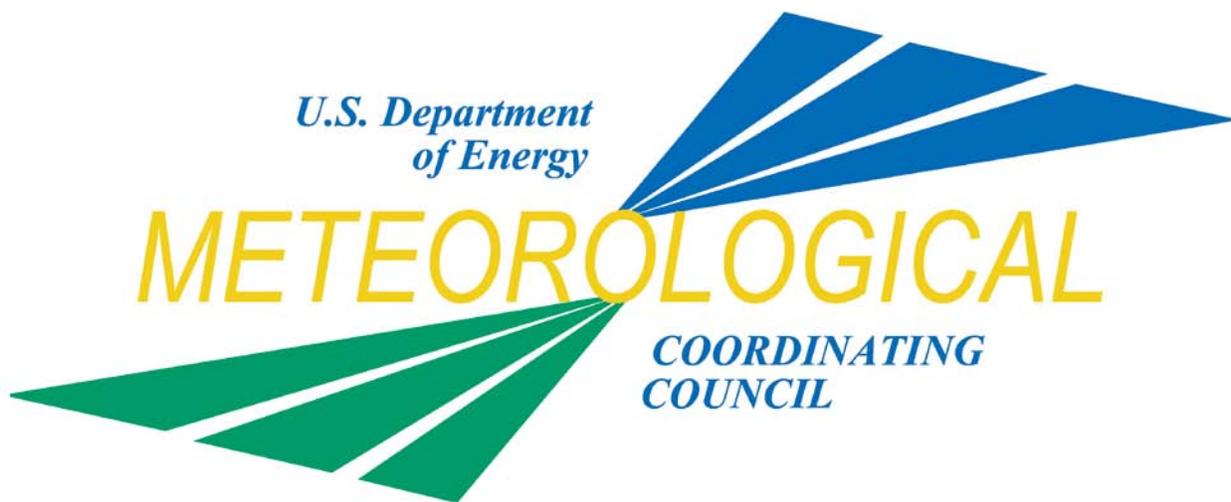


15th MEETING OF THE EMI-SIG DOE METEOROLOGICAL COORDINATING COUNCIL



Reston, VA
May 5, 2008

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0.0 **EXECUTIVE SUMMARY**

The Department of Energy (DOE) Meteorological Coordinating Council (DMCC) convened a meeting at the Hyatt Hotel, Reston, VA, May 5, 2008. This meeting was held in conjunction with the Emergency Management Issues (EMI) Special Interest Group (SIG) annual meeting. DMCC is a program that has been under the oversight of the EMI SIG since 2004.

This year was the 15th DMCC meeting, since its beginning, on December 2, 1994. A total of 20 individuals from the public and private sectors attended the meeting and were active participants.

The purpose of this meeting was to:

- Provide a forum for DMCC members and DMCC associates to review accomplishments, products and projects
- Discuss the mission and implementation of organizational goals
- Resolve outstanding objectives during the meeting, that included the following:
 - National Nuclear Security Administration /Department of Energy (NNSA/DOE) site meteorological program managers were provided an opportunity to discuss their programs and websites. Additionally, they were able to receive feedback from other DMCC members on other issues they were facing.
 - Several technical presentations from external organizations on relevant operational and research topics were provided to DMCC membership in order to enhance their knowledge of the atmospheric sciences and assist them in program execution.
 - DOE Headquarters (HQ) elements, Office of Emergency Management and Policy (NA-41) and the Office of Nuclear Safety and Environmental Policy (HS-21), who are also associated with the atmospheric sciences, provided updates on their programs and how the programs affect the meteorological programs for the DMCC membership.
 - New DMCC products were discussed and the DMCC Assist Visit program was reviewed.
 - A DMCC Business Meeting was convened to discuss relevant National NNSA/DOE meteorological program issues, and how the DMCC should focus its energy in FY09 and beyond.
 - DMCC discussed FY08 accomplishments and FY09 plans.

Preliminary planning for the 16th DMCC Meeting was briefly discussed. The meeting will be held in San Francisco, California in conjunction with the next EMI SIG meeting, May 4, 2009.

1.0 OVERVIEW

The DOE DMCC convened at the Hyatt Hotel, in Reston, VA on May 5, 2008. This was the 15th meeting the DMCC has sponsored since its beginning on December 2, 1994. The meeting was called to order by the new DMCC Chairman, Walt Schalk, Director, National Oceanic and Atmospheric Administration (NOAA) Air Resources Laboratory/Special Operations and Research Division (ARL/SORD).

New DMCC initiatives were presented at the meeting for members and associates, along with DMCC accomplishments over the last 13½ years, and a discussion of recent advances in atmospheric sciences for the DMCC. Refer to Appendix A for the complete meeting agenda.

The following activities were accomplished at the meeting:

- Seven NNSA/DOE site meteorological program managers had the opportunity to discuss their programs and websites. The sites received constructive feedback from the DMCC members on the various issues they encountered.
- Several technical presentations from external organizations on relevant operational and research topics were provided to DMCC membership, these included:
 - Enhanced knowledge of the atmospheric sciences
 - Assistance with program execution
- Two DOE Headquarters (HQ) elements (NA-41 and HS-21) associated with the atmospheric sciences, provided updates on their programs and how these programs affect the meteorological programs of DMCC members.
- The Nuclear Regulatory Commission (NRC) participated in the meeting for the first time in 10 years.
- New DMCC products were discussed along with a “DMCC Assist Visit” program review.
- The status of ANSI/ANS- 2.15 *Criteria for Modeling and Calculating Atmospheric Transport of Routine Releases from Nuclear Facilities* was reviewed.

- A DMCC Business Meeting was convened to discuss the following relevant issues:
 - National Nuclear Security Administration (NNSA)/DOE meteorological program issues
 - Where the DMCC should focus its energy in FY09 and beyond

See Appendix A: Meeting agenda.

Sixteen members were in attendance at the meeting and four others attended remotely via Microsoft Live Meeting. The 20 attending members and their respective affiliations are listed below.

<u>Individual</u>	<u>Affiliation</u>
Tom Bellinger	BWXT Y-12 (Live Meeting)
Kevin Birdwell	Oak Ridge National Laboratory (ORNL)
Vic Cassella	Brookhaven National Laboratory (BNL) (Live Meeting)
John Ciolek	Alpha-TRAC, Incorporated
Kirk Clawson	National Oceanic and Atmospheric Administration Air Resources Laboratory/Field Research Division (NOAA ARL/FRD)
Mark FitzGerald	Office of the Federal Coordinator for Meteorology (OFCM)
Jim Fairobent	DOE/NA-41
Cliff Glantz	Pacific Northwest National Laboratory (PNNL)/Hanford
Brad Harvey	Nuclear Regulatory Commission (NRC)
Chuck Hunter	Savannah River National Laboratory (SRNL)
Erik Kabela	Savannah River National Laboratory (SRNL)
Carl Mazzola	Shaw Environmental & Infrastructure (SE&I)
Jeanne McBride	Oak Ridge Institute for Science and Education (ORISE)
John Merrick	Consultant
Fred Mogolesko	Consultant (Live Meeting)
Jeremy Rishel	Pacific Northwest National Laboratory (PNNL)/Hanford
Walt Schalk	National Oceanic and Atmospheric Administration Air Resources Laboratory/ Special Operations & Research Division (NOAA ARL/SORD)

Jason Tuell	Office of Science and Technology/ National Oceanic and Atmospheric Administration (OST/NOAA)
Gus Vazquez	DOE Office of Health, Safety, and Security, Nuclear Safety and Environmental Policy(DOE/HS-21)
Steve Vigeant	SE&I (Live Meeting)

Introductions were made and functions within DMCC and affiliates were identified by the participants.

2.0 GUEST SPEAKERS AND DOE/HQ REPORTS

2.1 Emerging NWS/NOAA Technologies – Jason Tuell

Dr. Jason Tuell of the Science Plans Branch, Office of Science and Technology (OST), National Weather Service (NWS), National Oceanographic and Atmospheric Administration (NOAA), presented an overview of the current status of existing technologies used by NWS and what future capabilities and tools will be available to NWS product users, five to ten years from now.

