13th MEETING OF THE DOE METEOROLOGICAL COORDINATING COUNCIL (DMCC)

Las Vegas, NV
May 1, 2006

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0.0 EXECUTIVE SUMMARY

The Department of Energy (DOE) Meteorological Coordinating Council (DMCC), the Council, convened a Meeting at the Renaissance Hotel, Las Vegas, NV on May 1, 2006. This meeting was held in conjunction with the Emergency Management Issues (EMI) Special Interest Group (SIG) meeting. This was the thirteenth (13th) meeting of the Council since its inception on December 2, 1994. A total of 17 individuals, from the public and private sectors, attended and actively participated in the meeting.

The overarching purpose of the meeting was to provide a forum for DMCC members and for DMCC associates to review its accomplishments, products, and projects, and to discuss its mission and implementation. In addition, there were several other objectives that were accomplished during the meeting:

- DOE site meteorological program managers were provided an opportunity to discuss their programs and web sites and obtain feedback from the DMCC membership on various issues they were facing;

- Several technical presentations on relevant operational and research topics were provided to the DMCC membership to enhance their knowledge of the atmospheric sciences and assist them in their program execution;

- Two DOE Headquarters (HQ) elements (i.e., NA-41; EH-41) associated with the atmospheric sciences provided updates on their programs and how they are affecting the meteorological programs of the DMCC membership;

- The activities of the ANSI/ANS-3.11 and ANSI/ANS-2.15 Working Groups were discussed; and,

- A DMCC Roundtable was convened to discuss relevant National Nuclear Security Administration (NNSA)/DOE meteorological program issues, and DMCC focus for FY06 and beyond.

There were also discussions on the FY05 accomplishments and FY06 planning of the DMCC. At the end of the meeting, a brief roundtable discussion for NNSA/DOE meteorological program managers and supporters was convened that identified issues and sought appropriate remedies.

The early planning for the 14th DMCC Meeting was briefly discussed. This meeting will be held in conjunction with the next EMI SIG meeting on May 10-11, 2007 in San Antonio, TX.

1.0 OVERVIEW

The DOE Meteorological Coordinating Council (DMCC) convened at the Renaissance Hotel, Las Vegas, NV on May 1, 2006. This was the twelfth (12th) meeting that the DMCC has sponsored since its inception on December 2, 1994. The meeting was called to order by the DMCC Chairman, Dr. Darryl Randerson, who is also the Director, National Oceanic and Atmospheric Administration (NOAA) Air Resources Laboratory (ARL)/Special Operations & Research Division (SORD). This meeting was held to present new DMCC initiatives to its membership and associates, to share the many DMCC accomplishments over the past ten years, and to provide discussions on recent advancements in the atmospheric sciences to the DMCC membership.

There were several other objectives that were accomplished during the meeting:

- DOE site meteorological program managers were provided an opportunity to discuss their programs and web pages and obtain feedback on various issues they were facing, from the DMCC membership;

- Several technical presentations on relevant operational and research topics were provided to the DMCC membership to enhance their knowledge of the atmospheric sciences and assist them in their program execution;

- Two DOE Headquarters (HQ) elements (i.e., NA-41; EH-41) associated with the atmospheric sciences provided updates on their programs and how they affected the meteorological programs of the DMCC membership;

- The activities of the ANSI/ANS-3.11 and ANSI/ANS-2.15 Working Groups was discussed; and,

- A DMCC Roundtable was convened to discuss relevant National Nuclear Security Administration (NNSA)/DOE meteorological program issues, and DMCC should focus for FY06 and beyond.

The agenda of this meeting is captured in Appendix A. The 17 individuals who attended the meeting and their respective affiliations are listed on the following page.

LIST OF ATTENDEES

Individual	Affiliation
Rob Addis	Savannah River National Laboratory (SRNL)
Ron Baskett	Lawrence Livermore National Laboratory (LLNL) NARAC
Kirk Clawson	NOAA ARL FRD
Becky Bullard	Oak Ridge Institute for Science and Education (ORISE)
Jim Fairobent	DOE/NA-41
Paul Fransioli	Yucca Mountain Project Office (YMPO)
Cliff Glantz	Pacific Northwest National Laboratory (PNNL) Hanford
Chuck Hunter	Savannah River National Laboratory
Carl Mazzola	Shaw Environmental & Infrastructure (SE & I)
John Merrick	DOE/Savannah River Operations Office (SROO)
Brenda Pobanz	Lawrence Livermore National Laboratory, NARAC
Darryl Randerson	NOAA ARL SORD
Jim Sanders	NOAA ARL SORD
Walt Schalk	NOAA ARL SORD
Joel Siegel	Washington TRU Solutions
Kip Smith	NOAA ARL SORD
Hoyt Walter	Lawrence Livermore National Laboratory NARAC

Each of the attendees introduced themselves and identified their affiliation and their function within the DMCC.

