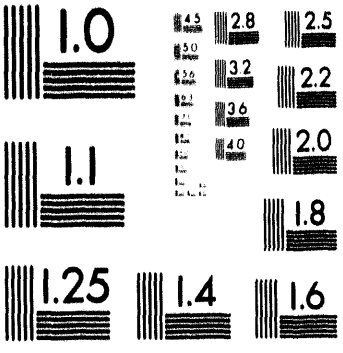
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CONF-9305181

Transportation Management Workshop

PROCEEDINGS

Department of Energy
Office of Environmental Restoration and Waste Management
Transportation Management Division

May 11-13, 1993
Gaithersburg Marriott
Gaithersburg, Maryland

MASTER

TRANSPORTATION MANAGEMENT WORKSHOP
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Tuesday, May 11, 1993

Opening Remarks and EM Overview
EM: Future Directions

presented by Paul Grimm, DOE/EM

Grimm - EM Future Directions - TM Workshop

Good morning. Thank you, Larry. I have spoken with several members of the Transportation Office this past week, and we have tried to imagine how Transportation will impact the rest of the Environmental Restoration and Waste Management Program. By understanding where the Environmental Restoration and Waste Management (EM) Program is going, one can see that Transportation will have a tremendous impact upon this program. Its impact will not rest solely upon traditional transportation and packaging issues but also on newer and broader issues. Advances and continued development of transportation and packaging issues are necessary for the success of EM and its newest program, Facility Transition. The Technology Development Program has a proposed budget of roughly $400 million; of this total, Transportation Management accounts for nearly $20 million. Facility Transition already accounts for $721 million of EM's $6.5 billion Fiscal Year 1994 budget request.

Facility Transition was formed to help EM deal with the discarded and duplicative defense production facilities it will acquire as a result of U.S. defense reduction and consolidation initiatives. There are estimates that 6,000 to 7,000 buildings exist throughout the Weapons Complex from former reactors to current storage facilities. These facilities must first be stabilized and then may require decontamination and dismantling. Because of the Department's need to safely move the resulting materials from defense sites to qualified, well-maintained storage facilities, a connection has developed between the Transportation and Facility Transition Programs.

As sites wrestle with the issue of tearing down former reactor and defense facilities, a question is raised: where will the dismantled material go? We are all aware that no interim or short-term storage facilities for radioactive waste or mixed waste exist. We are trying to open the Waste Isolation Pilot Plant (WIPP), but we are facing challenges in implementing new Congressional standards and in meeting standards the Environmental Protection Agency (EPA) is currently developing. The fact of the situation is that no certain, long-term storage solution exists.

This example serves to illustrate a larger point in the EM Program: there are no easy solutions. We can't expect quick fixes to our challenges; however, we can set a strategy for how to proceed toward resolving them. I'd like to describe two ways that we are working to meet our challenges. First, we are taking a holistic, systematic approach in which we set problems in the context of the overall EM Program. Second, we are involving stakeholders in seeking solutions. Both of these methods are pertinent to transportation management activities.

Under the holistic approach, we make a commitment to look at the big picture in environmental restoration and waste management. This means that we avoid focusing on a single project, site, or issue. For example, our waste management problems should not be solved by hauling materials from Hanford to Savannah River and then declaring consolidation a solution. Instead, we should consider waste management in the entire complex and deal with waste streams. In this way, we maintain a comprehensive vision of the program and its goals.

The holistic method can help us approach many challenges. It can be useful in resolving tank issues, low-level waste stream problems, and proposed environmental remediation practices. In other cases, we can understand transportation management, packaging, and emergency response better when we view them as significant elements of the overall EM program. We can also apply this approach when working with our regulators, so that with their perspective we can obtain a greater sense of the program's direction.

In keeping with our efforts to comprehend the views of our regulators, we are involving them more in our decisionmaking. This is the second part of the strategy for addressing our challenges, and it follows from the policy of the new administration and of Secretary O'Leary. This strategy of involvement is the most intensive part of our public participation program. It begins with an initiative to seek stakeholders' assistance in setting priorities and allocating EM's Fiscal Year 1994 budget.

Under this initiative, we are meeting with our stakeholders from Congress, State regulators, Indian Tribes, Federal agencies, environmental groups, community groups, labor organizations, and other interested members of the public to discuss our budget and priorities. The first step involves a dialogue between DOE and its stakeholders, a process of two-way communication and education. DOE may want to give its stakeholders a better understanding of risk assessment, for instance; and stakeholders may wish to explain their safety concerns. The idea is that all parties should work together to identify concerns and issues in the EM program, so that program decisions take place by mutual effort. By bringing stakeholders into the debate over EM activities, we can draw on the resources of the stakeholder community and try to find common, acceptable solutions to our challenges.

This will assure the taxpayers that EM's $6.5 billion budget is well spent, since their concerns will have been included in the distribution of funds. EM and its contractors can no longer oppose community objections to an activity on the grounds that the activity meets a particular regulation. Now we are open for debate, and when a debate involves a diverse group of stakeholders, the consequent decisions must reflect their priorities more obviously. This is a hallmark of the new Administration.

Clearly, this approach will be more difficult than DOE's traditional way of doing business. It requires more time and more work. But there are payoffs, and the primary one is that involving stakeholders in our greater plans will make our decisions more effective. Eventually, this will make our work easier.

Furthermore, public participation will not remain a Departmental anomaly. It will be employed in all of the Department's programs. EM happens to be farther ahead than other areas of DOE; this is attributable to our early program foresightedness. From the beginning, we have realized that communicating our ideas to the public -- along with listening to the public's ideas -- is essential to a valid decision-making process.

Stakeholder involvement in budget decisions just touches the tip of the public participation iceberg. Part of the larger piece includes site-specific advisory boards (SSABs), which are now being set up at EM sites. The SSABs will continue to review the EM and President's budget in future years, and they will provide stakeholders with an opportunity for continuing, meaningful involvement in EM decisions.

By now it is widely known that the Administration is proposing a growing budget for the EM Program, an increase of one billion dollars from 1993. This increase demonstrates the Administration's commitment to cleaning up former defense sites. But with funding like this, we need to demonstrate our effectiveness. I would like to emphasize that we have already had many successes in the EM Program. As part of communicating with the public, we should not forget to mention the things we have achieved.

For example, EM has calcinated 285,000 gallons of high-level waste at Idaho. This is an ongoing and important operation to the Program's overall achievement. Another example is the Toxic Substance Control Act (TSCA) incinerator at Oak Ridge. There have been nearly seven million pounds of mixed waste incinerated at this facility. That is an accomplishment the public can understand and relate to. In Transportation, the implementation of the TRANSCOM effort has been a phenomenal success. This program was established to monitor the movement of specified radioactive material shipments. This should give added certainty to Corridor States and their communities that emergency preparedness and response is fully developed and coordinated. I have highlighted only three accomplishments, but the EM Program has a long list of achievements that span the Complex. These accomplishments are the foundation of tomorrow's investment return.

The TRANSCOM system and its relationship with the Corridor States brings one final transportation issue to light: the issue of educating communities outside of the defense complex about its reconfiguration, down-sizing, and cleanup. Corridor States will be the first to be affected because of their safety concerns and the potential emergency conditions. We have to expand our dialogue to people in these areas as well.

This is a big task at hand, yet I know that DOE, the Congress, the other Federal agencies, stakeholders, and our contractor community are up to the task and the innovative skills this acceptance will demand. We welcome your ideas. Please help us find new ways to communicate, and we will implement those ideas.

Thank you.

Office of Special Programs,
Office of Technology Development,
EM-56 Overview

presented by Richard Brancato, DOE/EM/OSP

I have the unique privilege of being in an organization that has as the Acting Assistant Secretary, a young man who grew up in the transportation program (Paul Grimm), and an older man (Larry Blalock), who also grew up in the transportation program, running one of the best organizations I think we have in the Department.

The first thing that somebody who is coming into a new job tries to look at is the quality of the organization that he is dealing with. When you look at the transportation effort of the Department, you look back at a long history of very successful operation, full of many talented professionals both from the operation side as well as the research and development side. One of the things that you don't want to do is to interrupt the activities of such a group if you want it to continue to succeed. So I've had a very easy time over the last few months of trying to learn as much as I can about the transportation programs of the Department.

I've been in the Department for 25 years. I started out as an intern in the old Atomic Energy Commission and have followed the Department through its many trials and tribulations. I'm sure we are going to continue to go through those -- there will be changes even in the near future.

One thing that has always remained steadfast, though, is this group of transportation professionals who have been in many organizations. You've had your ups and downs. I think one of the things that we're trying to focus on right now is to support the continued improvement of what I call that transportation infrastructure that once had quite a few more people. It once had more prominence in the organization and we're trying very hard to rebuild that infrastructure that I think we have let decline in the Department.

With that introduction, let me give you a vision of where I think we're going to be heading at least for the next few years with Larry and I involved in the program. As Paul mentioned, we've got a significant task ahead of us in the Department. We've got a large amount of money that has been devoted to the restoration and clean up of our sites. An integral part of that is going to be to figure out "how to" -- how to put, where to put, how to transport and how to store a lot of these material that we've had in our system. And, all along that path, we have continued and increased involvement of what Paul called stakeholders. Let me define what I mean as stakeholders because I think a lot of people misunderstand what the term stakeholder means.

The stakeholders in our transportation enterprise are made up of not only our customers, which are the people who are going to ask us to transport things, but all of the people in the systems from the drivers and the carriers, to ourselves in the Department system, to the Nuclear Regulatory Commission, to the Environmental Protection Agency, to the Department of Transportation, and the general public, state and local governments. All of those stakeholders form the group of people that are going to have to be involved in our transportation system for us to be successful.

I mentioned to Paul, one of the dreams that I've had about starting on one of our shipping campaigns was about a governor getting very irritated at us because we haven't communicated effectively and a state trooper at the border yanking one of the drivers out of the trucks and taking and impounding the truck. And Paul said, "Well, that actually happened." He said that we were moving some materials from Pennsylvania somewhere, and the governor of Nebraska, Governor Robert Carrey, evidently decided that he didn't like that. So, he had a helicopter fly overhead as the truck crossed the border. The truck was stopped and the shipment was held up.

Any one of those stakeholders in our system has the capability of halting our operation. Unless we bring those people into some of the processes that we are using to make decisions on how we transport these things, and indeed what we do with these materials, we are leading ourselves into a scenario of failure. One of Larry's big jobs is the continued improvement of relations with that stakeholder community. We've got a number of mechanisms in place to do that. For example, the Transportation External Coordinating Committee. We've got some internal groups that work and we've got to continue to improve those stakeholder relations.

I keep coming back to a fundamental thing that we've got to do in our own operation. We continue to improve the tools that support this transportation infrastructure. Unless we give people the tools that they need to operate efficiently in a system that is as complex as it is, we are doomed to failure. Things like improvement in TRANSCOM, the improvement in our operations activities, improvement in making tools available to the traffic manager in the field who has to decide on packaging, routing, and other things. Unless we give those people the tools to efficiently do their jobs we are also doomed to failure, because the cost that's going to be involved in this enterprise is going to become very significant. So another one of Larry's jobs is to continue to improve that transportation infrastructure.

And last, I want to focus on something that is very important to me and something I hope I can help in the process. And that is to focus us on doing things, safer, cheaper, better, faster. It's focusing on the efficiency of our operations and focusing on it in a different way. Focusing on it in a way in which, I think over the last ten years, we've come to term "quality management". That is, including all of you in the development of the tools and the decisions that we are going to have to make in the transportation arena. That is bringing you and the entire transportation enterprise into the decisionmaking process so that as we go forward with rules, or as we develop new tools, we actually go out to the affected communities and work with them in development of these tools.

The most important thing that we have to do is in the area of quality management - improving our efficiency by going to the people who use and have use of our products.

Last but not least, I want to talk a little bit about funding because I think, as Paul mentioned, one of the things that we've seen has been a tremendous escalation in the amount

of money that's being devoted to restoration and clean up activities. That is not going to continue.

The Congress and the people of the United States sent a very clear message about the Federal deficit, about the cost of government. I think we have peaked out in terms of the amount of money that's going to be available for our whole enterprise, the environmental restoration and waste management enterprise. So our challenge is to look at budgets that are going to be fairly stable, not escalating greatly over the next few years, and figuring out how we can make those resources more productive.

That's not always a pleasant task when you feel like you haven't had the resources to do your job effectively to begin with. I've been in a lot of organizations that have been underfunded and understaffed. I think in our case, and certainly by no means because of me, the budgets have increased dramatically over the last few years to a level that I think we are going to continue to operate at for the foreseeable future.

So our challenge is really to bring all of you to bear on our problems of how to make this whole enterprise better than it is today. And that's not an easy job because it's very good today.

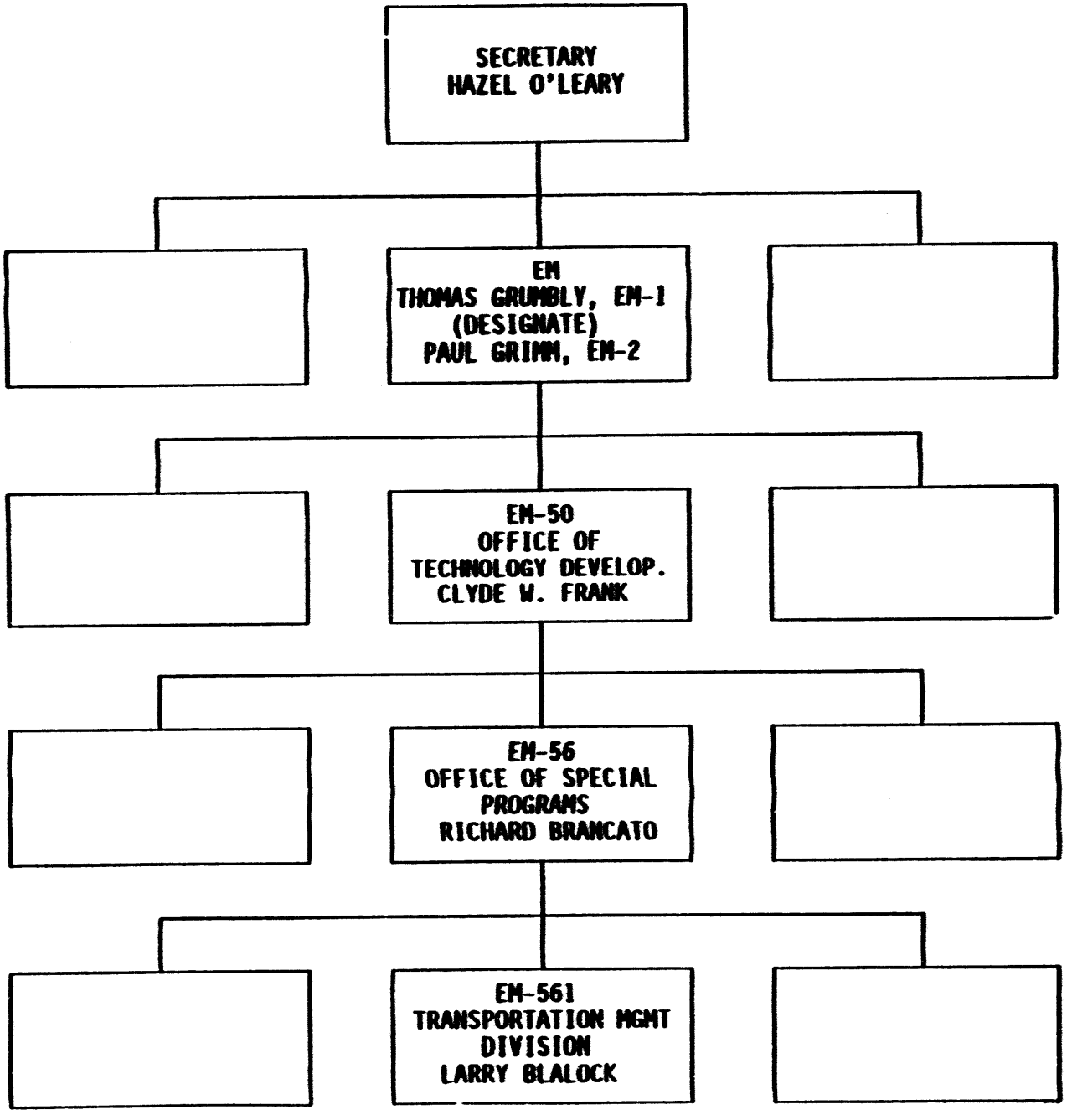
As we were out in the halls talking, and Paul was shaking hands with friends from the past, he was asking "Where are you now?" I think there was only one person that didn't say he was retired and is now working as a consultant back to us. This is another problem. We've got a lot of talented people and a lot of talented young people. A lot of talented people have left the system or are about to leave the system, and we've got to do a very good job of training those people who are going to be responsible for taking us into the 21st century.

So, we do have a tough job of bringing ourselves collectively into a transportation vision that is better, cheaper, faster, safer and at the same time continues to support all of you in the way in which you do your jobs. I look forward to the challenge. Being part of an organization with Larry in itself is a challenge. Being a part of an organization with Paul Grimm is a challenge. Especially for somebody who is coming in from the outside into this well established, well functioning system.

I appreciate the opportunity here. My door is always open. My phone is always available. I would always appreciate a call before a letter and our staff is there not to direct you but to serve you. We will of course not shy away from providing guidance and we won't shy away from doing the things that we've got to do with the other regulators in our system. But we need you and we need to cooperatively move forward. Thank you all very much for being here.

EM-561 Staff Introduction and Roles and Responsiblities

presented by Larry Blalock, DOE/EM/TMD


SECRETARY
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EM
THOMAS GRUMBLY, EM-1
(DESIGNATE)
PAUL GRIMM, EM-2
EM-50
OFFICE OF
TECHNOLOGY DEVELOP.
CLYDE W. FRANK
EM-56
OFFICE OF SPECIAL
PROGRAMS
RICHARD BRANCATO
EM-561
TRANSPORTATION MGMT
DIVISION
LARRY BLALOCK

Environmental Restoration & Waste Management
Office of Special Programs
Transportation Management Division

Transportation Management Division
EM-561

Larry Bialock
Director
903-7273

Secretary
Vacant

Transportation Training Program

Ella B. McNeil
Manager
903-7284

Develop overall departmental policies and uniform approaches to ensure that DOE and contractor transportation functions are consistently performed in compliance with applicable laws, regulations, and DOE Orders.

Packaging Operations Programs

Mike P. Keane
Manager
903-7275

Plan, develop, and execute an integrated system incorporating packaging needs of DOE programs. Promote development, use, and implementation of recycling programs for packaging and packaging materials. Develop packaging management guidance documents.

Transportation Automation Program

Tony M. Thomas
Manager
903-7279

Plan, develop, maintain, and implement a nation-wide transportation information network, to support the integration of related operational and research transportation automated computer systems, data bases, and analytical modeling tools to meet DOE programmatic (Program Secretarial Office (PSO)) needs and requirements.

Regulatory Compliance Program

Michael C. Maline
Manager
903-7987

Represent DOE, participate in, and provide expert assistance in domestic and international regulatory development including non-government standards bodies, committees, and working groups. Provide assessment teams to evaluate field element and contractor transportation activities. Support DOE programs in regulatory analysis, interpretation, implementation, and transportation related litigation.

Transportation Logistics Program

Robert F. Jarrell
Manager
903-7285

Develop overall departmental policies and uniform procedures to assure programs are in place for safe, secure, cost effective, and efficient transportation of DOE materials. Ensure transportation activities are performed in compliance with applicable laws, regulations, and DOE Orders. Serves as the primary point of contact for carrier interface, Federal agencies, states, tribal, and local governments on DOE transportation activities.

Transportation Packaging Development Program

Michael J. Conroy
Manager
903-8492

Coordinate development, testing, and certification of sufficient packaging inventories to support DOE programmatic (PSO) schedules and goals. Develop, maintain, evaluate, and assure capability to conduct testing and analysis to support packaging development and certification. Develop, manage, and maintain Safety Analysis Report evaluations for packagings. Support and direct the construction and testing of package prototypes to demonstrate packaging performance and to benchmark analysis methods.

M93-GT-0083-01

DOE Transportation Management Division - Larry Blalock, Director

1993 TMD
Transportation
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Workshop
May 11, 1993

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Transportation Logistics Program - Bob Jarrell, Manager

- DOE Transportation Logistics Operations
- Motor Carrier Evaluation Program
- Carrier Interface

R9304082. 9

Transportation Packaging Development Program - Mike Conroy, Manager

- Packaging Engineering and Analysis
- Packaging Design and Testing
- Certification Support

R9304082. 10

Packaging Operations Programs - Mike Keane, Manager

- DOE Integrated Packaging Operations
- Waste Minimization Packaging Program
- Field Packaging Guidance

R9304082. 7

Regulatory Compliance Program - Mike Maline, Manager

- National & International Regulatory Compliance
- Non-Standard Government Bodies
- Transportation Assessments/ Assistance

R9304082. 8

Transportation Training Program - Ella McNeil, Manager

- TMD Budget and Fiscal Planning
- Training Programs
  - Regulatory compliance
  - Professional development
- Explosives

R9304082. 5

Transportation Automation Program - Tony Thomas, Manager

- National Transportation Information Network
- Coordination of Operational and Research Activities

R9304082. 6

Integrated Program Coordinators

presented by Larry Blalock, DOE/EM/TMD

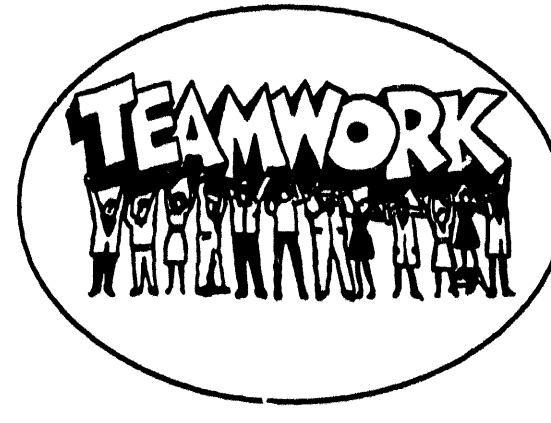
The TMD Integrated Program Coordinator (IPC) is an Extension of the TMD Program Manager

- Training — Wade Winters
- Packaging — Jim Hummer
- Automation
  - Operation — Jim Portsmouth
  - R&D — Bob Sandoval
- Regulatory Compliance — Ron Pope
- Logistics — Lou Rice

R9304082. 2

The TMD IPC Concept Provides Synergy for Field Input to TMD

- Integrates efforts
- Provides synthesis
- Establishes a link with TMD



R9304082. 3

The TMD IPC Program Benefits Everyone Involved

- Broadens TMD's professional base
- Identifies special needs, issues, concerns
- Profits all those involved

R9304082. 4

I'd like to take a little time to talk about the Integrated Program Coordinator (IPC). We have established the IPC program to provide an ever short staff here with a single source of field expertise for coordination of the various functional activities.

If you noticed, during the introduction of staff, most of what we're doing is along functional lines now. Not so much programmatic lines, but functional lines -- automation, transportation logistics, packaging development, technical assessment/assistance program, training, packaging management, etcetera. Well the IPC is to serve as a field support element, or a longer arm if you will, for the Headquarters staff; to broaden our professional base. We have a limited staff of six and we can't bring in the full staff that we need to do the job, so we've got to look to the field.

The IPC's role is to identify special needs, special issues and concerns that are problems in the field, that here at the Ivory Tower we cannot be totally aware of. We need this kind of feedback and input. It's a profit to all those involved because there is a place that you can take your problem. Now that doesn't mean that we don't want you to bring your problem to Headquarters. Those of you in the contractor organization have a field element that you are contractually responsible to. In the past we've had various and sundry communications mechanisms trying to get the message out, trying to get the needs and the requirements fed back into the Headquarters unit. We've tried lots of things.

The IPC seems to be working because it gives you a counterpart at the field level, and the contractor level that you can talk to. The IPC will understand your problems and probably be able to help you some at that level without having to come to Headquarters. However, at the same time the IPC will start building a trending analysis for us in terms of future directions that we need to work on as far as programmatic or budget activities are concerned.

We are trying to provide a synergy for field input into the division. We want to integrate the efforts. There are a lot of activities ongoing at various contractor locations. For instance, in Tony Thomas' area of automation, most every site has something they call a materials management system, a warehouse management system, a material flow system, etc.. There is a system in place that was probably driven more by a procurement or a financial need than it was by a true logistics management need. But something's out there.

We are not trying to take over the world and re-design everything and say you've got to use our materials management system. Quite the contrary. We do not want to do that. What we want to do is have a system in the complex that will integrate with the existing systems. And that's one of the missions that Tony has, is to make sure that we are integrateable, to provide a synthesis. A synthesis for the activities in the field. I'll use Tony's program in automation as an example for the rest of the discussion.

We want you to look at the various activities out there and pick the best parts of each and recommend them back through to Tony and say, "Hey, if you put a little something here you

can develop something that benefits everyone to a degree." If you're spending your money here, you are only benefitting a very few even if it is a hundred percent, that's not the purpose.

We established a link with TMD. Folks, there's only seven of us up here. There was only three and now we've spread the burden by a hundred percent or a little over a hundred percent. But there's only seven of us. There's no way that we can have meaningful conversations with everyone of you on a regular basis and you only represent a small portion of the total packaging and transportation community out there. So we need this kind of assistance and this link at the field level.

Again, we use the IPC to help pull together things like our annual operating budgets, our annual operating plans (you'll hear some more about these new initiatives later), to look at our roadmap efforts and participate in those activities. So the IPC is there for you and for us. We need the IPC, just as you do, to help communicate the message in both directions.

We have established six IPCs. Not every one of our headquarters program managers has an IPC. Tony is very assertive and real aggressive and he has to have two. I think that's because he has to have two to keep up with him. In training, for instance, Ella has designated Mr. Wade Winters of the Westinghouse Hanford organization. In packaging, we only have one IPC at this point in time. Primarily because we are still trying to get our hands around this thing called packaging management and its two sub-elements of packaging development and packaging operations. So at this point and time we have Mr. Jim Hummer with the Westinghouse Hanford organization. Jim Hummer is the IPC supporting Mike Conroy and Mike Keane.

In automation, again to emphasize that Tony is so special that he has to have two. He has to have one for operations and he has to have one for R&D. Mr. Jim Portsmouth is the operations IPC. Most of you are familiar with him and with things like ATMS and we probably will call that the Portsmouth Memorial after his wife Kathy does him in for not being at home, for being on the road to do all this stuff. In R&D we have Bob Sandoval. Bob is with Sandia National Laboratories. He is our R&D IPC for automation. In Regulatory Compliance we have Ron Pope from ORNL. And, in logistics we have Lou Rice.

Those are your IPCs that we're using. Now we probably, as time goes by, will change some of these out and we will probably add some more. We think we'll probably need to add one in Mr. Keane's packaging operations. And some of the others are going to get plain old burn out and they are going to need a break and a rest. We appreciate these folks.

Transportation Management Division: Where Are We Going?

presented by Larry Blalock, DOE/EM/TMD

TRANSPORTATION MANAGEMENT WORKSHOP

TMD: Where Are We Going?

Presented by

Larry Blalock, Director, EM-561

M93-GT-0569-01 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

MISSION STATEMENT

Develop and implement effective strategies, techniques, methods, policy, and guidance for safe, efficient, cost-effective materials transportation management program for:

- DOE materials (particularly Hazardous materials, wastes, and substances)
- Packaging and transport activities (on-site and off-site)
- Development of the systems and technologies to ensure that safe, economical, and efficient transportation services, which meet regulatory requirements, are consistently available for DOE to fulfill its programmatic missions

M93-GT-0569-02 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

OBJECTIVES

- Safe, secure, and economic transport of DOE materials, including hazardous (especially radioactive) materials, substances, and wastes through integration of transportation consideration into DOE program planning
- More efficient transportation and safer packaging through implementation of applied technology
- Development of standard analytical methods and data bases covering risk assessment, costs, operations, design, and testing of packaging
- Utilize Technology transfer to maximize transportation support to the DOE Complex

M93-GT-0369-03 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

TMD's FUTURE

GENERAL

- Continue the development of planning documents such as the Headquarters Transportation Roadmap, TMD Five-Year Plan, and Annual Operating Plan to identify issues and solutions
- Support sites with their initiatives in development and planning
- Petition regulators for more efficient, economical, and safer transportation operations regulatory development and modification initiatives
- Become very PROACTIVE in DOE Program Transportation planning
- Move forward with centralization of the Transportation Logistics and Packaging Development functions
- Posture TMD for a very assertive role in technology transfer and interagency cooperative agreements

M93-GT-0363-04 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

TMD's FUTURE (CONT.)

OPERATIONS

- Develop, implement, and maintain a DOE carrier evaluation and selection program
- Create a national Hazardous Materials transport strategic plan and petition for a coherent regulatory regime
- Negotiate DOE-wide freight rate & service agreements with commercial carriers to assure adequate and continuous service. Find new carriers willing to do a better job, quicker for less expenditure. Develop partnerships which can be mutually beneficial
- Develop, maintain, and enhance DOE capabilities to conduct defensible risk studies and analyses to support EAs and EISs. Develop a transportation framework

M89-GT-0363-06 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

TMD's FUTURE (CONT.)

PACKAGING (DEVELOPMENT & OPERATIONS)

- Continue the interaction with DOE programs to ensure the development and certification of needed transport, storage, and disposal packaging
- Establish working group relationships with shippers of waste to ensure packaging in the future (Established Greater-Than-Class C & Laboratory Sample Working Groups)
- Develop and administer a DOE national program to ensure timely operational implementation of performance based packaging requirements (HM-181, HM-169A)
- Develop, maintain, operate, and enchance computer codes and facilities for packaging design, development, evaluation, and testing

M89-GT-0363-06 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

TMD's FUTURE (CONT.)

AUTOMATION

- A Fully Operational Transportation Information Network (TIN) for use by HQ, the Field and contractors, and other Federal agencies
- Fully implemented ATMS system utilized DOE-wide to ensure standardization and compliance
- Provide and maintain shipment/vehicle monitoring, tracking, and communications capability

M93-GT-0353-07 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

TMD's FUTURE (CONT.)

TRAINING

- Continue to build partnerships/cooperative efforts with DOT and other Federal agencies in the development and marketing/distribution of transportation training modules
- Develop an instructor pool that can be utilized in conducting TMD sponsored courses
- Revitalize existing courses/workshops to address the future
- Develop a Transportation Management Course, based on the needs of transportation at the sites
- Continue assessment of complex transportation training needs

M93-GT-0353-08 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

TMD's FUTURE (CONT.)

REGULATORY COMPLIANCE

- Full Implementation of the Technical Assessment Program and evaluation of lessons learned to help DOE predict and plan for prevention of non-compliance trends
- Representation of DOE at International, Federal, State, Tribal and local governmental activities for regulatory development
- Participate in Non-Government Standards Bodies to ensure DOE positions are considered

M93-GT-0353-09 B/W

TRANSPORTATION MANAGEMENT WORKSHOP

TMD's FUTURE (CONT.)

EXPLOSIVES

- Continue the development of the Explosives Classification Tracking System (ECTS)
- Continue to develop and coordinate the classification and registration of explosives for transportation operations to ensure shipments are made in a safe, timely, efficient fashion
- Provide trained, effective representation to the DOE Explosives Safety Committee

M93-GT-0353-10 B/W

CONCLUSION

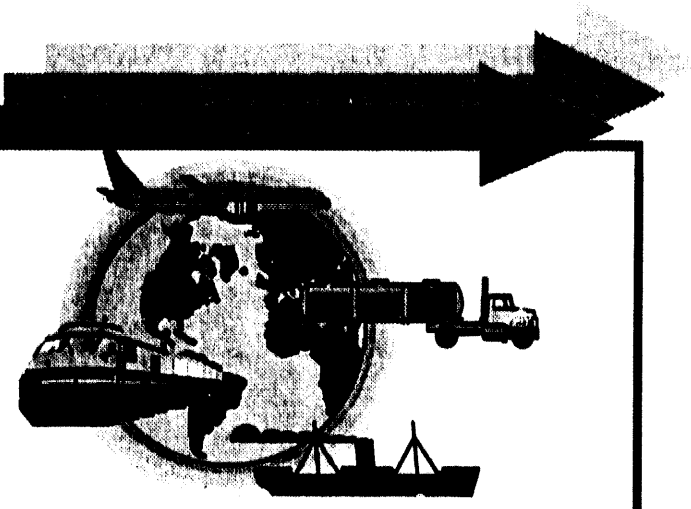
IMPLEMENTATION OF THESE TASKS WILL

- Increase DOE materials transportation cost-efficiency, safety, and effectiveness
- Decrease duplicative and wasteful packaging development and operational efforts
- Increase DOE's ability to meet regulatory commitments
- Assure a FULLY COMPLIANT DOE Complex

M93-GT-0383-11 B/W

Transportation Roadmap - 1993

presented by Pat Noblett, BDM Federal, Inc.



1993 HEADQUARTERS TRANSPORTATION ROADMAP

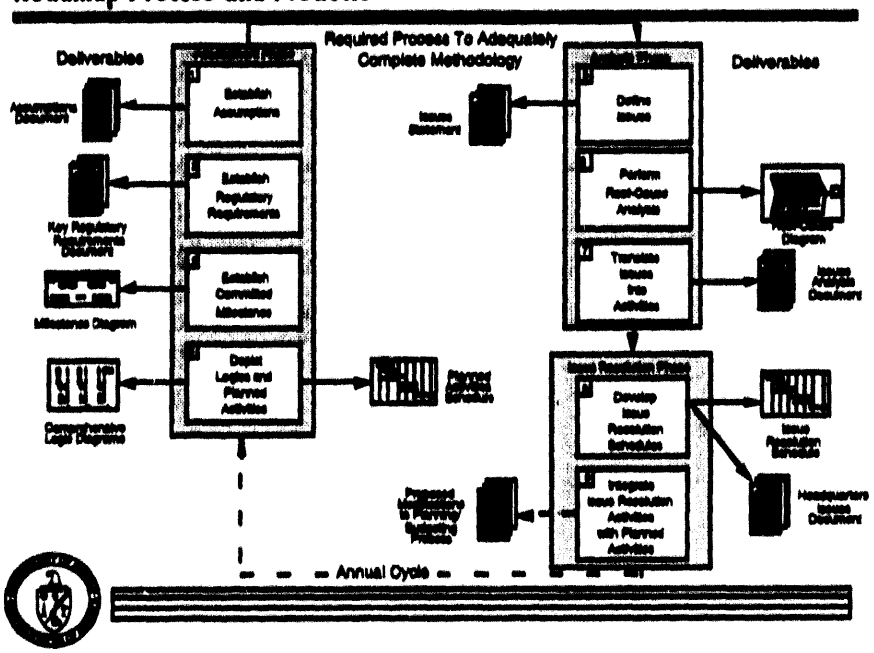
M99-GT-0000- 1

1993 Roadmap Document Status

Roles and Responsibilities	Complete
Assumptions	Complete
Regulatory Drivers	Complete
Committed Milestones	Complete
Logic Diagrams	Complete
Issue Statements Document	Complete
Root-Cause Analysis Document	Complete
Issues Analysis Document	75% Complete
Resolution Schedules	75% Complete

M99-GT-0000- 2

Roadmap Process and Products



Roles and Responsibilities

- Reviewed by Steering Committee
  - Representatives include EH, DP, ER, RW, EM-30, EM-40, EM-60, NE, SA, MI
- A series of meetings have been held with EH, DP, ER, and RW to develop the document

Roles and Responsibilities (Continued)

- Examples of R&Rs
  - Plan, organize, manage, and direct an efficient program to support the PSOs' programmatic transportation element(s) to meet all safety, security, National Transportation Policy, and other pertinent regulatory requirements
  - Develop petitions to international, Federal, and state regulatory bodies for rule-making actions. EM-561 actions involving the transportation safety regulations are to be coordinated through EH-53.2
  - Provide systems engineering, technical analysis, and support to all programs to ensure application of latest state-of-the-art technology to DOE's packaging development requirements

Assumptions

- TMD will coordinate transportation management programs to:
  - Assure compliance with regulatory requirements
  - Provide for the safe and efficient transportation of DOE materials
- TMD will encourage, through the PSOs, the incorporation of transportation management as an integral part of overall strategic planning for the DOE Complex
- There is a need for a comprehensive technical assessment/assistance program for oversight responsibilities concerning transportation

Assumptions (Continued)

- TMD will support the Analytical Sample Program in its effort to package, store, and transport laboratory samples from DOE sites to commercial laboratories for the purpose of sample characterization
- TMD will undertake complex-wide systems analysis to support strategic planning and management, including functional analysis (e.g., transporation, treatment, storage, and disposal), and analysis by waste category
- TMD will support packaging activity needs for TRU waste
- A remote-handled TRU container has been designed and will be certified by DOE and NRC

Document Status

- Schedule:
  - First draft to be completed — May 30
  - Sent out for review by PSO representatives — June 5
  - PSOs return comments — June 30
  - Final document printed and distributed — July 30
- FY 94 Activities:
  - Start Roadmap January 1994
  - Work on developing logics for each TTP
  - Incorporate Complex-wide issues from site roadmaps

Site Roadmaps

- TMD encourages site transportation personnel to become involved
  - Contact Headquarters to find out who to get in touch with
  - Roadmappers will be getting in touch with you
- Use the Headquarters Transportation Roadmap as a resource for:
  - Assumptions
  - Regulatory drivers
  - Logics
  - Issues
- TMD will be sending Headquarters Program Managers to the Field at critical steps fo the roadmap process

Conclusion

- Roadmap is on schedule
- Better than last year's in terms of more Field and Headquarters input and review
- Next year's will be even better

DOE 1540 Orders: Status

presented by Larry Blalock, DOE/EM/TMD

Blalock - DOE 1540 Orders: Status - TM Worshop

I do not want to take a long time on this, because there's not really a lot to tell you about them except it's one heck of a laborious process to try to get a set of Headquarters' Orders together.

I now fully empathize and sympathize, with a great deal of respect, with Mr. Gene Wiles for the efforts he used to have to go through, by himself, in trying to put an Order together and get it out. But, we drafted him to do the set again, so we haven't shown too much sympathy for him.

We have tried to bring the 1540 orders series into the '90s. I think the existing Orders are identified with various dates on them, starting about '82 up through about '87. There is even one within the last year or so, made with pen and ink reflecting the organizational change. The purpose of our effort now is to coordinate the 1540 Order series with the 5480 Order series, and to make sure that these Orders are consistent and that they reflect current DOE policies, practices and procedures; and of course, regulatory requirements.

We had thought it might take a six Order series for 1540. We think now we have that boiled back down to three Orders. The first, 1540.1, is an umbrella order. By an umbrella order, we mean that it has basically all of the definitions, it has all of the responsibilities that are going to be assigned and it has the generic information in terms of regulatory references, references to other DOE Orders, etcetera.

It will be incorporated by reference in 1540.2, which will be our Transportation Operations Order. It will also be incorporated by reference in 1540.3, which will be our Packaging Management Order.

One of our Orders, 1540.4, has been reassigned to the new SA, I believe that's the Security Affairs organization, and they have reissued the old 1540.4 as 5632.11, I believe. It's the new safeguards in transit Order for spent fuel. That affects very few people in the audience, but it is a very important Order.

The commitment that I'm making to you is that we will have the 1540 Order series into the Field Elements' hands for comments through AD (that's the official channel) by the end of this fiscal year. We are very hopeful of getting those downtown in the next 30 days or so, if we can get enough of Mr. Wiles' time to get the things finalized, and he can get me and a couple of my staff members to sit down and concentrate with him for a couple of hours.

We're hopeful of having these out very soon. The field element transportation managers received a copy of Draft Order 1540.1 and 1540.2 in their registration package. Order 1540.3 is not ready, but they do have the first two. Contact your field element transportation managers if you would like to take a look at them. Comments, of course, will be appreciated.

Are there any questions about the orders?

Department of Transportation/RSPA: Enforcement and Preemption

presented by Edward Bonekemper, DOT/RSPA

Thank you very much. It's always a pleasure to be here to receive the Golden Noose Award. Since Larry did indicate that there were a few new people in the audience, let me just give a little bit of background about the organization I represent. I'm with RSPA, the Research and Special Programs Administration, which is a small administration within the Department of Transportation which takes on all the assignments which are too difficult for the other agencies to handle. That includes things like pipeline safety and emergency transportation and, most relevant to today, hazardous materials transportation.

The Statute we work under is the Hazardous Materials Transportation Act which was passed in 1974, signed into law in 1975 and went along in very abbreviated form until 1990 when it was amended by the Hazardous Materials Transportation Uniform Safety Act of 1990; affectionately called, "HMTUSA." But with a name like that you can understand why we still generally refer to the basic laws, the HMTA. So the HMTA is the law that we are talking about. It's codified in 49 U.S. Code, 1801 to about 1820.

Under that Statute, RSPA (who has virtually all of the regulation issuing authority under that Statute) has issued regulations which occupy the better part of two volumes of the Code of Federal Regulations. 49 CFR Parts 171-180 are known as the Hazardous Materials Regulations, or the HMR, including some related regulations in Parts 106 and 107. They are very important because they deal with things like pre-emption, exemptions, enforcement, etc. So it's good to know that those are around as well.

The administrator of RSPA, as of late last year, is now a political appointee. So if and when the President nominates someone to be a RSPA administrator, that person will now be subject to confirmation by the Senate. In the interim period, Secretary Pena is really the de facto decision maker on most issues in DOT. Like a lot of other departments in Government, we are spending a lot of time exchanging memoranda with the Secretary on the issues that Secretaries generally have not had to deal with in the past because there is this tremendous gap created by the absence of Assistant Secretaries and permanent administrators throughout the Department.

In the interim period, Rose McMurray, a career civil servant is our administrator and my immediate boss. The person who is responsible to Rose McMurray for legal issues is Judy Kaleta. She is the Chief Counsel of RSPA. She is a non-political SES billet. I'm the Assistant Chief Counsel for Hazardous Material Safety and some other miscellaneous programs as well.

On my staff in the back row, Mike Hilder is here with me today and I do want to name my staff to you and encourage you to call our office if you have legal questions about the Hazardous Materials Transportation Act or any of the ramifications of it that I will be discussing today. Our number is 202-366-4400. A cohort, a peer of mine is special counsel to Judy Kaleta, her name is Mary Crouter. Mary worked many, many years in the HAZMAT program exclusively and she still spends a lot of her time working on HAZMAT regulatory and legislative issues.

The people who work for me in the Division are Mike Hilder and Kathy Molinar, Charles Holtman, Jim Meason and Nancy Macado. And any of them can answer any of your questions or find out who can. So do not hesitate to call us if we can be of some assistance to you.

I want to give you just a little bit of an idea about where we are going in the regulations field. As many of you know, we are still busy implementing the many,many statutory mandates that stem from the passage of HMTUSA. And I think throughout the week you will be hearing about some special studies that are being done. I won't touch upon those. But in addition to studies, we had specific regulations that we were required to enact.

Larry has referred to the training regulations which were something that we had already done a Notice of Proposed Rulemaking on when the Statute passed and the Statute sort of told us to do that which we were already about to do. So we did it. We did get those regulations out in fairly early order and they have been rather successfully implemented by government agencies; particularly by DOE and also by a lot of the transportation industry. This is a very large group because it includes not only carriers in all modes of transportation but also shippers in all modes of transportation as well as the manufacturers and re-testers, etc. of hazardous materials packagings which is a rather significant industry.

The effective date for training has now been pushed back to October 1 of this year. That will be the date when inspectors from DOT in particular, and probably from some of the states as well, will begin making training a routine part of their inspections. So that when they are visiting a cylinder re-tester, a packaging manufacturer, a trucking company, a shipping line, etc., one of the new questions on the inspection check list will be, do you have a training program, could I see a copy of it, where are your records showing who has been trained in what.

So you are ahead of the power curve on that and it's a good thing that you are. As you are dealing with others in the transportation industry, a word to the wise is, get with the transportation program.

Routing is another area of some interest to you, I'm sure. I think there will be some discussion of that later in the program, but just in case there isn't, let me just say a few words on routing. We were mandated by the Statute to do extensive rulemaking in that area. Because it's a single mode issue (it's highway routing of hazardous materials), that was delegated by the Secretary, with RSPA's full concurrence, to the Federal Highway Administration.

The Federal Highway Administration did publish a Notice of Proposed Rulemaking and I would say that the publication of a final regulation is getting very close. We have worked closely with the Federal Highway Administration because of an issue which was of great concern to us. That is defining exactly what is or is not highway routing. You may recall that in the proposed rule, there was a very extensive list of things that could be considered highway

routing. RSPA encouraged Federal Highway to do this to stimulate a discussion of those issues so that we could draw some lines and discuss such things as bonding, pre-notification, fees, etc. What's routing and what's not routing? The reason is that this determines who you will go to on pre-emption issues. If you want to seek a pre-emption determination, you will go to Federal Highway Administration on routing issues and you come to RSPA on non-routing issues. We've already received a couple of applications which are really both routing and non-routing and we're working very well together on that. We have an informal agreement that whichever agency gets the application will write it and coordinate with the other. I think that's worked very well so far. We've had actually better communication with Federal Highway on a lot of HAZMAT issues than we had in the past. Because of necessity, we must now be working together in this area.

But in addition to defining what's routing and what's not, I think all of you will be very interested in seeing what will, by virtue of the Statute, have to be very, very detailed requirements about the procedural steps that have to be followed and about the substantive standards that have to be used in highway routing. I think that it's going to be an eye opener for State and local governments. And it will take years, I think, to digest. So be looking for that in the near future.

On a related issue, let me go off the HMTA just for one second and alert you to the fact that there will be a rulemaking published in the very near future implementing the Sanitary Food Transportation Act. The gist of it is that the same vehicles that are used for hazardous materials should not be used for foods unless adequate steps are taken to make sure that the food will not be tainted by virtue of that transportation. That has not been a major problem. But there were enough incidents to get the attention of the right TV shows, to get legislation passed and we have another Notice of Proposed Rulemaking that will be coming out. We did an Advanced Notice of Proposed Rulemaking and got some fairly healthy comments about that. Had a lot of meetings with a tremendous number of industry associations in the food industry that we had never seen before. I think we've worked out a reasonable proposal and so we invite your study of that and your comments on it.

Another Notice of Proposed Rulemaking (back to the HMTA mandated by HMTUSA) is <u>intrastate</u> regulation of hazardous materials transportation. In a simple little change in the Statute, instead of the Secretary of Transportation previously being told you may issue regulations about HAZMAT transportation, there's now a mandate that says, the Secretary of Transportation shall regulate the intrastate, interstate and foreign transportation of hazardous materials. So we view that as a mandate to regulate intrastate transportation. And that matter is being viewed right now at the highest levels in the Department as we continue our ongoing familiarization program for the new people on that subject.

The big issue, as I see it here, is that a lot of states, although they have adopted the hazardous materials regulations, have created pockets of exceptions for things such as petroleum

dealers, propane dealers, gasoline distributors, some segments of the agriculture industry, some segments of the timber industry, etc. And we are trying to smoke these out.

Basically what we are going to do is simply say, look, we've got a mandate to regulate all this transportation, please tell us where your problems are, where early compliance would be difficult, or impossible, or expensive, and we will take a look at delaying full implementation or full application of the entire hazardous materials regulations until such time as it is reasonable to do so. But we are going down the road and the question arises, how long will it take before we achieve full universal application of the hazardous materials regulations?

This, I think, will have a tendency to encourage the states to keep their updates of the hazardous materials regulations more current. I believe it's fair to say that all 50 states right now have adopted the hazardous materials regulations in one form or another as state law, and the state troopers, or DOT personnel, or other enforcement personnel in the states enforce the hazardous materials regulations as state law. We greatly encourage that at DOT. It greatly expands the enforcement personnel that we have nationwide and without it, we would only be touching the minuscule amount of the transportation that's going on.

But there is a significant problem. Major states such as New York and California are about four years behind in the version of the Code of Federal Regulations that they have adopted as a state law. Now, as you can understand, it's DOT's position that if there's a conflict between the Federal regulations and the state regulations, we believe the Federal controls. We firmly believe the Federal controls in that situation. But we would certainly like to be in a situation where state troopers and truck drivers and DOE shippers and DOT enforcers are all looking at the same volume of the CFR instead of being out of sync by several years.

One problem with being out of sync is that certain key new regulations such as training, such as registration, etc. are not part of the state law until the state adopts them. So the state cannot even enforce until they catch up with us in what the governing regulations are.

So anyway, look for the intrastate rule. You folks, probably better than most, will have some insight into the practical ramifications of what we are proposing to do and we welcome your comments in that area.