He provided an overview of the National Weather Service (NWS) and its service to our nation and spoke on the following topics:

- Forecasts and warnings
- Information Technology (IT) and operations
- Air quality
- Observing systems
- Environmental models
- Uncertainty

NWS has 122 Weather Forecast Offices (WFOs) in the Continental United States (CONUS). The NWS also operates the following:

- River Forecast Centers (RFCs)
- National Centers for Environmental Prediction (NCEP)
- Environmental Modeling Center (EMC)
- Aviation Weather Center (AWC)
- Climate Prediction Center (CPC)
- Hydrometeorological Prediction Center (HPC)
- Ocean Prediction Center (OPC)
- Storm Prediction Center (SPC)
- Space Weather Prediction Center (SWPC)
- Tropical Prediction Center (TPC).

These centers produce various products including forecasts and warnings. Watches and warnings are provided for thunderstorm, tornado, flash flood, and flood conditions. “Short fuse” watches and warnings are provided for thunderstorm, tornado, and flash flood conditions. Long fuse watches and warnings are developed and delivered for winter storm, blizzard, heavy snow, and ice storm conditions.

Jason discussed the National Digital Forecast Database (NDFD) that contains a seamless mosaic of NWS digital forecasts and is available to all users and partners in public and private sectors. It permits users and partners to create a wide range of text, graphics, and imaging products. Jason demonstrated how the digital forecast process works. He indicated that a 7-day digital forecast database is established at each WFO. Then forecasters interactively modify the contents of the database according to the latest observations and model guidance. Once this process is complete, NWS text, tabular, voice, and graphical products are generated by the database. They are provided as NWS products to customers and partners.

Jason moved on to discuss Graphical Forecast Editor (GFE) for grid editing of digital forecast products, Web Page graphics, and the roadmap to a technical infusion of the Automated Weather Information Processing System (AWIPS).

He stated that the next generation aviation weather vision represents a true multi-agency national plan. Aviation weather leverages the NextGen Network Enabled Weather (NNEW) operational concept. This vision stresses “common weather situational awareness” and a “single authoritative source” of the National Airspace System (NAS). Weather information requiring development of a 4-dimensional cube of digital aviation weather information is generated. This integrates weather information into an operational decision-making process and a traffic flow management system that shifts the forecaster workload from production of “products” to the generation of information. These weather information sets will become a government “stand alone weather system.” As a result, “point-to-point” communications will become obsolete.

The air transportation industry generates 5.4 percent of America’s Gross Domestic Product (GDP), \$640 billion in revenues, and over nine million jobs. Weather accounts for 70% of all air traffic delays within the NAS, resulting in a \$10 billion loss to the U.S. economy. The Federal Aviation Administration (FAA) has determined that two thirds of this is preventable with better weather information.

He then spoke about the National Air Quality Forecast Capability (AQFC) including current and planned capabilities. The goal of this program is to improve the basis for air quality alerts and provide air quality information for people at risk. One way to accomplish this goal is to expand and improve ground-level ozone forecast guidance by closer coupling of Air Quality (AQ) with Weather Research and Forecasting (WRF) predictions that examine the impact of vertical resolution, vertical mixing treatments, and horizontal boundary conditions.

With respect to Next Generation Radar (NEXRAD), Jason spoke about the phased array radar that is multi-purpose and meets the current volume scan mission of three to five minutes. It has a high temporal interrogation of high threat thunderstorms (i.e., 30 seconds). The on-going research and assessment at

National Weather Radar Testbed (NWRT) in Norman, Oklahoma was reviewed.

NOAA forecast uncertainty was discussed and a quote from a National Research Council (NRC) report said, “No forecast is complete without a description of its uncertainty.” In response to the NRC’s “Completing the Forecast” report, NOAA has a leadership role within the weather enterprise and provides products that effectively communicate forecast uncertainty information using ensemble forecasting and characterizing uncertainty.

Jason closed his outstanding presentation with the current program status. He said there are over 100 different products that are either operational, experimental, or under development. These products provide uncertainty information, including:

- Ensemble models [e.g., Short Range Ensemble Forecast (SREF), Global Ensemble Forecast System(GEFS), North American Ensemble Forecast System (NAEFS), Climate Forecast System (CFS), wave, wind, stream flow]
- National center forecast products [e.g., Hydrometeorological Prediction Center (HPC), Storm Prediction Center(SPC), Climate Prediction Center (CPC), Tropical Prediction Center (TPC), Ocean Prediction Center(OPC)]
- Advanced Hydrologic Prediction Service (AHPS) probabilistic products (i.e., weekly chance of exceeding levels)
- National Digital Forecast Database (NDFD) products [e.g., Probability of Precipitation for 12-hours (POP12)]
- Model Output Statistics (MOS) products [Probability of Precipitation (POP), Probability of Thunderstorm]
- Public Weather Products [e.g., Area Forecast Discussion (AFD), point-and-click forecast pages]
- Local Weather Forecast Office (WFO) products (e.g., degree of confidence) for probabilistic snowfall and rainfall exceedance probability

Jason’s presentation can be found in Appendix B.

2.2 Meteorological Monitoring and Modeling for New Facilities – Brad Harvey

Brad Harvey, Nuclear Regulatory Commission (NRC), presented a superb overview of monitoring requirements in the recently issued NRC Regulatory Guide (RG) 1.23 Revision 1, *Meteorological Monitoring Programs for Nuclear Power Plants* and modeling requirements for a variety of licensing and emergency response actions by NRC licensees.

Brad's presentation topics included:

- NRC mission statement
- Commercial nuclear power plant needs for onsite meteorological data
- Pre-operational licensing needs
- Operational needs
- Guidance for onsite meteorological monitoring programs at commercial nuclear power plants
- RG 1.23 Revision 1

Brad stated that the NRC mission statement indicates this regulatory agency shall regulate the nation's civilian use of:

- By-product
- Source
- Special Nuclear Materials (SNM)

In doing so, they ensure the adequate protection of public health and safety, promote common defense and security, and protect the environment. The NRC regulatory mission covers:

- three types of reactors
- Nuclear materials
- Various forms of radioactive waste

Next, Brad gave a status report of new nuclear power plant reactor applications. As of May 2008, there are nine Combined Operating License (COL) applications that have been received for 14 new units. Brad indicated that within the next one to two years, the NRC expects 11 additional COL applications for 16 more new units.

Brad discussed the pre-operational meteorological data needs for these new nuclear power generation facilities to meet the requirements of 10 CFR 52.79(a)(1)(vi). Meteorological data is required to calculate Design Basis Accident (DBA) radiological releases to the Exclusion Area Boundary (EAB) and Low Population Zone (LPZ).

The atmospheric transport and dispersion model for this application is identified in Regulatory Guide 1.145, Revision 1, issued in November 1982, "*Atmospheric Dispersion Models for Potential Accident Consequence Assessments at Nuclear Power Plants.*" NRC uses its own code, documented in NUREG/CR-2858 (November 1982), "PAVAN: An Atmospheric Dispersion Program for Evaluating Design-Basis Accidental Releases of Radioactive Materials from Nuclear Power Stations."

Additionally, Brad said the second pre-operational meteorological data need is for the evaluation of DBA radiological releases to the Control Room (CR) to demonstrate the General Design Criterion (GDC) 19 to Appendix A of 10 CFR Part 50 is met. NRC issued RG 1.194 in June 2003, "*Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants.*" Guidance for this type of analysis is provided in NUREG/CR-6331, Revision 1, issued in May of 1997, "*Atmospheric Relative Concentrations in Building Wakes (ARCON96).*"

For chemical releases and potential impact on CR habitability, the NRC has issued Regulatory Guide 1.78, Revision 1 in December of 2001, "*Evaluating the Habitability of a Nuclear Power Plant Control Room during a Postulated Hazardous Chemical Release.*" The NRC also issued guidance in NUREG/CR-6210, Supplement 1 in October of 1998, as well as, a suite of computer codes for the evaluation of CR habitability (i.e., HABIT Version 1.1).

