

# 1997 DOE Technical Standards Program Workshop

## PROCEEDINGS



July 8-10, 1997  
Washington, D.C.

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## 1997 Technical Standards Program Workshop

The Department of Energy held its annual Technical Standards Program Workshop on July 8-10, 1997, at the Loews L'Enfant Plaza Hotel in Washington, D.C. The workshop focused on aspects of implementation of the *National Technology Transfer and Advancement Act of 1995* [Public Law (PL) 104-113] and the related revision (still pending) to OMB Circular A119 (OMB A119), *Federal Participation in the Development and Use of Voluntary Standards*. It also addressed DOE's efforts in transitioning to a standards-based operating culture, and, through this transition, to change from a developer of internal technical standards to a customer of external technical standards. Concurrent with the 1997 program workshop, meetings were held involving the DOE Technical Standards Managers' Committee and a working group composed of DOE "topical" committee chairpersons and representatives of standards development organizations (SDOs); both meetings were focused on improving DOE's implementation of PL 104-113 through the increased use of and participation in voluntary consensus standards by DOE facilities and programs.

150 individuals representing DOE and DOE contractor organizations, other Federal agencies, voluntary standards groups, and the private sector attended the workshop. This higher than normal attendance, in comparison with past workshops, is attributed, in part, to the effect that the new law is having on the Federal government. Attached to these notes are the agenda for the workshop (Attachment A), a listing of those individuals attending the workshop (Attachment B), and copies of presentations provided by the speakers at the different technical sessions (Attachment C).

The workshop was designed to provide a forum to better understand how the new law is affecting Department activities. Panel topics such as "Public Law 104-113 and Its Influence on Federal Agency Standards Activities" and "Update on Global Standards Issues" provided insight on both the internal and external effects of the new law. Keynote speaker Richard Meier of Meadowbrook International (and formerly the Deputy Assistant U.S. Trade Representative) addressed the subject of international trade balance statistics. He pointed out that increases in U.S. export figures do not necessarily indicate increases in employment. Rather, increased employment results from product growth. Mr. Meier also discussed issues such as the U.S. migration to the use of the metric system, the impact of budget limitations on Government participation in voluntary standards organizations, international standards ISO 9000 and ISO 14000, and DOE's role in the worldwide transition from weapons production to cleanup. In addition to Mr. Meier's keynote address, the workshop participants were treated to special presentations by Russ Vacante, Army Management Staff College, Ft. Belvoir, on the "RMS Partnership" (focused on reliability, maintainability, and sustainability standards) and Dr. Belinda Collins, National Institute of Standards and Technology (NIST), on the new leadership role of NIST in the implementation of the National Technology Transfer and Advancement Act of 1995.

Early in the program, Peter Weiss, Office of Management and Budget, discussed the upcoming revision to OMB A119. The point was made that PL 104-113 takes OMB A119

one step further by imposing reporting requirements for non-use of voluntary standards. In OMB's estimation, this is more prescriptive than what the long-standing OMB circular has required of Federal agencies. However, Trudie Williams, Department of Defense (DoD), was quick to point out that DoD has been following many of the provisions of the new law since before the law was enacted. DoD's efforts have included the cancellation of military specifications and standards in support of using what they refer to as non-government (i.e., voluntary) standards and specifications. In short, the enactment of PL 104-113 has not been a major imposition to that agency.

In general, voluntary standards developing organizations are pleased with the new law. ASTM representative Kitty Kono stated that currently the majority of work being done on non-government standards is not the result of new standards development; rather, it is in the updating of existing standards. She clearly indicated that the regulatory community has been a major participant in the development of ASTM standards and that this long-standing partnership should be expanded in the future. Tony O'Neill, representing both the National Fire Protection Association and the American National Standards Institute (ANSI), also emphasized the need for increased participation to make the voluntary standards process better meet the needs of Federal agencies.

Standards in the international arena are having an impact on the U.S. as well. ISO 9000 is currently being adopted by the National Aeronautics and Space Administration (NASA). Presenter Carl Schneider stated that NASA has decided to apply the highly recognized quality assurance standard in its own day-to-day operations first, so that it can set an example of quality assurance leadership for its contractors. By the same token, Diane Meier of Lawrence Livermore National Laboratory informed the workshop attendees of the status of ISO 14000 implementation. Ten states are currently implementing pilot projects for this international standard on environmental management. Another "global" standards issue discussed at the workshop involves the application of strategic standardization principles by a number of private sector companies; Bob Walsh, ANSI, updated the workshop participants on progress achieved in strategic standardization initiatives undertaken by ANSI company members. Also, Oliver Smoot, Information Technology Industry Council, described initiatives and activities in the international arena related to information technology standards.

Delivery of standards information was another key topic discussed at the 1997 workshop. Informative presentations on the information needs of standards users and current developments in standards information access were given by Chuck Moseley, Lockheed Martin Energy Systems; Diane Thompson, Information Handling Services; George Gianios, Department of Defense Single Stock Point; and Ken Peabody, ANSI Project Manager for the National Standards System Network.

Two technical sessions were dedicated to presentations on technical standards development activities within DOE. The topics covered by the presenters included metrology (Bob Wayland, Sandia National Laboratories), hoisting and rigging (Lynn Holt,

Idaho National Engineering and Environmental Laboratory), health/safety issues associated with post-operation facility activities (George Detsis, DOE/EH-53), fire protection (Dennis Kubicki, DOE/EH-51), radiation control (Judy Foulke, DOE/EH-52), criticality safety (Richard Black, Director, Office of Nuclear Safety Policy and Standards, DOE/EH-31), uninterruptable power supplies (John Fredlund, DOE/DP-45), lessons learned (Bobbie Smith, DOE/EM-43) and environmental surveillance/monitoring (Andy Wallo, DOE/EH-412). The sessions provided a forum for voluntary standards organization representatives at the workshop to learn about these activities and interact with the DOE/contractor personnel on issues where voluntary standards could be used in lieu of pursuing the development of DOE technical standards.

The final day of the workshop was dedicated to hearing from representatives from organizations external to DOE on the effects of PL 104-113 on their organization's activities and the perceived effects of PL 104-113 on the DOE "work-smart" standards (WSS) process. Key presenters included Ed Jordan, Nuclear Regulatory Commission; Mary McKiel, Environmental Protection Agency; Julie Abraham, National Highway Transportation Safety Administration, John D. Crawford, Jr, former member, Defense Nuclear Facilities Safety Board; Earl Carnes, DOE/EH-31; Frank Kornegay, Oak Ridge National Laboratory (ORNL); Dennis Murphy, Bechtel-Nevada; and Mike Weis, DOE/Rocky Flats Office. The workshop closed with brief presentations by Rick Serbu, TSP Manager, DOE/EH-31; Madelyn Wilson, DOE/OSTI, and Don Williams, ORNL, on programmatic and procedural improvements being made to the TSP.

This was the fifth DOE workshop on the Technical Standards Program, and it was by far the best yet. It would appear that the issue of technical standards is being raised to an entirely different level, in part due to the new public law mandating the use of existing voluntary standards. More important, however, it seems that in these times of budgetary cutbacks, organizations are realizing the need to stop "reinventing the wheel." This workshop made it clear that Federal agencies are taking more seriously the issue of using existing voluntary standards. Where there is a need for continued improvement is in the area of "participation." Participation goes hand in hand with the use of applicable voluntary standards. Russ Vacante said it best when he claimed that an organization must be actively involved with professional societies in order to be competitive, and DOE is no exception to this observation.

Looking ahead to 1998, the Technical Standards Program hopes to team with other common interest groups (such as the RMS Partnership and another Federal agency with regulatory responsibilities) to conduct another workshop on the program. Watch for additional information to be published in future editions of *The Standards Forum* and also posted on the "DOE Technical Standards" Home Page.

Additional copies of these proceedings may be obtained by contacting Lori Lane, Oak Ridge National Laboratory, at (423) 574-7886 (lj8@ornl.gov).



**1997 DOE Technical Standards  
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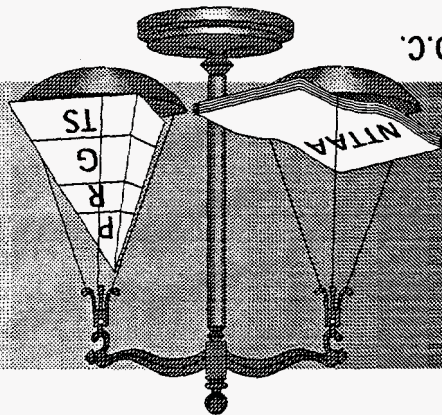
**Attachment A  
AGENDA**

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# "Striking The Right Balance: DOE's 'Work-Smart' Implementation of the National Technology Transfer and Advancement Act of 1995"

July 8-10, 1997 • Loews L'Enfant Plaza Hotel • Washington, D.C.



## Abstract

On March 7, 1996, President Clinton signed into law "The National Technology Transfer and Advancement Act of 1995" (NTTA). The new law, referred to as Public Law 104-113, continues the policy changes initiated in the 1980s under Office of Management and Budget Circular A-119, *Federal Participation in the Development and Use of Voluntary Standards*, that are transitioning the executive branch of the Federal Government from a developer of internal standards to a customer of external standards. This transition serves our domestic interests through cost savings and efficiencies gained in governmental operations, which helps improve our country's competitive position in the global marketplace.

The NTAA is a true shift in the paradigm for many Federal agencies regarding the conduct of their technical standards activities. The goal of the 1997 Technical Standards Program Workshop is to promote implementation of this legislation as an important element of DOE's continuing transition to a standards-based operating culture. As such, the workshop has been designed to discuss the features of the new law that are relevant to Department operations. The workshop panel discussions will reflect on the many performance improvement initiatives (i.e., "work-smart" standards, safety issues management, transition to external oversight, etc.) currently in progress within the Department and address how the new law may influence these initiatives. In addition, workshop participants will learn from representatives of other Federal agencies and the private sector how the new law affects their business practices and technical operations. Participants will also have the opportunity to interact directly with representatives of voluntary standards developing organizations.

This is the fifth annual workshop of the DOE Technical Standards Program. The workshop has proven to be an effective medium for communicating information to all organizations and disciplines within the Department of Energy on technical standards activities and strategic approaches to standardization. We hope you will take the opportunity to participate in and contribute to this important national forum.

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**DOE TECHNICAL STANDARDS PROGRAM (TSP)  
FY 1997 TSP WORKSHOP  
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**Monday, July 7, 1997**

9:00am–5:00pm: **Technical Standards Managers' Committee (TSMC) Meeting**

4:00pm–6:00pm: **Workshop Registration**

**Tuesday, July 8, 1997**

8:30am–1:00pm: **Workshop Registration**

8:30am–12:00: **Meeting with DOE Topical Committee Representatives:  
Interface with the Technical Standards Program (TSP)**

8:30am–12:00: **TSMC Meeting; Conduct of TSP Tutorial**

12:00–1:00pm: **Lunch (on your own)**

1:00pm–2:30pm: **Workshop commences**

- Opening remarks: Richard Serbu, Manager, DOE Technical Standards Program, Office of Environment, Safety and Health.
- Introduction of keynote speaker: Richard Black, Director, Office of Nuclear Safety Policy and Standards, Office of Environment, Safety and Health.
- Keynote Speaker: Richard Meier, Meadowbrook International (former Deputy Assistant U.S. Trade Representative).

2:30pm–2:45pm: **Break**

2:45pm–4:30pm: **Session 1: Public Law (P.L.) 104-113 and its Influence on Federal Agency Standards Activities—How do other Federal agencies view and plan to respond to the new law? The speakers in this session will discuss the perspectives of other members of the Executive Branch of the Federal Government and external organizations on P.L. 104-113.**

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2:45pm–4:30pm: **Session 1: Public Law (P.L.) 104-113 and its Influence on Federal Agency Standards Activities** (continued)

Moderator, Lynne Kroggel, Los Alamos National Laboratory

- Bruce McConnell, Office of Management and Budget (OMB)—preparation of new revision to OMB A-119 for implementing P.L. 104-113.
- Trudie Williams, Department of Defense (DoD)—DoD's implementation of P.L. 104-113.
- Anthony O'Neill, National Fire Protection Association (NFPA) and Past Chairman, Board of Directors, American National Standards Institute (ANSI)—NFPA and ANSI federation views on how voluntary standards groups expect Federal agencies to react to the new law.
- Kitty Kono, American Society for Testing and Materials (ASTM)—ASTM views on the new law.

4:30pm–5:00pm: **Special Presentation: Russell Vacante, Ph.D., Chair, RMS Partnership**—"RMS Standards: A Present Challenge for Industry-Government Partnerships."

5:00pm: **Reception** (hosted by the Operational Performance Technology Section, Oak Ridge National Laboratory).

**Wednesday, July 9, 1997**

8:30am–10:00am: **Session 2: Update on Global Standards Issues**—With the enactment of P.L. 104-113, Federal agency personnel have more incentive to keep up with and, when appropriate with their agency's mission, participate in voluntary standards activities. A number of these standards activities are evolving in the international standards arena. The speakers in this session will discuss these activities and their implications to DOE and other organizations.

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8:30am–10:00am: **Session 2: Update on Global Standards Issues** (continued)

*Moderator*, John Notestein, Federal Energy Technology Center

- Bob Walsh, ANSI—Implementation of “Strategic Standardization Management.”
- Diane Meier, Lawrence Livermore National Laboratory (EFCOG Vice Chair of ISO 14000 Working Group)—Environmental Management Systems Standards (ISO 14000 series).
- Carl Schneider, National Aeronautics and Space Administration—Quality Management Systems Standards (ISO 9000 series).
- Oliver Smoot, Information Technology Industry Council—Information Technology Standards.

10:00am–10:30am: **Break**

10:30am–12:00: **Session 3: Delivering Standards Information—*Build it and they will come.*** Now that P.L. 104-113 places a renewed emphasis on the use of existing voluntary standards, standards users are faced with gaining timely access to the thousands of existing standards to select the one(s) that best meets their needs. A number of local/network systems are in place or being developed that assist the standards users in their search. The speakers in this session will discuss the delivery of standards information and improvements envisioned to better meet user/customer needs.

*Moderator*, Chuck Mosely, Lockheed Martin Energy Systems (LMES)

- Chuck Mosely, LMES—advocate for user needs.
- Diane Thompson, Information Handling Services (IHS).
- George Gianios, Department of Defense Single Stock Point (DoDSSP).
- Ken Peabody, ANSI, Project Manager, National Standards System Network (NSSN).

12:00–1:00pm: **Lunch** (on your own)

**DOE TECHNICAL STANDARDS PROGRAM (TSP)**  
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1:00pm–2:45pm:

**Session 4: Key Technical Standards Issues Within**

**DOE**—Across DOE, a number of Department and contractor subject matter experts (sometimes organized as working groups or topical committees) work to address a broad spectrum of technical issues that apply to multiple Department facilities and projects. The guidance and recommendations produced by these individuals or groups efforts are usually documented either as technical reports, registered DOE technical standards projects, or “de facto” technical standards (because of their content and/or level of acceptance). With the enactment of P.L. 104-113, the individual and collective efforts of these subject matter experts must become more focused on the identification and use of existing voluntary consensus standards in lieu of developing new or revised DOE technical standards or “de facto” technical standards. The speakers in this session will discuss the recent activities of these experts/groups and how P.L. 104-113 will influence their work.

*Moderator*, Bob Wayland, Sandia National Laboratories (SNL)

- Bob Wayland, SNL—Metrology Standards.
- Patrick Finn, DOE/Office of Environment, Safety and Health—Hoisting and Rigging Standards.
- George Detsis, DOE/Office of Environment, Safety and Health—Standard for Integrating Health and Safety During Post-Operation Facility Activities.
- Dennis Kubicki, DOE/Office of Environment, Safety and Health—Fire Protection Standards.
- Judith Foulke, DOE/Office of Environment, Safety and Health—Radiation Control Standards.

2:45pm–3:15pm **Break**

**DOE TECHNICAL STANDARDS PROGRAM (TSP)  
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3:15pm–5:00pm: **Session 5: Key Technical Standards Issues Within DOE**  
(continued)

*Moderator, Mosi Dayani, DOE/Savannah River Operations*

- Richard Stark, DOE/Office of Environment, Safety and Health—Criticality Safety Standards.
- John Fredlund, DOE/Office of Defense Programs—Uninterruptable Power Supply Standards.
- James Slawski, DOE/Office of Defense Programs—HEPA Filters Standards.
- Bobbie Smith, DOE/Office of Environmental Management—Lessons Learned Standard.
- Andrew Wallo, DOE/Office of Environment, Safety and Health—Radiation Surveillance/Monitoring Standards.

**Thursday, July 10, 1997**

8:00am–8:45am: **Special Presentation:** Dr. Belinda Collins, Chair, Interagency Committee on Standards Policy, NIST—Role of Government in standards development and use and the new leadership role of NIST under P.L. 104-113 and the revision to OMB Circular A-119.

8:45am–10:15am: **Session 6: Regulatory Perspectives**—Other agencies and organizations with external oversight responsibilities may be influenced by P.L. 104-113. The speakers in this session will discuss the “regulator’s” perspective on this issue.

*Moderator, Rudy Hirzel, DOE/Chicago Operations Office*

- Ed Jordan, Nuclear Regulatory Commission (NRC)—Implications of P.L. 104-113 to NRC activities.
- Mary McKiel, Environmental Protection Agency (EPA)—Implications of P.L. 104-113 to EPA activities.

**DOE TECHNICAL STANDARDS PROGRAM (TSP)  
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8:45am–10:15am: **Session 6: Regulatory Perspectives** (continued)

- Julie Abraham, Department of Transportation (DOT)—Implications of P.L. 104-113 to DOT/National Highway Transportation Safety Administration activities.
- John D. Crawford, Jr, former member, Defense Nuclear Facilities Safety Board (DNFSB)—Implications of P.L. 104-113 to DNFSB activities.

10:15am–10:30am **Break**

10:30am–12:00: **Session 7: “Work-Smart” Standards**—Since 1994, DOE has dedicated significant resources toward the development and implementation of a “work-smart” approach to defining the environmental, safety, and health (ES&H) standards that satisfactorily address the work and its associated hazards at DOE facilities. This effort has been guided by senior DOE management through the Department Standards Committee (DSC). The speakers in this session will discuss the recent efforts of the DSC, successful applications of the “Work-Smart Standards” (WSS) approach, and implications of P.L. 104-113 to this work.

*Moderator*, Lynn Maestas, DOE/Albuquerque Operations Office

- Maggie Sturdivant, DOE/Office of Environment, Safety and Health, DSC Executive Secretary—DSC overview.
- Frank Kornegay, Oak Ridge National Laboratory (ORNL)—Application of WSS approach at ORNL.
- Mitch Kunich, DOE/Nevada Operations Office, and Dennis Murphy, Bechtel-Nevada—Application of WSS approach at Bechtel-Nevada.
- Mark Frei, DOE/Office of Environment Management (EM)—Programmatic issues associated with application of WSS approach at EM facilities.
- Mike Weis, DOE/Rocky Flats Office—Implications of WSS approach in DOE’s response to DNFSB Recommendation 95-2 (Safety Management Systems).

**DOE TECHNICAL STANDARDS PROGRAM (TSP)  
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12:00–1:00pm:      **Lunch** (on your own)

1:00pm–2:30pm:      **Session 8: Technical Standards Program Initiatives**—To remain as a “value-added” activity for DOE, the Technical Standards Program (TSP) must keep abreast of and respond in a proactive manner to the many dynamic programmatic and technical initiatives (e.g., P.L. 104-113, “work-smart” standards, safety issues management, enhanced work planning, quality/environmental management systems standards, electronic information management, etc.) occurring both within and external to the Department. TSP personnel will discuss the program’s response to these challenges.

- Rick Serbu, Manager, Technical Standards Program—TSP programmatic issues.
- Don Williams, ORNL—TSP procedural issues.
- Madelyn Wilson, DOE/Office of Scientific and Technical Information—TSP information delivery.

2:30pm–3:00pm:      **Closing Remarks/Adjourn**—Richard Serbu, DOE.

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**1997 DOE Technical Standards  
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**Attachment B  
FINAL LIST OF ATTENDEES**

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**1997 DOE Technical Standards Program Workshop**  
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**1997 DOE Technical Standards Program Workshop  
Final List of Attendees**

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**1997 DOE Technical Standards Program Workshop  
Final List of Attendees**

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**1997 DOE Technical Standards  
Program Workshop**

**Attachment C  
PRESENTATION MATERIALS**

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**1997 DOE Technical Standards  
Program Workshop**

**Tuesday, July 8, 1997**

**Session 1: Public Law 104-113 and its Influence  
on Federal Agency Standards Activities**

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## Remarks to DoE Technical Standards Program

**Bruce McConnell, Chief of Information Policy and Technology  
Office of Management and Budget**

**July 8, 1997 at 2:45 pm  
Loews L'Enfant Plaza Hotel**

Thanks for the opportunity to participate in today's workshop. I understand that the Department of Energy has an excellent record in the use of voluntary standards, going back to DOE Order 1300.2A which requires the use of international and national voluntary standards in preference to government unique standards wherever practical. I also know that a large number of agency employees participate in the development of voluntary consensus standards, and that the standards community welcomes this involvement.

So, as I speak to you today, I am aware that I am faced with one of the most effective and involved agencies in the federal arena. Since I have been asked today to provide you with an update on the revision to OMB Circular A-119, which will provide guidance to the agencies on Section 12(d) of the NTTAA, I feel as if I am speaking to an audience that is ahead of the curve when it comes to implementation of this statute.

As you know, on March 7, 1996, the President signed into law the "National Technology Transfer and Advancement Act" or NTTAA (P.L. 104-113). Section 12(d) of the Act imposed requirements, effective immediately, for the use of consensus technical standards. According to those closely involved in passage of the legislation, the Act was intended to codify existing OMB Circular A-119 on the federal use of voluntary standards.

In brief, Section 12(d) of the Act imposed the requirement that agencies "use voluntary consensus standards ... to carry out policy objectives or activities determined by the agencies ... unless inconsistent with applicable law or otherwise impractical." Agencies are also to "consult with voluntary, private sector, consensus

standards bodies and shall ... participate" with them in developing standards "when such participation is in the public interest and is compatible with agency and departmental missions, authorities, priorities, and budget resources."

Finally, if compliance is "inconsistent with applicable law or otherwise impractical, a Federal agency or department may elect to use technical standards that are not developed or adopted by voluntary consensus standards bodies if the head of each such agency or department transmits to the Office of Management and Budget an explanation of the reasons for using such standards." Each year, the OMB, "shall transmit to Congress and its committees a report summarizing all explanations received in the previous year."

In simple terms, agencies are not to reinvent the wheel by coming up with a unique standard when a perfectly good one is already available in the private sector. And if agencies determine that they need to develop their own standard, they are free to do so, as long as they provide a valid explanation in their report to OMB.

This policy sounds like a pretty common sense idea. But, like many good ideas, it quickly became clear that more guidance was needed, and the current Circular was insufficient. Moreover, although the Act was intended to codify current OMB Circular A-119 on the federal use of voluntary standards, a closer inspection revealed that the law and the current Circular differed in several ways, and that the Circular should be revised accordingly.

So, beginning last summer, OMB began its work of revising the Circular, working closely with the Interagency Committee on Standards Policy. A draft revision was released in December, and over 50 comments were received. In response to the comments, and in close coordination with the ICSP, we are now preparing a final version. Publication is anticipated by the end of the summer.

Without going into great detail, the principle issues to be resolved focused on definitions, federal participation, and the new reporting requirement.

- First, the law and the Circular relied on different terminology, as in the use of "voluntary consensus technical standard," "voluntary standard," and "technical standard."
- Second, the law directed agencies to participate in such bodies, but conflicting comments were received from the public, advocating both greater and less participation.
- Third, the law added an additional reporting requirement, that agencies report "the reasons for using [non-voluntary consensus standards]."

I will touch only briefly on the first two issues. Regarding definitions, I can only say that have found there to be a distinct lack of consensus when it comes to standardized definitions. Nevertheless, I am confident that our lengthy process of consultation with both the federal agencies and the public will produce a meaningful understanding of such terms as "consensus" and "technical standard."

Regarding participation, it is difficult to create a one-size-fits-all solution to the issue of how to ensure that agencies participate equally in standards development, without dominating the process. Again, I expect to see language emerge that will ensure the right balance.

Regarding the reporting requirement, the law requires agencies to report to Congress when they fail to use voluntary, consensus standards. Overall, I have the impression that your agency is in pretty good shape. For one thing, your Technical Standards Program seems to be a model approach to reviewing and overseeing the Department's standards activities. In addition, you have already relied on, for some time, directives such as DOE Order 1300.2A. And finally, you, too, have benefited from the government-wide trend in procurement to use commercial off-the-shelf products, which are presumed to rely on voluntary consensus standards.

However, all is not good news. Remember, Congress insisted on an annual report that describes when agencies do not use voluntary

consensus standards. Although it appears that your agency is in substantial compliance, the law still requires a report.

What OMB is currently proposing is that your agency establish a "Standards Management System" that will demonstrate to Congress that your agency is reviewing its procurements or its regulatory actions to make sure that, should an exception to the policy arise, the agency will be capable of reporting such. This is a highly flexible approach, one that will accommodate the varying needs of agencies, whether they use standards primarily in regulation or in procurement.

A Standards Management System is a system that identifies, tracks, and reviews agency use of standards. At a minimum, such a system needs to identify where your agency used a government-unique standard in lieu of a voluntary, consensus standard. Based on the many different ways agencies use standards, OMB recognizes that different management systems may be better suited to different situations. For example, your agency may choose to establish a management system that identifies standards on a **transaction** basis, such as individual procurements or regulations. Alternatively, your agency may choose to establish a management system that identifies standards on a **categorical** basis, through an inventory or database that tracks how a certain standard is used throughout the agency.

Your agency may choose to establish a standards management system based on either approach or a combination of both. Subject to approval by OMB, your agency may also choose to establish an alternative management system.

The purpose of a standards management system is to enable your agency to report to OMB through NIST on your agency's uses of non-voluntary consensus standards, along with an explanation. This report, due December 31 of the following fiscal year, may summarize such uses and explanations as your agency deems appropriate and necessary.

To report on a categorical basis, your agency needs to:



- maintain a centralized system of standards management that identifies how your agency uses standards;
- systematically review your agency's use of government-unique standards for conversion to voluntary consensus standards; and
- maintain records on instances in which your agency uses a government-unique standard in lieu of a voluntary consensus standard, including an explanation.

This concludes my remarks. On behalf of OMB, I am looking forward to continuing to work with the Department of Energy as we conclude the process of revising OMB Circular A-119 this summer. Again, thank you for the opportunity to participate in today's activities.

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# DoD's Implementation of P.L. 104-113

**Trudie Williams, OUSD(A&T)**

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**<http://www.acq.osd.mil/es/std>**



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# **Non-Government Standard (NGS)**

## **Definition**

**A consensus document developed by a private sector standards developing organization. Sometimes called a voluntary standard, private sector standard, or industry standard. Company standards are not non-government standards.**

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## **DoD Supports P.L. 104-113 Goals**

- DoD has a process in place to encourage the use of industry standards in lieu of Military documents.
  - It is DoD policy for each Military document to undergo a review every five years.
    - Since July 1994, DoD has reviewed and categorized all of its Military specifications and standards.
      - DoD NGS strategy

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## **DoD Supports P.L. 104-113 Goals**

- DoD continually works with standards organizations to develop industry replacements for Military documents.
  - Equal Partner Implementation Committee (EPIC)
  - Early Warning Project Group (EWPG)
- DoD policies on development and adoption of NGS flow from the Public Law.