Registration is something I just mentioned as another mandate coming out of the 1990 Statute. As you are probably aware, we have put that in place. We published a Notice, we published a Final Regulation. As of September 16 of last year, shippers and carriers of many, many kinds of hazardous materials, particularly radioactive materials, particularly explosives, particularly hazardous materials transported in bulk, and extremely hazardous by inhalation materials, a lot of the very sensitive, a lot of the critical or large quantity materials, are now covered by the registration requirement. All shippers, all carriers of those materials must be registered with DOT. We charge the minimum fee that the Statute allows, $250, to which we also added a $50 service charge which is basically our cost of getting this program underway,

implementing the collection efforts during the first year, and if we can, we will lower that $50 in future years. But right now, we are imposing the smallest possible amount on every one who is required to register.

But, we have a problem with that program at the moment in that we believe probably only half the people who should be registered, are registered. For your information, we have 26,000 people -- 26,000 parties who are now registered under the program. We believe that number should be a lot higher. We are, right now, moving from the educational mode into the enforcement mode. We are now beginning to cross-check the numerous data bases within the Department and sending out little documents to people indicating to them that it appears to us that they should be registered and that we would advise them to be registered since we may also be taking enforcement action.

This works like income taxes. Don't put it off because you think you'll get away with it this year because that's not the case. If in 1995 we discover that you are transporting bulk hazardous materials and should be registered, we'll be looking backward and saying, my goodness, you've been in this business for the last 20 years. Right. So where is your money for '92, '93, '94 and '95 plus interest and penalties and administrative costs. And we can also talk about the civil penalties as part of an enforcement case.

So, it's not something that really is wise to put off because the debt is there forever. And of course it is in everyone's interest to see that those who should be registered are, because, to the extent that they are not, there are some pressures on DOT to increase the amount of the fee because the fee does not just go into the general treasury. The fee that's collected for the registration program is very specifically earmarked to go back to state and local governments and Indian tribes for hazardous materials response planning and training. So, as you can imagine, that does generate a few parties who have some interest in seeing that we are collecting all the money that we are able to collect so that we can, in their eyes, fully fund the grant program which was intended by Congress.

Let me just tell you, as an aside, that the grant program under the registration program is not intended to be the exclusive means of funding state or local government hazardous materials emergency planning and training programs, let alone their enforcement programs. We did specifically say, in the preamble to the final regulation for sure, and perhaps also in the proposed regulation, that the rule has no preemptive effect. So do not attempt to pursue the line of argument that because there is a federal registration program, states may not have registration programs or may not have fees.

One big reason why we made that statement is because the same law that required us to put the registration program into effect and to charge these fees and to have a grant program, also was the first time that Congress specifically addressed fees in the hazardous materials transportation area. Congress specifically said that state and local fees are OK if they are equitable - and we don't know what that means - but it has to be equitable. That will be for

DOT and the courts to decide as the years go by. But it did give us one very specific task that we can put a handle on. They said that all hazardous materials transportation fees must be used for hazardous materials transportation purposes.

Now, the two common problems that I've seen (where states and local governments or transporters have come to DOT and asked us to take a look at proposed laws or existing laws or regulations) have been two different kinds of grouping of these fees. It's very common to have transportation fees for hazardous materials transportation which get lumped in a general transportation fund and are used for general transportation enforcement or regulatory purposes. That doesn't cut it.

If you have a HAZMAT fee, if it's a fee that's labeled HAZMAT, then that fee has to be used for HAZMAT transportation purposes. So the one difficulty out there that a lot of states and others have to look for is that they don't lump their HAZMAT fees with other general transportation fees.

The other kind of lumping that's fairly common is putting hazardous waste fees, in particular, into a fund that can be used to cover costs of emergency response to hazardous waste spills or incidents. This can also apply to hazardous materials generally; hazardous waste of course being one subset of hazardous materials. But whenever there is a fund that has the money being collected from the transporter and then going to fixed facility purposes, that also, in my view, violates that statutory language about how HAZMAT transportation fees are to be used.

So, although the Statute does not rule out the fees, it creates that two-prong test, equitable and the use test. So, it does give you something to hang your hat on as you analyze various fees or proposed fees to see whether they are in compliance with the federal law.

On ongoing regulatory matters, let me mention one other Statute which now is in interplay with the HMTA. The Oil Pollution Act of 1990 was in response to the Exxon Valdize spill. The OPA has a tremendous number of provisions in it requiring, among other things, all kinds of response plans for responding to oil spills. Not only for fixed facilities but also for transportation facilities. And this has been divvied up among the Department of the Interior, EPA and the Department of Transportation.

Within the Department of Transportation, part of this responsibility fell on RSPA. Obviously the pipeline portion of it is RSPA's. We also got the portion that applies to trucks and trains transporting hazardous materials. We combined that with our concerns that there was not enough prevention regulation under the hazardous materials regulations, so we issued an Interim Final Rule in February of this year under the authority of both the Oil Pollution Act, which amended the Federal Water Pollution Control Act, and the Hazardous Materials Transportation Act, creating new response plans and prevention requirements for the transportation of certain hazardous materials. The big impact here is on non-petroleum oils and

some other kinds of non-flammable and non-combustible oils which were not previously regulated under the hazardous materials regulations.

Now, the impact of this is that those materials have been designated as hazardous materials. And as such, they suddenly must comply with the packaging requirements, the training requirements, the labeling and the placarding, the registration, etc. So there is a big regulatory regime that comes into play for animal, vegetable, mineral and other oils which were previously not regulated under the HMR. This has caused considerable consternation in those industries affected by that and a lot of those industries are essentially in the food business.

We have a public hearing scheduled for this Thursday morning to get comments on that. Now, it was Interim Final Regulation. The reason for that was because RSPA got into this game about last August and there's a provision in the OPA 1990 that says essentially if by sometime in February of 1993 a facility that is regulated by this Act does not have in place an oil pollution spill prevention plan, it must shut down. So we were under a tremendous amount of pressure from a lot of industries to get something out. So we did what, honestly, is a quick and dirty and we had to put it out as a Final Rule so that it was in effect and these plans were required.

But, at the same time, we wanted to indicate that we were fully aware of the fact that we had not benefitted from going through the usual Notice of Proposed Rulemaking. We did not have the benefit of informed public comment before we did this and we knew that there would be a lot of issues and sure enough there are. So, I would say the "Interim Final Rule," other than the fact that few of the provisions are in effect now but most of them won't go into effect really until October 1st.

That Interim Final Rule is really the functional equivalent of an NPRM. And we are very open on the issues. We are very interested in seeing what the public has to say at the meeting on Thursday and we will be back at the drawing board through the summer making appropriate revisions in that area.

Okay, that's probably enough on regulations and things that you might be looking for in the Federal Register and almost all of those are items on which we solicit your comments.

Let me move on to enforcement. As you recall very well, about two years ago I came here with the good news that under the HMTA as revised, government contractors were now "welcome" under the provisions of the HMR and had to comply with the hazardous materials regulations. We've gone through a lot of correspondence between our Departments clarifying the extent to which that's not true on parts of Federal reservations which do not involve public roads at all and how you can go about through gate guards (through gates or guards) perhaps keeping some roads from being public, etc. We continued that discussion last year.

There is a cross-current which I had mentioned a few times in passing. And that is that the definition of person has been clarified by the amendment to the HMTA and for the first time specifically the law applies to government agencies but only under certain circumstances. Essentially the definition of person, is in the Act and we've now put it in 171.1 of our regulations verbatim. At the end of that long definition you have something like government agencies and instrumentalities and Indian tribes, etc., when they are offering in commerce or when they are transporting for commercial purposes. That's when government agencies are covered. You'll recall that in some of the correspondence from DOT to DOE over the past couple of years, we've indicated that as a general rule, when a government agency, whether it's federal, state or local, is transporting hazardous materials itself under its control, and now I would say something we didn't say and should have said, "for governmental purposes," that transportation is not regarded as being commerce.

So, if you have a DOE vehicle transporting materials down a public highway but that's for governmental purposes and solely under control of DOE, that is not regarded in commerce and need not comply, as far as DOT is concerned, with the hazardous materials regulations.

The common experience, of course, of most of you is that you don't normally do that. That the state or the federal government or even local government generally relies upon commercial government contractors. They rely upon commercial parties to do their transportation. And by doing that, the regulations do come into play. So, the general rule is that if you offer it to a commercial contractor, that you are then an offeror of hazardous materials for transportation in commerce. And so under the language about government agencies, you're now covered. So, you've got to make sure the regs are complied with and obviously the government contractor in any circumstance involving public roads has got to make sure that all the regs are complied with. The government contractor is susceptible to DOT enforcement if that does not happen.

Now these two concepts sort of run up against each other in some situations. In the past several months we've had the issue raised by Los Alamos National Laboratory about what happens when a government agency also is a government contractor. And as you know, you do have situations in which there are state universities, in this case, the University of California, operating at Los Alamos as a state agency. It's a government entity, and it may not be offering in commerce or it may not be transporting for commercial purposes, yet it is serving as a contractor to the Department of Energy.

So, how we do we deal with that situation? Let me see if I can remember how we dealt with it. Basically what we did, we came down on the side of the government agency stating the principle that a government agency has sovereign immunity, and that when it is acting for governmental purposes and is doing something by itself, it is exempt from regulation and that principle should control over the other language in the Statute talking about government contractors.

So, as far as DOT is concerned, Los Alamos or other state university facilities, when carrying out government purposes in conducting transportation, do not need to comply with the hazardous materials regulations. Now, let's quickly add, we certainly encourage DOE to have a policy of encouraging voluntary compliance with all the regulations so that we don't spend a lot of time splitting hairs about when is this covered, and when is that not covered, when do we use a contractor, and when we don't so we don't have to comply, etcetera. I think a lot of time and energy in the last several years has been used in looking at situations trying to determine whether we do or whether we don't need to comply when that energy might have been more properly have been used in saying, "let's just comply and figure out how to do that. And I realize that there are exceptions to that."

There are situations in which you may just be crossing a road in the middle of the night on a government reservation and can very much control the situation and you believe that it is unreasonably expensive to go to the kind of trouble that's needed for certain kinds of packaging, etc. So, you have that regulatory flexibility based on this opinion. But, it is also totally up to DOE as to how it wants to run things, and what conditions it wants to impose on its contractors.

Now, one legal fall out of this opinion, though, is that even if DOE chooses to require compliance as part of its contracts, that does not open the door for DOT inspectors. For example, at Los Alamos you have a pure government operation going on, not involving commercial non-governmental contractors, and that operation is not subject to inspection by DOT for HMTA purposes. It may be under other laws. Commercial driver's licensing or Motor Carrier Safety Act or something like that. I'm not addressing that. Those are Federal Highway issues and they have to determine those jurisdictional questions. What I am saying though is that since we at DOT have said, we don't have jurisdiction under the HMR in a pure government situation, that we then don't have enforcement jurisdiction. This opinion, by the way, is in a letter that I sent within the last month to Joanne Williams in your General Counsel's Office. So I'm sure that copies are available for those that have any concern about that particular issue.

For your information, the HMTA is enforced not only at the state level but at the Federal level by five Federal agencies within DOT. So that RSPA, the Coast Guard, Federal Highway Administration, Federal Railroad Administration, and the Federal Aviation Administration all have a total of somewhere between 500 and a thousand full time or part time inspectors looking for compliance with the hazardous materials regulations.

We have fairly well stabilized right now at civil penalties of about $6 million a year being collected by DOT. I would expect that amount to go up because most of us are implementing a program of slowly rachetting up our penalties to implement the increase by Congress of the maximum penalties from $10,000 to $25,000 per violation per day which was a key provision that was contained in the 1990 amendments.

In the area of increased emphasis in enforcement, I mentioned training before. Let me stress two others. We have started to and are going to really be looking for non-registration. And the states have an interest because they get the grant money from finding non-registered parties too. So, I think that it's fair to say that both at the Federal and state level, starting immediately, you are going to see a lot of emphasis on who's registered and who's not. If they should not be registered, they will be compelled to register and there will be civil penalty action taken for their failure to register thus far. Another area that we are going to be emphasizing is incident reporting. As you know, 171.15 requires immediate reporting to the National Response Center of all kinds of hazardous materials incidents. Likewise, 171.16 requires written reports within 30 days of even a broader selection of hazardous materials incidents. I refer you to those sections just to make sure that incidents are being reported.

It's critical to us because more and more we are relying upon that data base to determine where our regulations need improvement. And of course, this is going to be something that will, I think, be one of the biggest impacts of expanding our regulations to intrastate commerce. That's the big area that we are now missing reports of what's going on -- intrastate commerce. So, this will go hand in glove. But in the meantime, we are starting now to reenforce the importance of incident reporting and to take civil penalty action when we discover non-reporting.

One other recent development in our enforcement program is something of great concern to us. As you probably know, most compressed gas cylinders are DOT specification or DOT exemption cylinders, ranging from fire extinguishers to massive tank trucks. There are millions and millions of cylinders. They are all subject to frequent re-inspection and re-testing and a lot of them are kept around for a long, long period of time.

One of the common uses for them is an Oxygen Breathing Apparatus (OBA) - breathing apparatus used by miners, firemen, and other emergency responders. Recently, there was a fireman killed on Long Island when one of these cylinders exploded. It was a DOT exemption cylinder and back in about 1985 we had changed the requirements for that particular exemption and required a neck ring to be placed on each one of these cylinders to insure against this kind of thing happening. A lot of these things are in volunteer fire departments. There's a lot of trouble getting the word out and there's also a lot of trouble getting people to spend money to bring things up to the level where they should be.

And, if anyone wants more detail on this, I can refer you to our Office of Hazardous Materials Technology. They are at 202-366-4545 and our specialist engineer in this area is Gopola Vinjamuri. If you call that number and ask to talk to someone about cylinders, you'll probably end up with Gopola or someone else very knowledgeable in the area.

Also in our Office of Hazardous Materials Enforcement, the Chief of the Cylinder Program there is Ron Abis. The Office of Hazardous Materials Enforcement's number is 202-366-4700. So if you have some DOT exemption cylinders, particularly if they are OBAs and you have some questions about neck rings or no neck rings and safety, call those people.

They can tell you a heck of a lot more than I can. There have been and will continue to be a flurry of safety notices out about this problem.

Okay, that gets me to preemption, having gone through regulations and enforcement. Again, since there are some new folks here, let me bore the rest of you for a couple of minutes with a little bit of background.

When the HMTA first passed, Congress pretty much ducked the issue of preemption and said simply, state and local requirements in HAZMAT transportation have to be consistent with the federal requirements. They didn't define what consistent was. DOT, in the next couple of years, put out regulations and defined consistent in line with a lot of commerce clause cases that have been decided by the U.S. Supreme Court.

The test for many, many years, that DOT set up and really is still in place for a lot of purposes, is a two-prong test of dual compliance and obstacle. Now the dual compliance test, also known as the impossibility test, simply asks whether it is possible for someone subject to the federal regs and a state or local regulation to comply with both the federal and state or local at the same time. That's a pretty straightforward objective standard and it's not often violated because the problem often is that a state or local government wants to protect its citizens even more than the Feds and they simply go further than the federal requirement without necessarily making it impossible to comply with the federal at the same time. So that's the first standard.

The second one, the obstacle test, is a very subjective test and it's a lot more difficult to get a handle on. Basically that standard is whether the compliance with the state or the local regulation or requirement creates an obstacle to carrying out the federal statute or the federal regulation. Because it is so difficult to get a handle on exactly what that means, I think it's one reason why DOT established the process for Inconsistency Rulings.

There were Advisory Inconsistency Rulings that were issued from 1978 through 1990. There were 32 of those rulings issued and they were advisory only. However, when those same issues came up in the courts later, the courts usually deferred to the DOT Rulings; not in every case but they usually deferred to the prior DOT advisory rulings. So we had the two-prong test and over the years, we in DOT began to prepare hand-outs, summaries about the decisions that DOT and the courts had issued. We also, once in a while, published those in The Federal Register.

October 1st of last year was the last time that we published all those materials in The Federal Register and you have a copy of that in your hand-outs. That is the bible for this area as of that date. At that time, DOT had not issued any new preemptions rulings since the Act had passed and I'll tell you about a couple that came out subsequent to that.

Let me first of all go back to the changes in the Statute. We had the two tests. The two tests were solely in DOT regulations and we had advisory rulings called Inconsistency Rulings

that were solely a creation of DOT regulations. The Statute said almost nothing about preemption. A significant change took place when Congress took all of the stuff DOT had and pretty much elevated it to the statutory level, making some changes with it. Now we have a significantly different situation.

Procedurally, DOT now has authority to issue what I will loosely call legally binding Preemption Determinations. How legally binding will be up to the courts as these things get litigated after we've issued our rulings. But it is clearer that they are a far step beyond the merely advisory rulings that were issued before. Under the new procedures, state and local governments are given full notice; they always were. There is publication in The Federal Register; which there always was before (now it's required as a matter of law). After our decision is issued, after a brief period of time for petitions for reconsideration, there's a 60-day time period in which the states and local governments or anyone else dissatisfied with our preemption determinations can take the matter to court. The first testing ground will be judicial review of our decisions - direct judicial review.

One practical effect will be that instead of DOT taking a laid back, "we're out of it" position which it did under the prior regime, we will now be compelled to jump in and defend our rulings. We will work with the Department of Justice (DOJ), which of course represents the U.S. Government in all litigation and DOJ and DOT will be in Federal Court defending our rulings, whatever those rulings are.

Not only will the immediate judiciary review be interesting, but if a preemption is found, and if a state or local government does not appeal, and then continues to enforce, and then a transportation company or some other player in the transportation business goes into Federal Court to try to enjoin that from being enforced, it will be interesting to see whether the court says to that government, you are precluded, you are estopped or some other magic legal words, from now defending. You had your chance, you didn't take it, you're out.

I tend to doubt that'll happen, to be honest with you. Most federal judges like to get in there and resolve these especially local issues themselves. So, there may very well be a second bite at the apple taken by the federal judges and then the issue again will be, how much deference will they give to the DOT opinions. We haven't reached that stage yet, but as you can tell, we are anxiously awaiting it.

Now, the standards for preemption were also changed. Although the obstacle test and the dual compliance test were kept, there were a couple of other tests thrown in which you'll have to really study to see whether you get to those tests. The most important of these is "covered subjects." There's a list of five categories of covered subjects all described at the beginning of that October 1 bible that's in your handouts.

They cover very important things like shipping papers and packaging, to name a couple. Also included are handling, loading, unloading -- they're very, very broad. But, if the

regulation deals with a covered subject, then a much more stringent standard comes into play. The state or local requirements must be substantively the same. That's not substantially, but substantively the same. That is covered in the handout.

What is important is that the state requirement or the local requirement must be almost identical to the federal in order to survive. There's also a provision for highway routing and basically, the provision is that if the highway routing is not in accordance with the procedural and substantive requirements of that rule that FHWA will be issuing, they also are preempted.

And the other thing I'd better mention, just to be fairly complete, is that way in the back of the Act is this provision for state registration and permitting. The Federal Highway Administration was delegated the responsibility for carrying that out. They have contracts with the National Governor's Association and there is something called the Alliance in which a lot of states are participating along with some industry and some local government folks. And they are trying to work out standardized procedures and forms. That's all the Statute covers - procedures and forms for permitting and registration. Again, another indication that states can do that kind of thing. That Alliance is required, I believe some time this year, to make a report to DOT and the Congress saying this is what we recommend in the way of standardization. Then it's up to the Secretary of Transportation to decide what, if any, parts of that recommendation to propose and ultimately adopt as regulations. To get to the end of this long story, if after all that, there are regulations that are adopted having to do with state registration and permitting forms and procedures, states forms and procedures in that area must be identical to those federal regulations.

So that's probably the most stringent enforcement standard of all, but we are a couple of years away from reaching that point. First we need the recommendations, then we need a Proposed Rule, then we need a Final Rule. So that's down the road.

So, if none of these other tests apply, you still get to the obstacle and dual compliance test being valid. This means that statements you may have heard in some quarters that all prior court decisions and all prior DOT decisions made before the 1990 amendments go out the window -- those statements are dead wrong. Those earlier decisions are still quite valid once you get to the point of saying, okay, this is not a covered subject, this is not routing, this is not a state permitting or registration form or procedure, it's something else. Then all those earlier decisions are good and that's why we continue to go to the trouble of publishing things like that October 1st subject matter index letting you know that if you're dealing with permitting or equipment or fees or personnel, this is what the courts have said, this is what DOT has said in the past. So, I think those are still very, very relevant.

Prior to the publication of that document, and I think it is referenced in there, Mike Hilder was the author of the first major decision that we issued in the preemption area after the passage of HMTUSA. In July of last year we issued a denial of a New York City application for a waiver of preemption. I haven't touched upon waivers yet, but once you get beyond all

the preemption standards, there's the ability of a state or local government to request a waiver. They basically have to show that their regulations will result in at least the same level of safety, if not more, than the Federal regulations and that they will not create an undue burden on Commerce. Now, the problem from the local or state government's perspective is, that we don't just look at what's the safety impact or the economic impact in that jurisdiction. We look at the impact on all the jurisdictions.

To shorthand this, a very self-serving, NIMBY (weak) type of regulation might very well not survive a broad based safety and commerce analysis. The New York City requirements were quite interesting. Actually it was about a fifty-year old system of regulating tank trucks for the transportation of hazardous liquids and gases in New York City.

There was actually a whole separate fleet of smaller trucks in New York City. The national transportation industry did not exactly like that because that meant that they could not make deliveries into New York or pick up and move out of New York, a lot of materials that they felt could be handled a lot more efficiently in a single large truck rather than in two small trucks. And as you know, over the years, this is dangerously oversimplifying I will admit that, DOT has determined that one of the biggest factors in hazardous materials transportation safety is the number of miles traveled to do something. Therefore, we have been very down on deviations in transportation routes and requirements that caused deviations and diversions and lengthened transportation routes. And we've also been very concerned about packaging limitations which result in a greater number of miles of hazardous materials transportation as a result of that particular requirement.

So, to make a long story short, we found that the New York City requirements for the separate fleet of smaller tank trucks did not end up promoting safety and also did not survive the commerce test. We basically held, New York City had not sustained its burden of showing to us that overall safety was promoted and that there was not an unreasonable burden on commerce. So, that was out before that October 1st publication.

But then we got back into the more routine area of preemption determinations and directly discussing preemption issues. We, since then, have issued Preemption Determination 1 and Preemption Determination 2. I believe those are both in your materials.

On December 11 we issued PD1. PD1 had to do with bonding requirements for hazardous waste trucks that were issued by the States of Maryland, Massachusetts and Pennsylvania. We found that those bonding requirements were preempted. Even though there is no specific bonding requirement under the hazardous materials regulations, we took cognizance of the fact that there are bonding requirements and insurance requirements, if you will, under Part 387 of 49 CFR, of the Federal Highway Administration Regulations. As we had in an earlier inconsistency ruling involving the town of Maryland Heights, Missouri where we found a local hazardous bonding requirement to be preempted, we specifically stated, our silence on this issue is our determination that there need not be additional bonding requirements

in the HMR and that there should not be bonding requirements at the state or local level as a precondition for hazardous materials transportation. That decision has been the subject of a petition for reconsideration from both Massachusetts and Pennsylvania and we expect to publish a final decision on that petition in the very near future. Then that will start the clock running for any of those effected parties to take us to Federal Court if they disagree with whatever is our final decision.

On, I believe February 23 of this year, we published Preemption Determination No. 2 which had to do with an Illinois hazardous waste manifest requirement; actually a couple of requirements. Illinois deviated from the Uniform Hazardous Waste Manifest requirements that EPA and RSPA and all of DOT agreed to endorse in about 1983. I'll pinpoint one specific difference, probably the biggest difference. Under the federal regulations, if the hazardous materials contained in a single vehicle get so extensive that you can't get them all on the first page of the manifest, you are required to use a continuation sheet.

So you have one package of sheets that show you what's in that hazardous waste-carrying truck. Illinois said, no you can't use a continuation sheet, you've got to start a new manifest. It doesn't sound like a big deal, but obviously if you're going through ten states, you don't want every state to be able to juggle around with these paperwork requirements for the Uniform Hazardous Waste Manifest which was intended to have only one piece of paper to get you across the country.

Consider just one practical ramification of this. Assume that, okay, we'll just prepare an extra, different manifest for Illinois or Missouri or somebody else. So, what happens when you have an incident. What the hell is in that truck? You've got three different manifests and which one is it? We think a great deal of confusion could be caused by that and we have, as you know, been very strict about additional information and documentation requirements going beyond the Federal requirements. We relied upon those earlier decisions and court decisions upholding our position there and found that the Illinois approach was preempted. Illinois did not file a petition for reconsideration and I guess their time's up for judicial review as well. So that stands in place.

There is ongoing right now, a regulatory negotiation over at EPA about modifications to the Uniform Hazardous Waste Manifest. But that would be again a national regulation and there would be still one national document. But, there may be some changes to it depending upon the outcome of that regulatory negotiation.

We have several other cases that are pending decision. As I indicated before, highway routing issues are in the hands of Federal Highway Administration. One of them is a dispute about radioactive materials and entry of them into the State of Washington from the State of Oregon. I think it's fair to say that decision is imminent. We've worked closely with the Federal Highway Administration and that should be out in the very near future.

Another one that we've been working on - it still needs some more work but we are near the top of our pile - is Chester, West Virginia, which has a lot of restrictions on hazardous waste travelling on U.S. 30 to a very controversial incinerator at East Liverpool, Ohio. There are a variety of requirements there and some routing, some non-routing. So we are working jointly with the Federal Highway Administration on that as well.

I sent Larry a last minute handout. Actually, all of my handouts were last minute, and I thank the support people who did a fantastic job in reproducing all this for you without the slightest bit of courtesy on my part. I do appreciate that. But there is this small separate document with a list of the twelve items that are now pending some kind of action.

An awful lot of those have open comment dates and I won't bore you by going through them one by one. Just look at them; if you have an interest in them, we welcome your comments. There are two other things that are not reflected in the October 1st materials. One is the fact that there's a case that's ongoing in California. I think the case may be cited there. But let me give you the update on it.

It's the Chlorine Institute v. California Highway Patrol and that involves state requirements for escorts for chlorine shipments and I believe some other "extremely toxic by inhalation" or "toxic by inhalation" materials in the State of California. A U.S. District Court found that those requirements were preempted. That decision has been appealed by the State of California to the U.S. Court of Appeals of the Ninth Circuit. It has been briefed by both sides and oral argument should be coming up in the near future. That certainly is a significant case.

There's another case in the Ninth Circuit which I'll get to by the back door. The other actual occurrence that's not reflected in the materials I've referred to so far, although I think you have a copy, is a recent court decision by the U.S. Court of Appeals for the Eighth Circuit concerning an Indian Tribe regulation. It's called Northern States Power Company v. Prairie Island Mdewakanton Sioux. In this case, the only access for radioactive materials in and out of a power plant was through an Indian reservation and the Indian tribe passed an ordinance which said, give us 180 days notice for each transit; pay us a thousand dollars for each transit; give us information and documentation, and by the way, we reserve the right not to give you a permit anyway.

That didn't fly too well with the court as you might imagine. This case was most interesting because initially the Tribe passed the ordinance and got the unwitting approval of the Bureau of Indian Affairs of the Department of the Interior which was not aware, basically, of the existence of the Hazardous Materials Transportation Act or the concept of preemption in this area. Which tells you something about how important all this is anyway.

But, it was approved and then the power company sued Interior. All of a sudden this U.S. attorney found himself supposedly having to defend the Department of Interior's decision

in this area. And all of a sudden the Department of Energy and the Department of Transportation said, wait a minute, we have an interest here too. To make a long story short, DOE and DOT were able to convince the Department of Justice to sort of switch sides, join up with the power company and say that the Tribal ordinance really should be preempted for a variety of reasons.

The district judge jumped in and wrote a very good opinion finding that the ordinance was preempted for a lot of reasons. That was appealed by the Indian Tribe to the Court of Appeals for the Eighth Circuit and the Eighth Circuit has recently come down just last month and found for a variety of reasons that the ordinance is in fact preempted. You have information and documentation requirements beyond the Federal and you have unfettered discretion of the decision maker and also the attempt to regulate an already heavily regulated area.

The additional little wrinkle in this case and what gave the Department of Justice a little bit of heartburn, quite honestly, was the fact that Tribal immunity is a form of sovereign immunity and you better believe the U.S. Department of Justice relies on sovereign immunity rather frequently to defend lawsuits that are filed against the U.S. Government.

So it was a little hairy as to how far they would go in arguing that issue. But suffice it to say that both the District Court and the Court of Appeals very definitely handled that issue by saying that to the extent that the Tribal leaders were acting illegally, that is in a manner which is preempted by Federal law, they were acting without legal authority and therefore they were not entitled to any kind of immunity. I think that was very good reasoning.

Having said that, there is a court that has come down the other way. And this is the end of the long story about the other cases pending in the Ninth Circuit. At the same time this case was breaking in Minnesota, there was another case in Idaho where I-15 goes through a reservation and in which again, of course, radioactive materials were the issue. There's an ordinance, they may have copied each other, very similar to the ordinance in Minnesota. There however, the District Judge in a rather strange decision (I recognize I have some bias, but I still have to say it was a rather strange decision) said, basically, that not only was the Tribe entitled to immunity in what it was doing here but also that this lawsuit, brought by the power company, was in the wrong court because even though the HMTA says that any preemption matters under HMTA may be brought in any court with appropriate jurisdiction, he said that the only court with jurisdiction here is the Indian Tribal court. So, you're in the wrong place.

As you can imagine the power company appealed that case to the appropriate Court of Appeals which is the Ninth Circuit. So, the Ninth Circuit now has two preemption cases; the Chlorine Institute case, and this Indian Tribe case pending before it. The good news for those who are pro-preemption under the HMTA is that the Ninth Circuit is the same one that back in 1990 came down very strongly on the side of federal preemption in the Southern Pacific Transportation v. Nevada PSC case involving Nevada regulations on rail loading and unloading and handling of radioactive materials and explosives. They said, in that case, Nevada's PSC

was claiming unfettered discretion and was trying to regulate areas that are heavily regulated by the Federal regulations (and this was even before "covered subjects" came along). The Court also found that they also claimed unfettered jurisdiction, unfettered discretion and were imposing information and documentation requirements above and beyond the federal.

Now, the Ninth Circuit has a long history of being unpredictable although they tend to be pro-preemption but they also tend to be pro-Indian Tribe. So this is a goody. This is a real goody. There will be a three-judge panel and however it comes down, the loser may very well try to go *en banke*. That is, to take it to the approximately twelve judges that constitute the entire Court of Appeals out there.

So anyway, there you have it. I'm sorry I can't get more enthusiastic about my work. But, that's it.

QUESTIONS:

Loflin: I'm Carey Loflin from the Albuquerque Field Office and I want to go back to one question to get clear in my own mind and that was the one about "if you have a government vehicle transporting government material and it's being driven by a University of California employee, does that mean it's a GO-CO operation and not under your jurisdiction?"

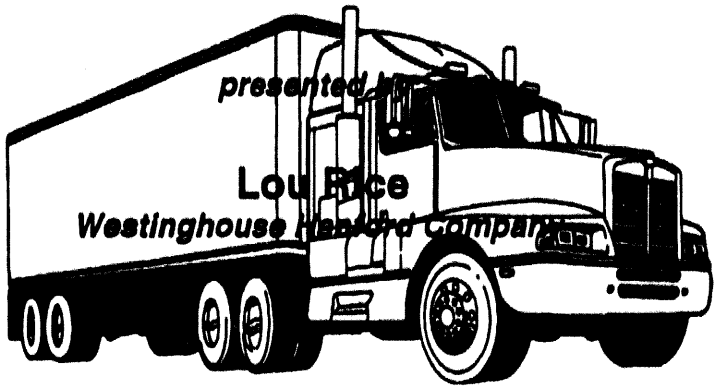
Bonekemper: That's right.

Loflin: Okay, thank you.

Motor Carrier Evaluation Program

presented by Lou Rice, Westinghouse Hanford Company/RL

DOE Motor Carrier Evaluation Program



presented to:

Transportation Management Workshop

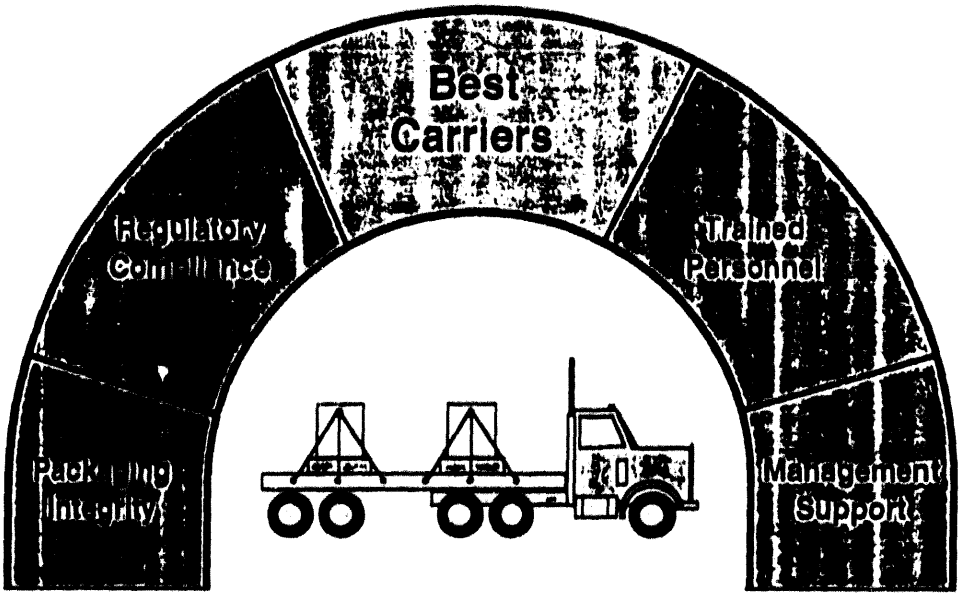
May 11-13, 1993
Gaithersburg, Maryland

R9305044.20

Program Objective

Ensure that DOE and its contractors utilize only "highly qualified" carriers in support of their nationwide program to transport DOE materials, wastes, and substances and radioactive materials.

There are Five Key Elements to DOE's Hazardous Material Shipping Program



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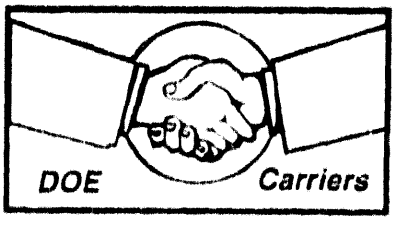
What the TMD Motor Carrier Evaluation Program is:

- TMD sponsored DOE-wide program



- Primary emphasis: evaluation of carriers ability to transport HRCQ and TL quantities of RAM and other hazardous material commodities
- Means for DOE to better understand their "partners" in the hazardous materials shipping business
- A quality assurance program
- Also evaluated, are the LTL carriers, because of the large volume of the DOE hazardous materials shipments

R9305044. 3

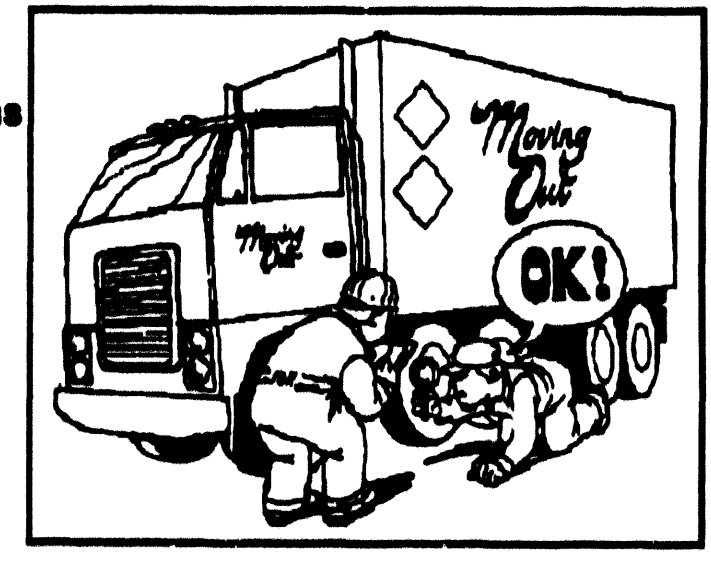
What the TMD Motor Carrier Evaluation Program <u>is not:</u>

- <u>Not</u> an appraisal
- <u>Not</u> an audit
- <u>Not</u> a carrier qualification/ certification program
- <u>Not</u> a vehicle safety inspection
- <u>Not</u> a DOT inspection
- <u>Not</u> a "witch hunt"

R9308044. 4

This Program is Based on Established Criteria

- Regulatory compliance
- Driver training programs
- Emergency response capabilities
- Maintenance programs
- Carrier safety record
- Carrier driving policies and administration



R9308044. 5

The TMD's Motor Carrier Evaluation Program Utilizes Many Sources to Obtain Current Carrier Data

- Safety net (FHWD)
- Commercial insurance compliance service
- Onsite visits
- Survey forms
- Reports from DOE and contract traffic managers

R9305044. 6

The Motor Carrier Evaluation Program Assists the Traffic Managers in Quality Selection of Motor Carriers

- Inspections of carrier facilities
- Established profile information
- Defines selection criteria
- Standardizes selection methodology
- Accesses carrier historical data

Traffic Manager

R9305044. 7

The DOE is Not a Regulator, but a Concerned Shipper

R9305044. 8

The Motor Carrier Evaluation Program Addresses Institutional Concerns

"This program advances the philosophy that DOE's responsibility for hazardous material shipments extends **BEYOND** our plant gates"

R9305044. 9

This Programs Established Criteria Addresses Current Institutional Questions

- Are drivers qualified?
- Does the carrier have emergency response capabilities?
- Is the carrier's equipment in good condition?
- Is the carrier a safe, concerned carrier?

R9305044. 10

Summary of Activities

General Freight/Haz-Mat Carriers

Carrier Name	Evaluation Date	Carrier Name	Evaluation Date
1. ABF Freight Systems	December 1991	13. Eck Miller	April 1989
2. Anderson Trucking	April 1992	14. Motor Cargo	May 1990
3. Atlanta Motor Lines	December 1992	15. Overnite Transportation	June 1992
4. Consolidated Freightways	June 1991	16. Preston Trucking	June 1992
5. Central Freight Lines	April 1993	17. Ranger Transportation	February 1992
6. Con-Way Western	February 1993	18. Roadway Express	July 1992
7. Davis Transport	August 1990	19. Roberts Express	July 1992
8. Dawn Enterprises	October 1991	20. Spartan Express	February 1992
9. J.B. Hunt	September 1992	21. TNT-Red Star	September 1992
10. Jack B. Kelley	April 1993	22. Tri-State Motor Transit	November 1992
11. McGil Specialized	December 1992	23. Viking Freight	February 1993
12. A.J. Metler	September 1992	24. Yellow Freight Systems	November 1992

R9305044. 11

Summary of Activities (cont.)

Waste Carriers

Carrier Name	Evaluation Date
1. Aptus Environmental	August 1990
2. Chem-Security Systems	March 1990
3. Custom Environmental Transport	May 1991
4. Dart Trucking	July 1992
5. Environmental Transport Services	April 1993
6. Kindrick Trucking Company	November 1992
7. M.P. Environmental	February 1993
8. Northwest Enviro Service	February 1990
9. Resource Recovery	January 1990
10. United States Pollution Control Inc. (USPCI)	April 1992

Balance of Carriers to be Evaluated in FY93

June 1993
- *St. Johnsbury* - Cambridge, MA
- *T.F. Boyle* - Bellerica, MA

July 1993
- *Churchill Truck Lines* - Chillocothe, MO
- *Central Transport* - Detroit, MI
- *Averitt Express* - Livingston, TN

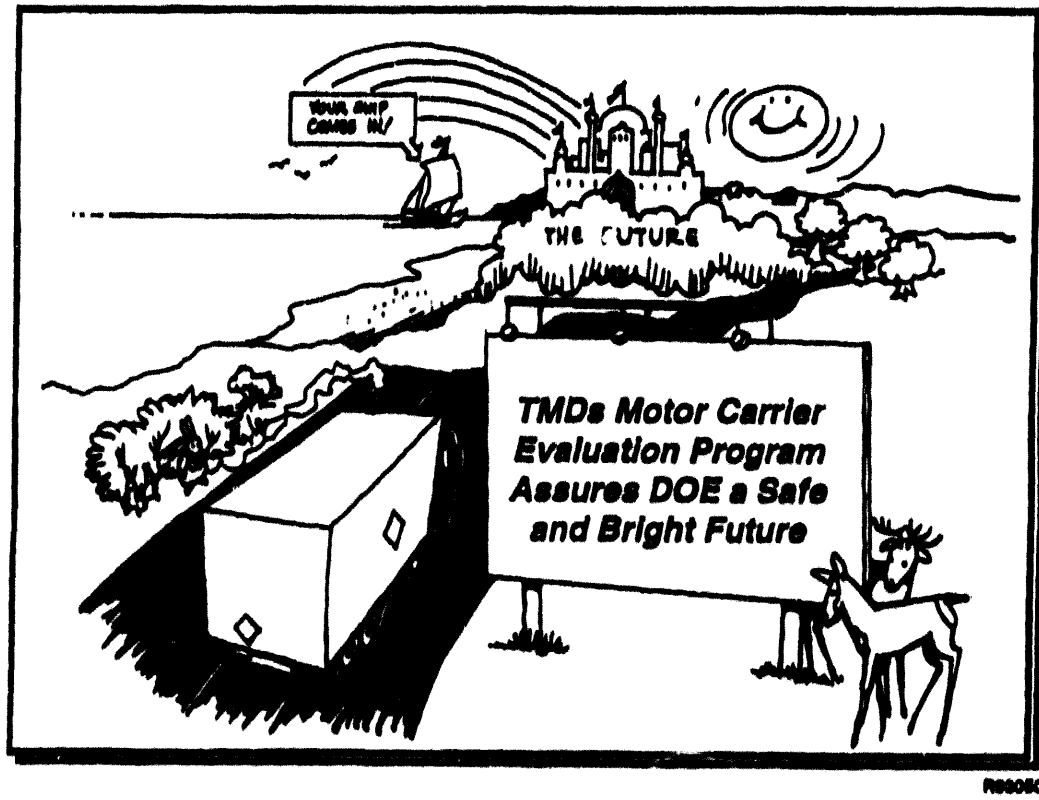
August 1993
- *N.W. Transport* - Denver, CO
- *Motor Cargo* - Salt Lake City, UT

The Future????

What Will Happen to the MCEP

A Headquarters Perspective

R9305044. 14



R9305044. 15

What's Happening?

presented by Charles MacDonald, U.S. Nuclear Regulatory Commission

MacDonald - What's Happening? - TM Workshop

Good afternoon, and thank you for inviting me to your Annual Workshop. I have a lot of scribbled notes here. I hope I'll be able to follow all of them. When Larry extended the invitation he said I could speak on any topic and so in keeping with the theme of the workshops that you have, I thought we would just look at what's happening. And that's sort of a "thing" -- sometimes we use a personal greeting when you greet someone, you say, "What's going on?" or "What's happening?" But then you know, they called for an abstract. It's getting a little more formal than what we are more accustomed to. Things have changed quite a bit. But, I can see it has made some appropriate use of those abstracts. And I'll try to follow the one that we've provided.

I have always enjoyed your meetings and certainly I profit from getting out and getting the information and direction of where of you are going. It has been a very good meeting this morning. I think you need to know where people are going. It's a matter of do you want to follow, or do you not want to follow. If they don't know where they're going, then you don't know where you're going. But it becomes very clear that the road is coming, where you are going, and what you have to follow.

So certainly the important point here is, and it can't be over-emphasized, I consider NRC a part of the federal family. NRC and DOE, we used to be one and the same, essentially. Now I consider us cousins. Sometimes more distant cousins than at other times. But, still a part of the family.

We have a different culture at NRC. Ours is more of a regulatory culture and yours is a little different culture. And we take on those aspects of our culture. If you work at a place long enough, well you find out that you soon become like that place. I've become a little bit like NRC because I've been there a few years.

The last time I had the opportunity to appear before you was in October 1986. I've attended some of the other meetings but I've not talked to you since October of '86. At that time, I was stressing quality and I was so pleased to hear about your mechanisms for the selecting of carriers of quality. It's not only cost. We hear so much on cost. But it is also the quality to get acceptance. Whether you are looking for public acceptance, regulatory acceptance, your boss' acceptance, whatever acceptance you want, you have to throw in that quality.

Quality not only applies to selection of carriers, but to other things which you do. The quality we were referring to back in '86 was quality in materials primarily, based on the premise that a package would be no better than the materials which you would be using. And my view on this acceptance has really not changed through the period. I think it's just as important now as it is was then. In fact, it may be more so now, it's so much more important.

As I left that meeting some seven years ago, we went outside and we saw a Postal Service truck. And on that truck it said, "We deliver more for less." And I thought, what an appropriate slogan for a transportation group, delivering more for less. Because that also is part of the of quality structure. I'm not sure if the Postal Service still does that, but they certainly had the right idea.

I also stated that the NRC was proceeding with rulemaking. The rulemaking would consider the 1985 edition of the IAEA Recommendations for the Safe Transport of Radioactive Material with the final rule to be published January 1, 1990. Well, the NRC did publish a proposal in June of '88 and that was followed by some rulemaking by DOT. But we are yet to publish that final rule.

In the meantime, under the continuing review process of the IAEA, they are proceeding to revise the rules and publish again in 1996. This will no doubt introduce additional requirements for the safe transport of radioactive material. In fact, next week there will be a Technical Committee meeting in Vienna to consider these '96 revisions. And the U.S. will be well represented at that meeting.

This afternoon there is a meeting at DOT at which the representatives are getting together to discuss those issues that will be discussed further in Vienna next week. Now, the NRC overall approach to protecting public health and safety and our fundamental views on packaging safety have not changed throughout the years. And I would like to share with you some of the general guidelines that the NRC will be following at this important meeting in Vienna next week and also at the meeting this afternoon at DOT.

GUIDELINES for IAEA MEETING

- Support U.S. Law - Domestic Safety Requirements
- Oppose revisions which result in lower level of public health and safety
- Support effort to strengthen standards and develop more simplified rules which do not reduce safety requirements

I only have one viewgraph. We are going to leave this on for quite a while. First, they are not to support positions which would undermine U.S. law or weaken domestic safety requirements and practices. Second, they are not to support any revisions which would result in lower level protection of public health and safety. Lastly, they are to support efforts to strengthen the standards and to develop more simplified rules which do not reduce safety margins.

As you have with many families, there can be differences of opinions and we may have differences of opinions with the Department and other people who are regulating the safe transport of radioactive material. I'd like to go over just a few of the issues and how these guidelines may apply to those issues at these meetings. First, on the air transport of plutonium. In the time frame of about 1975 or so, the U.S. Congress passed a law providing a high level of safety for shipment of plutonium by air. Criteria were developed, and a package was developed and certified to the Congress as meeting those criteria. In the meantime, we have efforts ongoing in the international arena to develop new criteria, criteria that would be inconsistent with the U.S. law. So we will be opposing those criteria that are not consistent with the U.S. laws.

Another important item coming up is brittle fracture. Brittle fracture has to do with the materials that go into the construction of a package. And a package is really no better than what you build it out of. It can be no better. You cannot inspect safety into a material. We have levels of safety that would be acceptable to us in Regulatory Guides 7.11 and 7.12. I noticed in the agenda that there will be a later discussion of those Regulatory Guides 7.11 and 7.12. We will be opposing such modifications; our concern primarily being that where you increase the likelihood of a package breaking open or cracking in two, such possibilities need to be fully aired. It needs to be fully aired.

There's another item coming forward called System Certification. That seems to be a little spin-off from what we had at one time called containment system certification. You really don't know what provides the safety of this system, but by gosh you know it's right. It becomes regulation based on who may be the best salesperson in this case. We are going to question the necessity for using this system certification. Primarily it's another terminology for requesting exemptions or exceptions to the regulations. Probably the thing that comes closest to system certification that we have had experience with in the U.S. would be the TRUPACT I. It may have been a fine package, but it didn't have double containment and it did not meet public acceptance. Now, going into system certification in Vienna may not change that at all. Of course it seems to be the hope that it would make some difference.

In the commercial sector, we make wide use of shipping of Low Specific Activity material - LSA material - and we are going to support simplified rules with fewer subdivisions and subclassifications which do not reduce safety. We think that can be done. We believe the rule should be straightforward and simple and everyone should be able to follow it. There are now so many different package variations, and when you get down to the practice of these

things, it is very difficult to make a distinction between one criteria and the other. So we are looking to simplify that.