2.0 OPENING EVENTS AND DISCUSSIONS

Dr. Darryl Randerson, Chair of the DMCC, welcomed the DMCC members and associates to Las Vegas, NV, and convened the thirteenth (13th) DMCC Meeting. Darryl thanked Jim Fairobent, NA-41, for sponsoring the program. Darryl described the mission and the objectives of the DMCC, and presented a history of the many accomplishments of the Council over its eleven-year history.

Darryl reviewed the mission and objectives of the DMCC which were established back in 1994 and which remain intact today, eleven years later. The list of participants has grown since 1994 and includes eight DOE/NNSA sites, nine national laboratories, several DOE/HQ elements, various NOAA components, the Army Research Laboratory (ARL), the Nuclear Regulatory Commission (NRC), and other organizations.

The DMCC Steering Committee and its membership was reviewed by Darryl. The Steering Committee consists of federal officials from the DOE/HQ sponsoring elements (e.g., Jim Fairobent, Ricky Petty, Gustavo Vazquez, Darryl Randerson, and Edward Forness (DOE/NV). Assist Visits (AVs) have been a major initiative of the DMCC since its inception and Darryl discussed the guidelines that govern various assist visits.

Darryl indicated that this meeting was the 13th DMCC Meeting. He briefly reviewed the contents and venues of the previous 12 DMCC meetings, all of which were successful and provided value-added information to participants. The locations of the ten assist visits were also discussed.

Darryl mentioned that the DMCC has also been involved in the development of Voluntary Consensus Standards (VCSs) and is active on the DOE Meteorology Topical Committee (MTC) and various ANS standards working groups.

Lastly, Darryl presented a future vision for the DMCC. They included:

- Continuation of the mature AV program;
- Support to NA-41 with input from 15 NNSA/DOE sites to the annual Office of the Federal Coordinator for Meteorology (OFCM) Report;
- Support to NA-41 and EH-41 with solutions to meteorological issues, as required or requested;
- Guidance and technical assistance on the proposed update to Atmospheric Sciences and Power Production (ASPP)-1984;
- Continuation of support on the update to ANSI/ANS-3.11 and other meteorological Voluntary Consensus Standards (VCSs); and,

- Convening of technical meetings as needed.

Darryl’s presentation is in Appendix B.

3.0 DOE/HQ REPORTS

3.1 NA-41 Initiatives (Jim Fairobent)

Jim Fairobent discussed the reasons why DMCC is now a subcommittee of the EMI SIG. Funding for DMCC by three DOE/HQ entities was extremely complicated, so NA-41 took the lead through its mature EMI SIG program. SC-53 no longer has a way to provide direct support to the DMCC and EH-41 is not funded to do so. Jim indicated that until there is an opportunity for a better arrangement, the DMCC will remain a loosely held part of EMI SIG.

Jim announced that Darryl Randerson intends to retire in May 2007, and a search for a new DMCC chair will be initiated.

EH-41 finds value added in the DMCC since it is responsible for the DOE/NNSA meteorological monitoring programs through its environmental monitoring program oversight. DMCC has assisted EH-41 with the revision of Chapter 4 of DOE/EH-0173T.

NA-41 is assisted by DMCC through its expertise for the consequence assessment planning element of DOE O 151.1C and the Consequence Assessment Emergency Management Guide (EMG). DMCC is also developing the skeleton for the revision to Atmospheric Sciences & Power Production-1984, but so far has not been able to mount any co-funding support from Environmental Protection Agency (EPA), DHS (Department of Homeland Security), Department of Defense (DoD), or Department of Commerce (DOC). The 11/18/05 presentation to the OFCM Interagency Council for Meteorological Services and Supporting Research (ICMSSR) did not move this project forward.

3.2 EH-41 Initiatives (Gustavo Vazquez)

Gustavo Vazquez was unable to attend the meeting. Carl Mazzola delivered his presentation. Carl discussed the DOE Subpart H Report that Gus will deliver at the annual Helath Physics Society (HPS) Meeting next month at Providence, RI. The report focused on the 40 CFR 61 National Environmental Standards for Hazardous Air Pollutants (NESHAPs) requirements for DOE and NNSA sites relative to routine releases of radionuclide air emissions.

