the problem of chemical vulnerability -- not the lack of requirements;

4. DOE's path forward should take a dual track approach -- one for old facilities and the other for new designs. For example, the DNFSB has not seen an in-depth analysis of chemical hazards in the design of the new Hanford facility; and

5. DOE must seek to use effectively much of what is available from the chemical industry.

George Schlossnagle, DOE/EH-52's Chemical Safety Team Leader provided some comments on the history of chemical safety at DOE noting that chemicals are ubiquitous at DOE, with the data showing that both nuclear and non-nuclear facilities have experienced problems with chemicals throughout the Department's history. He noted that historically, chemical incidents are very significant as compared to other types of accidents. He also noted that according to a September, 1998 Office of Oversight Analysis Report, "…Despite improvements in overall performance, …ongoing weaknesses in the hazard analysis process, the lack of line management oversight and a high degree of personnel error are limiting further improvements in chemical safety programs…." Dr. Schlossnagle concluded by saying that EH has established some valuable contacts with the chemical industry. He said that the DOE and contractor line management should consider supporting their organizations' sponsorship of the Center for Chemical Process Safety (CCPS) and using the resources available to them from both the CCPS and the Chemical Manufacturers Association (CMA) in their efforts to improve chemical safety throughout the DOE.

Ted Wyka, DOE Safety Management Implementation Team (SMIT) Team Leader, gave an overview of ISM at DOE and addressed the integration of chemical safety and ISM. He said that the success of ISM and of chemical safety require line management and worker participation and ownership. Mr. Wyka said that ISM has had strong management support and they are starting to see results, with workers seeing and understanding their roles in ISM and the sites talking to each other and sharing the safety culture. He noted that chemical safety is already a part of ISM but it must be more clearly reflected in ISM descriptions and included wherever possible. Mr. Wyka offered to participate in conference discussions on ISM integration and suggested that some ways to address effectively chemical safety in ISM implementation would be to:

- emphasize it with a detailed site-specific criteria review and approach documents, known as the CRADS, a verification CRAD;
- add chemical safety as a Subject Matter Expert (SME) functional area in the next revision to the ISM Verification Team Leaders Handbook; and
- provide more clear guidance on chemical safety criteria in the ISMS Guide.

Mr. Wyka presented the status of ISM implementation and accomplishments, noting that:

- there is 100% agreement by contractors to implement ISM and 100% of contracts have been revised to implement ISM;
- over 60 facilities have approved ISMS descriptions;
- 100 authorization agreements have been completed;
- ISM principles and core functions are embraced by management and workers and there has been an observed increase in worker involvement;
- there are better communications among sites resulting in a strengthened safety culture; and
- DOE-wide ISM effectiveness measures has been developed and performance measurement has begun.

Mr. Wyka concluded by saying that the Secretary has committed to full ISM implementation by September 2000 and that ISM will be fully implemented by then with three verifications being conducted every month until completion.

Kenneth Yates, Westinghouse Savannah River Corporation, represented the EFCOG ISM Working Group. He said that the ISM Working Group's objectives include:

- promoting the exchange of programs, practices, procedures and lessons learned;
- facilitating the integration of ES&H processes within the ISM framework;
- identifying streamlined techniques and benchmarked practices for cost effective and accelerated ISM implementation;
- facilitating coordinated contractor input to DOE on ISM-related issues; and
- providing an interface mechanism for DOE with senior management subject matter experts for ISM improvement.

Mr. Yates said that the ISM Working Group is incorporating CMA and CCPS elements into their ISM programs and that they are working on the ISM description document for the Savannah River Site. He said that they also have an important interface with INPO. The ISM Working Group's current activities include the coordination of the reviews of the proposed DOE ISM performance indicators and the proposed Lessons Learned standard. Mr. Yates examined the integration of chemical safety into ISM through a discussion of the elements of a chemical safety program and the applicability of ISM principles to a chemical safety program structure. The two approaches share common goals with the most critical one being the need to establish line management's clear responsibility for safety, including chemical safety. He concluded by saying that all safety management activities can be identified and organized under one or more ISM core functions with safety management groups retaining their roles and responsibilities and that integration is then a natural consequence.

Robert Poe from the Oak Ridge DOE Operations Office updated the group on the December 8 chemical incident at the Oak Ridge Y-12 Plant.

Steven Etheridge of Westinghouse Savannah River Company (WSRC) gave an overview of the EFCOG Lessons Learned Working Group. He said that they are working on development of a lessons learned ‘driver’ and information exchange among the Sites. The EFCOG Lessons Learned group is a supporter of the Society for Effective Lessons Learned Sharing (SELLS) and "near-miss" programs. They have been working with the SELLS on the draft management standard for Lessons Learned, which is expected to be published soon. He said that both the SELLS and DOE's Lessons Learned Information Services Home Page are good resources for lessons learned information.

Concurrent Sessions

Session I. Closed Session: Two concurrent sessions were held in the afternoon of the opening day. The DOE managers session was designated for DOE line managers, field office representatives, senior Headquarters managers, and chemical industry representatives. This session, led by **Roger Rollins**, DOE-SRO, reviewed the CSTC Proposed Draft White Paper on chemical safety, listened to presentations on industry perspectives, and discussed a path forward for the improved incorporation of chemical safety into ISM. In this session **John Brigance**, Director of the Chemical Manufacturers Association (CMA) Responsible Care Program, gave a presentation on "How the Chemical Industry Does It: Responsible Care". He briefly discussed the similarities between Responsible Care (RC) and Integrated Safety Management (ISM). Mr. Brigance noted the importance of CEO commitment and involvement in RC and discussed several of the core elements and the guiding principles of RC (no accidents, injuries, or harm to the environment), executive leadership groups, and the CEO checklists. He stressed the need for the CEOs to incorporate RC into the very culture of the workforce vs. introducing "just another program." Mr. Brigance reviewed Responsible Care implementation and outreach, briefly discussing the six codes of management practices; stakeholder dialogue with employees, communities, and others, and the need for mutual assistance. He noted that the RC mutual assistance network is comprised of coordinators, practitioners, industry advisors, international peers, outside organizations, internal resources, and the executive leadership group. Mr. Brigance went on to discuss performance measurement, community dialogue (surveys and community advisory panels), pollution prevention, process safety, distribution issues and employee safety. He illustrated the excellent record of CMA Responsible Care members in comparison to the rest of the chemical industry and the manufacturing sector as a whole for the years 1993 through 1998. Mr. Brigance concluded his remarks with the five-point Responsible Care Wheel, including Leadership, Planning, Implementation, Measurement, and Review and Report, and is similar to the ISM wheel. **Jack Weaver**, Director of the Center for Chemical Process Safety (CCPS) briefly discussed the CCPS mission, including advancing the state of the art in process safety, technology and management practices, and how CCPS serves as a premier source for information on process safety.