Things are moving around on the Q System. This is the A_1, A_2 values. This happens to be the cornerstone of the transport regulations. If you exceed a certain amount, you go into a Type B package. Up to that point you are in a Type A package. It has to do with the containment releases. These are based on models, very tenuous models, and they are making small changes to these. We say, hey, there's no reason to make these changes. And many of these changes would reduce the margin of safety. So we will be opposing that.

So I think what it comes down to basically is that we really need to ask ourselves several questions. Why the rush for change? Have the standards served you well? What are you changing on your packages over the years? In very short terms, what is the problem? We understand there is the general feeling that if there is an international requirement, that we must also adopt that domestically. And of course I think there's a need to have compatibility and consistency between the international and the national standards. It really is indeed a small world.

However when you get into the desire of having compatibility and the consistency with standards, you also have to raise the question - "is it adequate?" They go hand in glove, together. And, you should be aware that this necessity for adequacy overrides any desire to be consistent and compatible.

Probably in the near term, what we see happening here would be the process, which we are following, of initiating and pursuing rules and standards in Vienna; that needs to be closely assessed. We do not have the involvement of the stakeholders I heard today. How are the stakeholders coming into involvement in system certification or the materials? Where have they had a play in it? Where has the public been involved? And we interact more with the public and we use the broader term for the public. The public hasn't been involved in the system certification. They haven't been involved in many of these things and they need to be involved in the early time. They need to know what's going on. Don't run over to Vienna and do those sorts of things. So, for the short term, we are going to have to reassess that. And I think from our view, where we have differences between the agencies, we need to resolve those differences before we go over there. There's no need for the U.S. to go over to Vienna and have internal differences. They should get resolved in this country through our process. There are other agencies, such as the Department of State. When you go out and speak in different ways, that needs to come together. So I see that coming.

And not to leave the public out of the debate, not to have a short circuit, it just isn't going to go anyway. It's working in the wrong process. You need to follow a process and be very aware of the process that is followed.

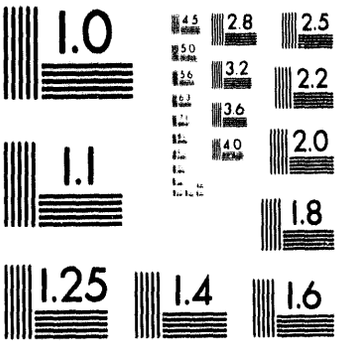
In closing, I would just like to mention some items in the package certification area. This is the primary area in which my Branch works. What we see happening there is that where NRC certification of DOE packages was once an option, it is now mandatory. The two examples of that are under the Office of Civilian Radioactive Waste Management where early on in the law they had the option of doing the self-certification. They no longer have that option.

The second item would be on the Waste Isolation Pilot Plant; there was a requirement there, in an amendment on the land withdrawal, that DOE use packages that have been reviewed and certified by the NRC.

So, that's briefly all I had. I want to thank you for inviting me. You've certainly been very attentive. It's been more or less my agenda. If there are questions on what I have or anything, we'll be here this afternoon. Or if there's time now, we will be glad to take any questions.

Technical Assessment/Assistance Program

presented by Michael Maline, DOE/EM/TMD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2 of 7

Maline - Technical Assessment/Assistance Program - TM Workshop

I'm sure this is a subject near and dear to everybody's heart. There's a quote that I read in The Washington Post about two weeks ago. It's by Ronald Reagan, as a matter of fact. In the Sunday Post they have up in the very top right-hand corner little quotes for the day. This one said that "The seven worst words in the English language are, I'm from the government and I'm here to help.'"

Well, hopefully this technical assessment/assistance program will not be mimicking those words. Even though we are from the government and we are here to try and help the contractors to be in regulatory compliance, hopefully these won't be words of doom.

For those of you who don't know me, my name's Mike Maline. I'm the Technical Assessment/Assistance Program Manager for TMD. I've been on board since November of last year. Larry has charged me with coming up with this program and I'm going to do it. We're going to have a good program. Now, it's going to be a real challenge, too. Let me give you a little background. TMD is charged with ensuring that all our sites are within regulatory compliance. How are we going to do that? We're going to do that through this Technical Assessment/Assistance program. Our intent is to ensure that we are in regulatory compliance.

I want to get one thing perfectly straight (boy, it sounds like I'm dictating already): our intent is not to beat up the contractor and turn our backs and walk away and leave them wondering, "What in the hell am I supposed to do to fix this?" Or, "How am I going to fix this?" You know, "All they've done is come down here and just rap me up side my head and said I'm all messed up, and then walk out the door. My upper management thinks that I'm all messed up," and everything goes down hill from there. All that does is cause frustration. That's not our intent. There's got to be a better way to do it.

Now, what is a technical assessment? Our driver is that we are going to be assessing by regulatory requirements and not personal beliefs. That's one thing I want to make straight. I want to make sure everybody understands that. It's going to be what the 49 CFR says, not what I feel it should say or what my assessors feel.

Who's going to be doing the assessing? I'm going to go out and I'm going to select experienced people from the transportation operations field. Just to give you an idea, we visited two UMTRA sites here about two weeks ago. The people involved: Lou Rice, Andy Rymer, Pete Toolson, Dana Wilaford, and Audrey McAllister. Now, I'm sure all of you recognize those names and you realize the experience that they have.

What are we going to look at when we come visit a site? Generally, five areas will be assessed. Traffic operations speaks for itself; regulatory compliance; motor carrier operations (you just heard Lou Rice speak about that), transportation training (what's going to happen in October with 126-F), and packaging operations.

Every site may not receive an assessment of each of those areas when we come visit. It's going to be tailored to each individual site's needs and requirements. For example, I just mentioned that we visited two UMTRA sites out in the state of Colorado and Utah. We only looked at three areas, not five, just three. Those three areas were regulatory compliance, motor carrier operations and vehicle maintenance. UMTRA sites are involved in hauling dirt -- picking up dirt from one site and putting it in a hole at another site.

Before we show up on assessment -- when this whole program finally gets kicked off -- we're going to help the sites. We're going to do that by providing a standard to every site in the DOE family. Everybody will have the same standards. This is what we're going to come and look at. That way there will be no surprises when we visit, or when the field offices visit, there will be no surprises involved in what they're going to look at. It's going to be right there in black and white.

When the field offices receive the standards from TMD, they are encouraged and expected to supplement it with their own requirements and their own needs for their sites. In turn, when the sites receive it, they're encouraged to add to what the field offices add, add their own requirements. Each plant has their own specific requirements and we realize that. So, add those to the standard.

Are we going to come visit every site? I believe Ella told me that there are 85 major DOE sites. If we go on, say, a three-year rotation, that's what -- a site every other week? I don't want to be a geographical bachelor and I'm sure the assessment teams don't want to be geographical bachelors or bachelorettes, so, don't expect to see us that often. You might see your field offices much more often.

The other half of the equation, besides technical assessments, is the technical assistance. Technical assistance will arrive in many different forms. I've listed six right here. Listen up and see what they are.

One, with the TMD standards on hand with the field office supplement, a site has what is needed to conduct self assessments. That's a requirement. You have to conduct a self assessment. What am I going to self assess with? Well, you'll have the DOE standards with the field office supplement standards, and your own standards are added in there. There's your self assessment requirements right there.

In addition, the Field Offices will be able, when they come and visit, to track trends within their own areas of operation. I'll take Oak Ridge for an example -- if X-10 has a problem with how to fill out a hazardous waste manifest, and if Y-12 has the exact same problem (while they're still with us), and if Portsmouth has the same problem, there's a trend right there. The Field Office picks up on that, they can correct it.

Another form of assistance (even though you may not think it is) involves the interest of your site's management, who will want to know what was found wrong and what was found right, but more importantly what was found wrong. I'm sure they'll want to track it themselves, also. When I was still at Paducah, I remember there was a tracking system which I thought was a royal pain in the you know what. But, it brings problems up to site management's attention. They can then evaluate the situation based upon their own requirements and determine how soon they can devote resources to fixing those problems. It made site management pay attention.

At TMD level, we can identify trends, also. If Richland is having problems in how to fill out a hazardous waste manifest, and Oak Ridge is having problems in how to fill out a hazardous waste manifest, there's a trend. Two major sites having the same problem. There's a trend. We can do something to fix that.

Also very, very important are the attitudes of the assessment team members themselves. Their attitude is extremely important in bringing technical assistance to the recipient sites. Our intent is to assist, to provide recommended solutions to problems that we identify. We'll do it right there on the spot. We won't keep it secret and then hide, and then three weeks later, you receive a report, and bam, there you go.

Actually, each area will receive two debriefings. One debriefing will be right there on the spot between the assessor and the recipient. The second debriefing will also be right there at the end of the assessment visit for site upper management. Again, it's extremely important what our attitude is.

Another form of technical assistance is Ella McNeil and her training program. She has developed a very fine training program. We'll have the instructors, whom I'm sure will be available, if a site requests them to come. "Hey, we need help in how to fill out hazardous waste manifests. I have ten people who fill these things out or who might have the opportunity to fill them out." I'm sure we can find some way of sending an instructor to that particular site and conduct a training. That way you'll all be up to speed.

In conclusion. Two things I see right now that are going to make this thing work: One is cooperation, cooperation between TMD, the Field Offices and the sites. The other (extremely important) is that we (i.e., TMD) have to earn your trust. Trust that we're not going to come, like I said earlier, and beat you up side the head, kick you while you're down, turn around and say, "You're all messed up," and then walk away. That's not our intent whatsoever.

So, we have to earn your trust so that you do not realize that's what we're going to be down there doing to you. We're going to be down there to assist you.

I'll just read off the old final thing here. The intent of this program is to assist all DOE facilities in their transportation and packaging operations to insure that they're in full regulatory compliance of federal, state, tribal and local DOE regulations and DOE orders.

I feel pretty strongly about this. I want to make sure that we provide a quality service.

Now, I've become afraid to ask, are there any questions?

Good. Thank you very much.

Panel Discussion: Drug & Alcohol Regulations

presented by: Paul Brennon, DOT,
Fred Daly, Social and Scientific Systems,
Ronald Knisley, DOE/AD-542, and
Juanita Smith, DOE/PR-151

ALCOHOL

DOT

ABSTINENCE

Four (4) hours

TESTING

Carrier Based
Consortium for Owner Operators
Police Authority
MCSAP (Option)

DOE

ABSTINENCE

Five (5) hours

TESTING

Prime/sub-contractor

SUPERVISOR

DOT

REASONABLE SUSPICION

Single Trained Supervisor

TRAINING

60 minutes on:

Physical Behavior
Speech Intervention Responsibility
Performance Indicators

DOE

REASONABLE SUSPICION

Two Supervisors:

One Being Direct Line or
On Site Physician

TRAINING

No specified time to cover:

Detection Criteria
Handling and Referral
Privacy Protection

RECORDKEEPING

DOT	DOE
All Records Retained	Positive Findings
Positive Findings	
Negative Findings	
Testing Evidence	

CONSEQUENCES

DOT	DOE
POSITIVE TEST RESULT	***POSITIVE TEST RESULT***
Not Perform Safety Sensitive Job	Non-safety Sensitive Job Offered
Loss of Driving Privileges	No Similar Loss Incurred
ABNORMAL BEHAVIOR	***ABNORMAL BEHAVIOR***
Not Perform Safety Sensitive Job	No Similar Requirement

The "Promise" of Full-Scale Testing

presented by Robert Jefferson, WPI Consultant

THE PROMISE OF FULL SCALE TESTING

R. M. Jefferson
Independent Consultant

Transportation Management Workshop
May 1993

TM Workshop/Promise-1

THE PROMISE OF FULL SCALE TESTING

- Will quell fears
- Will resolve disputes
- Ultimate measure of safety

TM Workshop/Promise-2

EVALUATING THE PROMISE

- Historical evaluation
- Engineering perspective
- Public relations value
- Cost benefit analysis
- Effect on regulations

TM Workshop/Promise-3

HISTORY OF THE PROMISE
Full Scale Testing Used

- TRUPACT full scale test series
  Two 30' Drops
  Five Punctures
  35 minute Fire
- TRUPACT II (five units tested)
  Two 30' Drops
  Three to Five Punctures
  30 minute Fire

TM Workshop/Promise-4

HISTORY OF THE PROMISE
Analysis of the Regulations

- 1972 - WASH 1238
- 1977 - NUREG-0170
- 1980 - Urban Study
- 1987 - Modal Study

TM Workshop/Promise-5

ENGINEERING PERSPECTIVE

- Elastic mechanics well known
- Elastic/plastic well known
- Massive plastic unknown
- Thermal behavior well known

TM Workshop/Promise-6

ENGINEERING PERSPECTIVE
Testing

- Develop new design concepts
- Evaluate systems defying analysis
- Single data point per test

TM Workshop/Promise-7

ENGINEERING PERSPECTIVE
What tests to perform

- Regulatory specifications
- Simulated accidents
- To destruction

TM Workshop/Promise-8

ENGINEERING PERSPECTIVE
What constitutes failure ?

- Superficial damage
- Major deformation
- Any leak at any pressure
- Loss of A_2 - 3,000 A_2
- Unrestricted flow from containment
- Contents visible

TM Workshop/Promise-9

PUBLIC RELATIONS
What is the purpose of testing ?

- Convince the public
- Improve DOE image
- Silence intervenor

TM Workshop/Promise-10

COST/BENEFIT OF TESTING
Costs

- One cask per design
- New facilities
- Funding for tests
- Program delay

TM Workshop/Promise-11

COST/BENEFIT OF TESTING
Benefits

- Lots of publicity
- Accusations of propaganda
- Accusations of incompetence
- Public more confused

TM Workshop/Promise-12

REGULATORY EFFECT

- Increased regulation
- Change in criteria ??
- Depart from IAEA uniformity

TM Workshop/Promise-13

CONCLUSIONS

- No win situation
- Reduce viability of nuclear option
- Costs w/o benefit
- Promise is illusion

TM Workshop/Promise-14

We have now EM-56. Rich Brancato, whom you heard earlier, is Director of our Office of Special Programs. Rich has three divisions under him. He has Emergency Management; Laboratory Management; and Transportation Management Division; then there is a side group called Liaison and Communications that works for Rich.

So, that's the organizational chart, or at least that portion of the Department of Energy's organizational chart that actually does any real work. So, that should clarify where we sit in the organization these days. (Voice over from film.)

If they're not convinced by that, they won't be convinced by anything. That's what Sir Walter Marshall said. It's a pretty severe test, it's pretty impressive. Right?

There's a promise being offered today that if we do full scale testing of each cask design that's put out, then we would have a number of advantages.

First of all we'd quell the fear of the public. Somehow there's a feeling that the public is very, very upset about the transportation of spent fuel within our transportation system today. So, if we just do full scale testing, we could quell all that unrest. If we could do full scale testing, we could resolve the disputes that are arising in this field; and there are seemingly a lot of them. We could make believers out of everyone.

Then, finally, if we would do full scale testing, we would have the ultimate measure of safety. We would have actually tested every single cask in operation and to the satisfaction of everyone involved. That's the promise, and I'd like today to evaluate that promise.

I'm going to do it in five steps. I'm going to look at it from an historical standpoint -- and you just saw a piece of history right there. I'm going to look at it from an engineering perspective; I'm going to look at it from a public relations viewpoint; I'm going to talk about cost benefit; and then finally, I'm going to look at what the effect might be on the regulations.

Let's go to an historic evaluation first. There's only been one system that's ever been designed and certified that's been done so on the basis of full scale tests, and that's the TRUPACT system. The problem that we ran into with TRUPACT is on the first TRUPACT design, the box design, we did two 30-foot drops; we did five punctures and then a fire. This is way beyond the requirements of the regulations. In fact, if we had not done the five punches, but done only one punch, it would have survived the fire. It didn't fail in the fire until two hours after the fire had stopped.

But, nonetheless, we over tested it. TRUPACT-II came along -- and by the way, TRUPACT-I didn't go, not because of the testing and the design, but for other reasons, as Chuck pointed out earlier. TRUPACT-II came along. There were -- it should say four units tested instead of five there. Each of those four units were dropped twice. The four units were

then punctured from three-to-five times each; and then all but one of them was burned in the 30-minute fire.

It's an extreme over test. Now, even in spite of that, the Southwest Research and Information Center in New Mexico consistently proclaims that TRUPACT-II is an unsafe package and will, in fact, lead to a disaster if it's ever used. So, here's another historical perspective on this whole thing. (Voice over from film.)

Green Peace launched this campaign, as it says, right after the test three months later. The campaign was very vigorous, believe me; and the CEGB did something that DOE has never done, they fought back. They fought back by producing the film that I took this from called, "Fact or Fiction." They managed to get that on nearly -- well, since TV is operated by the government in England, they managed to get it on every program around. In fact, finally they sued Green Peace, and Green Peace eventually backed down and said, "No," that CEGB hadn't been lying.

Now, the problem is that we have the same sort of situation in this country. The NRC has tried to do this through a series of analyses of their regulations. It started back in 1972 with WASH-1238, which was a study of the shipments to and from nuclear power plants. They concluded that the public was properly protected. There were objections to this, particularly when the environmental movement came along.

So, the next one they put out was in 1977, NUREG-0170, which was the Environmental Impact Statement for transportation. And the conclusion was that the risk of transporting these materials was very, very low. There were those who complained among the activists, that this did not cover the cities; and so, in 1987, the Urban Study was put out -- pardon me, in 1980. The Urban Study was put out and it looked at accident risks in cities; and the conclusion was that the accident risk in cities was roughly the same as had been put out in NUREG-0170.

Then, finally, in 1987, the Modal Study came out because the intervenors said, "Yes, but there are accidents that are way beyond your regulations." So, NRC studied the regulations and studied all the accidents that have occurred in this country, serious accidents, and came to the conclusion there hadn't been a serious accident -- there hadn't been any accidents in this country that would have jeopardized the integrity of a shipping cask, ever.

Furthermore, they concluded that the risks involved in transporting these materials were about a third of that stated in the Environmental Impact Statement.

Now, since the risk is essentially nonexistent, you would think that would satisfy the intervenor, but no. That's not acceptable to the intervenor, either. The result is, the public's confused about all this, if they're paying any attention, but it's my experience the public isn't paying any attention. They really don't care.

The intervenor is the one who's causing all the problem. So, from an historical standpoint, it's been very difficult to convince the intervenor.

Now, if we look at it from an engineering standpoint, we find that testing is very useful in areas where there's little known. But in the case of testing elastic type of mechanics, that was done by Tim Mashinco, back in the late 30s and early 40s; and we have a system that works very, very well in the elastic region. We even know very well how to operate in the elastic plastic region, when you're talking about systems that deform slightly. Those two regions right there cover all of the spent fuel shipping cask designs that have ever been done.

Now, the third region where we don't have as good a handle on it, is in the massive plastic deformation area, and that was TRUPACT. TRUPACT undergoes large deformations. It's the same sort of thing: Why it's very difficult to calculate impact limiters. In that area, testing might be of some use.

The fourth area that is involved in this is the thermal area, and thermal behavior is well known. We're not the only people worried about thermal. As a matter of fact, most of the codes that are used in the thermal area were developed by organizations other than the Department of Energy or the Department of Transportation.

So, testing is useful in developing new design concepts where you're talking about new kinds of designs of systems. Now, as Chuck pointed out earlier, NRC's not too wild about new systems. But nonetheless, this is an area where testing might be useful. Another area where testing might be useful is in areas that defy analysis like in TRUPACT -- testing where you simply cannot handle things with existing codes and tools.

The third area where it might be useful is where you want a single data point. That's all testing gives you is a single data point. If you compare a full-scale test to the analysis that's done in preparation for application for certificate, the full-scale test is one data point among literally thousands, and it's not the only data point either.

Now, the point of all this is that shipping casks are not really challenged by the existing regulatory tests. So you come to the question of what tests to perform. Obviously what you'd like to do is the regulatory tests. The problem is they yield no new information and the viewing public is generally unable to translate that into some terms they can handle. So, to do a 30-foot drop, to do a one-meter puncture, all of those things don't buy you much with the public.

The next thing you could do is an accident scenario. Some sort of simulated accident. The question is, is it the right simulation? Is it at the right speed? Is the target the right thing? Is it the right orientation?

After we did the test at Sandia in the mid-70s, there were intervenors who came to me and said, "Look, it's obvious if you put all that truck in front of the cask, and the cask hits the

truck first instead of the wall, it's a simple thing to do it. You should have run the truck backwards." I tried to point out to them that I have not ever seen a truck go 80 miles an hour backwards. (Laughter.)

The question is, does the simulation match public perception? Does it match the objectives of the intervenors? Does the public believe it's the right accident? The intervenors are going to make sure the public doesn't believe. Then, when you get all through, have you produced information or propaganda, because that's the accusation that comes out time and time and time again, it's propaganda instead of information.

What's the real purpose of the test? Now, the next way you can go is you can test to destruction. There's a lot of impetus for that because here you can find out what the actual margins of safety are. You can test this thing and find out just how safe you are. Let me warn you about something: Every time you test to destruction, the public views that and says, "It failed. So, if it failed in the test, it will fail on the highway." And you don't buy yourself a thing in all of that.

Now, another thing that is a problem is what constitutes failure? There are those schools who say, "If the paint's scratched, that's failure." Obviously, that's not. So, let's look at what else might be failure. A major deformation. And you'll notice these get smaller and smaller as we go through. How much major deformation? Is a dent a failure? Well, I don't know. There are those who would like to think so.

There's also the possibility that any packages leak at any pressure. So, if you put 10,000 psi in there and you leak one standard cc per millennium, that's failure. I don't know. A more rational approach might be to look at A-2. Then Chuck says this morning, "Thank goodness, we're going to hold on to those." Is the loss of A-2 -- in other words, to the regulatory requirements -- is that sufficient enough?

There are those who say unrestricted flow from containment might be failure; and there are even those among us who would like to say it's failure only if the contents are visible. So, you've got to somehow decide what is failure.

Now, another thing you've got to decide is, what is the purpose of the test? One of the purposes of the test might be public relations. In other words, to convince the public. Now the public overwhelmingly supports nuclear power. The political system doesn't and the intervenors don't, but the public does. There are lots of surveys that show that. I've talked to literally hundreds of people all over this country who know nothing about this field and talk about transportation; and the reaction I get time and time and time again is, "I'm glad there are competent people involved in this activity."

The public believes that transportation is safe, so maybe it's time to improve DOE's image. Let me warn you about that, because if you do this and you're accused of propaganda,

that isn't improving your image. If you're accused of doing nonscientific things to try to hornswoggle the public, that doesn't improve your image. So, who are you trying to convince? Maybe it's the intervenors you're trying to convince, and to silence them.

I was in a press conference downtown last week -- pardon me -- week before last; and Senator Reed from Nevada was asked, "If we went through a process, an extensive process, whereby we proved that the best site in the entire world for placing this repository was in Yucca Mountain, would you accept it?," and he said, "No."

Now, if you're going to try to convince that kind of individual, I think you're barking up the wrong tree. Those people don't want to be convinced. They want to obstruct. They see full-scale testing as an ideal obstruction. The reason for it is, it adds delay to the system, and delay costs money.

When we talk about costs, let's talk about costs in benefit. We have to test one cask per design. That means you're burning up that amount of investment, all by itself. In addition, you've got to build some new facilities. We don't have a facility around anywhere that can take a 250,000 pound cask and drop it from 30 feet in the air.

So you've got to build new facilities. There's the cost of doing the tests themselves, and they're not cheap, if you're going to instrument this sort of thing. And then finally, it adds program delay, and that is the primary purpose of those who would have you do full-scale testing.

Now they claim that the benefits -- that the promises of the benefits are to reduce public opposition, and you do get a lot of publicity. You get a whole lot of publicity. When we did those tests at Sandia back in the mid-70s, that little three-minute film that most of you have seen has been translated into 15 languages, and over 2,500 copies in the English language have been made and distributed. So you get lots of publicity.

Another thing you get is accusations of propaganda. Another thing you'd get, immediately following that, would be accusations of incompetence. The things I talked about just a little bit before. Therefore, what you end up with is the public is more confused than they were before. You have not any positive benefits.

When you look at the cost benefit ratio of this activity, it comes out about equal to my mutual funds. (Laughter.)

Now, let's look at the effect on regulation. First of all, there's going to be increased regulation -- and I think Chuck would agree with this -- regulators cannot afford to be behind the power curve. So, if you're going to go out there and do something, they're going to incorporate it as regulation.

Full-scale testing, then, is going to lead to increased regulation somehow. It's also going to probably involve and change in criteria. Let me point out that if you want to hit this unyielding target at twice the current speed. In other words, you want to hit it at 60 miles an hour instead of 30 miles an hour, you don't drop from 30 feet in the air, you drop from 120 feet in the air, and that's a real facility problem. Okay?

So, the third thing is, we're going to depart from our IAEA uniformity -- and you heard Chuck address that a little while ago.

Now, the conclusions I come to are that it's a no-win situation. There's no way out of here. It's not going to satisfy the intervenor and it's not going to improve DOE's image. (Voice over from film.)

In other words, Green Peace, even though they withdrew their suit, had accomplished what they wanted to accomplish. They flooded the newspapers with negative publicity; and even though the retraction was printed on page 18 in Section IV, it didn't have much impact. So, the battle was lost in spite of fighting the war.

So it's going to -- among other things -- reduce the viability of the nuclear option by way of adding delay and adding costs. In other words, it's going to add costs without benefit; and therefore, on this last slide, the promise is an illusion.

The cask won't fail, but we'll be seduced into another political failure in its place. We risk making radioactive materials the super hazard in our society.

Thank you. Any questions? (Applause.)

Material Tracking Interface Study

presented by Cheryl Hamberger, SAIC

1

Tracking Interface Study

Interfacing Existing/Planned Material Tracking Systems with TMD Shipment Tracking Systems

By

L.B. Shappert, Oak Ridge National Laboratory
C.R. Hamberger, Science Applications International Corporation

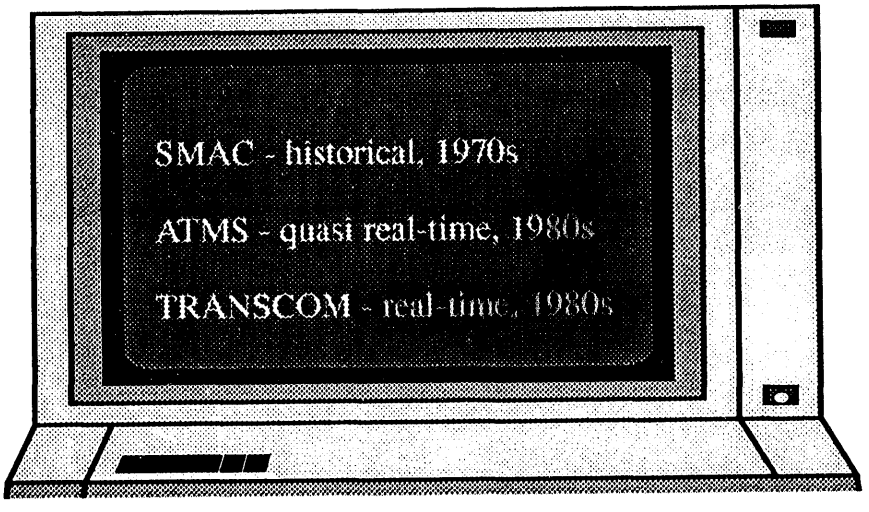
Presented at

The Transportation Management Workshop
Gaithersburg, Maryland
May 11-13, 1993

2

Shipment Tracking Systems (STSs)

TMD is proactive in sponsoring the development of transportation information systems



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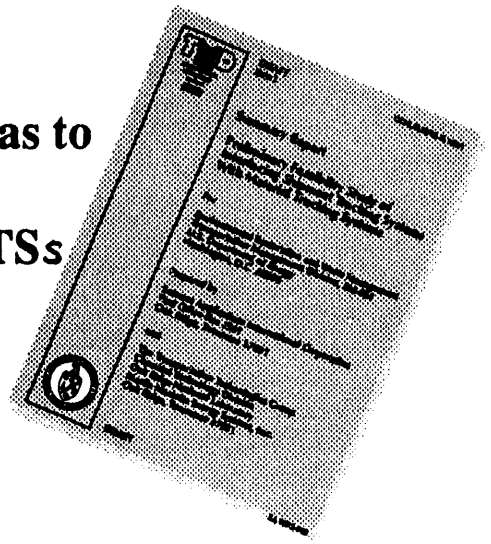
Tracking Systems

Shipment Tracking Systems (STSs) - Offsite
Material Tracking Systems (MTSs) - Onsite

The objective of the study was to determine the feasibility of "networking" STSs with MTSs



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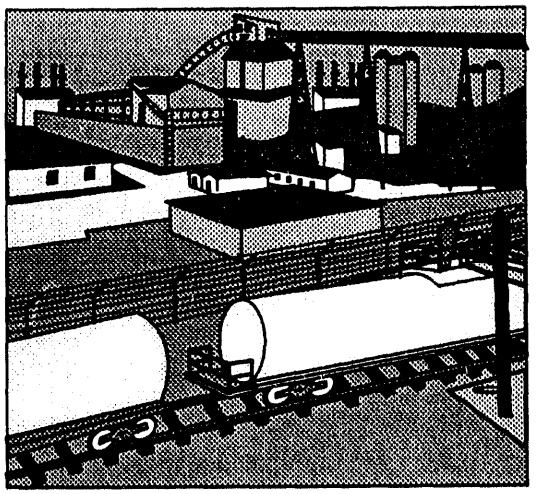
Requirements for Automation

- Accountability for materials
- Meet regulatory requirements
- Provide for maximum safety and security
- Enhance overall operational efficiency
- Provide public and environmental well-being



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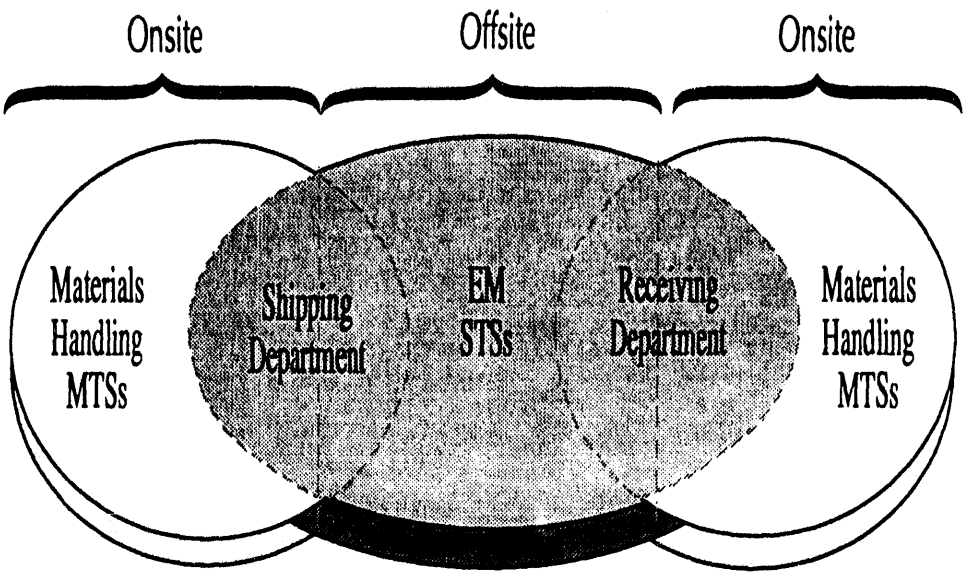
Conceptual Design



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Information Transfer

Offsite shipments require complete, timely, and accurate information furnished by onsite departments

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Study Approach

- Conduct survey of material tracking systems
- Categorize systems
- Identify findings
- Develop recommendations

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Survey Process

- Established contacts
  - — TMD workshop (August 1992)
  - — Used existing documentation/resources
    - DOE's International Waste Technology Information Center (current sponsors EM-50, EM-40)
    - DOE's Office of Defense Waste and Transportation Management report, *Information Systems Survey, 1989*
    - Contacts provided by SWITS staff
- Developed and distributed surveys (October 1992)
- Collected and analyzed surveys returned (November 1992)

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SA 6573-001-4

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Categorization of MTSs

- 153 material tracking systems identified:
  - — 98 hazardous waste
  - — 29 material control and tracking
  - — 26 other
- Scope of study limited to evaluation of the 52 systems that provided the most comprehensive information

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Findings

- Systems characterized more by diversity and uniqueness than commonality
- Many MTSs are under development or being revised
  - —Driven by March 23, 1992, Duffy memorandum *Use of Automatic Identification/Electronic and Verification Tracking Systems at DOE Facilities* that mandated electronic tracking systems, including bar code technology

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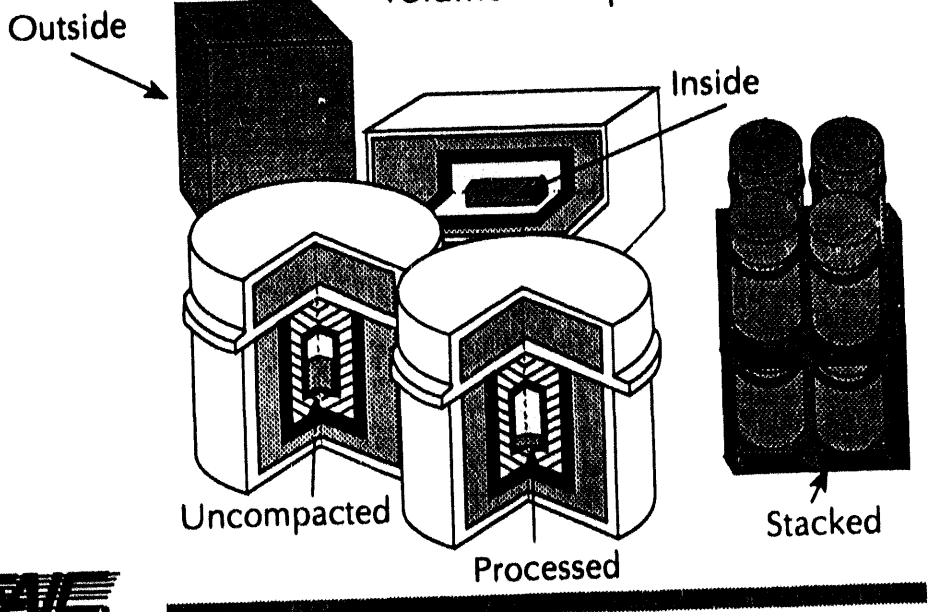
- Trend is toward consolidating control of multiple systems at a site
- Trend is toward use of relational data base management systems
- Terminology inconsistent between systems/sites

12

Terminology

Definitions of terms need to be consistent between systems to simplify the development of an interface

Volume Example:



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Integration Strategies

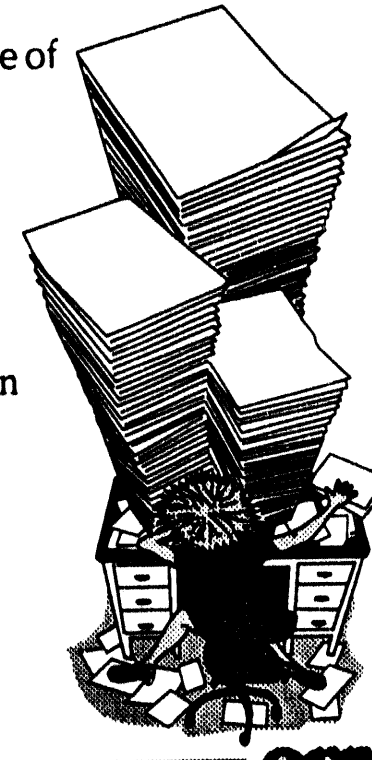
- Minimum - Continue current practice
- Intermediate - Develop interfaces
- Maximum - Full integration

14

Minimum Interface

"Business as usual" not acceptable because of

- Manual exchange of information
- Non-standard data and inconsistent formats
- Repetitive entry of same information costly and prone to errors
- Slower information transfer



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Maximum Interface

Full integration not considered feasible because of:

- Differing missions and reporting methods of DOE organizations
- The complex effort required to establish consistency among so many systems would be impractical, e.g., could require the establishment of one to several standardized MTSs and implementing them at all sites

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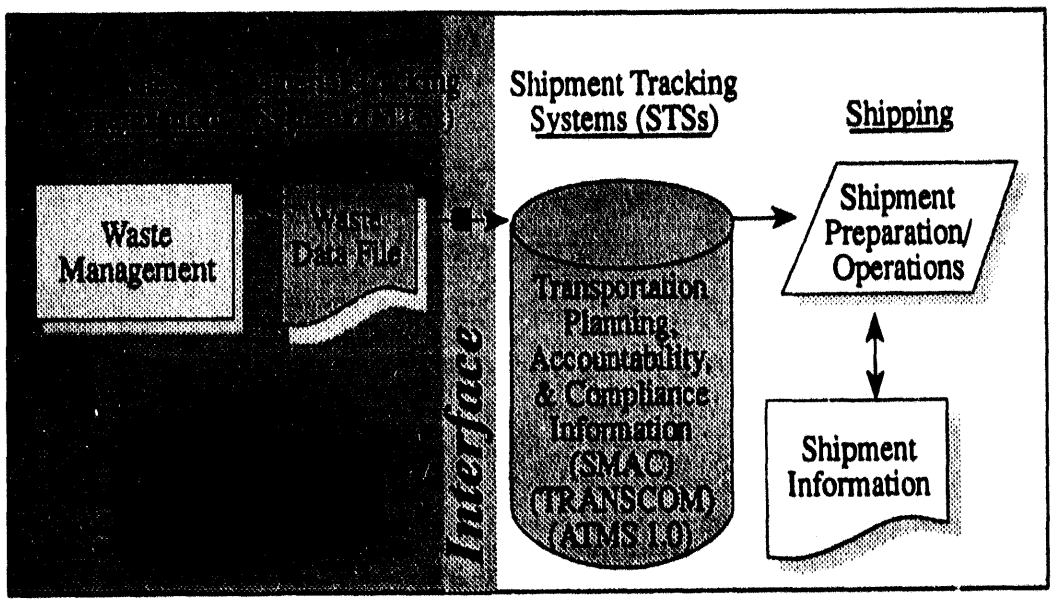
Intermediate Interface Strategy

Recommended as most viable option



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Recommendations

- Establish a representative Working Group, e.g., EM, field elements, site personnel, to:
  - — identify interface needs and requirements
  - — establish interface standards and a DOE Complex-wide data dictionary
- Select target sites for pilot studies
- Focus initially on hazardous waste, then proceed with other materials

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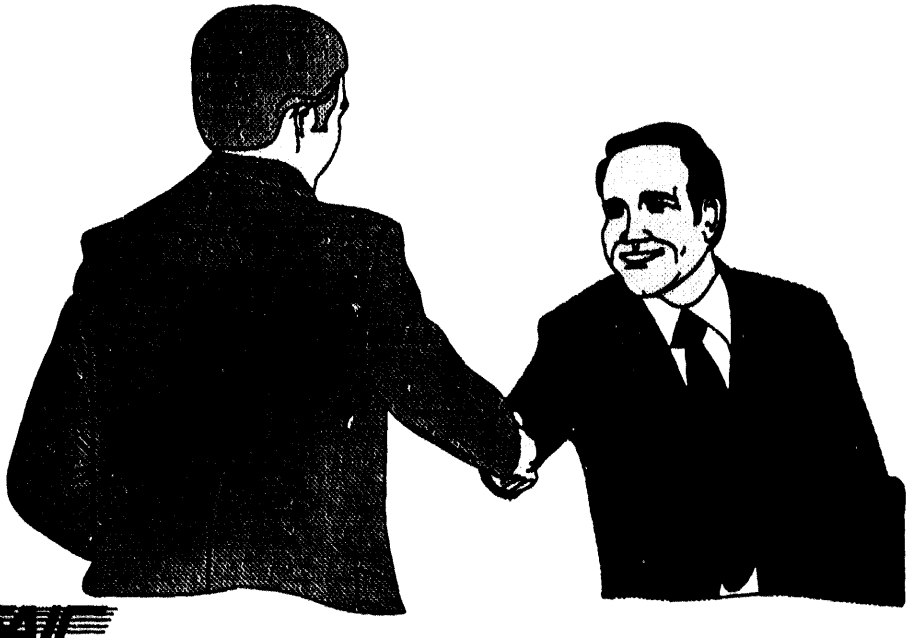
Goal

Facilitate collective participation to enable systems developed by various organizations to share information



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EH Status

presented by Ashok Kapoor, DOE/EH

Kapoor - EH Status - TM Workshop

Good afternoon, ladies and gentlemen. First, please allow me to welcome you on behalf of Transportation Packaging Safety Division, which is located in the Office of Environment, Safety and Health.

I was asked to fill Mr. Barber's shoes. Sorry folks, I could not do that. He has a vast experience and vast knowledge in the EH program, and I am new to DOE; it's now been about a year and a half. I'll do my best to let you know what the EH Transportation Packaging Safety programs are.

Let me start at the top. There have been recent changes in the administration, and with that change, there is a renewed emphasis on worker safety, health and environment. The Secretary of Energy has recently taken the following steps to clearly establish the role of environment, safety and health as it regards independent oversight. The first thing the Secretary did was enhance the authority of ES&H by reinstating the authority to force stoppage of operations involving eminent danger, nuclear safety or occupational safety and health concerns. The Secretary has rescinded the 60-day notice requirement for oversight assessments. The Secretary has strengthened the ES&H role in the existing department accident investigation classes. EH will take a lead role in this investigation process now. In any incidents relating to operations, naturally the Transportation Packaging Safety Division will play a role pertaining to packaging and transportation incidents.

The most important thing that they have done is place DOE under the same umbrella of health and safety rules that apply to private industry. So we are no different now. We are the same. The same rules apply now. So, these new initiatives play a very important role in the administration of ES&H and they, in turn, govern the transportation packaging and safety programs.

I'm not going to get into the mission of the division, but I'll give you a brief status of some current and new initiatives which the division plans to implement this year and next fiscal year. We'll do our best, within the budget, to eliminate the packaging certification backlog. At present we have about 33 Type B packages at different stages of the certification process.

Everybody has heard about the future of 5480.3 and 5480.XX. This is the on-site transportation packaging safety audit. I've been here a year and a half and I've heard quite a bit and it's been going on for a long time. So, we're working hard on that to get things straightened out. What we intend to do with 5480.3 will be to split it into five different orders. One order will carry strictly the packaging segment of that operation; another one will cover transportation safety; a third will be the motor carrier safety orders; fourth will be on-site packaging and transportation safety orders; and the last one will be classification and transportation safety of new explosives.

We're going through the final review now and then it will be issued for comments and for publication. There will be a new program requiring a "Special Form Nuclear Material"

approval process, which will be started this Fall. This program will require a safety analysis report for special form and will be phased in over a period of five years. It will require EH approval.

We intend to introduce some changes to Type A certification processes. It will require more than the classical "cookbook" approach.

For Type B packagings there will be additional requirements for Quality Assurance. Among other things this will require field inspections of Type B packagings. We are in the process of developing a guide, for conducting these QA inspections in the field for Type B packaging. Once the guide is ready, we will distribute this guide to the field, and the field will have the option to look at it and review it. When we come to the site you will know what we're looking for exactly. It's going to tell you.

Basically, this program is in line with an SE program in which they have quality assurance and inspection programs, and basically it meets, as DOE should, the 10 CFR, 75 Part, subpart H requirements for Type B packaging.

Another thing we are revising is the packaging design guide. This is the first revision in the last 20 years. The publication date has not been set yet. The work is being done and we'll let you know soon when it's ready.

Another area which we are looking at is investigating the feasibility of a grand packaging database, which basically contains the Type B packaging certificates and incorporates Type 7-A information also into the same database. So, you will have the one-stop package database, where you could inquire about both Type B packaging, as well as the Type 7-A packaging.

The division is also providing technical assistance in the development of EH task plans for decontamination and decommissioning support to EM. We are working with EM in this matter, which is very important in the forthcoming years.

We have also developed a subset of Walt's database, which basically contains all the transportation packaging incidents. The purpose of this database is to be able to see whether there's the need to change any safety standards or make any modifications to the safety programs.

Let me also mention training. The Transportation Packaging Safety Division sponsors training in several areas: quality assurance; safety analysis and review programs, SAR; the SCANS -- these are computer programs; and SCALE, which is shipping cask analysis, licensing evaluation program. This training is due in July. We are pleased that six other countries are sending candidates for training in this program.

So, if you have any questions, please feel free to call me or call my office and we'll give you some more information. There's a packaging certification newsletter that also goes out two or three times a year. That contains all this information.

Let me say a few words about aviation safety. An Office of Aviation Policy is being established under Joe Fitzwater, of Safety and Quality Assurance. This office will be staffed by three people specializing in aviation operations. Mr. Barber is in Portland today for an aviation policy board meeting.

Also under aviation safety, we're developing a self-appraisal guide, which will be used by the aviation community in assessing their own problems. Aviation Order 5480.13(a) has been issued and it requires strict compliance by the field offices.

Finally, I hope I have given you some information about the Transportation Packaging Safety program. I'm sorry Mr. Barber is not here, but if you have any questions I'll give you the answers. If I don't know the answer, I'll try to find one for you.

Facility Transportation Infrastructure

presented by Larry Shappert, MMES/ORNL

FACILITY TRANSPORTATION INFRASTRUCTURE

Oak Ridge National Laboratory

Presented at the TMD Workshop

May 11-13, 1993

L. B. Shappert

FACILITY TRANSPORTATION INFRASTRUCTURE

Activities are intended.to evaluate the capabilities and limitations of the DOE site infrastructure used to transport hazardous materials on DOE field sites.

- Develop a Condition Assessment Survey (CAS) to identify the DOE transportation assets and comprehensively evaluate their current condition.
- Establish a pilot study at one or two specific DOE contractor sites and apply the CAS to the transportation infrastructureat those sites.
- Evaluate the results of the pilot study and recommend revision of the CAS accordingly.
- Report findings to the DOE.

FACILITY TRANSPORTATION INFRASTRUCTURE

Activities (cont.)

- Revise CAS per approved recommendations.
- Identify and prioritize DOE facilities in order of importance and need for assessment.
- Apply the CAS to other DOE sites in the priority queue.
- Produce a topical transportaton assessment report on each DOE site identifying transportation deficencies and evaluating cost of upgrade/replacement.

FACILITY TRANSPORTATION INFRASTRUCTURE

Current status:

- Work has been initiated.
- Construction standards have been collected for transportation-related assets, including on-site:
  - Roads/highways
  - Bridges
  - Tunnels
  - Cranes
  - Airports/heliports
  - Railways
  - Barge facilities
  - Pipelines
- Work slowed until TMD can coordinate effort with AD's CAMP activities.

FACILITY TRANSPORTATION INFRASTRUCTURE

Current schedule summary:

• Complete draft of Infrastructure CAS	9/30/93
• Select test sites: initiate staff training	1/1/94
• Complete training; initiate site eval.	3/1/94
• Complete CAS of first site	6/1/94
• Complete evaluation of results	7/1/94
• Complete CAS of second site	7/1/94

FACILITY TRANSPORTATION INFRASTRUCTURE

Current schedule summary (cont):

- Complete evaluation of results 9/30/94
- Complete prioritization of new sites 12/31/94
- Complete development of training tools 12/31/94
- Initiate site training; initiate CAS 1/1/95
- Complete report for each site

FACILITY TRANSPORTATION INFRASTRUCTURE

Factors that affect project:

- The 3-4 years experience Bechtel has been involved developing CASs for NASA Capital Asset Monitoring Program (CAMP) involving similar work, including their transportation infrastructure.
- The DOE CAMP process currently being developed by AD.
- The interaction between AD and TMD and their subcontractors to support DOE needs.