The requirements include:

- The Total Effective Dose Equivalent (TEDE) to a member of the public may not exceed 10 millirem per year, and must be estimated using the EPA CAP-88PC software, or other EPA-approved model or method;

- Continuous monitoring of emissions is required for facilities that may exceed 1% of the TEDE limit for a member of the public; and stack monitoring

methods and quality assurance requirements specified in the regulation must be implemented at each DOE/NNSA site; and,

- DOE/NNSA facilities are required to report radionuclide air emissions annually to the EPA, who has interpreted the regulation to include unmonitored and diffuse sources as well as monitored stack sources.

Carl stated that the radionuclide emissions are reported by either point or diffuse source, and that DOE also reports emissions of radon and unplanned radionuclide releases, although they are not specifically regulated under Subpart H.

The 2004 DOE air emissions by source type were discussed. These include tritium, transuranics (TRUs), noble gases (e.g., krypton, xenon), and other radionuclides. Trends in these emissions from 1995-2004 were reviewed.

Carl discussed the current radionuclide NESHAPs issues that DOE/NNSA sites were facing. These included the implementation of 2002 Subpart H amendment requirements, the usage of Subpart H dose models, the delisting of DOE sites [e.g., LEHR (Laboratory for Energy-Related Health Research), RFETS (Rocky Flats Environmental Technology Site)] that no longer emit radionuclides, and other Subpart H Program Issues.

Carl alerted everyone that there is a new ANSI standard for sampling radionuclide emissions (ANSI/HPS-N13.1), which applies to newly-constructed and modified major stacks. The dose models were then discussed, which included CAP88-PC version 3.0, issued for use in 2006, COMPLY, and GENII; the latter soon to be issued.

Gus' presentation is presented as Appendix C.

4.0 BEST PRACTICES AND LESSONS LEARNED FROM DOE/NNSA SITES

4.1 Nevada Test Site (NTS) Web Page (Jim Sanders)

Jim Sanders presented the NOAA ARL/SORD web page (http://www.sord.nv.doe.gov) that supports the Nevada Test Site (NTS). Jim demonstrated various features of the web page, which included Surf SORD, weather forecasts and severe weather warnings, and current meteorological data at the 31 NTS meteorological tower locations.

The NOAA ARL/SORD web page also supports the emergency response program and contains access to various transport and dispersion models, inclusive of NOAA's HYSPLIT code. Various indicators of the Southern Nevada climate are displayed and different research projects that NOAA is undertaking are described. The web page also has a variety of external links to useful information.

Jim continued his presentation and discussed each of the following web site windows:

- ARL/SORD home page;
- Forecasts and warnings;
- Current meteorological data;
- Current lightning strikes;
- Emergency response;
- Atmospheric models;
- Climatological data;
- Research activities;
- About SORD;
- External links to weather-related sites; and,
- Alternate site navigation.

See Appendix D for further information and details regarding Jim's presentation.

4.2 Hanford Web Page (Cliff Glantz)

Cliff Glantz discussed the website for the Hanford Meteorology Station, and showed several windows of information. The most interesting feature is the display of wind vectors throughout the Hanford site from the output of the APGEMS code. Although a very good website, there are always potential areas for improvement, and Cliff discussed each of them. Cliff would like the webmaster to update the pages to move it away from its old fashioned" look and to include more dynamic interfaces and interactions.

Another feature that would help would to have a navigation banner placed on each of the pages. In addition, the pages do not proactively market the capabilities of the Atmospheric and Sciences Division (ASD), and the weather forecasts are not very prominently posted on the website.

Cliff also stated that there are no real-time or close to real-time graphic presentations of meteorological conditions, an area for which he very much wants to see improvement.

Cliff inquired as to what the other DOE/NNSA sites are doing with their web pages. He asked whether their pages provided either website navigation, site forecasts, real-time or close to real-time meteorological data, graphical displays of information, climatological reports and data, program news, or marketing capabilities.

Cliff's presentation can be found in Appendix E of this report.

4.3 Update on INL Projects (Kirk Clawson)

Kirk Clawson reported on the Idaho National Laboratory (INL) meteorological program that is managed by the Air Resources Laboratory (ARL) Field Research Division (FRD), and discussed various projects. Kirk's presentation was titled, "NOAA/FRD's INL Meteorological Partnership Status".