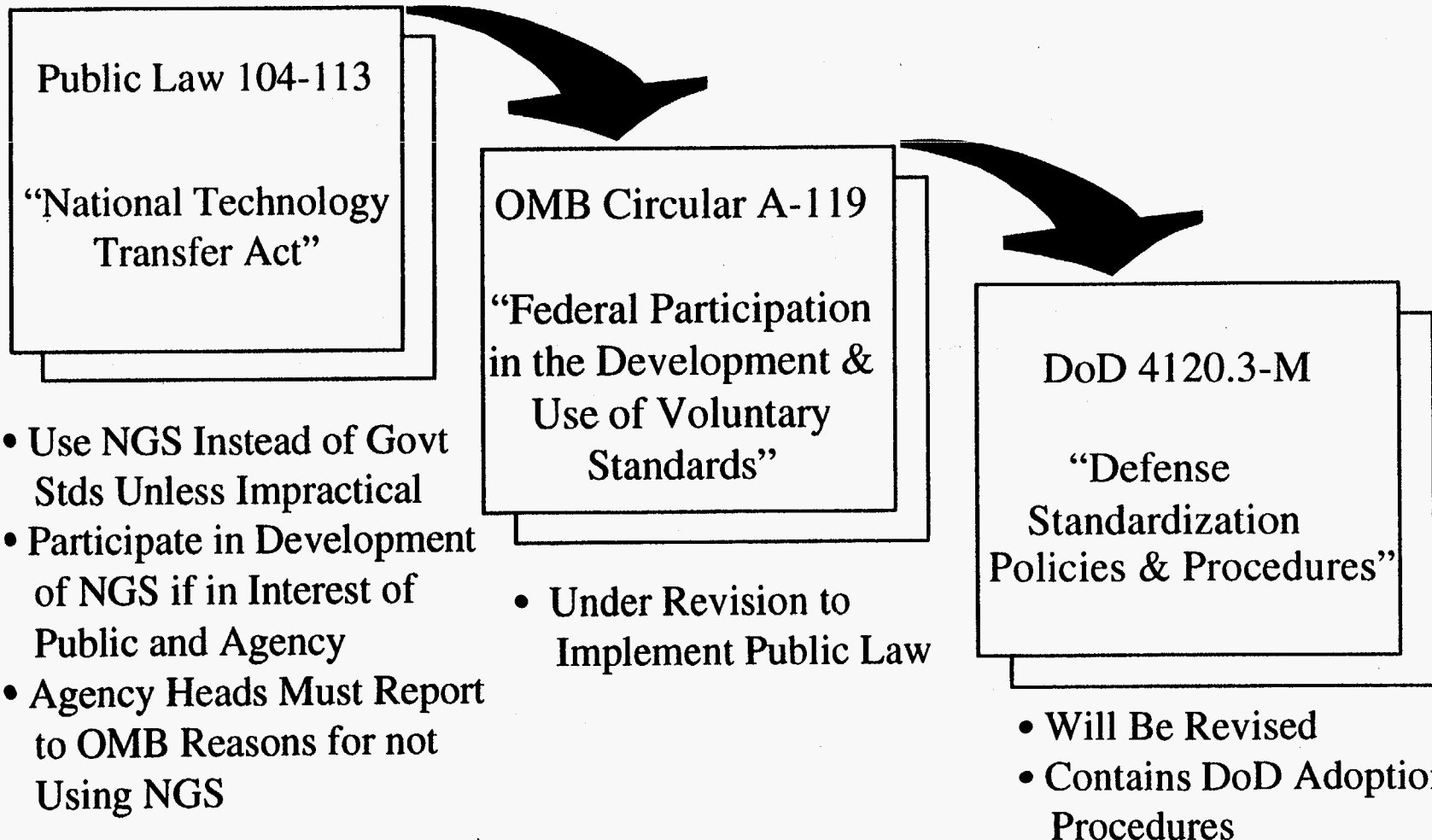
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## **DoD Supports P.L. 104-113 Goals**

- The DoD process (cont.):
  - DoD maintains executive level oversight on development of new documents to determine if there is a commercial counterpart.
  - DoD requires any mandatory use of a Military series document in a major acquisition be justified and approved by the appropriate authority.

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# DoD NGS Policies Flow From Public Law





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## **DoD Policy Memos Reflect Public Law**

- **Policy memo, 18 Mar 97, subject: Guidance on Development and Adoption of NGS**
  - Do not develop and use NGS simply to avoid use of Gov't specs and standards.
    - Acid test: Will the NGS be used by other than DoD?
  - DoD is trying to gain more access to commercial products and practices ... NGS are one way to gain this access.

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## **DoD Policy Memos Reflect Public Law**

- **Policy memo, 7 Jul 95, subject: NGS Policies**

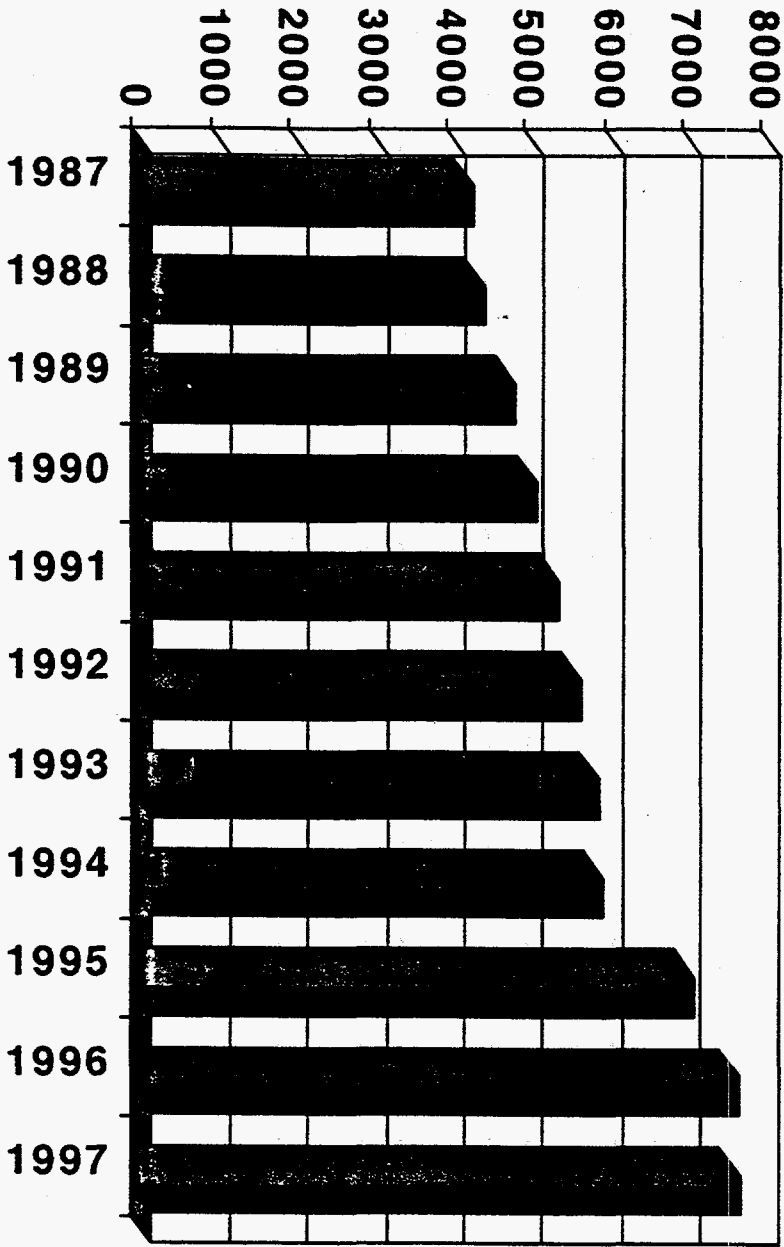
- DoD activities are encouraged to adopt NGS to provide visibility and accessibility.
  - DoD activities and contractors may cite NGS even if document has not been adopted by DoD.
- Use of performance specs does not eliminate the preference for NGS.

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## **DoD Has Difficulty Complying With P.L. 104-113 Reporting Requirement**

- DoD is compliant with the spirit of the Public Law and intent of OMB Circular A-119 .
  - OMB acknowledges compliance.
- Draft OMB Circular A-119 requires DoD track every procurement and report each instance when a Military document is used in lieu of an NGS.
  - An onerous requirement for DoD.

# • • • DOD Adopted NGS



■ Year

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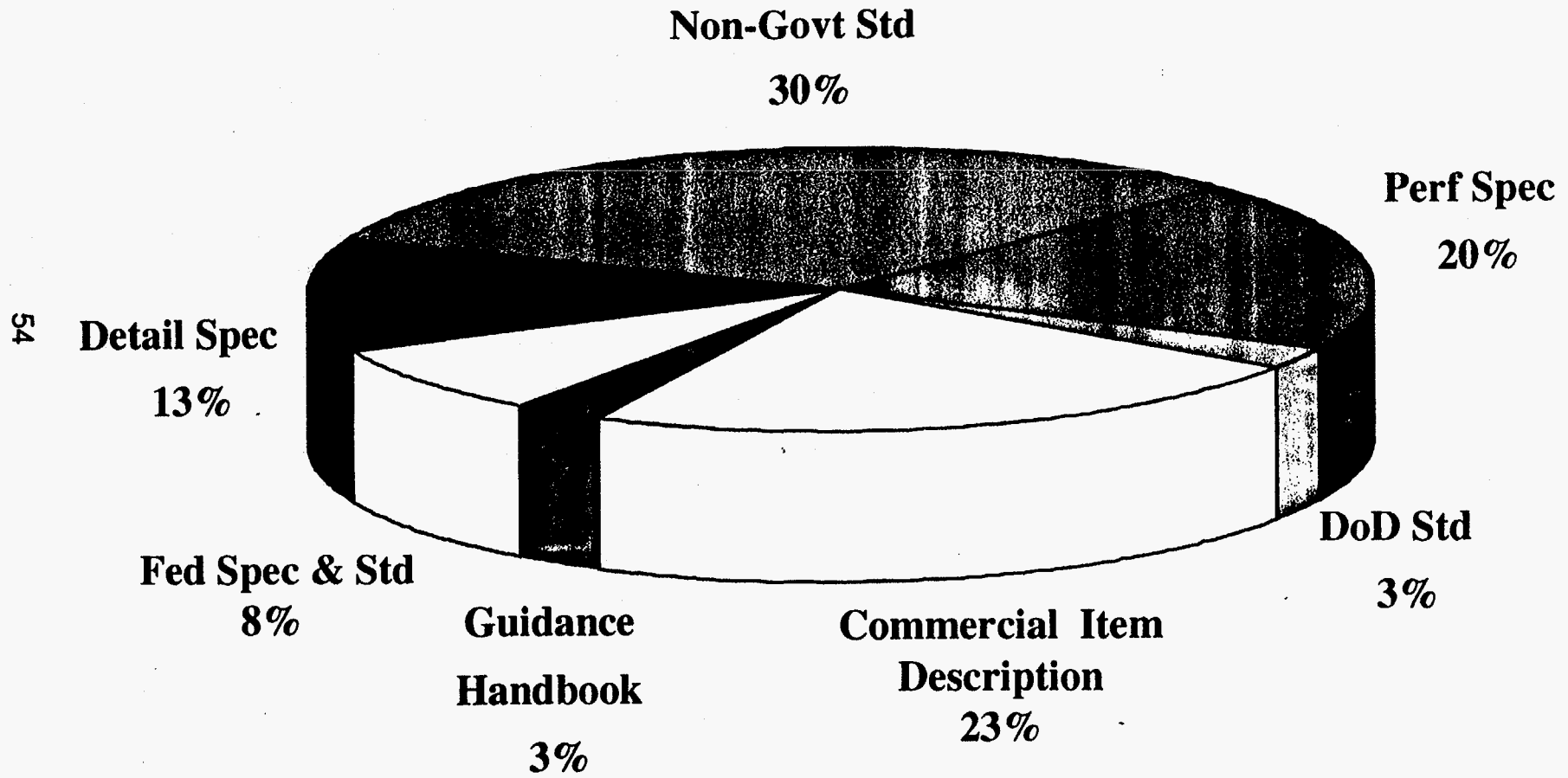
## **DoD Has Difficulty Complying With P.L.104-113 Reporting Requirement**

– DoD has a management system in place to identify, track, and review NGS use.

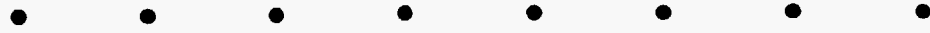
- Since 1982, DoD has provided input to OMB on NGS replacements, adoptions, and employee participation in development activities.
- DoD and OMB are discussing reporting options.

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# Future Infrastructure for Specs & Standards



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□ P.L. 104-113 — Technology Transfer Act — Section 12

- Codified OMB A119
- Congressional Intent Clear
- Utilize Private Sector-Developed  
Consensus Technical Standards
- For Procurement/Acquisition
- For Regulatory Purposes  
(i.e., Technical Requirements of Regulations)
- As a means to carry out agency policy objectives

□ **American National Standards Institute (ANSI)**

**Purposes (ByLaws — 1995)**

- 1.) Coordinate voluntary standards activities
- 2.) Represent U.S.A. in ISO/IEC
- 3.) Promote voluntary standards/certification activities
- 4.) Protect public interest; promote participation/  
representation
- 5.) Facilitate new standards activities where needed
- 6.) Approve American National Standards — “ANS” . . .



□ **American National Standards Institute (ANSI)**

**Purposes (ByLaws — 1995) — [CONTINUED]**

- 7.) Recognize certification programs
- 8.) Cooperate with government
- 9.) Promote use of American National Standards
- 10.) Clearinghouse for standards/certification information

## ANSI Purposes

### Number 8

- 8) To cooperate with departments and agencies of federal, state and local governments in achieving (i) optimum compatibility between government laws and regulations and the voluntary standards of industry and commerce; (ii) maximum common usage of American National Standards; and (iii) broader cooperation between government and industry on testing, certification and quality assurance matters

- **Use of Consensus Technical Codes/Standards for Procurement/Acquisition (NFPA Examples)**
  - ◆ Protect Corporate or Agency assets, employee safety and visitors' safety
  - When building new or renovating existing
  - ◆ Retroactive re-hab

Simplified Definition: Procurement (or acquisition) means the purchasing of installations or equipment that provide for protection of assets and people to carry out purpose of the agency

□ **Use of Consensus Technical Codes/Standards for Procurement/Acquisition (NFPA Examples)**  
**[CONTINUED]**

◆ **Examples**

- Electrical wiring, fire alarm systems
- Fire sprinkler, Halon or standpipe systems
- Fire engines, firefighter equipment
- Industrial process safety; spray finishing, dust hazards, etc.

□ **Use of Consensus Technical Codes/Standards for Regulatory Purposes (NFPA Examples)**

◆ **Protect the Public Health, Safety and Welfare**

○ State and Local matter (Intrastate)

○ Except Interstate which is federal matter

● **Fire, Electrical, Fuel Gas, Propane Safety at State and Local Level**

○ For the “Built Environment”

□ **Use of Consensus Technical Codes/Standards for  
Regulatory Purposes (NFPA Examples)  
[CONTINUED]**

- ◆ Building Codes use of reference technical standards  
(State and Local)

Simplified Definition: Regulatory purposes means  
regulating public safety, health or environment

□ **Indirect Regulatory Impact (NFPA Examples)**

- ◆ Life Safety Code® minimum requirements for federal-Medicare/Medicaid reimbursement eligibility of health care facilities
- Hotel Motel Fire Safety Act — Federal Employee Travel Policy

□ **New Trends — Regulatory Use of Private Sector-Developed Codes and Standards (Federal Impact of P.L. 104-113)**

- ◆ Pipeline Regulations — DOT — Liquefied Natural Gas NFPA 59A
- ◆ Manufactured Housing Construction and Safety Standards — HUD — NFPA 501
- ◆ Life Safety Code for Cruise Ships — United States Coast Guard — NFPA 301



## □ **Why Use Private Sector-Developed Technical Standards for Regulatory Purposes**

- ◆ Represents timely “state-of-the-art” advances (NFPA 59A)
- Recognizes downsizing and budget cuts in Federal agencies
- ◆ Federal agencies meet legislative mandate to regulate; while assuring highest level of technical expertise is utilized
- Reduces adversarial relationship between regulator (government) and regulated (industry)
- ◆ States and local governments have been doing so for decades

## □ **Federal Agency Challenges**

- ◆ Match consensus technical standards to requirements of the authorizing legislation
- ◆ Clearly understand the legislative intent of the authorizing legislation
- ◆ Make sure industry and other vested interests are “on board” . . .
- Provide incentives for private sector standards developing organization to maintain / update the consensus standards

□ **NFPA's Home Page . . . Internet  
"Codes & Standards Home" . . . Website**

- ◆ All current proposals and comments
- ◆ Enter NFPA standard number or cycle for revision (Fall 1997, Annual 1998)
- ◆ Download in "Acrobat Reader" format
- ◆ **<http://www.nfpa.org/>**

Anthony R. O'Neill, Vice President, Government Affairs  
July 8, 1997

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**ASTM and the National Technology Transfer and Advancement Act**  
**Kathleen Riley Kono**  
**July 8, 1997**  
**Washington, D.C.**

Good afternoon. It is a real pleasure to be here to talk about ASTM's view of the National Technology Transfer and Advancement Act. My talk will be in three parts. First, to put things into perspective, I will present an overview of ASTM and how we develop standards; then talk about the long and very successful history of government involvement in the development and use of ASTM standards with a particular focus on DOE; and conclude by making some recommendations on how we can fine tune the system to maximize the benefits of working together for the development of standards.

What is ASTM?

ASTM is one of the world's largest developers of voluntary consensus standards for all types of material, products, systems, and services. In 1998, we will celebrate our 100<sup>th</sup> anniversary. In that time our 132 main technical committees have developed over 10,000 full consensus standards. These standards encompass everything from nuclear energy, solar energy, geothermal energy, coal and coke, petroleum, steel, thermal insulation to standards for vacuum cleaners, medical and surgical devices, computers, baseball helmets, and golf clubs.

ASTM and other major standards developers within the United States are different from standards developers in other countries in that most other countries only allow voting participation from the citizens of that particular country. Within the U.S., we encourage the participation of experts from anywhere in the world. ASTM currently has 34,000 members from 100 countries.

What is Full Consensus?

Full Consensus within ASTM has three principals. The first is that we do our best to encourage all the key stakeholders to participate. For standards that could be used for regulation, the key stakeholders are the buyers, the sellers, the regulators, and the people from research and academia who have a stake in that particular commodity. If all of these sectors are not represented, then the standard that is developed will not be as strong as if it had the input from all.

The second principal is Balance of Interest. In ASTM we ensure a balance of interest by requiring that all main technical committees and subcommittees developing standards for commercial products must not have more producer voting members than user and general interest voting members. Producers cannot dominate the membership of a main committee or subcommittee.

And the third principal is Due Process, which means that anyone who wishes to express a written opinion about a standard has the opportunity to do so. And if the participant does not like the response of the ASTM subcommittee regarding his or her opinion, he or she may appeal at every step in the standards development process all the way up to the ASTM Board of Directors.

#### The Federal Government and ASTM

The federal government has been an integral part of ASTM for almost our entire history. As far back as 1917, William Bixby then the Chief of the U.S. Army Corps of Engineers was the Chairman of the Board of ASTM. Many hundreds of federal employees have since served in leadership capacities. Nancy Trahey, formerly with the U.S. Department of Energy, New Brunswick Laboratory was chairman of our Committee C-26 on Nuclear Fuel Cycle from 1983 - 1989. And although she left DOE to work at the National Institute for Standards and Technology, she served as the ASTM Chairman of the Board in 1993.

Today, there are about 1,500 federal employees participating on our technical committees. Five hundred are from DoD and the remaining 1,000 represent various regulatory agencies. DOE Headquarters in particular has 23 participants in ASTM participating on about 20 different ASTM technical committees. I've brought with me the names and addresses of all the DOE participants and what committees they belong to.

In addition there are hundreds of individuals representing DOE as operating contractors or representatives from the various national laboratories who have been participating in ASTM for decades. For instance, today over one/half of the 200 representatives that make up our Committee C-16 on Nuclear Fuel Cycle represent DOE or one of its contractors. This includes the Chairman, two vice chairmen, and the secretary. Twenty three representatives from DOE labs participate on our Nuclear Technology Committee, including two vice chairmen, and seven representatives from DOE labs participate on our thermal insulation committee. The contributions that these DOE affiliated personnel have made to the development of voluntary consensus standards in these three areas alone is phenomenal.

#### CFR References to ASTM

Participation is one measure, but perhaps even more important is how often the Federal Government has adopted by reference voluntary standards in the Code of Federal Regulations. About one year ago, I went to the NIST library and looked through every volume of the Code of Federal Regulations and found about 600 ASTM standards referenced about 800 times by a dozen different agencies. The Department of Energy references 50 ASTM standards.

I thought this was great until I looked at the year dates for the referenced standards and noted that more than 90% of the 800 references were out of date by an average of 10 years and some by more than 20. In addition quite a few of the referenced standards had been withdrawn from the ASTM books without replacement.

It is important to note at this point that the majority of work that goes on in an ASTM standards writing committee is not the development of new standards (although an average of 400 new standards are developed each year), but the revision of current standards to keep them up to date with new technology. Every ASTM standard is reviewed at least once every five years. If an agency adopts a standard by reference and then never goes back to review it and keep it up to date, then the agency is prohibiting the use of newer technology by those who are regulated by that standard. This is an important point that needs to be addressed.

Looking over the list of referenced standards we found that every agency is as guilty as the next in this regard, except for one, the Minerals Management Society, part of the Department of the Interior, which has made it a practice to review its standards incorporated by reference on a yearly basis, and will update those standards regularly through a direct final rule in the Federal Register.

#### What can ASTM do?

First we can provide the current date of every standard that each agency references. In fact, I've brought with me today copies of the titles of all 50 ASTM standards that DOE references, the current year date of each standard, and where those references appear in the Code of Federal Regulations (10 CFR).

Second, in the future ASTM will automatically notify the appropriate person within each agency when a standard has been revised and make a request that the agency review the latest version and consider updating the reference.

Third, if a notice is put in the Federal Register proposing to update a standard and comments are generated, ASTM would be happy to help respond to those comments.



### What can DOE do?

First, make it a practice to regularly review the standards incorporated by reference.

Second, streamline the update process by going through a direct final rule procedure in the Federal Register.

And third, actively participate in the standards writing process. Make sure that if you are referencing a group of standards from a particular committee that you have representation on that committee. For example, DOE references 28 standards from ASTM's committee on Thermal Insulation. Seven representatives from National Laboratories participate on the ASTM committee, but I'm not sure if any of those representatives are aware that DOE references 28 standards, 22 of which are all out of date by many years. Someone at DOE Headquarters should somehow be in the loop to ensure that these standards are kept up-to-date.

### Tools From ASTM

ASTM has a number of tools that can be used to determine what the latest version of an ASTM standard is. All the titles and scopes and year dates of all of our 10,000 standards are on the Internet. In addition, by August 1, all ASTM standards will be available electronically through the Internet. What this means is that you can have access and download a standard from our data base into your computer at the click of a mouse for a reasonable fee.

### Need for New Standards

Finally, let me address potential need for new standards. If DOE or any agency has a need for a standard and does not know where to begin. May I suggest that you first call the National Center for Standards and Certification Information at NIST. Their telephone number is 301-975-4037. JoAnne Overman is the head of that office and she can tell you what standards organization could best help you in the development of that standard.

If by chance she tells you it is ASTM, we have a new activities director named Terri Luthy who can also help. Her telephone number is 610-832-9679. She will work with you to determine who the key stakeholders are, find the right committee in ASTM to incorporate the activity, and facilitate the process to get a new standard developed as quickly as possible.

I can also help with any questions you may have. My telephone number is 610-832-9687 and e-mail is [kkono@astm.org](mailto:kkono@astm.org). Please do not hesitate to call.

## ASTM and The Technology Transfer and Advancement Act

Kitty Kono  
ASTM Washington  
Representative

## WHAT IS ASTM?

### Full Consensus Standards for

- Materials
- Products
- Systems
- Services

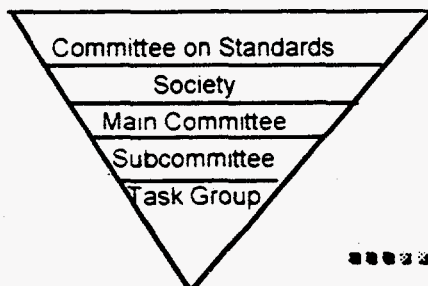
## ASTM

- 132 Technical Committees
- 10,000 Full Consensus Standards
- 34,000 Members
- 100 Countries

## What is Full Consensus?

- All Key Stakeholders
- Balance of Interests
- Due Process

## How are Standards Developed?



## Standard

A document that has been developed and established within the consensus principles of the Society and that meets the approval requirements of ASTM procedures and regulations

## Federal Government & ASTM

- Key Stakeholder
- 1,500 Representatives
- Over 3,000 ASTM Standards Referenced

## Who's Participating?

- |              |                   |
|--------------|-------------------|
| ■ DOD (500)  | ■ NASA (77)       |
| ■ NIST (230) | ■ DOT (77)        |
| ■ HHS (88)   | ■ USDA (72)       |
| ■ EPA (74)   | ■ Treasury (34)   |
| ■ DOI (69)   | ■ CPSC (22)       |
| ■ DOE (23)   | ■ GSA (10)        |
| ■ FTC (2)    | ■ Labor (9)       |
| ■ VA (14)    | ■ HUD (8)         |
| ■ NRC (13)   | ■ Postal Serv (5) |
|              | ■ Justice (2)     |

## DOE Participation in ASTM

- |                      |                                   |
|----------------------|-----------------------------------|
| ■ Steel              | ■ Water                           |
| ■ Concrete           | ■ Electrical Insulating           |
| ■ Nuclear Fuel Cycle | ■ Computerized Systems            |
| ■ Advanced Ceramics  | ■ Electrical Protective Equipment |
| ■ Petroleum          |                                   |
| ■ Coal               |                                   |
| ■ Soil and Rock      | and more.....                     |

## DOE Participation in ASTM

- Protective Coating and Lining Work for Power Generation Facilities
- Nuclear Technology
- Quality and Statistics
- Chromatography
- Healthcare Informatics
- Conformity Assessment
- Occupational Health and Safety
- Surface Analysis

## CFR References to ASTM

- |             |             |
|-------------|-------------|
| ■ HUD (270) | ■ USDA (52) |
| ■ DOT (229) | ■ DOL (25)  |
| ■ EPA (188) | ■ CPSC (21) |
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| ■ DOE (59)  | ■ NRC (1)   |
|             | ■ ATF (3)   |

## Over 800 References to ASTM Standards

More than 90% are out of date by an average of 10 years

## DOE References 50 ASTM Standards - 44 Out of Date

- Thermal Insulation (28)
- Building Seals and Sealants (8)
- Petroleum (2)
- Plastics (3)
- Fire (3)
- Building Materials (3)
- Aerospace (1)
- Corrosion (1)
- Electrical Insulating Materials (1)

## What can ASTM do?

- Provide current date of standard
- Automatically notify when standard has been revised
- Help respond to notices in the Federal Register

## What can DOE do?

- Review standards incorporated by reference regularly
- Streamline update process
- Participate actively in the standards writing process

## Internet Address

<http://www.astm.org>

## Titles, Scopes, and Year Dates on the Internet

<http://www.astm.org/dsearch.htm>

## ASTM Standards Available via Internet

By August 1

## What if New Standards are Needed?

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- Determine if standard has been developed (<http://www.astm.org>)
- Call ASTM New Activities Director - Terri Luthy (610-832-9679)



## Questions????

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10 CFR CHAPTER 1 (PARTS 0-50) -Continued  
NUCLEAR REGULATORY COMMISSION -Continued

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Environmental Protection Agency, 401 M Street, NW, Washington, DC 20006; (202) 554-1080.	
National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD 20899, (301) 975-2000.	
Weatherization Assistance Programs Division, Conservation and Renewable Energy, Mail Stop 5G-023, Forrestal Bldg., 1000 Independence Ave, SW, Washington, DC 20585; (202) 586-2207.	



**Title 10--Energy**

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C 0208-72(1982)	C 208-72 (1982) Specification for Cellulosic Fiber Insulating Board
C 0534-88	C 534-88 Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form
C 0578-87a	C 578-87a Specification for Rigid, Cellular Polystyrene Thermal Insulation
C 0591-85	C 591-85 Specification for Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal
C 0728-89a	C 728-89a Specification for Perlite Thermal Insulation Board
C 0984-83	C 984-83 Specification for Perlite Board and Rigid Cellular Polyisocyanurate Composite Roof Insulation
C 0516-80(1990)	C 516-80 (1990) Specification for Vermiculite Loose Fill Thermal Insulation
C 0549-81(1986)	C 549-81 (1986) Specification for Perlite Loose Fill Insulation
C 0553-70(1977)	C 553-70 (1977) Specification for Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications

**CFR**  
**Designation**

**Full Title**

C	0592-80	C 592-80 Specification for Mineral Fiber Blanket Insulation and Blanket-Type Pipe Insulation (Metal-Mesh Covered) (Industrial Type)
C	0665-88	C 665-88 Specification for Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
C	0720-89	C 720-89 Specification for Spray Applied Fibrous Thermal Insulation for Elevated Temperature
C	0739-88	C 739-88 Specification for Cellulosic Fiber (Wood-Base) Loose-Fill Thermal Insulation
C	0764-88	C 764-88 Specification for Mineral Fiber Loose-Fill Thermal Insulation
C	0892-89	C 892-89 Specification for High Temperature Fiber Blanket Thermal Insulation
C	0518-76	C 518-76 Standard Test Method for Steady State Thermal Transmission Properties by the Means of Heat Flow Meter.
C	0520-65(1975)	C 520-65 (1975) Standard Method for Density of Granular Loose-fill Insulation.
C	0755-85(1990)	C 755-85 (1990) Practice for Selection of Vapor Retarders for Thermal Insulation
E	0096-90	E 96-90 Test Methods for Water Vapor Transmission of Materials
C	0971-82	C 971-82 Guide for Selection and Application of Insulation Systems for Heating, Ventilating, and Air Conditioning Duct Work
C	0570-72(1989)	C 570-72 (1989) Specification for Oil-and Resin-Base Caulking Compound for Building Construction
C	0669-75(1989)	C 669-75 (1989) Specification for Glazing Compounds for Back Bedding and Face Glazing of Metal Sash
C	0797-75	C 797-75 Standard Recommended Practices and Terminology for Use of Oil- and Resin-Based Putty and Glazing Compounds.
C	0790-74	C 790-74 Standard Recommended Practices for Use of Latex Sealing Compounds.
C	0834-76(1986)	C 834-76 (1986) Specification for Latex Sealants
C	0804-75	C 804-75 Standard Recommended Practices for Use of Solvent Release Type Sealants.