SMAC Update/Field Needs: Waste Manifest Module

presented by Cheryl Hamberger, SAIC

DOE's
Shipment Mobility /
Accountability Collection
(SMAC)

What's New with SMAC...
and a Preview of Coming Attractions

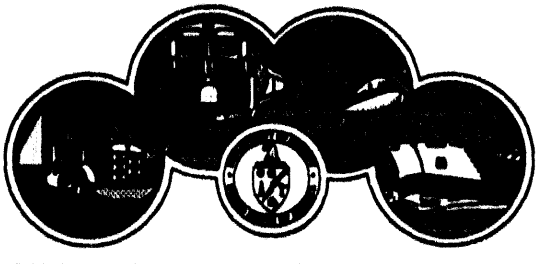
By Cheryl Hamberger

presented at the

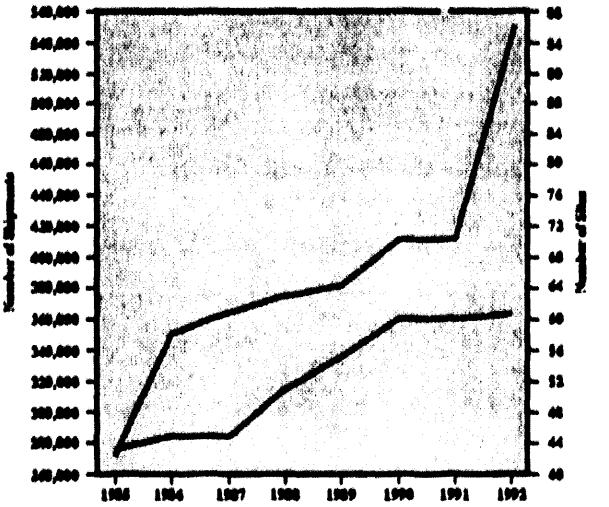
Transportation Management Workshop
Gaithersburg, Maryland
May 11, 1993

SMAC is TMD's historical transportation information system

- provides for collection, storage, analysis, and reporting of transportation data
- supports DOE transportation requirements which are regulatory driven
- helps DOE and contractors to manage and plan activities more efficiently and respond to internal and external data requests

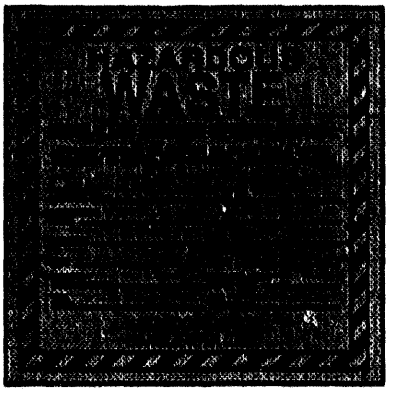


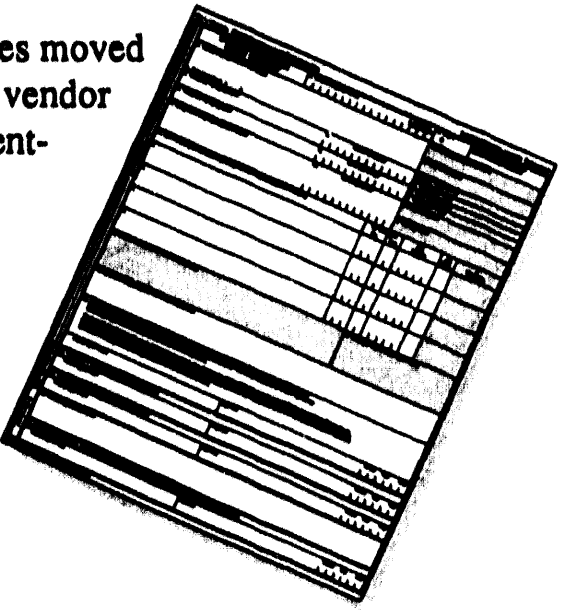
- Superconducting Super Collider joined in FY92
- LLNL expanded its coverage in FY92
- 555,000 shipments were reported in FY92
- Weldon Spring sites joined SMAC in FY93



In FY92, DOE expanded SMAC to include all hazardous materials.

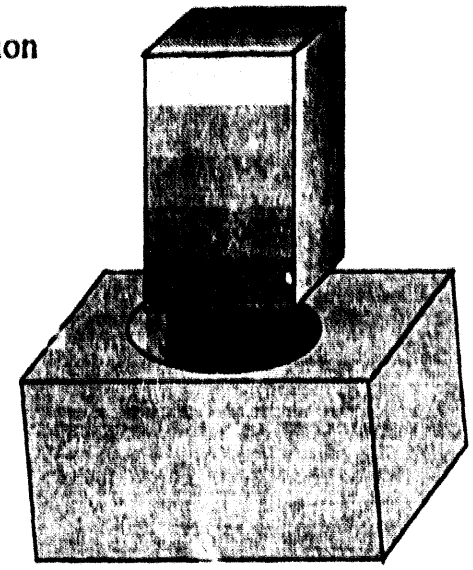
- All substances and wastes moved by commercial carriers, vendor equipment, or government-owned vehicles





Dissimilarities between SMAC and hazardous waste manifest data required modifications.

- Began waste manifest data collection October 1, 1991
- Waste Manifest System (WMS) developed in FY92
- Data stored on PC-based system developed in FoxPro2
- Data will be incorporated into enhanced SMAC system in FY94



Current functions of WMS

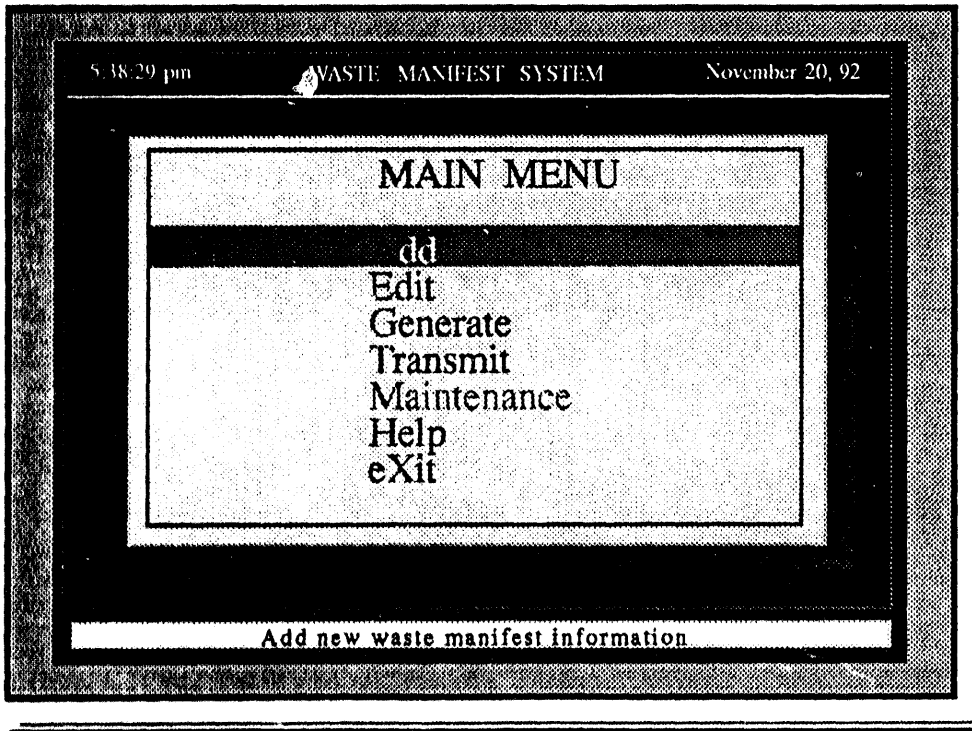
- data entry
- data storage
- data search/retrieval
- data reporting

Features

WMS

- Designed to be compatible with ATMS v. 1.0
- 49 CFR 172.101 (hazardous materials) table incorporated
  - — standardizes data
  - — helps user prepare waste manifest
- Captures all data required on manifest
- Prompts user to ensure standard information are included, i.e., Waste, PIH, and RQ identifiers
- Allows user to build standard data tables, e.g., transporter and TSD facility lists

WMS Main Menu



SA 0593-010—4

Data Entry Screen 1

4:00:20 pm ADDING MANIFEST: Screen 1 of 3 November 20, 92

Generator's US EPA ID: IL3890008946
Manifest Document No.: 12345
State Manifest Number:
Name: Argonne National Laboratory
State Generator's ID:

Transporter 1 US EPA ID: CAD982480865 State ID: 214799
Name: Alta Environmental Services
Phone: (800) 794-2768

Transporter 2 US EPA ID:
Name:
Phone:

Designated Facility US EPA ID: ILD098642424
Name: Trade Waste Incineration

Shipping Cost: $ 0.00
Total Cost: $ 0.00
User's Name: PKD

Data Entry Screen 2

5:57:36 pm ADDING MANIFEST: Screen 2 of 3 November 20, 92

Generator's US EPA ID: IL3890008946
Manifest Document No.: 12345
State Manifest Number:
Name: Argonne National Laboratory
State Generator's ID: 0438020002

Page: 1 Commodity ID: A

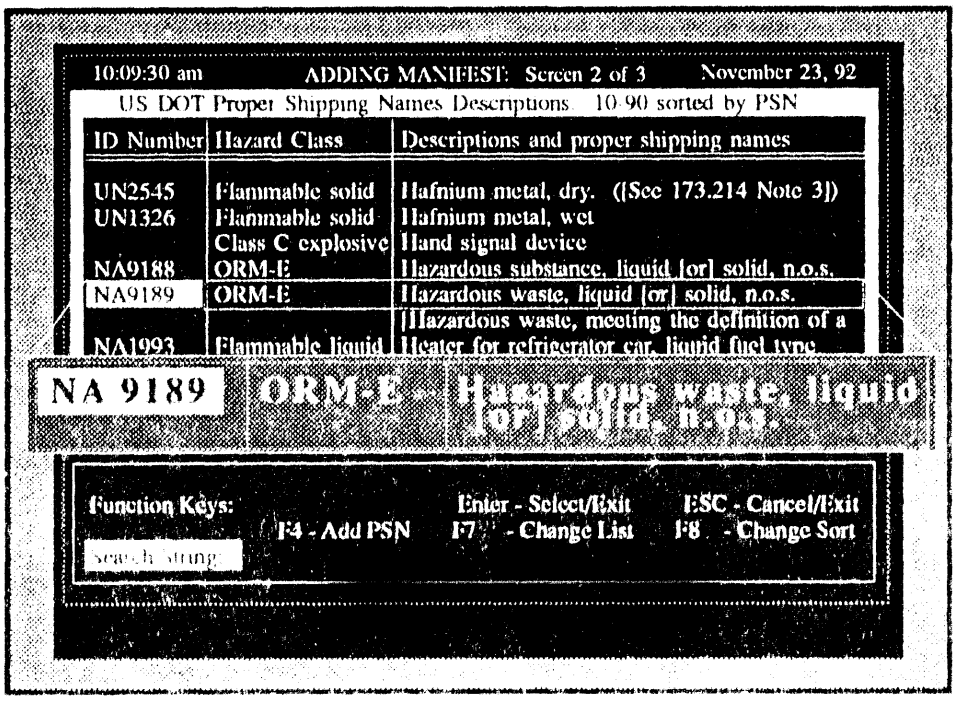
Proper Shipping Name DOT ( ) RQ ( ) PIH
Hazardous waste, liquid, n.o.s

<Waste Descriptors> Hazard Class: ORM-E ID Number: NA9189

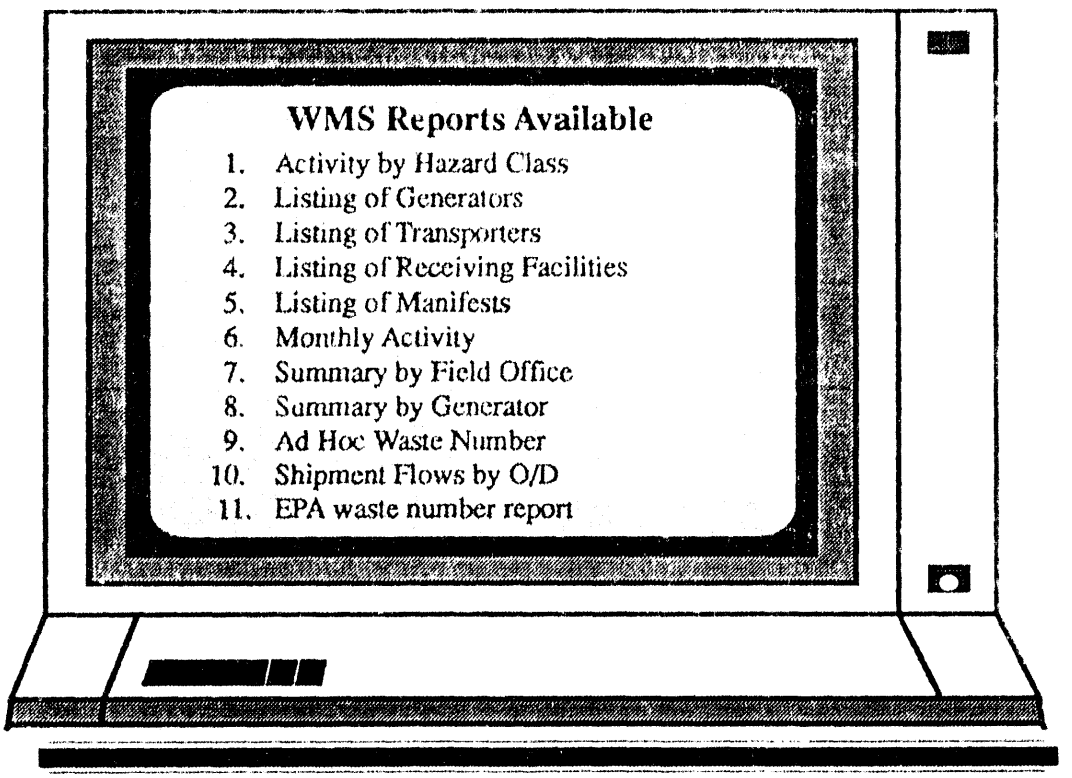
Containers No	Type	Total Quantity	Unit Wt/Vol	Waste Codes	ERG Number
1	DM	50.00	G	<EPA> <State>	31

< Add > < Edit > < Delete > <Locate> < Next > <Previous>

Proper Shipping Name Selection Screen

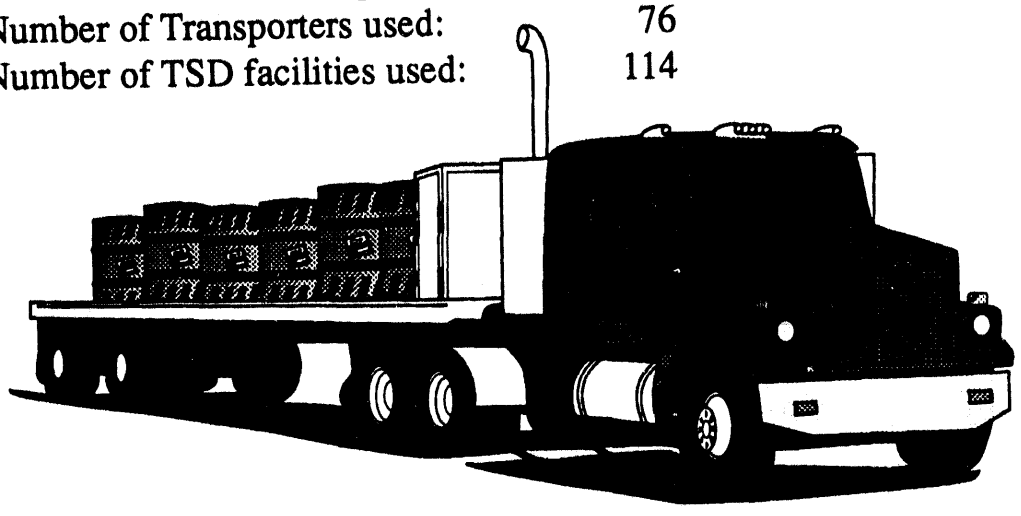


Reports Available in WMS



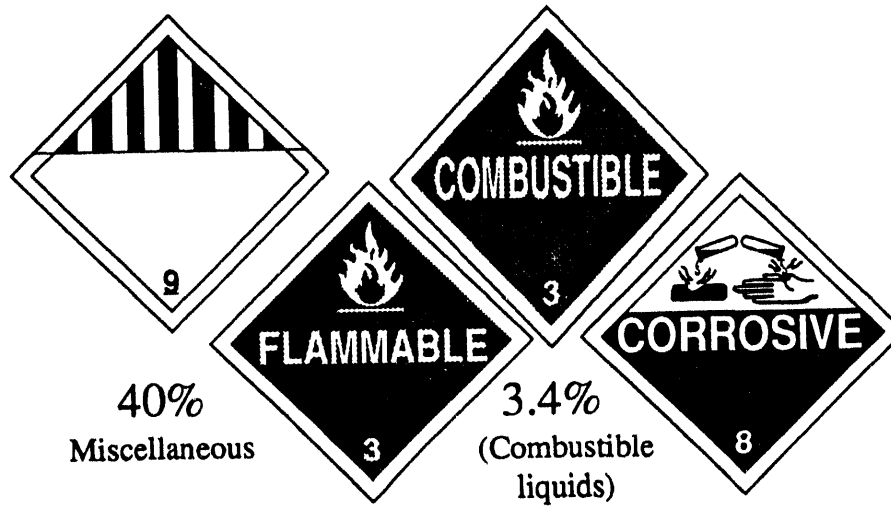
Preliminary FY92 WMS Data

Number of shipments:	1377
Number of manifest entries:	7814
Total estimated weight (tons):	9480
Number of DOE sites reporting:	58
Number of Transporters used:	76
Number of TSD facilities used:	114



Preliminary FY92 WMS Data

Major Hazard Classes



48%
Non DOT Hazardous Materials

40%
Miscellaneous

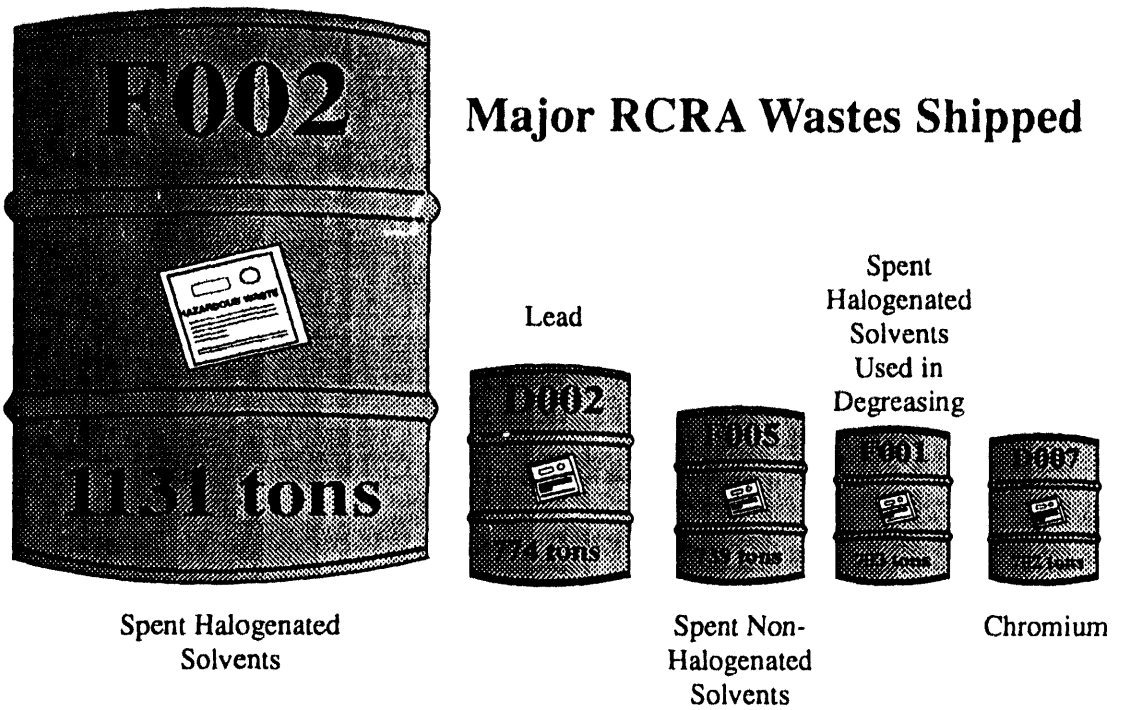
3.4%
(Combustible liquids)

3.6%
(Flammable liquids)

2.5%
(Corrosive Materials)

Preliminary FY92 WMS Data

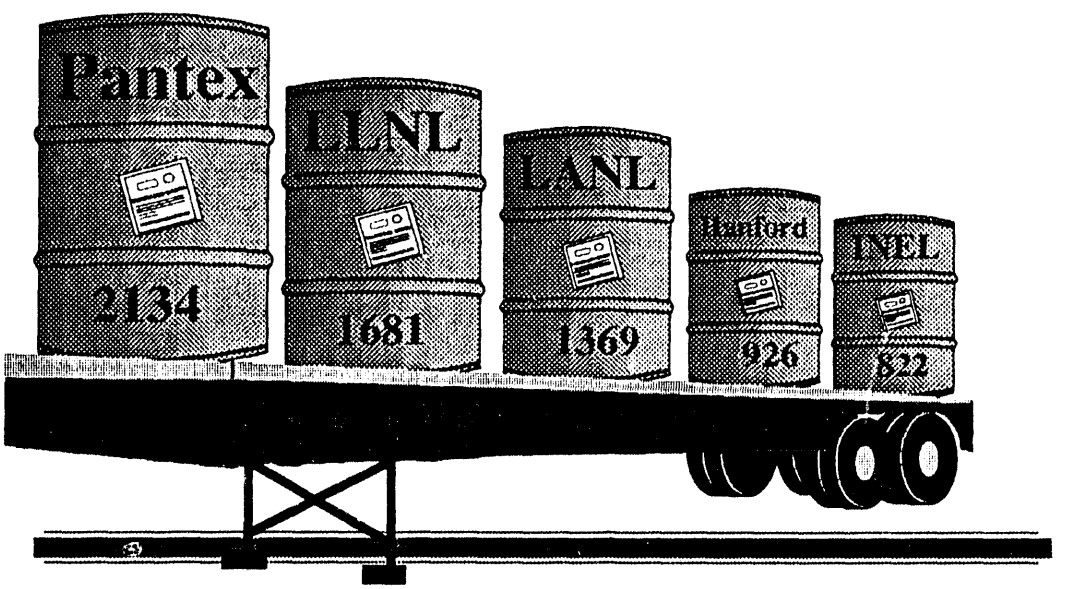
Major RCRA Wastes Shipped



Preliminary FY92 WMS Data

Major Shippers of Hazardous Waste

based on estimated weight



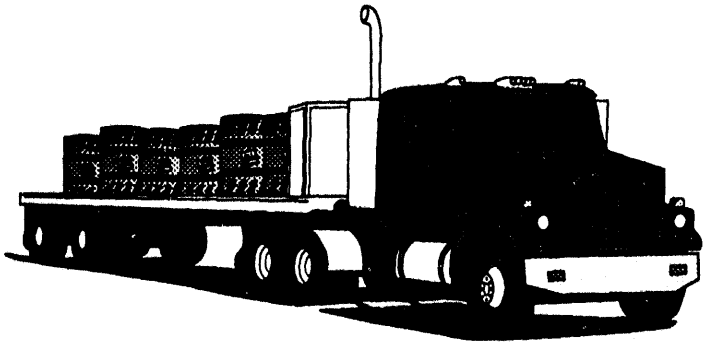
SA 0593-010-8

Preliminary FY92 WMS Data

Major Transporters of Hazardous Waste

based on estimated weight

Environmental Transportation Services, Inc.	2543 tons
United States Pollution Control, Inc.	1321 tons
Chemical Waste Management	1239 tons
Dart Transportation	718 tons
MP Environmental Service	466 tons

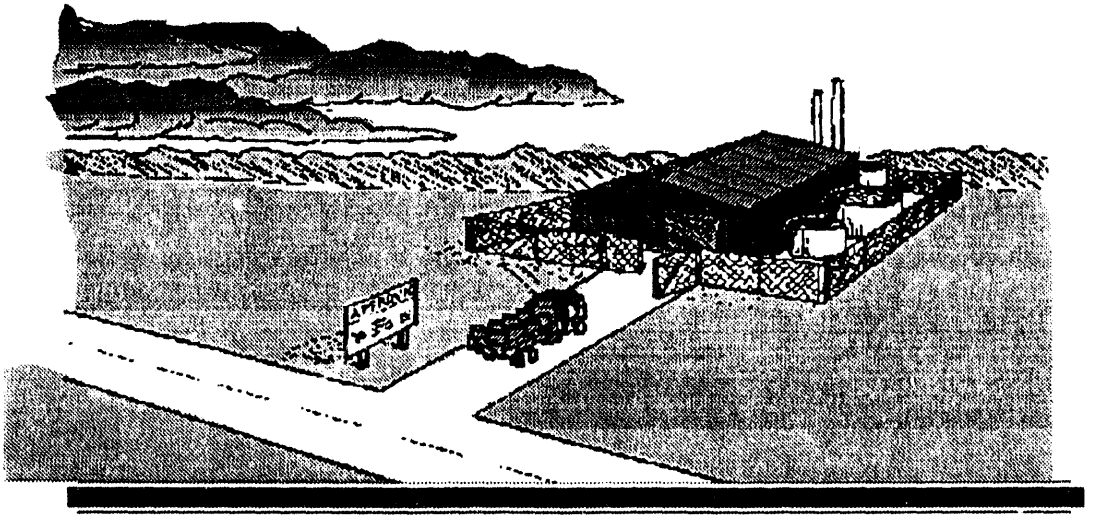


Preliminary FY92 WMS Data

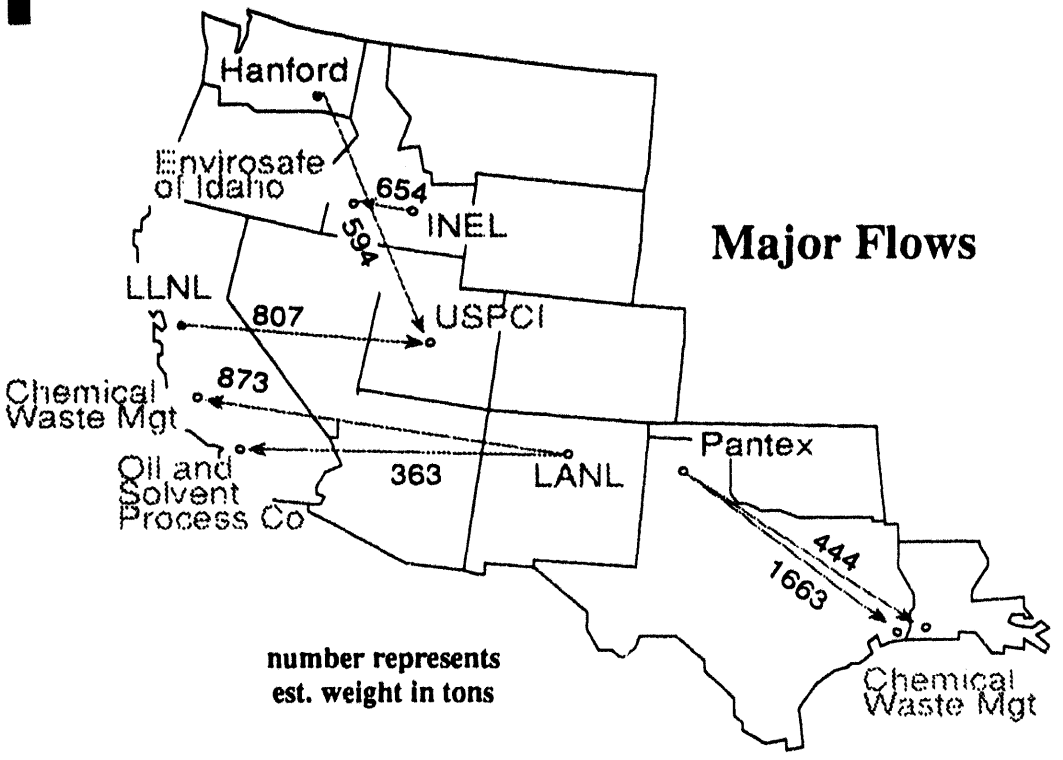
Major TSD Facilities

based on estimated weight

United States Pollution Control, Grassy Mtn. Fac. (UT)	1679 tons
Chemical Waste Management (TX)	1664 tons
Chemical Waste Management (CA)	891 tons
Envirosafe of Idaho	654 tons
K-25	509 tons

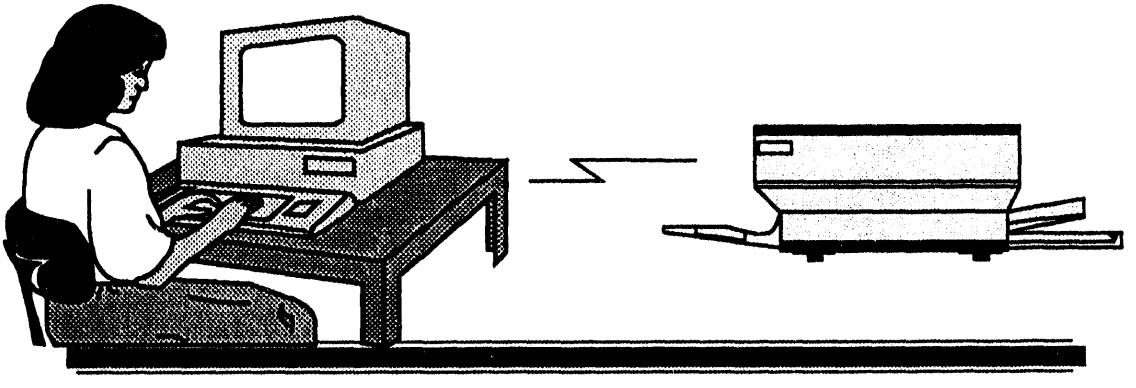


Preliminary FY92 WMS Data



Future of WMS

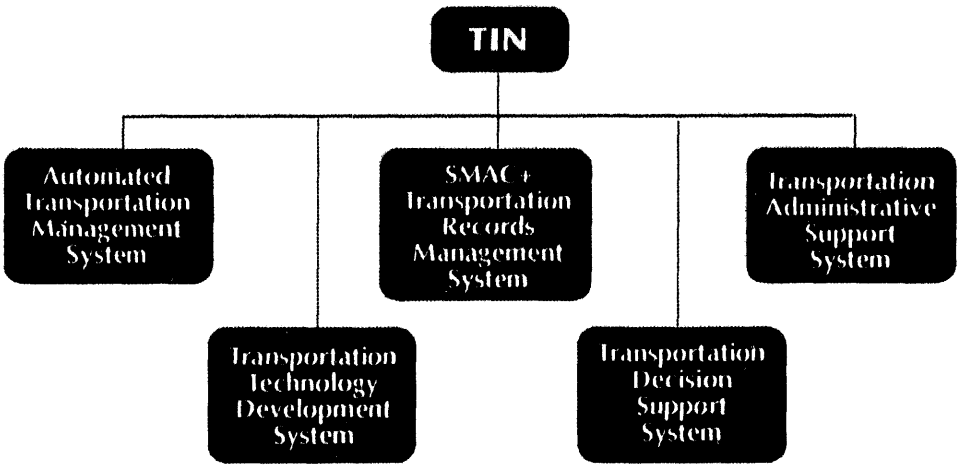
- Become part of ATMS
  - — Software currently being reviewed by Westinghouse-Hanford
  - — Data file for SMAC created when manifest is completed
  - — Automatic printing of waste manifest (Fall 1993)
  - — System can be enhanced to automatically determine which shipments are RQ



SMAC+ Development

Following its expansion, SMAC+ will be the central module of TMD's Transportation Information Network.

• Central joint application design session	March 1993
• SMAC+ design	September 1993
• SMAC+ prototype development/testing	Throughout FY94
• Implement System	Mid-year FY95



SMAC+ Development

- Integrate with ATMS
  - — reduce manual data entry
  - — capture data in standard formats/codes
  - — automatic upload of shipment data to SMAC+
  - — periodic download of regulatory data to ATMS

- Redesign system using ORACLE
  - — ATMS and SMAC user interface will be the same
  - — more standard reports will be available on-line
  - — user can generate custom queries and reports
  - — data elements will be expanded

SMAC Development

- Interfaces will be developed between other TMD Transportation Information Network components and government agencies where it adds value to information system, e.g.,
  - HIGHWAY and INTERLINE
  - TRANSCOM
  - TRANSNET
  - RAMPAC
  - General Services Administration

Tuesday, May 11, 1993
Explosives Breakout Sessions

Explosive Classification Status

presented by Richard Genoni, Westinghouse Hanford Company/RL

Explosives Classification Program Status

Transportation Management Workshop

Gaithersburg, Maryland

May 11, 1993

Rich Genoni
Westinghouse Hanford Company

Explosives Classification Status

What has happened since last workshop?

EM-561 has submitted 57 classifications to the DOT for acknowledgement.

- 4 - new explosives classifications
- 41 - reclassifications of BOE approved explosives
- 12 - Interim Hazard Classifications

Explosives Classification Status

What needs to be done?

Approximately 80 currently approved explosives need to be reviewed for reclassification prior to October 1, 1993.

These explosives are comprised primarily of formerly classified DOT Class A and Class B explosives, and an unknown number of BOE approved explosives.

Interim Hazard Classification Exemption

What has happened since last workshop?

IHC Exemption renewal request was approved Feb. 7, 1993. The exemption number is DOT-E 10536.

The expiration date is Sept. 30, 1994.

Proposed improvement to DOE/EV/06194

Proposal: Document variations to TB 700-2 testing procedures, which are routinely used, into the Explosives Safety Manual.

Reason: To consolidate and officially document these variations, because of increased oversight of DOE's hazardous materials transportation programs. Also, if at a later date a DOT rulemaking on this matter is pursued, the Explosives Safety Manual, including this proposed appendix, could be presented as an equivalent source document to the TB 700-2.

Other Explosives Issues

- Classification support documentation needed (DOE & DOT).
- Exemptions need correction (DOT-E 8451, 10536, 10885).
- Ross Aviation is moving approved explosives throughout the DOE complex.
- Study for standardized marking/labeling of energetic material packages is being performed by EG&G Mound.
- First release of the Explosives Classification Tracking System has been made. An upgraded revision will be available by the end of this fiscal year offering enhanced user support and features.
- Ammunition, nonexplosive - Not in the explosive hazard class determination made by DOT.

Martin Marietta, Pinellas Plant: HM-181 Compliance Overview

presented by Michael Kelley, Speciality Components

PINELLAS PLANT
HM-181 COMPLIANCE OVERVIEW

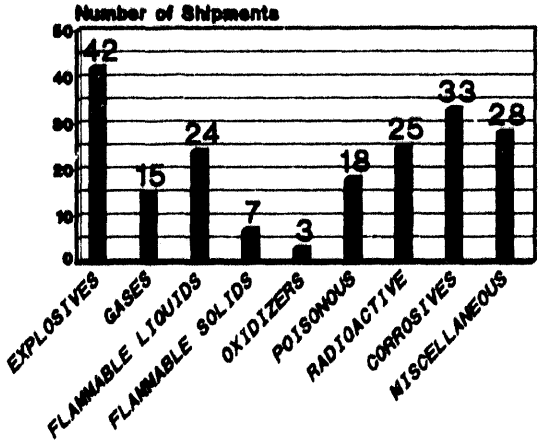
PRESENTED TO:

D.O.E. TRANSPORTATION
MANAGEMENT WORKSHOP
MAY 11-13, 1993
GATHERSBURG, MARYLAND

PRESENTED BY: MIKE KELLEY

MARTIN MARIETTA SPECIALTY COMPONENTS, INC.
P.O. BOX 2908
LARGO, FL 34649-2908

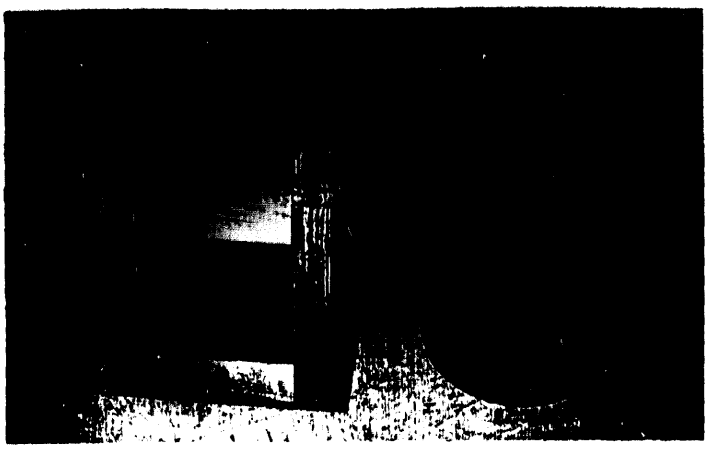
Pinellas Plant
1992 Hazardous Shipments



PINELLAS PLANT COMPLIANCE OVERVIEW
4D CLEATED PLYWOOD BOX

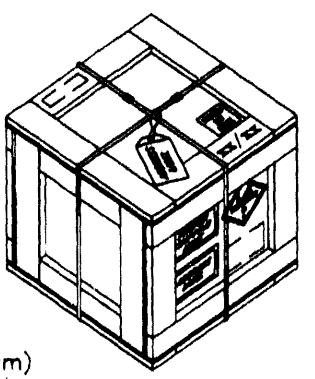
4D CLEATED PLYWOOD BOX
CLOSURE—NAILED AND/OR SCREWED

PINELLAS PLANT COMPLIANCE OVERVIEW
4D CLEATED PLYWOOD BOX



OUTER – 4D CLEATED PLYWOOD BOX
INNER – 1A2 9–GALLON STEEL DRUM

PINELLAS PLANT COMPLIANCE OVERVIEW
4D CLEATED PLYWOOD BOX

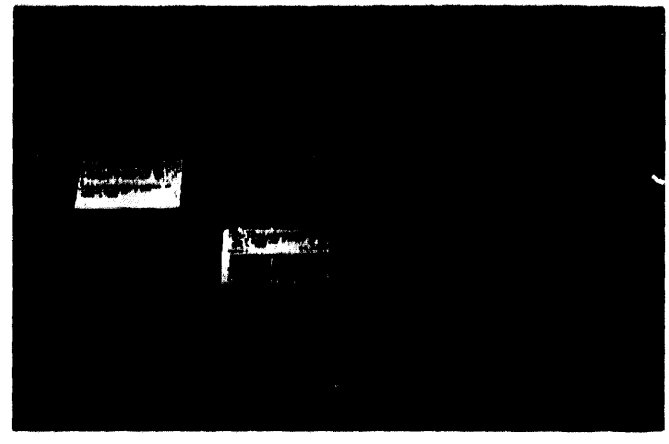


⇒ EXPLOSIVE UNITS
PSN – DETONATING FUZES
HAZARD CLASS – 1.4 S & B

⇒ *PACKING GROUP I TESTS*
DROP TEST 5.9 FEET – 178.603
STACKING TEST – 178.606
VIBRATION TEST – 178.608

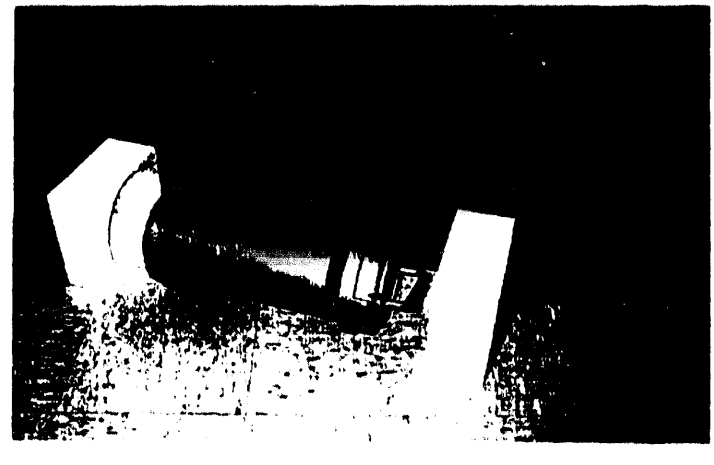
⇒ *SPECIFICATIONS*
GROSS WEIGHT – 100 lbs (maximum)
SIZE – 17.5"L X 17.5"W X 19.25"H

⇒ *ISSUES OF CONCERN*
FIRE PROTECTION
CONSTRUCTED WITH FIRE RETARDANT WOOD
METHOD OF CLOSURE
NAILS IN LID WILL BE REPLACED WITH SCREWS



DOT-E 8451
TELESCOPING BOX / CAPPED STEEL CYLINDER

PINELLAS PLANT COMPLIANCE OVERVIEW
DOT-E 8451



OUTER – DOT 12H FIBERBOARD BOX
INNER – CAPPED STEEL CYLINDER

PINELLAS PLANT COMPLIANCE OVERVIEW
DOT-E 8451

⇒ EXPLOSIVE UNITS

PSN – DETONATORS CLASS C EXPLOSIVES (until Sept. 30, 1993)
ARTICLES, EXPLOSIVE, N.O.S. (must be used Oct. 1, 1993)

HAZARD CLASS – CLASS C EXPLOSIVE (until Sept. 30, 1993)
1.4 B (must be used Oct. 1, 1993)

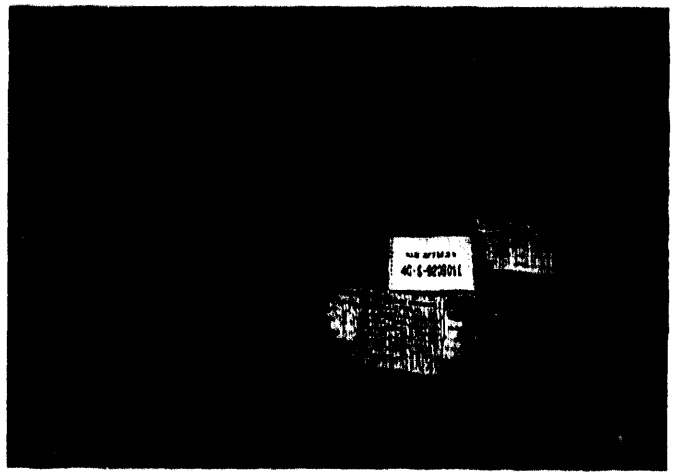
⇒ *PACKING GROUP I TESTS*

DROP TEST 5.9 FEET – 178.603
STACKING TEST – 178.606
VIBRATION TEST – 178.608
PRECONDITIONING OF FIBER BOX

⇒ *SPECIFICATIONS*

GROSS WEIGHT – 62 lbs
SIZE – 17.5" L X 17.5" W X 19.25" H
SIZE – PIPE IS 6" DIA. x 14" LONG SCHEDULE 80 SEAMLESS STEEL PIPE WITH IRON END CAPS.
FIBER BOX, WHEN ASSEMBLED, 26"L X 9.25"W X 9.25"H

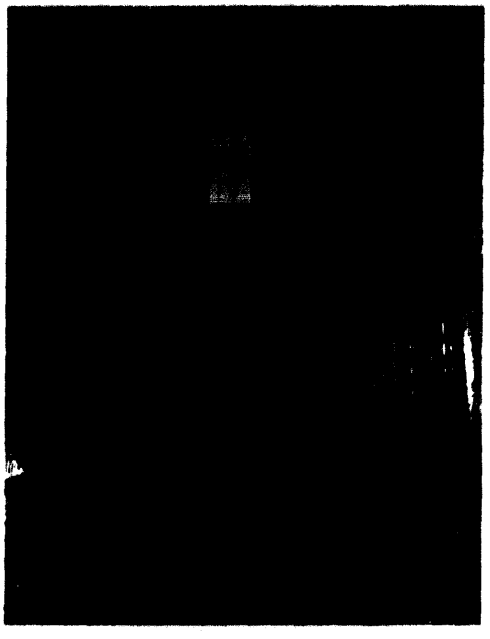
PINELLAS PLANT COMPLIANCE OVERVIEW
DOT-E 8451 / STACK TESTING



THREE PACKAGES WERE SUBJECTED TO THE STACKING TEST IN ACCORDANCE WITH THE U.N. ORANGE BOOK PARAGRAPH 9.7.6, AND ICAO/IMDG REQUIREMENTS FOR 24 HOURS MINIMUM.

STACKING WEIGHT APPLIED WAS 744 POUNDS.

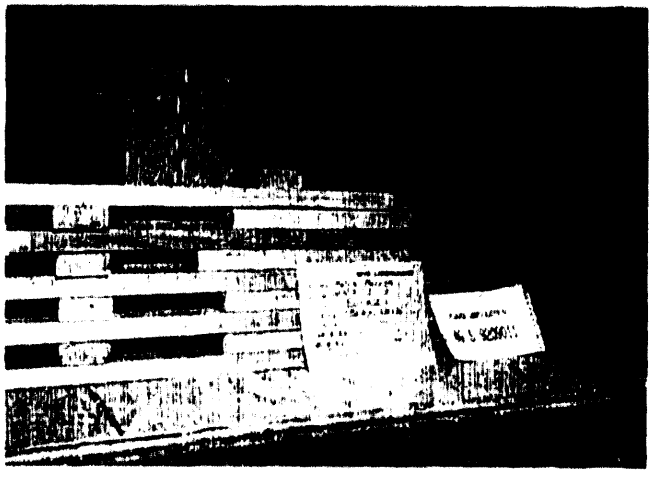
PINELLAS PLANT COMPLIANCE OVERVIEW
DOT-E 8451 / DROP TESTING



THREE PACKAGES WERE SUBJECTED TO THE TEST REQUIREMENTS SPECIFIED IN THE U.N. ORANGE BOOK, PARAGRAPH 9.7.3 AND ICAO REQUIREMENTS.

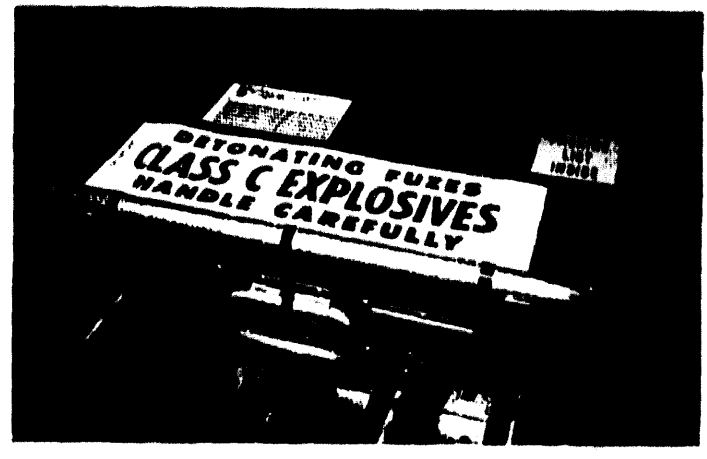
THE TEST HEIGHT WAS 1.8 METERS.

PINELLAS PLANT COMPLIANCE OVERVIEW
DOT-E 8451 / VIBRATION TESTING



THREE PACKAGES WERE SUBJECTED TO THE VIBRATION TEST AS DESCRIBED IN 49 CFR 178.608.
THE TEST WAS CONDUCTED FOR ONE HOUR.

PINELLAS PLANT COMPLIANCE OVERVIEW
ALUMINUM SUITCASE



ALUMINUM BOX SHIPPING/STORAGE

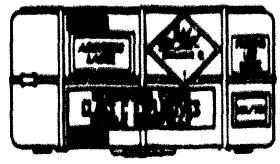
PINELLAS PLANT COMPLIANCE OVERVIEW
ALUMINUM SUITCASE

OUTER – ALUMINUM BOX
INNER – BAFFLE PLATE / STYRENE TRAYS

PINELLAS PLANT COMPLIANCE OVERVIEW
ALUMINUM SUITCASE (TO BE DISCONTINUED 9/30/93)

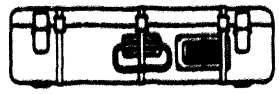
- EXPLOSIVE UNITS
  PSN – DETONATING FUZES, CLASS C EXPLOSIVE
  HAZARD CLASS – CLASS C EXPLOSIVE

- *SPECIFICATIONS*
  GROSS WEIGHT – 35 lbs
  SIZE – 19.5"L X 11"W X 6"H



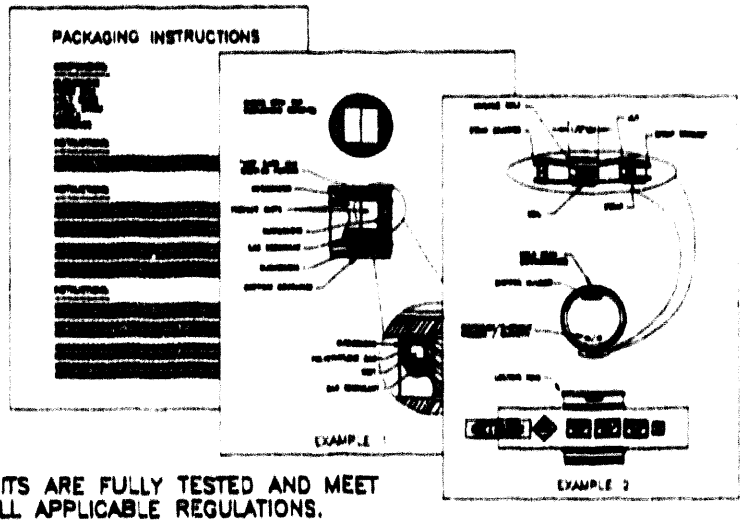
- *ISSUES OF CONCERN*
  CONTAINER IS OUTDATED AND A NEW ONE IS BEING DEVELOPED BY EG&G MOUND APPLIED TECHNOLOGIES

  THE SMALL NUMBER OF NEW UNITS TO BE SHIPPED CAN BE HANDLED BY DOT-E 8451 (PIPE CONTAINER)



PINELLAS PLANT COMPLIANCE OVERVIEW
PACKAGING KITS (TESTED)

- PACKAGING KITS ARE SHIPPED WITH ALL REQUIRED PACKAGING MATERIAL AND A FULL SET OF INSTRUCTIONS. KITS MAY BE PROVIDED TO SITES OFFERING PINELLAS PLANT PRODUCTS INTO THE TRANSPORTATION CYCLE.