Kirk indicated that since the last DMCC meeting, the Idaho National Engineering and Environment Laboratory (INEEL) became the Idaho National Laboratory (INL) as the operations and research arms of the site were split and are under two separate Management & Operating (M & O) Contractors.

Kirk discussed the INL Vision Statement, which indicated that INL will be the preeminent nuclear Research, Development, and Demonstration laboratory in 10 years; be a major center for national security technology development and demonstration; be a multi-program national laboratory; and foster academic, industry, government, and international collaborations to produce the investment, programs, and expertise to assure the vision. Kirk then presented a few program goals including the completion of cleanup activities by 2012.

Kirk then discussed the ARL/FRD core competencies, which include providing

meteorological expertise and consultation, conducting atmospheric tracer experiments for atmospheric transport and dispersion model improvement and verification, and conducting air-surface exchange studies in issues related to air quality and hurricane research.

In 2005, several major events occurred at INL, as well as many positive accomplishments. These included:

- The division of INEEL into separate entities and the subsequent renaming of the facilities;
- The modernization of mesonet equipment inclusive of the communications mode;
- The purchase and installation of new data acquisition software and hardware, and new database software;
- Plans to improve the mesoscale modeling capability;
- The development of the INL climatology after about a 15-year hiatus; and,
- A facelift for the already energetic web page.

Kirk briefly discussed the Urban Dispersion Program in New York City (NYC) that ARL/FRD is participating in, which includes the acquisition of monitoring data to validate urban canyon Computational Fluid Dynamics (CFD) models.

Kirk discussed the mesonet equipment modernization program that improved the quality of the 33 meteorological towers at INL, inclusive of the replacement of all telemetry wide-band radios with narrow-band radios that was necessitated by a regulation affecting all federal agencies. This regulation was issued by the National Telecommunications and Information Administration (NTIA), which had a transition deadline of January 1, 2005. All CR-10 data loggers, which were obsolete and no longer supported by the manufacturer, were replaced with CR-23 data loggers. As with evolving technology, the CR-23 data loggers are already obsolete. In addition, the Remote Traffic Microwave Sensor (RTMS) was replaced with LoggerNet, since it was obsolete and was no longer supported. INL now has a faster and more robust data collection software package.

Kirk discussed some of the INL short-term meteorological program goals which include the adoption of a data push standard to Meteorological Assimilation Data Ingest System (MADIS) and mesoscale modelling improvements, so that ARL/FRD would be able to provide short-range, high-resolution weather and dispersion forecasts for the INL at modest cost. Kirk briefly discussed the present methodology that he uses for 6-12 hour forecasting using the MM5 and ETA models. These forecasts are available on the ARL/FRD web site.

Kirk mentioned that the INL Climatology, last printed update in 1989, has been finally updated and the current statistics are available online including upper air profiler climatology. The climatology divides INL into 3 microclimatological zones, which are based primarily on wind patterns.

Lastly, Kirk presented some information on the Urban Dispersion Program (UDP) in Midtown Manhattan. Kirk described the experimental domain, the sampler Installation, the tracer release and sampling site, and the staging areas (i.e., under the Brooklyn Bridge, Empire State Building and Manhattan Bridge, Lower Manhattan and the Statue of Liberty).

Kirk's discussion is presented in Appendix F.

5.0 METEOROLOGICAL STANDARDS PROGRAM REPORT

5.1 Status of ANS Voluntary Consensus Standards (Carl Mazzola)

Carl Mazzola discussed the status of the ANS meteorological standards which include the following ANS-25 Voluntary Consensus Standards (VCSs):

- ANSI/ANS-3.11, Determining Meteorological Information at Nuclear Facilities;
- ANSI/ANS-2.3, Estimating Tornado, Hurricane and Extreme Straight Wind Characteristics at Nuclear Facility Sites;
- ANS-2.15, Guidelines for Modeling and Calculating Atmospheric Transport of Routine Releases from Nuclear Facilities;
- ANS-2.16, Guidelines for Modeling and Calculating Atmospheric Transport of Accidental Releases from Nuclear Facilities;
- ANS-2.21, Guidelines for Assessing Atmospheric Effects on the Ultimate Heat Sink; and,
- ANS-3.8.10, Guidelines for Modeling and Calculating Atmospheric Transport of Emergency Accidental Releases from Nuclear Facilities.