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*CFR  
Designation*

*Full Title*

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C	0920-87	C 920-87 Specification for Elastomeric Joint Sealants
C	0509-84	C 509-84 Specification for Elastomeric Cellular Preformed Gasket and Sealing Material
D	0396-78	D 396-78 Standard Specification for Fuel Oils
D	2156-65(1975)	D 2156-94, Method of Test for Smoke Density in Flue Gases from Distillate Fuels (ANSI Z 11.182-1965 (R 1971)).
D	0257-78	D 257-78 Test for DC resistance or Conductance of Insulating Materials
D	1622-63(1975)	D 1622-63 (1975) Standard Method of Test for Apparent Density of Rigid Cellular Plastics.
D	3678-88	D 3678-88 Specification for Rigid Poly(Vinyl Chloride) (PVC) Interior-Profile Extrusions
D	4099-89	D 4099-89 Specification for Poly (Vinyl Chloride) (PVC) Prime Windows/Sliding Glass Doors
E	0119-79	E 119-79 Standard Methods of Fire Tests of Building Construction and Materials.
E	0084-89a	E 84-89a Test Method for Surface Burning Characteristics of Building Materials
E	0136-79	E 136-79 Behavior of Materials in a Vertical Tube Furnace at 750<dg>C.
E	0576-76	E 576-76 Standard Test Method for Dew/Frost Point of Sealed Insulating Glass Units in Vertical Position.
E	0283-73	E 283-73 Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls and Doors Under Specified Pressure Differences Across the Specimen
E	0737-80	E 737-80 Standard Practice for the Installation of Storm Windows, Replacement Windows, Multi-Glazing, Storm Doors and Replacement Doors
C	0272-53	C 272-53 Test for Water Absorption of Core Materials for Structural Sandwich Constructions.
G	0001-72(1979)	G 1-72 (1979) Standard Recommended Practice for Preparing, Cleaning, and Evaluating Corrosion Test Specimens.

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# *ASTM Standards Referenced by the Department of Energy*

<i>Government Agency</i>	<i>ASTM Subcommittee</i>	<i>CFR Designation</i>	<i>Current Designation</i>
Energy	C16	C 0355-64	W/D Replaced by E 96-95
Energy	C16	C 0517-71(1979)	W/D No Replacement
Energy	C16.20	C 0533-85(1990)	C 533-95
Energy	C16.20	C 0547-77	C 547-95
Energy	C16.20	C 0552-88	C 552-91
Energy	C16.20	C 0610-85	C 610-95
Energy	C16.20	C 0612-83	C 612-93
Energy	C16.20	C 0726-88	C 726-93
Energy	C16.22	C 0208-72(1982)	C 208-95
Energy	C16.22	C 0534-88	C 534-94
Energy	C16.22	C 0578-87a	C 578-95
Energy	C16.22	C 0591-85	C 591-94
Energy	C16.22	C 0728-89a	C 728-91
Energy	C16.22	C 0984-83	C 984-94
Energy	C16.23	C 0516-80(1990)	C 516-80(1996)
Energy	C16.23	C 0549-81(1986)	C 549-81(1995)
Energy	C16.23	C 0553-70(1977)	C 553-92
Energy	C16.23	C 0592-80	C 592-80
Energy	C16.23	C 0665-88	C 665-95
Energy	C16.23	C 0720-89	C 720-89(1994)
Energy	C16.23	C 0739-88	C 739-91
Energy	C16.23	C 0764-88	C 764-94



<i>Government Agency</i>	<i>ASTM Subcommittee</i>	<i>CFR Designation</i>	<i>Current Designation</i>
Energy	C16.23	C 0892-89	C 892-93
Energy	C16.30	C 0518-76	C 518-91
Energy	C16.32	C 0520-65(1975)	C 520-91
Energy	C16.33	C 0755-85(1990)	C 755-85(1990)
Energy	C16.33	E 0096-90	E 96-95
Energy	C16.40	C 0971-82	C 971-82(1992)
Energy	C24.12	C 0570-72(1989)	C 570-95
Energy	C24.12	C 0669-75(1989)	C 669-95
Energy	C24.12	C 0797-75	C 797-94
Energy	C24.16	C 0790-74	C 790-90
Energy	C24.16	C 0834-76(1986)	C 834-95
Energy	C24.18	C 0804-75	C 804-83(1988)
Energy	C24.20	C 0920-87	C 920-95
Energy	C24.73	C 0509-84	C 509-94
Energy	D02	D 0396-78	D 396-96
Energy	D02	D 2156-65(1975)	D 2156-94
Energy	D09.12	D 0257-78	D 257-93
Energy	D20.22	D 1622-63(1975)	D 1622-93
Energy	D20.24	D 3678-88	D 3678-96a
Energy	D20.24	D 4099-89	D 4099-95
Energy	E05.11	E 0119-79	E 119-95a
Energy	E05.22	E 0084-89a	E 84-96a
Energy	E05.23	E 0136-79	E 136-96a
Energy	E06.22	E 0576-76	E 576-88(1995)

<i>Government Agency</i>	<i>ASTM Subcommittee</i>	<i>CFR Designation</i>	<i>Current Designation</i>
Energy	E06.51	E 0283-73	E 283-91
Energy	E06.51	E 0737-80	E 737-84
Energy	F07.05	C 0272-53	C 272-91(1996)
Energy	G01.05	G 0001-72(1979)	G 1-90(1994)

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**1997 DOE Technical Standards  
Program Workshop**

**Tuesday, July 8, 1997**

**Special Presentation—RMS Standards: A Present  
Challenge for Industry-Government Partnerships**

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# STANDARD REFORM



## A PRESENT CHALLENGE FOR INDUSTRY- GOVERNMENT PARTNERSHIPS

DOE Technical Standards Program Workshop

L'Enfant Plaza Hotel

July 8, 1997

RUSSELL A. VACANTE, Ph.D.,  
CHAIR, RMS Partnership

# A STRATEGIC PERSPECTIVE



## Initial Steps:

- ★ **Blueprint for Change (draft 23 Nov 1993) -PAT Report**
- ★ **The Role of Professional Societies & Their Leadership in the Defense Standards Community (Winter 1994 -SAE Article)**
- ★ **SAE Meeting MOA (draft March 9, 1994)**
- ★ **Report of the Process Action on Military Specifications & Standards, April 1994**
- ★ **Policy Memo on MilSpec & MilStds Reform, SECDEF Perry, June 29, 1994**
- ★ **“The National Technology Transfer & Advancement Act of 1995” signed into law by the President, March 7, 1996**

# THE CHALLENGE



## PROVIDING WORLD-CLASS STANDARDS FOR A CHANGING ENVIRONMENT

☆ **INDUSTRY'S WAY OF DOING BUSINESS  
IS CHANGING**

- ☆ **MORE DECENTRALIZED**
- ☆ **LEANER AND MORE COMPETITIVE**
- ☆ **DOWNSIZING**
- ☆ **OUTSOURCING**

# INDUSTRY-GOVERNMENT COMMONALITY



CAPTURING CORE FUNCTIONS OR  
PRODUCT LINES - A NEW DIMENSION

★ NATIONALLY

★ INTERNATIONALLY



# NEW STANDARDS TO MEET THE CHALLENGES AND REQUIREMENTS OF THE GLOBAL MARKET



**INDUSTRY & GOVERNMENT INCREASE  
RELIANCE ON:**

★ **GENERIC, DUAL-USE STANDARDS**

★ **PERFORMANCE BASED STANDARDS**

# AS STANDARD DEVELOPERS AND USERS, INDUSTRY-GOVERNMENT TEAMS MUST ENSURE . . .

## STANDARDS:

- ★ ARE EASY TO USE
- ★ ADD VALUE
- ★ ARE REASONABLY PRICED
- ★ ARE READILY ACCESSIBLE

# GOVERNMENT-INDUSTRY PARTNERSHIPS



**ARE ENCOURAGED TO SUPPORT COMMON  
STANDARDS THROUGH:**

- ★ **ENHANCED & CONSISTENT FUNCTIONS**
- ★ **EASE OF INTERCHANGEABILITY**
- ★ **MORE R&D DOLLARS VIS-A-VIS INFRASTRUCTURE  
REDUCTION**
- ★ **COST AVOIDANCE BY REDUCING DUPLICATION OF  
STANDARDS ACTIVITIES**
- ★ **REDUCTION OF LAG TIME BETWEEN INTRODUCTION OF  
NEW TECHNOLOGIES & DEVELOPMENT OF STANDARDS**

# THE LEADERSHIP ROLE OF THE RMS PARTNERSHIP



## A CATALYST FOR CHANGE IN THE RMS COMMUNITY:

- ★ ASSISTED PROFESSIONAL SOCIETIES IN ASSUMING OWNERSHIP OF RMS STANDARDS
- ★ WORKED TO AVOID DUPLICATION OF EFFORTS AMONG STD BODIES
- ★ DEVELOPED TEAMS TO WORK & SUPPORT STD DEVELOPMENT EFFORTS
- ★ FACILITATED COMMUNICATIONS AMONG RMS PROFESSIONALS
- ★ IMPROVED U.S. REPRESENTATION IN INTERNATIONAL STANDARD ORGANIZATION
- ★ SERVED AS AN IMPLEMENTATION ARM FOR DOD REFORM

# THE LEADERSHIP ROLE OF THE RMS PARTNERSHIP

(Cont'd)



## NOW AND IN THE FORESEEABLE FUTURE:

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- ★ DEVELOP AND IMPLEMENT AN OPERATIONAL PLAN TO ENSURE THAT RMS CONSIDERATIONS ARE INTEGRAL TO REFORM INITIATIVES
- ★ ENCOURAGE INCREASED INDUSTRY/PROFESSIONAL SOCIETY INVOLVEMENT
- ★ INCREASE OUR INVOLVEMENT IN INTERNATIONAL STANDARDS ACTIVITIES
- ★ PROVIDE USEFUL PRODUCTS TO THE CUSTOMER

# SUMMARY



## CONTINUOUS CHANGE WILL REMAIN A WAY OF LIFE:

- ★ CONSOLIDATION AND LESS DUPLICATION OF STANDARDS EFFORTS ARE CRITICAL EFFICIENCIES
- ★ DUAL-USE STANDARDS, A MEANS TO AN END
- ★ INDUSTRY-GOVERNMENT PARTNERSHIP ROLES ARE EXPANDING AND ARE INCREASINGLY NECESSARY
- ★ THE RMS PARTNERSHIP CONTINUES TO SERVE AS A VEHICLE OF COMMUNICATION, KNOWLEDGE, EXPERTISE AND EXPERIENCE - CRITICAL TO DOD REFORM & WORLD-CLASS STANDARD DEVELOPMENT

# CONCLUSION



## CONTINUE TO MEET THE CHALLENGE BY:

- ★ USING THE RMS PARTNERSHIP AS A CATALYST FOR BUILDING INDUSTRY-GOVERNMENT TEAMS
- ★ ASSISTING PROFESSIONAL SOCIETIES TO INCREASE THEIR OWNERSHIP OF RMS STANDARDS
- ★ ENCOURAGING A SET OF NATIONAL CONSENSUS STANDARDS
- ★ DEVELOPING A SEAMLESS-SUPPORTIVE RMS & STANDARDS CULTURE BETWEEN THE WORK PLACE AND PROFESSIONAL SOCIETIES

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**1997 DOE Technical Standards  
Program Workshop**

**Wednesday, July 9, 1997**

**Session 2: Update on Global Standards Issues**

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## ISO 14000 at DOE SITES

Diane Meier  
Lawrence Livermore  
National Laboratory



DOE Technical Standards Program Workshop  
Global Standards Issues Session

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### What is ISO 14000?



- ★ International Standards for Environmental Management
- ★ ISO 14001 final in 9/96
- ★ Environmental Management System (EMS)
- ★ Plan, do, check, act

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### ✓ Plan

- ★ Environmental policy
- ★ Impacts of operations
- ★ Legal & other requirements
- ★ Objectives and targets



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**✓ Do**

- ★Operational controls
- ★Emergency preparedness
- ★Responsibility
- ★Training/competency
- ★Documentation



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**✓ Check**



- ★Monitoring and measurement
- ★Non-conformance and corrective action
- ★Audits

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**✓ Act**

- ★Management Review
  - Evaluate and change EMS
- ★Continual Improvement



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**Six DOE sites are committed to implementing ISO 14001 EMS**

- ★ Kansas City Plant (KCP)
- ★ Savannah River Site (SRS)
- ★ Hanford Site
- ★ Nevada Test Site (NTS)
- ★ Waste Isolation Pilot Project (WIPP)
- ★ West Valley

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**Interest is growing across the DOE complex**

- ★ ISO 14000 Working Group sponsored by Energy Facilities Contractor Group
- ★ About 60 contractor members from 20 DOE sites
- ★ DOE representatives also active

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**What are drivers for ISO 14001 at DOE sites?**

- ★ Corporate interests of DOE contractors that are doing international business
- ★ DOE contract requirements
- ★ State pilot programs for ISO 14001 EMS

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**Two DOE contractors have taken  
the initiative on ISO 14001**

- ★ Westinghouse: SRS, WIPP, West Valley
- ★ AlliedSignal: KCP
- ★ ISO 14001 meets companies' business objectives, as well as DOE needs

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**Contracts require ISO 14001  
EMS at two DOE sites**

- ★ Hanford
  - Fluor Daniel contract
- ★ Nevada Test Site
  - Bechtel contract

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**States will implement @ 100  
ISO 14001 pilots**

- ★ Working Group of 10 States
- ★ Includes CA and TX, which have DOE sites
- ★ Potential for regulatory flexibility

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**Is Federal policy direction on ISO 14001 needed?**

**★EPA Code of Environmental Management Principles**

- Recognizes ISO 14000

**★Interagency Working Group on EMS**

- Co-chaired by DOE and EPA

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**Is DOE policy needed?**

**★How should ISO 14001 be addressed in contracts?**

**★How should DOE Integrated Safety Management System (ISMS) relate to ISO 14001 EMS?**

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**Hanford is integrating the EMS and ISMS**

**★Paul Krupin, DOE/RL:**

**ISMS = EMS as skeleton + SMS as muscle**

**★Other sites may follow Hanford**

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**✓ Plan**



<b>EMS</b>	<b>ISMS</b>
- Aspects	- Work Scope
- Impacts	- Analyze Hazards
- Requirements	- Requirements
- Objectives	- Expectations

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**✓ Do**



<b>EMS</b>	<b>ISMS</b>
- Operational Controls	- Hazard controls
- Training	- Safety Envelope
- Documentation	- Readiness

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**✓ Check**

<b>EMS</b>	<b>ISMS</b>
- Monitoring	- Feedback
- Audits	- Oversight/
- Identify Nonconformances	Enforcement

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**✓ Act**

<b>EMS</b>	<b>ISMS</b>
- Corrective Action	- Make changes to improve
- Management Review	




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**EMS and ISMS differ in focus**

- ★ ISO 14001
  - management commitment and review of the system
  - pollution prevention
- ★ ISMS
  - work activities
  - safety systems

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**ISO 14001 can improve ISMS**

- ★ Build on strength of both
- ★ Assure ES&H integration
- ★ Comply with National Technology Transfer and Advancement Act

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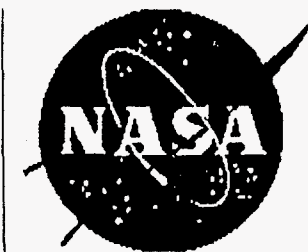
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# Reinventing NASA through ISO 9000

Carl Schneider  
NASA Headquarters  
Washington, DC

July 9, 1997



# Discussion Topics

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- **Overview of NASA**
- **Where we Were on Quality**
- **Today and beyond**
- **Agency Strategy**
- **What will it do for NASA?**
- **Key issues**
- **Window Dressing or Opportunity?**

# Overview of NASA

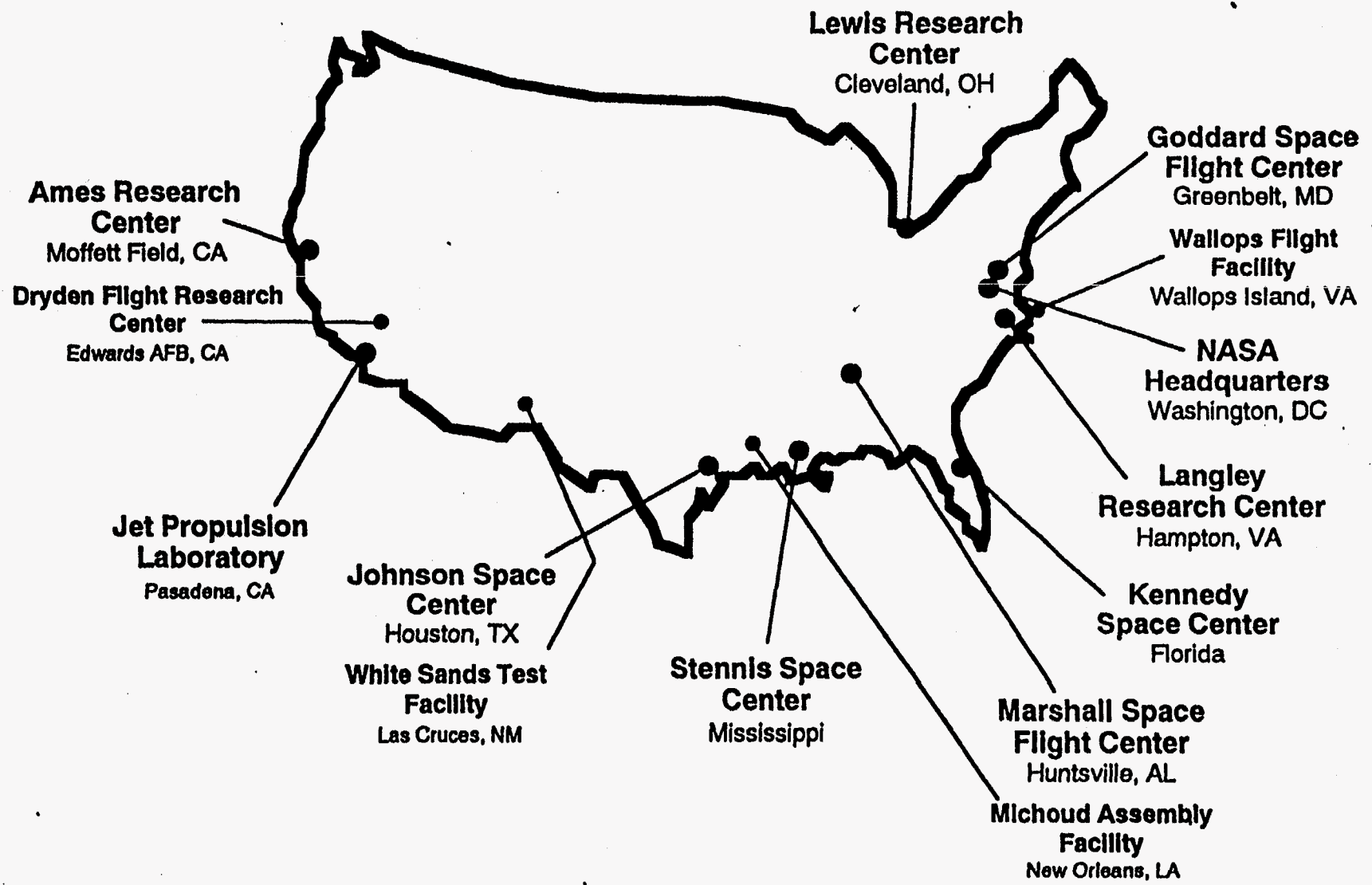
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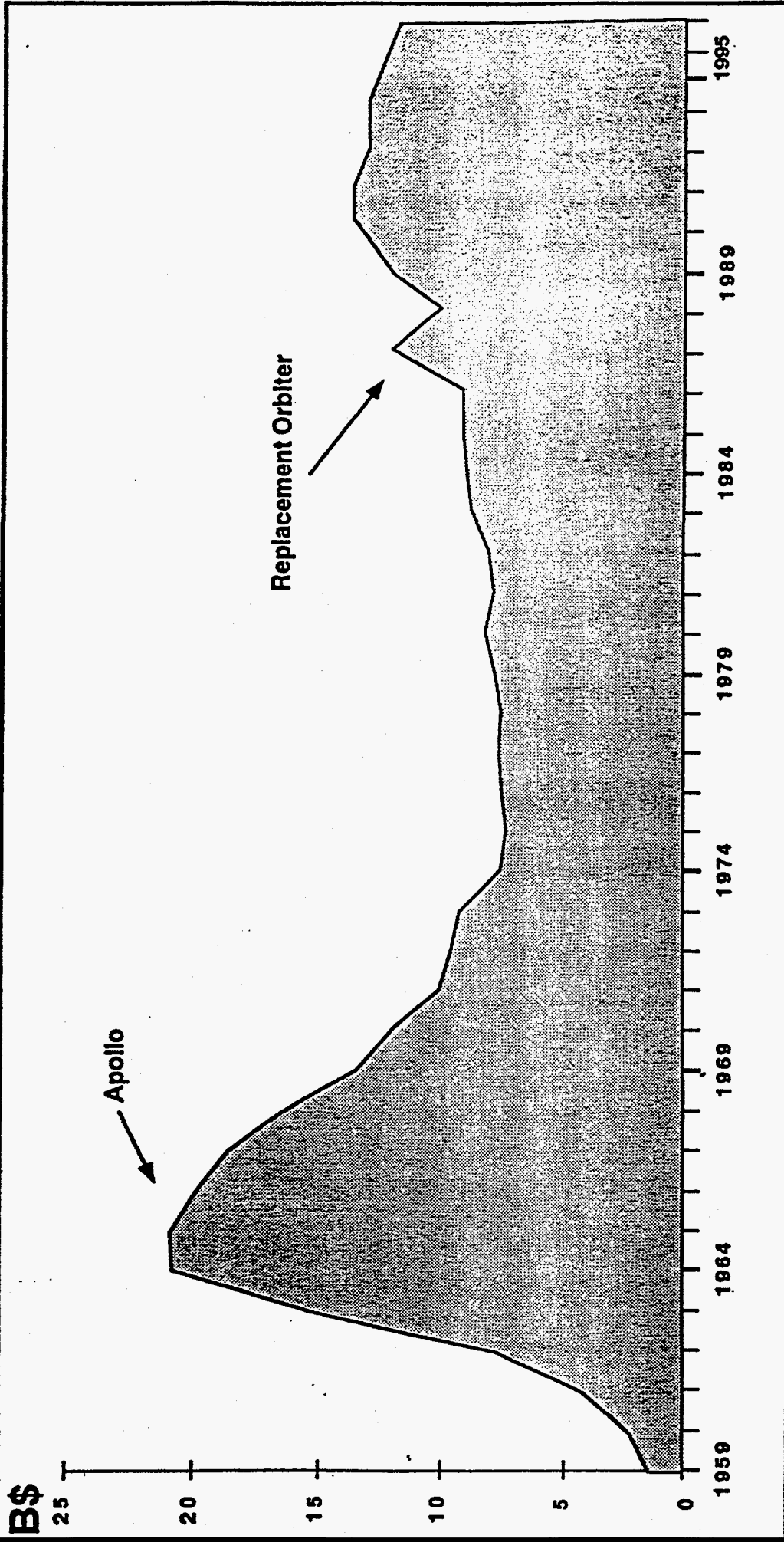
## NASA Summary:

- **National Aeronautics and Space Administration (NASA)**
  - **Created in July 1958**
  - **Congress and President Eisenhower**
  - **Provided a concentrated responsibility for civilian space and aeronautical activities**
- **A thriving organization**
  - **20,000 Civil Servants**
  - **40,000 Support Service Contractors**
  - **Annual appropriations**
    - **On a downward trend (FY 98 @ \$13.5B)**

# NASA Installations



# NASA's Budget Authority in 1995 Dollars



# Where We Were

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*The 60's and 70's ....*

- **NASA “Inspect in quality” approach- NHB 5300.4(1B), dated 1969**
  - **Product focused**
  - **Defect detection and correction**
  - **Prescriptive “How to” approach**
  - **Applicable to NASA contractors only**

*The 80's ...*

- **The “Design in quality” paradigm change**
  - **Emphas on process control and variability**
  - **Early design involvement and integration**
  - **Total Quality Management (TQM)**
  - **Hightened customer awareness**





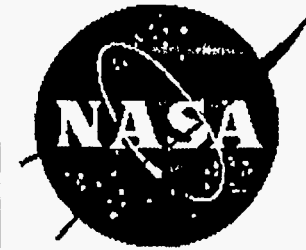
# Today and Beyond

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- Agency undergoing major re-engineering activities
  - Acquisition Reforms
    - Performance Based Contracting
    - Single Process Initiative
    - Full cost accounting
  - Corporate restructuring
    - Lean Headquarters
    - Technical and program management transferred to field Centers
    - "Faster, Better and Cheaper" Philosophy

# Generic Milestones

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- Strategic Planning - Management commitment and selection of registrar
- Gap Analysis - Identify existing system to conformance model
- Corrective Action - Correct deficiencies from Gap Analysis
- Documentation and records - Implement a documentation control system
- Implementation - Management implements and monitors all changes to system
- Pre-certification Audit - initial on-site visit
- Registrar Documentation Review - at registrar off-site location
- Site preparation - Management prepares organization for Certification Audit
- Certification Audit - Evaluates existence, adequacy and compliance



# Agency Strategy

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- **Responsibility**
  - **Field Center Directors are responsible**
  - **Funded internal to Center operations**
- **Headquarters guidance**
  - **Limited**
  - **Institutional Program Offices (IPO's) for Centers**
- **Criticality of scope of certification**
  - **Drives internal workload**
- **Institutionalize approach**
  - **Strategic plan**
  - **Strategic Management Handbook**
  - **Program/Project Managers Guidance (7120.4/ 7120.5)**
  - **Other directives**

**We must do the right thing for the right reason**



# What will it do for NASA?

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- Identifies customers, deliverable products and key processes
- Requires introspection of internal processes
  - › Encourages creativity and streamlining
  - › Focuses on process definition and effectiveness
- Results in a structured and documented management system
  - › Policy
  - › Procedures
  - › Work Instructions
  - › Data
- Aligns NASA to commercial best practices in quality management
  - › Ensures consistent management approach across Centers
- Improves productivity
  - › Hawthorne Effect
- Provides assurance of predictability to customers

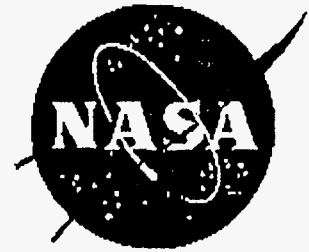


## **Key Issues**

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- **Headquarters and Center ISO 9000 Project Offices**
  - **Different approaches being used**
- **Integration of effort**
  - **Agency**
  - **Enterprise**
  - **Center (Headquarters)**
- **Selection of ISO 9000 Registrars**
  - **How many and who selects?**
- **Funding of ISO activities**
  - **Centralized or decentralized**
- **Training**
  - **Centralized or decentralized**
- **Type and extent of guidance to centers**
- **Level of oversight and reporting**

# Window Dressing or Opportunity?



## A time to Change:

- **A new world for both government and industry**
  - **Global economy**
  - **Government efficiency**
- **Why ISO 9000 in a time of turmoil?**
  - **Downsizing, re-engineering, reduced budget, re-organizing, privatization, buy-outs**
  - **Status quo not good enough**
    - **Work smarter not harder...**
    - **Do more with less....**
    - **Do less with less...**
- **Cost versus benefit analysis**
  - **A balanced common sense approach**
  - **Not a destination but a start**

***"You don't have to do this, survival is not compulsory."***

**Deming**

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# Back-up Charts

# Elements of ISO 9001



1. MANAGEMENT RESPONSIBILITY
2. QUALITY SYSTEM
3. CONTRACT REVIEW
4. DESIGN CONTROL
5. DOCUMENT/ DATA CONTROL
6. PURCHASING
7. CONTROL OF CUSTOMER SUPPLIED PRODUCT
8. PRODUCT IDENTIFICATION AND TRACEABILITY
9. PROCESS CONTROL
10. INSPECTION AND TESTING
11. CONTROL OF INSPECTION, MEASURING, AND TEST EQUIPMENT
12. INSPECTION AND TEST STATUS
13. CONTROL OF NONCONFORMING PRODUCT
14. CORRECTIVE AND PREVENTIVE ACTION
15. HANDLING, STORAGE, PACKAGING, PRESERVATION, AND DELIVERY
16. CONTROL OF QUALITY RECORDS
17. INTERNAL QUALITY AUDITS
18. TRAINING
19. SERVICING
20. STATISTICAL TECHNIQUES





## Key Processes to be ISO 9001 Certified at NASA Field Centers

As of: June 6, 1997

CENTER	KEY PROCESSES (SCOPE OF CERTIFICATION)	REMARKS
ARC	<p>Design and development of aeronautics, space and information research and technology products including: software, hardware and services.</p> <p>Key processes include:</p> <p><i>Design and development of software</i>  <i>Design and development of hardware and facilities</i>  <i>Program/project management</i>  <i>Management and performance of tests</i>  <i>Production of hardware components and systems</i>  <i>Management and operations of facilities</i>  <i>Management, operation and maintenance of aircraft (?)</i></p>	
DFRC	<p>Flight Research - Atmospheric Flight Operations</p> <p>Key processes embodied in Basic Operations Manual (BOM):</p> <ul style="list-style-type: none"> <li>• BOM - flight research project management process manual.</li> <li>• Risk management addressed "up-front" and throughout.</li> <li>• Covers project introduction and planning, project development, flight preparation, and flight operations.</li> </ul> <p>All processes, from program/project introduction through flight operations, will be certified</p>	
GSFC	The Quality Management System (QMS) applies to all organizational elements whose responsibilities affect the quality	

	of GSFC products. Center products covered by the QMS include: spacecraft, space flight instruments, and ground support and mission operation elements that directly interact with them; Center-authorized studies; balloon, sounding rocket, and aircraft experiments. Products include such deliverable items as hardware, software, documentation, and services. Scientific research, analysis, and algorithm development is excluded.	
JPL	Those processes required to design, produce, and operate NASA funded spacecraft, flight instruments, and ground support equipment are considered to be within the scope of compliance.  Forty-nine of 150+ processes identified by the Laboratory are currently designated as "In-Scope".	
JSC	The scope of JSC certification encompasses the five core business processes that are enumerated in the agency's strategic implementation plans: <i>Program and project management</i> <i>Spacecraft engineering and design</i> <i>Space and life sciences research</i> <i>Flight crew training</i> <i>Mission Operations</i>	
KSC	The management of space vehicles and payload processing, launch, and support activities include:  <i>Development</i> <i>Assembly</i> <i>Checkout</i> <i>Testing</i> <i>Maintenance</i> <i>Modifications</i> <i>Upgrades</i> <i>Refurbishment</i>	
LARC	The scope of certification encompasses all activities that result in products to external customers, including basic research. Key processes are:  <i>Theoretical and experimental research in aerodynamics, structures and materials, and flight systems</i> <i>Wind Tunnel testing</i> <i>Flight Simulation</i> <i>Flight Testing</i> <i>Spaceflight Hardware Development</i> <i>Program management</i>	
LERC	ISO 9001 certification is applicable to all key processes that produce aeronautic and space science technology products for LeRC customers. Support processes that directly affect the quality of LeRC products and services will also be included.	