Ted Wyka, Director of the SMIT, presented a slide covering the current ISM topics under review, including FRAMs (Functions Responsibilities Action Manuals), performance indicators, revision to chapter IV of the ISM guide, feedback and improvement efforts, Authorization Agreement reviews, verification report reviews, and DOE declarations using ISM implementation criteria. He noted that much progress had been made in institutionalizing ISM and said that he is confident that the SMIT will meet the September, 2000 goal, but they are still working on getting the DOE Field Office piece in place. He stressed that the sites must maintain their current efforts and develop a more consistent approach to ISM wherever possible. Mr. Wyka also said that he looked forward to the active participation of the EH-52 Chemical Safety Team on SMIT weekly calls. He added that the current ISM topics of consideration were the FRAMS, performance indicators and revisions to Chapter IV of the ISM Guide.

Rick Jones, Director of the Office of Worker Protection Programs and Hazards Management (EH-52), gave a brief presentation on the efforts of the Chemical Safety Topical Committee (CSTC) and an overview of the proposed draft Chemical Safety Topical Committee (CSTC) White Paper. He asked that senior management continue to maintain a high level of involvement with chemical safety and the field provide feedback and comments on the White Paper. Mr. Jones discussed the recent accomplishments of the CTSC, including its having been a successful forum for chemical safety professionals throughout the complex. He highlighted the CSTC's ongoing efforts, including:

- the final draft of the Chemical Management Program Handbook;
- the group's work with EFCOG to develop chemical management systems that support best practices;
- ensuring that chemical vulnerabilities are addressed;
- continuing the development of methodologies for handling the combined consequences of chemicals,
- chemical safety information resources management; and
- establishment of a clearinghouse network of chemical requirements information.

Mr. Jones then opened the floor to questions and concerns from the audience. He asked for senior management comment on whether or not the CSTC itself, the Chemical Management Handbook and the Roadmap to Requirements projects were helpful to the complex. Regarding the CSTC, the managers' session attendees thought it would be best to go back to the member organizations to get the right people to participate. Regarding the Handbook, the attendees responded with generally favorable comments though they indicated that the Handbook would benefit from revision to incorporate more ISM and more examples of model programs, best practices and lessons learned and engagement from all the sites. A representative from the DOE labs said that labs already had these elements in place and additional work, such as the Handbook, was unnecessary. Representatives from Oak Ridge and the Savannah River Site commented that the handbook appeared to be useful as a template and work should proceed on its publication in final form. A representative from Hanford the stated that the Richland office was updating their chemical program along the lines of the current handbook and would be consistent with it's recommendations either way.

Mr. Jones then asked the sites about the need for a chemical safety "driver." Representatives from seven sites stated that they currently use the cancelled DOE Order 5481.1B to cover chemical safety in their SRIDs. A representative from Oak Ridge added that this was deemed necessary because ISM alone was not considered adequate to ensure chemical safety. A representative from SRS then added that they include 5481.1B in the SRIDs to capture management expectations. Concerning the "driver" issue, while some clearly thought that ISM is not enough, the group generally felt that it was. They said that while there are enough requirements and "drivers" for chemical safety, that ISM expectations need to be captured by the DOE and clearly laid out for the contractors making sure that management understands what is required. Regarding the roadmap to requirements project, the group thought that it could be useful in identifying requirements for critical areas of concern for chemical safety, but that implementation was the key. Due to time constraints, Mr. Jones ended discussion at this point. He reminded the management representatives of how CMA and CCPS integrate their safety elements into their corporate culture. He said that EH can partner more effectively with CMA and CCPS to provide the complex with an aggressive outreach program and said that EH can import information from industry and be facilitators for the field. Mr. Jones closed the session with a request that the attendees support the membership and participation of their people in the CSTC and that they let him know how EH can help them. He concluded by saying that ISM is the framework we must use to improve chemical safety across the complex and that if we work together we can make it happen.

Session II. General Session: The other concurrent session was open to all attendees. It included a presentation on the DOE Technical Standards Program and associated topical committees (such as the Chemical Safety Topical Committee (CSTC)) by **Richard Serbu**, DOE Technical Standards Program manager. Mr. Serbu said that the DOE Directives system provides the hierarchy for getting information out to the Complex as policies, orders, guides and technical standards. The Technical Standards Program provides control over technical standards and rules.

The Topical Committees bring subject matter experts, workers and others with common interests together to work on issues of common concern and provide a focal point for the review of outside documents. The CSTC brings EFCOG and DOE people together who share an interest in chemical safety issues. **Gerald Meyers**, DOE explosives safety expert, gave a presentation on the mandatory DOE Explosive Safety Program and the DOE Explosives Safety Manual. He spoke about the DOE explosives safety program and its unique position as a topical committee that shares its knowledge with law enforcement officials on subjects such as terrorist bombs. He noted that many common chemicals, such as hydrogen, have more energy per pound than do many high explosives. He concluded by saying that the DOE explosives safety program is among the best in the U.S. and even exceeds that of the Department of Defense.

DOE Panel

A **DOE panel** of line management (**Milton Johnson**, Office of Science and **Craig Zamuda**, Office of Fossil Energy) and Operations Office representatives (**Bob Poe**, Oak Ridge, **Shiv Seth**, Richland, and **Roger Rollins**, Savannah River) addressed field perspectives on chemical safety. The panelists gave an overview of the discussions held in the DOE managers' session and answered questions from the audience. The first question concerned use of the INPO versus CMA Responsible Care approach. The questioner was concerned that the INPO approach to chemical safety was being overemphasized. It was agreed that the best of both nuclear and chemical safety needed to be applied and that INPO was a good resource. The CMA approach is systematic and INPO can augment it. The panelists said that we need to borrow from the best of safety management systems available. In another question, the panel members were asked to give their perspectives on the need for "drivers" for a chemical management program at DOE. This panel thought that ISM and other requirements were enough and did not see a need for a separate chemical "driver." The panel generally recommended using contracts to drive requirements for chemical safety, though some gaps are evident and raise practical issues. The point was raised that several of the sites have included certain chemical safety requirements in their contracts that are no longer operable (i.e., DOE Orders that have been cancelled). The panelists reiterated that they were in favor of a consistent approach that uses ISM as the driver for chemical safety. Mr. Seth noted that the best approach is dictated by ISM where everyone working with hazardous materials works as an interdisciplinary team walking down the hazards, identifying, and implementing controls. Regarding responsibility for subcontractors and assuring a good flow-down of requirements to assure that subcontractors are implementing appropriate safety programs, the panel saw a role for the main contractor along with the program office. Mr. Poe said that the Integrating Contractor is held accountable for subcontractor performance and that subcontractors should use the contractor's ISM program to implement safety measures. Mr. Seth added that there is a vehicle in the DEAR clause that allows contractors to require that ISM be used by their subcontractors. The panelists recommended that evaluation of chemical safety programs might include tracking the removal of unneeded chemicals, looking at ISM implementation, and substitution for problem chemicals. When asked what indicators would be used to assess a successful chemical management program, Mr. Seth noted that one meaningful tool is to track the improvements made in response to previous findings. The panel was asked what the field offices are doing to avoid the "stove-piping" effect of chemical safety in many areas. Mr. Rollins said that Savannah River is implementing a procedure that spells out roles and responsibilities, with representatives from each division working together to assure that stove-piping does not occur. Mr. Seth said that properly implementing ISM avoids stove-piping.