Brad spoke of the third pre-operational meteorological data need for the evaluation of severe accident radiological releases, driven by Commission Policy Statements issued in 1985 and 1986. Recent guidance can be located in NUREG-1555, "*Standard Review Plans for Environmental Reviews of Nuclear Power Plants,*" issued July 2007, Section 7.2, "*Severe Accidents*" and NUREG/CR-6613 in May of 1998, "*Code Manual for MACCS2: Volume 1, User's Guide.*" In addition to accident releases, the licensee must also evaluate the impact of routine radiological releases to meet Subpart D of 10 CFR 20 and Sections II.B, II.C and II.D of Appendix I of 10 CFR 50.

The NRC has also issued Regulatory Guide 1.111, Revision 1 in July of 1977, "*Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors.*" In addition, the NRC has provided guidance in NUREG/CR-2919, September of 1982, and "XOQDOQ, "*Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations*".

Brad stated that non-radiological environmental effects from natural draft or mechanical draft cooling towers plumes and drift need evaluation to meet the 10 CFR 51.72 requirements for Environmental Report (ER) preparation. The NRC has issued guidance in NUREG-1555 October of 1999; Section 5.3.3.1, *Heat Dissipation to the Atmosphere*, SACTI Computer Code, April of 1984; and the User's Manual: *Cooling-Tower-Plume Prediction Code*, Electric Power Research Institute (EPRI) CS-3403-CCM, April of 1984.

Then Brad turned to operational meteorological data needs. The licensee needs meteorological data for routine radiological release requirements covered in 10 CFR 50.36a (a)(2). NRC issued Regulatory Guide 1.111, Revision 1 in July of 1977, "*Methods for Estimating Atmospheric Transport and Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors*" along with guidance in NUREG/CR-2919, September of 1982, "*XOQDOQ Computer Program for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations.*"

Brad emphasized that the licensee must also evaluate accidental radiological releases per 10 CFR 50.47(b)(9) and Section IV.E.2 of Appendix E, 10 CFR 50. Regulatory guidance is provided in NUREG-0800, March of 2007, Section 13.3, *Emergency Planning*; and NUREG-1887, August of 2007, "*RASCAL Version 3.0.5: Description of Models and Methods.*"

Brad continued his presentation with a discussion on the new revision to RG 1.23. This regulatory guide has a long history. The original version was issued In February 1972. In September of 1980, the first proposed Revision 1, specifying post-Three Mile Island (TMI) emergency planning criteria was attempted. In April of 1986, the second proposed Revision 1, endorsing the Voluntary Consensus Standard (VCS) ANSI/ANS-2.5-1984, and removing proposed Revision 1 post-TMI Emergency Plan (EP) emergency planning criteria, was once again attempted. These versions of Revision 1 were never issued. Finally, in October of 2006, the third proposed Revision 1 (DG-1164) was sent for review and in March of 2007 Revision 1 was issued.

Brad said there were several goals identified for revising Regulatory Guide 1.23, these include the need to:

- Update the list of applicable regulations
- Link regulatory guidance to regulations
- Update monitoring criteria
- Incorporate ANS/ANSI-3.11-2005 guidance, *American National Standard for Determining Meteorological Information at Nuclear Facilities*, when appropriate
- Clarify emergency planning guidance

Brad then reviewed RG 1.23, monitoring criteria for wind speed and wind direction, vertical temperature difference, ambient temperature, precipitation, and atmospheric moisture.

He also discussed instrument accuracy and range, instrumentation maintenance, and servicing schedules. He closed by stating there are multiple regulatory needs for an onsite meteorological monitoring program at commercial nuclear power plant sites and RG 1.23 was revised to better reflect current regulatory requirements and industry best practices.

Brad's presentation can be located in Appendix C.

2.3 OFCM Overview and Major Activities – Mark FitzGerald

Lieutenant Colonel Mark FitzGerald of the Office of the Federal Coordinator for Meteorology (OFCM) and Supporting Services provided an overview of the 1965 Congressionally-mandated group that coordinates the activities of 15 Federal agencies that require support and services in the atmospheric sciences.

The primary focus of OFCM is to improve meteorological services to the 15 Federal agencies. Mark stated he would be discussing the:

- OFCM mission
- Coordinating infrastructure
- OFCM partners
- Various OFCM affiliations

A key activity is the Atmospheric Transport and Diffusion, Research and Development Needs and Priorities project. OFCM has studied the Research and Development (R&D) and has recommended improvements to quantify model uncertainties.

The goal of this work is to capture and use existing data sets and to Implement Atmospheric Transport and Dispersion (ATD) test beds to:

- Develop standards for model Verification & Validation (V&V)
- Improve spatial and temporal scale interactions between meteorological and ATD models
- Improve measurement technology
- Conduct special studies and experiments

With respect to Atmospheric Transport and Diffusion, OFCM is facilitating a working relationship between NOAA, Defense Threat Reduction Agency (DTRA), and the Department of Homeland Security (DHS) Interagency Modeling and Atmospheric Assessment Center (IMAAC). This includes the December 2007 model development and collaboration initiative.

Mark addressed the joint urban test bed effort, a multi-agency effort to:

- Document the best methods for test bed selection
- Refining the best combinations of sensors
- Determine how many sensors will be required
- Identify the best installation locations.

This effort will provide services and data to model developers, as well as, test and evaluate personnel and users.

OFDM sponsored the Board on Atmospheric Sciences and Climate (BASC) Report, "*Developing Mesoscale Meteorological Observational Capabilities to Meet Multiple National Needs*," which will be complete in July of 2008.

The five goals of the report are:

Goal 1: Characterize current mesoscale capability

Goal 2: Compare the US system to other benchmarks

Goal 3: Describe desirable attributes of an integrated national mesoscale observation system

Goal 4: Identify steps to meet multiple national needs

Goal 5: Recommend practical steps to transform and modernize the current limited mesoscale meteorological observing capabilities.

Mark went on to discuss the Wildland Fire Weather Western Governors' Association request that included:

- National needs assessment
- Research and development
- User response
- Decision support
- Resulting user impacts
- Products
- Services
- Data collections
- Modeling
- Prediction
- Data assimilation
- Information dissemination elements

During the Symposium conducted October 2007, there was a consensus to move forward with risk reduction, implementation strategy, and 5-D environmental data cloud.

Lt. Col. FitzGerald's presentation can be located in Appendix D.

2.4 NA-41 Initiatives - Jim Fairobent

Jim Fairobent spoke about the reasons DMCC is a subcommittee of the EMI SIG. He said that until there is an opportunity for a better arrangement with NNSA/DOE, the DMCC will remain part of the EMI SIG.

Jim indicated that the DMCC will receive year-by-year support from NA-41. He also encouraged the DMCC to increase its activities with the DOE/NNSA sites, including the development of support solutions to issues common to the sites.

2.5 HS-21 National Environmental Standards for Hazardous Air Pollutants Report – Gustavo Vazquez

Gustavo Vazquez briefly introduced the DOE Office of Health, Safety, and Security, Nuclear Safety and Environmental Policy (HS-21). HS-21 is part of the Health, Safety and Security (HS) organization, previously with DOE/EH. This organization oversees compliance to the National Environmental Standards for Hazardous Air Pollutants (NESHAPS) for the NNSA/DOE sites.

Additionally, Gus discussed the DOE Subpart H report that he will be delivering at the annual Health Physics Society (HPS) Meeting in Pittsburgh, PA, July 2008. At the meeting, attendees will discuss surrogate radionuclide initiatives that require Environmental Protection Agency (EPA) approval; Version 3 of the Clean Air Act Assessment Package – 1988 (CAP88-PC) atmospheric transport and dispersion code and the ANSI/N13.1 monitoring of the new 2002 Subpart H requirements.

Carl Mazzola inquired whether the new GENII code had received EPA approval for use in NESHAPS determinations. Gus responded that the use of GENII has been tabled as NNSA/DOE sites are choosing to do their demonstrations with CAP-88PC Version 3.

Next Gus focused on the DOE report that meets the 40 CFR 61 NESHAPS requirements for DOE/NNSA sites relative to routine releases of radionuclide air emissions. The report needs to be submitted to EPA by June 30, 2008.