	<p><b>Key Processes:</b></p> <ul style="list-style-type: none"> <li>· <i>Engineering Design Control and Documentation</i></li> <li>· <i>Software Development (See Appendix C)</i></li> <li>· <i>Program/Project Management</i></li> <li>· <i>Acquisition/Purchasing</i></li> <li>· <i>External Contracts/Agreements</i></li> <li>· <i>Receiving/Receiving Inspection</i></li> <li>· <i>Fabrication</i></li> <li>· <i>Metrology</i></li> <li>· <i>Inspection/Testing</i></li> <li>· <i>Internal Audits</i></li> <li>· <i>Failure Reporting/Corrective Action</i></li> <li>· <i>Logistics - Storage/Packing/Handling/Delivery</i></li> <li>· <i>Human Resources Management - Training and Skills Mix</i></li> <li>· <i>Product Identification and Traceability</i></li> <li>· <i>Management Review</i></li> <li>· <i>Scientific Research</i></li> </ul> <p><b>Supporting Processes:</b></p> <ul style="list-style-type: none"> <li>· <i>Technology Transfer</i></li> <li>· <i>Facilities Management</i></li> <li>· <i>Intellectual Property Management</i></li> <li>· <i>Information Technology - Security and Backup</i></li> <li>· <i>Resources Management - Budgeting, Tracking, and Reporting</i></li> <li>· <i>Public, University, and Community Relations</i></li> <li>· <i>Institutional Safety</i></li> <li>· <i>Environmental Compliance</i></li> </ul>	
MSFC	The Quality Management System (QMS) shall apply to all onsite processes and operations for procurement, design, development, production, testing, and servicing of flight hardware, flight software, protoflight units, qualification units, and associated flight support equipment, for which MSFC has responsibility.	
SSC	All on-site processes and operations involved in the delivery of products and services to external customers in the areas of propulsion test and commercial remote sensing.	

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# **International Information Technology Standards**

**DOE Technical Standards Program**

**1997 Workshop**

**Oliver R. Smoot**

**Information Technology Industry Council**

# IT Requires Global Standards



- ◆ **The dynamics of the IT market force a global focus on vendors**
- ◆ **Global Information Infrastructure developments have increasingly caused IT users to have a global orientation.**

# Health, Safety and -Environmental Standards

◆ The IT industry largely builds to consensus standards for the health, safety and environmental aspects of their products.

– Electrical safety standard and equivalent electromagnetic radiation standards.

- ◆ Safety yes, one plug no
- ◆ EMC is the Topic du Jour





# **We Support Strong Government Participation**

- ◆ **Advocated our views in NRC Study**
- ◆ **Supported adoption of the TTA**
- ◆ **Support parallel revision of A-119**
- ◆ **Want Federal Agency participation in development of IT standards of all types where Agency is a materially interested party**



# Energy Efficiency

- ◆ Suppliers support making energy efficiency a factor in the purchaser decision
- ◆ Do not support making it THE factor
- ◆ Working toward a global approach but very concerned about European initiatives

# Simplification of Conformity

◆ “IOSCA II supports as a fundamental principle that global trade and commerce are best supported by harmonized global standards, and, further, embraces the principle of one standard-one test, supplier’s declaration of conformity worldwide, and encourages the concept to be used by regulatory agencies”

# Proliferation of Marks

◆ A significant issue is the proliferation of marks; to remedy this we have proposed a single declaration of conformity symbol

# Functional Standards

- ◆ The rapid technological development of products and services results in a very tumultuous environment for functional standards (standards for product features).



# Technology Drivers

◆ Both vendors and users try many routes to meet a perceived need and even to create needs.

- De Jure
- Consortia
- Alliances
- De Facto

# The Standards Infrastructure

- ◆ Reorganization of JTC 1
- ◆ Reorganization of NCIIS
- ◆ Information Infrastructure Standards  
Panel



# The Stability Grail

- ◆ Evidence that standards have caught up in the IT field will be evidence that technological change has slowed markedly.
- ◆ Overall we do not think that would be a better alternative.

# Summary

- ◆ We support the TTA amendments because Government should be a strong player
- ◆ We believe that consensus is the best way to address these technical areas
- ◆ For IT the context is global



**1997 DOE Technical Standards  
Program Workshop**

**Wednesday, July 9, 1997  
Session 3: Delivering Standards Information**

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# **Development of an American Nuclear Society Standard**

## **DOE Conference - July 8, 1997**

### **C. H. Moseley, Jr.**

It is a distinct pleasure for me to be a member of this panel on standards and represent the American Nuclear Society, for, as many of you know, I have a deep personal commitment to the development of nuclear standards.

We, of the nuclear community, have accepted the tremendous challenge and responsibility of meeting the unprecedented demands for electricity and other forms of energy essential to this Nation's health, safety, and welfare. And at the same time, we must deal with the challenge of alleviating environmental problems which an energy-based society has helped create. Meeting these challenges will be extremely difficult, complex, and costly. And the problems involved will in many cases take a long time to work out.

But, there is one area of difficulty where the course of action is so abundantly clear that continuing failure to take the necessary actions on an urgent basis appears nothing short of remarkable. I refer to the need for a systematic industry-wide effort on the development, acceptance, and disciplined application of standards.

The American Nuclear Society Standards Committee develops standards in accordance with the accredited organization method for developing evidence of consensus for their approval as American National Standards. Rules for accreditation of the ANS Standards Committee were approved by the American National Standards Institute (ANSI) on March 14, 1985.

Over 900 volunteers participate in the development of ANS-sponsored nuclear standards, of which there are about 125 in various phases of development. As of early 1997, there were over 100 approved American National Standards offered for sale.

All standards developed within the ANS Standards Committee have the ultimate goal of becoming American National Standards, commonly known as "ANSI Standard," a misnomer since ANSI does not develop standards at all. To achieve this goal of approval, a project charter, which describes the proposed standard, and the proposed standard itself must go through a series of reviews and approvals as described below. There must be a compelling and recognized need for a standard to initiate this process. The need for a standard is usually established by a recurring issue that can be addressed by development of a standard. This need may be identified by any individual or committee, but usually arises within a consensus committee.

Once the issue to be addressed is defined, a working group (WG) is selected to prepare a scope statement and title for the proposed standard. The initial responsibility of the WG is to develop the project charter that defines the project, the issue to be addressed (purpose), and how the issue can be resolved by the existence of a standard (need), as well as other information related to the

project.

The charter is sequentially reviewed and approved by the responsible subcommittee (SC) and consensus committee (CC), and by the Standards Steering Committee (SSC), the Standing Committee of the Society responsible for all standards-related issues. It is then sent to the Nuclear Standards Board (NSB) of ANSI for a broad review by interested participants who are, for the most part, potential users of the proposed standard. Comments may be received throughout this chain of review that can enhance the value of the merging standard. During this sometimes prolonged process of project charter approval, development of the proposed standard may continue at the WG level.

The writing of a standard is usually achieved through meetings of a WG composed of a small number of individuals who have recognized expertise in the subject. While there is no requirement for a balance of representation on a WG, the membership should include individuals from those organizations having a significant interest in the project. The meetings of the WG are supplemented by exchanges of information through the mail, by telephone, and by electronic means.

Subcommittees are established to manage the development of several standards in closely related disciplines, such as reactor operations, waste management, criticality safety, etc. Members of the subcommittees are recognized as having expertise in one or more areas in which the proposed standards are being prepared. Again, a balance of representation is not required, but the number of members on the SC is greater in order that a broad technical review of the proposed standards within its scope of activity can be accomplished. SC members are expected to lend their special expertise to the development of standards presented for review. SC procedures do not require a formal ballot process; indication of SC approval is often achieved by in-committee discussion.

The work of the ANS Standards Committee is managed by four consensus committees:

N16	Nuclear Criticality Safety
N17	Research Reactors, Reactor Physics, Radiation Shielding and Computational Methods
N48	Radioactive Waste Management
Nuppsco	Nuclear Power Plant Standards Committee

Consensus committees are comprised of a balance of representation from among various areas of interest, including users, in the work of a specific committee. These committees manage the development of proposed standards within their assigned scopes of responsibility, and they develop consensus for approval of the projects. A formal ballot process is employed to ascertain each member's position on each standard brought before the committee. All comments received must be formally responded to by the WD; the SC may assist in resolving comments.

A conscientious attempt must be made to resolve concerns expressed by negative votes, and a technically appropriate response is required. Each negative voter is requested to review the response to his comments and to change his vote to affirmative. If he is not satisfied with the

attempted resolution of his negative, he may maintain it but must formally state his reasons for doing so. Any outstanding negative positions must be circulated to all members of the CC for review. A member holding an affirmative position may change his vote if he wishes to support those whose votes remain negative.

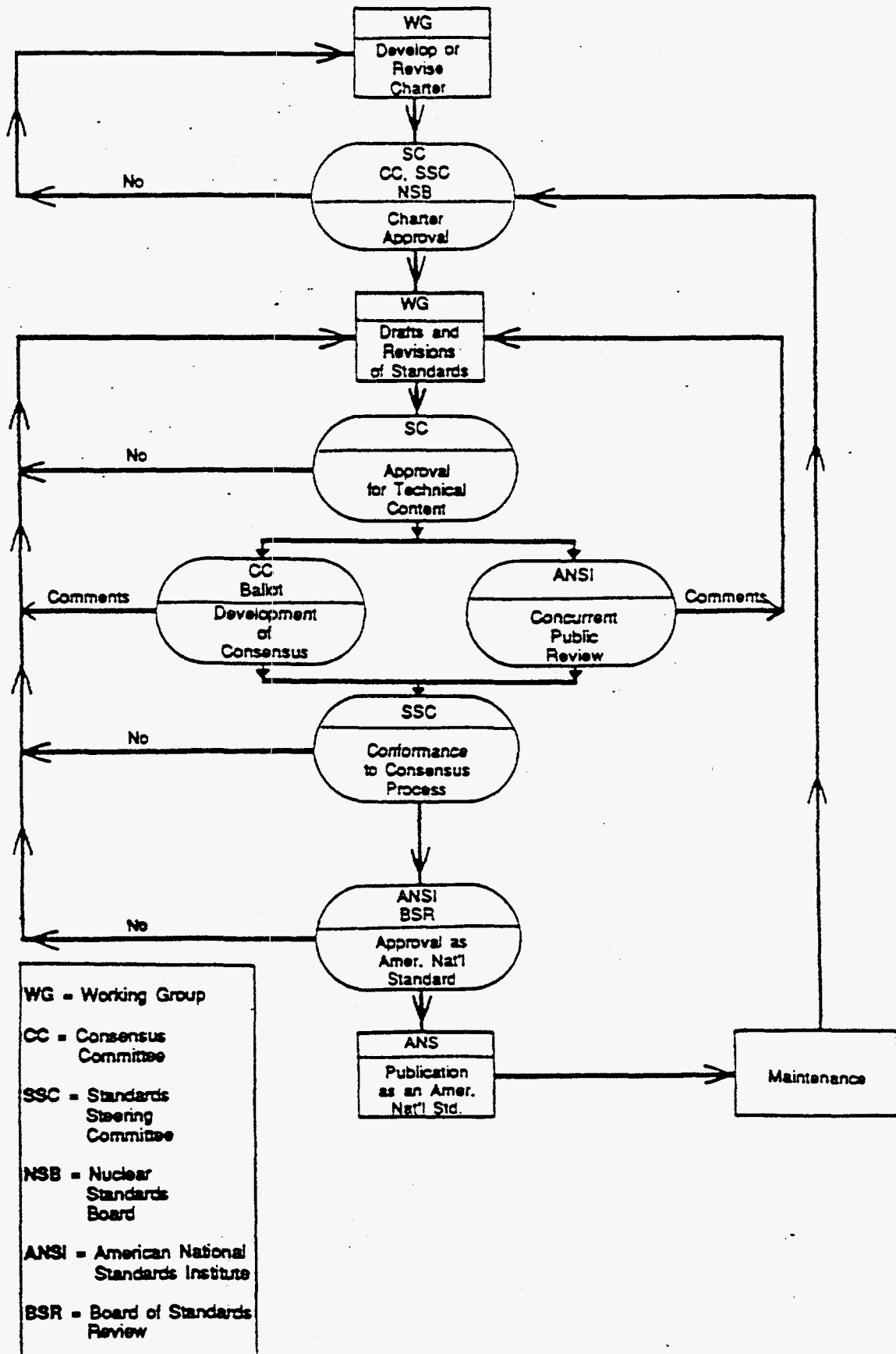
Public review (PR), usually concurrent with the CC ballot, is conducted through the auspices of ANSI. The availability of the proposed standard for review for a period of 60 days is announced in the "Standards Action" section of the *ANSI Reporter*. Anyone interested in reviewing the document may obtain a copy and provide comments. All comments from PR must be promptly and formally addressed.

At completion of the consensus process, the SSC reviews a "case history" of the due process conducted for each proposed standard to certify that all procedures have been implemented. The SSC does not review the document itself.

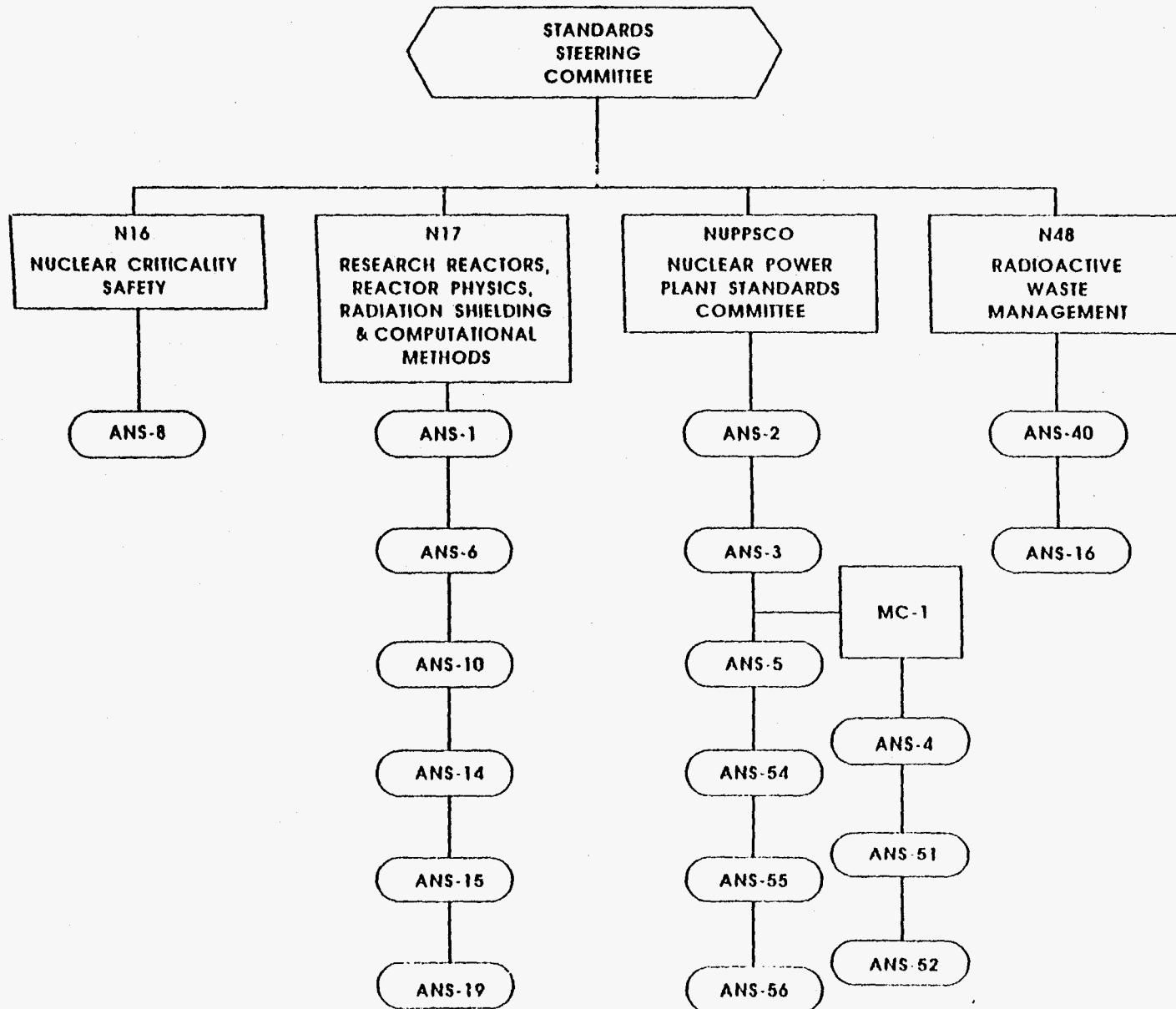
The final step in the development of a proposed standard is approval by the ANSI Board of Standards Review (BSR). Upon certification by the SSC that consensus procedures have been adhered to, the proposed standard is sent to BSR along with documentation of the ballot results. A "clean case presentation" -- where there have been no comments received from PR and there are no outstanding negatives -- is ensured immediate approval. However, the members of the BSR carefully review, and often question, cases where negative notes have not been resolved.

Upon satisfaction of all the many steps in the consensus process, a proposed standard emerges as an American National Standard -- a remarkable achievement and a credit to all the volunteers who made it possible.

# STEPS IN THE DEVELOPMENT OF A STANDARD



# AMERICAN NUCLEAR SOCIETY STANDARDS COMMITTEE



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# Meeting Customers' Standards Information Needs

**Diane Thompson**  
*Director, Industry Standards  
Information Handling Services*

*DOE Technical Standards Program Workshop  
July 8-10, 1997*



# Agenda

- ◆ IHS corporate overview
- ◆ Standards users needs
- ◆ Standards business timeline
- ◆ IHS standards products
- ◆ Benefits of electronic products
- ◆ IHS delivery options

# *IHS Corporate Overview*



**IHS GROUP**

**Global  
Engineering**

**IHS Publishing**

**Creative  
Multimedia**

**Technical  
Indexes**

**IHS Regulatory**

**Beilstein**

**IHS Engineering**

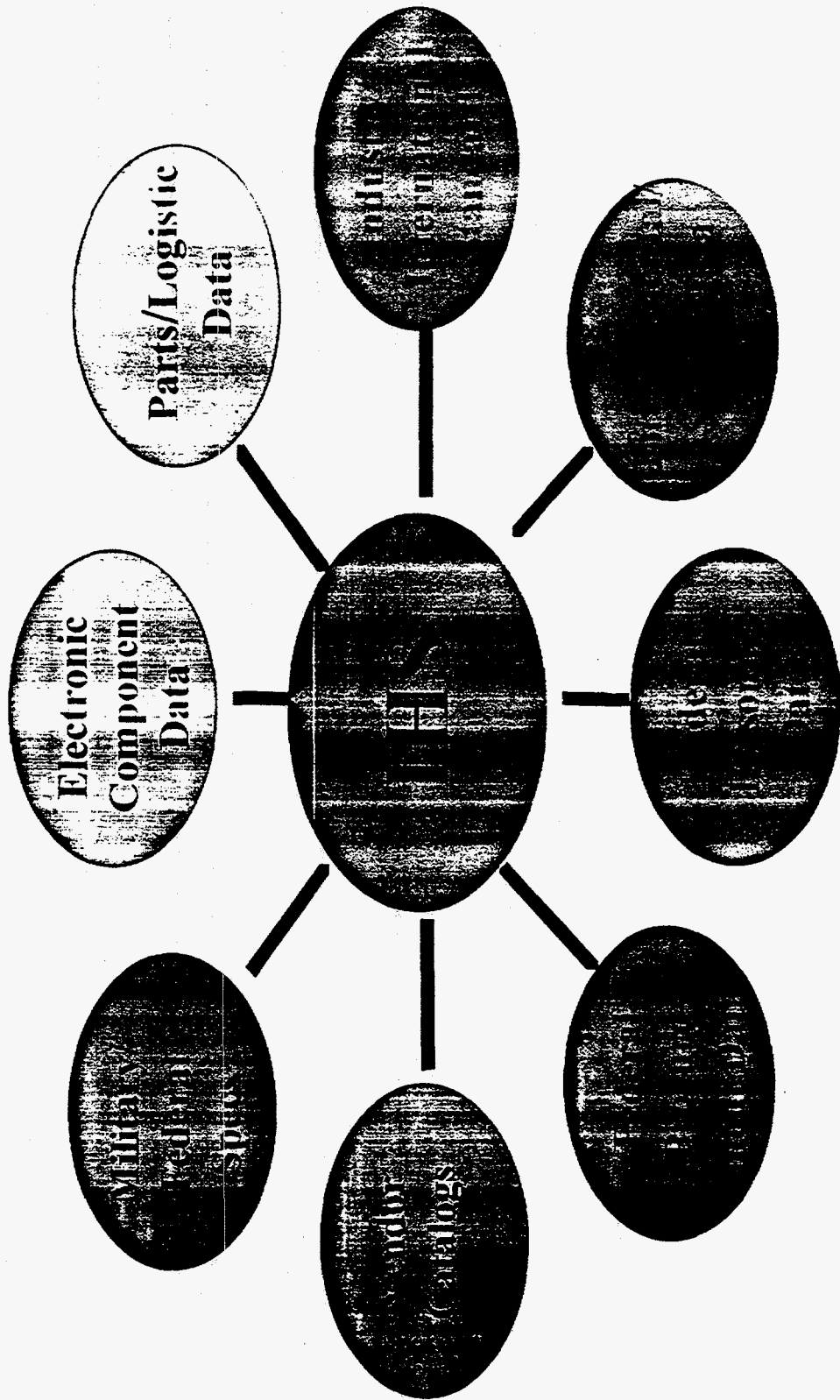
**D.A.T.A.**

**petroconsultants**

# IHS Corporate Overview

- ◆ Founded in 1959
- ◆ \$250 million revenue
- ◆ 1,800 employees worldwide
- ◆ 500,000 users in 95 countries
- ◆ 17 million pages of data
- ◆ 250,000 document images in process daily
- ◆ 2+ terabytes optical/magnetic storage
- ◆ ISO 9001 certified

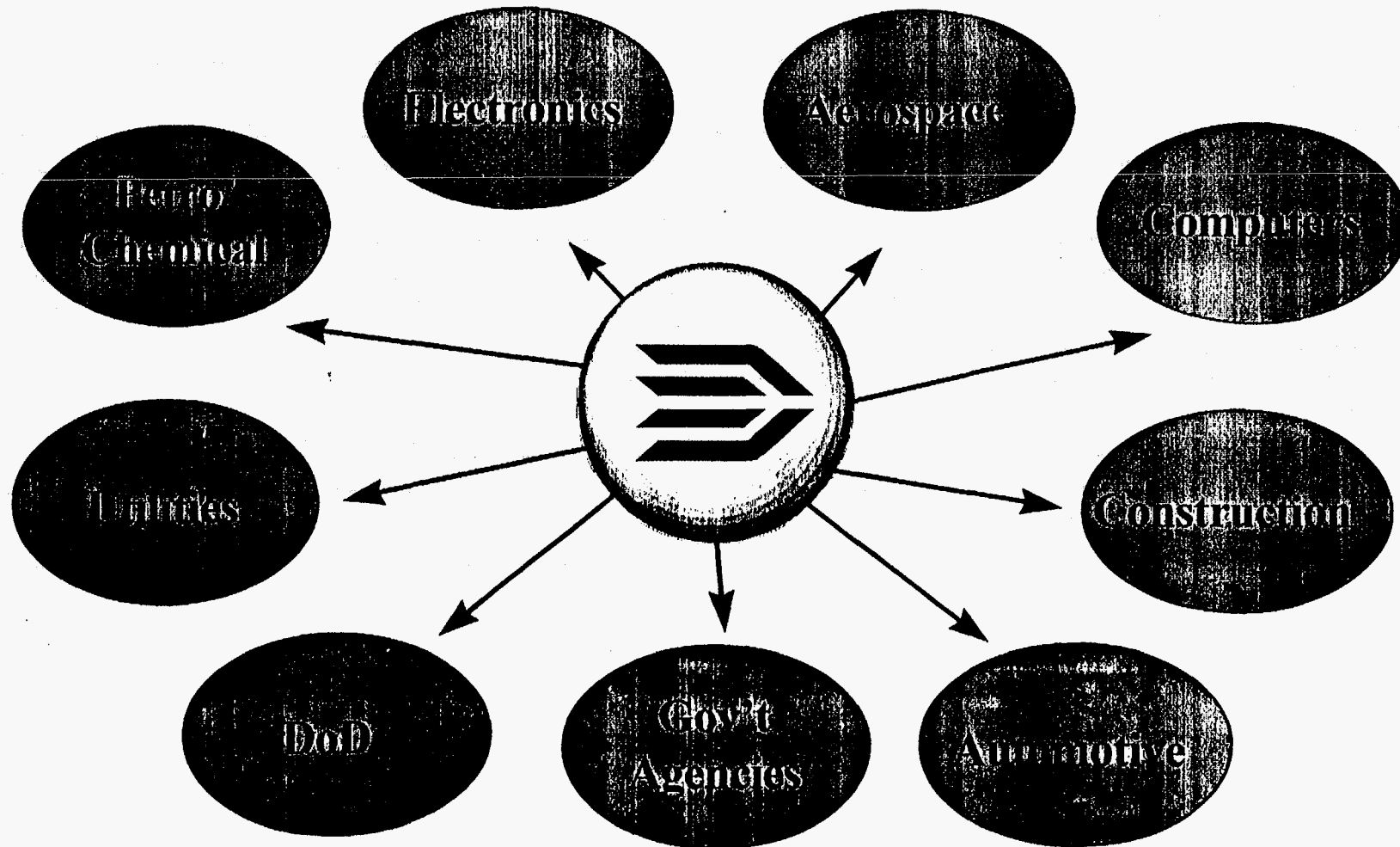
# Comprehensive Databases



# Technical Information

- ◆ Efficiently collected & organized
- ◆ Indexed & cross referenced
- ◆ Distributed via a wide range of media
- ◆ Easily accessible using powerful applications software
- ◆ Automatically updated

# Standards Users





# *Standards Users Needs*



# General Users Needs

- ◆ Electronic access to standards
- ◆ Shorter development times
- ◆ Document currency to include work in progress
- ◆ Full text document delivery
- ◆ Reusable information (text and graphics)
- ◆ Desktop access to information

# Infrequent Users Needs

- ◆ Individual document purchases
- ◆ Fax back services
- ◆ Pay as you go access to electronic documents

## **Mainstream Users Needs**

- ◆ More frequent users need:
  - Subscriptions to electronic documents
  - Industry/market specific packages
  - Single point of access to central document repository
  - Consistency between standards collections
  - Change notification
  - Site licensing/print licensing
  - Network solutions

# High End Users Needs

- ◆ Large corporations share mainstream market needs plus:
  - Enterprise wide delivery of information (WANs)
  - Integration with internally generated documents
  - Access from a variety of internal systems

# *IHS Standards Products*



# Standards Business Timeline

- ◆ 1974 - initial microfilm/fiche products
- ◆ 1980 - initial electronic online offering
- ◆ 1989 - initial CD ROM offering (full text)
- ◆ 1991 - initial raster offering (WWSS)
- ◆ 1992 - initial network offering

# Standards Business Timeline

- ◆ 1994 - first WAN application of raster
  - launch WWP DOS
- ◆ 1996 - launch WWP Windows
  - pilot Internet project
- ◆ 1997 - launch ERC Specs and Standards online