Wednesday, December 15, 1999

Shivaji Seth, DOE-RL, opened the second day of the Workshop. He spoke about the use of a tool

adapted from the Chemical Manufacturers Association (CMA) Responsible Care Program known as Management System Verification (MSV) in a pilot for ISM Validation at Hanford. He said that the Plutonium Finishing Plant (PFP) at Hanford is a chemical processing plant that was closed for criticality concerns in 1997/1998 and is preparing for ISM verification in January 2000. Before the waste tank explosion in May 1997, ISM was not in place. Mr. Seth said that the DOE-RL line management had applied some elements of the Responsible Care MSV process (specifically the MSV "structured dialog" process and public involvement in a panel-to- panel format) to the ISM verification process there. Mr. Seth said that they were using the MSV concepts within the ISM framework but not their language. This RL process focused on gauging management commitment, as well as on the benefits of direct worker and public involvement. He said that the MSV process does not require a worker on the panel, but a worker was added to the Hanford verification process. Mr. Seth also pointed out that many chemical management systems do not include legacy chemicals. These are instead considered "waste" although they may pose a hazard. Presently, corrective actions for chemical waste vessels are being tracked.

Ray Hardwick, DOE/EH-24, Office of Environment, Safety and Health Residents in the Office of Oversight, spoke on Chemical Safety and ISM Implementation at DOE, in place of Pat Worthington, DOE/EH-22, Office of Environment, Safety and Health Evaluations, who had been called on to participate in the Oak Ridge Y-12 accident investigation. Mr. Hardwick said that the focus of the Office of Oversight is to determine the presence of a management system and its effectiveness in the assessment of the work being done in the field. He stated that oversight was not a substitute for line management involvement. Mr. Hardwick said that EH-2's work is to determine the presence and effectiveness of a management system, and to look at the work in the field not to look at detailed processes and procedures (as is done in ISM verification). He said that they use a Safety Management Template as a universal tool for Oversight activities, and an Oversight Protocols document to assure consistency in their evaluations. In their assessments they look at the integration of ISM guiding principles and core functions for all hazards; the extent and effectiveness of Line Management's responsibility for safety; and balanced priorities among other things. The effectiveness of chemical safety programs is examined in the context of the entire safety management template. Mr. Hardwick noted that there is some overlap to what his office does and what is done in ISM verifications but Oversight is much more rigorous than ISM. The process is also different since oversight starts in the field, which is where Phase 2 of ISM Verification takes place. EH-2 focuses on the "walk-down" aspect of the assessment, does follow-up of site closeout of actions and takes a much more in-depth look at the implementation process.

Steve Scott, Office of Technical Training and Professional Development (EH-74), demonstrated the EH Portal, the information resources available through the Portal and the LAN and gave instructions on how to do the customization of "My EH&S Page". He said that the ES&H Information Portal is a centralized approach to getting information to the sites. Mr. Scott said that they had worked with the EPA on an Interagency Working Group on Chemical Metadata to build a chemical registry with consistent terms to allow for ease of use across all Agencies. He said that they had developed an on-line chemical registry system (the Reportable Quantities (RQ) Calculator) that calculates whether a chemical spill is within or outside of regulatory limits. He said that the EH Portal has a link to this site and that it can be accessed through the Office of Environmental Policy and Assistance (EH-41) via the URL **tis.eh.doe.gov/oepa/rq/**. Mr. Scott noted while the resources are available to the DOE community at no cost, it is necessary to register in order to use it.

Shivaji Seth, DOE-RL, gave an overview of the status of the 1999 CSIG/CSTC Issue B.1, "Identification and Assessment of Chemical Safety Vulnerabilities." He said that the 1994 Plutonium Reclamation Facility (PRF) explosion led to many safety improvements at Hanford. Key lessons learned from that incident included the inadequacies of hazard controls and of the safety

basis, which failed to consider the hazard of not doing anything as well as their failure to follow procedures for long-term storage. At Hanford, the Richland Operations Office and its contractors successfully completed an extensive assessment of facility vulnerabilities, using walk-downs, Dupont assistance, disposal of unneeded chemicals, and a site-wide chemical management plan. Corrective actions are being managed through ISM, and corrective actions for chemical vessels are being tracked, with over 90% of correction actions completed to date and the final vessels to be completed by 2004. Mr. Seth closed by saying that the challenge to DOE is to sustain the vulnerability assessment process. Mr. Joseph Zoghbi, of Bechtel Hanford Corp. and Chair of the Chemical Management Council said that they use a formal process to assure that appropriate attention and resources are applied. He said that they use a hazard ranking system for likelihood and severity and that they are working on a detailed paper and a guide for the vulnerability process and would be happy to share that information.

Dave Quigley, INEEL, addressed the 1999 CSIG/CSTC Issue D.2, "A Requirements Road map: A DOE Network of Chemical Safety Requirements Information" and the need to identify and consolidate chemical safety requirements that are applicable to the work being performed. He said that while all DOE contractors live by the same requirements, many do not know which requirements they need to follow. He said that there are many steps involved in flowing requirements down to the working level. Applicable requirements need to first be identified, then consolidated to resolve overlapping and conflicting requirements (multiple requirements from many varied sources frequently cover the same thing in slightly different, and sometimes conflicting ways) and finally implemented at the worker level. He said that under ISM each contractor must ensure complete coverage of all applicable requirements, yet consolidation can be difficult. Dr. Quigley said that the tracking of consolidated chemical requirements helps. He said he had conducted a small test to see how DOE sites were doing in this process of identification and consolidation of applicable requirements for their work. He had selected a set of worker protection requirements that apply to work with compressed gases and developed a consolidated list. He had sent the list to four sites that had volunteered to participate and compared the requirements they identified and used to the list that he had prepared. Only one site had 100% agreement with the list. The others varied broadly at 72%, 64% and 38%. He said that it was clear that there was a need for help with this process and offered the audience the opportunity to contact him if they wanted to test their sites (anonymity is guaranteed.) Mr. Quigley described a method for identifying these requirements for the Sites and a means of accomplishing a "gap" analysis to identify where additional guidance may be needed. He closed with a suggestion that:

- a team from across all the sites work together to develop an organized listing of potentially applicable requirements in the smallest possible data set for comparison purposes; and
- the team provides guidance on minimum requirements and publishes them on the Internet for easy access by all.