The NESHAP requirements include:

- The Total Effective Dose Equivalent (TEDE) that a member of the public not exceed 10 millirem per year and must be estimated using the EPA CAP-88PC software or another codified EPA-approved model or method
- Continuous monitoring of emissions is required for facilities that exceed 1% of the TEDE limit for a member of the public (i.e., 0.1 mrem/yr); stack monitoring methods and quality assurance requirements specified in the regulation must be implemented at each DOE/NNSA site
- DOE/NNSA facilities are required to report radionuclide air emissions annually to the EPA. The EPA interprets the regulation to include unmonitored and diffuse sources as well as monitored stack sources

Gus also said radionuclide emissions are to be reported as either point or diffuse source, and that DOE also reports emissions of Naturally Occurring Radioactive Materials (NORM), such as, radon and unplanned radionuclide releases, although they are not specifically regulated under Subpart H.

The 2007 DOE air emissions by source type were discussed along with the trends in emissions from 1995-2007.

These include:

- Tritium
- Transuranics (TRU)
- Noble gases (e.g., krypton, xenon)
- Radionuclides (e.g., cesium, strontium)

Next, he discussed the current radionuclide NESHAPS issues that DOE/NNSA sites are facing. These include the implementation of the 2002 Subpart H amendment requirements, the usage of Subpart H dose models, and other Subpart H program issues.

Additionally, Gus talked about the new American National Standards Institute (ANSI) standard for sampling radionuclide emissions (i.e., ANSI/HPS-N13.1). This applies to newly constructed and modified major stacks. The dose models were discussed and include CAP88-PC version 3.0, issued for use in 2006 and COMPLY. GENII is soon to be issued.

Gus' presentation can be found in Appendix E.

3.0 ROUND ROBIN: BEST PRACTICES AND LESSONS LEARNED FROM DOE/NNSA SITES

3.1 Nevada Test Site (NTS) – Walt Schalk

Walt Schalk discussed some of the activities at NTS since the last DMCC meeting.

ARL/SORD has significant funding issues because the Stockpile Stewardship Program (SSP) has largely eliminated its support. This results in difficulty accomplishing all activities, reduced funding translates to a reduced number of Full-Time Equivalent (FTE) employees. ARL/SORD has not filled several open positions.

Walt discussed a lightning safety presentation that he made to NTS management. The system is one of the more advanced in the NNSA/DOE complex. The NNSA/Nevada Site Office (NSO) lightning safety order, issued in 2006, has been expanded to a hazardous weather warning order that will be completed by December 2008. A draft copy of this order is on the DMCC web page.

ARL/SORD was informed by Vaisala, its lightning system vendor, that it will not support the system after the license agreement expires in February 2009. Therefore, there is a need to find a new lightning system vendor over a short time frame. Additionally, ARL/SORD has several field mills in service. Chuck Hunter indicated that SRNL has performed a field mill and lightning protection correlation study that concluded that for approximately 80% of the time, field mills provide sufficient data for safety and health. The study also concluded that this system was more effective within a seven-mile range. Chuck will send the study for posting on the DMCC web site. John Ciolek said Sandia National Laboratory (SNL) has a lightning protection system with output in the SNL Emergency Operations Center (EOC). John volunteered to get more information on this system from Gina Deola.

Walt mentioned that there is a 30-station mesonet at the NTS that was upgraded between 2000 and 2002, to a Handar-Vaisala system. Similarly, Vaisala has indicated it will no longer support this system after the license agreement expires in 2011. ARL/SORD is looking at Campbell instrumentation as a replacement.

Walt was disappointed that the NTS precipitation gauge system is quite old and antiquated and needs to be replaced. All the instrumentation replacements are difficult to implement when funding is insufficient.

Walt also said ARL/SORD initiated a program for fire weather forecasting activities on May 11, 2007. It is providing valuable information to emergency response and other organizations.

Walt mentioned that ARL/SORD is running the WRF model on a 00Z ETA database that yields a 33-hour forecast, generating 2-km, 8-km, and 32-km outputs. Kip Smith, a new ARL/SORD meteorologist, is using this new technology in the daily NTS forecasting work.

Lastly, Walt concluded that ARL/SORD is improving its relationship with the emergency preparedness and response organization, as new personnel arrive from the Management & Operating (M&O) Contractor, NSTec. NSTec seem to value the involvement of ARL/SORD. ARL/SORD now supports a 3-deep Emergency Response Organization (ERO) position.

3.2 Hanford – Cliff Glantz

Cliff Glantz reported on the meteorological support of the Hanford Site which is provided by Pacific Northwest National Laboratory (PNNL), and managed by Ken Burk. Ken is infusing more energy and innovative ideas into the meteorological program.

Cliff presented information on the structure of the support organization and said they are providing meteorological support to the Hanford Site. This effort is part of the Public Safety and Resource Protection Project (PS&RPP), which includes the following elements:

- Hanford environmental oversight
- Surface environmental surveillance
- Ecological monitoring and compliance
- Cultural resources

Cliff discussed in detail the Hanford meteorological station operations, with six specific functions. The functions are:

1. Provide weather forecasts in support of routine and special site operations
2. Detect adverse weather (e.g., heat stress and thunderstorms) that may affect the safety of site workers
3. Provide specialized support to the site environmental clean-up program (e.g., building demolition)
4. Provide meteorological data for annual potential radiological exposure assessment
5. Provide meteorological data for interactive atmospheric models in support of emergency response activities
6. Provide and publish the Hanford site climatology data monthly summaries

Cliff indicated that the back-up power supply to the meteorological towers have been eliminated. This could have possibly caused trouble, if power poles had burned in a recent forest fire. PNNL is working to recover its Uninterrupted Power Supply (UPS) capability and is looking at a secondary system at the Federal Building in Richland, WA to remotely poll the system.

Cliff discussed the current issues that the Hanford Meteorological Program is facing. Environmental Monitoring (EM) may not continue as part of the PNNL program and the assessment of support needs will change as the Hanford Site clean-up continues and finally ends. It is unlikely that PNNL will bid to retain meteorological program responsibilities, but Battelle may bid on the entire environmental monitoring program.

Cliff closed his discussion by saying that Will Shaw has now taken over as the new line manager. Will is open to an Assist Visit. Carl Mazzola presented the program to him when he was in Hanford on May 2, 2008. PNNL is guardedly optimistic that Will Shaw will decide to move forward with the Assist Visit. The Assist Visit would provide observations and recommendations for the new company to address.

3.3 Idaho National Laboratory(INL) - Kirk Clawson

Kirk Clawson discussed the activities of the Air Research Laboratory (ARL)/Field Research Division (FRD) since the last DMCC meeting. He also said the partnerships that developed over the past years with ARL/FRD and other organizations were due to common interests.

Kirk stated the major accomplishments of ARL/FRD to date include:

- Weather Research and Forecasting (WRF) mesoscale modeling
- Web access to WRF forecast products
- Improvements to the NOAA/INL Weather Center web page
- Revision of the INL climatology

Kirk said that based on the 2004 Assist Visit, DOE/Idaho (DOE/ID) has reversed 13 to 14 years of flat funding. New funding has been provided to develop Hybrid Single-Particle Lagrangian Integrated Trajectory (HYSPLIT) into a new emergency response consequence assessment model, replacing the 27-year old MDIFF model that is the core of the Idaho National Engineering and Environmental Laboratory (INEEL) Viz.

Through the January, 2008 Interagency Agreement (IA), ARL/FRD has increased its program from 3 FTEs to 5 or 6 FTEs and has formalized its relationship with INL through a Memorandum of Agreement (MOA). A recent briefing for the DOE/ID Manager went very well, and the programs value to INL was validated. Formal statements and alerts to assist the DOE/ID Manager are under development.

Kirk also mentioned that ARL/FRD provides web access to a variety of Emergency Response Forecasting (ERF) products, inclusive of plume dispersion modeling. He reported on the HYSPLIT replacement model project and indicated that a few hurdles have been encountered. The main issue is that HYSPLIT is a prognostic code and a diagnostic code needs to be coupled to it. It also needs to have the ability to ingest 35 stations with INL meteorological data.

Kirk said that the INL EOC is now using the Aerial Location of Hazardous Atmospheres (ALOHA) code for chemical releases. It uses the RSAC-7 code for radiological releases as well as INEL-Viz. Walt Schalk shared that DOE/HQ has now integrated HYSPLIT with ALOHA as part of its plume prediction program initiative.