Carl provided a status of the ANSI/ANS-3.11 VCS which was initiated in June 1996 and issued in February 2000. It replaced the outdated ANSI/ANS-2.5 (1984). It has become ANS' best-selling standard and is used by private and public sector meteorologists throughout the world. It is essentially the result of a joint venture between members of the DMCC and the Nuclear Utility Meteorological Data User Group (NUMUG), and was chaired by Stan Marsh of Southern California Edison and Carl Mazzola of Shaw Environmental & Infrastructure.

Carl mentioned that immediately upon becoming a VCS, ANSI/ANS-3.11 had to face a December 2005 sunset. A decision was needed to determine whether reaffirmation, revision or withdrawal was the appropriate option. To facilitate this decision, a questionnaire was developed in 2002 and sent to many operational meteorologists in the public and private sector. The results of the questionnaire showed overwhelming support for revision. The ANSI/ANS-3.11 Working group was subsequently reconstituted and approved preparation of a revision in February 2003. The draft revised standard was in the final stages of preparation at the time of the DMCC meeting.

Carl provided a summary of the major revisions to ANSI/ANS-3.11:

- Sensor accuracy and stability class definitions were added;

- The supplemental measurements discussion was made more generic;
- The specifications for winds, solar and net radiation, and barometric pressure were revised;
- A new method for accuracy calculations was introduced;
- Calibrations are now required to be part of the quality assurance (QA) program;
- Specific calibration requirements were added; and,
- Numerous editorial and clarity revisions were included.

Carl then turned his discussion to the other five standards that are associated with the application of quality-assured meteorological data, and reviewed the status of each of these efforts.

Carl's discussion is referenced in Appendix G.

5.2 Status of ASTM Voluntary Consensus Standards (Paul Fransioli)

Paul Fransioli briefed the meeting attendees on American Society for Testing and Materials (ASTM) and International Standards Organization (ISO) VCSs.
Paul indicated that DOE/NNSA and other federal elements are encouraged to use VCSs by a 1995 federal law and Office of Management and Budget (OMB) Circular 119-A which mandates VCS use instead of developing new standards. These standards should be used in specifications for procurements, and as a basis for guidance and procedures. Use of appropriate VCSs can make your life easier and work product more defensible.

Paul went on to discuss some specific ASTM standards associated with the measurement of atmospheric phenomema. The ASTM International (D22.11) standard:

- Provides introductions to dispersion model evaluations;
- Includes remote sensing test methods:
- Determines sensor characteristics;
- Includes practices for making measurements, and operational comparability;
- Addresses recent advances in humidity, inclusive of analytical expressions for vapor pressure;
- Is considered a new standard for testing modern sensors; and,

- Provides valuable information on atmospheric transport and dispersion modeling and remote sensing instrumentation.

Paul moved on to the ISO (TC 146/SC 5) standard. This ISO standard has been developed by Subject Matter Experts (SMEs) from 20 different countries. It contains Standard 16622, which is a test method for mean winds from sonic anemometry. The standard also contains information on wind tunnel tests for anemometers and wind vanes, and comparison tests for temperature shields. Lastly, site classifications and remote sensing are addressed.

Paul's discussion can also be referenced in Appendix H.

6.0 ATMOSPHERIC SCIENCES APPLICATIONS & RESEARCH TOPICS

6.1 NTS Lightning Safety Issues (Walt Schalk)

Walt Schalk presented a NTS study on Lightning Detection, Alert, and Warning Systems. The purpose of the study is to investigate current operating systems that detect lightning and are used to guard the safety of personnel, to protect property, and to help safeguard sensitive equipment.

Walt discussed the background of a lightning protection issue raised by the Defense Nuclear Facility Safety Board (DNFSB) in 2001 which led to the formation of a NTS Lightning Focus Group in 2002. The work of this group led to the development of an Order for NTS on site-wide lightning protection and detection, which was approved by the Nevada Site Office (NSO) Manager.

The focus group reviewed technical literature and identified lightning detection and tracking systems and facilities, conducted telephone interviews and made a site visit to the Pantex site, which was also involved in this issue. Various lightning detection systems and networks at each DOE/NNSA site were evaluated for their benefits and shortcomings. After all of the data was analyzed, it was determined that the NTS lightning detection system was superior to the National Lightning Detection System (NLDS). The NTS system had better detectability and better accuracy, it archived data permits site-specific lightning threat analyses, provided site-specific and operation-specific displays for customers, streamlined and rapid data flow to customers, and contained the ability for weather data integration for storm tracking and weather advisories.