# **CD-ROM**

## ***Worldwide Standards Service Plus (WWP)***

- ◆ index of 300,000 standards from almost 450 organizations worldwide
- ◆ links to images of over 190,000 standards from 80+ standards developers

# **CD-ROM**

## **WWP - Features**

- ◆ extensive bibliographic index data
  - document title / number
  - organization name / acronym
  - publication date
  - subject terms
  - geographic source
  - page count
  - new / revised status
  - ICS codes

## **CD-ROM**

### **WWP - Features (continued)**

- ◆ multilingual
  - search screens
  - IHS Thesaurus
- ◆ save search feature
- ◆ bookmark and notes features
- ◆ detailed on-line help

# **CD-ROM**

## **WWP - Futures**

- ◆ additional bibliographic index data
  - abstracts
  - referenced documents
  - outlines
  - historical references
  - international/national relationships
  - committee references

# **CD-ROM**

## **Full Text Standards Products**

- ◆ ASME BPVC
- ◆ API Select
- ◆ PetroChem
- ◆ CSA E-CODE
- ◆ IEEE Software Engineering Collection
- ◆ ANS
- ◆ AWS

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# Online

- ◆ Initial online offering introduced in 1980
  - Bibliographic records
  - Still available via Knight Ridder (Dialog)
- ◆ New online products in 1997
  - Engineering Resource Center (ERC)
    - World Wide Web
    - Intranet
    - Extranet
    - Windows Online

## **Online Products (full text)**

- ◆ World Wide Web
  - Full text IEEE standards developed in 1996
- ◆ Under Development
  - Military standards available in late '97
  - Several individual standards collections under development

# Benefits of Electronic Products

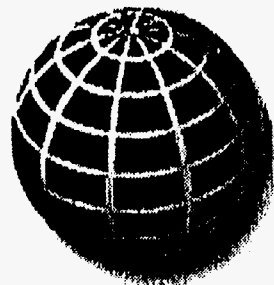
- ◆ immediate access to data
- ◆ saves time and improves productivity
- ◆ improved quality of search results
- ◆ re-engineering (“do more with less”)
- ◆ automatic updating
- ◆ links to referenced documents
- ◆ saves storage space / costs
- ◆ flexibility of multilingual products



# Questions ?



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**A NATIONAL RESOURCE  
FOR GLOBAL STANDARDS**

179

**DOE Technical Standards Program 1997 Workshop**

**July 9, 1997**

**Ken Peabody, Director, NSSN Services, ANSI**

**kpeabody@ansi.org**

**(212) 642-8908**

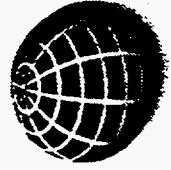
# BACKGROUND

- Designed with and for all users
  - 30 Company, user, and academic organizations
  - 24 Standards developers and administrators
  - 6 US Government agencies
  - 8 International organizations



# BACKGROUND

- Development guided by 38 User Needs
  - Search (15)
  - Security/Integrity (4)
  - Standards Development (5)
  - Business (6)
  - Help/Training (5)
  - Other (3)



# TODAY:

- Over 250,000 records representing more than 600 developing organizations
  - US Industry Standards
  - US Government Agencies
  - International Standards Bodies
  - Foreign National Standards Bodies



A NATIONAL RESOURCE  
FOR GLOBAL STANDARDS

# TODAY: NSSN BASIC

- Goal - Increase awareness of standards and generate as much activity as possible
- World Wide Web delivery
- No charge to users
- Minimal content
- Links to SDO Home Page and/or third-party distributors



# TODAY: NSSN ENHANCED

- Goal - Be a single source for information on U.S. commercial and government, international and foreign standards
- Subscription service
  - Single User Password - \$495
  - Five User Password - \$895
  - Ten User Password - \$1695
  - Enterprise-wide License



**NSSN**  
A NATIONAL RESOURCE  
FOR GLOBAL STANDARDS



# TODAY: NSSN ENHANCED

- Content rich
  - Scope/Abstracts
  - Keywords
  - Equivalents
  - Committee Information
  - References
- More controlled searches than NSSN Basic
- Links to SDO Home Page and/or third-party distributors



**NSSN**  
A NATIONAL RESOURCE  
FOR GLOBAL STANDARDS

# TODAY: NSSN ENHANCED

- Information on standards under development
- Standards Alert Service
  - Each password entitles user to create up to 5 profiles
  - Alert provides email notification of standards initiations, reviews, approvals
- NSSN QuickLinks



# **TODAY: NSSN ENHANCED**

- Standards Activities of Organizations of the United States
- Database of US Participation in ISO Activities
- References to voluntary standards in legislation and regulations (in development)



# BENEFITS

- Standards Developers
  - Increase exposure of their standards
  - Access to a broad segment of users
  - Exposure in a fast growing marketplace
  - Awareness of activities of other developers

# BENEFITS

- Industry users
  - Conveniently identify standards from more than 600 developers world wide
  - Better project planning with the ability to identify standards that are still in development
  - Timely information with the Standards Alert Service



# BENEFITS

- US Government users
  - Easily locate non-government standards
  - Increased participation in the development of voluntary standards
  - Timely access to information with the Standards Alert Service

**1997 DOE Technical Standards  
Program Workshop**

**Wednesday, July 9, 1997**

**Session 4: Key Technical Standards Issues  
Within DOE**

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# Topical Committees on Metrology and Accreditation

**Bob Wayland**  
Laboratory Standards  
Sandia National Laboratories

Presented at:

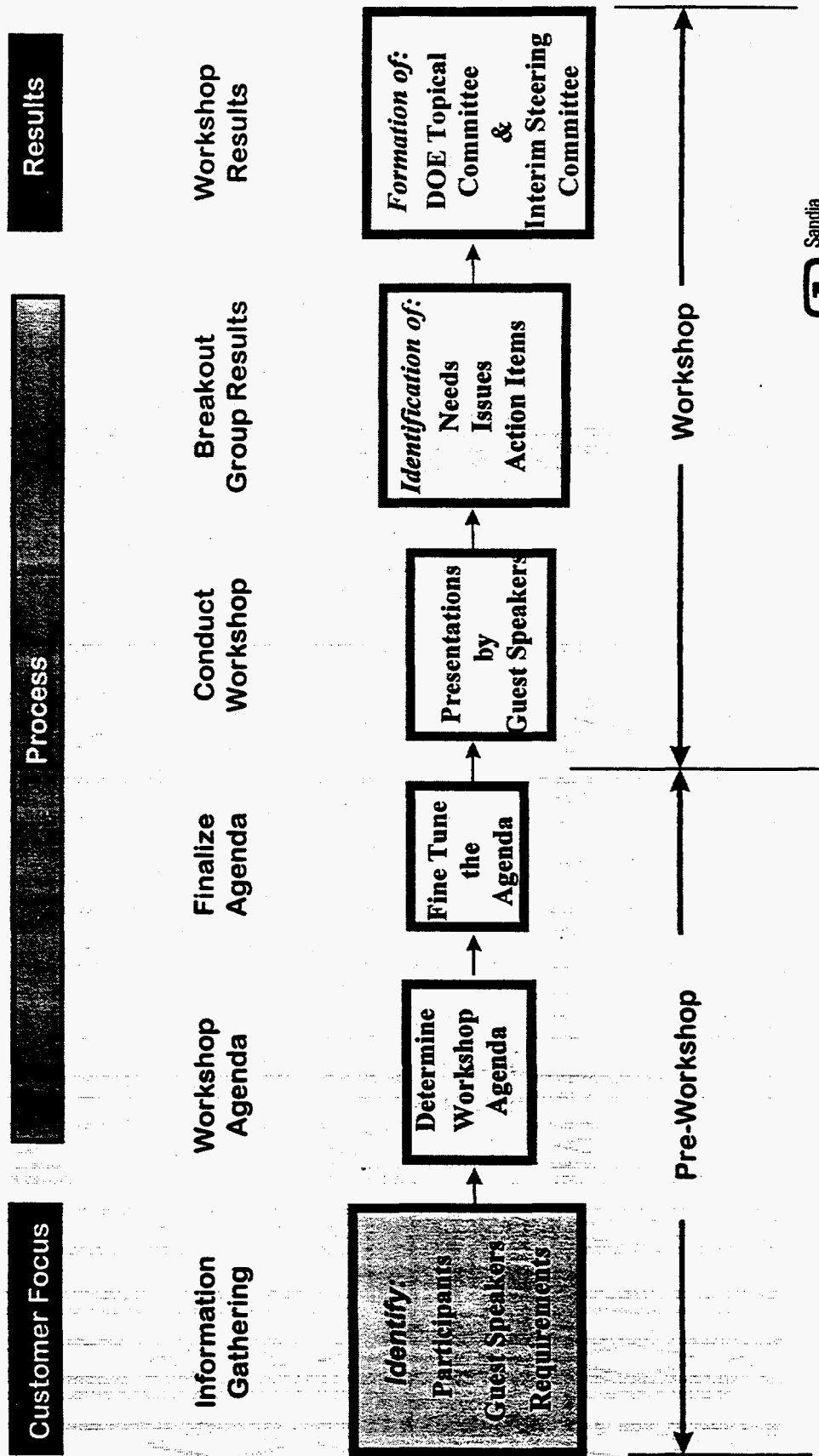
**1997 DOE Technical Standards Program Workshop**

**July 8, 1997**

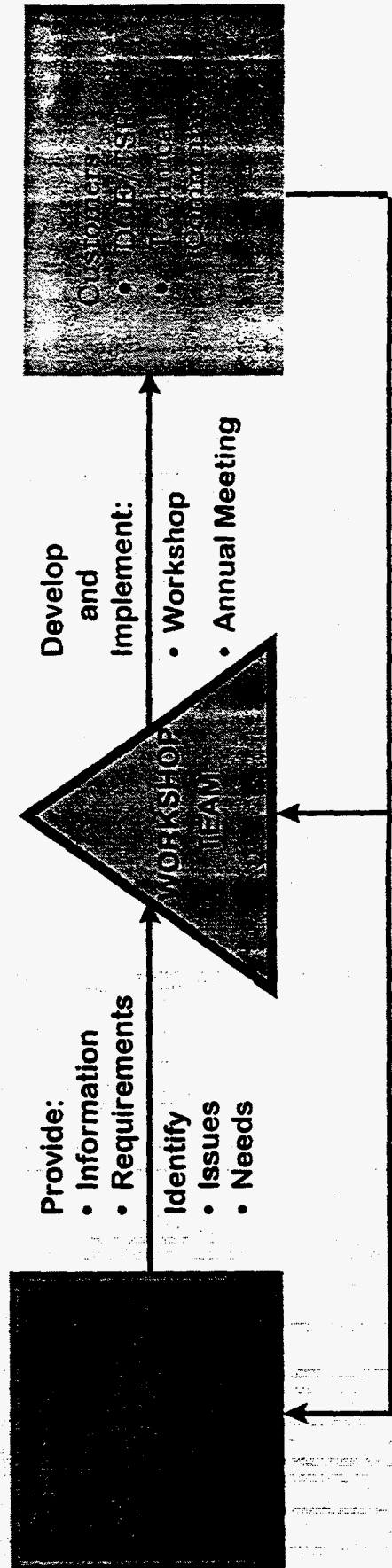


# Formation of a DOE Topical Committee

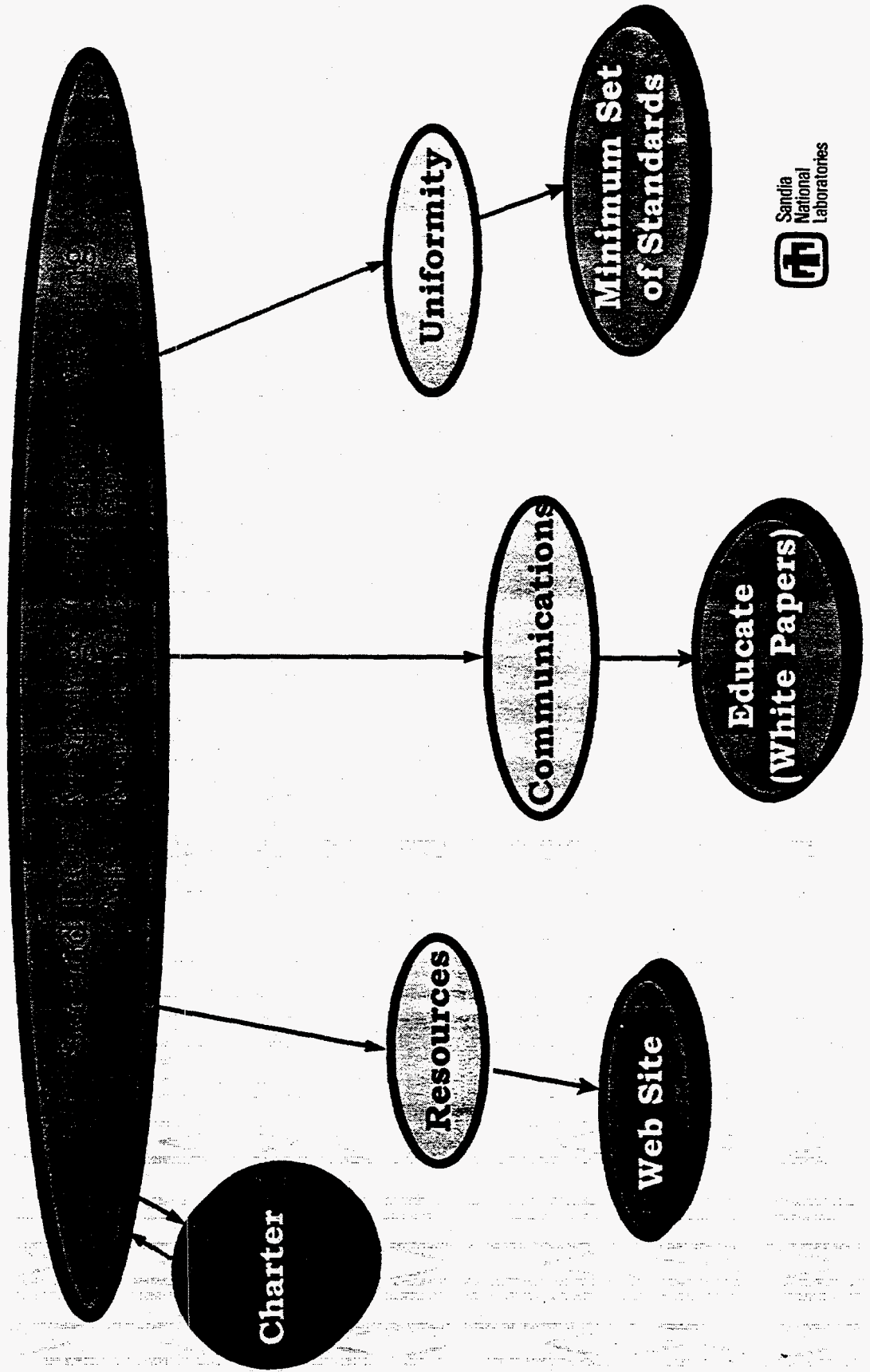
## OVERVIEW OF PROCESS



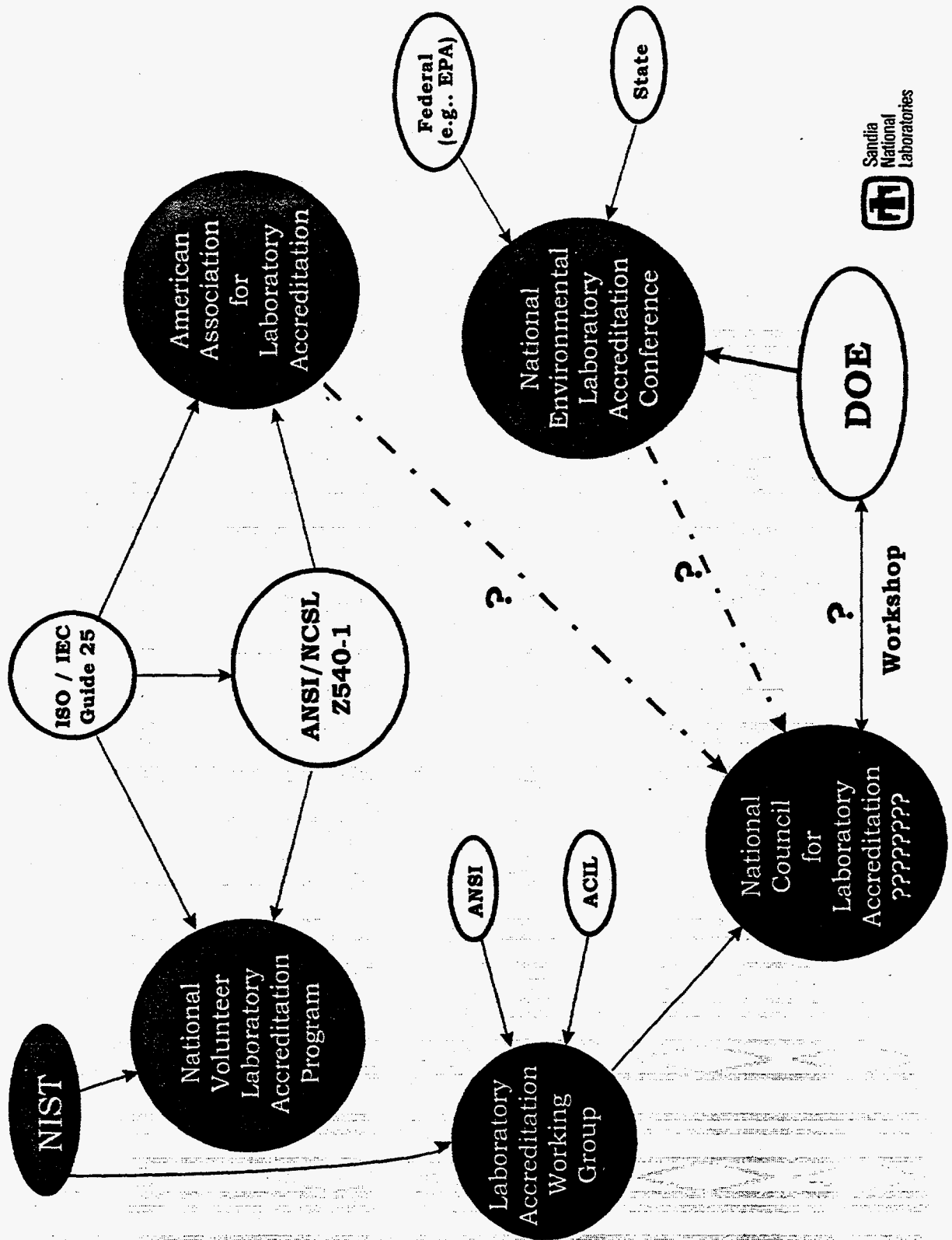
# PROCESS INTEGRATION



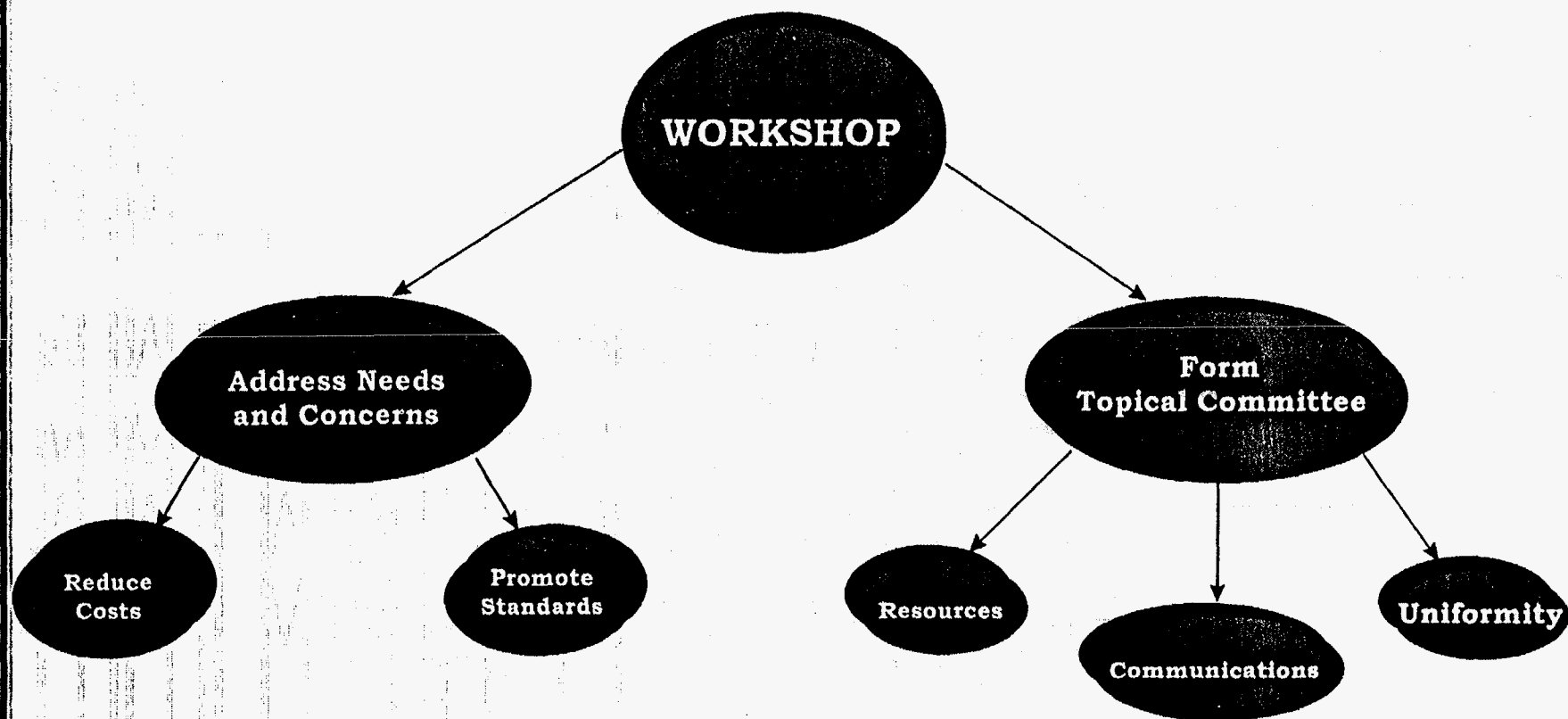
**SECOND DOE METROLOGY COMMITTEE MEETING**  
**NIST, Gaithersburg MD**



# ACCREDITATION RELATIONSHIPS



## OVERVIEW: Topical Committee Workshop



**THE TOPICAL COMMITTEE WILL PRESENT A COMMON AND UNIFIED FOCAL POINT FOR ADDRESSING NATIONAL AND INTERNATIONAL ISSUES AND CONCERNS**

## **Department of Energy Hoisting and Rigging Standard, DOE-STD-1090-96**

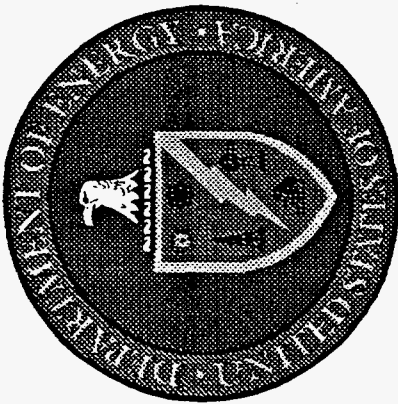
In 1975, safety and health personnel of the program offices of the U.S. Department of Energy (DOE) Headquarters (HQ) met to discuss the need for a DOE hoisting and rigging manual. At that meeting, existing applicable hoisting and rigging codes, standards, and regulations were reviewed in detail. It was determined that these documents, while adequate as minimum general industry standards, did not contain the detail necessary to adequately accomplish the extremely complex, critical, and hazardous hoisting and rigging operations being performed at DOE sites. A decision was made that a DOE hoisting and rigging manual was not only desirable, but necessary. Preliminary work on the manual was initiated in 1976.

A final draft of the document was completed in 1978 and implemented on a trial basis. In 1980, the Manual was formally distributed across the DOE complex. In 1984, DOE Order 5480.4 "Environmental Protection, Safety, and Health Protection Standards" included it among a list of referenced, nonmandatory standards and guides. It underwent numerous revisions between 1984 and 1996 to reflect changes in source standards as well as to improve format, strengthen wording and reduce redundancy. Ultimately, it enjoyed very wide distribution and usage across the DOE complex, with over 4000 copies in print.

As a result of the 1995 restructuring of DOE directives system, DOE's Office of Scientific and Technical Information (OSTI) reclassified the manual as a handbook, after which it was republished as the DOE Hoisting and Rigging Handbook (DOE-HDBK-1090-95). After further review, OSTI reclassified the handbook as a DOE Technical Standard in September 1996. It was again published and it is now available as the DOE Hoisting and Rigging Standard, DOE-STD-1090-96 (Rev-1). It is available on a limited basis in hardcopy from OSTI and can be downloaded directly from OSTI's Internet website(<http://apollo.osti.gov/html/techstds/standard/standard.html>).

The Hoisting and Rigging Standard is intended as a reference document for use by supervisors, line managers, safety personnel, equipment operators, and other personnel responsible for the safety of hoisting and rigging operations at DOE sites. The standard encompasses, under one cover, applicable requirements of the U.S. Occupational Safety and Health Administration (OSHA) and the American National Standards Institute (ANSI). The standard also delineates more stringent requirements such as: the respective responsibilities and accountabilities of management, persons-in-charge, and designated leaders; qualifications and training for operators and inspectors; special requirements for "Critical" and "Preengineered Production" lifts; and special requirements for the testing, inspection, and maintenance of hoisting equipment in "Hostile Environments."

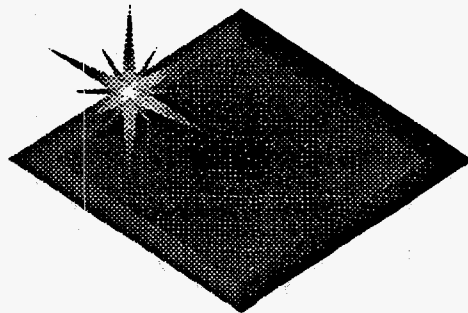
The standard is maintained by the DOE Hoisting and Rigging Technical Advisory Committee, a group of DOE and Contractor hoisting and rigging safety professionals representing many of the DOE sites. It is chaired by the Headquarters Office of Occupational Safety and Health Policy, which has responsibility for safety policies addressing the Department's hoisting and rigging activities. The Committee is the major source for input into the standard, particularly in areas for which no applicable Federal and national consensus standards exist.