Kirk asked Carl Mazzola to obtain a copy of the ALOHA source code from Mark Miller, at the following address, NOAA/Hazmat, Seattle, WA. The code should be made available upon request, since ALOHA is in the DOE/HS toolbox (New Action Item).

Lastly, Kirk indicated his intention to develop a formal response to the September 2004 DMCC Assist Visit and will request a future follow-up Assist Visit.

3.4 Savannah River National Laboratory - Chuck Hunter

Chuck Hunter discussed the Savannah River Site (SRS) Meteorological Program, operated by the Savannah River National Laboratory (SRNL).

Chuck began his discussion by sharing the following information. There will be a change in M&O contractors at the SRS. This change involves the Savannah River Nuclear Solutions (SRNS) team, led by Fluor. His opinion is that the SRNS transition will present challenges to the SRNL due to a split in a few years. The M&O Contract will then be operated by Lockheed. With SRNLs pending independence there is a need to establish new relationships.

Chuck shared that the Mixed Oxide (MOX) Fuel Fabrication Facility (MFFF) Project has requested SRNL support and now has access to weather information on its web page. This is the first step in a new relationship between SRNL and Shaw AREVA MOX Services.

Chuck stated the SRNL will be switching to NOAA Port for real-time meteorological information from Weather Services Incorporated (WSI). Installation of this system is expected the first week of June 2008.

Chuck also said that SRNL has moved to a data acquisition system from a dedicated phone line to Transmission Control Protocol/Internet Protocol (TCP/IP) because cybersecurity requirements are more stringent. This led to minor blips (e.g., firmware replacement). Additionally, this requires a reboot to restart data gathering.

Then Chuck discussed that the SRNL is providing unique support to the SRS security force, Wackenhut Services Incorporated (WSI). The installation and operation of a ceilometer and four visibility sensors will provide real-time data for SRS flight and helicopter operations. The ceilometer and visibility sensor are located at the helicopter pad and additional visibility sensors are located at three existing SRS meteorological towers (i.e., L-Area tower, C-Area tower, H-Area tower).

The measurements are being integrated into the existing meteorological monitoring system (i.e., data acquisition, database archival and web-based display). Chuck said the reason for initiation of the service is that Bush Field in Augusta, GA is 20 miles away from the WSI helicopter pad and the data provided there is not representative of the data in B-Area at SRS. The system should be totally operational by June 2008.

Chuck stated that it was of great importance to the SRS meteorological program that SRNL has partnered with the Office of Biological and Environmental Research (OBER) to establish a "Carbon Flux Super Site" at SRS. Partners to this enterprise include the University of Georgia (UGA), BN), the Global Monitoring Division (GMD) of NOAA, and the U.S. Department of Agriculture (USDA) Forest Service at SRS. Chuck identified Matt Parker as the Principal Investigator (PI). Construction of a 100-foot tower at the SRS canopy is expected to begin in June 2008. This will provide microscale carbon flux information coupled with carbon dioxide monitoring.

The research goals for the carbon flux project are to establish an AmeriFlux site at SRS that is an important strategic location in the Southeastern United States. These goals are to assist NOAA GMD with the use of a tall tower near SRS for continuous monitoring of trace gases. This information will support nocturnal forest canopy tracer studies, and will provide a better understanding of CO₂ exchange to support BNL passive tracer technologies.

Chuck closed the discussion after speaking about the advanced fine-scale modeling which is leveraging the SRNL Regional Atmospheric Modeling System-Lagrangian Particle Dispersion Model (RAMS-LPDM) mesoscale modeling capabilities. Presently there is a transition from local to regional scales. In addition, SRNL will be coupling the RAMS-LPDM output with the CO₂ flux models.

3.5 Sandia National Laboratory – John Ciolek for Gina Deola

John Ciolek reported for Gina Deola who was unable to attend the meeting or participate in Microsoft Live Meeting.

John said SNL has initiated the installation of a lightning protection system. The lightning protection system arrived the week of April 28 through May 2, 2008.

John also indicated there has been significant turnover in the consequence assessment group, and there is a need for a meteorologist on the Consequence Assessment Team (CAT). There is also a need for a ½-Full Time Equivalent (FTE) meteorologist, but no funding is available. Carl Mazzola said this was an observation/recommendation of the DMCC August 2003 Assist Visit.

3.6 Oak Ridge National Laboratory – Kevin Birdwell

Kevin Birdwell discussed the program at Oak Ridge National Laboratory (ORNL). ORNL, like many other NNSA/DOE meteorological programs, is significantly stressed by limited resources. He represents the only FTE committed to the program. His program is jointly funded by NESHAPS and the EOC. There are two other meteorologists at ORNL, but they provide virtually full-time support for the Oak Ridge Emergency Operations Center (OREOC), and provide their support to Kevin for approximately 25 hours per year.

Kevin said ORNL has three meteorological towers, and also manages the three East Tennessee Technology Park (ETTP) meteorological towers and have access to Y-12 data from two more towers; making a total of eight towers available for atmospheric transport and dispersion modeling. Recently, the ORNL instrumentation was replaced with R.M. Young sonic anemometers. Shaw Environmental inspected the guy anchors and found them satisfactory. The large tower is in need of painting. The data loggers have been changed out, there is one more to replace. In 2006, a new Sonic Detection and Ranging (SODAR) was purchased that became operational in September 2007. It is co-located with the 100-meter tower.

Kevin also shared that there is a data collection issue which he is presently trying to resolve.

Kevin stated that ORNL has a Computer Assisted Protective Action Recommendation System (CAPARS) which is integrated with a Geographical Information System (GIS) that uses all available meteorological data inclusive of 11 levels of upper air data. It also uses Tennessee Valley Authority (TVA) data at Watts Bar, data on the Meteorological Assimilation Data Ingest System (MADIS) system. Although CAPARS uses a lot of data, additional data is needed to improve the wind field to provide 3-dimensional atmospheric transport and dispersion at 120-meter resolution. ORNL uses the National Atmospheric Release Advisory

Center (NARAC) system as a back-up.

Kevin closed his talk by mentioning that ORNL will soon conduct a full participation exercise on the High Flux Isotope Reactor (HFIR). This reactor uses a dry deposition prediction which is an important element to test.

3.7 Y-12 – Tom Bellinger

Via Microsoft Live Meeting, Tom Bellinger discussed the Y-12 meteorological program. He said Gary Worley left a well-running program at his retirement. Tom had a slow start because it took 22 months to get his Q-Clearance. The Q-Clearance was a requirement before he could get more involved in the consequence assessment aspects of the program.

Tom spoke of a May 1, 2008 interview he had with Frank Munger, a local journalist, who writes about people with interesting jobs. Tom also sponsored a contest that was well-received by the Oak Ridge community. The contest was to predict the first freeze. The winner was off by one hour from the actual time. Tom provided a \$50 rain gauge as a prize. Several hundred people entered the contest and it was a great public relations success.

Tom said that DMCC will be conducting an Assist Visit later in May, 2008 (new Action Item).

4.0 DMCC PRODUCTS, PROJECTS AND ACTIVITIES

4.1 Overview of 2008 DMCC Activities – Walt Schalk

Walt Schalk described the mission and the objectives of the DMCC. Walt presented a history of the many accomplishments of the Council over its thirteen and one-half-year history. He reviewed the mission and objectives of the DMCC established in 1994 that are still applicable today. The list of participants includes eight DOE/NNSA sites, nine national laboratories, three DOE/HQ elements, three NOAA/ARL components, the Army Research Laboratory (ARL), Dugway Proving Grounds, the NRC, and other organizations.

Walt specified that the 14th Meeting of the DMCC was held May 2007 in San Antonio, TX. Since that meeting, DMCC has held five teleconferences. The average attendance at the teleconferences has been between 10 and 12 participants per call.

Walt led a discussion on the Assist Visit program. An Assist Visit was performed at the Nevada Site Office (NSO) in September 2006. Potential Assist Visits in 2008 include: Pantex, Hanford, Nevada Test Site (NTS), BNL, INL and Y-12.