Walt summarized the results of the study that assessed lightning detection and tracking systems at 10 major federal facilities and noted that four different systems/networks were identified. He then compared the NTS system with those at other facilities. It was noted that field mills serve as the primary lightning detection system at only one site (i.e., Los Alamos National Laboratory [LANL]) and that the number of field mills at NTS is adequate to meet operational needs

Walt closed his talk by recommending a re-analysis when the Lightning Detection and Ranging (LDAR)/ Lightning Detection Algorithm (LMA) system becomes operational and available.

Walt's discussion is referenced in Appendix I of this report.

6.2 Regional Emergency Response Centers (John Merrick and Rob Addis)

John Merrick and Rob Addis presented a proposal of Regional Centers for Emergency Response in Support of Federal Consequence Assessment offering a concept to establish regional consequence assessment centers to support the Interagency Modeling and Atmospheric Assessment Center **(**IMAAC) mission under the National Response Plan (NRP). One of the goals of the discussion was to gain visibility to support consideration of the regional concept as option by the interagency group responsible for establishing federal emergency consequence assessment requirements.

Another goal with this concept is to promote the establishment of the DOE/NNSA complex as a prototype to demonstrate the benefits of integrating multiple atmospheric technologies/models to support consequence assessment response during an emergency. John indicated that implementing the concept of integrating multiple atmospheric technologies/models to support emergency consequence assessment functions under the NRP and establishing the DOE/NNSA complex as a prototype to demonstrate the benefits of this approach will require additional funding.

John went on to discuss the IMAAC that was established under the NRP. The intent of IMAAC was to develop and disseminate timely and accurate consequence assessment information for use by decision makers when responding to potential or actual releases of hazardous materials. IMAAC is a centralized system, and centralized systems have certain vulnerabilities, which were outlined by John.

John moved onto the concept of regional consequence assessment centers which would utilize regional, state, and local knowledge, share regional, state, and local data resources (e.g., meteorological data collection systems); and would strengthen relationships/mutual respect between federal, state, and local authorities through routine joint planning, training, and exercises activities. Moreover, regional centers would be in a better position to identify and meet state/local needs by providing more timely and customized consequence assessments.

These regional centers would provide 24/7 meteorological observation and forecast capabilities, existing atmospheric consequence assessment systems and infrastructure, and experienced technical personnel on call with computer stations at residences to ensure timely initial response. In support of assigned missions, the following federal agencies have developed and maintained valuable capabilities and infrastructure over the past decades.

- DOE/NNSA;

- NOAA;
- EPA;
- National Aeronautics and Space Administration (NASA);
- DoD;
- NRC; and,
- DHS.

John completed his portion of the talk by describing the concept of operations of the regional facility and how it integrates with the state and federal agencies during any type of emergency.

Rob Addis discussed atmospheric transport and dispersion modeling uncertainties and ensemble methodologies, noting that atmospheric models are uncertain due to the non-linear partial differential equations of the Navier-Stokes equations of motion, yielding non-unique solutions. These uncertainties, amplified by errors in initial boundary conditions create uncertainties in the analyzed and forecast fields, as described by Chaos Theory.

Rob indicated that the use of ensembles is part of the solution and demonstrated such uncertainties by a simulated release of material that affected Europe and a chlorine release from a train accident near Graniteville, SC in 2005.

Rob concluded that the NRP consequence assessment concept needs to be expanded to regional centers for robustness and redundancy and such centers would strengthen relationships and mutual respect between Federal, state, and local authorities; and be situated to meet the needs of local and state decision makers.

The atmospheric models would require a locally-based geospatial framework to assist decision makers in visualizing the scope and severity of the event, and will require an ensemble approach to better understand modeling uncertainties.

Rob closed the talk by stating that the European Joint Research Institute in Italy has expressed interest in hosting an ENSEMBLE demonstration utilizing DOE/NNSA atmospheric modeling capabilities.

The details of John and Rob's discussion are presented in Appendix J.

6.3 DMCC Assist Visit Program (Carl Mazzola)

Carl Mazzola discussed the DMCC Assist Visit program which has been active for the last ten years.