Dr. Quigley said that such a team would have several benefits. It would:

- provide a network of experts from across the complex to address common chemical safety problems;
- provide consistent guidance across the complex; and
- save each user the cost of developing their list.

Dr. Quigley called for anyone who was interested in serving on such a team to contact him or any of the other members of the CSTC Requirements Flow-down Team.

Earl Conway, Sandia Laboratories, chairing the EFCOG Waste Management Working Group, addressed the issue of "Waste Management Re-engineering as an Exercise in Line Responsibility." Mr. Conway explained that changes in waste management practices and "re-engineering" could affect chemical safety. He said that minimizing wastes early in work planning and process design could minimize hazards. Charge-backs for waste management can lead to more hazardous chemical situations, such as intentional long-term on-site storage, improper treatment, incompatible storage and unsafe substitution. Desired behaviors include substituting less hazardous materials, modifying facilities to minimize waste, using appropriate treatment at the point of generation and disposing of waste properly.

Angela Arms, Bechtel Jacobs Company at East Tennessee Technology Park (ETTP), discussed chemical safety and the application of ISM to D&D operations. She emphasized the importance of involving Industrial Hygienists (IH) early in the hazards recognition and control process and reviewed the principles of IH monitoring and sampling. She said that chemical hazards are often overlooked or viewed as routine operations and that subcontractors are often unprepared to deal with IH issues. Ms. Arms presented some examples of practical applications of chemical safety concepts and ISM in D&D, describing a Deposit Removal forklift project and a DOE D&D operation (K-1131 Demolition). Chemicals encountered that presented problems included asbestos, slab contamination, uranium, polychlorinated biphenyls (PCBs), transuranics, and other RCRA materials.

Doug Craig, WSMS, addressed the 1999 CSIG/CSTC Issue C.4, "Handling the Combined Consequence of Chemicals or the Combination of Chemicals and Radionuclides." Dr. Craig discussed the use of Hazard Indices (HIs), Health Code Numbers (HCNs) and Threshold Emergency Exposure Levels (TEELs) in dealing with chemical emergencies. He said that exposure to either chemicals or radionuclides may exacerbate the effects of the other and that exposure to mixtures may lead to additive, synergistic, or antagonistic health effects. He said that the current approach is not conservative, and may not adequately protect the health of people exposed to mixtures. Chemicals are classified in terms of their chemical-specific toxic effects using HCNs. The methodology recommends that, unless chemicals are known to display significant interactive effects (synergistic or antagonistic) or toxic consequences are proven non-additive, HIs for chemicals having the same HCNs should be added. The sum of HIs must be less than one to be acceptable. Dr. Craig noted differences among chemical and radiological risk guidelines and consequence calculations have been documented. Exposure to either may exacerbate the health consequences of the other. However, radiological risk guidelines are very low in terms of health consequences by comparison with chemical risk guidelines. Dr. Craig said that unless accidental radiation doses exceed current guidelines substantially, simultaneous or consecutive radiation exposure should not have a significant additive effect to the consequences of chemical exposures. The level of radiological exposure which can be neglected because the chemical exposure will clearly dominate needs to be identified. He said that the methodology developed needs to be reviewed and approved by appropriate DOE departments for incorporation in guidance documents such as the Chemical Management Handbook. Dr. Craig closed by recommending that the HCNs already developed for nearly 1000 chemicals be considered for publication on an appropriate DOE web page to be made available for use with the methodology developed.

John Serocki, Office of Safety, Health and Security EM-5, in the Office of Environmental Management, substituted for **Mr. Irwin Spickler**, EM-4 who was unable to attend. Mr. Serocki talked about the role of integrated hazard analysis in ISM. He addressed the conflicts that exist between the DOE's nuclear safety approach and OSHA, between requirements for Hazardous Waste Operations and Emergency Response (HAZWOPER) and other requirements, between

activity level hazards and facility-level hazards. Mr. Serocki presented a Health and Safety Plan for nuclear remediation and decommissioning to illustrate his points. He said that there is a need for DOE guidance and a clear articulation of DOE expectations for safety basis for each type of DOE facility -- non-nuclear, non-radiological, nuclear, etc. He said there was a need for expectations to be linked to related "drivers" to alleviate the confusion as to when the different "drivers" apply and a need for the integration of activity level hazard analysis with facility level safety analysis.

The 2nd day of the Workshop ended with the CSTC co-chairs, **Dr. Schlossnagle and Mr. Heal** leading an open discussion of CSTC issues for Y2K and the development of a list of tentative topics for discussion at Thursday's break-out sessions. A listing of some of the original CSGI issues that are still active was provided to the participants with the suggestion that the CSTC may want to continue work on some of those initial efforts and take them to completion. The handout included the following items:

- Managing a Chemical Facility Safety Basis - the infamous "DRIVER" issue:
  - Formation of a CSTC committee to develop a CSTC Decision Paper for presentation to the Secretary's Safety Council
  - Discussion of a procedure and timeframe for getting the paper done.
- Ensuring that All Significant Chemical Safety Vulnerabilities Have Been Identified and Addressed.
- Chemical Safety in Laboratories - Defining the Unassisted Principal Investigator (PI) to Analyze, Select Controls, and Ensure Feedback.
- Preparing a Draft Checklist/Guidance Document for Chemical Safety in Work Planning.
- Improving Access to Technical Information on Chemical Reactivity and Incompatibilities.
- Establishing a Clearinghouse Network of Chemical Requirements Information:
  - How can we expand this database and encourage its use and implementation?

Workshop participants settled on the following subjects for discussion:

- How can chemical safety be better integrated into ISM;
- How can the flow of chemical safety information be improved (applicable standards, possible substitutions, etc.);
- What are roles and responsibilities of the DOE Oversight group;
- Is there a need for a chemical safety "driver"; and
- What is needed for performance measures?

Ted Wyka emphasized that the ISM process includes **all** safety and noted that an opportunity for the CSTC to make a difference in the ISM process would lie in their looking at how the attributes of chemical safety are reflected in ISM, particularly in ISM documentation. He said that chemical safety must be clearly included in the Team Leaders Handbook, and in the ISMS Guide. He noted that the detailed site-specific criteria review and approach documents, the CRADS, of Chapter IV of the Guide, serve to focus the initial investigation by the review team. He said that the CRADS could be revised to assure that an appropriate level of attention is given to chemical safety issues. He added that half of the complex is still undergoing verifications and that changes are being made to Chapter IV to address ways to improve ISM. Mr. Wyka offered that the changes to Chapter IV should be reviewed by the CSTC for opportunities to improve its treatment of chemical safety management. He said that it was important to find out what the contractors need and to get the information out to them on lessons learned and good practices. He said that the SMIT holds weekly conference calls and quarterly workshops and said that they could highlight chemical safety

as a feature of ISM in a plenary session at their next quarterly Workshop. He said that the CSTC should participate in the weekly calls, have a presence on the SMIT and take an active role in assuring that chemical safety is included in ISM documents. He also noted that there is an opportunity for participation on the remaining verification assessments.