Walt continued his presentation by saying that DMCC provides support to other organizations. These include work on the following projects:

- DOE/EH-0173T, *Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance.*: Revised Chapter 4, the summary and references
- DOE/HS-21: Project determined linkage between DOE O 231.1 *Environment, Safety and Health Reporting* and environmental programs and meteorological data
- The Office of the Federal Coordinator for Meteorology (OFCM) developed a DOE appendix to the annual OFCM Federal Plan including a description of research and operations programs at 15 NNSA/DOE sites
- OFCM provided input to the Research and Development (R&D) priorities report

DMCC has continued its outstanding relationships with its sister organization, the Nuclear Utility Meteorological Data User Group (NUMUG). DMCC Members attended and presented at the NUMUG meeting in St. Louis, Missouri in October 2006. During the meeting, Carl Mazzola was elected Chairman to the Office of NUMUG for the next 18 months. Additionally, DMCC assisted NUMUG in development of their comments to NRC RG 1.23 Revision 1.

Additionally, DMCC members attended and presented at the American Nuclear Society (ANS) 10th Topical Meeting on Emergency Preparedness & Response held in March of 2008 in Albuquerque, NM. Walt continued his talk saying that DMCC members are also involved in the VCS process. This includes work on the following standards:

- ANSI/ANS - 3.11 (2005): Meteorological data acquisition
- ANSI/ANS - 2.3: Extreme winds and tornadoes
- ANSI/ANS - 2.15: Transport and dispersion modeling nuclear facility routine releases
- ANSI/ANS - 2.16: Transport and dispersion modeling nuclear facility accident releases
- ANSI/ANS - 2.21: Meteorological parameters for Ultimate Heat Sink (UHS) design and applications
- ANSI/ANS - 3.8.10: Transport and dispersion modeling real-time nuclear facility accident releases

Other DMCC initiatives discussed were:

1. Monitoring meteorological data Software Quality Assurance (SQA) progress through the DOE Central Registry
2. Facilitating the ingestion of DOE/NNSA data into NWS MADIS
3. DOE/NNSA weather website linking program
4. DMCC web page integration into the EMI SIG Subcommittee for Consequence Assessment and Protective Actions (SCAPA) section
5. The development of a new product,: the “*Self-Assessment Guide for Meteorological Monitoring and Consequence Assessment Systems*”

Walt’s presentation is located in Appendix F.

4.2 DMCC Web Forum – John Ciolek

John Ciolek demonstrated the newly commissioned DMCC web forum and encouraged all DMCC members to use this excellent networking tool. He indicated that it is a valuable tool allowing professionals to share ideas in a safe harbor and store information and display data that enhances community knowledge. Additionally, it has the capacity to store documents as large as 37 MB that can be uploaded by the user. Finally, it has a search function.

John provided a live web demonstration on www.alphatrac.com/dmcc/. The web forum has the following discussion boards:

1. DMCC forum
2. Meteorological instrumentation
3. Standards
4. Atmospheric monitoring
5. Atmospheric studies
6. Quality Assurance
7. DMCC products
8. Best Practices and lessons learned
9. DMCC teleconferences
10. Miscellaneous topics

4.3 DMCC Web Page Update - Cliff Glantz

Cliff Glantz discussed the new entries on the DMCC Web Page. DMCC Homepage, <http://orise.orau.gov/emi/dmcc/default.htm>.

The web page includes navigation options, a meeting webpage, and current Action Items (AIs). It also includes DMCC contacts, DOE site meteorological program links, Hanford's old website, Hanford's new website, meeting reports, DMCC membership list, publications, teleconference highlights, and website credit.

Cliff's presentation can be referenced in Appendix G.

4.4 DMCC Assist Visit Program - Carl Mazzola

Carl Mazzola presented an update to the DMCC Assist Visit program. He discussed the following DMCC objectives for assist visits:

- Evaluation of the meteorological monitoring and consequence assessment program adequacy to meet present and future mission requirements
- Evaluation of the effectiveness of program links to Emergency Preparedness and Response (EP&R), Environment Safety & Health (ES&H), environmental compliance, safety, licensing, and the National Environmental Policy Act (NEPA) organizations
- Assessment of meteorological data and if it is representative; and, whether Data Quality Objectives (DQOs) are met relative to site applications
- Identification of program benefits to DOE/NNSA management and other program stakeholders that demonstrate the value-added merits of the meteorological program
- Encourage onsite meteorological research to further understand local atmospheric processes on atmospheric transport and dispersion
- Identification of needs to upgrade and modernize the meteorological monitoring program to meet future mission applications and to keep pace with state-of-the-art atmospheric sciences

Carl discussed the value-added components of an Assist Visit that is focused on improving meteorological program products and yielding a higher quality representative meteorological data base.

Program improvements from the 1996-2007 DMCC assist visits were discussed. They include:

- Improvements in instrumentation
- Modeling-monitoring interfaces

- Consequence assessment models
- Need for an integrated program to support safety assessment and emergency response management

Carl also provided performance criteria used in a DMCC Assist Visit. The criteria may be found in the following documents:

- ANSI/ANS-3.11 (2005) Determining Meteorological Information at Nuclear Facilities
- Chapter 4: DOE EH-0173T, Meteorological Monitoring
- DOE O 151.1C, *Comprehensive Emergency Management System* and DOE G 151.1-1, *Emergency Management Guide for DOE O 151.1C*
- DOE EH-0173T, *Environmental Regulatory Guide for Radiological Effluent Monitoring and Environmental Surveillance*, Consequence Assessment

There are 24 performance criteria for meteorological monitoring in the following five categories:

- Meteorological monitoring system (5)
- Siting of meteorological observation instruments (3)
- Data acquisition (5)
- Data base management (7)
- System performance (4)

After all 24 performance criteria are reviewed, a determination is made whether the objectives were *fully met*, *partially met* or *not met*. Observations and recommendations within the Assist Visit (AV) report are linked to performance criteria that are either *partially met* or *not met*.

Next, Carl discussed the consequence assessment system evaluation consisting of:

- Seven specific evaluation criteria from DOE O 151.1C and DOE G 151.1-1
- Eight specific evaluation criteria from the summary of DOE/EH-0173T (e.g., items g, h, i, j, l, x, z, and cc)

Consequence assessment models are evaluated for accuracy, linkage of meteorological data, support of environmental monitoring programs, and availability of real time links to meteorological data. They also address facility-specific and local meteorological factors affecting transport and dispersion, quality assurance, and on providing information to offsite agencies.

After all 15 performance criteria are reviewed, it is determined whether the

objectives have been fully met, partially met or not met. Observations and recommendations within the AV report are linked to the performance criteria that are partially met or not met.

The next stage of the AV involves conduct of interviews with customers, including the following six of the site's organizational elements:

- Environmental Compliance: NESHAPS and National Pollutant Discharge Elimination System (NPDES)
- Emergency Management: Emergency Preparedness Hazard Assessment (EPA) and Consequence Assessment (CA)
- Integrated Safety Management: Preliminary Documented Safety Analysis (PDSA), Documented Safety Analysis (DSA), Limiting Condition of Operation (LCO), and Basis for Interim Operation (BIO)
- Environmental Safety & Health: Occupational Safety and Health Association (OSHA) and Process Safety Management (PSM)
- Environmental Monitoring: Annual Site Environmental Report (ASER)
- National Environmental Policy Act (NEPA): Environmental Assessment (EA), Environmental Impact Statement (EIS) and Programmatic Environmental Impact Statement (PEIS)

Carl indicated that from the interviews, a program feature determination is conducted to identify the present compliance posture and evaluate if the existing program can support future missions.

The final assist visit information is the communication of noteworthy practices, observations and recommendations.

Carl closed the talk by stressing that an assist visit is *no-fault* in nature and program improvements are at the site's discretion and within realistic budget constraints.

Brad Harvey correctly pointed out an error on one of the slides as protection of a meteorological tower against the intense winds of a tornado is not possible. Carl indicated that he would fix that slide (New Action Item).

Carl's discussion can be found in Appendix H.

4.5 ANSI/ANS-2.15 – John Ciolek

John Ciolek, newly appointed Chairman of the ANSI/ANS-2.15 Working Group, discussed the progress of this VCS which began its work in September 2004.