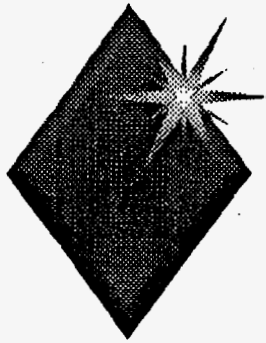
# *U.S. DEPARTMENT OF ENERGY*

## HOISTING AND RIGGING TECHNICAL STANDARD

(DOE-STD-1090-96)



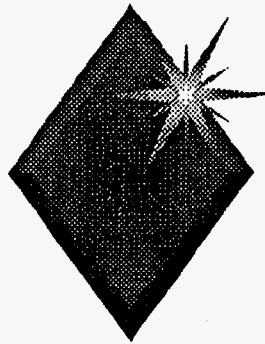




# *DOE HOISTING & RIGGING STANDARD (DOE-STD-1090-96)*

## **HISTORY**

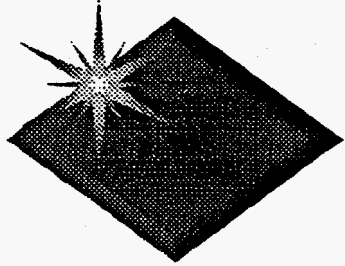
- ◆ 1975 HQ MEETING ON NEED FOR H&R MANUAL
  - COMPLEX & HAZARDOUS H&R OPERATIONS
  - EXISTING CODES AND STANDARDS INADEQUATE
- ◆ DECISION: DOE H&R MANUAL NECESSARY
- ◆ DRAFT COMPLETED AND PILOTED IN 1978
- ◆ DISTRIBUTED ACROSS COMPLEX IN 1980
- ◆ REVISED 8 TIMES FROM 1984-1996
- ◆ 4000 COPIES IN CIRCULATION



# *DOE HOISTING & RIGGING STANDARD (DOE-STD-1090-96)*

## **DIRECTIVE STATUS**

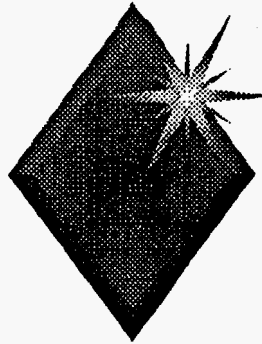
- ◆ 1984-1995 NONMANDATORY  
REFERENCE IN DOE ORDER 5480.4
- ◆ 1995 HANDBOOK (DOE-HDBK-1090-95)
- ◆ 1996 STANDARD (DOE-STD-1090-96)



# *DOE HOISTING & RIGGING STANDARD (DOE-STD-1090-96)*

## **CONSOLIDATES REQUIREMENTS**

- ◆ OSHA 29 CFR 1910 & 1926
- ◆ ANSI B30 SERIES
- ◆ DOE SPECIFIC REQUIREMENTS FOR:
  - “CRITICAL LIFTS”
  - “PREENGINEERED PRODUCTION LIFTS”
  - “HOSTILE ENVIRONMENTS”



# *DOE HOISTING & RIGGING STANDARD (DOE-STD-1090-96)*

## **CONTINUOUS USER INPUT**

- ◆ DOE H&R TECHNICAL ADVISORY COMMITTEE
  - DOE FEDERAL STAFF
  - DOE CONTRACTOR REPRESENTATIVES
- ◆ MEETS TWICE ANNUALLY
- ◆ SUGGESTS AND REVIEWS PROPOSED CHANGES



**DOE HOISTING & RIGGING  
STANDARD (DOE-STD-1090-96)**

**AVAILABILITY**

- ◆ ELECTRONIC COPY
  - OSTI INTERNET WEBSITE:  
(<http://apollo.osti.gov/html/techstds/standard/standard.html>)
- ◆ HARDCOPY
  - OSTI (Phone 423-576-8401 (Limited basis))

**DEPARTMENT OF ENERGY  
HOISTING & RIGGING  
TECHNICAL ADVISORY COMMITTEE MEMBERSHIP**

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STEVENS, DAN	WESTINGHOUSE ELECTRIC P O BOX 191 ROCKSPRINGS ROAD WESTVALLEY NY 14171-0191		716-942-4437	716-942-4376
TURNER, KAROL	U S DEPARTMENT OF ENERGY KANSAS CITY AREA OFFICE P O BOX 410202 KANSAS CITY MO 64141		816-997-3354	816-997-7310
VIOLA, MIKE	PRINCETON PLASMA PHYSICS LAB P O BOX 451 PRINCETON NJ 08543	mikev@tis.eh.doe.gov	609-243-3655	609-243-3248
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REV 06-30-97				



# **DOE Technical Standard**

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## **Integration of Safety and Health into Facility Disposition Activities**

### **1997 DOE Technical Standards Program Workshop**

**July 9, 1997**

**by**

**George E. Detsis**

**EH Office of Worker Health and Safety**



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# Presentation Overview

- Background
  - DOE Facility Disposition Mission
  - S&H Technical Standard
- Key Features of Technical Standard (SAFT-0060)
- Integrated Safety Management System for Facility Disposition
- Technical Standard Path Forward



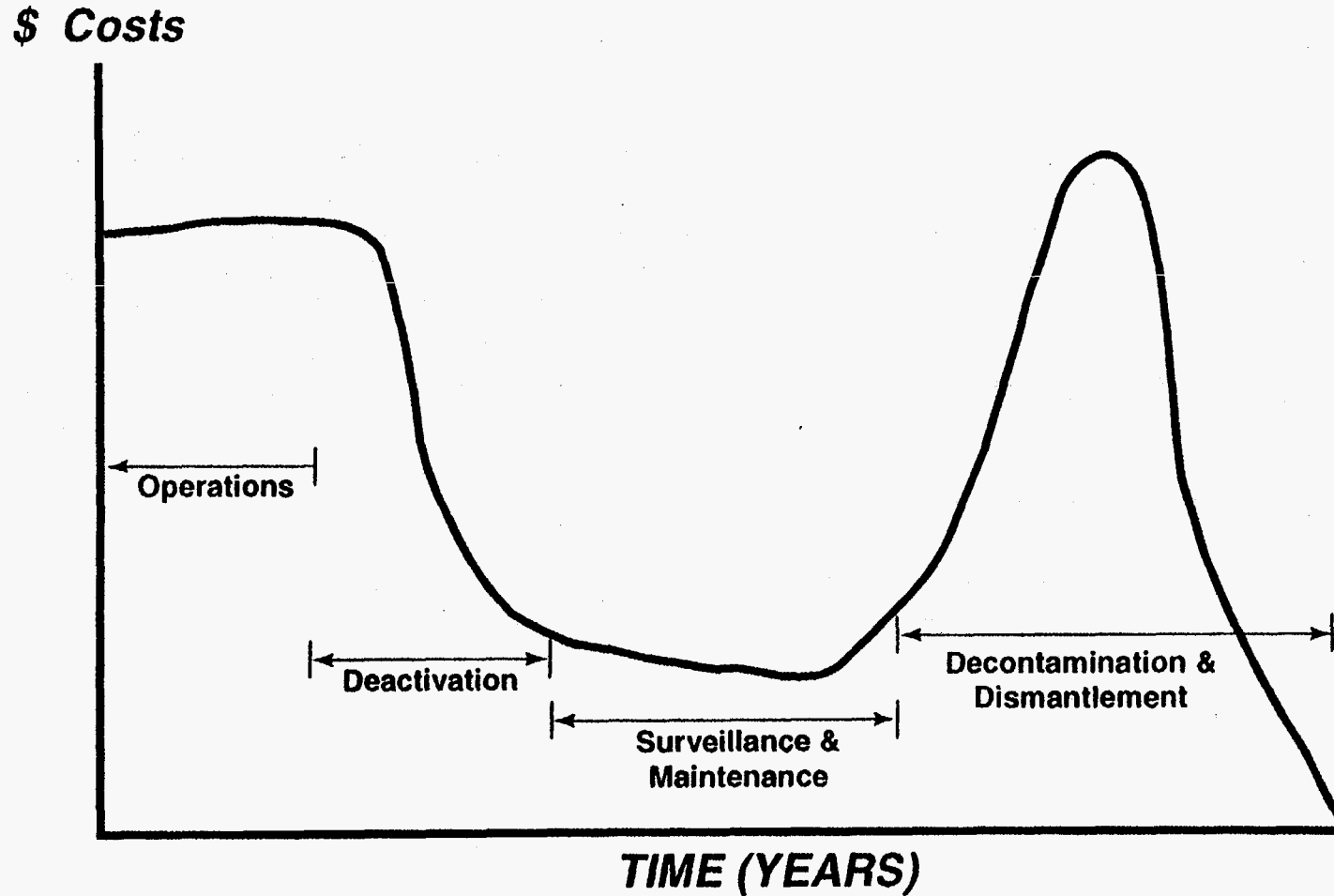
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## **What Are Facility Disposition Activities ?**

Facility transition from operation and cleanup activities that include deactivation, long-term surveillance and maintenance, decontamination, and dismantlement.

Commonly referred to as "D&D"

# What Are Facility Disposition Activities?

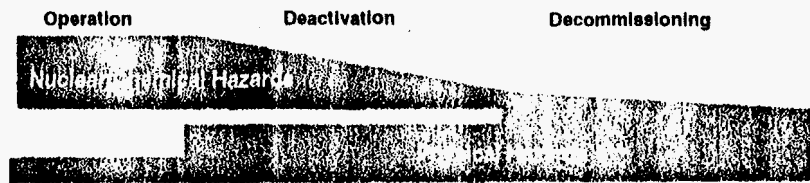


Typical Facility Life Cycle

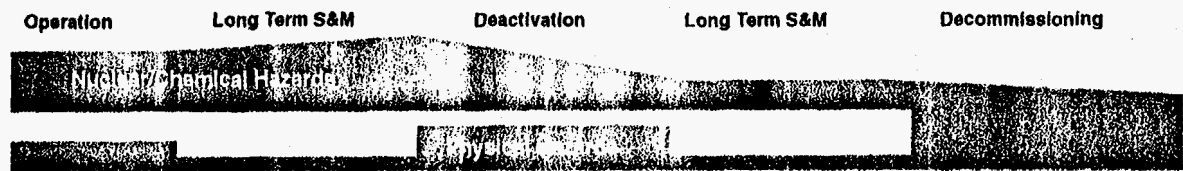


# Facility Disposition Process and Hazard Profile

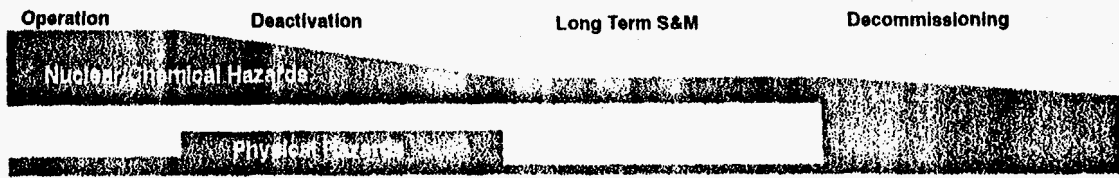
**Scenario 1**  
(Ideal straight through process)



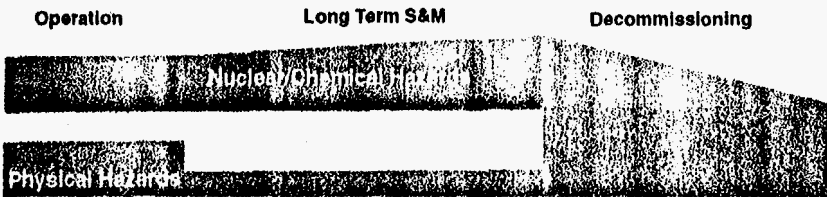
**Scenario 2**  
(Process includes long term surveillance & maintenance [S&M])



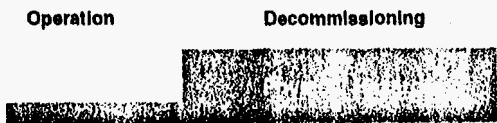
**Scenario 3**  
(Process includes long term S&M after deactivation)



**Scenario 4**  
(Process with minimal deactivation after operation followed by long term S&M)



**Scenario 5**  
(Process with no hazardous materials)





## Several Thousand Facilities in Facility Disposition

<b>Example Site</b>	<b>Example Facility</b>
<b>Hanford</b>	<b>PUREX, B-Plant, PFP, N-Reactor, C-Reactor</b>
<b>Los Alamos National Laboratories</b>	<b>Facilities in Technical Areas 2, 16, 21, 33 and 35</b>
<b>Oak Ridge</b>	<b>K-25, Molten Salt Reactor</b>
<b>INEL</b>	<b>ICPP, Small-Scaled Decommissioning Projects.</b>
<b>Mound</b>	<b>Entire Site [over 100 buildings (only 6 or 7 considered nuclear)]</b>
<b>SRS</b>	<b>232-F Tritium Facility, HWCTR, L-, P- and R-Production Reactors</b>



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## Drivers for Technical Standard Development

- Secretary corrective actions responding to Hanford Plutonium Finishing Plant chemical accident (May 1997)
- Field requests to "codify" clarification of operations-oriented S&H directives
- Tiered to facility disposition directives
  - DOE O 4XX.1, Facility Disposition Management
  - DOE M 4XX.1-1, Facility Disposition Manual
- Key issues raised in Secretary approved memo (1995)
- Strong interest by Defense Nuclear Facilities Safety Board and other external organizations (e.g., EPA-Labor S&H Superfund Task Force)



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## **Issue\***

**"DOE Orders, OSHA standards, RCRA regulations, and a host of additional requirements are potentially applicable to EM's cleanup work. As these Orders, standards, and regulations are translated and transmitted by headquarters, operations offices, site management, contractors and subcontractors, the breadth and complexity grows to the point where project managers, supervisors, and workers are fundamentally confused as to what requirements apply and what specific procedures should be followed for the job or task in which they are engaged."**

**Solution--"Apply clear and appropriate requirements and procedures for cleanup work."**

**\*Secretary approved EH-1/EM-1 memo dated April 7, 1995 on Environmental Management Safety and Health Plan**





## Characteristics of Operating Facility and Disposition Activities

	Disposition	Operation
<b>S&amp;H Regulatory Framework</b>	<b>Categorized by hazard types and clarified by this Technical Standard</b>	<b>Established by existing DOE directives and external regulations</b>
<b>Hazard Profile</b>	<b>Frequently changing; not well characterized; more unrecognized hazards</b>	<b>Stable; well characterized</b>
<b>Work Planning</b>	<b>Task or job oriented; frequently performing new tasks; first of kind tasks, one time and short duration tasks</b>	<b>Routine; focused on operation and maintenance</b>
<b>Hazards Analysis</b>	<b>Dynamic; mainly task oriented</b>	<b>Operation oriented; generally stable</b>
<b>Work Force Experience</b>	<b>New mission; limited experience; subcontractors may not have process knowledge of facility operations</b>	<b>Familiar with facility operation and routine work</b>
<b>Contract Management</b>	<b>More short-term subcontractor involvement</b>	<b>Contractor managed and operated</b>



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## **Technical Standard Objectives**

- **Guidance on implementing Integrated Safety Management System and integrated hazard management for facility disposition**
- **Guidance on clarifying operation-oriented S&H directives and external regulations (overlaps and redundancies)**
- **Roadmap of existing S&H directives**
- **S&H performance expectations for integrated hazard management**



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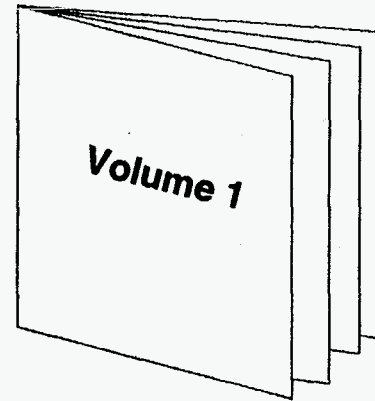
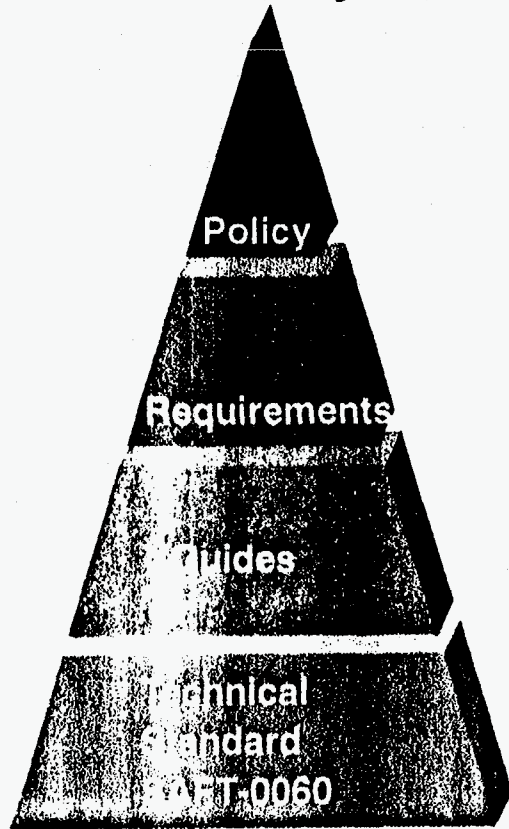
## Technical Standard Development Process

- Teaming with HQ, field/contractors
  - Members with "on-the-ground" experience
  - Technical advisors representing DOE's Program Secretarial Offices, field and contractors
- S&H workshop, meetings and site visits
- Several drafts undergone peer review
- Active DNFSB staff participation

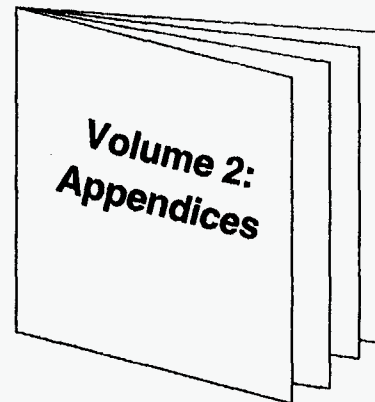


# Key Features of Technical Standard

## Facility Disposition Directive System



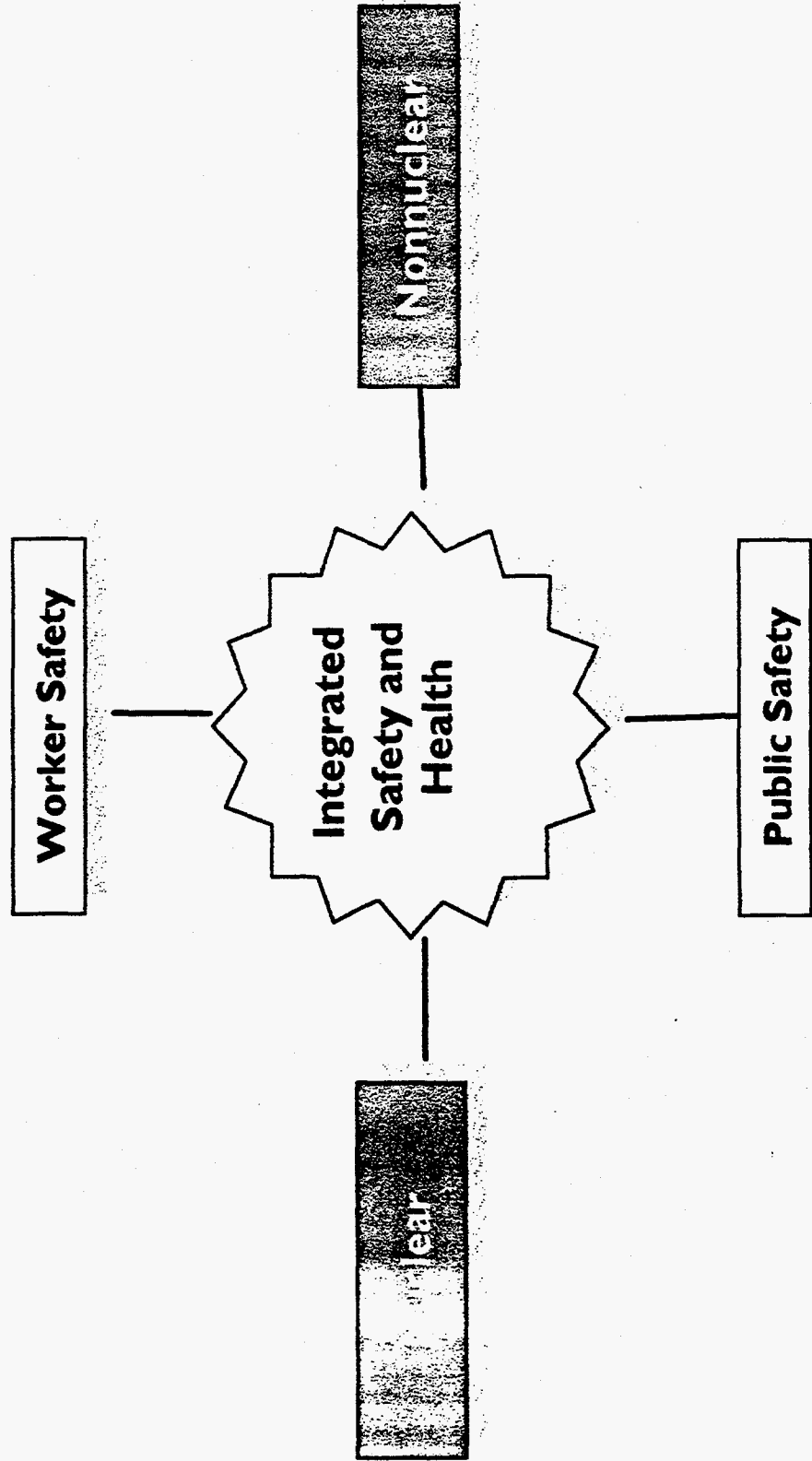
- Facility Disposition Phases
- ISMS and Integrated Hazard Management
- Clarification of S&H Implementation Issues



- S&H Performance Expectations
- Roadmap of Directives
- Illustrative Examples
- Hazard Analysis Techniques & References



# Scope of Technical Standard





# Integrated Hazard Management

## Identification

- Radiological Material
- Chemicals
- Physical
- Biological

## Analysis

Impact from exposure to hazardous materials, physical and biological hazards

Impact from release of hazardous materials to co-located workers, public and environment

## Control

- PPEs for worker protection
- Safety Significant SSC for worker protection
- Safety Class SSC for public protection

- Training
- Pre-Job Briefing

- S&H Requirements
- Authorization Documents
- Procedures
- Work Packages

**Worker,  
Public &  
Environment  
Protection**



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## **Clarification of S&H Implementation Issues**

- Elimination of fixed contamination/activated metals for Hazard Category decommissioning inventory considerations
- Nuclear S&H and CERCLA document integration
- Use of BIOs for entire duration of facility disposition activities
- Safety controls retirement criteria during facility disposition activities
- Criteria for using existing operation oriented safety basis for facility disposition
- Readiness review in lieu of ORRs for Category 3 nuclear facilities
- Natural phenomenon assessment guidelines



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## Path Forward

- Draft - formal coordination/review (July 1997)  
(30 day formal comment/review)
  - DOE Technical Standard Website  
<http://apollo.osti.gov/html/techstds/techstds.html>  
Go to: Draft Standards
  - EH D&D Website  
<http://tis-nt.eh.doe.gov/dd/>
- Final approval (October 1997)
- Workshops on Technical Standard orientation and awareness (beginning October 1997)



# PANEL PRESENTATION

## "Fire Protection Standards"



FOR THE  
DEPARTMENT OF ENERGY

Dennis Kubicki, P.E.  
Fire Protection Engineer  
USDOE HQ EH-51

# **DOE FIRE PROTECTION PROGRAM**

## **Source Documents:**

- **CFR Requirements**
- **DOE Orders (420.1 & 440.1)**
- **Implementation Guide**
- **DOE Fire Protection Standards**
- **DOE Fire Protection Handbook**
- **NFPA Codes and Standards**
- **Other Industry Standards**
- **Field Office Directives**
- **Contractor Requirements**

# MOST RECENT ACTIVITY

- **"Fire Protection Design Criteria" DOE-STD-1066-97  
Approved March, 1997**
  - **Reflects "Good Stuff" Lost From DOE 6430.1A,  
"GDC"**
  - **Addresses Issues Other Codes and Standards  
Don't and Won't**
  - **Reflects DOE Experience**
  - **Sanctions Flexible, Cost-Effective Design**

## LESSONS LEARNED

- Committee Development and Review Don't Save Time or Effort
- "Extremist" Comments Are a Problem
- Consensus Cannot Be Achieved Across the Complex
- "Guidance" Status and Flexible Implementation Can Overcome All Hurdles

## **FUTURE ISSUES**

- **K-25 Fire Fatality "Corrective" Actions**
- **Fire Protection Industry Evolving Codes and Standards**
- **ES&H Developments Within DOE**
- **Expanded Internet Use**

# **K-25 FATALITY**

- **No Flame-Resistant PPE**
- **No Fire Watcher**

## **Existing Standards Require:**

- **Hazards Analysis**
- **Fire-Safe Environment**
- **Permit (or Equivalent)**
- **PPE Appropriate for Hazard**
- **Fire Watcher**
- **Fire-Fighting Equipment**
- **Fire Alarm Capability**
- **Emergency Response**
- **Management Commitment**
- **Oversight**

# **K-25 FATALITY**

**Lack of Explicit Requirements Prompted "Judgment of Need" for New DOE Directives.**

- **Secretarial Memorandum**
- **Revised ES&H Bulletin**
- **Order Change**
- **Implementation Guide Change**

**What Are the Implications?**

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## EH-52 TECHNICAL STANDARDS

DOE's Office of Worker Protection and Hazard Management is processing two types of Technical Standards: facility radiation protection programs and instructor and student guides for radiation protection training programs. The following standards have been published for comment and in some cases the comment period has expired.

### RADIOLOGICAL CONTROL

DOE has established basic standards for occupational radiation protection in the Code of Federal Regulations 10 CFR 835, "Occupational Radiation Protection." In the radiation protection programs developed to ensure compliance with 10 CFR 835, most DOE facilities have committed to implementation of certain provisions of this Standard. In order to ensure implementation of a comprehensive and coherent radiological control program that exceeds basic requirements and provides a substantial safety margin, DOE encourages its contractors to implement the provisions of this Standard to the extent appropriate to facility hazards and operations.

The Standard establishes practices for the conduct of DOE radiological control activities. The Standard states DOE's positions and views on the best courses of action currently available in the area of radiological controls. Accordingly, the provisions in the Standard constitute acceptable techniques, methods, and solutions for line management fulfillment of its responsibilities for development and implementation of radiological control practices.

### INTERNAL DOSIMETRY

The purpose of this document is to provide detailed information on carrying out a facility's internal dosimetry program. As is true with all DOE technical standards, the programs presented in this standard are not mandatory; alternate methods of achieving the same results can be justified.

In order to meet the requirements for occupational exposure limits given in 10CFR835.202, it is necessary to develop procedures for determining the internal dose received by a worker. Bioassay techniques, in which samples are collected from a worker (urine and feces, usually) and analyzed radiochemically are widely used. This requires conscientious sample collection, handling, and analysis procedures. Each radionuclide requires very specific radiochemical procedures. Another method of determining the amount and distribution of radionuclides in the body is whole-body (or certain organ) counting. Optimal use of commercial equipment is necessary. Finally, it is necessary to calculate the organ doses from the bioassay or whole-body counting data. Computer codes have been developed for this purpose, but they depend on choice of various parameters. Guidance on calculating internal doses is provided in this document.

### TRAINING PROGRAM HANDBOOKS

These Handbooks contain Program Management Guides which provide

information on how to use the Handbook materials, Instructor's Guides which include lesson plans for instructor use, and Student's Guides which contain student handout materials. In some cases, overhead transparencies are provided to supplement the Handbook materials.

1. Radiological Safety Training for Accelerator Facilities  
(DOE-HDBK-1108-97, March 1997)

This Handbook addresses the following topics with respect to accelerators:

- History and use of accelerators
- Radiological concerns
- Types of radiological controls
- Radiological monitoring methods
- Radioactive waste issues

2. ALARA Training for Technical Support Personnel (DRAFT, April 1997)

This Handbook addresses the following topics:

- The ALARA philosophy
- Principles of ALARA
- Application of ALARA
- ALARA reviews
- ALARA optimization analysis

3. Radiological Contamination Control Training for Laboratory Research  
(DOE-HDBK-1106-97, February 1997)

This Handbook addresses the following topics:

- Discussion of radiological contamination
- Preparation of work areas and materials
- Good practices when working with radioactive material
- Radiological contamination monitoring techniques
- Decontamination methods

4. Radiological Safety Training for Radiation Producing Devices  
(DRAFT, February 1997)

This Handbook addresses the following topics:

- Production of x-rays
- Biological effects of exposure to x-rays
- Radiation detection
- Protective measures
- X-ray generating devices
- Responsibilities for x-ray safety

5. Radiological Training for Tritium Facilities (DOE-HDBK-1105-96, December 1996)

This Handbook addresses the following topics:

- Properties of tritium
- Sources and uses of tritium
- Modes of exposure and biological behavior of tritium
- Radiological controls for tritium
- Monitoring for tritium
- Tritium waste minimization and handling
- Abnormal conditions in a tritium facility

6. Radiological Safety Training for Uranium Facilities (DRAFT, June 1997)

This Handbook addresses the following topics:

- The use of uranium in the nuclear fuel cycle
- Physical, radioactive, and chemical properties of uranium
- Control of internal and external exposure to uranium
- Techniques for measuring radioactivity due to uranium
- Criticality safety

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**1997 DOE Technical Standards  
Program Workshop**

**Wednesday, July 9, 1997**

**Session 5: Key Technical Standards Issues  
Within DOE (continued)**

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# **DOE Backup Power Working Group**

**Engine  
Generators**

**Uninterruptible  
Power  
Supplies**

**Stationary  
Batteries**

**[www3.dp.doe.gov/ctg/bpwg/bpwg.htm](http://www3.dp.doe.gov/ctg/bpwg/bpwg.htm)**

**John Fredlund, DOE/DP-??**

**[john.fredlund@dp.doe.gov](mailto:john.fredlund@dp.doe.gov)**

## Key Technical Standards Issues

- DOE applications require some unique considerations
- Lack of travel and training funding
- Increasing isolation - Busy? Morale? Priorities?

## Charter

The DOE BPWG fosters safe, practical, and effective testing, maintenance, operation, design, and installation of systems and equipment used to provide backup electrical power at DOE facilities. The BPWG provides an open forum on standard practices, safety issues, training, and solutions to problems encountered at DOE facilities. The BPWG promulgates its learning throughout the DOE complex and industry.

To fulfill its charter, the BPWG will

- Share practical design and operating experience with backup power sources (BPS) by promoting a continuing exchange among DOE contractor personnel, Headquarters, Operations offices, and industry
- Examine existing standards applicable to BPS and adopt, endorse, or tailor them for DOE applications
- Identify and apply techniques to achieve and maintain reliability and availability at levels commensurate with mission/safety objectives
- Promote worker safety, public safety, protection of the environment, and the DOE mission in the application of BPS
- Exchange successful and cost effective maintenance management techniques
- Identify potential means for coordination of training among DOE facilities
- Discuss graded approaches for conformance with DOE Orders

## Standards, Guidance, and Specifications by BPWG

- DOE-STD-3003 identified & solved major issues identified by AET
- DOE-SPEC-3018 & 3019 for Battery Systems
- DOE-HDBK-???? Diesel Generators
- DOE-HDBK-1084 Reviewed, working on update
- DOE-SPEC-3021 UPS Systems

## Recent Activities

Semiannual Meetings, 8 so far

- 4/97 - Richland, WA (Hanford)
- 10/96 - Knoxville, TN (Oak Ridge)
- 4/96 - Denver, CO (Rocky Flats)
- 10/95 - Albuquerque, NM (Los Alamos)
- 4/95 - Augusta, GA (Savannah River)
- 10/94 - Las Vegas, NV (Test Site)
- 4/94 - N. Redington Beach, FL (Pinellas)
- 10/93 - Pleasanton, CA (LLNL)

## How P.L. 104-113 May Influence BPWG

- Focus on Identification and Use of Existing Consensus Standards
- Downplay understanding of DOE-unique aspects of BPS
- Added overhead for increased level of interaction with VCSBs
- Difficulty procuring copies of consensus Standards in "real" time.