- KITS ARE FULLY TESTED AND MEET ALL APPLICABLE REGULATIONS.

Explosive Waste Issues

presented by Michael Tandy, Lawrence Livermore National Laboratory

Managing and Shipping Explosives Waste

May 11, 1993

Mike Tandy

Lawrence Livermore National Laboratory

Permits from State

- Continue open burn/open detonation
- New open burn/open detonation facility
- Use existing explosive storage facilities for waste
- New explosive waste storage facilities

Lawrence Livermore National Laboratory

Management Controls for Generating Explosives Waste

- Review operations before processing begins
- Prevent generating waste that cannot be shipped and treated offsite
- Prevent generating waste that contains "F-listed" solvents and RCRA regulated metals
- Alternate treatment and processing
- Waste minimization
- Segregate explosives by type/no mixing
- Characterize waste contaminated with explosives (reactive/non-reactive?)

Lawrence Livermore National Laboratory

RC/CT-93-60-3

Types of Explosives Waste Generated

- Explosives requiring treatment by open detonation
- Explosive powders, pastes, liquids and pieces
- Small explosive assemblies or devices
- Wastes from explosive filtration/collection systems
- Debris visibly contaminated with energetic materials and judged to retain explosive properties (reactive)
- Debris slightly contaminated with energetic materials and judged not to retain explosive properties (non-reactive)

Lawrence Livermore National Laboratory

RC/CT-93-60-4

Problem Areas for Offsite Treatment

- Large explosive charges
- Classified parts
- Explosives contaminated with "F-Listed" solvents or RCRA regulated metals
- No shipping classification
- Treatment facility disposal acceptance criteria

Solutions to Offsite Treatment

- Shipping Explosives Waste
  - DOT exemptions
  - DOE or DOD Interim Hazard Classification
  - DOE approval for classified parts to treatment facility
  - Ship to other DOE Facilities
  - R & D Fabricators

Solutions to Offsite Treatment (cont'd)

- Recycle (not declared waste)
  - Pantex
  - Sierra Army Depot
  - Return to manufacture
  - Equipment calibration
  - Shots used for training
  - Explosives inventory data base
  - Solvent dissolution and recovery
  - Cleaning and reuse of lab hardware

Costs for Offsite Treatment

- To R & D Fabricators, Colfax, LA
  - Transportation $4,735.00
  - Treatment $10.00/pound

Wednesday, May 12, 1993

Transportation Information Network (TIN)

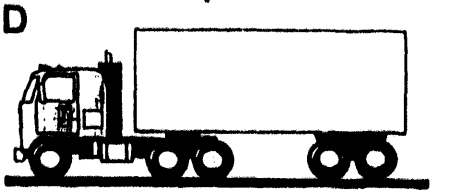
presented by Tony Thomas, DOE/EM/TMD

Transportation Information Network (TIN)
Overview

Presented to the:

Department of Energy (DOE)
Transportation Management Division (TMD)
Transportation Management Workshop
Gaithersburg, MD

May 11-13, 1993



by

Tony Thomas
Department of Energy – Headquarters
Transportation Management Division

R9305038. 59

Transportation Information Network (TIN) Architecture

(Internet) *(Internet)*

Automated Transportation Management System (ATMS)
- Logistics Module
- HAZMAT Module
- Motor Carrier Evaluation Module
- Tracking Module
- Packaging Module (PMTS)
- Engineering Tools
- TRANSCOM
- Information Delivery Systems Module
- Expert HAZMAT System
- Highway
- Interline

Transportation Technology Development System (TTDS)
- TRANSNET
- Risk Analysis
- Structural Analysis
- Routing Development
- Technical/Data Systems Support
- Storm
- DOETRS
- Transport System Study
- Criticality and Shielding
- Waterborne Transport
- Design Optimization
- EIS/EA Response
- TRANSIMS

Transportation Records Management System (TRMS)
- Shipment Mobility/ Accountability Collection (SMAC)
- SMAC Replacement (Central Module)

Transportation Decision Support System (TDSS)
- Logistics
- Packaging Development
- Packaging Operations
- Explosives Classification System (ECTS)
- Computer Based Training (CBT)
- Assessments
- Regulations

Transportation Administration Support System (TASS)
- Budget
- Planning
- Progress Tracking System (PTS)
- Technical Task Package (TTP)
- Analysis of Benefits/Costs

R9305038. 1

Transportation Information Network (TIN)

- What is TIN?
- What is the objective/purpose of TIN?
- How does ATMS fit into the TIN concept?
- When will TIN become a reality?

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ATMS Program Participating Contractors

- Allied Signal, Kansas City, MO
- Analysas Corporation, Oak Ridge, TN
- BDM, Germantown, MD (HQ DOE Contractor)
- Boeing Computer Services, Richland, WA
- Brookhaven National Laboratory, Upton, NY
- EG&G, Las Vegas, NV
- EG&G Idaho, Idaho Falls, ID
- FERMCO, Fernald, OH
- LANL, Los Alamos, NM
- Martin Marietta Energy Systems (Y-12, Transportation Technology Group)

R9306008L 11

ATMS Program Participating Contractors

- ORNL, Oak Ridge, TN
- Portsmouth Gaseous Diffusion Plant, Piketon, OH
- REECO, Las Vegas, NV
- SAIC, Oak Ridge, TN (SMAC Interface)
- Sandia National Laboratory, Albuquerque, NM
- Westinghouse Hanford Company, Richland, WA
- Westinghouse Savannah River Company, Aiken, SC

Come see for yourself the current status of several TMD automation programs

Automation demonstrations

- 14 TMD transportation-related software products on display
- Opportunity for "hands on" use of software
- Talk to developers about future enhancements
- Technology transfer

Automation poster sessions

- Five poster sessions on various TMD automation initiatives being shown

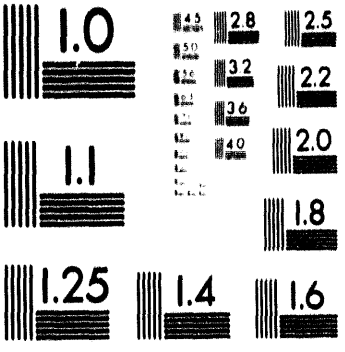
**"Even if you're on the right track,
you'll get run over if you just sit there."**

— ***Will Rogers***

[illegible] 47

TIN/ATMS Overview and Status Report

presented by James Portsmouth, Westinghouse Hanford Company/RL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1.4
1.6

3 of 7

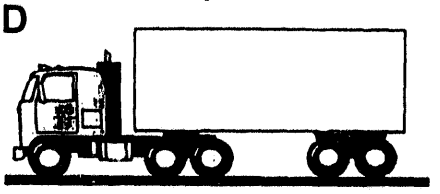
Automated Transportation Management System (ATMS)

Current Status and Future Direction

Presented to the:

Department of Energy (DOE)
Transportation Management Division (TMD)
Transportation Management Workshop
Gaithersburg, MD

May 11-13, 1993



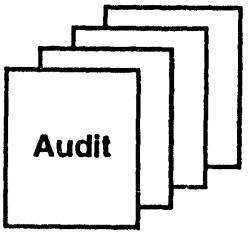
by

Jim Portsmouth
Westinghouse Hanford Company

R9305038. 2

DOE-IG Audit Findings (June 1989)

- Expedite and complete DOE-wide carrier selection process
- Provide detailed rating and routing guidance to DOE's field organization for implementation by their operating contractors
- Test and select software packages for field office organizations to automate their contractors' administrative procedures and controls for the following functions
  - Carrier selection rating/routing database
  - "Should cost" calculations
  - Preparation of shipping documentation
  - Prepayment invoice verification
  - Input into the DOE database (SMAC)
  - Monitoring of contractor performance



R9305038. 31

Information Engineering Methodology

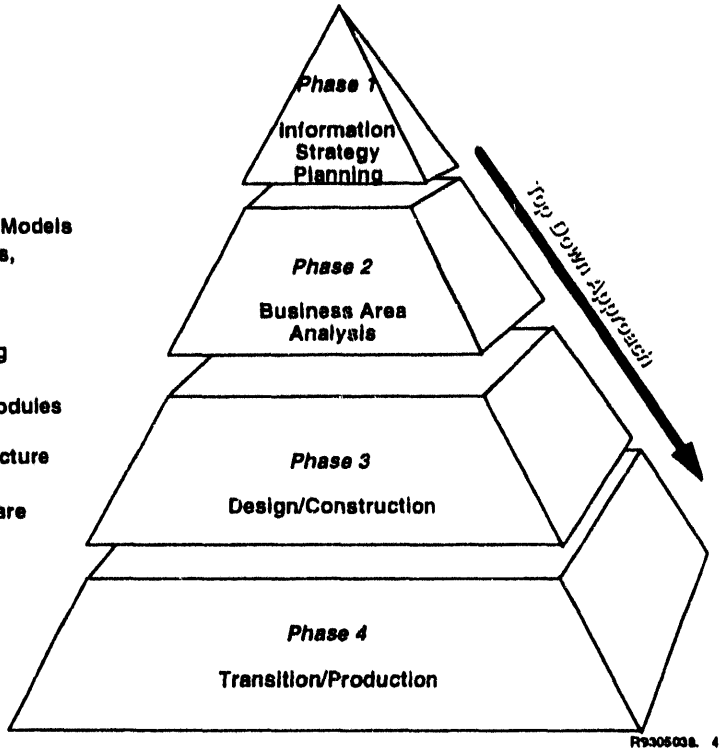
Phases for ATMS

Functional Requirements
Data Requirements
Strategic Management Plan
Information/Technical Architecture

Detailed and Interrelated Process/Data Models
Transportation-Specific Business Goals, Priorities and Missions

ILS Prototype Development and Testing
Detailed Design
Development and Testing of System Modules (e.g., Logistics, HAZMAT)
Data Communications Network Architecture
Prototype HAZMAT Module
Convert and Modify Existing ILS Software to ORACLE

Implement Central/Headquarters Component
Implement Facility Components
Implement Regional Components



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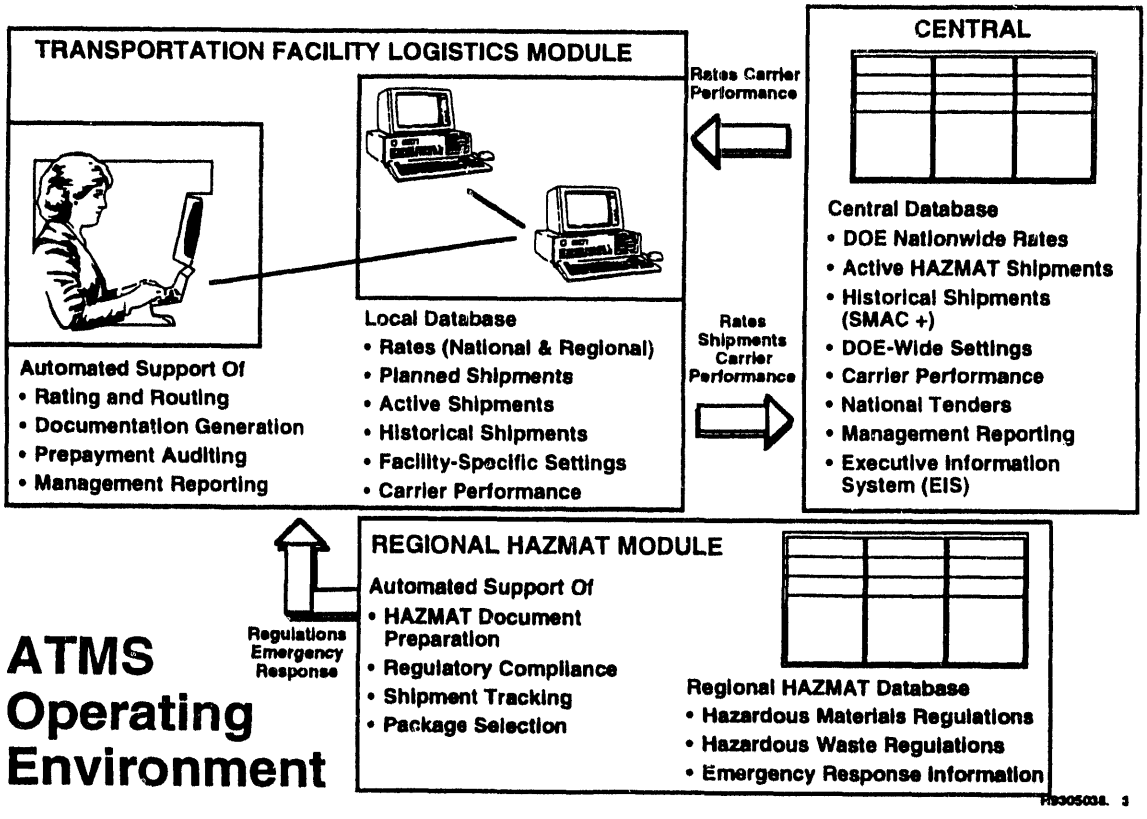


ATMS Operating Environment

R9305038. 3

ATMS Program Accomplishments FY 1993

- Integrated Logistics System (ILS) presently being "beta tested" at eleven DOE site locations
- ATMS Logistics Module Version 1.0 to be available for DOE-wide deployment July 1993
- Decision has been made by TMD to develop ATMS Version 2.0 utilizing ORACLE
  - ORACLE is one of the leading relational Data Base Management Systems (DBMS)
- Rewrite of Logistics Module 1.0 to ORACLE was initiated this month

R9305038. 5

ATMS Program Accomplishments FY 1993 (cont.)

- Joint Applications Design (JAD) Session completed for Central Module
- Revised Functional Requirements Document (FRD) and Data Requirement Document (DRD) to incorporate HAZMAT module functions
- VAX 6310 computer delivered to Oak Ridge to be utilized as ATMS "host" computer
- Work on Version 2.0 of HAZMAT Module (ORACLE version) has been initiated

R9305038. 6

ATMS Development Approach

- Modular development/deployment (Logistics and HAZMAT Modules)
- PC software prototype deployment
- Analyze prototype success/failure and recode ILS into ORACLE
- Enhanced HAZMAT shipping and regulatory compliance capabilities to be developed in HAZMAT Module
- Do required documentation (FIP's Pub's, DOE-IRM)
- An enhanced SMAC system (SMAC+) will become "core module" for central system

R9306038. 7

What is the Integrated Logistics System (ILS)?

- Fully operational prototype for ATMS
- PC-based Transportation Management System
- Will test ATMS functions in DOE environment
- Lessons learned from "prototype" will by utilized to build ATMS Version 1.0
- ILS is currently being "beta tested" at eleven DOE site locations
- Lessons learned from the "beta testing" of the ILS will be used to develop Version 1.0 ATMS logistics module

R9306038. 36

ATMS Version 1.0 Enhancements

- Household Goods (HHG) Module
- Damage Claim Module

R9305038. 10

The ILS Prototype Philosophy
"Do it, try it, fix it"

— *Tom Peters*

R9305038. 45

ATMS Program Developers

- Abacus Technology Inc.
- Boeing Computer Services
- DOE, Nevada Operations
- Los Alamos National Laboratory (LANL, IV&V)
- Martin Marietta Energy Systems, Oak Ridge, TN
- Oak Ridge National Laboratory (ORNL)
- REECO
- Westinghouse Hanford Company

R9305038. 13

Computers can take the tedium out some of the day-to-day traffic management activities, but not the need for interpretation. Expert systems have not advanced to the point of a "lights out" traffic office staffed by robots, and it is likely that this will not happen for a long time.

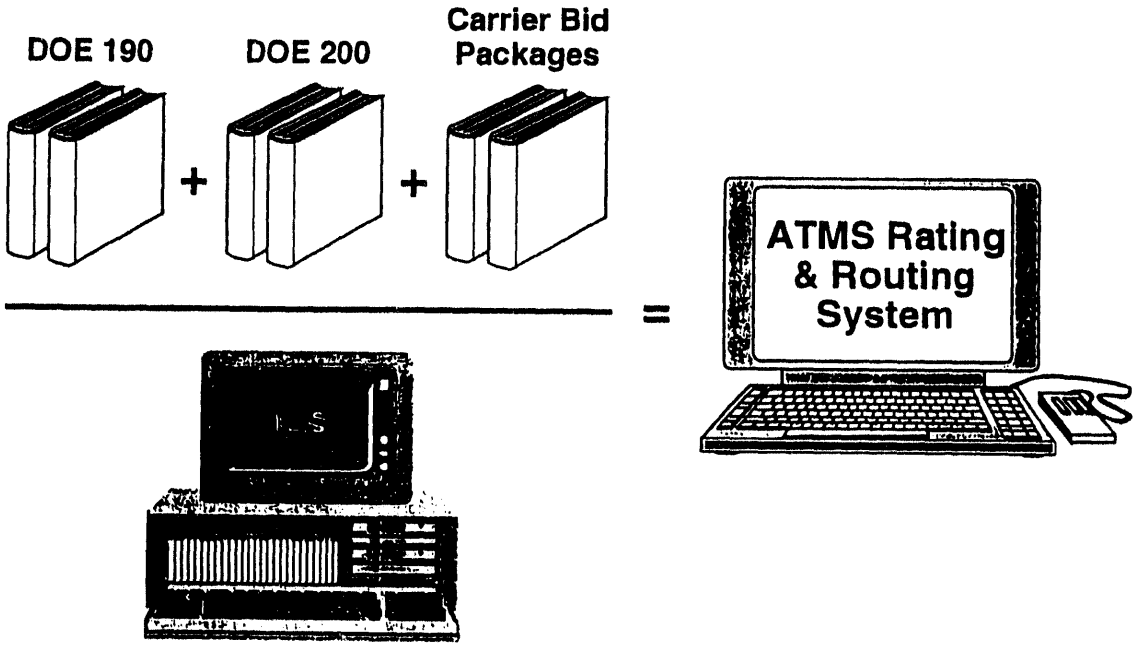
R9305038. 44

"You cannot cross a river by going across halfway and then returning to shore to rest for the next half."

— Sun-Tsu
480-221 B.C.

R9305038. 46

What are we on the verge of accomplishing?



R9305038. 17

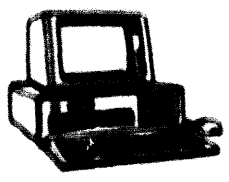
DOE Automated Rate and Rule Schedules

presented by Randy Walker, MMES/ORNL

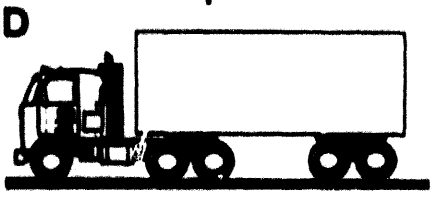
DOE Rate and Rule Schedules

Presented to the:

Department of Energy (DOE)
Transportation Management Division (TMD)
Transportation Management Workshop
Gaithersburg, MD



May 12, 1993



by

Randy M. Walker
Martin Marietta Energy Systems
Oak Ridge National Laboratory

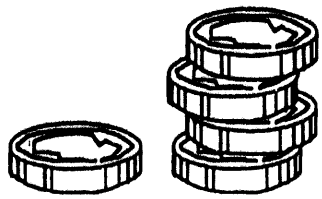
Previous Methods of Operation

Multiple rate bases

- Requires multiple diskettes or phone calls to rate shipments
- Discount percentage not indicative of lowest charge

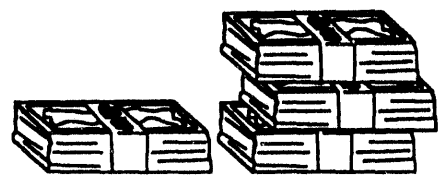
Multiple rules applicable

- Different rules for each carrier
- Difficult to apply some assessorials in auditing freight bills



DOE 200

U.S. Department of Energy Motor Freight Rate Schedule



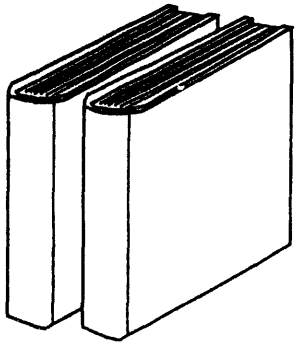
R9305038. 22

Current and Future DOE Rate Base/Schedule

Southern Motor Carrier
Rate Conference
Czarlite Rate Base
August 1990, Version 3.6

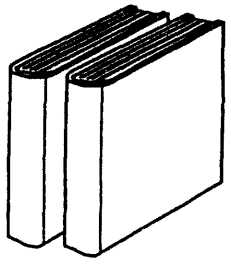
DOE now licensed for unlimited distribution of run time version

R9305038. 23



DOE 190

U.S. Department of Energy Motor Freight Rules Schedule



R8305038. 24

Rules and Issues Addressed

- ✔ Reconsignment or diversion
- ✔ Protective service
- ✔ Carrier insurance requirements
- ✔ Light and bulky articles
- ✔ Satellite tracking
- ✔ DOT safety rating
- ✔ DOE Motor Carrier Evaluation Program

R8305038. 25

Use of Corporate Rates for DOE Shipments

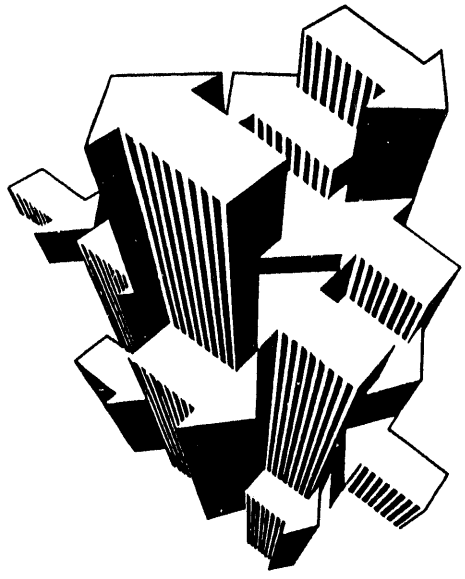
R9305038. 26

Risks of Using Corporate Rates

- Possibly not filed properly with ICC
- Possibly not applicable to DOE freight
- DOE will not be liable for any undercharge claims

R9305038. 27

Automation Mandates Standardization



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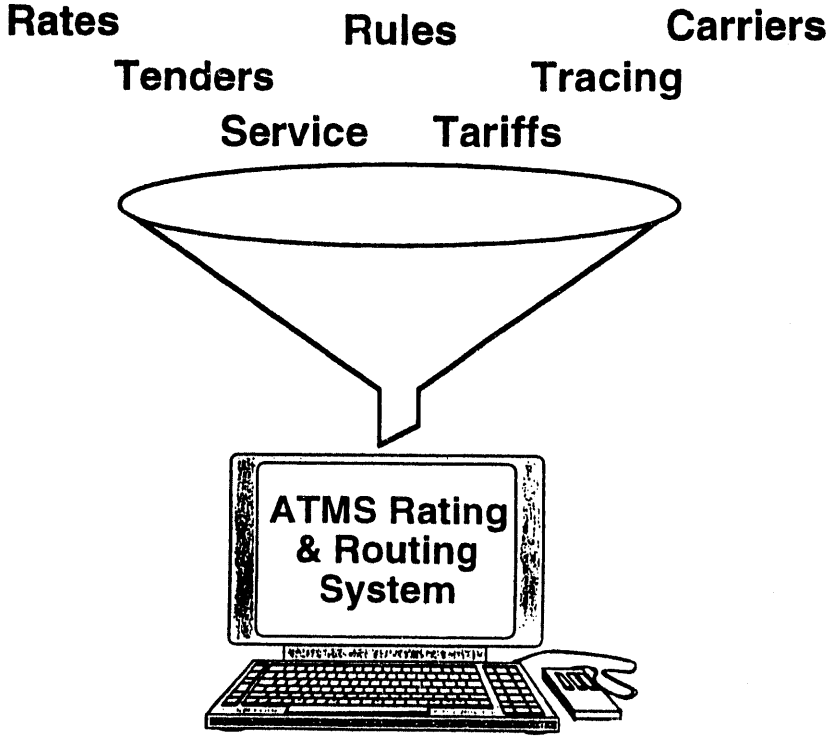


R9305038. 29

TIN/ATMS Operations: A Site View - Prepayment Audit & EDI

presented by Alan Rittel, Allied-Signal

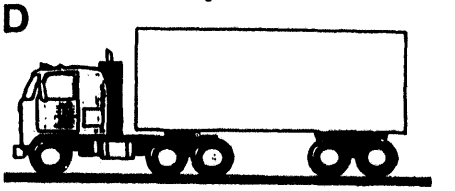
Automated Transportation Management System (ATMS) Operation

A Site Review – Prepayment Audit, Freight Bill Processions, and EDI

Presented to the:

Department of Energy (DOE)
Transportation Management Division (TMD)
Transportation Management Workshop
Gaithersburg, MD

May 12, 1993



by

Alan Rittle
Allied Signal Corporation

R9306036. 30

EDI Accomplishments

- Westinghouse Hanford Company (WHC) currently receiving 60% of its freight bills per month via EDI (3000 EDI of 5000 total processed)
- WHC now receiving Pacific Northwest Laboratory (PNL) and DOE-RL bills via EDI
- Following carriers fully EDI capable with ILS:
  - Consolidated Freightways
  - Yellow Freightways
  - Federal Express
  - Airborne Express
- Currently testing EDI capabilities with:
  - Viking Freight Systems
  - Roadway Express Inc.
  - BN Air Express
  - Emery Worldwide
- Testing ANSI 820 Transaction Set (remittance advice)
- ANSI 204 (bill of lading) for non HAZMAT freight – in development

R9306036. 8

Direct Administrative and Strategic Benefits of EDI

- Increase the speed of document transfer
- Improve the information integrity by reducing manual data entry errors
- Ensure the timeliness of data information
- Helps to eliminate "data" redundancy
- More efficient use of human resources
- Reduce data entry costs

R9305038. 33

Objective of the ATMS/EDI Prototype

- Successfully download shipment status and freight bill information from carriers
- Successfully upload data into an internal PC application
- Successfully perform an automated pre-audit of carrier freight bills
- Store pre-audited freight bill data for subsequent transmittal to DOE historical database (e.g., SMAC)

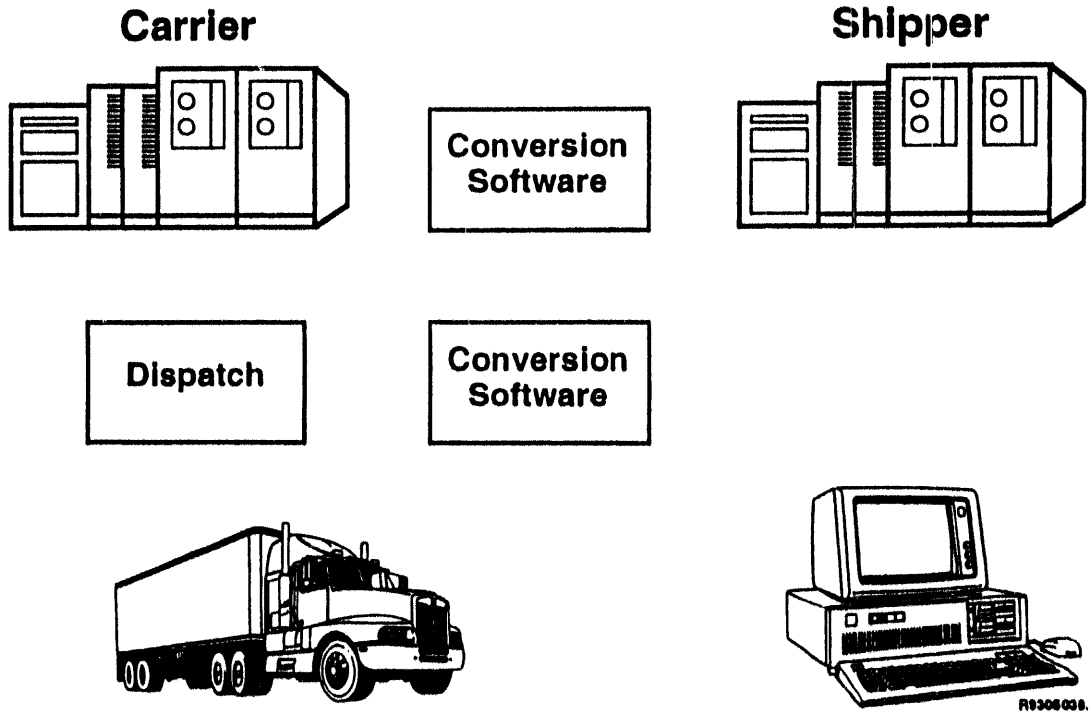
R9305038. 39

Current Status EDI Functions

EDI (at present)	EDI (future)
• 210 freight bill (motor)	• EFT
• 214 shipment status (motor)	• 10721 standard tender
• 110 freight bill (air)	• GSA post-payment audit
• 204 bill of lading (testing)	• EPA-UHWM

R9305038. 32

EDI in Transportation Applications



Current DOE EDI Trading Partners

- Consolidated Freightways
- Yellow Freight Systems
- Airborne Air Express
- Federal Express
- Roadway
- Emery

R9305038. 41

Benefits of ILS to Site Traffic Managers

- Utilizes existing DOE software packages
- Currently available
- Inexpensive
- Tailor-made for DOE and contractor needs
- Utilizes a "common denomination" platform (PC's)
- Functions as a "prototype" with user input for future enhancements to ATMS Version 1.0
- User friendly (not complicated)
- Requires little hardware investment (286/386 PC platform)

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Integrated Logistics System (ILS)

A "Prototype" for the ATMS Version 1.0

- Developed as a "joint venture" by
  - DOE-Nevada Field Office
  - Oak Ridge National Laboratory
  - Westinghouse Hanford Company
- PC transportation management software developed for DOE use, by DOE contractors
- Currently being "beta tested" at eleven DOE site locations

R9306008. 36

Integrated Logistics System (ILS) Functions

- Rate and route shipments (on-line)
- Prepayment auditing of carrier freight bill (batch, ad hoc)
- Basic HAZMAT capability
- Shipment document preparation (bills of lading)
- Management reporting
- Electronic Data Interchange (EDI) capability
- Graphics interface application

R9306008. 37

Other ILS Functions

- Captures historical information (SMAC)
- Inbound shipment tracking and tracing
- DOE tenders and rates stored in ILS
- Validates freight bills for payment (e.g., checks duplicate payment)
- Determines savings from use of negotiated rates
- Captures carrier performance information for comparison
- Transmits data to central database (SMAC)
- Tracks outbound HAZMAT shipments via EDI (future)

Enhancements Currently in Progress

- Code to be rewritten in ORACLE
- Enhanced HAZMAT capabilities
- Interface to Hazardous Waste Tracking System
- Damage claims module (in development)
- Household goods module (in development)
- Interface to a Packaging Management and Tracking System (PTMS)
- International shipments document preparation (future)

- Different rates for each carrier
- Difficult to apply some assessorials in auditing freight bills

R9305038. 21
195

TIN/ATMS Operations: A Site View - Carrier Routing and Selection

presented by Randy Walker, MMES/ORNL

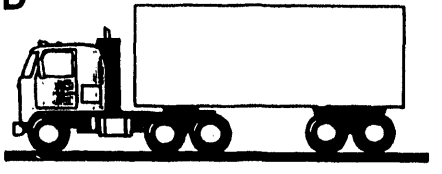
Carrier Routing and Selection

A Site Review

Presented to the:

Department of Energy (DOE)
Transportation Management Division (TMD)
Transportation Management Workshop
Gaithersburg, MD

May 12, 1993



by

Randy M. Walker
Martin Marietta Energy Systems
Oak Ridge National Laboratory

R9305038. 14

What has been accomplished?

ATMS Version 1.0 (EMCASS) will be available for deployment August 1993

- Expert rate and route system for LTL carriers
- Incorporates DOE nationwide tariff
- Portable system which has been distributed to all major DOE sites

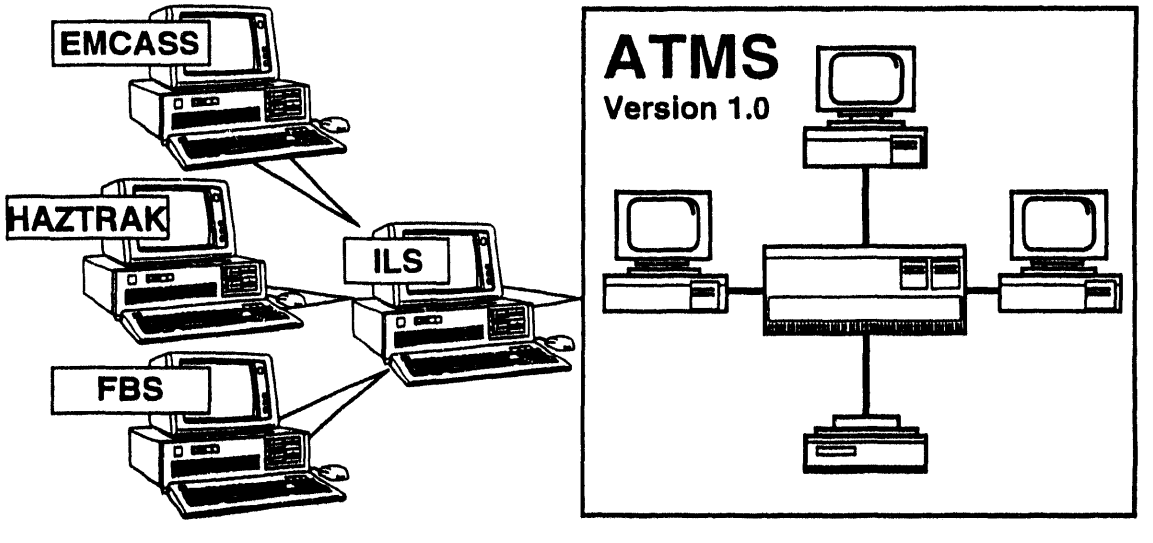
R9305038. 15

What has been accomplished?

ATMS Version 1.0 (ILS)

- Merger of EMCASS with Richland-developed Freight Billing Systems (FBS)
- Combined product of EMCASS, FBS, and portions of Nevada's Operations Office HAZTRAK
- Incorporates EDI capability
- Allows for electronic submission of SMAC data
- Includes automated Bill of Lading preparation
- Management reporting capabilities
- Prepayment audit
- Basic HAZMAT document preparation

R9305038. 16



R9305038. 18

And miles to go before we sleep ...

- Truckload rating and routing
- Household goods system
- Shipping order capability
- Incorporation of DOE motor carrier evaluation program
- Air carrier and small package carrier rating and routing

R9305038. 19

TIN/ATMS Operations: A Site View - Hazardous Materials Documentation and Tracking

presented by Richard Ryan, DOE Nevada

Automated Transportation Management System (ATMS)

TIN/ATMS Operations: A Site View
Hazardous Materials Documentation & Tracking

Presented to the:

Department of Energy (DOE)
Transportation Management Division (TMD)
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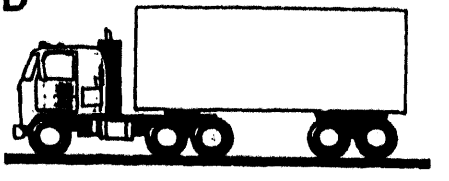


by

Dick Ryan
Department of Energy (DOE) Nevada Operations Office

R9305038. 60

Acronyms

ATMS	Automated Transportation Management System
B SQUARED	The contractor who is assigned the task of purchasing HMs for all other DOE contractors
DOE STK#	Individual number assigned to a specific HM which enables the computer to locate the database for that product. This number will be cross-referenced to contractors' stock numbers.
EDI	Electronic Data Interchange
EPA	Environmental Protection Agency
HM	Hazardous materials
MSDS	Material Safety Data Sheet
NETS	Nevada Test Site
QA	Quality assurance
SWITS	Solid Waste Information Tracking System
TIN	Transportation Information Network
WBS	"We buy the bad stuff"

R9305038. 49

HAZMAT Program Benefits

- Overall lower cost of hazardous products (the supplier will input the data and we will be buying in larger quantities)
- Provides more control of HMs and provides cradle-to-grave accountability
- Expands detailed information for emergency response
- Elimination of duplication of work
- Uniformity
- Decreases cost of receiving HM products
- Decreases cost of input of MSDS data (overall) as they will be inputed by the suppliers and will be available to all contractors
- Reordering the same product by same contractor or different contractor will be less costly and easier
- Remember, this is only a vision, it needs lots of work ... but it can be done!!! If we are planning for success in the 21st century, let's get started ... now!

R9306038. 49

Hazardous Material Identification Program

Enter DOE stock number _____

Enter product name _____

Enter chemical name _____

Not found do wish to order this product? Y or N _____

R9306038. 50

Hazardous Material Identification Program

Is this shipment radioactive? Y or N _____

R9306036. 51

TIN/ATMS

Field	Data Required
Date	05-12-93
Contractor	XYZ CO
Mail address	123 Main St. Anywhere USA 11111
Ship to	1620 SO 5th St Somewhere USA 22222
Order#	1345678
Department	T549
Authorized by	LG Blalock
Product name	T-5000
Chemical name	Monodichlroterrible
Common name	Bad stuff
MFG	ABC Chemical
Contractor STK	1010-10-99
DOE STK#	
Quantity	24 Liters

R9306036. 52

Field	Data Required
Proper shipping name	Bad stuff Nos
Hazard class	8
ID number	9999
Label required	Nasty
ERG number	99
Package class	3
Exemption	None
Specific	None
Air restriction	None
HM substance	No
HM waste	No
RQ	459 Kilograms

TIN/ATMS

MSDS Data

- Hazard components
- Handling and storage data
- Health hazard data
- Fire and explosion data
- RCRA classification
- Contaminated equipment
- Product identification
- Personal protection
- Reactivity data
- Physical data
- Spill, leak, and disposal
- Hazard classification
- Additional data

U.S. Department of Energy
Nevada Operations Office
Prototype for Hazardous Material Module

A ... Shipping Data
B ... Hazardous Components
C ... Handling and Storage
D ... Health Hazard
E ... Fire and Explosion
F ... RCRA Classification
G ... Contaminated Equipment
O ... HAZTRAK System
H ... Product Identification
I ... Personal Protection
J ... Reactivity
K ... Physical Data
L ... Spill or Leak and Disposal
M ... Hazard Classification
N ... Additional Data
R ... Return to Main Menu

Please make a selection_____

TIN/ATMS

"Those who say it can't be done
should get out of the way
of the people who are doing it."

— *Author unknown*

TIN/HAZMAT Module Development - ORACLE Version 2.0

presented by Susan Genoni, Boeing Computer Services/RL

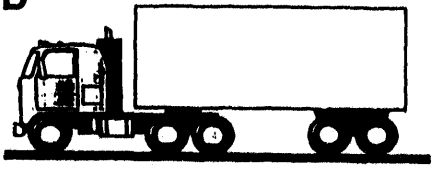
Automated Transportation Management System (ATMS)

HAZMAT Module: Current Status and Future Direction

Presented to the:

Department of Energy (DOE)
Transportation Management Division (TMD)
Transportation Management Workshop
Gaithersburg, MD

May 11-13, 1993



by

Susan Genoni
Boeing Computer Services, Richland

R9305038. 61

Current Status

- Feasibility Study – December 1992
- Functional Requirements Document (FRD) update – December 1992
- Data Requirements Document (DRD) Update – January 1993
- Requirements definition – April 1993
- HAZMAT prototype completed (ILS HAZMAT) – April 1993
- Initiated construction of Version 2.0 – April 1993

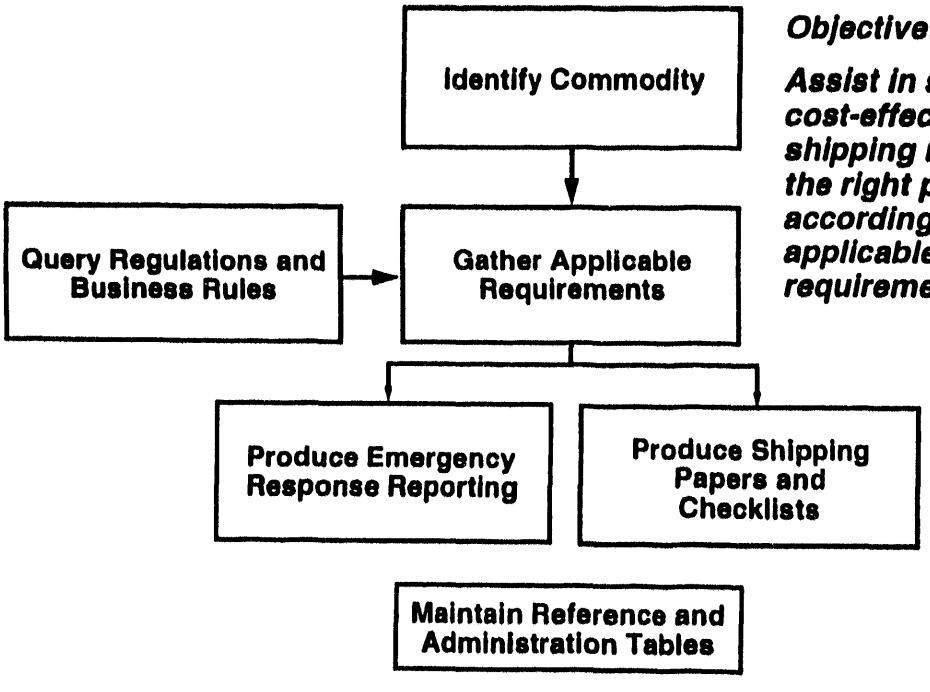
R9305038. 62

Development Approach

- Complete requirements specifications through ORACLE
  - Case tools – August 1993
  - Strategy
  - Analysis
- Complete design – FY94
  - Schema generation
- Complete programming – FY94
  - Menus, screens, reports
- Client-Server benchmarks – September 1993
- Alpha release – FY94
- Enhance case with user preferences from alpha release – FY94
- Beta release – FY94
- Initial production release – FY95

R9305038. 63

HAZMAT Module



Objective:

Assist in safely and cost-effectively shipping materials in the right package according to all applicable requirements

R9305038. 64

What is the HAZMAT Module?

- Supports tracking, documenting, and shipment of hazardous materials and hazardous waste
- Directly supports shipment preparation activities and emergency response information requirements
  - Provides regulations and orders query capability
  - Provides shipper and vehicle checklists
  - Provides Emergency Response Guide (ERG)
  - Provides uniform hazardous waste manifests and other documents and papers

R9305038. 65

ATMS Program – HAZMAT Module

- Regional database (client/server architecture)
- Assists in regulatory compliance (IATA, 49 CFR, 40 CFR)
- HAZMAT document preparation:
  - UHWM
  - Shippers declaration
  - Bill of lading (commercial)
  - Bill of lading (GBL)
  - Carrier's air bills (e.g., Federal Express, Airborne, BN Air Express)
- Determine proper packaging
- Determine proper marking/labeling of packages
- Print Emergency Response Guide (ERG) or Material Safety Data Sheets (MSDS)
- Track hazardous shipments in transit (via EDI)
- Produce checklists (vehicle inspection/regulatory compliance)
- Select approved HAZMAT carriers (MCEP)

R9305038. 66

TIN/Packaging Management & Tracking System Development Status

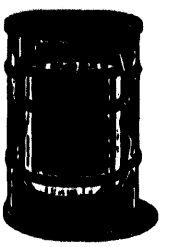
presented by Susan Genoni, Boeing Computer Services/RL

Packaging Management Tracking System (PTMS)

Development Status

Presented to the:

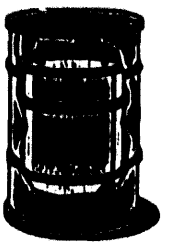
Department of Energy (DOE)
Transportation Management Division (TMD)
Transportation Management Workshop
Gaithersburg, MD



May 11-13, 1993

by

Susan Genoni
Boeing Computer Services, Richland



R9306038. 66

How will it be used?

- Traffic managers: Locating packagings needed for shipments
- DOE development and operations managers: Inquiries to the system and loading current pertinent COC images, DOT exemptions, and other essential documentation
- Institutional persons: Public inquiries to the system
- Packaging engineers: Locating or relocating packages, scheduling maintenance or usage of a packaging, obtaining current COC or other essential documentation
- Vendors: Making packagings available for use

R9306038. 67

Development Approach

- Implementing ORACLE*CASE Tools – June 1993
  - Requirements
    - Strategy (business rules, entities, attributes, relationships)
    - Analysis (business functions)
  - Design
    - CASE*Designer (tables definition, field generation)
  - Programming
    - CASE*Generator (screens, menus, reports)
- Review of software design description and alpha release – July 1993
- Enhance CASE with user preferences from alpha release
- Beta release – FY94
- Initial production release – FY94

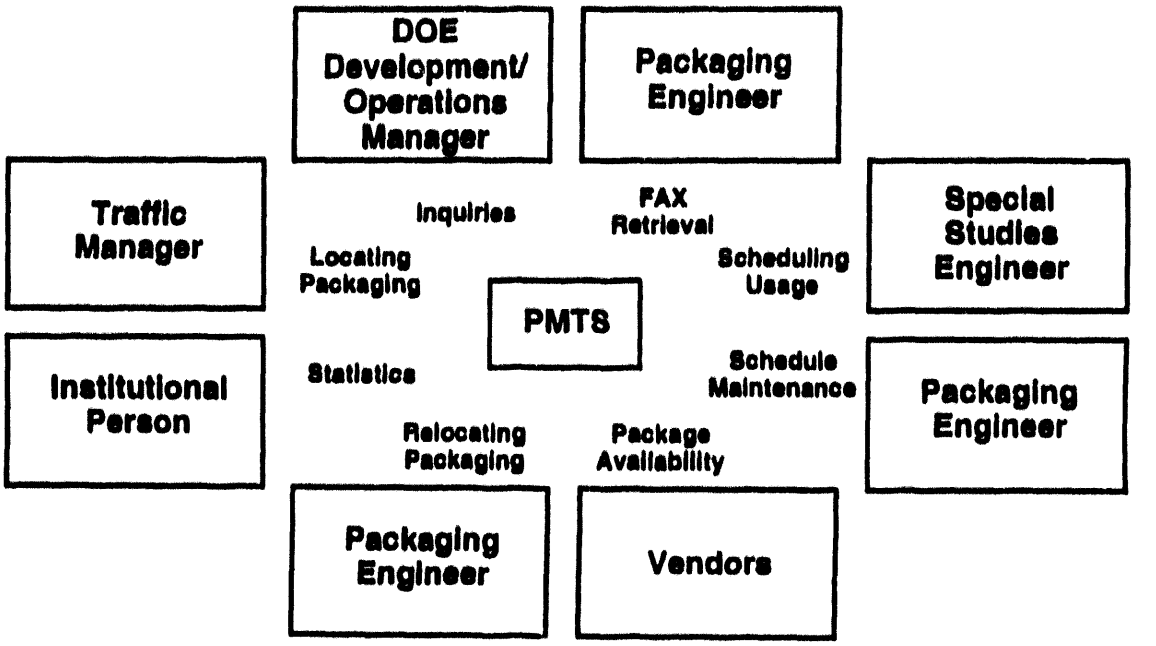
R9306008. 68

Existing Deliverables

- Project start date – June 22, 1992
- Requirements gathering session – November 12-13, 1992, Gaithersburg, Maryland
- Acceptance criteria complete – February 26, 1993
- Software project management plan
  - Draft complete – February 24, 1993
  - Rev. 0 complete – April 8, 1993
- Preliminary software design description complete – April 8, 1993
- Implemented Oracle*CASE Tool Approach to Software Development
- Software Design Description Rev. 0 – April 29, 1993

R9306008. 69

PMTS Vision



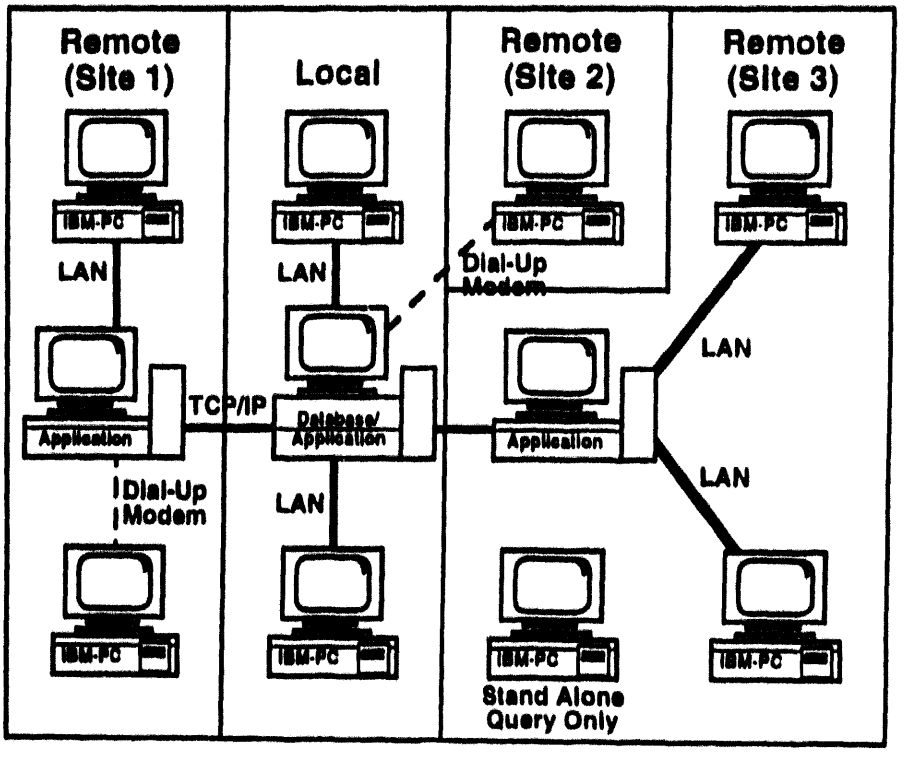
R9305068. 70

What Is PMTS?