Carl presented the DMCC objectives for assist visits which are to:

- Evaluate meteorological monitoring and consequence assessment program adequacy to meet present and future mission requirements;
- Evaluate the effectiveness of program links to Emergency preparedness & Response (EP& R), Environment Safety & Health (ES&H), Environmental Compliance, Safety, Licensing, and NEPA organizations;
- Assess meteorological data representativeness, and whether Data Quality Objectives (DQOs) are met relative to site applications;
- Identify program benefits to DOE/NNSA management and other program stakeholders to demonstrate the value-added merits of the meteorological program;
- Encourage onsite meteorological research to further understand local atmospheric processes on atmospheric transport and dispersion; and,
- Identify needs to upgrade and modernize the meteorological monitoring program to meet future mission applications, and to keep pace with the state-of-the-art of the atmospheric sciences.

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

Program improvements from the 1996-2005 DMCC assist visits were next discussed that included instrumentation, modeling-monitoring interfaces, consequence assessment models, and an integrated program to support safety assessment and emergency response management.

Carl discussed the performance criteria that are used in a DMCC assist visits. These criteria are found in ANSI/ANS-3.11 (2000) and Chapter 4 of DOE EH-0173T for meteorological monitoring, and DOE O 151.1C, DOE G 151.1-1 and Chapter 4 of DOE EH-0173T for 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);
- Database management (7); and,
- System performance (4).

After all 24 performance criteria are reviewed, it is determined whether the object has been fully met, partially met or not met. Observations and recommendations in the assist visit report are linked to the performance criteria that are either partially met or not met.

Carl next discussed the consequence assessment system evaluation which consists of:

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

Consequence assessment models are evaluated for accuracy, meteorological data linkage, support of environmental monitoring programs, linkages to meteorological data availability in real-time, effect of facility-specific and local meteorological factors that affect transport and dispersion quality assurance, and provision of information to offsite agencies.

After all 15 performance criteria are reviewed, it is determined whether the object has been fully met, partially met or not met. Observations and recommendations within the assist visit report are linked to the performance criteria that are either partially met or not met.

The next stage of the assist visit involves the conduct of interviews with various customers, which include the following six site organizational elements:

- Environmental Compliance (NESHAPs, NPDES);
- Emergency Management (EPHA, CA);
- Integrated Safety Management (DSA, LCO, BIO);
- Environmental Safety & Health (OSHA PSM);

- Environmental Monitoring (ASER); and,
- NEPA (EA, EIS, PEIS).

Carl indicated that in these interviews, a program features determination is conducted to identify the present compliance posture and evaluate whether the existing program can support future missions, as applicable.

The assist visit information is then rolled up into noteworthy practices, observations, and recommendations.

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

Carl's presentation is located in Appendix K to this report.

7.0 DMCC ROUNDTABLE

Darryl Randerson led the DMCC Roundtable discussion which occurs at many of the DMCC meetings. The purpose of the roundtable is to discuss DMCC initiatives and to provide a forum for all DMCC members to discuss specific issues that they are addressing at their sites.

The DMCC Roundtable was adjourned until the next DMCC meeting.

8.0 2007 DMCC MEETING

Darryl Randerson presented his thoughts on the early planning for the next DMCC meeting. Since this meeting was successful and DMCC is now loosely affiliated with EMI SIG, scheduling the next DMCC meeting with next year's EMI SIG meeting makes good sense.

Therefore, it was determined that the 14th DMCC Meeting will be a one-day meeting tentatively scheduled for May 7,2007, in San Antonio, TX.

9.0 APPENDICES

Since a proceeding of the meeting presentations was not developed prior to the meeting, this section is reserved to document the presentations and other relevant documentation that were made at this meeting. The following presents a listing of these presentations.

Appendix	Description
A	Meeting Agenda
B	DMCC Accomplishments
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D	The ARL/SORD Website
E	The Website for the Hanford Meteorology Station
F	NOAA ARL/FRD's Meteorological Partnership Status
G	ANSI/ANS Voluntary Consensus Standards
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Space is provided at the back of this report to insert the 11 appendices.

10.0 ACRONYMS

A

AMS	American Meteorological Society
ANS	American Nuclear Society
ANS-25	An ANS standards consensus group
ANSI	American National Standards Institute
APGEMS	An atmospheric transport and dispersion code
ARL	Air Resources Laboratory, Army Research Laboratory
ASD	Atmospheric Sciences Division
ASER	Annual Site Environmental Report
ASPP	Atmospheric Sciences and Power Production
ASTM	American Society for Testing and Materials
AV	Assist Visit

B

BIO	Basis for Interim Operation
BWXT	Y-12 M & O Contractor

C

CAA	Clean Air Act
CAP88-PC	An atmospheric transport and dispersion code used for NESHAPs evaluations
CFD	Computational Fluid Dynamics
COMPLY	An atmospheric transport and dispersion code used for NESHAPs evaluations