## Conclusion

- BPWG voted to join the standards committees as the DOE Backup Power Supply experts
- Whatever protection and support TSP can give us would be greatly appreciated
- TSP could help by supporting cross-pollination
- TSP should "organize" timely procurement of copies of standards





# Department of Energy

## Lessons Learned Program

February 1997

If you are interested in getting involved with any of the following projects, or would like some additional information, please contact the appropriate individual listed below. For an introduction to the Society for Effective Lessons Learned Sharing and its projects, reference the additional Society Fact Sheets listed in the text box below.

### Membership -- New and General

Bobbie Smith  
Office of Environmental Restoration  
e:mail address:  
bobbie.smith@em.doe.gov  
phone: (301) 903-7436  
fax: (301) 903-3479

### Membership Listings

Bobbie Smith  
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bobbie.smith@em.doe.gov  
phone: (301) 903-7436  
fax: (301) 903-3479

Doug Matia  
Project Performance Corporation  
e:mail address: dmatia@ppc.com  
phone: (703) 404-1516  
fax: (703) 406-8972

### Calendar of Events

Cynthia Eubanks  
Lockheed Martin Energy Systems  
e:mail address: EUB@ornl.gov  
phone: (423) 576-7763  
fax: (423) 241-6539

### Guidance Documents

Bobbie Smith  
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bobbie.smith@em.doe.gov  
phone: (301) 903-7436  
fax: (301) 903-3479

Cynthia Eubanks  
Lockheed Martin Energy Systems  
e:mail address: EUB@ornl.gov  
phone: (423) 576-7763  
fax: (423) 241-6539

### Lessons Learned Performance Measures

**Measures for the Society**  
Dick Trevillian  
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e:mail address:  
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### *Other Fact Sheets about the Society for Effective Lessons Learned Sharing:*

- Society General Information
- Lessons Learned List Server
- Training Options and Topics
- Information Dissemination Methods
- Corrective Action Management
- Lessons Learned Web Site
- Lessons Learned Newsgroup

Contact Bobbie Smith at (301) 903-7436 or bobbie.smith@em.doe.gov for copies of any listed fact sheets or for additional information about the Society for Effective Lessons Learned Sharing.

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## Technical Standards and DOE requirements for Radiation Protection of the Public

Specific Requirements - 10 CFR Part 834 and DOE 5400.1/5400.5

- o General - Dose limits and ALARA Process
- o Monitoring/Surveillance
- o Media/Source/Pathway Specific Requirements
  - Air
  - Water
  - Waste
  - Residual Radioactive Material
- o Ecological Standards

*Presented by Andy Wallo  
July 9, 1997*

## **Technical Standards and DOE requirements for Radiation Protection of the Public**

### **DOE Implementation Guides and Technical Standards:**

- o **General - Dose limits and ALARA Process**
  - IG- General Implementation Guide
  - TS- Environmental ALARA Technical Standard (ENR0001)
    - ICRP 22
    - ICRP 37
    - ICRP 55
  - ES- Federal Guidance Reports #11 and #12 (DOE/EH-0070 & 0071)
    - ICRP 26/30
  - HB- ERPP plan format guide
  - HB- Derived Concentration Guides
  - HB- Dose assessment guide
  
- o **Monitoring/Surveillance**
  - TS- DOE/EH-173T(ENVR0005)
    - ES- ANSI 13.1 (continuous monitoring)
    - ES- DOE approval for shrouded probe
  
  - HB- DOE Radiological Survey Manual(ENVR0006)
  - ES- MARSSIM

## **Technical Standards and DOE requirements for Radiation Protection of the Public**

### **DOE Implementation Guides and Technical Standards:**

- o Media/Source/Pathway Specific Requirements**

- Air**

- ES/tool- CAP88 PC for air dose assessment**

- Water**

- TS- Groundwater Protection Program(ENVR0002)**

- TS- Soil Column Control(ENVR0003)**

- TS- Best Available Technology for Radiological Effluent  
Control(ENVR0004)**

- Waste**

- HB- waste management recommendations**

## **Technical Standards and DOE requirements for Radiation Protection of the Public**

### **DOE Implementation Guides and Technical Standards:**

- o **Media/Source/Pathway Specific Requirements (cont.)**
  - Residual Radioactive Material
  - IG- Control of Residual Radioactive Material
    - Regulatory Guide 1.86/NRC Guidance on license termination
    - CS- Recommended tritium release guides
  - TS- Handbook for control and release of non-real property
  - HB/tool- RESRAD code and manual
    - Data Collection Handbook
    - Uptake Factors
    - Handbook of distributions
  - Memo- Non-real property requirements(EH, Nov. 1995)
  - Memo- Release to RCRA facilities (EM, Jan 1997)
  - Tool- Dose assessments for recycle and reuse
  - Tool- Dose assessment for Disposal of Hazardous Waste
  - HB/tool- TSD Dose: radiological dose assessment model for TSDs(April 1997)
  - TS- Game release standard
- o **Ecological Standards**
  - HB- Handbook for ecological dose evaluation
    - NCRP 109, Aquatic Organisms
    - IAEA 332, Plants and animals
    - ES, ORNL/TM-13141, Terrestrial organisms

## **Technical Standards and DOE requirements for Radiation Protection of the Public**

### **External Standards:**

#### **o General Environmental**

##### **ISO14001**

- Published September 2, 1996
- Identifies elements of an environmental management system (elements commonly found in well run organizations): Policy, planning, Implementation and Operation, Checking and Corrective Action, Management Review and Continuous Improvement
- Interagency Working Group (established by Interagency Council Standards Policy, direction and support provided by NIST (DOE and EPA Co-chair)

**IAEA (Draft) Radiological Control of Radioactive Discharges into the Environment**

#### **o Monitoring/Surveillance**

##### **ANSI N13.1 (revision) Sampling Stacks and Ducts**

- Performance based standard
- Through first ballot (accepted)
- Expected 1998

##### **ISO 2889, Air monitoring and control**

- Stacks & ducts, work place and outdoor.
- Performance-based

##### **Tracking**

**ANSI N13.9, Guide to Environmental Surveillance around Nuclear Facilities.**

**ANSI N13.33, Preparation of Environmental Surveillance Reports.**

**ANSI N13.47, Environmental Modeling.**

## **Technical Standards and DOE requirements for Radiation Protection of the Public**

### **o Media/Source/Pathway Specific Requirements**

#### **Waste**

**NCRP 87-2, Risk-based Classification of Radioactive and Hazardous  
Chemical Waste.**

**ANSI N13.50, Qualitative and Quantitative Characterization of LLW**

- Process knowledge**
- Non-destructive assay techniques**
- completed 1st review**
- expected next year.**

**CRCPD, Consider Radiation Control Criteria for Hazardous Waste**

**IAEA Safety Standards, Near Surface Disposal of Radioactive Waste**

**IAEA Joint Convention on the Safety of Spent Fuel and Radioactive  
Waste Management**

**IAEA-TECDOC-909, Issues in radioactive waste disposal.**



## **Technical Standards and DOE requirements for Radiation Protection of the Public**

### **o Media/Source/Pathway Specific Requirements**

#### **Residual Radioactive Material**

##### **ANSI N13.12, Surface and Volume Radioactivity Standards for Unconditional Clearance**

- 4 Groups based on hazard
- Maximum doses < 10 mrem/year
- Generally conservative assumptions
- Mass and Surface Limits
- Limited to clearance of non-real property (no NARM)
- Complete first ballot (accepted with comment)
- Expect 1998

**IAEA-TECDOC-855, Clearance levels for radionuclides in solid material.**

**IAEA (draft) Criteria for clean-up of contaminated areas.**

#### **Tracking**

**ANSI N13.31, Radiation doses from plutonium and americium in soil**

**ANSI, Naturally Occurring Radioactive Material**

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**1997 DOE Technical Standards  
Program Workshop**

**Thursday, July 10, 1997  
Session 6: Regulatory Perspectives**


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# United States Nuclear Regulatory Commission

## THE NRC

 **Authority:** Atomic Energy Act of 1954, as amended  
Energy Reorganization Act of 1974, as amended

 **Mission:** Ensure adequate protection of the public health and safety, the common defense and security, and the environment with regard to the construction and operation of nuclear power plants and the use of nuclear materials.

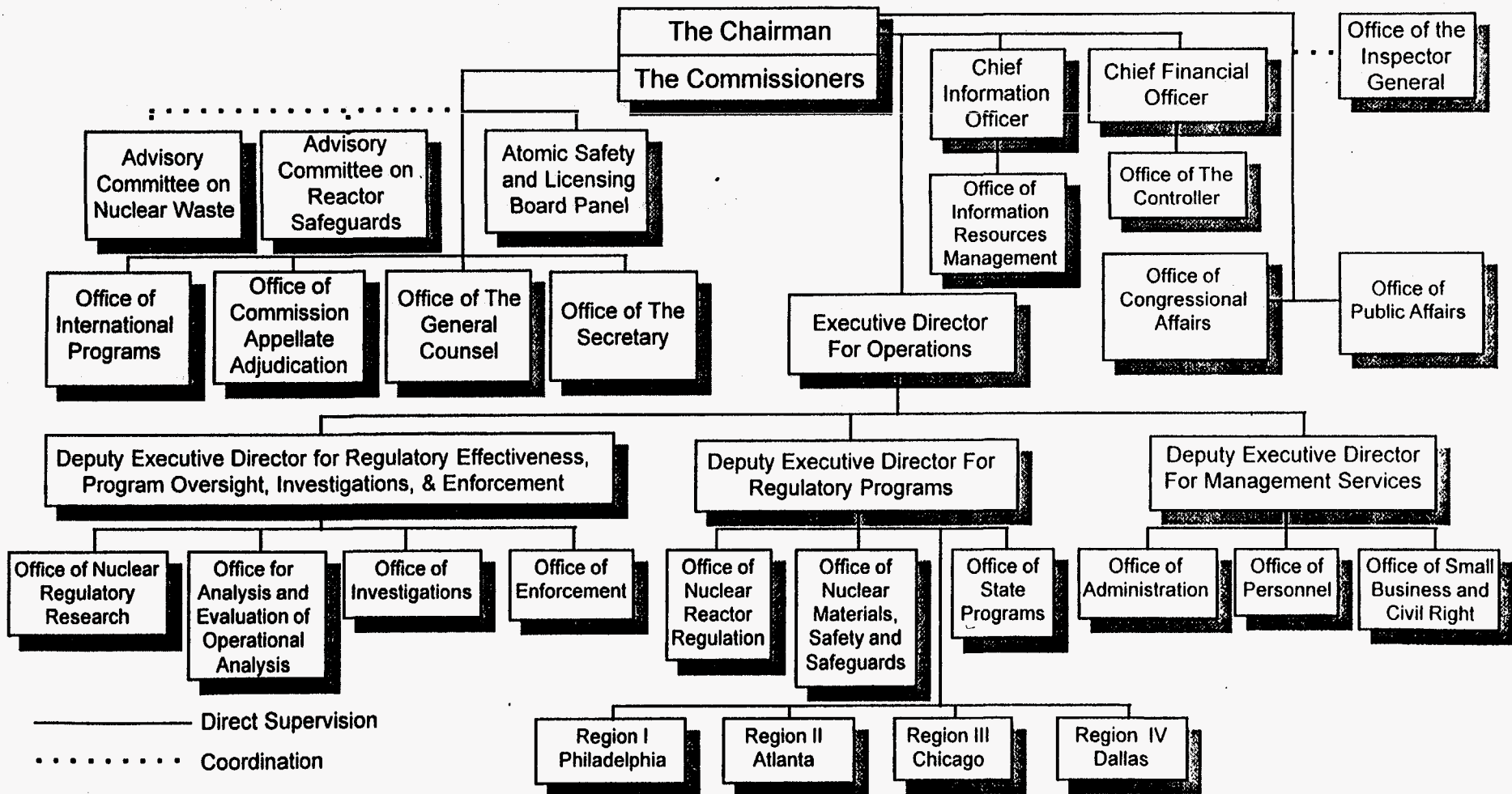
 **Regulatory Functions:**

- Establish standards and regulations
- Issue licenses for nuclear facilities and users of nuclear materials
- Inspect facilities and users of nuclear materials to ensure compliance with requirements



# United States Nuclear Regulatory Commission

## NRC ORGANIZATION






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## United States Nuclear Regulatory Commission





### USE OF CONSENSUS CODES AND STANDARDS

-  **Consensus codes and standards have been an integral part of the NRC regulatory process for almost three decades.**
-  **New federal requirements place increased emphasis on agency staff participation and use of standards.**
-  **Presentation overviews the ways in which codes and standards promote the safe operation of nuclear power plants, and the manner in which NRC staff participate in the development and endorsement process.**



## United States Nuclear Regulatory Commission

# WHY CONSENSUS CODES AND STANDARDS ARE IMPORTANT TO THE NRC





-  **Complement NRC's broad General Design Criteria**
-  **Form a basis for NRC requirements and guidance in many areas of the design, construction, inspection, testing and repairs of mechanical and electrical components, and large civil structures**
-  **Incorporate many years of accepted good engineering practice and reflect state-of-the-art technology**
-  **Provide for efficient use of NRC resources**





## United States Nuclear Regulatory Commission

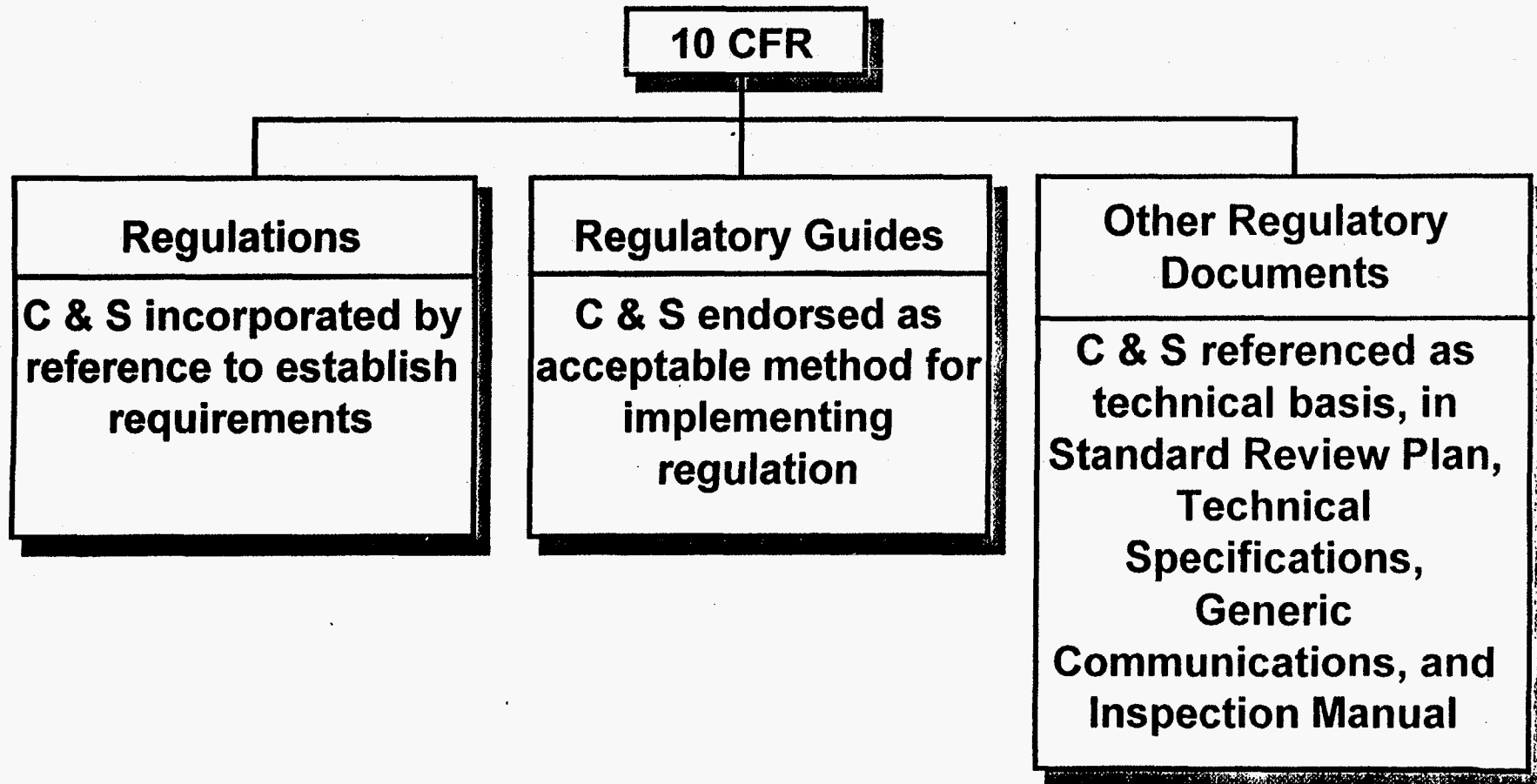
# REGULATORY FRAMEWORK FOR IMPLEMENTATION OF CODES AND STANDARDS

-  **Public Law 104-113, “National Technology Transfer and Advancement Act of 1995”**
-  **OMB Circular A-119, “Federal Participation in the Development and Use of Voluntary Standards”**
-  **Regulations, primarily 10 CFR 50.55a, “Codes and Standards”**
-  **Regulatory Guides and other regulatory documents**



## United States Nuclear Regulatory Commission

# INTEGRATION OF CODES AND STANDARDS INTO THE REGULATORY PROCESS



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## United States Nuclear Regulatory Commission




### STAFF PARTICIPATION ON SDOS

<i>Standards Developing Organization</i>	<i>Staff</i>
American Society of Mechanical Engineers	47
American Nuclear Society	39
Institute of Electrical and Electronics Engineers	26
Health Physics Society	12
American Society of Testing and Materials	11
Institute of Nuclear Materials Management	6
American National Standards Institute	5
American Concrete Institute	4
Other	12
American Society of Civil Engineers	4
<i>Total</i>	<i>166</i>



## United States Nuclear Regulatory Commission

### Strategic Assessment and Rebaselining Initiative

-  **Initiated in 1995 to provide foundation for future direction and decision making**
-  **Direction Setting Issues (DSIs) address major aspects of NRC functions**
-  **Commission final decision on DSI - 13, "Role of Industry," specifies development of an implementation plan that would address, among other things:**
  - The need to streamline and simplify the NRC's internal process for endorsing codes and standards**
  - Whether the intent of Public Law 104-113 is being fully addressed in all regulatory requirements and guides**



*Impact of Public Law 104-113 on  
DOT Regulatory Activities.*

*Julie Abraham*

*Office of International Harmonization  
National Highway Traffic Safety Administration*

*July 10, 1997*

# *DOT Participation in Voluntary Standards Organizations*

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## *Goals:*

- *Reduction of duplication and waste*
- *maintenance of a national competitive edge with respect to transportation related technological developments.*
- *Shaping the creation of new international standards which are adopted by other nations.*
- *fulfillment of obligations under the existing international trade agreements and initiatives.*

# *DOT Participation in Voluntary Standards Organizations*

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- *Nine DOT agencies and the Office of the Secretary have reported varying degrees of participation in standards-setting organizations and related activities.*

# *DOT Participation in Voluntary Standards Organizations*

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- *420 DOT employees participate in at least one standards-developing group.*
- *The total number of voluntary standards groups in which DOT employees participate is 86.*



# *DOT Participation in Voluntary Standards Organizations*

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- *Between October 1, 1995 and October 1, 1996, DOT adopted 277 voluntary standards as a result of agency participation in a standards-developing group.*

# *DOT Participation in Voluntary Standards Organizations*

---

*DOT regulatory agencies consistently review existing regulations, and standards are often updated to reflect the most recent edition based on staff participation in standards committee activities.*

# *DOT's Implementation of Circular A-119*

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■ *DOT has always reported on its agencies' participation in A-119 activities, which until now, have only encouraged executive agencies to adopt consensus technical standards promulgated by voluntary standard bodies and to participate in these same bodies.*

## *Applications of Revised A-119*

---

■ *The activities that were encouraged by the original Circular are now required.*

■ *Agencies must now defend the negative decision NOT to adopt technical standards, domestic or international that are developed by voluntary standards bodies.*

**HOWEVER...**

## *Applications of Revised A-119*

---

*The Circular does not prevent agencies from continuing to develop and use government standards within their statutory authority in the event that there are no voluntary standards available, or that the available voluntary standard is inconsistent with applicable law or otherwise impracticable.*

**HENCE...**

## *Implications of Revised A-119*

---

- *With the exception that this revised version creates an avenue of legal liability, the implications of the Circular are minimal with respect to the way DOT will continue to conduct its regulatory activities.*

## *Applications of Revised A-119*

■ *DOT regulatory agencies have always taken into account and in many instances adopted standards of voluntary consensus bodies; and*

## *Applications of Revised A-119*

---

- *DOT agencies' regulatory processes are transparent and involve extensive analyses of available information and justifications for the decisions made, as well as the participation of a broad spectrum of the public, including voluntary standardizing bodies.*



# *Examples Drawn from NHTSA Process*

- *Glazing Materials Regulation (FMVSS No. 205)*
- *Warning Labels for Air bags- Occupant Protection Regulation (FMVSS No. 208)*

# *Glazing Materials Regulation (MVSS No. 205)*

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*The purpose of this standard is to specify requirements for glazing materials used in motor vehicles in order to reduce lacerations to the face, scalp, and neck; to minimize the possibility of occupant ejection through the vehicle windows during collisions; and to ensure driving visibility especially at night.*

# *azing Materials Regulation MVSS No. 205)-Chronology*

February 3, 1967: FMVSS No. 205 was first published and it incorporated ANSI's July 15, 1966 Glazing Standard Z26.1-1966.

June 21, 1972: NHTSA amended FMVSS No. 205 to allow two additional types of glazing, laminated glass and Plastics, for use in specified vehicle locations where bullet resistance is desired.

# *azing Materials Regulation (FMVSS No. 205)-Chronology*

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- January 26, 1977: ANSI revised its Safety Code for Safety Glazing Materials to incorporate the items added to FMVSS No. 205.
- July 3, 1980: ANSI updated its standard to make minor changes to the plastic bullet proof glazing item, allowing less light transmittance and more loss of transmittance due to weathering.

# *azing Materials Regulation MVSS No. 205)-Chronology*

July 14, 1980: NHTSA amended FMVSS No. 205 to include rigid plastic and flexible plastic glazing and to clarify items of glazing location in vehicles. However, it did not update the reference to the ANSI Z26.1-1977

- November 28, 1980: NHTSA granted a petition by Rohm and Haas Co., GE and SAE to amend FMVSS No. 205 by updating the reference to ANSI Z26.1-1977.

# *Amazing Materials Regulation (FMVSS No. 205)-Chronology*

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- February 23, 1984: NHTSA granted a petition also by Rohm and Haas Co. and GE and published a final rule that amends FMVSS No. 205 to include a reference to ANSI Z26.1-1980.
- September 14, 1990: ANSI catches up with NHTSA and updates its standard to include NHTSA's 1980 and 1984 revisions.



# *Automotive Materials Regulation (MVSS No. 205)-Chronology*

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April 10, 1991: NHTSA was petitioned by SAE to adopt ANSI A26.1-1990 in place of the 1977 and 1980 versions. The petition was denied by NHTSA due to the deregulation activity underway at that time.

# *Glazing Materials Regulation (FMVSS No. 205)-Chronology*

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■ *Currently ANSI is finalizing a 1997 version of its standard that incorporates the latest advancements in glazing technology and all recent changes to FMVSS No. 205. Since both parties are trying to converge, it is likely that NHTSA will adopt Z26.1-1997.*



## *air bag Warning Labels*

---

*On November 27, 1996, NHTSA published a final rule requiring new attention getting labels in order to reduce the adverse effects of air bags.*

- *When devising the warning labels, NHTSA evaluated existing ANSI and ISO standards for warning labels in an attempt to harmonize the color and the pictogram.*

## *Car bag Warning Labels*

---

*The agency conducted six focus groups in three cities , Chicago, San Diego and Baltimore in order to test consumer reaction to existing warning labels and to NHTSA proposed labels based on commenters' suggestions.*

## *Warning Labels-Color*

*ANSI standard Z535.4 specifies that when "warning" is used in the heading, the background color should be orange, the text black, and the alert symbol should be black on white, with occasional use of color for emphasis. The color yellow used in NHTSA's proposed labels is associated with the word "caution" in the ANSI standard.*

## *Crash bag Warning Labels-Color*

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- *Only two of the 53 participants in the focus groups preferred orange. Participants generally stated that yellow was more eye-catching and hence more effective.*
- *Based on the survey results, NHTSA, in its final rule, specified the background color to be yellow for the header.*

# *air bag Warning Labels- Pictogram*

- *ISO, NHTSA and Chrysler proposed pictograms depicting the danger of airbags to children in rear-facing child seats.*
- *The participants of a second round of focus groups all agreed that a pictogram is important to attract attention, and that even a bad pictogram would get them to read the label.*

## *air bag Warning Labels- Pictogram*

---

*The ISO pictogram was the least liked by the focus groups (one of 53) who indicated that it was too peaceful, and didn't convey a sense of danger. The ISO pictogram according to one of the focus groups is misleading, as it suggests that the air bag never touched the rear-facing child seat.*

## *air bag Warning Labels- ctogram*

*Of the remaining two, the Chrysler pictogram was preferred. Chrysler's pictogram modified NHTSA's pictogram by showing more of the vehicle seat for context, by having the child seat broken by the inflating air bag, and by having the air bag bending around the child seat.*



## Air bag Warning Labels- Pictogram

It  
NHTSA will not adopt the ISO pictogram for use on the  
specified the Chrysler pictogram, since  
air bag warning labels. In addition, with the  
NHTSA representatives are involved with its  
ISO committee working on the pictogram NHTSA  
will suggest that ISO consider replacing its  
current pictogram with the pictogram  
requires on its labels.



## *er bag Warning Labels*

*NHTSA's main mission is to improve and preserve the safety of motor vehicle occupants; thus, the agency takes very seriously the importance of making sure that these labels do all they can to help avoid preventable fatalities. Therefore, although NHTSA has always sought to harmonize its regulations with those of voluntary standards organizations, its procedural rules will supersede all other requirements, even those of the revised A-119.*

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**1997 DOE Technical Standards  
Program Workshop**

**Thursday, July 10, 1997  
Session 7: "Work-Smart" Standards**

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# **Work Smart Standards for Environmental Management Facilities**

by

Mark W. Frei  
Acting Deputy Assistant Secretary  
for Waste Management,  
Office of Environmental Management

**1997 DOE TECHNICAL STANDARDS PROGRAM WORKSHOP  
July 10, 1997**

# Background

- In March 1996, the Under Secretary endorsed a set of applications to develop Work Smart Standards.
- Five EM sites volunteered to identify and implement Work Smart Standards for some of their facilities.

## Current EM Applications

- Hanford - Surveillance and maintenance of the PUREX facility;
- Savannah River - (1) site-wide environmental remediation; (2) TNX facility; and (3) Savannah River Ecology Laboratory;
- Rocky Flats - (1) Building 440; and (2) Building 771;
- Oak Ridge - Environmental Management Enrichment Facilities:  
  
Phase 1: (1) East Tennessee Technology Park (formerly K-25) surveillance and maintenance; (2) UF<sub>6</sub> Cylinder Program; (3) TSCA Incinerator; and (4) the Transportable Vitrification System.  
  
Phase 2: Engineering design and construction activities;
- Mound - Accelerated method for D&D of the surplus CFX facility.