- Tracks hazardous waste packagings
  - Inventory control
  - Location and relocation
  - Tracking and inquiries
  - Packaging scheduling system
  - Maintenance scheduling and history
  - Dial-up automatic facsimile of COC, DOT exemptions, etc.
- Nationwide access for packaging engineers, traffic manager, special studies engineers, institutional personnel

R9305068. 71

PMTS Hardware Architecture



R9306088. 72

CTMA Update

presented by Max Ruska, INEL - EG&G Idaho

TRANSPORTATION MANAGEMENT WORKSHOP

GAITHERSBURG, MARYLAND

MAY 11-13, 1993

CTMA

(CONTRACTOR TRAFFIC MANAGEMENT ASSOCIATION)

PRESENTED BY:

MAX D. RUSKA, MANAGER

PACKAGING & TRANSPORTATION

EG&G IDAHO, INC.

CTMA

CONTRACTOR TRAFFIC MANAGEMENT ASSOCIATION

BACKGROUND

OFFICIALLY FORMED IN 1960

MEMBERSHIP INCLUDES DOE CONTRACTOR PERSONNEL ENGAGED IN SHIPMENT AND RECEIPT OF DOE MATERIALS

PURPOSE

ANNUAL FORUM FOR DISCUSSING AND EXCHANGING INFORMATION, EXPERIENCES, AND LESSONS LEARNED

IDENTIFY ISSUES COMMON TO SITES WHERE ASSISTANCE OR INTERPRETATION FROM TMD BENEFITS THE OVERALL TRANSPORTATION SYSTEM

ANNUAL FORUM FOR DISCUSSING AND EXCHANGING INFORMATION, EXPERIENCES, AND LESSONS LEARNED

1993 FORUM DISCUSSION INCLUDE:

- DOE MOTOR CARRIER RATE NEGOTIATIONS
- DOT INSPECTIONS
- AUTOMATED TRANSPORTATION MANAGEMENT SYSTEMS
  - HOUSEHOLD MOVES, FREIGHT INVOICING SYSTEMS
  - CARRIER SELECTION, MATERIALS MANAGEMENT SYSTEMS, ETC.
- CARRIER EVALUATIONS
- TRANSPORTATION ROADMAPPING
- SITE SPECIFIC TRANSPORTATION PROGRAMS

IDENTIFY ISSUES COMMON TO SITES WHERE ASSISTANCE OR INTERPRETATION FROM TMD BENEFITS THE OVERALL TRANSPORTATION SYSTEM

1993 FORUM ISSUES INCLUDE:

- IMPACTS/CLARIFICATION OF DOE ORDER 5000.3B
  - NO REVIEW BY CONTRACTOR TRANSPORTATION PERSONNEL PRIOR TO ISSUANCE
- REVIEW OF DOE ORDERS AFFECTING TRANSPORTATION PRIOR TO ISSUANCE
  - 5480.SERIES
- DOE LTL RATE NEGOTIATIONS
- DOE SPONSORED TRAINING
  - HM 126F AND IATA

ISSUES COMMON TO SITES

(CONT)

CONTRACTOR DIRECT INTERFACE WITH REGULATORS, I.E., EPA, DOT, ETC.

LIABILITY/ACCOUNTABILITY

IMPACTS/CHANGES TO TRANSPORTATION WITH THE CHANGE IN ADMINISTRATION

PAYMENT OF STATE FEES BY CONTRACTORS

CHARTER REVISION ADOPTED BY MEMBERSHIP 1993

FORM CTMA EXECUTIVE COMMITTEE TO ACT AS AN OFFICIAL INTERFACE WITH TMD AND OTHER DOE PROGRAMS

CURRENT YEAR CHAIRMAN (M. RUSKA)

PAST YEAR CHAIRMAN (H. BRINKEY)

NEXT YEAR CHAIRMAN (R. WALKER)

CTMA GOALS FOR 1993

EASIER ACCESS TO CTMA MEMBERSHIP AND EXPERTISE FOR TMD AND DOE PROGRAMS NEEDING TRANSPORTATION EXPERTISE

MORE CTMA INVOLVEMENT IN TMD PLANNING TO ADDRESS COMMON SITE ISSUES

IMPROVING CTMA/TMD RELATIONSHIP AND COMMUNICATION

The Golden Link Award, 1993 Presentation

presented by Larry Blalock, DOE/EM/TMD

Blalock - Golden Link Award - TM Workshop

Last year we initiated what we call the Golden Link Award. The beauty of this award, or the best thing about the award, is that it goes to someone whom you think is deserving of the award. It does not go to the one we at Headquarters pick.

The Golden Link Award is presented each year, and we hope this will be continued for many years to come, or at least it will as long as I'm associated with the program. The Golden Link Award is presented to the person who has demonstrated, through creative management, new perspectives and techniques, a way to bring the team together in ways that it hasn't been done in the past.

We started last year. We gave the award to Jim Portsmouth on the basis of what he had done in terms of pulling the ATMS effort together with Tony Thomas, and showing that we can build programs from the ground up.

Well, this year's award goes to someone whom I think is equally, if not more so, deserving of the award. This young man has in fact pulled together, in a very dramatic fashion, an activity that has benefitted not only those of us in Headquarters, but has benefitted you in the field. Further, his accomplishment is showing a return on the investment through our training program -- which is something that Paul Grimm mentioned in his presentation yesterday morning.

So, if Mr. Wade Winters would come forward.

Winters: Well, thank you very much.

Blalock: We do appreciate Wade and what he has done, particularly with serving as our IPC for our training program, and the things he's been able to accomplish with Ella. We look forward to next year's efforts in all our programmatic functional elements; and we also look forward to next year's Golden Link Award, as to whomever the recipient might be.

We do appreciate all of you who gave us nominations, and we did receive several; we received several good ones. We based our judging, primarily, on the number of times that a person was nominated, and Wade was nominated by many different organizations. For that, I'm sure he is very appreciative and I'll say thank you to you on his behalf.

Zero Based Safety Regulations

presented by Neil Thomas, FHWA

Neil Thomas - Zero Based Safety Regulations - TM Workshop

I was told early this morning that I was to come out here and talk to you about zero-based regulations. I can do that fairly easily because I don't give speeches, I only talk about things that I know. Let me say this up front: if you have a question concerning transportation issues involving interstate or intrastate regulations, give us a call. I'll give you my phone number. If we don't have an answer for you, I guarantee you that we will get you an answer. My phone number is Area Code: (202) 366-2983. For anybody who is interested in sending a telefax, the number is (202) 366-7908.

Federal Highway's Office of Motor Carriers was founded back about 1937. It was then part of the Interstate Commerce Commission and came into being after Part II of the Interstate Commerce Act was passed. The first regulations were issued in 1939, and succeeding pieces of legislation, rulemaking actions, public hearings, and notice and comment-type rulemakings, have wound up giving us Title 49, Parts 350 through 399. That's about 850,000 to 900,000 words. Some of it was written in the old Elizabethan style, where the attorneys were paid by the word. Consequently, some of our rules have been very convoluted.

A number of years ago we got the bright idea that we ought to start over from scratch. So we coined a word from the Carter Administration, "zero-base." We have embarked upon a program of rewriting our regulations, starting from scratch. Let me say this to those of you who are knowledgeable about legislation actions: it is a physical impossibility for us to start from scratch because to do that Congress would have to go back and repeal about nine different laws. I don't think they are about to do that. What we plan on doing is look at the regulations that we have and say, "Do we need them or do we not? Do they have legal sufficiency or do they not? Are they easily understood by a lay person?" If not, we'll get rid of them, or we will rewrite them. The long and the short of it is that we will undertake a very massive rewrite of our regulations and when they are published in the Federal Register, it is going to be a big Federal Register.

The timetables that we have are in four phases. Phase I is already concluded. This included a series of public outreach focus-group sessions. Did anyone here in this room attend any of those? There were ten of them plus Miami. I see one hand in the back and one up here in front. We are in the process of performing a synthesis of the docket comments and analyzing the FMCSRs relative to the comments. Phase II will include a literature search to determine if the existing research supports recommendations made by the public and the industry and to identify additional needed research. Phase III will involve development of the rulemakings.

Let me digress for just a second. At the 11 public hearings that we have had, and I have been at 7 of them, here is, generally what the people who attended the hearings want.

(1) They want random roadside testing for alcohol and drugs.

(2) They want the regulations to be uncomplicated.

(3) They want to do away with all exceptions. And to paraphrase something, people don't just want regulation. It really goes back to the age-old feeling that you had in childhood, if I'm going to be punished, I want the other guy to be punished equally. That's basically where it is coming from.

(4) They want private motor carriers of passengers to be regulated.

(5) They want hours of service to be revisited. They want drivers to have more time off -- yet they want the motor carrier to have more time to drive. That's a good one.

(6) They say the 50% rate on random drug-testing is too high. We will be addressing that very shortly.

(7) They want all mechanics to be tested and regulated.

(8) They want truck driver schools to be regulated so that we have uniformity in education for a level playing field nationwide.

(9) The motor carriers want the right to share drug-testing information with other employers. That is something right now that our drug-testing requirements do not allow.

We have received almost 68,000 comments to this docket. About 1,300 people have attended the outreach sessions. We are moving along rather rapidly.

I am wondering if you all realize how you interact with us? There are a number of ways. A number of your facilities use private contractors to manage the facilities, such as Savannah Arsenal and places like that. Those people are private motor carriers. They are subject to our regulations. All of you use for-hire motor carriers. Anybody that brings anything to you in a truck is regulated by us. These are part of zero-base but are way up front because Congressional mandates are drug and alcohol testing.

On December 15 we published a Notice of Proposed Rulemakings. There were seven of them for the Department. By July 15 we hope to see final rules. Basically, what these do is embrace all carriage -- interstate and intrastate. Any driver operating a commercial motor vehicle, over 26,001 pounds GVWR, irrespective of where they travel or what they carry, will be subject to drug and alcohol testing. At the present time, under our regulations, it is a 50% testing rate. It will probably drop down to about 25% for drugs and 10% for alcohol.

Why the difference? In a roadside program that we implemented at the beginning of the year involving four states, alcohol positives have only come up to 0.2% of some 27,000 people that have been tested. Drugs are running about 3.8%. There was a test done two years ago by

the National Highway Traffic Safety Administration, plus Federal Highway, where we focused our attention on traffic violators using the premise that traffic violators drink more than non-traffic violators. We targeted them for alcohol and we came up with 0.5% positives. What I am saying to you, which is basically contrary to public opinion, is that there is not much of a problem with drinking and driving within the commercial motor vehicle community. We will have more documentation and will publish it at the end of the year when our four-state study is complete; but right now, all indications show that the problem that is there is a very minor one.

I can't say the same for drugs.

But all of these things that we are investigating now are all being folded into zero-base. We will revisit them every time we can. Something that you might be interested in is that sometime in the next six to seven months we will be publishing a large set of interpretations, we call it our "MCREGIS File," where we are going to publish in the Federal Register the most asked questions about our regulations and give our formal interpretation so it will have full weight of law. Hopefully, that in turn will enlighten you and allow you and your motor carriers to perform their business functions more efficiently and legally.

Tony, that's about all I have unless there are questions. Are there any questions? Yes, sir.

McCall: You said you were going to talk about four phases, but you gave us no time table for those phases.

Thomas: I'm sorry. Phase I is basically complete. We're starting to embark on Phase II. Phase III, is writing the regulations. We will be writing the regulations during 1996 and '97 and we'll publish them, hopefully, by 1998. Then the Federal Motor Carrier Safety Regulations will look totally different than they do now, we think.

Slover: On your zero-base safety regulations, will that also directly impact Canadian and Mexican drivers through that North American Free Trade Agreement?

Thomas: Yes, everything is going to be folded into NAFTA. Right now, where Canada is concerned, we have the moratorium that has been lifted by Presidential decree. It's renewed every two years. I have no reason to believe that it will be allowed to expire.

There is no moratorium on the Mexican motor carriers. At the present time, they're only allowed into the border zones and nowhere outside of that. When I say that, they're not allowed legally outside the zones. We know that they go outside.

It will be folded into NAFTA. I anticipate, based on what Canada has already told us last week, they will have their drug testing and alcohol testing rules in place by April 1, 1995. When they do that, where we use NIDA Labs, they will be using something comparable, which we will accept in lieu of ours.

Mexico, if they do what they say they're going to do...that will be great. But the proof is in the pudding. We will have to wait and see.

Daly: There are some devices that are on the market that can be used in lieu of breath tests, such as saliva testing. They seem to be less expensive, easier to handle, and take less training. What consideration is being given by the Department at this time for the use of these saliva devices for testing?

Thomas: I think basically what you are talking about is the readiness for duty type equipment. We're looking at four different pieces that are on the market that we know of right now.

As time goes by, we anticipate that the manufacturers will develop better, more sensitive equipment. For example, there is some work going on to test a device using high intensity light, directed into the eye, The system would require an XT computer to collect the information and would require a device to shield your eyes. They monitor eye movements at something like 20,000 per second. They can ascertain, they claim, if you have been drinking alcohol, and they can identify seven or eight drugs. I haven't seen proof of that yet, but I have no reason to disbelieve it.

"Readiness-for-Duty" is really the wave of the future. Because drug testing, alcohol testing, or any other type of testing that you desire is costly (right now these types of equipment that I have just described run about $25,000 a copy), one of the problems within the trucking industry is that 95% of the motor carriers operating vehicles on our highways operate less than five vehicles. That means they aren't very large. Five percent of the motor carriers out there operate probably 80% of the equipment. I'm talking about the Yellows, the Roadways, things like that.

So, when we start talking about fitness for duty and the exotic equipment that is being developed, we also have to look at what the costs are going to be and the benefits that will be derived from the use of that equipment. At the present time, I don't think that we can cost-justify by requiring that of all motor carriers.

We're looking for the states to be more active during the interim, and we are encouraging the manufacturers to develop something that is going to cost less to do the job that is needed to be done.

Nigrey: I have a related question to testing. In the area that you just described for alcohol testing, only 0.2% show up versus 3.8% for drug testing. Is that because of a limitation and the sensitivity in the analysis equipment or something else?

Thomas: Would you repeat that, please?

Nigrey: Is that limitation due to the sensitivity of the analysis technique that is being used?

Thomas: Well, right now I guess I would have to say no. The four states that are doing the testing right now are using evidential breath testing equipment because it was funded and they could afford that.

When we ran a pilot test a year and a half ago with a company right up here in this area, we tested about 2,500 drivers in six different states during four different seasons. It was a voluntary program, and it was for drugs only. We had a rejection rate of something like 18 to 20% which was unacceptable to OMB.

We were using good equipment and we're using NIDA Labs. The rates were about the same. What we're doing with the tests on alcohol, which is germane to your point, is we are using EBTs, we are using drug recognition experts. What we're trying to do is establish reasonable cause, and then ultimately probable cause, and then go to the breath testers, either at a hospital or something like that.

The breath testing devices that they have out right now will not give you an accurate reading under 0.04%. What Congress has wanted us to do is regulate down to 0.02%. There just isn't equipment out there as yet to do that. So, the tact that we've been taking on that is, if we can determine any presence or some type of a reading from zero to 0.04%, we react administratively by placing the driver out of service for a minimum of 24 hours. If he registers anything above 0.04%, then we take criminal action against him at the state level.

Thank you.

Commercial Vehicle Safety Inspections

presented by Peter Toolson, Westinghouse Hanford Company/RL

Commercial Vehicle Safety Inspections

CVSA

in partnership with

U.S. DEPARTMENT OF TRANSPORTATION
FHWA
OFFICE OF MOTOR CARRIERS

Presented by

G. Peter Toolson

R9303112. 1

Why Vehicle Safety Inspections?

- Each year over 4 billion tons of regulated hazardous materials are transported on the highway
- Oregon State inspections on vehicles transporting HAZMAT has increased over the past three years:

Year	No. of Inspections	Out-of-Service Driver	Out-of-Service Equipment
1990	1,397	1.05%	15.18%
1991	1,081	2.05%	16.96%
1992	931	0.75%	16.88%

- Whether the accident is or is not the result of faulty equipment, the public may continue to be alarmed over what they perceive as a safety problem

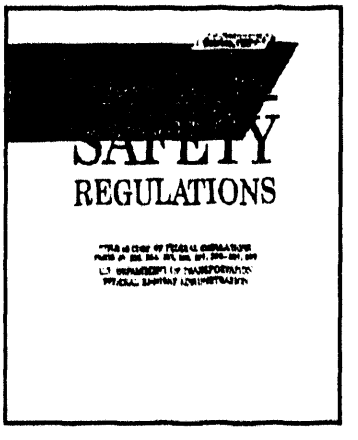
R9303112. 2

Commercial Vehicle Safety Inspections, *How is it accomplished?*

The U.S. Department of Transportation has produced

Title 49 CFR, Federal Motor Carrier Safety Regulations

• Part 396	Inspection, Repair and Maintenance
396.11	Driver Vehicle Inspection Reports (Post Trip)
396.13	Driver Inspection (Pre-Trip)
396.17	Periodic Inspection (Annual)
396.3(b)(2)	Systematic Preventative Maintenance Inspections
- - -	Enroute Inspection (397.17)



Commercial Vehicle Safety Inspections, *How is it accomplished? (cont.)*

The U.S. Department of Transportation, in partnership with the Commercial Vehicle Safety Alliance has produced

- The North American Uniform Out-Of-Service Criteria (February 15, 1993) and Inspection Procedure
  - Part I = Driver Out-Of-Service Criteria
  - Part II = Vehicle Out-Of-Service Criteria
  - Part III = Hazardous Materials Out-Of-Service Critera

Commercial Vehicle Safety Inspections, *How is it accomplished? (cont.)*

Partnership Program has also produced

The recommended national procedure for the enhanced safety inspection of commercial highway vehicles transporting transuranics, spent fuel, and high level radioactive waste.

What is TMD's Perspective?

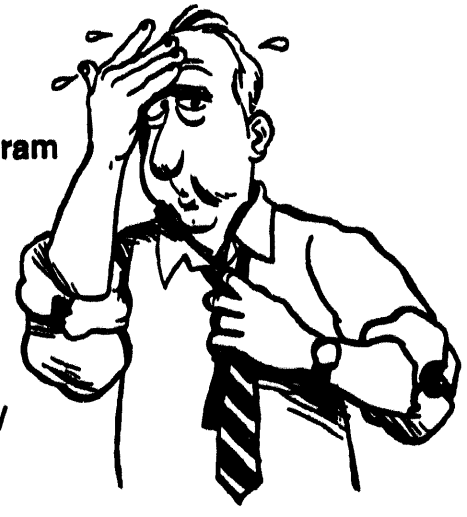
- **396.3(a) Every motor carrier shall systematically inspect, repair, and maintain all motor vehicles subject to its controls, and shall be in safe and proper operating condition at all times**

- **Vehicles <u>must not</u> be released from the point of origin until they are defect free**

Additional Tools for Full Compliance

TMD Resources/Programs

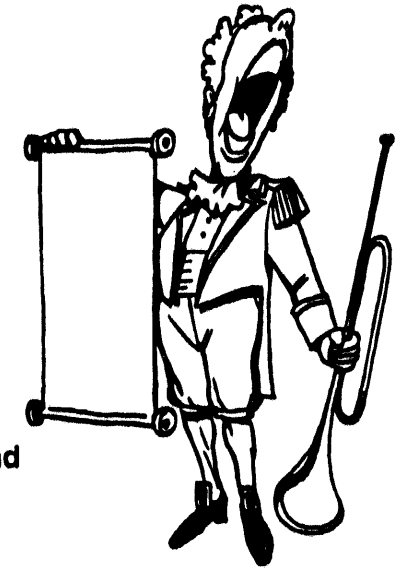
- Motor Carrier Evaluation Program
- Vehicle Inspection for Maintenance Personnel
- Vehicle Inspection, Load Tie-Down and Securement
- Onsite Technical Assessment/ Assistance Programs



R9303112. 7

Benefits to DOE-TMD

- Industry standardization
- Cooperation with local, state, and other federal agencies
- Increased public/institutional acceptance
- Reduced equipment out-of-service
- Reduced cost from breakdowns and regulatory fines



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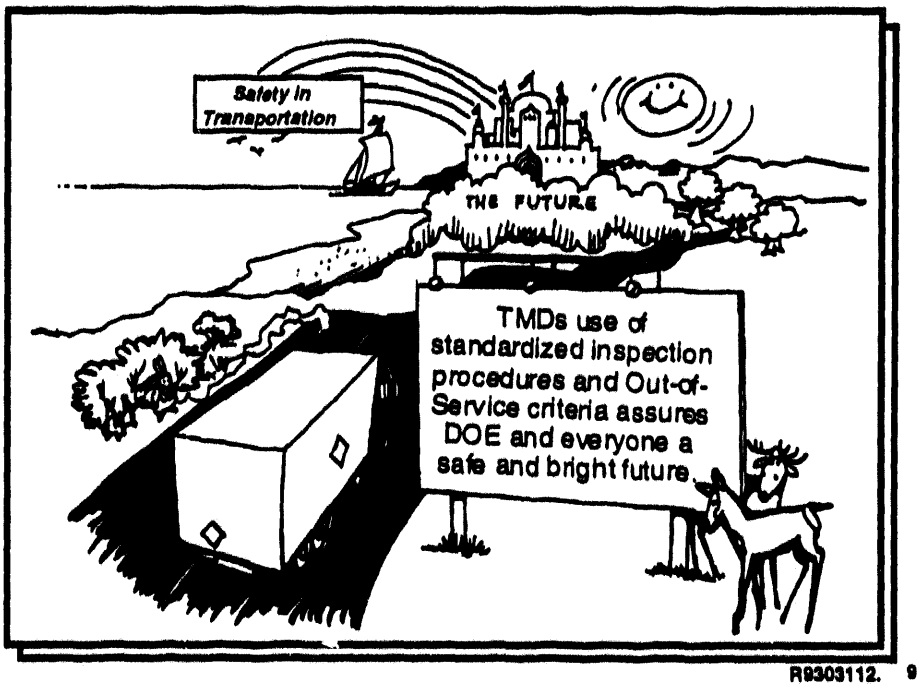

Safety in Transportation
THE FUTURE
TMDs use of standardized inspection procedures and Out-of-Service criteria assures DOE and everyone a safe and bright future.

R9303112. 9

Cece: Pete, I've got two questions. First of all, how do we get a copy of this North American Out-of-Service Criteria? How and where?

Toolson: How are we going to accomplish it?

Cece: No, how do we get a copy of it?

Toolson: Oh, I brought copies with me. I've got just a few. I think I brought a dozen of each, of the regular out-of-service criteria, as well as the enhanced. I am going to have them, tomorrow morning, down at the motor carrier evaluation poster session.

For those of you that don't get a copy of it and would like to have a copy of it, if you will stop by that booth tomorrow and leave me your name or business card, I'll write the note on there what you're requesting and as soon as I get back in the office, we'll ship that out to you.

Cece: I have a second question for both of you -- and I'd like to include Mr. Thomas in on it, too, if I could. When the state of Oregon did their roadside tests for drivers and equipment -- and Mr. Thomas, when your folks did your random stops for drugs and alcohol -- did anyone look at the correlation between the violation and the size of the motor carrier company? You talked about the fact that like 80 percent of the companies are five trucks or less. Are the violations with the small companies or with the large companies? Are the drivers on drugs with small companies or large companies?

Toolson: Boy, that would be a tough one to answer from the snapshot that Oregon state gave me, John. I do have some additional information. I haven't got it right up here with me, and if you'd like to see me afterwards, I'd be glad to furnish you a copy of it.

They broke it down a little bit more than the statistics that I showed you up there; but, it's really kind of interesting, as I went through the CVSA program and became certified to conduct these inspections in 49 states, it's kind of on again, off again. Some of the bigger fleets that would travel up and down the I-5 corridor, where we were, would certainly have better access to facilities and money to maintain their equipment appropriately, but sometimes that wasn't the case. And then again, we would see the single owner-operator that had all the flash and the chrome and the murals painted on the side of the trailer. That would be a key, often, to pull that person off and inspect them because we knew where all the money was going. It was going into the appearance versus safety. So, it would be a tough one to answer.

Thomas: Let me first say that during 1992, we (CVSA and the Feds) have inspected roughly 1.8 million vehicles. During this coming year, it will surpass two million and go up from there. So, proportionately, the number of HM vehicles would also go up.

We can furnish you data as to the breakout and the percentages, but generally speaking, the out-of-service criteria is applied across the board. There are a number of motor carriers that, as Pete said, have more money. You can generally expect that a vehicle from a large motor carrier is going to be better maintained than a small motor carrier, but it doesn't work that way all the time. You've got to remember that brakes are the largest out-of-service item around. We're talking something like 65 to 75 percent of the vehicles placed out of service are place out of service because of brakes.

Our agency is working with the DOE; in fact, some of our people are out at Sandia Labs right now working on new techniques to make sure that brakes can be adjusted and kept in the proper working order more efficiently, because that's a problem. But, in the area that we talk about, it's across the board, generally speaking.

Rittle: We lease our vehicles from the GSA, and they're also maintained by the GSA. I wondered on this TMD training class for maintenance personnel, would they be permitted to go to that?

Toolson: Most assuredly. I think you're going to see over the next year, Al, a breakdown in jurisdictional turf wars. If you would, where there's going to be a lot of cooperation with other federal agencies. It shouldn't be a problem.

DOE Technical Standards Programs

presented by Lee Rogers, DOE/NE-72

Department of Energy Technical Standards Program

The World of Standards

DOE Technical Standards Program

- Global strategy for standardization
- The DOE Technical Standard Program
- Participation in non-Government Standards Bodies
- Status of the program

Technical Standard - The DOE Definition

- "A Technical Standard is a document which contains conditions or requirements concerned with:
  - Classification of components;
  - Delineation of procedures;
  - Specification of materials, products, performance, design, or operations; or
  - The definition of terms or measurements of quality and quantity in describing materials, products, systems, services, or practices."

Standardization Defined

...is the adoption and use (by consensus or decision) of engineering criteria applied, as appropriate, in:

Design
Development
Procurement
Production
Quality Assurance
Supply
Maintenance
Disposal of Equipment and Supplies

through Standards and Specifications.

Standard

ASTM Defines a "Standard" as:

"A rule for an orderly approach to a specific activity, formulated and applied for the benefit and the cooperation of all concerned."

Why Should We Use Standards?

- Improve International Competitiveness
- Promote Quality Products and Reliability
- Save Time and Money
- Increase Credibility and Responsiveness to Public Concerns
- Conserve Resources
- Reduce Risk and Improve Safety Performance
- Avoid Delays
- Streamline Training
- Be More Responsive to Market Capabilities
- Benefit From the Expertise of Others

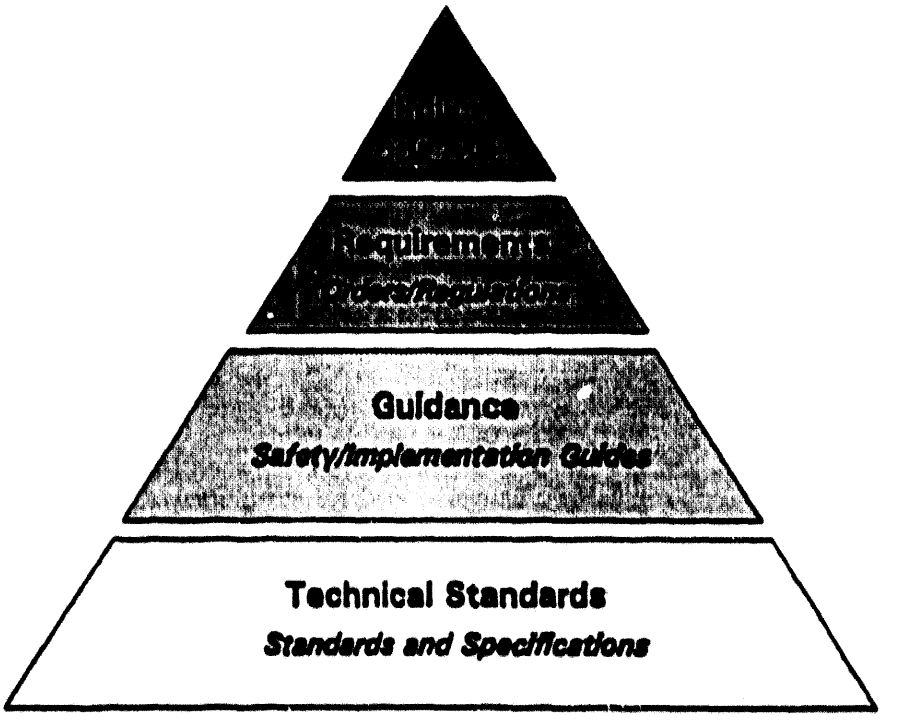
DOE has a long history with document standardization programs

1960s
Nuclear Standards Program supporting Liquid Metal Fast Breeder (LMFBR) program.

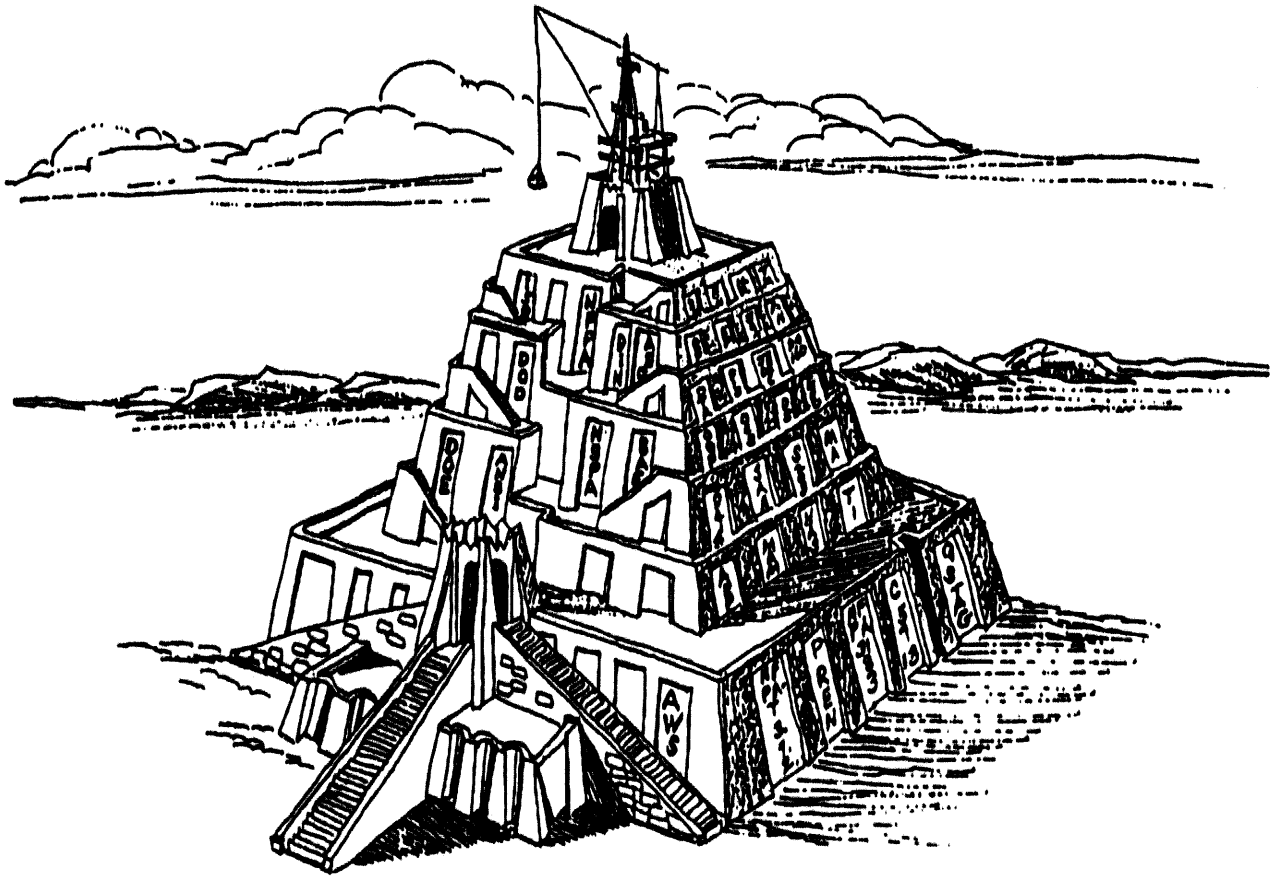
1970s
Nuclear Standards policy issued (NE 5820) for broader coverage of DOE nuclear programs. DOE established in 1977.

1980s
DOE Order 1300.2 issued to cover DOE nuclear and non-nuclear programs. Lead organization was EH.

1990s
Standards program reassigned to NE; DOE Order 1300.2A issued May 19, 1992.



Nuclear Safety Documents Hierarchy



STANDARDS - THE TOWER OF BABEL

Briefly, we need to...

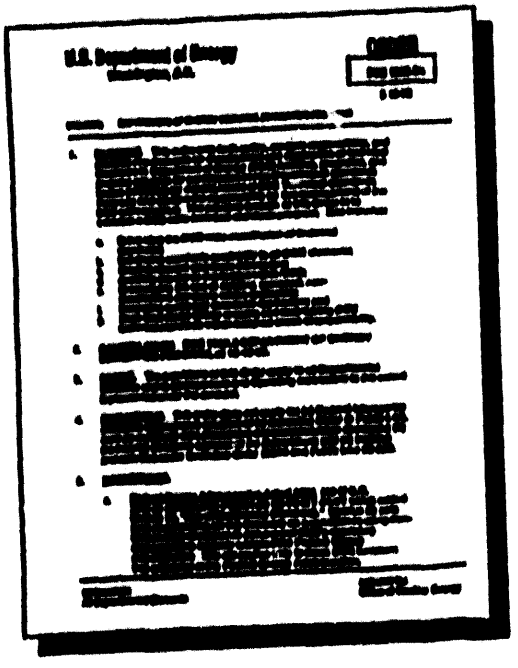
Eliminate the "tower of Babel" on...

- **standards available vs.**
- **standards required vs.**
- **standards needed**

Establish uniformity of practice

Maintain uniformity with databases and indexes

DOE ORDER 1300.2A REPRESENTS A COMPREHENSIVE RESPONSE TO THE RECOMMENDATIONS PROVIDED ON THE STANDARDS PROGRAM



a. Enhance DOE-wide coordination of standards

b. Enhance standards availability

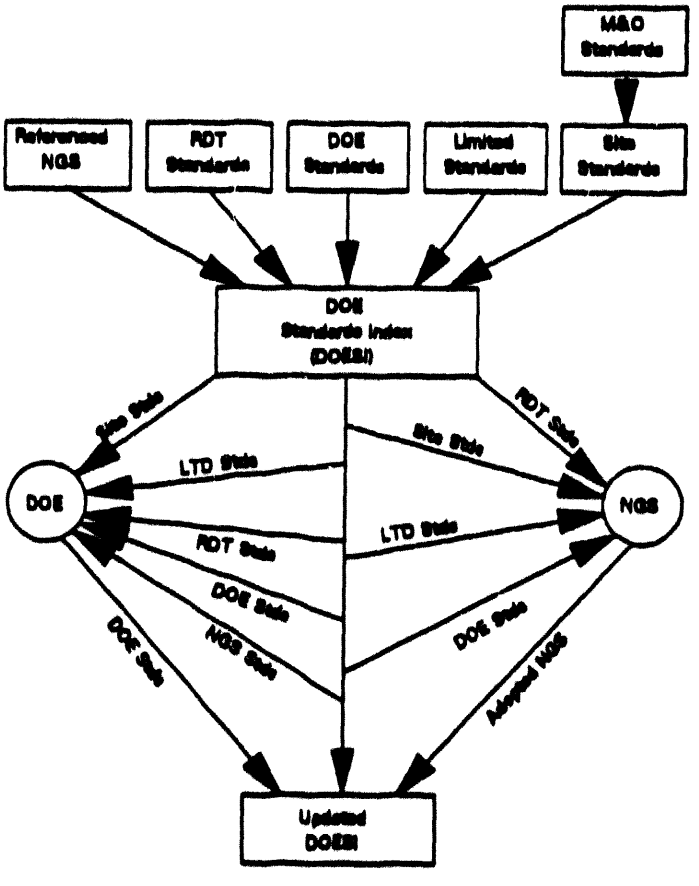
c. Share relevant standards information

d. Avoid standards duplication

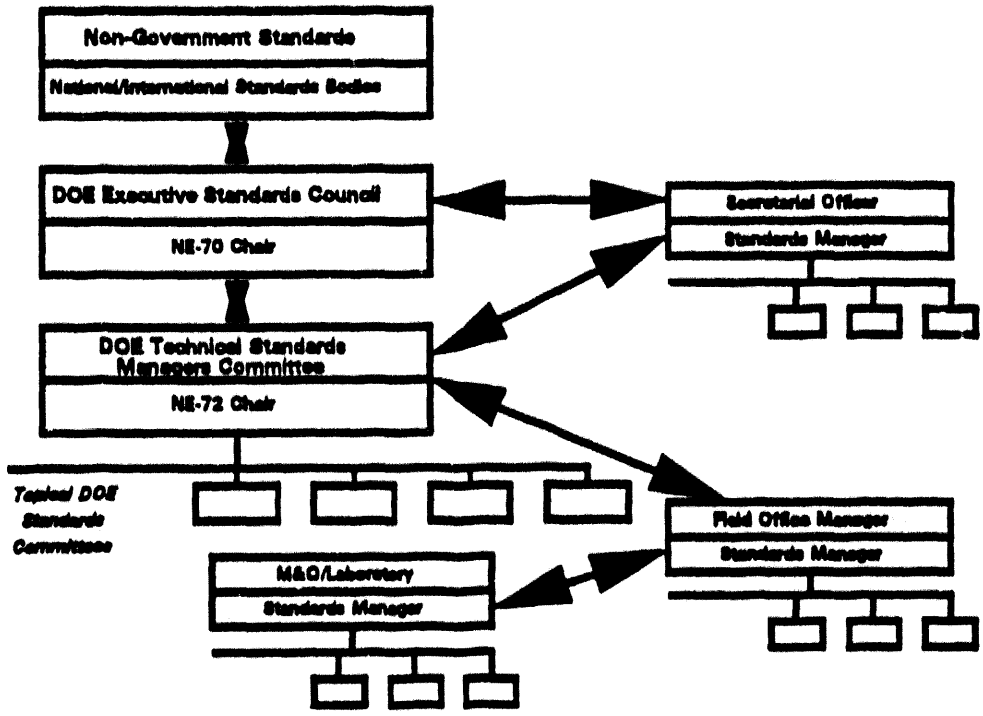
e. Encourage use of non-Government standards

f. Promote consistent standards application

g. Secretarial Officers create and maintain standards within their assigned areas



DOE Technical Standards Program

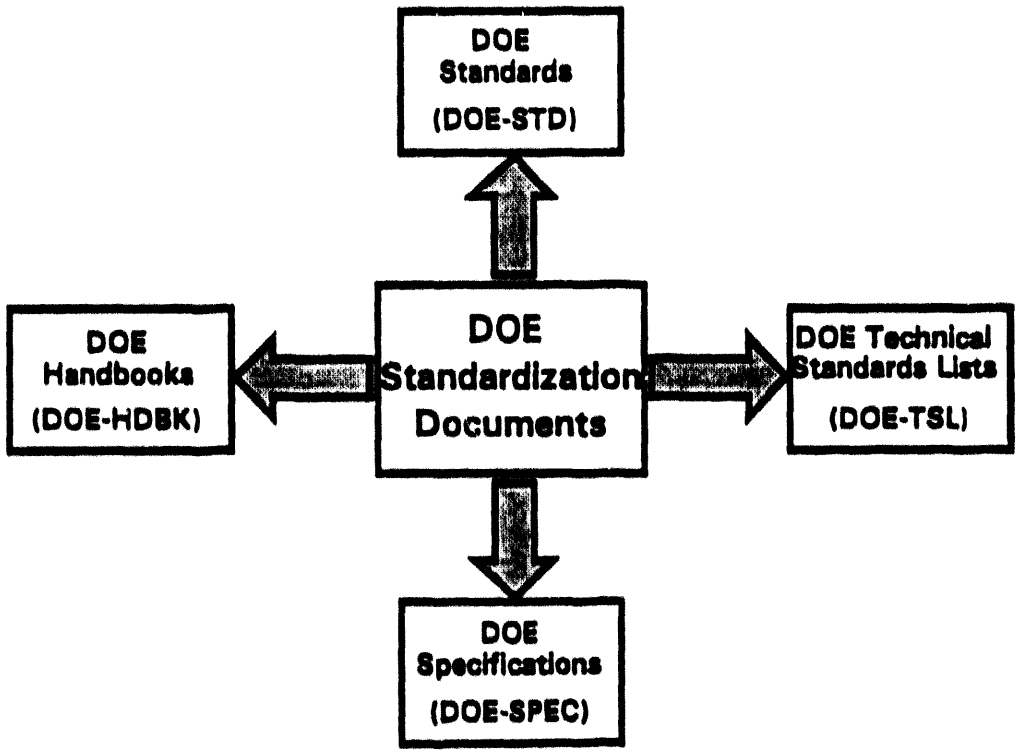


Proposed Topical Standards Committees

FUNCTIONAL AREA	PROPOSED CHAIRPERSON
Configuration Management	NE
Engineering Design	AD
Emergency Preparedness & Management	OE
Research & Development & Experimental Activities (R&D/EA)	ER
Operational Readiness Review	NE
Environmental Protection	EH
Fire Protection	EH
Maintenance	NE
Management Systems	AD
Nuclear Safety (NS)	NE
Occupational Safety and Health	EH
Conduct of Operations	NE
Packaging & Transportation (P&T)	
Quality	NE
Radiological Protection (RP)	EH

Proposed Topical Standards Committees (Cont'd)

FUNCTIONAL AREA	PROPOSED CHAIRPERSON
Safeguards and Security (S&S)	SA
Training and Qualification (T&Q)	NE
Compliance Assessment & Resolution	
Environmental Restoration & Waste Management (ERWM)	EM
Construction	AD
Natural Phenomena Hazards	NE
Probabalistic Risk Assessment	NE
Software Quality (V&V)	
Information Technology	AD
International Affairs Coordinating Committee	EP
Energy Conservation	CE
Alternate Fuels	
Industrial Hygiene	EH
Product Substitution	
Human Factors	NE



Document Identifier

- DOE-STD-1234-92 for fully coordinated DOE Technical Standards;
- DOE-DP-STD-2345-92 for the DOE Limited Technical Standards.

DOE Standards

DOE Standards (DOE-STD) are developed by DOE to establish acceptable methodologies and acceptance criteria for products and processes that are used in accomplishing the DOE mission. They may apply DOE-wide or may be specific to an element of DOE (e.g., DOE-DP-STD) for standards applicable to the Office of Defense Programs only).

DOE Handbooks

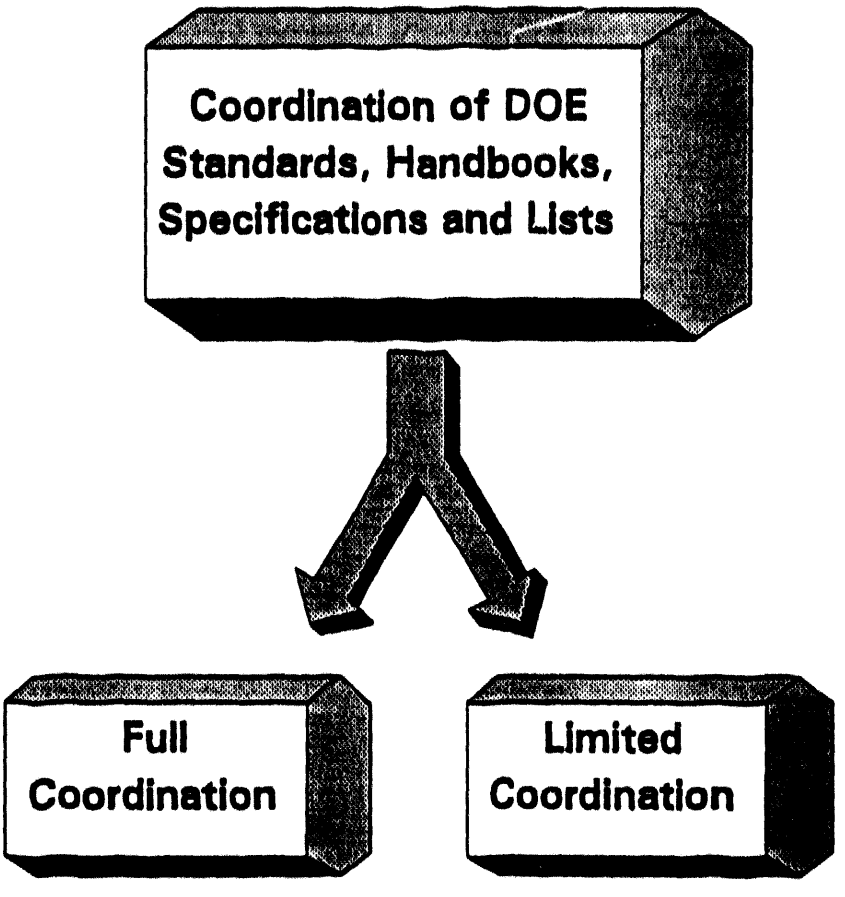
DOE Handbooks (DOE-HDBK) are those documents that provide information to contractors and DOE personnel on a variety of topics (e.g, lessons learned, technical training fundamentals, textbooks, and general information). They may be issued as DOE-HDBK for DOE-wide application or for specific applicability to a Departmental Element (e.g., DOE-DP-HDBK).

DOE Specifications

DOE Specifications (DOE-SPEC) are product or item descriptions that are developed for repetitive application. They may be issued as DOE-SPEC for DOE-wide application or for specific applicability to a Departmental Element (e.g., DOE-DP-SPEC).

DOE Technical Standards Lists

DOE Technical Standards Lists (DOE-TSL) are special indices or listings of technical standards that are tailored to a specific family of programs or limited subject matter. They may be issued as DOE-TSL for DOE-wide applications or form specific applicability to a Department Element (e.g., DOE-DP-TSL).



NOT MEASUREMENT SENSITIVE

DOE-STD-XXXX-YR
PROPOSED

DOE STANDARD

FORMAT FOR PREPARATION OF DOE STANDARDS, HANDBOOKS, AND TECHNICAL STANDARDS LISTS

U.S. Department of Energy
Washington, D.C. 20585

AREA SDMP

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

NOT MEASUREMENT SENSITIVE

DOE-STD-XXXX-YR
PROPOSED

DOE STANDARD

ORDER OF PREFERENCE FOR THE SELECTION OF STANDARDIZATION DOCUMENTS

U.S. Department of Energy
Washington, D.C. 20585

AREA GDRO

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Order of Preference

1. Standards Mandated by Treaty, Law, Regulation, or Order
2. Standards Referenced in Safety and Implementation Guides
3. Non-Government Standards (International and National
4. Federal Standardization Documents
5. DOE Standardization Documents
6. DOE Limited Standardization Documents
7. Other Standards

Non-Government Standards (NGSs)

Those standards that are established generally by national and international private sector bodies and are available for use by any person or organization, private or governmental. NGSs are also referred to as "voluntary standards," "industry standards," "commercial standards," and "consensus standards" (standards developed under due process procedures) but do not include professional standards of personal conduct, private standards of individual firms, standards, or of individual organizaitons for their internal use.