D

DHS	Department of Homeland Security
DMCC	DOE Meteorological Coordinating Council
DNFSB	Defense Nuclear Facilities Safety Board
DOC	Department of Commerce
DoD	Department of Defense
DOE	Department of Energy
DQO	Data Quality Objective
DSA	Documented Safety Analysis

E

EA	Environmental Assessment
EH	Office of Environmental Health
EIS	Environmental Impact Assessment
EMG	Emergency Management Guide
EMI	Emergency Management Issues
EOC	Emergency Operations Center
EP & R	Emergency Preparedness & Response
EPA	Environmental Protection Agency
EPHA	Emergency preparedness Hazard Assessment
ERO	Emergency Response Organization
ES & H	Environment Safety & Health
ETA	Global Forecasting Model

F

FRD	Field Research Division
FY	Fiscal Year

G

G	Guide
GENII	An atmospheric transport and dispersion code

H

HPS	Health Physics Society
HQ	Headquarters
HYSPLIT	An atmospheric transport and dispersion model
Hz	hertz

I

ICMSSR	Interagency Council for Meteorological Services and Supporting Research
ID	Idaho
IMAAC	Interagency Modeling and Atmospheric Assessment Center
INEEL	Idaho National Engineering and Environment Laboratory
INL	Idaho National Laboratory
ISO	International Standards Organization

J

K

Km	kilometer

L

LANL	Los Alamos National Laboratory
LCO	Limiting Condition of Operation
LDAR	Lightning Detection and Ranging
LEHR	Laboratory for Energy-Related Health Research
LIDAR	Light Detection and Ranging
LLNL	Lawrence Livermore National Laboratory
LMA	Lightning Detection Algorithm

M

M & O	Management & Operations
MADIS	Meteorological Assimilation Data Ingest System
MHz	megahertz
MM5	Global Atmospheric Transport and Dispersion Model

N

NA-41	Office of Nuclear Non-proliferation
NARAC	National Atmospheric Release Advisory Center
NASA	National Aeronautics and Space Administration
NCEP	National Centers for Environmental Protection
NEPA	National Environmental Policy Act
NESHAPs	National Environmental Standards for Hazardous Air Pollutants
NFSC	Nuclear Facilities Standards Committee
NLDS	National Lightning Detection System
NNSA	National Nuclear Security Administration
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRC	Nuclear Regulatory Commission
NRP	National Response Plan
NSO	Nevada Site Office
NTIA	National Telecommunications and Information Administration
NTS	Nevada Test Site
NUMUG	Nuclear Utility Meteorological Data User Group
NV	Nevada
NWS	National Weather Service

N (continued)

NYC	New York City

O

O	Order
OMB	Office of Management and Budget
OFCM	Office of the Federal Coordinator for Meteorology
ORISE	Oak Ridge Institute for Science and Education
OSHA	Occupational Health and Safety Administration

P

PEIS	Programmatic Environmental Impact Assessment
PINS	Project Initiation and Notification System
PNNL	Pacific Northwest National Laboratory
PSM	Process Safety Management

Q

QA	Quality Assurance

R

R & D	Research & Development
RASS	Radio Acoustic Sounding System
RFETS	Rocky Flats Environmental Technology Site
RTMS	Remote Traffic Microwave Sensor

S

SC	Office of Science; South Carolina; Standards Committee
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
SODAR	Sonic Doppler Acoustic Ranging
SORD	Special Operations & Research Division
SQA	Software Quality Assurance
SRNL	Savannah River National Laboratory
SROO	Savannah River Operations Office
SRS	Savannah River Site

T

TC	Technical Committee

TEDE	Total Effective Dose Equivalent
TOC	Table of Contents
TRU	Transuranic
TX	Texas

U

UDP	Urban Dispersion Program
UHF	Ultra High Frequency
USGS	United States Geological Survey

V

VCS	Voluntary Consensus Standard

W

WA	Washington
WG	Working Group
WSRC	Westinghouse Savannah River Company

X

Y

YMPO	Yucca Mountain Project Office

Z

Appendix A

Meeting Agenda

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Voluntary Consensus Standards (II)

Appendix I

Investigation of Range-Applicable Lightning Detection Systems

Appendix J

Proposed Regional Centers for Emergency Response in Support of Federal Consequence Assessment Centers

Appendix K

DMCC Assist Visit Program