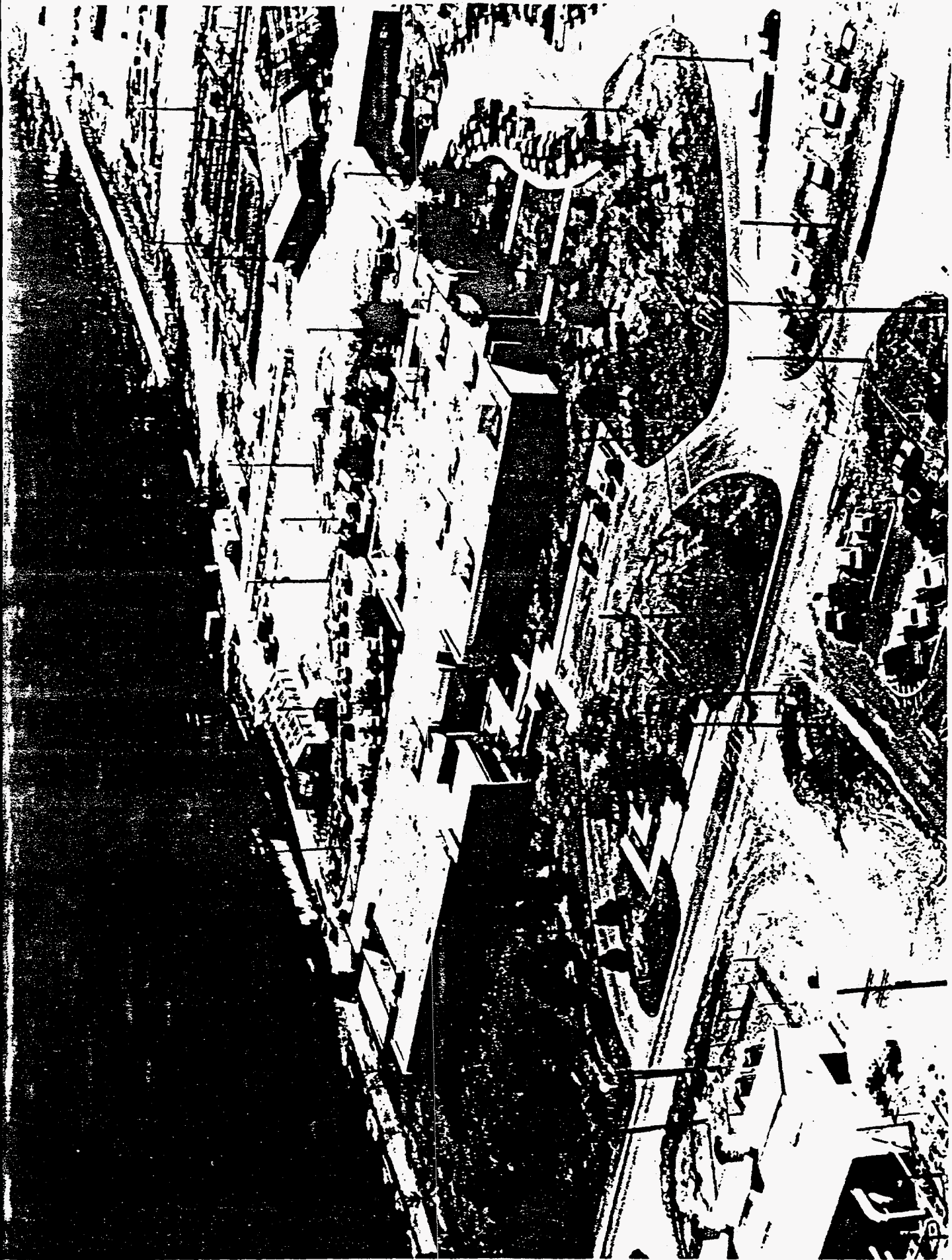
PUREX





## Hanford - PUREX

- Deactivation activities for PUREX have been completed.
- Surveillance and maintenance will be performed until the facility is decommissioned.
- Lessons learned from REDOX pilot have been applied to identify surveillance and maintenance standards.
- A comprehensive hazards analysis is the basis for the Work Smart Standards.
- The standards set is in final review by the site manager and modifications to the contracts are being prepared.



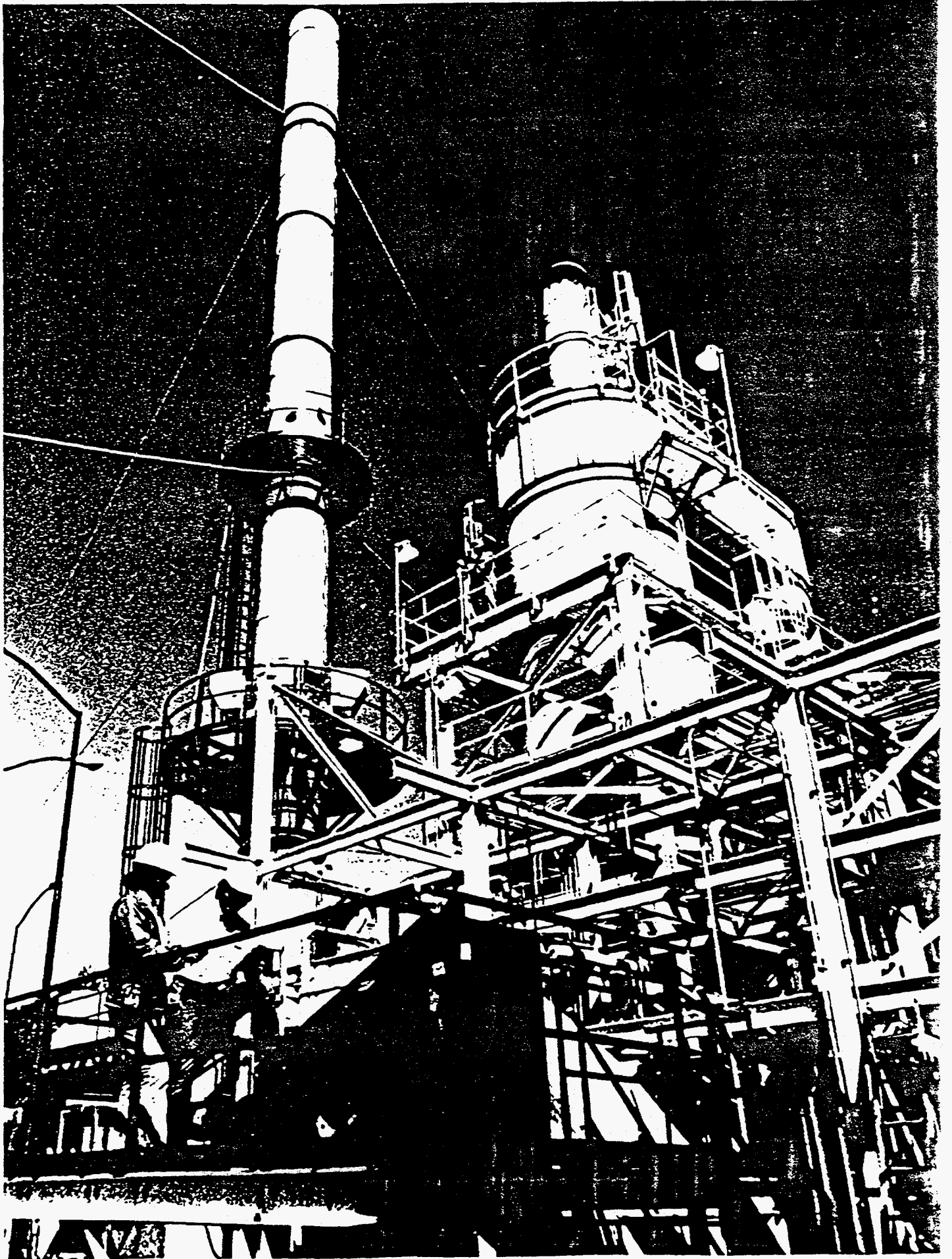
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# Savannah River - Three Applications

- Site-wide environmental remediation Work Smart Standards have been identified and approved by the agreement parties. DOE is currently in the process of incorporating these standards into the contract.
- A Work Smart Standards application has been completed for the TNX facility. The identified requirements are being incorporated into the contract.
- Identification of Work Smart Standards has been completed for the Savannah River Ecology Laboratory. The standards are being reviewed by the agreement parties for approval. Following approval, the standards set will be incorporated into the cooperative agreement with the University of Georgia.

## **Rocky Flats - Two Applications of Authorization Basis**

- Hazards analyses and standards/controls for work in Buildings 440 and 771 were confirmed using the Work Smart Standards process.
- The standards/controls were incorporated into the Bases for Operations (BFOs) that were then approved by the agreement parties. BFOs are tailored safety basis (authorization basis) documents.
- Operations in Building 440 (waste storage) are underway using these controls. Implementation of the control set for material consolidation and removal operations in Building 771 is scheduled for December 1997.







'13-12 PLANT  
K-2 S. C. L. N. 2

## **Oak Ridge - Two Phases, EMEF Business Unit**

- Phase 1, identification and approval of Work Smart Standards, was completed by September 30, 1996, for four projects: East Tennessee Technology Park (formerly K-25) Surveillance and Maintenance, UF<sub>6</sub> Cylinder Program, TSCA Incinerator, and the Transportable Vitrification System.

## **Oak Ridge - Two Phases, EMEF Business Unit (continued)**

- Under Phase 2, Work Smart Standards will be identified and approved for all remaining EMEF activities at five sites in three States (Portsmouth, Ohio; Paducah, Kentucky; ETTP (K-25), and parts of Y-12 and ORNL, Tennessee).
- A set of Phase 2 Work Smart Standards for engineering design and construction activities was completed and approved in March 1997.
- The remaining Phase 2 sets are in confirmation, and approval by DOE and Lockheed Martin Energy Systems Agreement Parties is expected by mid-July 1997.



## Mound - Accelerated D&D of the CFX

- An application of Work Smart Standards has been initiated to develop an accelerated method for decontamination and decommissioning of the surplus CFX facility.
- The Convened Group has been formed and its charter has been approved.
- The identification of the standards has been completed by the Identification Team.
- The Confirmation Team has completed the review of the identified requirements and has submitted comments. The comments are expected to be resolved and the set approved by the end of July 1997.

## Lessons Learned

1. It is critical to have the appropriate people at Work Smart Standards meetings. Project management representatives must be present.
2. All team members must continually challenge each other to ensure that the standards proposed truly fit the work and hazards.
3. It is important to select the identification and confirmation team members from the correct functional areas for the work to be performed.

## Lessons Learned (continued)

4. If possible, benchmark through use of an outside A&E firm to provide an industrial perspective on standards/ requirements.
5. It is essential to maintain project knowledge and close contact (almost daily) with the workers.
6. It is vital to establish clear expectations and milestones with significant consequences (e.g., award fee) for not meeting the schedule.

## Benefits

- ✦ **Reduced Order Compliance.** Only the applicable DOE Orders need to be included in the list of standards identified by the Work Smart Standards application.
- ✦ **Ownership.** The workers and management team involved in the identification process take ownership of the requirements as these are not externally imposed.
- ✦ **Discovery of New Information** that may avert problems, expenses in the future.
- ✦ **Improved Communications** among the various parties that will work at the facility/site.

**1997 DOE Technical Standards  
Program Workshop**

**Thursday, July 10, 1997**

**Session 8: Technical Standards Program Initiatives**

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**Department of Energy  
Technical Standards Program  
Issues and Activities**

**Prepared for  
The DOE Technical Standards Program Workshop  
Striking the Right Balance:  
DOE's Work Smart Implementation of  
The National Technology Transfer and Advancement Act  
of 1995**

**Presented by  
Richard J. Serbu, Manager  
DOE Technical Standards Program  
Office of Nuclear Safety Policy and Standards  
Environment, Safety and Health  
U.S. Department of Energy  
July 10, 1997**

**Objective: Discuss Key Issues and Activities for the Main  
DOE Technical Standards Program Areas:**

- o Policy and Program Management**
- o Technical Assistance**
- o Communications and Outreach**

## **Technical Standards Program (TSP) Issues**

- **Policy and Program Management**
  - **PL 104 -113 & OMB A-119 Revision**
  - **Update of Orders: DOE 1300.2A to DOE 252.1**
    - **Reflect PL and OMB A-119**
    - **Provide a Program Guide (DOE G 252.1)**
  - **TSP Procedures Reflect DOE user, TSMC, TC needs**
  - **Closer Coordination with the DOE Directives System**
    - **Push for Direct Contact with Standards Development Organizations to develop new standards for DOE.**
    - **Establish a "Screening for Need" Body (DSC/DMB/Field)**
    - **Control "Rogue Standards"**
    - **DOE-Wide Participation in TSP**
    - **Review Role of Directive System Points-of Contact**



## **Technical Standards Program (TSP) Issues**

- **Technical Assistance**
  - **Goal: Paperless Communications & Activities**
    - **New Home Page**
    - **Electronic Information Transfer/Internet Use**
    - **All Tech Standards/Drafts Posted Electronically**
    - **TSP Data Bases On Home Page**
    - **Electronic Communications with TSMs**
    - **Standards Forum/Standards Actions**
  - **Post New TSP Home Page keying on interests and usage**
  - **Broaden DOE-Wide Participation in TSP**
  - **Recognition of DOE Topical Committees**

## **Technical Standards Program (TSP) Issues**

- **Technical Assistance**
- **Provide Links to Standards Development Organizations**
  - **Internet Links**
  - **Program Contacts**
  - **Establish Topical Committee Counterparts**
  - **Standards Listing Services**
  - **Standards Summary Services**
  - **Standards Purchasing Services**
- **Improve TSM Participation in TSP**
  - **Push Participation at Meetings**
  - **Provide Training for new TSMs**
  - **Conduct Management Training**
  - **Push for Management Responsibility**
  - **Provide TSP Home Page Information**

## **Technical Standards Program (TSP) Issues**

- **Communications/Outreach**
  - **TSP Home Page “Hot Links” to/from other standards activities**
  - **Cooperation with the Interagency Committee on Standards Policy/NIST**
  - **Participation with ANSI & ANSI’s Government Members Council**
  - **Coordinating TSP Activities with other Federal Agencies, Standards Organizations, and Industry**
  - **Establishing direct links between the TSP, TSP Topical Committees, and Standards Development Organizations**
  - **Sharing with and Benchmarking from Organizations outside of DOE**

## **Technical Standards Program (TSP) Issues**

- **Communications/Outreach**
- **Broaden DOE-Wide Participation in TSP**
  - **Recognition of DOE Topical Committees**
  - **TSM Training**
  - **TSM Participation at Meetings**
  - **Management Training**
  - **Management Responsibility**
  - **TSP Home Page Information**
  - **Publications:**
    - **Standards Forum**
    - **Standards Actions**

## **Summary**

- **DOE and the Federal Government are in an Era of Change**
- **The TSP is a Service Program**
  - **Provides a Uniform System for DOE**
  - **Provides the Means for DOE to Meet Federal Law and Policy**
  - **Provides the Means for All DOE Organizations to Impact Program Direction**
  - **Electronic Communications and the Internet are Key Paths to Success**
- **Participation Means Sharing in Goal-Setting**
  - **Technical Standards Managers**
  - **Topical Committee Members**
  - **Standards Development Organizations**
  - **Other Federal Agencies**
- **Non-Participation Means Following Where Others Lead and Having No Say**
- **DOE Intends to be a Leader in Technical Standards Management: Help Us Map the Path and Set the Example!**

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*CHANGES TO THE  
TECHNICAL STANDARDS  
PROGRAM PROCEDURES*

*Don Williams, Oak Ridge National Laboratory*

*Presented at the 1997 Technical Standards  
Program Workshop; Washington, D.C.*

*July 10, 1997*

# BACKGROUND

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- *Summer 1996 - Revision to the Technical Standards Program Procedures (TSPPs) commenced (address PL 104-113, draft TSP Order/Guide, and issues from recent TSMC meetings)*
- *October 1996 - Planned revisions discussed at TSMC meeting*
- *March 1997 - Draft general revision issued for comment*
- *June 1997 - General revision completed*

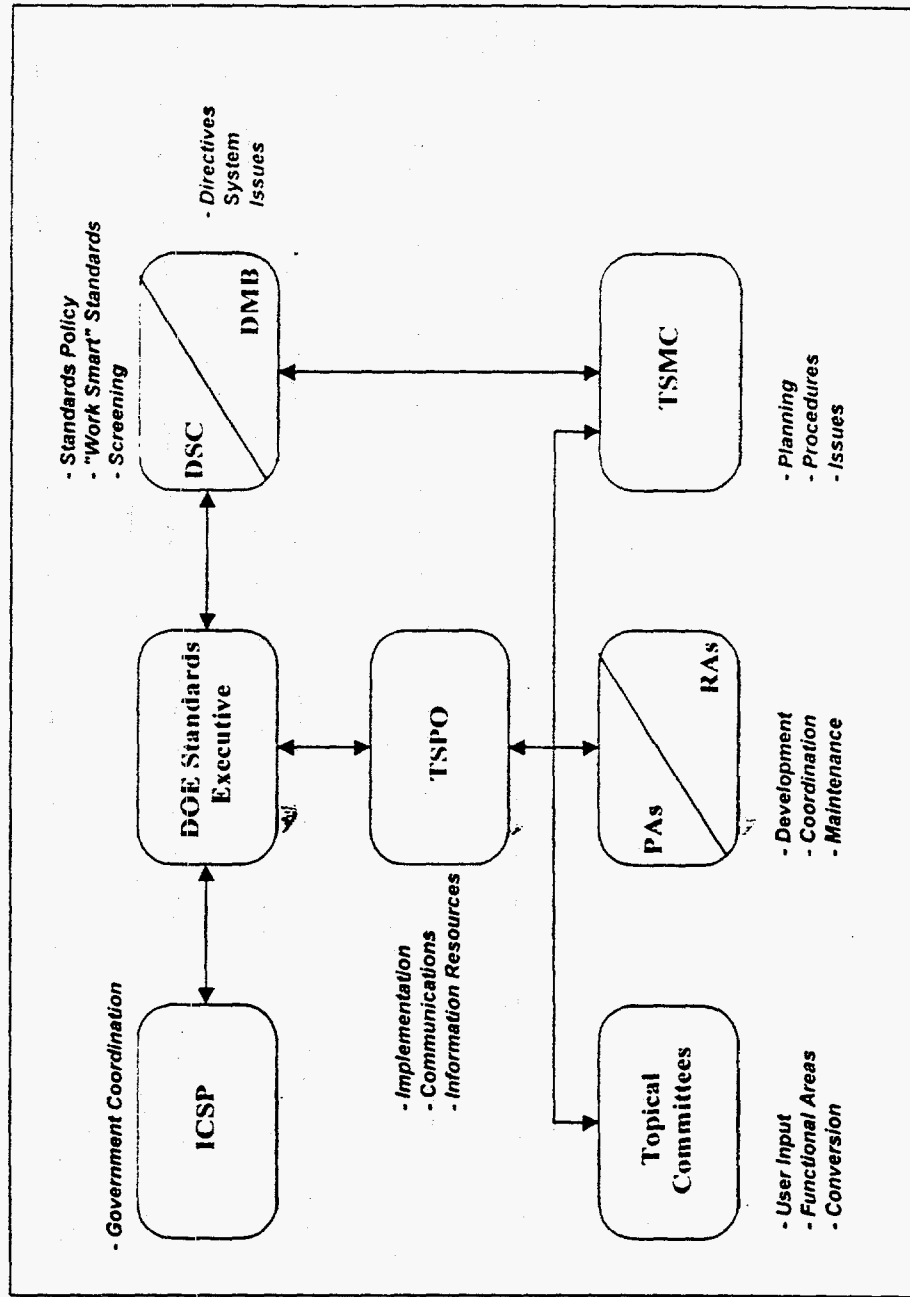


# TSPP CHANGES

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- *Procedure Format (single-spaced)*
- *Topical Committees (new TSPP-11)*
  - *TSP recognition (existing technical groups, including TRADE SIGs)*
  - *Role & responsibilities defined*
- *Updated References*
  - *PL 104-113*
  - *DOE O 252.1 / DOE G-252.1-1*
  - *DOE G-1430.1D*

# ITSP INTERFACES



# *TSPP CHANGES*

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## ■ *Project Screening (TSPP-2/-4)*

- *More emphasis on use of NGSs*
- *TSP support for identifying available NGSs*
- *Justification for developing new DOE technical standards*

## ■ *Establishing Need (TSPP-2)*

- *Expanded process description*
- *Terminology clarification*
  - *“Sources” of standards (NGS vs. Government)*
  - *“Formats” for DOE tech. standards (STD, SPEC, HDBK, TSL)*
- *Technical standards as “Requirements” - incorporated verbiage from STD-1082: “shall” vs. “should”*

# *TSPP CHANGES*

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- *Coordination (TSPP-4 thru TSPP-7)*
  - *New emphasis on coordination with line organizations and TSMs*
  - *Roll-up of site comments for submittal to Preparing Activities (PAs)*
  - *GC receipt of new DOE technical standards for Congressional notification*
  - *TSPO assistance with electronic coordination*
  - *Guidance on coordinating NGS projects and role of DOE representative to NGS committee / working group*

# *TSPP CHANGES*

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- *TSPP-3: (1) expanded definition of “adopted” NGSs to include those in SARs; (2) added data to be reported under OMB A-119*
- *TSPP-4: proposed set of revised functional areas for DOE technical standards included*
- *TSPP-8: emphasis added on receipt of PostScript and/or PDF files from PAs*
- *TSPP-9: Use of “Change Notice” clarified*

# *TSPP CHANGES*

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## ■ *Reaffirmation (TSPP-9)*

- *Notice of intent to reaffirm announced through Standards Actions*
- *Reaffirmations announced through Standards Actions*
- *TSP Home Page and TSIS annotated with reaffirmation data*
- *Goal - use copies of technically valid documents; no “administrative” reprinting*

# TSPP CHANGES

## ■ *Inactivation/Cancellation (TSPP-9)*

- *Notice of intent to inactivate/cancel DOE technical standards and final actions to inactivate/cancel announced through Standards Actions*
- *Inactive/canceled DOE technical standards removed from TSP Home Page; available upon request from TSP0*

# EMERGING ISSUES

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- *Mid-June: communications with DNFSB staff - commitment in 90-2 response to coordinate nuclear-related directives with Board; will require additional TSPP revisions (scope TBD)*
- *Adoption process - Need to consider employing DoD system (adoption notices generated by field)*



# **REDESIGN OF THE DOE TECHNICAL STANDARDS HOME PAGE**

## **DOE TECHNICAL STANDARDS PROGRAM**

**Madelyn Marie Wilson**

**Office of Scientific and Technical Information**

**July 10, 1997**

### **REDESIGN INITIATIVE**

The redesign initiative for the DOE Technical Standards Home Page is predicated upon an architectural hierarchy and structured layout of information. This is essential in managing the content and in the leveraging of information to produce consistent and improved business results. The information and life-cycle management challenges confronting the DOE Technical Standards Program, as it faces the realities of the new millennium, mandate the electronic development, delivery, and archival of technical standards documents.

## REDESIGN FOCUS

OSTI has management and oversight responsibilities for the redesign of the home page. This collaborative venture with the Oak Ridge National Laboratory supports the mission of the "Department's Standards Program and in partnership with all stakeholders, enhances DOE's transition to a standards based culture by providing information, coordinating activities, and promoting the use of consensus standards, and, when needed, the development of DOE technical standards."



## REDESIGN FOCUS (continued)

The redesign of the DOE Technical Standards Home Page is a direct result of rapid changes in technology and user expectations. Technological enhancements will always be the driver in the management of information content on the home page. Ever-increasing technological advancements have resulted in the need to perform a strategic analysis of the existing home page to ascertain market trends and user requirements to determine the optimal structure and software for handling the information.

## REDESIGN FOCUS (continued)

Goals of the redesign effort:

- Develop an architectural hierarchy of information
- Develop a search engine for PDF documents
- Develop intuitive navigational tools
- Include additional topics of interest
- Increase interactive capabilities
- Establish the feel of user ownership of the home page



## **GRAPHICAL DESIGN OF THE HOME PAGE**

A well-planned and carefully designed architectural hierarchy is critical for information management. Designing a web page in such a manner allows the user to access the information quickly and intuitively. To achieve this goal, Frames technology has been adopted by the DOE Technical Standards Program as part of its redesign composite. Frames, a new feature of Netscape Navigator 2.0 or higher, allow the user to view information in a multiple, independently scrollable window within a single browser viewing area.

## **GRAPHICAL DESIGN OF THE HOME PAGE (continued)**

The user may click on a link in the left frame and view the information content behind that link in the right frame. In other words, each frame can contain both textual and graphical information. Frames facilitate searches and the viewing of help screens without having to back-track through multiple screens.

## **GRAPHICAL DESIGN OF THE HOME PAGE (continued)**

Advantages of Frames technology:

- Provides user-friendly navigational interface
- Allows different information to be viewed simultaneously
- Enhances menu functionality
- Side-by-side frames allow the execution of a search query in one frame and the results of the query to be displayed in the second frame
- Individual URL addresses can be assigned to each frame

## **SEARCH ENGINE**

To enhance the search capabilities for both PDF and HTML documents, OSTI will use OpenText software to develop the search engine. OpenText interface is a search engine that can interface with the World Wide Web. The OpenText search engine has full-text searching capabilities for both PDF and HTML formats. The OpenText interface is platform-independent, supports all World Wide Web browsers such as Netscape and Microsoft Internet Explorer.

### **SEARCH ENGINE (continued)**

The full-text search and retrieval capabilities of the OpenText search engine as implemented for DOE Technical Standards are:

- Search for a single word or a group of words
- Search for a phrase of any length
- Search with Boolean logic operators
- Stem searching
- Document ranking or relevance ranking to make searches more productive
- Search, retrieve, and view any document resulting from the search query

### **SEARCH ENGINE (continued)**

To expedite ease of use for the user by providing required results upon execution of a search query, the search screen allows field searching in the following categories:

- Keyword search
- Document number
- Document number ranges
- Functional areas

Internet Explorer: DOE Technical Standards Search Form

What's New What's Cool Home For Search Home Software

### Technical Standards Search Form

Is this your first time searching? Please look at the [searching tips](#). To get information about specific fields in the search form, click on the field name.

Full Text Search: \_\_\_\_\_

Limit Search by:

Approved Standards

Draft Standards

Both Approved and Draft

Document Number: \_\_\_\_\_

OR

Document Number Range: \_\_\_\_\_

Functional Area:

- Unclassified
- ALF-Accurate Fuel
- COP-Concept of Operations
- CMS-Configuration Management
- CRV-Criticality
- NDCN-Reg. Design and Constr. Nuclear
- NDCO-Reg. Design and Constr. Other
- EMER-Emergency Management
- ECC-Energy Conversion
- EPP-Environmental Protection

Submit Clear Form

## ELECTRONIC DOCUMENT MANAGEMENT

As gatekeepers of the DOE Technical Standards Home Page, OSTI and the Oak Ridge National Laboratory consistently collaborate to provide accurate real-time document delivery. Electronic dissemination of DOE Technical Standards is essential to the Work-Smart process.

## **ELECTRONIC DOCUMENT MANAGEMENT** (continued)

Current information and additional topics of interest on the DOE Technical Standards Home Page are vital to maintain the Program's competitive advantage by providing timely, accurate, and viable information to the user.



## **ELECTRONIC DOCUMENT MANAGEMENT** (continued)

The success of any Web-based application is measured by usership and accessibility. During FY 1996, electronic dissemination of technical standards consisted of:

- 120 PDF technical standards documents posted on the home page
- 29,656 accesses to the home page

**TECHNICAL  
STANDARDS  
DOCUMENTS**



## ELECTRONIC DOCUMENT MANAGEMENT (continued)

During FY 1997, it is projected that usership and accessibility will consist of:

- An additional 30 technical standards
- A 37% increase of usage in comparison with FY 1996.

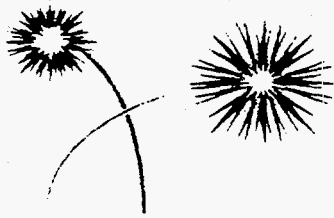


## ELECTRONIC DOCUMENT MANAGEMENT (Cont.)

As indicated by the statistical data, the home page is a viable product for electronic dissemination of technical standards. As electronic document delivery becomes more and more integrated into the operations, the Technical Standards Program will be better able to:

- Reduce costs and provide a more functional and usable service
- Decrease the turn-around time in document development and delivery
- Increase document accuracy
- Increase access and expand distribution

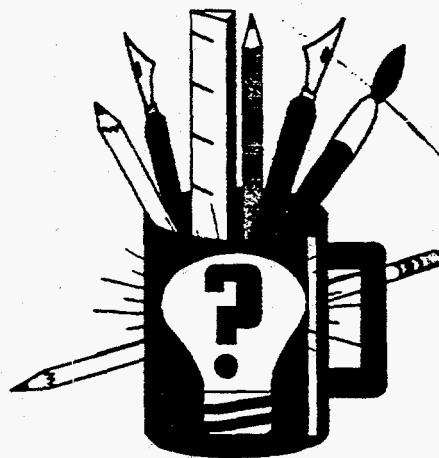




## CONCLUSIONS

The existing partnership between OSTI, Oak Ridge National Laboratory, and the Office of Nuclear Safety Policy Standards will continue to promote electronic dissemination as an imperative to the Technical Standards Program as we approach the new millennium. The DOE Technical Standards Program has been proactive in the technological execution of electronic dissemination, which will ensure the Program's success. This approach will continue to enhance and direct the flow of information in an open-system environment.

## QUESTIONS/IDEAS



# memorandum

DATE: September 17, 1997

REPLY TO: Office of Nuclear Safety Policy and Standards: R. J. Serbu: 301-903-2856

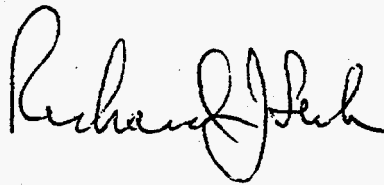
SUBJECT: Memorandum of Appreciation for Participation in 1997 DOE Technical Standards Program (TSP) Workshop

to: Distribution

A copy of the proceedings from the 1997 DOE Technical Standards Program Workshop is enclosed for your information and reference.

These proceedings provide a record of the significant activities which took place during the workshop held on July 8-10, 1997, in Washington, D.C.

If you have any questions or comments on these proceedings, please contact either Don Williams, ORNL (423-574-8710; dw5@ornl.gov) or me.



R. J. Serbu, Manager  
DOE Technical Standards Program, EH-31

Enclosure

Distribution: 1997 TSP Workshop Participants

**MASTER**