William Von Holle of the DNFSB reviewed Mr. DiNunno's remarks regarding the need for a gap analysis to be performed before any new requirements are considered for chemical hazards. He said that the CSTC can identify the body of requirements to be considered in any chemical-related work, can consolidate them and then perform a gap analysis linked to the type of facility, being careful to look at the chemical safety basis for each type of facility. He said that a CSTC team could look at what requirements need to apply specifically to various processes and what should apply "across the board", with a focus on the integration of the various chemical safety requirements within the ISM process. Mr. Von Holle also suggested that a CSTC team look at examples of best chemical management practices and the use of ISM in D&D activities. He added that DOE Oversight should play a more active role in identifying clear roles and responsibilities for the DOE first line and middle managers who do day-to-day oversight in the field. He said they should engage DOE middle managers at both Headquarters and in the field to improve contract oversight for a more consistent message. Mr. Von Holle also said that an effort should be made to work with the laboratory safety organizations. He reiterated that the key to success is to get line management and the field offices involved.

Fred Smith, of Lockheed Martin Energy Research Corporation at Oak Ridge, noted that their senior researchers use the ISMS principles and include worker involvement and that they use the OSHA Lab Standard as well, but need better guidance on their proper application and use.

The discussion identified the following tentative subjects:

- Modify the Handbook to reflect the ISM framework. Develop guidelines on how to come up with the right set of controls for chemical-related work. Add a checklist of guidance documents to the draft Chemical Management Handbook that would provide a resource for identifying requirements and that can also be used for ISM verification;
- Develop a DOE methodology and guidance on how to properly identify chemical safety
- Vulnerabilities;
- Develop a consistent set of DOE expectations and approach for Chemical Safety
- Analysis -- DP, EM and NE expectations for chemical safety need to be the same;
- Develop performance measures for a properly integrated Chemical Management or
- Chemical Safety Program;
- Redefine chemical occurrence classes to include a detailed analysis of chemical safety-related occurrences. Work on a DOE O 232.1B (Occurrence Reporting Order) modification;
- Examine chemical safety issues in the treatment of legacy chemicals;
- Identify and consolidate chemical safety requirements and perform a gap analysis linked to the type of facility. Look at what should apply "across the board" and what applies to specific activities; and
- How can the flow of chemical safety information be improved (applicable standards, possible substitutions, etc.)

Workshop participants were given a handout of suggested topics for Thursday afternoon's breakout sessions. The topics included:

- Managing a Chemical Facility Safety Basis - the "DRIVER" issue;
- Formation of a CSTC committee to develop a CSTC Decision Paper for presentation to the Secretary's Safety Council and discussion of a procedure and timeframe for getting the paper done;
- Ensuring that All Significant Chemical Safety Vulnerabilities Have Been Identified and Addressed;
- Chemical Safety in Laboratories -- Defining the Unassisted Principal Investigator (PI) to Analyze, Select Controls, and Ensure Feedback;
- Preparing a Draft Checklist/Guidance Document for Chemical Safety in Work Planning;
- Improving Access to Technical Information on Chemical Reactivity and Incompatibilities; and
- Establishing a Clearinghouse Network of Chemical Requirements Information -- How can we expand this database and encourage its use?

Thursday, December 16, 1999

Joseph E. Fitzgerald, Jr., DOE Deputy Assistant Secretary for Worker Safety and Health (EH-5) opened the final day of the Workshop by reviewing future directions for chemical safety and recognizing CSTC Members for their accomplishments. He gave a brief summary of what had been presented in the first two days of the Workshop noting that the DOE historically has been a nuclear-focused industry and that we need to recognize the continuing wide use of chemicals in the DOE. He said that we have an opportunity to partner with industry to learn from their experience adding that they have a lot to offer since they have already addressed many of these problems. He commended the work of the 1998 Chemical Safety Interest Group (the CSIG, now the Chemical Safety Topical Committee, the CSTC), particularly the CSIG/CSTC teams led by:

- Gordon Miller, LLNL, [CSIG Issue C.1 (Original Issue #3-1): Chemical Safety in Laboratories -- Defining the Latitude of the Unassisted Principal Investigator (PI) to Analyze Hazards, Select Controls and Ensure Feedback];
- Douglas Craig, WSMS, [Issue C.4 (Original Issue #8-2): Handling the Combined Consequence of Chemicals or the Combination of Chemicals and Radionuclides [Integrating Chemical Safety and Nuclear Safety];
- Shivaji Seth, DOE-RL, [Issue B.1 (Original issue #6-1): Ensuring that All Significant Chemical Safety Vulnerabilities Have Been Identified and Addressed];
- Dave Quigley, INEEL and Raeanna Sharp-Geiger, LANL [Issue D.2 (Original Issue #9-1): Establish a "Clearinghouse" Network of Chemical Requirements Information -- A Roadmap of Chemical Safety Requirements]; and
- James Morgan, WSRC [Issue B.2 (Original issues #10-1 and 10-3): A Chemical Management Handbook]

Mr. Fitzgerald said that chemical safety is a great challenge of interest to all sites. He talked about the importance of "bridging" within the DOE and with industry to bring chemical safety to the work-site. He said that we must leverage information and experience and put it where it can make a difference at the working level, adding that we can borrow from the nuclear industry and benefit from what has been done before. Mr. Fitzgerald noted that DOE contractors have a wealth of experience and that there is a good opportunity for the fertile exchange of knowledge with industry and through EFCOG. We can save time and money if we work together. He said that DOE must pay attention to how we manage and how we implement and those first level supervisors need to be held accountable for chemical safety. Mr. Fitzgerald said that there is some confusion over what DOE's expectations for chemical safety are and what the contractors will be held accountable for in each of many diverse activities. He said that DOE expectations must be clear, uniformly defined and applied. The ISM Guide should be clear, oversight assessments clear and chemical

safety better integrated into these expectations and guides. He said that chemical safety is an important component of ISM and can be an integral part of many aspects of the systems and tools we have. We have the vehicles for DOE expectations for chemical safety and chemical management to be better integrated into existing documents for ISM implementation. Mr. Fitzgerald said that a regulatory approach is not a desirable way to meet our expectations. He said that it is necessary to distinguish between requirements and implementation and to ask if it is the lack of requirements or failure to implement or understand what is expected. We have an opportunity to integrate better chemical safety in ISM programs and processes and in order to do this we need to communicate better. Mr. Fitzgerald offered that if someone has, or knows of, a model program it should be documented and communicated to all. He said that we have a wealth of capability and that we should take more of an activist approach (much like that taken by INPO) based on what we can learn from each other to save time and money. We must team together to define expectations that fit the hazards, driving management to identify what's expected and provide the tools for awareness of the fabric of chemical safety and move towards it. Mr. Fitzgerald closed with four conclusions:

- Define what clear expectation of what DOE wants regarding chemical safety. Examples include ISM verifications, self-assessments, etc.