Participation in Non-Government Standards Activities

Influence the content of proposed standards by making technical contributions

Get "sense" of industry trends through technical discussions

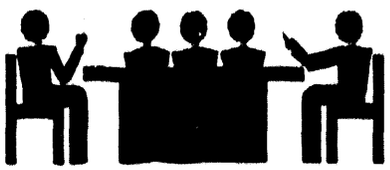
Get an early "sense" of the probable final details of a standard to permit earlier incorporation into your own actions

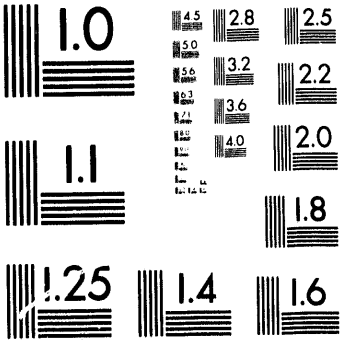
Equal Partners

Success Depends Upon an Equal Partner Approach

HOW?

Need Full Cooperation Between DOE, DOE M&O Contractors, and NGSBs.

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4 of 7

The Politics of Non-Government Standards Committees

- Some Members are Dynamic Contributors
- Some Members are Principally Listeners
- Some Members are Principally Critiquers
- Large Committees Often Establish Steering Committees with a Great Deal of Influence
- The Officers of the Committee Often Have Great Influence on the Committees Pace and Priorities.
- Ad Hoc Groups Often Develop Compromises in Troublesome Actions. To Influence the Outcome, Volunteer to Work on Such Groups

U.S. DEPARTMENT OF ENERGY

RECORD OF NON-GOVERNMENT STANDARDS ACTIVITY

1. Type of Submission ☐ Initial Submission ☐ Revision of information previously submitted ☐ Termination of membership
2. Name (last, first, middle)
3. Title
4. Organization Routing Symbol
5. Mailing Address
6. Employment Status ☐ DOE Employee ☐ Other (specify) _____
7. Office Telephone No. ( ) _____ FAX ( ) _____

8. COMPLETE THIS SECTION DOWN TO YOUR LEVEL OF STANDARDS ACTIVITY

8a. Name of Non-Government Standards Body (NGSB)
Country _____
8b. Membership/Administrative Fee (if any) $ _____
8c. Estimated Number of Meetings Per Year
8d. Name of Secretariat Organization (if different from NGSB)
8e. Name of Main Committee
Main Committee Number _____
8f. Type of Main Committee (check one) ☐ Standards Management ☐ Standards Writing ☐ Standards Review ☐ Other (specify) _____
8g. Name of Subcommittee
Subcommittee Number _____
8h. Name of Task or Working Group (WG)
Task or WG Number _____
8i. Other Activity if not listed above (specify)
Number _____
9. Your position in the activity ☐ Member ☐ Vice Chair ☐ Technical Advisor ☐ Delegate ☐ Chair ☐ Secretary ☐ Alternate Representative ☐ Other (specify) _____
10. Voting Status (check one) ☐ Voting ☐ Nonvoting
11. Date of Membership
12. Expiration Date of Membership (if any)
13. Representation ☐ DOE ☐ Other (specify)
14. Brief scope of the activity
15. Signature of Participant — Date
16. Signature of Approver — Date
17. Title of Approving Official
Keywords
18. Acknowledgment — Date

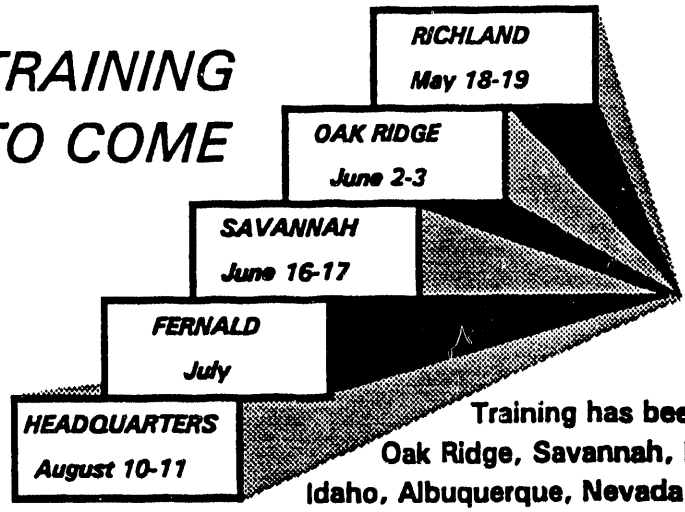
- Standards Project Registration and Development Status
- Existing and New Department Standards
- Adopted Non-Government Standards
- NGSB Participation
- Program Points-of-Contact

DOE STANDARDS DATABASE

- Management Information for Standards Managers
- Initial and On-Demand Distribution of Standards (OSTI)
- DOESI

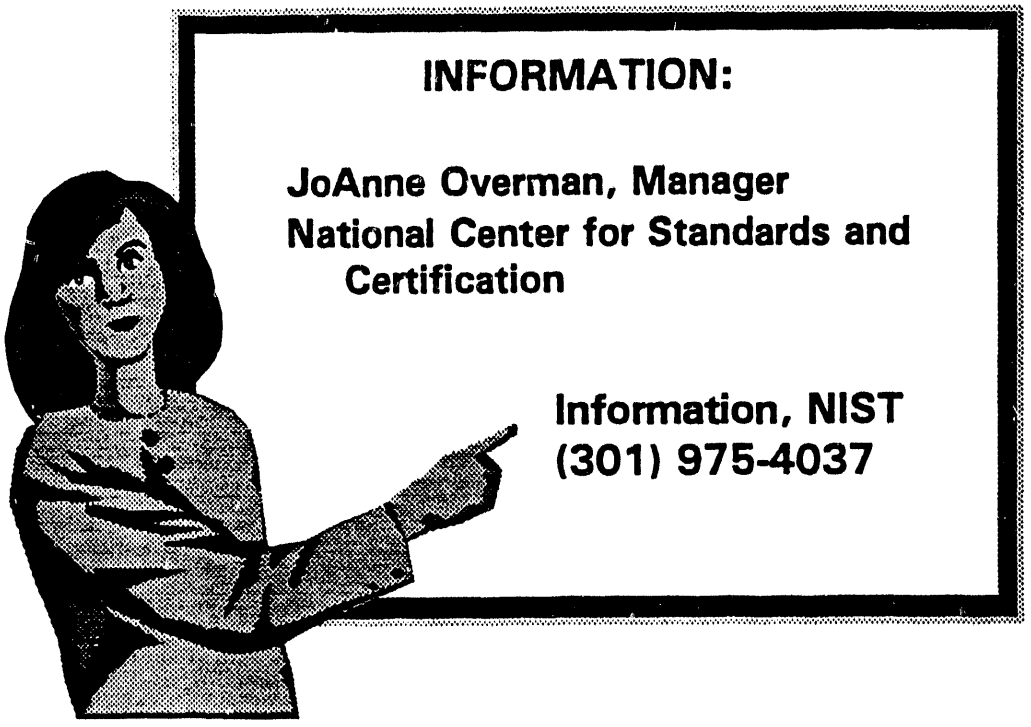
  OMB A119 Input
- Standards Information Services (Microfilm/CD ROM)

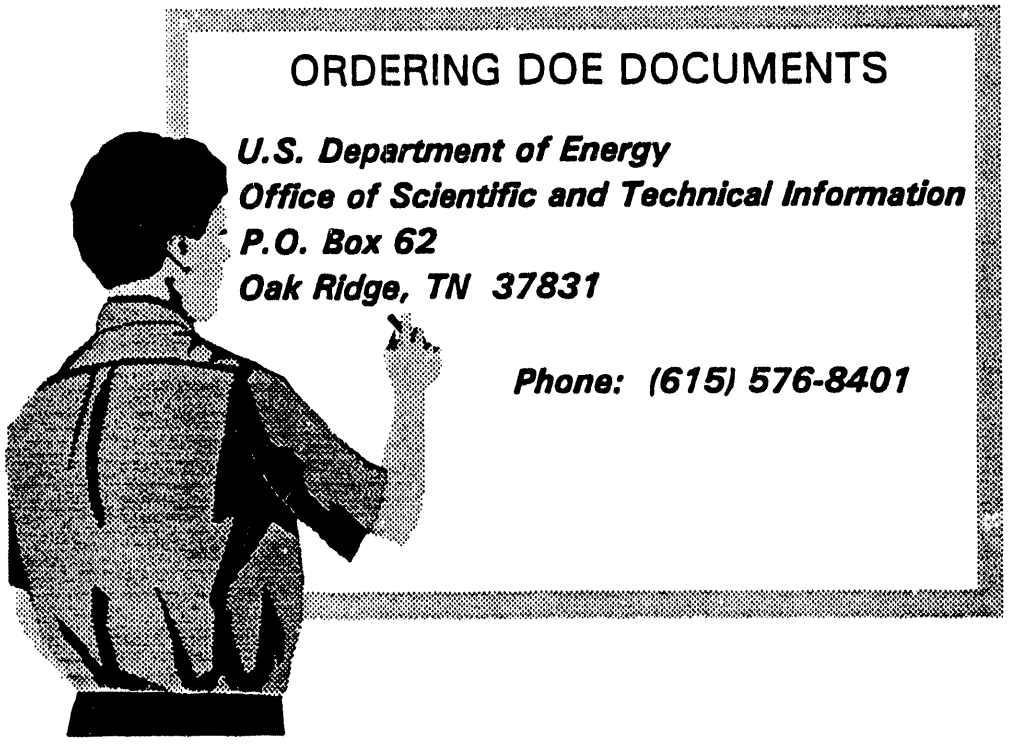
TRAINING TO COME



Training has been completed Oak Ridge, Savannah, Headquarters, Idaho, Albuquerque, Nevada, Chicago, and San Francisco.

1993 DOE Technical Standards Managers Workshop
October 18-20, 1993
Hyatt Regency, Reston Town Center


INFORMATION:
JoAnne Overman, Manager
National Center for Standards and Certification
Information, NIST
(301) 975-4037


ORDERING DOE DOCUMENTS
U.S. Department of Energy
Office of Scientific and Technical Information
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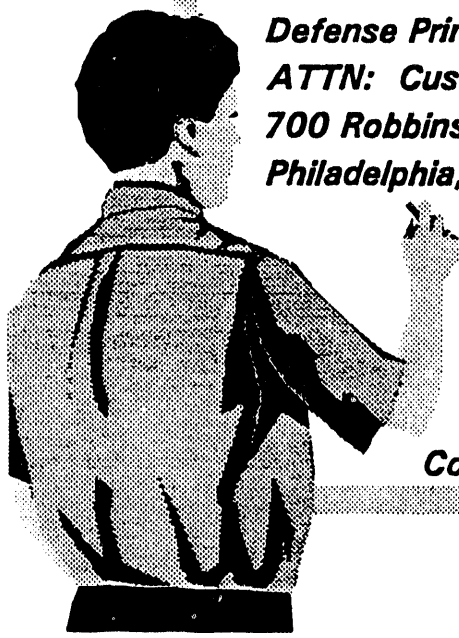
Oak Ridge, TN 37831
Phone: (615) 576-8401

ORDERING DoD DOCUMENTS



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Computer Orders: (215) 697-1187

DOE F 1300.9
( )

U. S. DEPARTMENT OF ENERGY
STANDARDIZATION PROJECT AUTHORIZATION SHEET
(See attached instructions for completing this form.)

OMB Control No.
1910-0900
OMB Burden Disclosure
Statement on Attachment

1. TO: DOE Lead Standardization Activity c/o Performance Assurance Project Office P.O. Box 2009 MS 8065 Oak Ridge, TN 37831-8065	2. FROM:
3. PROJECT NUMBER: AREA/FSC / NUMBER / SUB 4. DOCUMENT IDENTIFIER	5. DOCUMENT TITLE

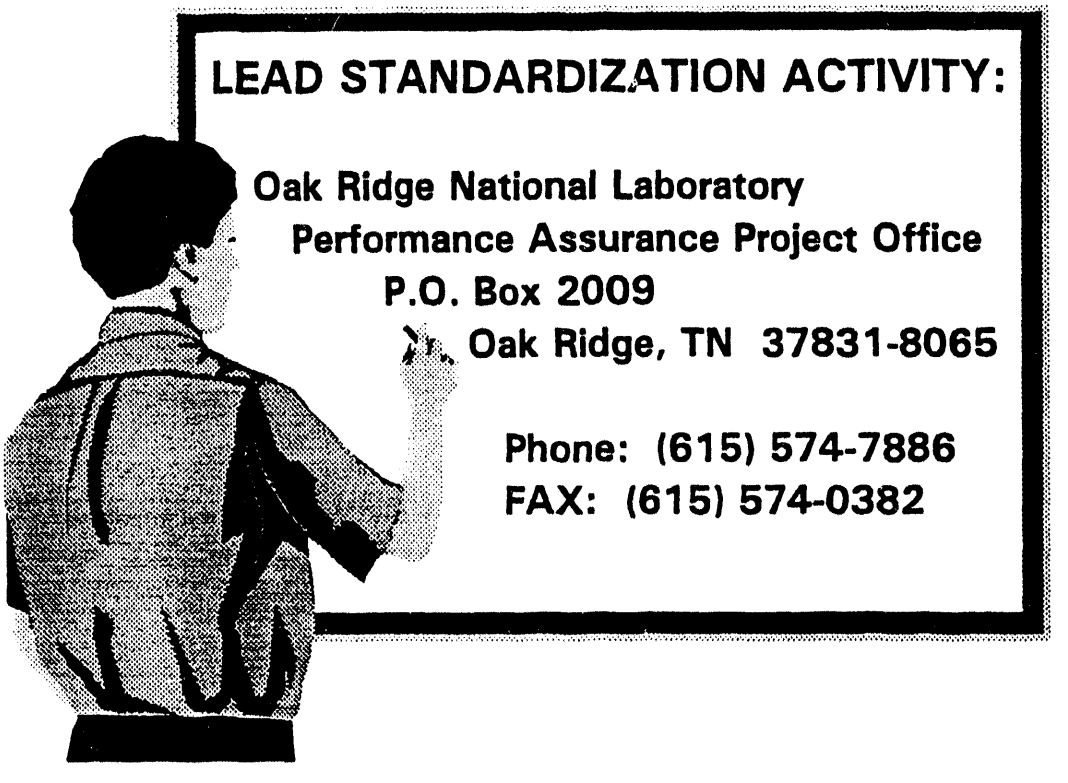
6. PARTICIPATING ACTIVITY	7. DATES	8. ACTION	9. POLICY	10. PLAN	11. SCHEDULE: PLANNED START (MO / YR), PLANNED COORDINATION (MO / YR), PLANNED COMPLETION (MO / YR)	12. STATUS	13. REVIEW INTEREST (Add appropriate field offices, laboratories, etc.): AD, DPA, CE, DP, EH, EM, ER, FE, GC, IG, NE, NN, PA, RW, SA, WAPA

14. SCOPE AND PURPOSE OF PROJECT (List committee members if known)

15. AUTHOR/COMMITTEE CHAIR		16. APPROVED	
a. PRINTED OR TYPED NAME	b. TELEPHONE NUMBER	a. SIGNATURE	b. DATE SIGNED

Lead Standardization Activity

The technical management activity designated by the Office of Nuclear Safety Policy and Standards (NE-70), that assists in the direction of DOE standardization efforts through managing and administrating the program, including development of standardization program plans, clearance of standardization projects, and identification and resolution of standardization issues. The Performance Assurance Project Office, Oak Ridge National Laboratory, Oak Ridge, Tennessee, has been designated as the Lead Standardization Activity.



DOE F 1300.2
(04-92)
All Other Editions
Are Obsolete

U.S. DEPARTMENT OF ENERGY

RECORD OF NON-GOVERNMENT STANDARDS ACTIVITY

(See reverse side for instructions)

OMB Control No.
1910-0900
OMB Burden Disclosure
Statement on Reverse

1. Type of Submission
☐ Initial Submission ☐ Revision of information previously submitted ☐ Termination of membership *(complete blocks 1-8i only)*

2. Name *(last, first, initial)*	4. Organization Routing Symbol
3. Title	5. Mailing Address

6. Employment Status ☐ DOE Employee ☐ Other *(specify)* _____	7. Office Telephone No. ( ) _____ FAX ( ) _____

8. COMPLETE THIS SECTION DOWN TO YOUR LEVEL OF STANDARDS ACTIVITY

8a. Name of Non-Government Standards Body (NGSB) Country _____	8b. Membership/Administrative Fee *(if any)* $ _____ 8c. Estimated Number of Meetings Per Year

8d. Name of Secretariat Organization *(if different from NGSB)*

8e. Name of Main Committee Main Committee Number _____	8f. Type of Main Committee *(check one)* ☐ Standards Management ☐ Standards Writing ☐ Standards Related ☐ Other *(specify)* _____

8g. Name of Subcommittee

Subcommittee Number _____

8h. Name of Task or Working Group (WG)

Task or WG Number _____

8i. Other Activity if not listed above *(specify)*

Number _____

9. Your position in the activity ☐ Member ☐ Vice Chair ☐ Technical Advisor ☐ Delegate ☐ Chair ☐ Secretary ☐ Alternate Representative ☐ Other *(specify)* _____	10. Voting Status (check one) ☐ Voting ☐ Nonvoting

11. Date of Membership	12. Expiration Date of Membership *(if any)*	13. Representation ☐ DOE ☐ Other *(specify)*

14. Brief scope of the activity	15. Signature of Participant	Date
	16. Signature of Approval	Date
	17. Title of Approving Officie	
Keywords	18. Acknowledged	Date

SPECIFIC INSTRUCTIONS

Block 1:	Indicate type of submission by placing a check mark in appropriate block. Minor changes such as a new telephone extension or mailing address may be made by notifying the Lead Standardization Activity by telephone 615-574-7886 or FTS 624-7886. If recording termination of membership, complete blocks 1 - 8i only.
Block 2-7:	Self-explanatory.
Block 8:	Enter the address of only the group with which you will have the most activity.
Block 8a:	Enter the name and country of the organization under whose auspices the standards committee is operating.
Block 8b:	Self-explanatory.
Block 8c:	Self-explanatory.
Block 8d:	Enter the Secretariat Organization if different from as the parent organization. (Do not enter the name of an individual.)
Block 8e:	Self-explanatory.
Block 8f:	Self-explanatory.
Block 8g:	Self-explanatory.
Block 8h:	Self-explanatory.
Block 8i:	Self-explanatory.
Block 9:	Indicate your current or planned position on the activity.
Block 10:	U.S. Department of Energy (DOE) representative may vote unless specifically instructed by the Department not to vote, or if the representative is working in Departmental functions formerly assigned to the Federal Energy Administration.
Block 11:	Enter the approximate date (month and year) that you began or plan to begin your membership.
Block 12:	Enter "Indefinite" in this block if you do not have a specific expiration date for membership.
Block 13:	DOE policy states that all Departmental employees and contractors who, at government expense, participate in non-government standards activities should do so as an official Departmental representative. DOE employees and contractors should check the "DOE" block unless they have also been asked to represent another group in a particular activity (e.g., asked by the members of one committee to represent them on another committee), in which case, check the "Other" block and specify the group represented in addition to DOE.
Block 14:	Very briefly describe the scope of the activity.
Block 15:	Self-explanatory.
Block 16:	DOE employees and contractors must obtain the required signature of the Departmental Element or designated representative as Approving Official before submitting the form. Members not representing DOE are not required to obtain approval unless internal company procedures require higher level company authorization.
Block 17:	Self-explanatory.
Block 18:	Acknowledgement will be made by the Lead Standardization Activity to signify entry has been made in the DOE database. A copy of the acknowledged form will be returned to the originator.

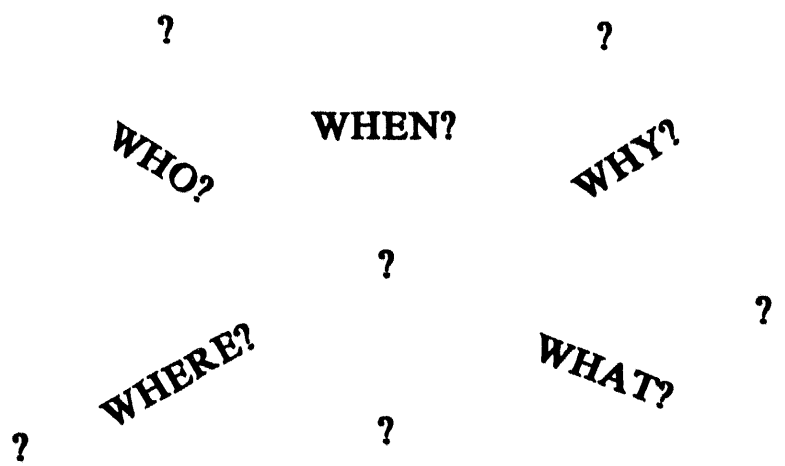
OMB Burden Disclosure Statement

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Office of Information Resources Management Policy, Plans, and Oversight, AD-241.2 - GTN, Paperwork Reduction Project (1910-0900), U.S. Department of Energy, 1000 Independence Avenue, S.W., Washington, DC 20585; and to the Office of Management and Budget (OMB), Paperwork Reduction Project (1910-0900), Washington, DC 20503.

Council of Logistics Management

presented by Anthony Mirra, Insight, Inc.

COUNCIL OF LOGISTICS MANAGEMENT



WHAT IT'S ALL ABOUT

- Purpose
- Objectives
- Programs
- Policies

- Develop theory, understanding of logistics
- Promote managing logistics systems
- Professional development within the profession

"50% of every consumer dollar spent goes into activities that occur after the goods are made. This is distribution, one of the most sadly neglected, most promising areas of American business."

PETER DRUCKER
"The Economy's Dark Continent," 1962

EARLY 60'S

- Business recognized it spends millions of dollars on distribution
- Physical distribution was tolerated as a necessary evil
- Distribution was a "dark continent"

NATIONAL

COUNCIL

PHYSICAL

DISTRIBUTION

MANAGEMENT

COUNCIL OF LOGISTICS MANAGEMENT

THE MISSION

The mission of the Council of Logistics Management is to provide:

- Leadership in defining and understanding the logistics process

THE MISSION

The mission of the Council of Logistics Management is to provide:

- Leadership in defining and understanding the logistics process
- **A forum for the exchange of ideas among logistics professionals**

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The mission of the Council of Logistics Management is to provide:

- Leadership in defining and understanding the logistics process
- A forum for the exchange of ideas among logistics professionals
- **Research that contributes to enhanced customer value and supply change performance**

THE MISSION

The mission of the Council of Logistics Management is to provide:

- Leadership in defining and understanding the logistics process
- A forum for the exchange of ideas among logistics professionals
- Research that contributes to enhanced customer value and supply chain performance
- **Awareness of career opportunities for logistics management**

COUNCIL OF LOGISTICS MANAGEMENT

DEFINITION OF LOGISTICS

"The process of planning, implementing, and controlling the efficient, cost effective flow and storage of raw materials, in-process inventory, finished goods, and related information from point of origin to point of consumption for the purpose of conforming to customer requirements."

Membership belongs to the

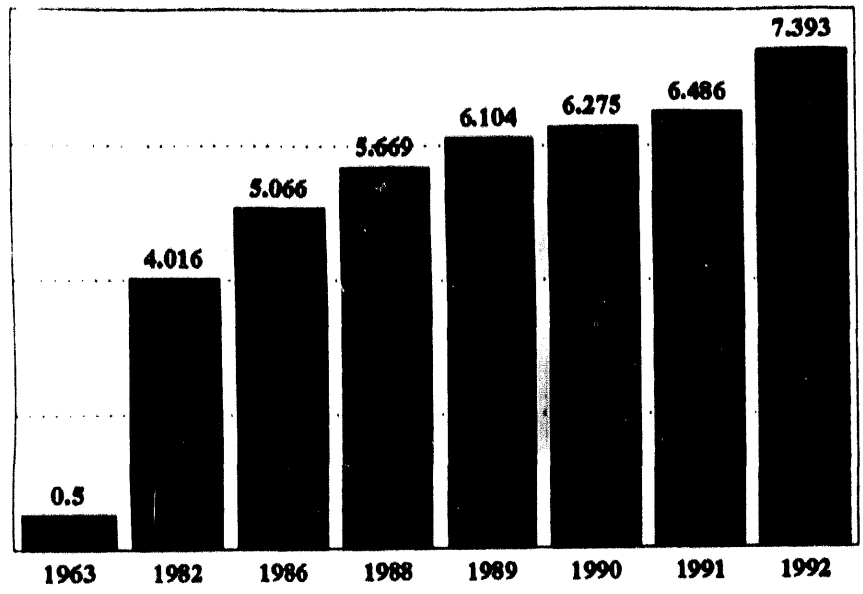
INDIVIDUAL

and not to his/her company

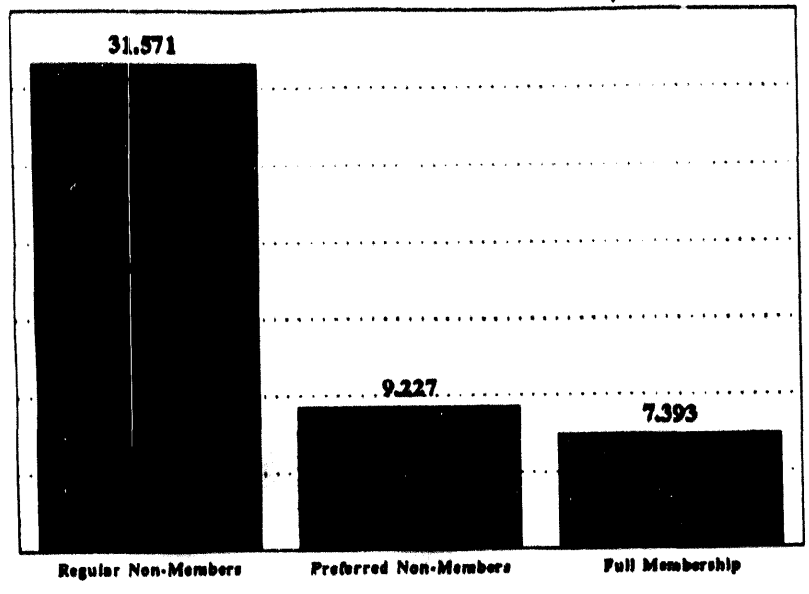
CLM AS AN ORGANIZATION IS NOT ALIGNED WITH

- **Shippers**
- **Carriers**
- **Warehouse Operators**
- **Material Handling Equipment Manufacturers**
- **Consultants**
- **Various Industrial Groupings**

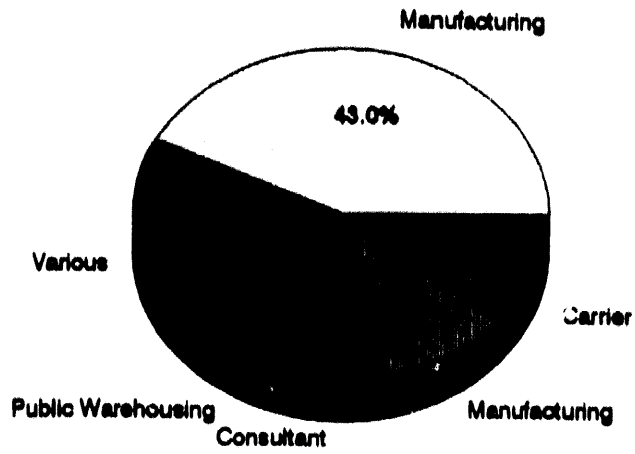
MEMBERSHIP GROWTH



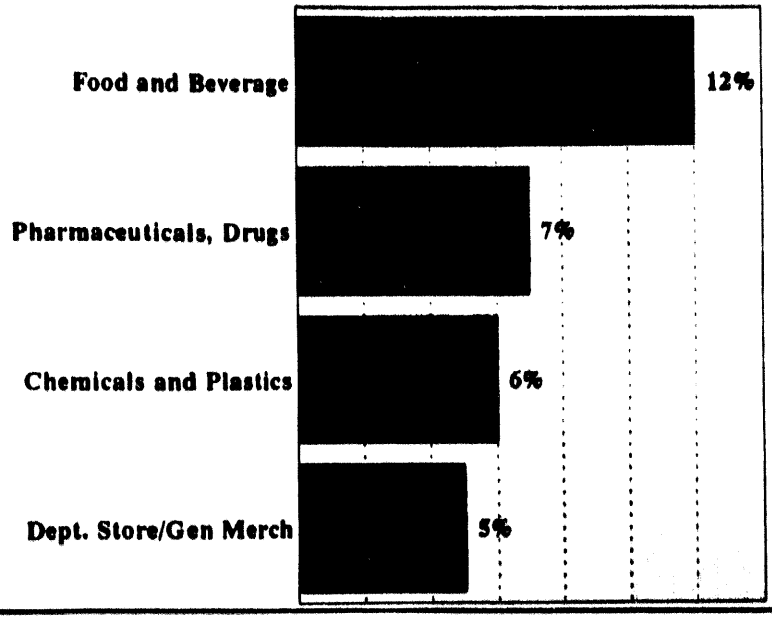
MEMBERSHIP



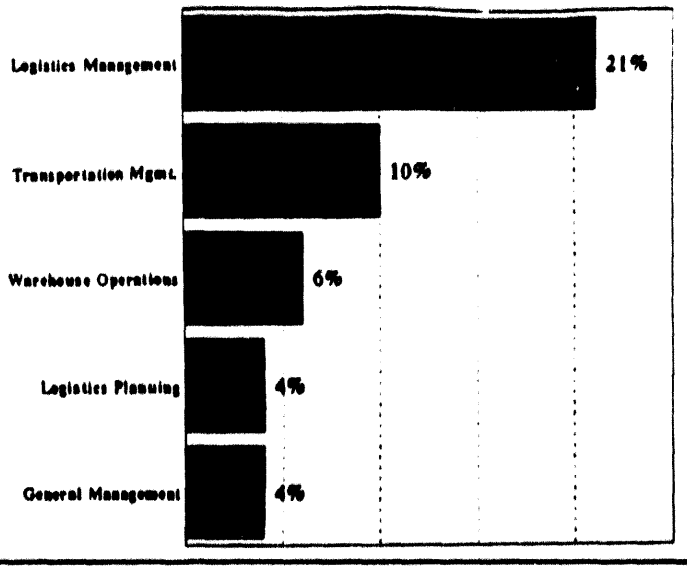
TYPE OF BUSINESS/ORGANIZATION



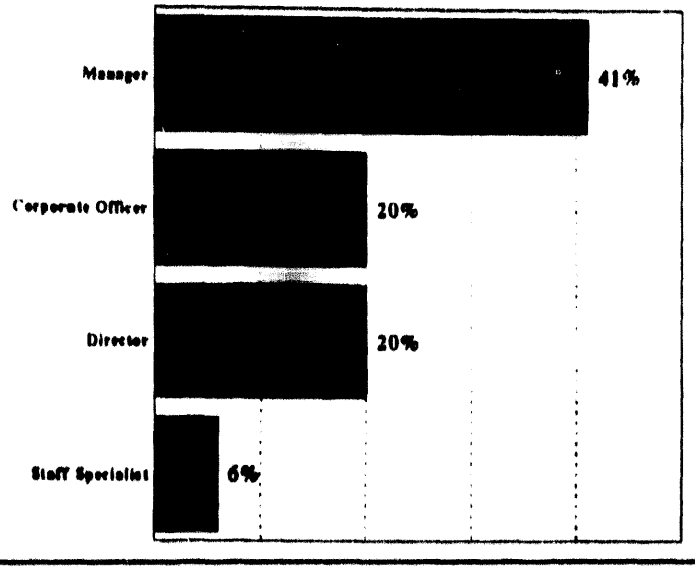
MANUFACTURING/MERCHANDISING



MEMBERSHIP FUNCTION

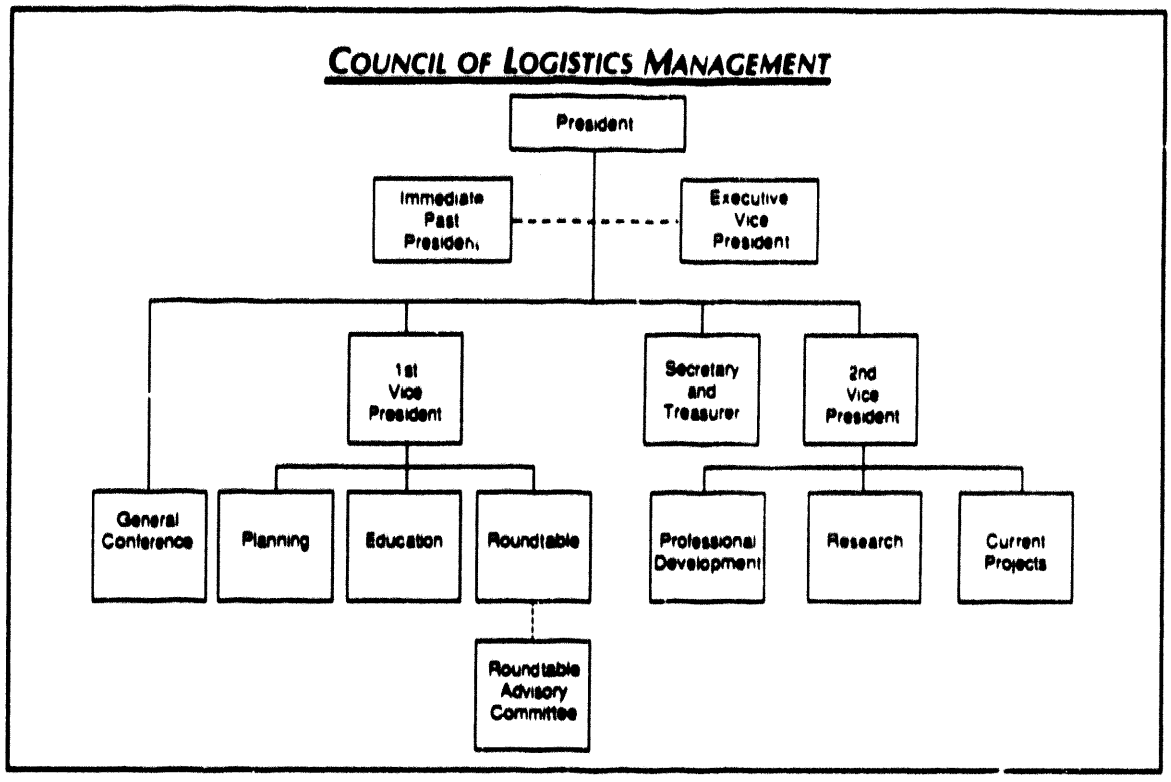


LEVEL OF RESPONSIBILITY



OFFICERS AND COMMITTEES

The affairs of the Organization are conducted by eleven executive committee members and the Council's Executive Vice President.



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IS THE COUNCIL

A

? ?

SHIPPER ORGANIZATION?

?

? ?

The organization's membership represents Logistics users and Logistics service suppliers.

SUPPLIER RELATIONSHIP

THE EDUCATIONAL MISSION
OF THE COUNCIL
OF LOGISTICS MANAGEMENT

- Through annual conference and workshops
- Through research projects
- Through local Roundtables

ROUNDTABLES

ANNUAL CONFERENCE

- Held in Fall each year
- Full scale
- Educational
- Logistics discussions

ANNUAL CONFERENCE

- Insistence that each year's program contain genuinely educational material

ANNUAL CONFERENCE

- Insistence that each year's program contain genuinely educational material
- Every activity of CLM is carried out or supervised by members who receive no payments for their efforts

ANNUAL CONFERENCE

- Insistence that each year's program contain genuinely educational material
- Every activity of CLM is carried out or supervised by members who receive no payments for their efforts
- Opportunity is provided for dialogue among the participants

Transportation of DOE Mixed Waste in the United States

presented by Wayne Nobles, DOE/EM-321

TRANSPORTATION OF DOE MIXED WASTE IN THE U. S.

WAYNE NOBLES
OFFICE OF WASTE OPERATIONS (EM-32)
ENVIRONMENTAL RESTORATION AND WASTE MANAGEMENT
U. S. DEPARTMENT OF ENERGY
MAY 12, 1993

Mixed Low Level Waste Poses Many Problems for DOE.

- Lack of treatment technologies
- Lack of existing facilities
- High cost of facility construction/operation
- Federal Facilities Compliance Act requirements

DOE Has a Wide Variety of Mixed Low Level Waste.

- Aqueous Liquid Waste
- Organic Liquid Waste
- Inorganic Solid Waste
- Organic Solid Waste
- Metal Waste
- Heterogeneous Waste
- Other Problem Waste

DOE Mixed Waste is Generated/Stored Across the U.S.

- 30 Sites have DOE Mixed Waste
- 12 Sites have more than 90%
- 4 Sites have approximately 70%

National Planning is Critical for Achieving Compliance with Environmental Regulations.

- Federal Facilities Compliance Act of 1992
- Limited Resources

Mixed Waste is Subject to a Complex Transportation Regulatory Environment.

- Transportation of hazardous waste:
  - Environmental Protection Agency (40 CFR 262,263)
  - Department of Transportation (49 CFR 171-178)
- Transportation of radioactive waste:
  - Nuclear Regulatory Commission (10 CFR 71)
  - Department of Transportation (49 CFR 171-178)

Hazardous Waste Transportation Regulations Outline Critical Requirements.

- Generator responsible for pre-transportation activities (40 CFR 263)
- "Uniform Hazardous Waste Manifest" (40 CFR 263)
- Proper packaging, labeling, and marking (49 CFR 172, 173, 178)

Radioactive Waste Transportation Regulations Add Additional Requirements.

- Container requirements based on waste activity levels:

  - Strong tight containers for Low Specific Activity Material
  - Type A containers for activity level less than A_2
  - Type B containers for activity level greater than A_2

  (49 CFR 173)

- Type A containers not specifically regulated by NRC
- Waste containing less than 0.002 microcuries per gram exempt from NRC/DOT radioactive waste requirements (10 CFR 71)

Waste Must Be Characterized Prior to Being Transported.

- Uniform Hazardous Waste Manifest preparation
- Assignment of DOT Hazard Class
- Verification of absence of prohibited material
- Incomplete radioactive characterization will require conservative assumptions
- Characterization of heterogeneous waste difficult

Waste Might Require Pretreatment Before Being Transported.

- Prohibited items (e.g. pyrophorics, explosives)
- Non-Low Specific Activity liquid waste

Waste Might Require Repackaging Before Shipping.

- Corroded drums
- Damaged drums
- Odd-sized/shaped containers
- Per drum activity reduction

Stakeholder Concerns Present Major Obstacles to Transporting Mixed Waste.

- Transportation risks versus long-term storage risks
- Public skepticism of safety assurances
- "Impact" costs

Summary and Conclusions:

- Centralization of mixed waste treatment facilities will result in cost reductions due to economies of scale, reduced numbers of permits, etc.

- Drawbacks of centralization include transportation costs, pre-transportation characterization, treatment, and repackaging costs, "impact" costs, and inherent risks of transportation

- Shipping heterogeneous waste and liquids present challenging problems to be overcome

- Benefits/costs of centralization must be quantified and resolved in order to select the best approach

Packaging Development: Multi-Use Type A Packaging

presented by Kimberly Boes, MMES/ORNL

Presentation at the TMD Workshop
May 12, 1993

MULTI-USE TYPE A PACKAGING (MUTA)

ORNL (Design Criteria)
WHC (Packaging Design)

Kimberly S. Boes
Chemical Technology Division
Oak Ridge National Laboratory

MUTA

WHY? A perception that MUTA might avoid problems.

- ✔ Need to ship small quantities of RAM with a variety of shielding needs.
- ✔ Potential loss of previously satisfactory package designs.
- ✔ Products containing ozone-depleting substances.
- ✔ Incident involving package containing Tritium.
- ✔ Incident involving package containing Strontium.

MUTA

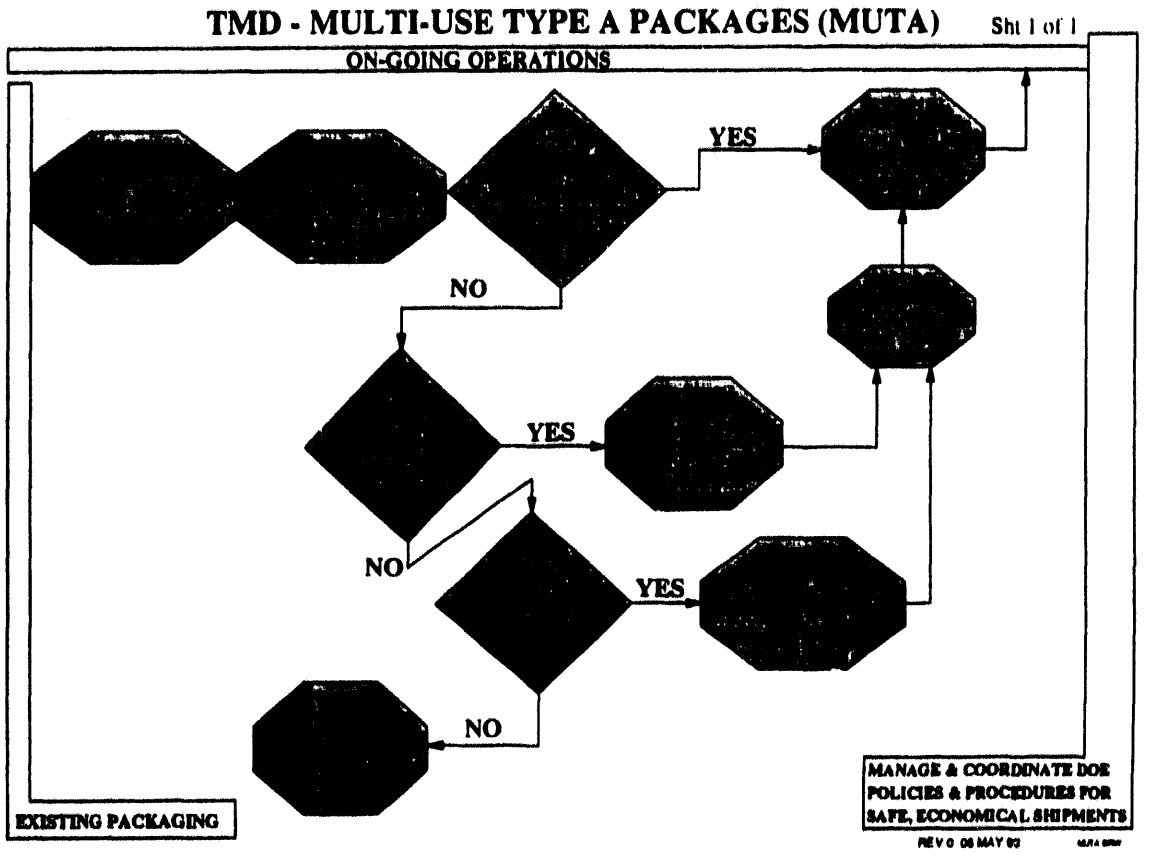
Incident Involving Strontium Shipment

- In 1992, a DOT 7A Type A package containing strontium was shipped from a DOE site via a commercial carrier to another DOE site.
- The packaging used was a LANL Shielded Container listed on page 7-9 of the Blue Book.
- Prior to shipping the maximum surface reading was 120 mrem/hr.
- Upon receipt, the surface reading on one side of the package was 425 mrem/hr (DOT allowable surface reading is 200 mrem/hr).
- Upon opening the package, it was noted that the inner container had shifted due to cracking of the styrofoam inner support. The inner container was in direct contact with the outer package thus causing elevated surface readings.

MUTA

Incident Involving Tritium Shipment

- In 1992, a package containing tritium was shipped from a DOE site via a commercial carrier.
- Type of packaging used (DOT 7A Type A) may not be approved for this type of shipment (certification of package pending).
- While at the carrier's facility, the inner packaging (can) became separated from the outer packaging (box), the box was then "retaped" and put back in the normal system for transport.
- Upon opening the box, it was noted that the inner container was missing. The outer box was returned to the carrier, and the shipper was notified. The inner container was discovered later at the carrier's facility in the hazardous materials control room.



MUTA

WHAT?

- ✔ Completed survey of three Oak Ridge sites and used data to initiate development of design criteria and concepts document.
- ✔ Ranked by number of outbound Type A shipments made during CY 1991-92 using the SMAC database.
- ✔ Based on SMAC ranking of sites, data are being collected on individual sites using SMAC. Data will be used when contacting the individual sites.
- ✔ Initiated contacts with other sites.

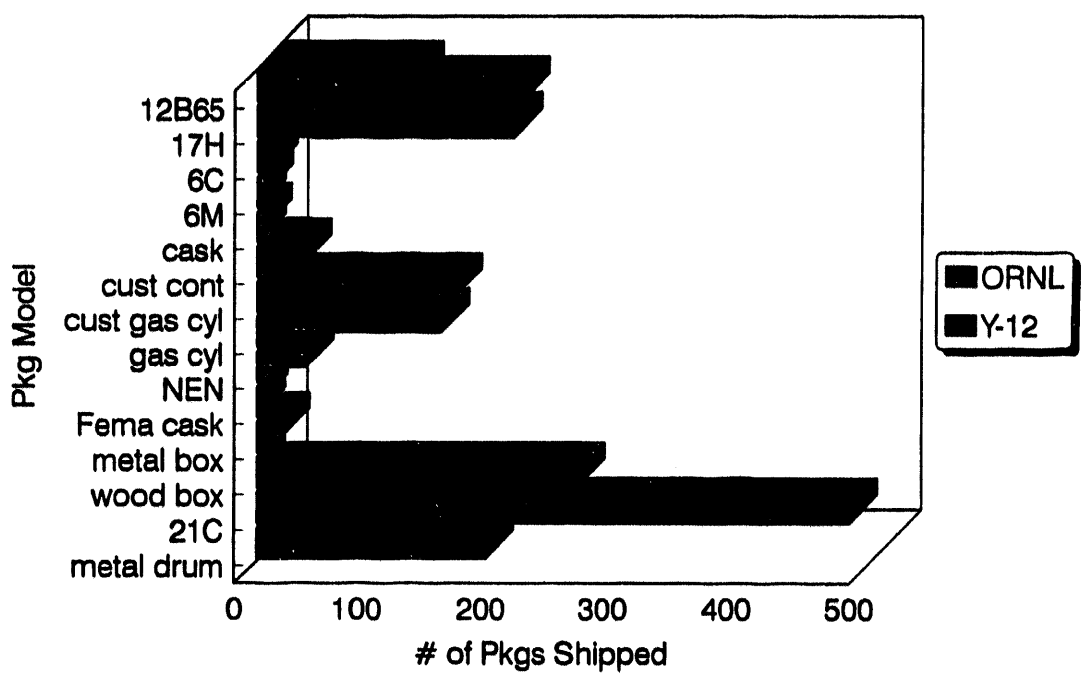
MUTA

PARAMETERS BEING ASSESSED

- ✔ Date (CY 1991-92)
- ✔ Domestic or International
- ✔ RAM
- ✔ Fissile or Fissile Exempt
- ✔ Activity
- ✔ No. of Packages/Shipment
- ✔ Package Model
- ✔ Gross Weight (lb)
- ✔ Special or Normal Form
- ✔ Physical Form (L,S,G)
- ✔ Chemical Form
- ✔ Net Weight
- ✔ Gas Pressure (mm)
- ✔ Gas Volume (cc)
- ✔ LSA/LQ
- ✔ Mode

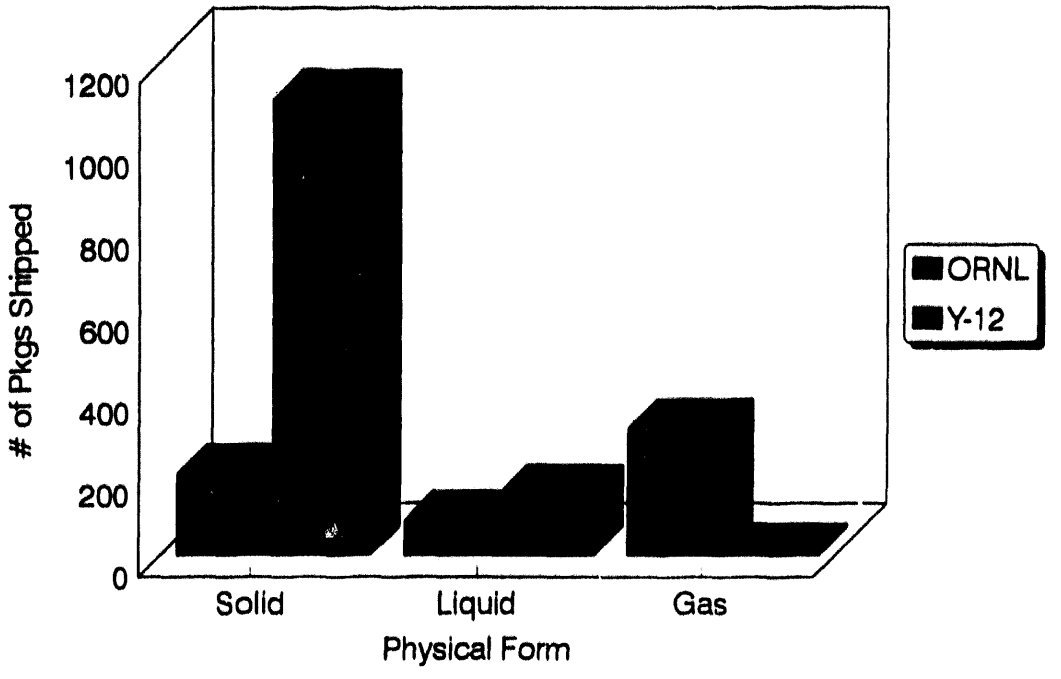
MUTA

ORNL/Y-12 1991-92 PKG MODEL



MUTA

ORNL/Y-12 1991-92 PHYSICAL FORM



POINTS OF CONTACT

- EG&G Rocky Flats -- Ken Lenarcic
- LANL -- Art Guthrie
- EG&G Mound -- James Zinc
- LLNL -- Dennis Barrett
- Paducah GDP -- Barbara Hook
- Westinghouse SRP -- Erich Opperman, Tom Wilson
- ANL-East -- Roger Habenicht
- Westinghouse Hanford -- Frank Vatau, Eli Smith
- Westinghouse Idaho Nuclear (Naval Reactors) -- J. Rushi
- Battelle Columbus Lab -- Ron Goodwin
- EG&G Idaho -- Max Ruska
- SNL -- Bud McKinney
- DOE (AL) -- Ken Golliher
- DOE (NV) -- Dick Ryan
- EG&G Las Vegas -- Robby Robinson
- Portsmouth GDP -- Don McCarty
- Bendix (KS)
- Pinellas (FL)
- Pantex
- Dayton
- WIPP
- Y-12, ORNL, K-25 -- Study is complete

MUTA

SUMMARY

- Defining needs for new Type A Package(s)
- Possibility of developing multiple use Type A Packages
- Contacting sites for data to support assessment
  - Need input from anyone making significant shipments of Type A quantities of radioactive material
  - Please contact K. Boes at (615) 574-8067
- MUTA design criteria/concepts document should be drafted by end of FY

Small Quantity HE Container

presented by Jay Stimmel, Los Alamos National Laboratory

UNCLASSIFIED

SMALL QUANTITY HE CONTAINER

TRANSPORTATION MANAGEMENT WORKSHOP
MAY 12, 1993

JAY STIMMEL
EXPLOSIVES TECHNOLOGY
LOS ALAMOS NATIONAL LAB

M-1 Explosives Technology Los Alamos

UNCLASSIFIED

ACKNOWLEDGEMENTS

- SHIRLEY DALTON
- RICHARD HILDNER
- MANUEL URIZER
- TMD FOR FUNDING
- RICH GENONI

M-1 Explosives Technology Los Alamos

UNCLASSIFIED

EXPLOSION

- A LOUD NOISE AND THE SUDDEN GOING AWAY OF THINGS FROM THE PLACE WHERE THEY HAVE BEEN.