As part of the recovery process, John sent out a query to the 23 working group members as to whether they wished to remain engaged. Eighteen (18) of them responded positively, and a nineteenth member, Jeremy Rishel was added today. Carl Mazzola indicated that Steve Vigeant has moved from a reviewer to an author because more authors are needed.

John indicated that the standard is only 10% complete and once this standard is in draft, work will begin on the other three standards that the working group has been chartered to prepare. They include Ultimate Heat Sink (UHS), accident releases for licensing considerations, and accident releases for emergency response.

John plans to put a schedule together to complete ANS-2.15 in time for the working group meeting June 25, 2008; along with the NUMUG meeting. Chuck Hunter asked to be included on the NUMUG mailing list (New Action Item).

John also stated there is a sub-board in the DMCC forum to handle traffic for this standard development process.

4.6 Software Quality Assurance – Walt Schalk

Walt Schalk presented the status of the meteorological data Software Quality Assurance (SQA) effort.

Walt indicated why DMCC had an interest in the SQA problem. Its roots are in establishing Quality Assurance (QA) requirements for meteorological programs as indicated in ANSI/ANS-3.11 and DOE/EH-0173T.

Walt also mentioned that DOE O 414.1C, *Quality Assurance*, and DOE G 414.1-4, *Safety Software Guide for Use with 10 CFR 830, Subpart A, Quality Assurance Requirements*, and DOE O 414.1C, *Quality Assurance* both define safety software and establish SQA requirements for safety and safety-related software.

The DMCC plans to establish future meteorological requirements and to promote meteorological applications to DOE/NNSA. The plans will draft and propose SQA guidance for meteorological data software. The DOE G 414.1-4 ten-element framework will be used in developing guidance.

Walt indicated that with respect to legacy software, SQA will focus on code and V&V documentation with vendors to provide documentation.

Upon acceptance, the DMCC will distribute and promote. DMCC will discuss the draft SQA Plan at the May 2008 DMCC Annual Meeting, and will get additional input at June 2008 NUMUG Meeting.

Walt's presentation is located in Appendix I.

5.0 DMCC BUSINESS MEETING

Walt Schalk led the Annual DMCC Business Meeting discussion. The purpose of the meeting is to confer with other members about DMCC initiatives; and, provide a forum for all DMCC members to talk about specific issues being addressed at their sites.

Walt Schalk presented his thoughts on the early planning for the next DMCC meeting. Since this meeting was very successful and DMCC is becoming more strongly affiliated with the EMI SIG each year, scheduling the next DMCC meeting with next year's EMI SIG meeting continues to make good sense.

Therefore, it was determined that the 16th DMCC Meeting will be a one-day meeting tentatively scheduled for May 4, 2009, in a West Coast city that will be hosting the EMI SIG meeting.

The following points summarize the key discussions of the business meeting:

1. Chuck Hunter discussed a Savannah River Site (SRS) field mill technical paper which he will make available to DMCC for web site posting (New Action Item)
2. Walt Schalk will make the draft Nevada Site Office/Nevada Test Site (NSO/NTS0, hazardous weather order, available to all sites (Existing Action Item)
3. Carl Mazzola described the upcoming *DMCC Consequence Assessment Self-Assessment Guide* that will be available later in 2008 (New Action Item)
4. Cliff Glantz discussed the meteorological data SQA process and its possible implementation. He provided a framework for how to implement throughout the NNSA/DOE complex
5. John Ciolek also mentioned the web forum and indicated that there should be an exchange of information with the DMCC monitoring and modeling community, inclusive of performance issues
6. Kevin Birdwell requested an Assist Visit because Oak Ridge National Laboratory (ORNL) has never had one. Carl Mazzola indicated that they could discuss this during the May 28-29, 2008 Y-12 Assist Visit (New Action Item)
7. Kirk Clawson said that the Idaho National Laboratory (INL) climatology is a massive electronic document difficult to transmit electronically or post on a web page due to its size. He agreed to make paper copies available to anyone who requested them (Existing Action Item)

8. Carl Mazzola will attempt to get a copy of the ALOHA source code from NOAA/Hazmat (New Action Item)
9. Vic Cassella, via Microsoft Live Meeting, requested an Assist Visit (Existing Action Item)

The DMCC Business Meeting was adjourned until the next DMCC meeting scheduled for May 4, 2009 in San Francisco, CA.

6.0 APPENDICES

Since the meeting presentations were developed during the meeting, this section is reserved to document the presentations and other relevant documentation from the DMCC meeting. Following is a list of the nine presentations.

Appendix	Description
A	DMCC Meeting Agenda
B	Emerging NWS/NOAA Technologies
C	Meteorological Monitoring and Modeling for New Facilities
D	OFCM Overview and Major Activities
E	NESHAPS Report
F	Overview of 2008 DMCC Activities
G	DMCC Web Page
H	DMCC Assist Visit Program
I	Software Quality Assurance

Note: Space is provided in the back of this report to insert Appendices B-I.

6.0 ACRONYMS

A

AFD	Area Forecast Discussion
AHPS	Advanced Hydrologic Prediction Service (Probabilistic weather product)
AI	Action Item
ALOHA	Aerial Location of Hazardous Atmospheres (Chemical dispersion model)
ANS	American Nuclear Society
ANSI	American National Standards Institute
AQ	Air Quality
AQFC	Air Quality Forecast Capability
ARCON96	NRC dispersion model
ARL	Air Resources Laboratory; Army Research Laboratory
ARL/SORD	Air Resources Laboratory/Special Operations and Research Division
ASER	Annual Site Environmental Report
ATD	Atmospheric Transport and Dispersion
AV	Assist Visit
AWC	Aviation Weather Center
AWIPS	Automated Weather Information Processing System

B

BASC	Board on Atmospheric Sciences and Climate
BIO	Basis for Interim Operations
BNL	Brookhaven National Laboratory
BWXT	Y-12 M & O Contractor

C

CA	Consequence Assessment
CAA	Clean Air Act
CAP88-PC	Clean Air Act Assessment Package – 1988 (An atmospheric transport and dispersion code)
CAPARS	Computer Assisted Protective Action Recommendation System (ORNL dispersion model)
CAT	Consequence Assessment Team
CFR	Code of Federal Regulation
CFS	Climate Forecast System (Ensemble model)
Ci	curie
COL	Combined Operating License
COMPLY	An atmospheric transport and dispersion code
CONUS	Continental United States

CPC Climate Prediction Center
CR Control Room

D

D dimension
DBA Design Basis Accident
DG Draft Guide
DHS Department of Homeland Security
DMCC DOE Meteorological Coordinating Council
DOC Department of Commerce
DoD Department of Defense
DOE Department of Energy
DQO Data Quality Objective
DSA Documented Safety Analysis
DTRA Defense Threat Reduction Agency

E

EA Environmental Assessment
EAB Exclusion Area Boundary
EIS Environmental Impact Statement
EM Environmental Monitoring
EMC Environmental Modeling Center
EMG Emergency Management Guide
EMI Emergency Management Issues
EOC Emergency Operations Center
EP Emergency Plan
EP&R Emergency Preparedness & Response
EPA Environmental Protection Agency
EPHA Emergency Preparedness Hazard Assessment
EPRI Electric Power Research Institute
ER Environmental Report
ERF Emergency Response Forecasting
ERO Emergency Response Organization
ES&H Environment Safety & Health
ETA Mesoscale model
ETTP East Tennessee Technology Park

E

FAA Federal Aviation Administration
FRD Field Research Division
FTE Full-Time Equivalent
FY Fiscal Year

G

G	Guide
GA	Georgia
GDC	General Design Criterion
GDP	Gross Domestic Product
GEFS	Global Ensemble Forecast System (Ensemble model)
GENII	EPA dispersion code
GFE	Graphical Forecast Editor
GIS	Geographical Information System
GMD	Global Monitoring Division

H

HABIT	NRC dispersion model
HFIR	High Flux Isotope Reactor
HPC	Hydrometeorological Prediction Center (Forecast product)
HPS	Health Physics Society
HPAC	Hazard Prediction & Assessment Capability (An atmospheric transport and dispersion code)
HQ	Headquarters
HS	Health, Safety & Security
HYSPLIT	Hybrid Single –Particle Lagrangian Integrated Trajectory (An atmospheric transport and dispersion model)