- Chemical safety and chemical management should be pursued in context of effective ISM;

- There is a tremendous amount of communication and sharing that can be leveraged within DOE;

- Chemical safety can be an integral part of overall safety management. We must find ways to focus line management attention on this issue and use a team approach to look beyond regulatory requirements to fit chemical management and chemical safety to the hazards.

Mr. Fitzgerald said that we must recognize chemical hazards in a traditionally nuclear-focused industry and improve the incorporation of chemical safety into the integrated safety management systems that are currently being implemented at many DOE sites. He said that DOE must work with the contractors to define what is needed for chemical safety and for the integration of chemical safety into ISM. Model programs should be documented and communicated to all.

Jim Morgan, WSRC, champion of the CSIG/CSTC Issues A.1/B.2 (Original Issues #1-1, 1-2, 10-1 and 10-3): The DOE Chemical Management System Guide -- now known as the Chemical Management Handbook.], gave an overview of the Handbook and an update on its status. He said that the Handbook provides "cradle to grave" guidance for the management of chemicals and emphasizes what needs to be done in a chemical management program -- <u>not</u> <u>how</u> to do it. Mr. Morgan said that the draft Handbook has been out for review and that the comment period was just ending. He said that the team would be getting together again in late January to review the comments and finalize the document. The Team hopes to publish the final Handbook on the Chemical Safety Home Page in February. Mr. Morgan said that the Handbook includes a description of how chemical management is implemented at SRS. He said that they use a single point of contact for all chemical safety issues; a chemical management council consisting of representatives of the vice president of each major Division of the Line Organization and the DOE-SRS along with non-voting technical specialists and a formal chemical coordinator. Mr. Morgan said that they also have a new inventory tracking system that is intended to include chemicals along with all other property, is linked to technical data and provides upgraded MSDS access and tracking from any work station on site. The system is called the "Chemical Commodity Management Center (CCMC)" and provides a single point of contact for all site personnel and DOE-SRS for all chemical issues. Mr. Morgan said that they have 28,000 MSDSs and 14,000

active chemicals on-site. Their definition of a "chemical" is anything with an MSDS sheet except for what the CCMC says is not a chemical. He said they also have a list of chemicals that are not tracked. Sue Morss, of Argonne National Laboratories said that they have an excellent chemical management program. She said that they do not inventory small amounts of research chemicals but that the track all research chemicals in bulk modules. They have five tanks on site that are tracked by usage and track them with the assumption that all containers are full until they are empty. Tanks are tracked via replenishment schedules and are tracked to their location. She said that for their D&D work they do not have MSDSs -- sample the materials in question, characterize them and handle them with the most conservative procedures. Ms. Moors said that she would be happy to provide a write-up of their program for the Handbook. Mr. Morgan welcomed the offer, noting that the Handbook is intended to be a "living" document and that new material will be continually considered for addition to it.

David Sheffey, Lockheed Martin, Oak Ridge, described the use of Safety Analysis for chemical hazards at the Y-12 plant in Oak Ridge. He discussed the use of the "HazOp" and "What If" Analysis Techniques to achieve efficient hazard analysis at Y-12 and developed a BIO for the re-start of Y-12. After a stand-down in September 1994, they performed the restart of enriched uranium operations in two phases. Lessons learned from Phase A were used to improve the process in Phase B. Mr. Sheffey talked about the lessons that were learned and how they were applied and presented the goals of the current Y-12 hazard evaluation effort.

Laboratory Safety Systems

Gordon Miller gave an update of the CSIG/CSTC Issue C.1 (original CSIG #3-1) on "Chemical Safety in Laboratories and Principal Investigators (PIs)". He addressed the latitude of the unassisted principal investigator to analyze hazards, select controls and ensure feedback. Mr. Miller said that laboratory safety training is a major concern for principal investigators since both the OSHA Chemical Hygiene Plan (29 CFR1910.1450) and the DOE ISMS requirements (DOE O450.1) put the burden of safety on the principal investigator. He addressed the need for prior approval, current and readily available chemical safety information, and training, and said that under ISM the PI has a lot of responsibility but also a lot of latitude. Mr. Miller said that at LLNL the chemist is responsible for selecting his/her own controls and that prior approval is required for work being done in specific areas. He said that ISM and the Work-Smart standards allow contractors to deal with researchers and work in a common sense way. He said that they need good guidance on dealing with legacy chemicals. Mr. Miller concluded his remarks by noting that to reach PIs, they must be taught what they do not know and motivated to think about safety and the implementation of safety. He said the need for prior approval, current and readily available chemical safety information, and training that Laboratory ES&H organizations may need to add chemists or chemical engineers to their staffs to handle chemical safety issues.

Paul Deason discussed the ISMS-compatible chemical management program at the Savannah River Technical Center. He said that researchers think of the ISMS function and implementation as an integral part of their tasks. He said that an R&D Hazard Review includes job hazard analysis, process hazards review, Unreviewed Safety Question (USQ) determination, Radiological control, Industrial Hygiene/Chemical control review, environmental protection/waste management, fire protection, OSHA reviews, and hazardous energy control. He said that they have a five-page hazard-screening checklist for R&D projects and use USQ-qualified people. Mr. Deason said that they have fewer than 100 legacy chemicals and that they develop MSDSs where they are needed. Paul Deason said that they use task plans and ensure training for all who need it.

John Piatt gave an overview of the PNNL Laboratory Safety Program. He said that they use ISM

and build it into all of their systems so that they do not notice that they are doing "safety." They use a Standards-Based Management System (SBMS), an automated tool, for tracking regulations and safety compliance and that it is available lab-wide on the PNNL home page along with their most recent procedures and guidelines. He said that the SBMS consists of many modules including:

- Working with Chemicals
- Independent Oversight
- Assessment Tracking System
- Facility Use Agreements
- Integrated Assessments
- Chemical Management Systems
- MSDS
- Chemical Process Permit
- "Preparation & Risk"

Mr. Piatt said that the SBMS relates to ISMS, the Chemical Hygiene Plan and Facility Use Agreements. He said that they use the seven guiding principles of ISM and go by the tenet that line management is responsible for ES&H laboratory-wide and facility-wide, including R&D labs. He said that their chemical management system transfers information among labs and that during preparation, their projects go through a process during which the home page asks what chemicals they are using and how they're using them and scans the MSDS Database for relevant information. A chemical process permit is issued that covers the hazards of the work and includes a hazards analysis, and addresses controls, emergency response issues and outlines a waste path for the project.