I

IA	Interagency Agreement
ID	Idaho
IMAAC	Interagency Modeling and Atmospheric Assessment Center
INEEL	Idaho National Engineering and Environmental Laboratory
INL	Idaho National Laboratory

J

K

km	kilometer
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L

LANL	Los Alamos National Laboratory
LCO	Limiting Condition for Operation
LIDAR	Light Detection and Ranging
LLNL	Lawrence Livermore National Laboratory
LOI	Lines of Inquiry
LPZ	Low Population Zone

M

M&O	Management & Operations
MAA	Mutual Aid Agreement
MACCS2	MELCOR Accident Consequence Code System (NRC dispersion Model)
MADIS	Meteorological Assimilation Data Ingest System
MB	Megabyte
MDIFF	INL dispersion model
MFFF	Mixed Oxide Fuel Fabrication Facility
MM5	Mesoscale model
MOA	Memorandum of Agreement
MOS	Model Output Statistics
MOX	Mixed Oxide

N

NA-41	Office of Emergency Management & Policy
NAEFS	North American Ensemble Forecast System (Ensemble model)
NARAC	National Atmospheric Release Advisory Center
NAS	National Airspace System
NCEP	National Center for Environmental Prediction
NDFD	National Digital Forecast Database
NEPA	National Environmental Policy Act
NESHAPS	National Environmental Standards for Hazardous Air Pollutants
NEXRAD	Next Generation Radar
NM	New Mexico
NNEW	Next Generation Network Enabled Weather
NNSA	National Nuclear Security Administration
NOAA	National Oceanic and Atmospheric Administration
NORM	Naturally Occurring Radioactive Materials
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission; National Research Council
NSO	Nevada Site Office
NSTec	NTS M&O Contractor
NTS	Nevada Test Site
NUMUG	Nuclear Utility Meteorological data User Group
NUREG	NRC Technical Document
NUREG/CR	NRC Consultant Report
NWRT	National Weather Radar Testbed
NWS	National Weather Service

O

O	Order
OBBER	Office of Biological and Environmental Research
OFCEM	Office of the Federal Coordinator for Meteorology
OK	Oklahoma
OPC	Ocean Prediction Center
OREOC	Oak Ridge Emergency Operations Center
ORISE	Oak Ridge Institute for Science and Education
ORNL	Oak Ridge National Laboratory
OSHA	Occupational Safety and Health Association
OST	Office of Science and Technology

P

PA	Pennsylvania
PAVAN	NRC dispersion model
PC	Personal Computer
PDSA	Preliminary Documented Safety Analysis
PEIS	Programmatic Environmental Impact Statement
PI	Principal Investigator
PNNL	Pacific Northwest National Laboratory
POP	Probability of Precipitation
POP12	Probability of Precipitation for 12-hours
PS&RPP	Public Safety and Resource Protection Project
PSM	Process Safety Management

Q

QA	Quality Assurance
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R

R&D	Research & Development
RAMS-LPDM	Regional Atmospheric Modeling System-Lagrangian Particle Dispersion Model (SRNL atmospheric transport and dispersion code)
RASCAL	NRC dispersion model
RFC	River Forecast Center
RSAC-7	INL dispersion model
RUC	Rapid Update Code

S

SACTI	NRC visible plume impact model
SCAPA	Subcommittee on Consequence Assessment and Protective Actions
SE&I	Shaw Environmental & Infrastructure
SIG	Special Interest Group
SME	Subject Matter Expert
SNL	Sandia National Laboratory
SNM	Special Nuclear Material
SODAR	Sonic Detection and Ranging
SORD	Special Operations & Research Division
SPC	Storm Prediction Center
SQA	Software Quality Assurance
SREF	Short Range Ensemble Forecast (Ensemble Model)
SRNL	Savannah River National Laboratory
SRNS	Savannah River Nuclear Solutions
SRS	Savannah River Site
SSP	Stockpile Stewardship Program
SWPC	Space Weather Prediction Center

T

TCP/IP	Transmission Control Protocol/Internet Protocol
TEDE	Total Effective Dose Equivalent
TOC	Table of Contents
TMI	Three Mile Island
TPC	Tropical Prediction Center
TRU	Transuranic
TVA	Tennessee Valley Authority

U

UGA	University of Georgia
UHS	Ultimate Heat Sink
UPS	Uninterruptible Power Supply
US	United States
USDA	United States Department of Agriculture

V

V&V	Verification & Validation
VA	Virginia
VCS	Voluntary Consensus Standard

W

WA	Washington
WFO	Weather Forecast Office
WG	Working Group
WIPP	Waste Isolation Pilot Plant
WRF	Weather Research and Forecasting
WSI	Wackenhut Services Incorporated; Weather Services Incorporated

X

XOQDOQ	NRC dispersion model
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Y

Z

APPENDIX A



15th Meeting of the DOE Meteorological Coordinating Council (DMCC)
May 5, 2008; Hyatt Regency Reston Town Center, Reston, VA

AGENDA

I WELCOME, INTRODUCTIONS (0800-0815)

0800 Welcome and Introductions (Walt Schalk)

II GUEST SPEAKERS: (0815-1030)

0815 Emerging NWS/NOAA Technologies (Dr. Jason Tuell OST/NOAA)

0915 Meteorological Monitoring and Modeling for New Facilities (Brad Harvey, NRC)

1000 – 1015 MORNING

1015 OFCM Overview and Major Activities/Projects (Lt. Col. Mark Fitzgerald, OFCM)

III DOE/HQ REPORTS (1035-1055)

1035 NESHAPS Report, HS-22 (Gus Vazquez)

1100 - 1230 LUNCH

APPENDIX A, CONTINUED

IV ROUND ROBIN: BEST PRACTICES/LESSONS LEARNED AT DOE SITES (1230-1330)

All DMCC members are encouraged to participate

- *News from DOE sites*
- *Successes*
- *Issues*

1330 - 1334 AFTERNOON BREAK

V DMCC BUSINESS, PRODUCTS, PROJECTS AND ACTIVITIES (1345 1600)

DOE NA-41 Report (Jim Fairbent, when available)

DMCC Projects and Activities

- *Overview of 2008 DMCC Activities (Walt Schalk)*
- *DMCC Web Forum (John Ciolek)*
- *DMCC Web Page Update (Cliff Glantz and Dorothy Cohen)*
- *Assist Visit Program Update (Carl Mazzola)*
- *ANS 2.15 Standards (John Ciolek)*
- *Software QA (Cliff Glantz, Walt Schalk)*

DMCC Business

- *New Business*
- *Review of New Action Items*
- *Planning and Topics for the May 2009 DMCC Annual Meeting*

1600 ADJOURNMENT

APPENDIX B

To view Dr. Jason Tuell's presentation, access the following link on the EMI SIG Website (<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[Emerging NWS/NOAA Technologies](#)

APPENDIX C

To view Brad Harvey's presentation, access the following link on the EMI SIG Website (<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[Meteorological Monitoring and Modeling for New Facilities](#)

APPENDIX D

To view Lt. Col. Mark Fitzgerald's presentation, access the following link on the EMI SIG Website(<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[OFCM Overview and Major Activities/Projects](#)

APPENDIX E

To view Gus Vazquez's presentation, access the following link on the EMI SIG Website(<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[NESHAPS Report, HS-22](#)

APPENDIX F

To view Walt Schalk's presentation, access the following link on the EMI SIG Website(<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[Overview of 2008 DMCC Activities](#)

APPENDIX G

To view Cliff Glantz's presentation, access the following link on the EMI SIG Website(<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[DMCC Web Page Update](#)

APPENDIX H

To view Carl Mazzola's presentation, access the following link on the EMI SIG Website(<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[Assist Visit Program Update](#)

APPENDIX I

To view Cliff Glantz and Walt Schalk's presentation, access the following link on the EMI SIG Website(<http://orise.orau.gov/emi/events/recent/2008/DMCC050508.htm>):

[Software QA](#)