The morning session concluded with a plenary discussion of chemical safety issues that support ISM for the next Millennium, led by the CSTC co-chairs, Dr. Schlossnagle and Mr. Heal. Rick Jones asked the group to identify 5-6 essential issues and then look at how to approach them. He asked that the breakout session leaders identify what the group wants and how to get there, clarifying what the key chemical safety and ISM issues are and what key activities can the CSTC work on in Y2K. He said the groups should collect their thoughts and focus on products, always asking if the activity resonates with what they are doing in the field.

In the afternoon, workshop participants developed the following initial list of topics for the afternoon's breakout sessions:

A. Building Chemical safety into ISM

- Input chemical management expectations and criteria into ISM documents wherever possible. For example:
  - CRADs
  - ISMS Guide
  - ISM Verification Team Leaders Handbook
- Disseminate information on chemical safety through ISM vehicles
- Participation

B. Continue Dave Quigley's efforts on the identification and consolidation of chemical safety requirements

- Culminate with a gap analysis of requirements and expectations

C. Identify ways to engage DOE HQ and Field Office first-line and middle managers in chemical safety issues to provide proper direction and oversight using ISM and other existing programs

D. Handbook [combined with Projects E., F. and I.];
- Restructure it using ISM terminology;
- Provide clear expectations.

E. Improve access to chemical safety technical information [combined with Project D.];
- Provide lessons learned substitution of less toxic chemicals;
- Compile best practices for chemical safety in D&D operations;
- Provide lab-specific chemical safety guidance and best practices.

F. Provide guidance on identifying significant chemical vulnerabilities [combined with Project D.];

G. Develop consistent DOE expectations and approach to chemical safety analysis;
- Identify performance measures
- Redefine chemical occurrences
- Develop methodology for analysis of chemical occurrences

H. Develop performance measures for chemical safety and chemical management [combined with project A.]; and

I. Develop DOE expectations for managing legacy chemicals [combined with Project D.]

Workshop participants then retired to the breakout session rooms to develop their project descriptions, strategies and proposed paths forward. They selected team leaders and initial membership lists, proposing their project titles, draft project descriptions and goals, proposed project products and proposed timelines. Four new key projects and two continuing 1999 projects were identified for CSTC work in Y2K. Participants reconvened in plenary session and reported the results of the Breakout session discussions.

PROJECT DESCRIPTIONS

Project 2000 A. "Building Chemical Safety into ISM"[combined Topics A. and H.]

Team Leads: Roger Rollins, DOE-SRS and Jim Morgan, WSRC

Tentative Issue Definition:

- Identify where chemical management expectations and criteria can be added to ISM documents and provide input to:
  - CRADs
  - ISMS Guide
  - ISM Verification Team Leaders Handbook
- Disseminate information on chemical safety through ISM vehicles and identify or develop additional tools for ISM verifiers and for site self-assessments.
- Develop performance measures for chemical management.

Current Team Members:

Roger Rollins, DOE-SRO	Otto White, BNL
Jim Morgan, WSRC	Joe Zoghbi, Bechtel Hanford, RL
Billy Lee, DOE/EH-52	John Pieta,
Jim Jackson, LLNL	Gail Kleiner, DOE/EH-52
Rob Vrooman, DOE/DP-	Nancy Hammond, DOE/EH-52
Don Harvey, DOE/DP-45	Bill Westendorf, Apex Environmental

Meeting Venue:

- Primarily by Conference calls weekly or bimonthly
- first one will be on Jan. 6, 2000

Tentative Deliverables:

- Review the ISM process and identify ways to build chemical safety into it
- Input chemical management expectations and criteria into ISM documents to disseminate chemical safety information through ISM vehicles
- Identify/develop additional tools for ISM verifiers and for site self-assessments
- Develop performance measures for chemical management programs

Tentative Schedule of Deliverables:

- 1/11/00 Review the ISM process and identify ways to build chemical safety into it;
- 3/1/00 Input chemical management expectations and criteria into ISM documents to disseminate chemical safety information through ISM vehicles;
- TBD Identify or develop additional tools for ISM verifiers and for site self-assessments;
- TBD Develop performance measures for chemical management programs.

Project 2000 B. "Requirements Flow-down: A Clearinghouse Network for the Identification and Consolidation of Chemical Safety Requirements Information" [Continuation of CSTC/CSIG 1999 Project D-2]

Team Leads: Dave Quigley, INEEL, and Raeanna Sharp-Geiger, LANL

Tentative Issue Definition:

Continue efforts on the identification and consolidation of chemical safety requirements and the development of a clearinghouse network of electronic tools for use in identifying and tracking consolidated requirements. May include an effort to provide chemical safety requirements "gap analysis" process for individual sites to use to determine the status of the applicable requirements portion of their chemical management programs. Project outcomes may ultimately be used for a "gap analysis" of DOE chemical safety requirements and expectations.

Current Team Members:

Dave Quigley, INEEL
Brenda Hawks, DOE-ORO
John Serocki, DOE/EM-35
Raeanna Sharp-Geiger, LANL
Jim Woodring, ANL
Stephanie Woolf, DOE-ID
Gail Kleiner, DOE/EH-52
Ann Schubert, DOE-West Valley
Dan Marsick, DOE/EH-52
Bill Westendorf, Apex Environmental
Susan Rose, Battelle
John Piatt, PNNL

Original team members who could not be present will be contacted to establish their availability and interest in continued membership:

Meeting Venue:

Primarily by Conference calls approximately bimonthly -- first one will be Jan. 6, 2000

Tentative Deliverables:

- A web-based list of consolidated chemical safety requirements for chemical-related activities initially limited to those that pertain to worker protection.
- A web-based clearinghouse of electronic tools for use in identifying and tracking consolidated chemical safety requirements.
- A chemical safety requirements "gap analysis" tool for individual sites to use to determine the status of the applicable requirements portion of their chemical management programs.

Tentative Schedule of Deliverables:

A web-based list of consolidated chemical safety requirements for chemical-related activities initially limited to those that pertain to worker protection.

- 3/1/00 Project structure defined
- 4/1/00 Chapters defined and assigned to team members for development
- TBD Initial set of draft chapters reviewed by team members
- TBD Draft consolidation of chapters
- TBD Internal Team review completed
- TBD Final product out for external review

- TBD Final product approved and posted on Chemical Safety Web Page
- TBD Links to other web-pages
- TBD Develop additional chapters

Develop a web-based clearinghouse of electronic tools for use in identifying and tracking consolidated chemical safety requirements.

- TBD Draft proposed marketing plan for improved field participation
- TBD Marketing plan completed and goals set
- TBD Begin marketing campaign
- TBD Marketing goals met

Develop a chemical safety requirements "gap analysis" tool for individual sites to use to determine the status of the applicable requirements portion of their chemical management programs.

- TBD Goals and schedule

Project 2000 C. "Identify Ways to Engage DOE HQ and Field Office First-Line and Middle Managers in Chemical Safety Issues to Provide Proper Direction and Oversight Using ISM and other Existing Programs."

Team Lead: Lydia Boada-Clista, DOE-OH
Will identify team lead and co-lead during first team meeting

Awaiting progress of Team A before developing a communication strategy

Tentative Issue Definition: TBD, will be provided after first meeting

Current Team members:

Lydia Boada-Clista, DOE-OH
Brenda Hawks, DOE-ORO
Sarah Hartson, DOE/EM-35
Sue Morss, ANL (interested contractor participant)

Meeting Venue: Conference calls weekly or biweekly and e-mail

Tentative Deliverables and Schedule: TBD

Project 2000 D. "Complete and Publish a Chemical Management Program Handbook" [combined Topics D., E., F. & I.]

Team Lead: Jim Morgan, WSRC

Tentative Issue Definition:

Restructure current draft using ISM terminology
Provide clear DOE expectations, including expectations for managing legacy chemicals
Provide lessons learned for chemical safety
Identify resources for best practices for chemical safety
Provide guidance on identifying significant chemical vulnerabilities

Current Team members:

Jim Morgan, WSRC
Billy Lee, DOE/EH-52
Roger Rollins, DOE-SRO
Vickie Wheeler, DOE-SRO
Rob Vrooman, DOE/DP-45
Don Harvey, DOE/DP-44
Bill McArthur, DOE/EH-52
George Schlossnagle, DOE/EH-52
Gail Kleiner, DOE/EH-52
Jay Larson, DOE/SC-83
Beverly Stephens, DOE/EH-413
Dave Pegram, DOE/EH-52
Dan Marsick, DOE/EH-52
Mike Gilroy, DOE/EH-52

Meeting Venue: Working meetings at DOE -GTN scheduled for:

Jan. 13, 2000 to review comments and develop approach to comment resolution
Jan. 24-25, 2000 to review and address comments received
Conference calls and email correspondence will be scheduled as needed.

Tentative Deliverables and Schedule (modified since Workshop):

- 2/29/00 Revised draft ready for internal review
- 3/15/00 Final draft ready for external review
- TBD Publication of Chemical Management Handbook

<u>Project 2000 G. *</u> "Develop Consistent DOE Expectations and Approach to Chemical Safety Analysis [*Redesignate as Project 2000 E.]

Team Lead: Ingle Paik, WSMS

Tentative Issue Definition:

- Identify types of Safety Analysis documents for various facilities and activities;
- Clarify, review and approve change of process, and include expectations;
- Develop guidance and a graded approach to chemical safety analysis;
- Request DOE Field Offices to provide expectations for contract statements on chemical safety analysis.

Current Team members:

Ingle Paik, WSMS
Dave Sheffey,
Brenda Hawks,
Sarah Hartson,
John Rice, INEEL
Rob Vrooman, DOE/DP-45
Don Harvey, DOE/DP-44
Gordon Miller, LLNL
Dave Pegram, DOE/EH-52
Gail Kleiner, DOE/EH-52
Bill Westendorf, Apex Environmental

Meeting Venue:

- Primarily by Conference calls weekly or bimonthly -- first one will be on Jan. 11, 2000
- Possible team meeting at the EFCOG SA 2000 Workshop 4/28 - 5/4 in Santa Fe, N.M.

Tentative Deliverables:

- Develop a Task Plan for accomplishing goals
- A Guide or Handbook of DOE Expectations for Chemical Safety Analysis
- Recommendations for contract statements on this issue.

Tentative Schedule of Deliverables

- 2/8/00 Develop a Project Task Plan
- TBD Draft Guide or Handbook of DOE Expectations for Chemical Safety Analysis
- TBD Draft Recommendations for contract statement for DOE expectations for chemical safety analysis

<u>Project 2000 J.</u> * "Chemical Safety in Laboratories: Guidelines for the Identification and Control of Hazards by Principal Investigators (PIs)" [*Redesignate as <u>Project 2000 F.</u>] [CSTC/CSIG 1999 Issue C.1]

Team Lead: Gordon Miller, LLNL

Issue Definition:

- Finalize document developed under 1999 CSTC/CSIG Issue C.1
- Present recommended approach to National Industrial Hygiene and Chemical Safety communities
- Provide guidance for inclusion in applicable DOE documents.

Current Team members:

Gordon Miller, LLNL	Rebecca Hollis, LANL
Pamela Poco, LLNL	Harvey Grasso, DOE-OAK
Lia Stamoudis, DOE-CH	Melissa Cameron, LANL
Larry McLouth, LBL	Sharon Dossett, PNNL
Raeanna Sharp-Geiger, LANL	Helena Whyte, LANL

Meeting Venue: E-mail

Tentative Deliverables:

- Final guidelines for Chemical Safety in Laboratories
- Present concept to National Industrial Hygiene and Chemical Safety Communities
- Provide document for inclusion in applicable DOE Guidance

Tentative Schedule of Deliverables

- 2/1/00 Final guidelines for Chemical Safety in Laboratories
- 2/15/00 Provide document for inclusion in applicable DOE Guidance
- TBD Present concept to National IH and Chemical Safety Communities

The meeting reconvened for closing remarks.

Rick Jones provide the Workshop's closing remarks on a path forward for the CSTC and chemical safety in the year 2000. He commended the participants for their commitment and hard work during the previous year and at this Workshop and noted that DOE would like to continue its cooperative efforts with EFCOG and to better team with industry to advance mutual interests. He emphasized the need for the CSTC to develop closer ties with the EFCOG Working Groups on ISM and Lessons Learned. Mr. Jones suggested that the CSTC hold monthly videoconferences with the Project Team leaders and co-leaders to:

- monitor progress on deliverables;
- identify and attempt to resolve barriers;
- discuss milestones and advance expectations for anticipated products; and
- support synergy between groups, identifying areas in which they may be able to work together and assist each other.

He suggested that the CSTC establish a communications plan for interactions throughout the coming year, holding monthly conference calls with the chairs of each Project Team. He said that the group has a 3-4 month window in which to provide guidance on chemical safety for inclusion in ISM documents that will be used in ISM verifications this spring and summer as the SMIT moves towards the completion of ISM implementation complex-wide by this September. He said that the CSTC is a cross-cutting organization and needs to do more effective outreach and communications, in getting balanced participation on all project groups and in building a market for our products by building a customer base with expectations for products that will benefit them. Mr. Jones suggested that in teaming with industry the CSTC has an opportunity to impact their activities, share our successes and mistakes and to learn from theirs. He said that EH-5 has industry contacts and can serve as facilitators and catalysts for change.

Mr. Jones closed by saying that this Workshop had been very successful in identifying opportunities for the CSTC to make a difference in chemical safety throughout the complex in the coming year and thanked the attendees for their dedicated participation.