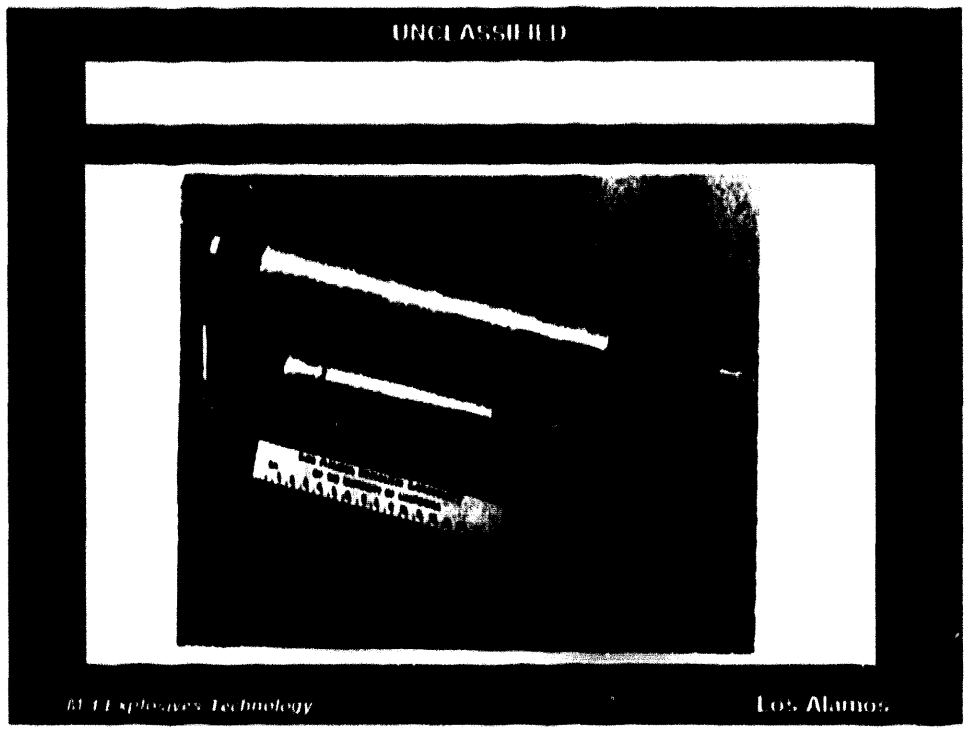
M-1 Explosives Technology — Los Alamos

UNCLASSIFIED

PURPOSE

- CLASSIFY A CONTAINER FOR SHIPPING SMALL QUANTITIES OF EXPLOSIVES
  - SAFE
  - LIGHTWEIGHT
  - FAST
  - INEXPENSIVE METHOD OF SHIPPING
  - MULTIMODAL
- HAZARD CLASSIFICATION
  - 1.4S

M-1 Explosives Technology — Los Alamos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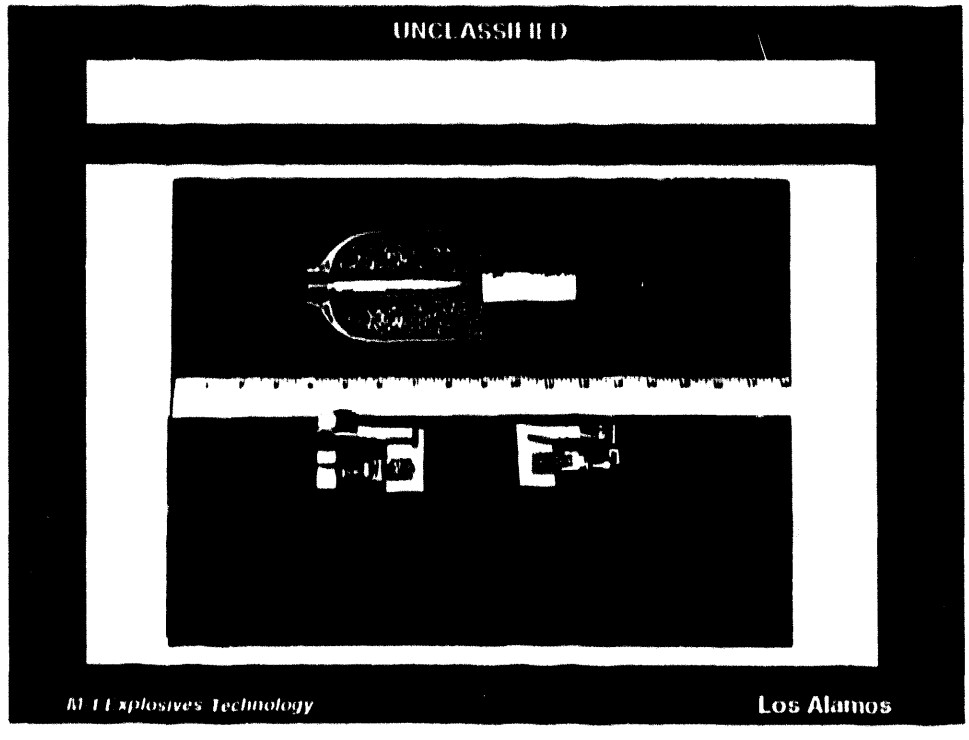
M-1 Explosives Technology
Los Alamos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TRANSPORTATION APPLICATIONS

- EXPLOSIVES FOR TESTING
- ESTABLISHED EXPLOSIVES WITHOUT AN EX-NUMBER
- FORBIDDEN EXPLOSIVES - 49 CFR 173.54 (j)
- EXPLOSIVES THAT HAVEN'T BEEN APPROVED - 49 CFR 173.56
- EXPLOSIVES NOT MEETING ACCEPTANCE CRITERIA - 49 CFR 173.57
- ENVIRONMENTAL SAMPLES CONTAINING EXPLOSIVES
- SHIPPING CLASSIFIED EXPLOSIVES - ROSS

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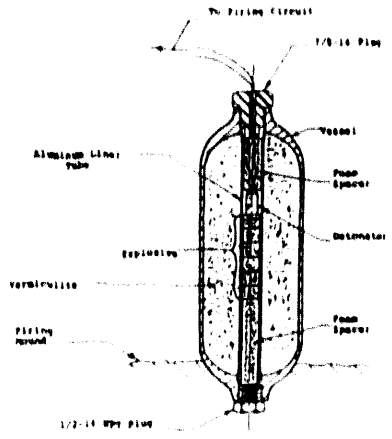
ALTERNATIVE METHODS

- MOUND PIPE
  - DOT E-8451
- EXPLOSIVES SAMPLES FOR EXAMINATION
  - 49 CFR 173.56d
- TRANSPORTATION OF UNAPPROVED EXPLOSIVES FOR DEVELOPMENTAL TESTING
  - 49 CFR 173.56e
- INTERIM HAZARD CLASSIFICATION
  - DOT E-10536
- EX NUMBER

UNCLASSIFIED



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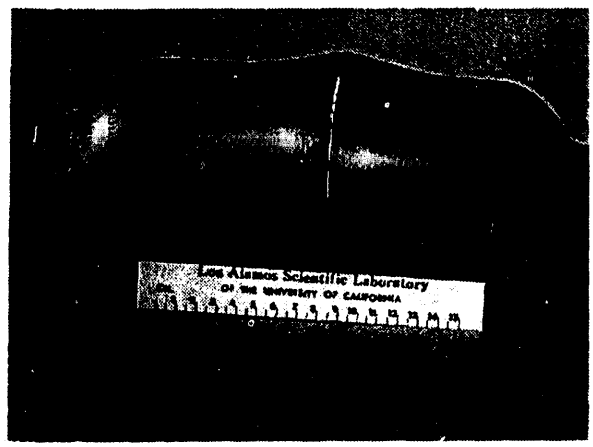

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CONCLUSIONS

- TESTING WILL BE CONTINUED
- HIGH PRESSURE HOKE CYLINDERS FOR LARGER QUANTITIES OF EXPLOSIVES
- THE RESULTS OF TESTING WILL BE SUBMITTED TO DOE AND DOT FOR CLASSIFICATION
- FUTURE PROJECTS:
  - CLASSIFICATION OF AN OFF THE SHELF CONTAINER FOR SHIPPING EXTREMELY SMALL QUANTITIES OF EXPLOSIVES

M-1 Explosives Technology

Los Alamos

HALPAK

presented by Norm Meinert, Westinghouse Hanford Company/RL

Westinghouse Hanford Company

TMD is Investigating The Need for Bulk Packagings to Ship High Activity Liquid Under the Environmental Restoration and Remediation Mission

Westinghouse Hanford Company

Packaging Will Interface With The Public

Environmental remediation mission will lead to increasing public access

- DOE-site boundaries are shrinking
- Off-Site shipping of liquids will become necessary for treatment and disposal

Westinghouse Hanford Company

Where Does This Leave Us?

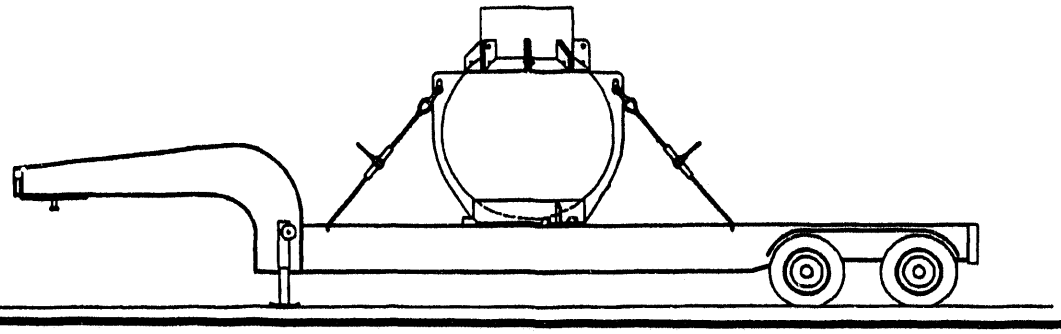
NO NRC licensed Type B bulk liquid packaging is available

Westinghouse Hanford Company

Bulk Shipping of Radioactive Liquids is Limited to On-Site

Hanford

300 Gallon Bowling Ball

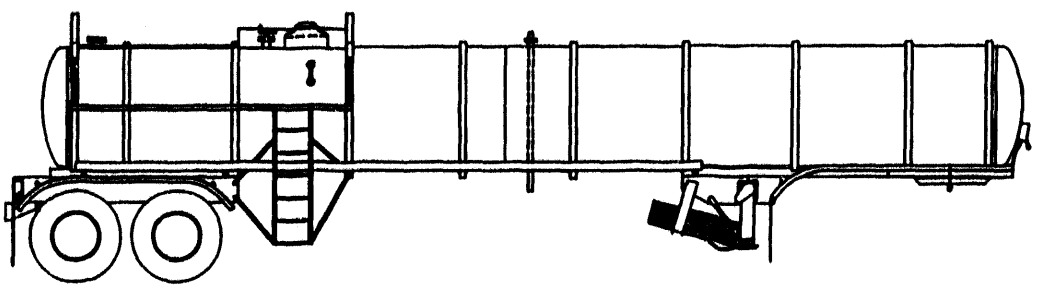


Westinghouse Hanford Company

Bulk Shipping of Radioactive Liquids is Limited to On-Site

Hanford

5,000 Gallon Cargo Tank

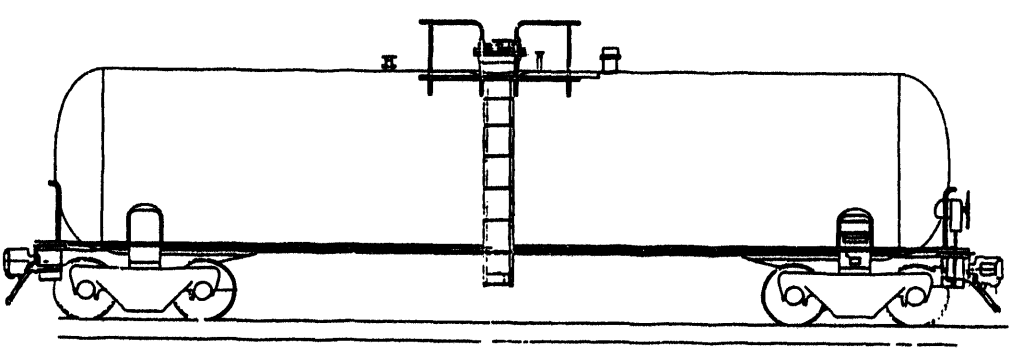


Westinghouse Hanford Company

Bulk Shipping of Radioactive Liquids is Limited to On-Site

Hanford

20,000 Gallon Rail Tank Car



Westinghouse Hanford Company

How Are Large Volumes of Radioactive Liquids Shipped On-Site Now?

Savannah River
5,000 Gallon Cargo Tank

ORNL
5,000 Gallon Cargo Tank

Other Sites
5,000 Gallon Cargo Tanks

Westinghouse Hanford Company

On-Site - Transportation is Facilitated on DOE Property by:

- Controlling property access
- Administrative controls
- Equivalent safety to DOT/NRC regulations

Westinghouse Hanford Company

Packaging Will Interface With the Public

Off-Site - Regulatory Requirements

NRC/DOE - Type B Packaging Design Requirements
AAR - Rail Transport
NEPA
State Agencies
Institutional Requirements
Others

Westinghouse Hanford Company

Studies Assessing Bulk Liquid Shipping Capability

Westinghouse Hanford

- December 1992 - Above Ground Transfer System
- May 1993 - Function and Requirements Tank Waste Mitigation Demonstration
- Shipments inter-area
- Grout facility support
- PNL to WHC 300 area effluents

ORNL

- Investigating purchase of LR-56

Westinghouse Hanford Company

TMD Is Assessing The Need Now

WHAT ABOUT OTHER SITES WITH HIGH ACTIVITY LIQUID TREATMENT AND DISPOSAL PROJECTS?

SRP, Rocky Flats, INEL, Fernald and Others

Westinghouse Hanford Company

What Site Activities Are Being Handicapped?

- High level waste from underground tanks to pilot testing facilities
- Low level waste from laboratories and decontamination facilities to underground tanks
- Pretreating high level waste
- Emergency liquid waste shipping

Westinghouse Hanford Company

Design Concept

Packaging - not a pipeline

High integrity packaging - 2 containment boundaries

Type B quantities of liquids

100 to +1,000 gallons capacity

Liquid pumping system

Licensed for off-site transport

Westinghouse Hanford Company

TMD Needs Assessment 'Now'

- One unifying DOE-wide needs assessment
- Size packagings to meet generators need
- Design, license and fabricate the number of packagings needed to support DOE-wide mission

Panel Discussion: Greater Than Class C - Low Level Waste

presented by: Michael Keane, DOE/EM/TMD
Norm Meinert, Westinghouse Hanford Company,
Ronald Pope, Martin Marietta Energy Systems, and
Ken Sorenson, Sandia National Laboraotry/AL

Panel Discussion

Greater Than Class C Low Level Waste

Michael Keane, EM-561
Chairman, GTCC Working Group

Transportation Management Division Workshop
May 12, 1993
Gaithersburg Marriott

GTCC Working Group Charter

- The GTCC Working Group was established by EM-561. The charter of the group is to evaluate packaging needs for the safe storage, transportation, and disposal of GTCC LLW.
- The Working Group is cooperating with EM-32, 35 on commercial GTCC packaging requirements. EG&G/ID are program managers for EM-35 for the management of commercial GTCC.
- The Working Group is evaluating the extent of EM-owned GTCC or "special case" LLW. Packaging requirements for this waste stream will be identified and coordinated with the commercial GTCC packaging requirements.

GTCC Working Group Participants

Michael Keane, Chairman	EM-561
Ken Sorenson Tim Wheeler	Sandia National Laboratories
A. Bisaria R. Bugos R. Pope	Oak Ridge National Laboratories
J. Haberman N. Meinert	Westinghouse Hanford
M. Tyack	EG&G/ID

Ex Officio Participants

T. Plummer	DOE/EM-351
M. Conroy	DOE/EM-561
B. Lake	DOE/RW-431
R. Sandwina	DOE/ID
K. Henry	EG&G/ID

GTCC Definition

- 10CFR61 regulations on near-surface burial define GTCC waste as a LLW whose activity exceeds Tables 1 and 2 limits for Classes A, B, and C.

- 10CFR61 provides criteria for near-surface disposal for Classes A, B, and C LLW in an NRC-licensed facility. GTCC LLW must be assessed on a case by case basis. DOE-owned GTCC that is disposed of on-site is not strictly classified as GTCC since it is not disposed of in an NRC-licensed facility. Therefore, GTCC is associated with commercial LLW.

- There are four major areas associated with GTCC LLW generation:
  - activated metal from nuclear power plants
  - sealed sources from users and manufacturers
  - fuel testing and burnup evaluation facilities & academic isotope users
  - DOE-held GTCC

DOE-owned "special case" waste

- DOE LLW that exceeds 10CFR61 activity limits is termed "special case" or "specific performance assessment required" (SPAR) wastes.
- SPAR wastes also include TRU wastes that do not meet WIPP waste acceptance criteria, nuclear fuel and fuel debris used for research purposes, and excess nuclear materials that are no longer useful to the present custodians.
- SPAR or "special case" wastes can also include hazardous components

DOE-owned "special case" waste

There is no DOE program established to manage the DOE "special case" waste complex-wide. The GTCC Working Group will evaluate the extent of the "special case" waste inventory and will identify packaging requirements.

Scope of the GTCC Issue

Commercial GTCC LLW

- Estimates vary from 2300 to 6500 m^3 for the four major categories
- GTCC must be disposed of in an NRC-licensed repository
- There is currently no identified repository for GTCC LLW
- The NRC has requested DOE to take early possession of up to 800 sealed sources. This will require long-term interim storage.

Scope of the GTCC Issue

"Special Case" or SPAR LLW

- There is an estimated 1,000,000 m^3 of SPAR LLW
- There is no single program office identified to manage SPAR LLW
- Waste processing technologies are still being evaluated
- Existing on-site near-surface burial *may* be suitable
- Disposal in an NRC-licensed repository *may* be required
- Interim storage will be required if site restoration activities preceed decisions on disposal and repository readiness

⇩

- Packaging requirements will hinge on decisions regarding the preceeding four bullets

Regulatory Issues

DOT

- 49CFR → Transportation

NRC

- 10CFR60 → Geologic repository
- 10CFR61 → Near-surface burial
- 10CFR71 → Transporation
- 10CFR72 → Interim storage facility

EPA

- 40CFR → RCRA requirements for haz. waste disposal

Regulatory Issues

Policy and Contractual Agreements

DOE

- DOE Order 5480.2 - *Radioactive Waste Management*
- DOE Order 1540 Series - Transportation
- EM Programmatic Environmental Impact Statement (EM PEIS)
- EM Site Roadmaps and Transportation Roadmap

Agreements with Other Organizations

- Federal Facility Compliance Act (FFCA) agreements
- Agreements such as the Tri-Party Agreement @ Hanford that involves DOE, Washington State, and the EPA.

GTCC Working Group - Where do we go from here?

The FY93 goal of the Working Group will be to produce an Action Plan for FY94 and beyond. This Action Plan will identify activities and establish schedule and budget. Close coordination will be maintained with all DOE stakeholders and pertinent program managers.

Lopez: What is the timeframe on the PEIS?

Sorenson: To my limited knowledge, the implementation plan is scheduled to go out this summer, late summer. Now what the schedule is on the final PEIS, I'm not sure about that.

Kelsey: I'm Ron Kelsey from Meta. I'm from the contractor that's doing the EM PEIS. The schedule for the draft, right now, is 1 March.

Sorenson: Of '94?

Kelsey: Of '94. That's a heck of a lot of work that's got to be done between now and then, obviously.

Sorenson: Ron, was I correct on the schedule for the implementation plan?

Kelsey: I think it will be out earlier than that. I think so, but I'm not sure. We've had some more difficulties with that. I envision it will be out on the street in about a month from now, but there are complications. I'm not sure what EM-1 has established, as of yet, for the publication date for that thing.

Sorenson: Thank you.

Pope: A couple of things come to mind as we've had this discussion. One, is that the working group has come to recognize that this may be a good opportunity to create working interfaces with the many different sources of this type of material throughout the DOE complex. We're trying to reach out to the other sources in NE, DP, RW and so on, and identify what they project their needs are for the future.

For example, the 10 CFR 961 contract that RW has with the utilities. The way it's being interpreted, as I understand at this point, is that DOE will accept the spent fuel if the non-fuel bearing components are integral with fuel assemblies. But, if the Greater than Class C materials are not integral, we're kind of in limbo as far as where they would go and who would pick them up and so on. That may be part of the Greater than Class C issue that will have to be handled from the NRC licensee side, where DOE still has the responsibility for disposal.

But there are a lot of sources of these kinds of materials coming out of DOE and we're just starting to try to identify what it is, where it is, when it would be shipped and so on. We would appeal to any of you if you have insight into these types of materials, whatever they're called, to get in touch with one of us on the

committee and let us know. We might invite you in to have a discussion. It's these one-on-one discussions that are very enlightening.

When it comes to Greater than Class C, the other point I wanted to make is that we, very early on, were made aware of the fact that within Greater than Class C is a very small volume of material represented by 97,000 sealed sources. Ultimately those 97,000 sealed sources are going to have to go some place. Most of them are out, such as well logging sources and so on, in the hands of NRC licensees. Some of them are being, what they call, emergency declared, because those licensees themselves are going bankrupt, going out of business or whatever; and some of these sources are, in a sense, going out of control.

NRC is looking to DOE to take them over, ship them some place and store them. That will be an issue that is going to become the bigger issue over the next couple of years. The first two or three of these were to have been shipped recently, and I understand that there are as many as two to four thousand that will have to be shipped over the next two or three years.

The pedigree on those sealed sources, in terms of being special form, may come into question. That will then cause us to look at whether we need to package them differently.

So there are a number of issues that are emerging that we'll have to look at in some detail when we get into this deeper.

Panel Discussion: Laboratory Sample Packaging

presented by: Michael Conroy, DOE/EM/TMD,
Paul Nigrey, Sandia National Laboratory/AL,
John O'Brein, Westinghouse Hanford Company/RL,
Ronald Pope, MMES/ORNL, and
Herb Sutter, SAIC

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R. Michelhaugh	ORNL	H. Sutter	SAIC

Working Group on the Transportation and Packaging of Laboratory Samples Technical Support Team			
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P. Lindahl	ANL	C. Sell	SSS
M. McAllaster	SNL	A. Trennel	SNL

Draft 3/11/93 PACKAGING NEEDS MATRIX				
	Non-Radio-active Hazardous	Radio-active Mixed	Radio-active	Radio-active α [1]
Strong Tight	NR	C	NC	1
Industrial Package (IP-1,2,3)	NR	NR	NR	NR
Type A	NR	B	NC	2
Type B	NR	NC	NC	2
Performance Oriented Packaging	C	C	NR	NR

Paul J. Nigrey

Transportation Systems Technology
Department 6642
Sandia National Laboratories

Sandia National Laboratories

ttd Department of Energy/EM-561
transportation technology development program

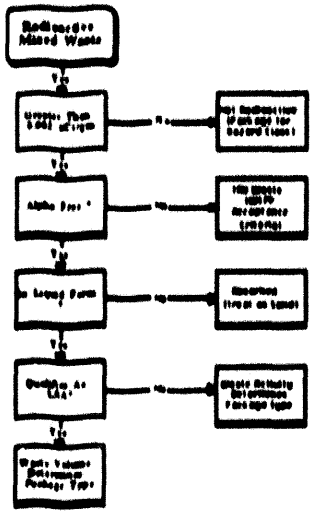
Regulatory Order of Hazardous Materials

- Radioactive (except limited quantities)
- Flammable Liquids
- Oxidizers
- Poison B
- Irritants
- Combustible Liquid
- Otherwise Regulated Material, Class E

Sandia National Laboratories

ttd Department of Energy/EM-561
transportation technology development program

Decision "Tree" for Transporting RMW



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transportation technology development program

Selected Examples of Prohibited Chemical Compounds (49 CFR 172 Sub. B)

- Ammonium Nitrite
- Copper tetraamine nitrate
- Methyl ethyl ketone peroxide
- Pyridine Perchlorate

Waste needs to be characterized to assure none of such forbidden materials are contained within container !

Sandia National Laboratories

ttd Department of Energy/EM-561
transportation technology development program

March 29, 1993
with changes as of May 10, 1993

U.S. DEPARTMENT OF ENERGY
1000 Independence Ave. SW
Washington, DC 20585

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References:

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Proposed Manual DOE 1300.2 dtd March 1993 "Department of Energy Technical Standards Program Procedures"

Thursday, May 13, 1993

TMD Training: Where Are We Headed?

presented by Wade Winters, Westinghouse Hanford Company/RL

Department of Energy
Transportation Management Division

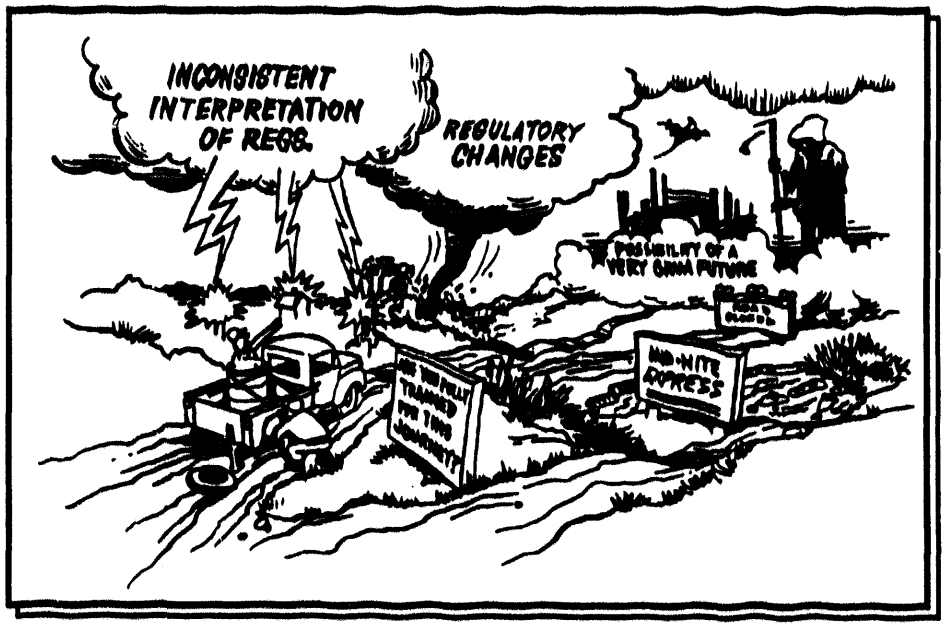
TMD Training:
Where Are We Headed?

Larry Bialock, Director
Ella McNeil, Program Manager
Wade Winters, Integrated Program Coordinator

Presented to:
1993 TMD Transportation Management Workshop
Gaithersburg, Maryland
May 13, 1993

RS305006. 1

Enter Into the Federal Regulation Corridor: *The Perception*



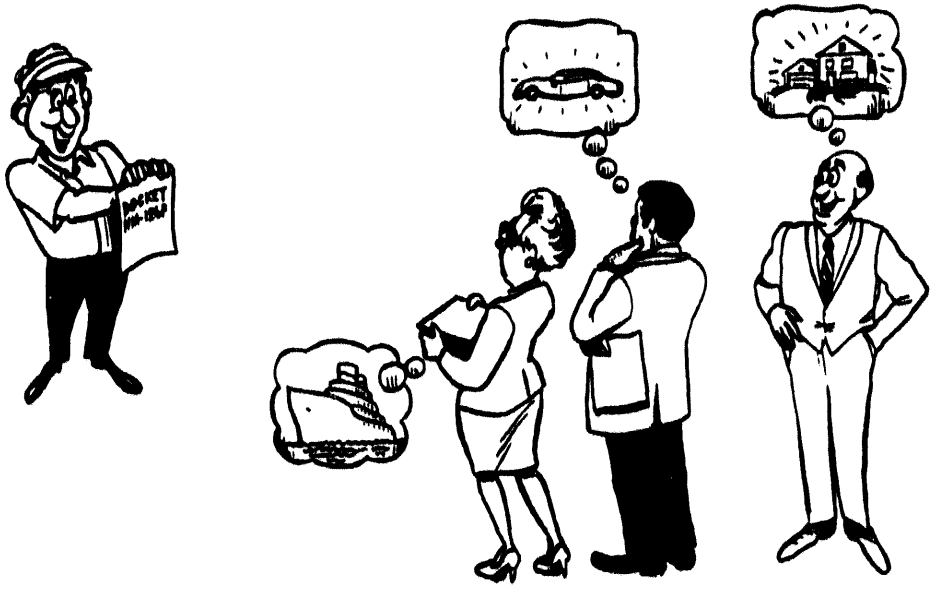
RS305006. 2

TMD Training is Focusing on the Future

- Initiating new training programs
- Redesigning existing programs
- Accrediting TMD instructors
- Promoting quality

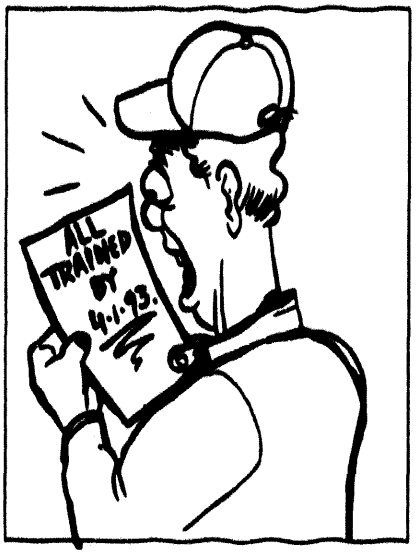
R9305006.20

Docket HM-126F Was a Welcomed Rulemaking



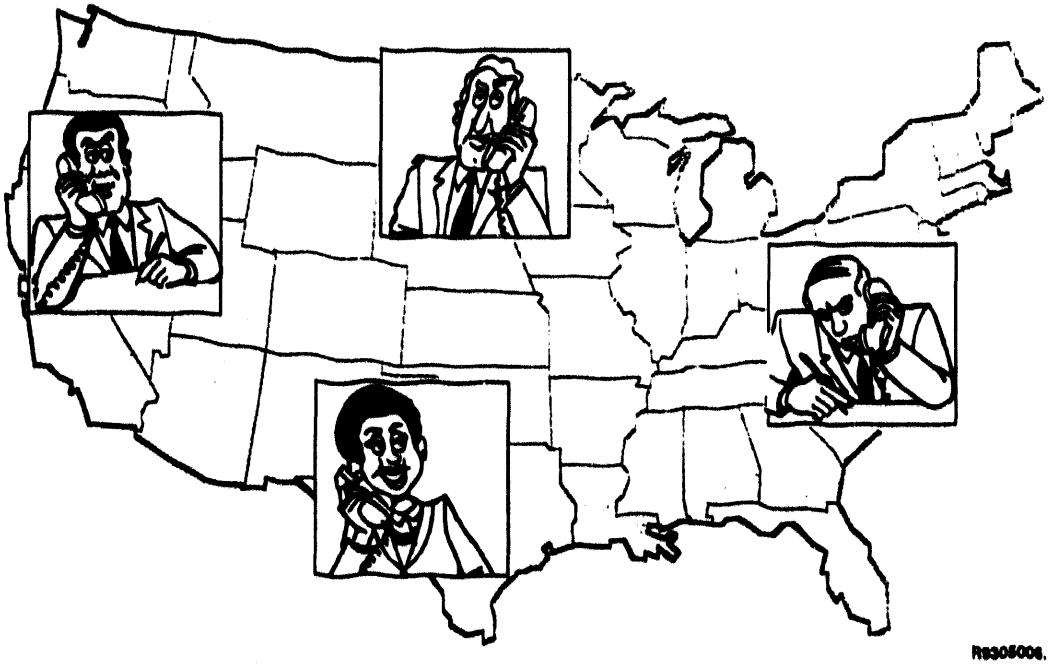
R9305006.3

The April 1, 1993 Completion Date Was Very Ambitious, but then . . .



R9305006. 4

Transportation Management Division Responded by Establishing an Ad-Hoc Training Assessment Group

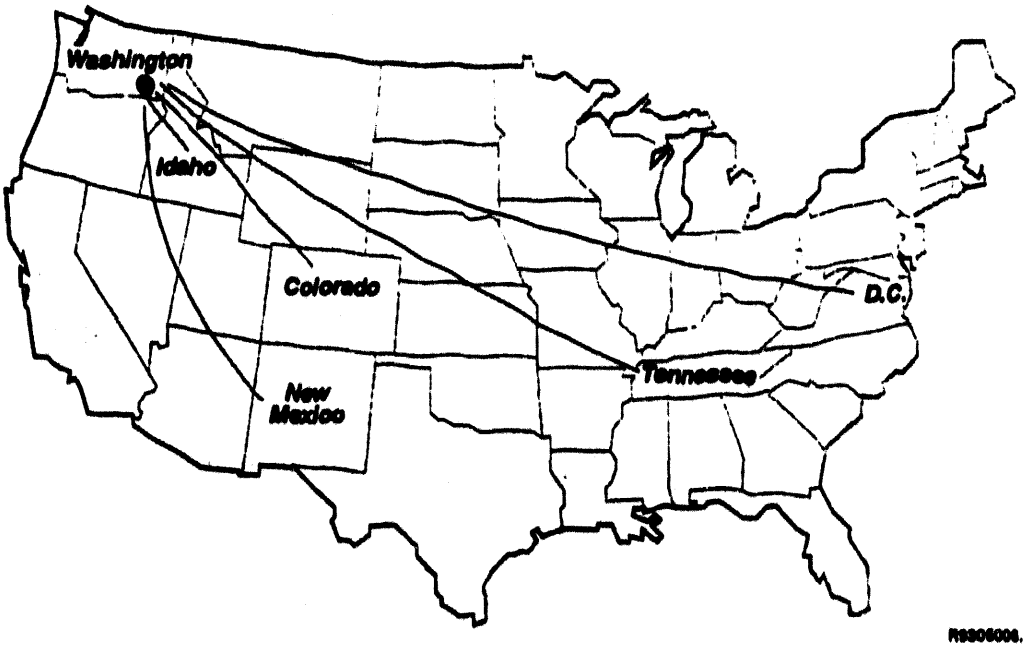


R9305006. 5

The Ad-Hoc Group Identified the Needs and Methods to Fulfill HM-126F

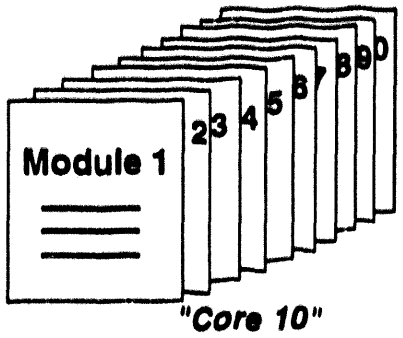
R9305006. 6

The Module Program is a Result of an Integrated Group Effort

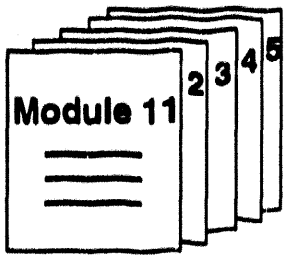


R9305006. 7

Fifteen Modules Were Identified for Development



"Core 10"

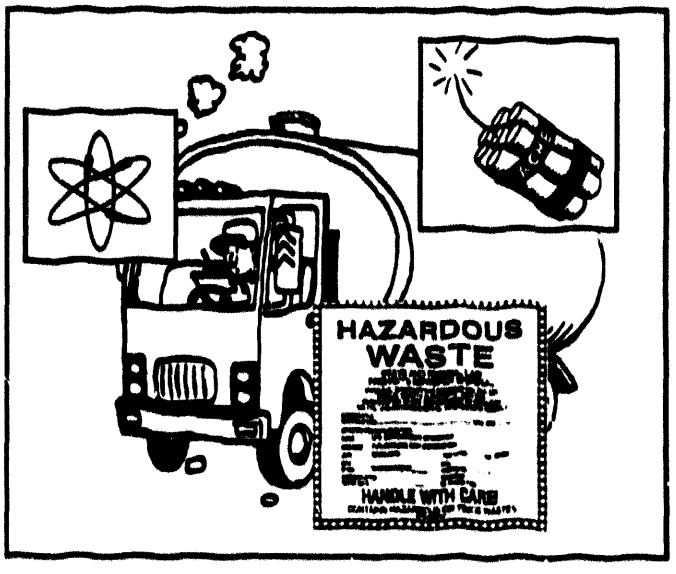


"Additional 5"

R9306006. 8

Modules 11-15 Provide Enhancements to General DOT HAZMAT Training

11. Radioactive Material Transportation (4/93)
12. Hazardous Waste Transportation (4/93)
13. Bulk Packaging Transportation (7/93)
14. Explosives Handling and Transportation 7/93)
15. Driver's Training for 49 CFR 177 Compliance (8/93)



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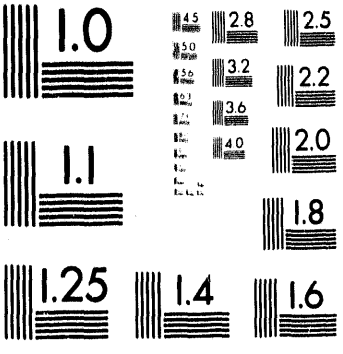
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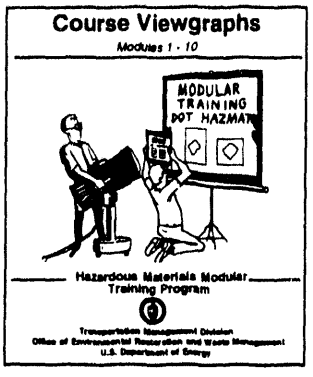
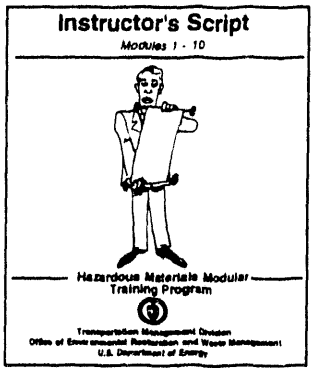
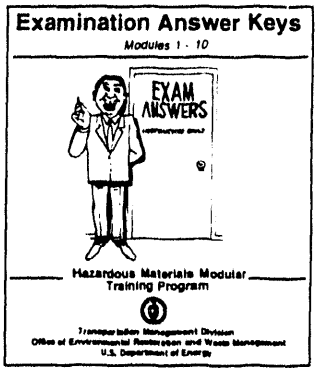
5 of 7

Each Module is a Complete Training Program

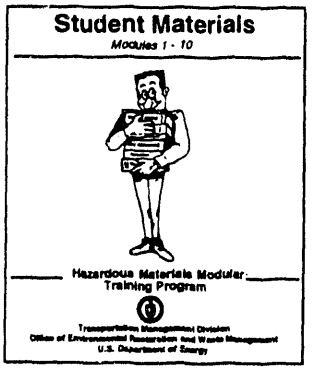


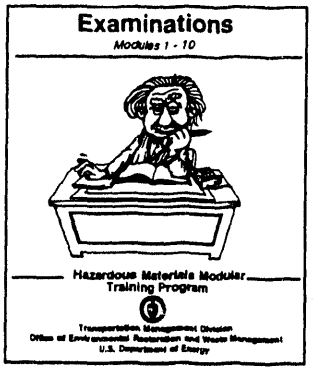


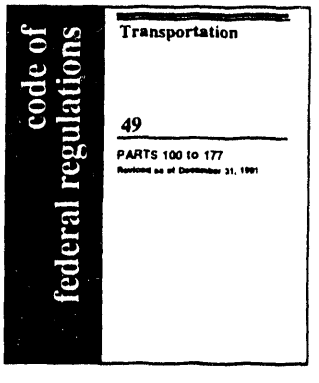


R9305006. 9

Each Module is a Complete Training Program (cont.)





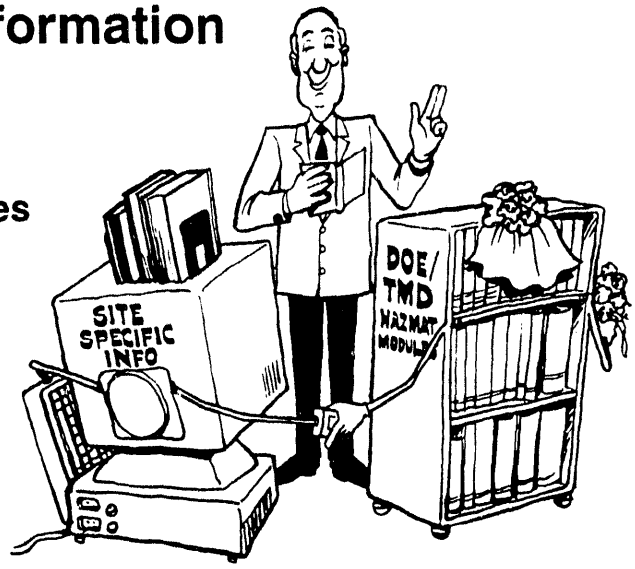


R9305006.10

The DOE Hazardous Material Modular Training Program Requires Incorporation of Site Specific Information

Information Specific To:

- Methods and procedures for avoiding accidents
- Measures to protect employees from the hazards of the material
- Other site specific information as required



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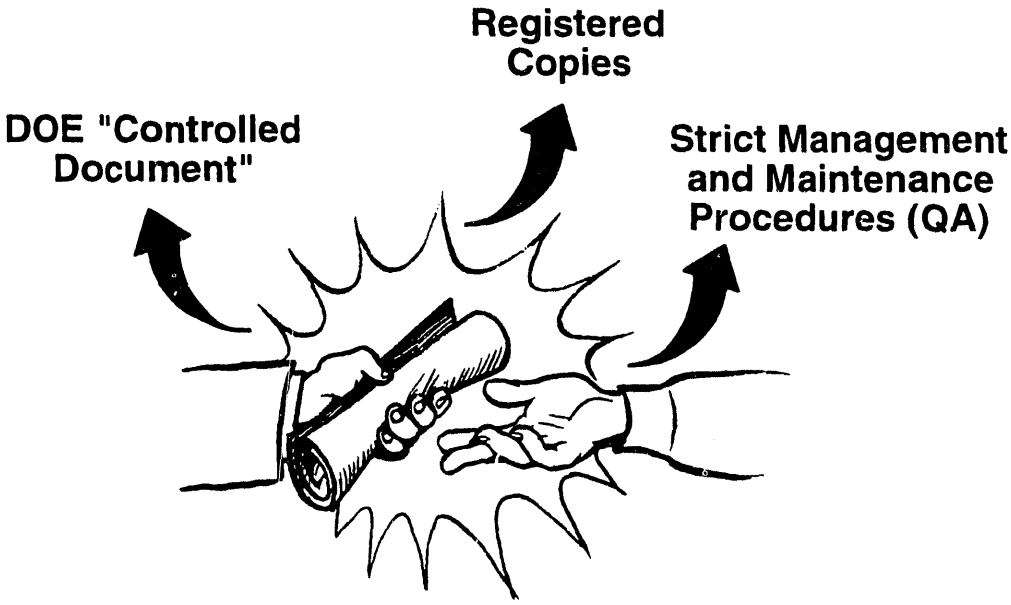
Distribution is Tightly Controlled



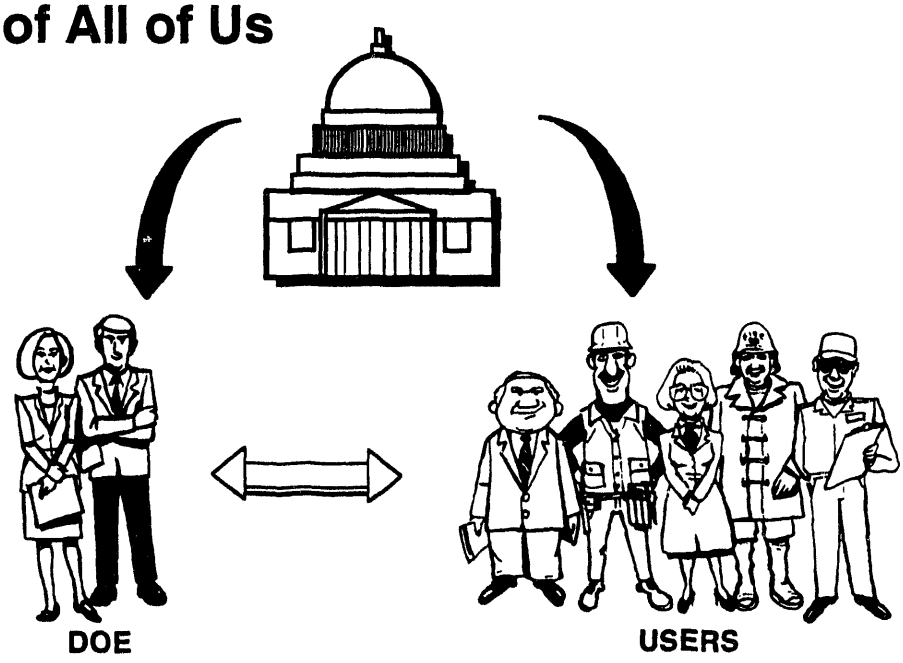
R9305006.11

DOE Transportation Management Division Provides Instructor Orientations for the Modular Training Program

- No Module Set is an Island
- 4 Regional Workshops Planned in FY 1994
- Instruction Provided in "How to Use the Modules"

R9305006. 16

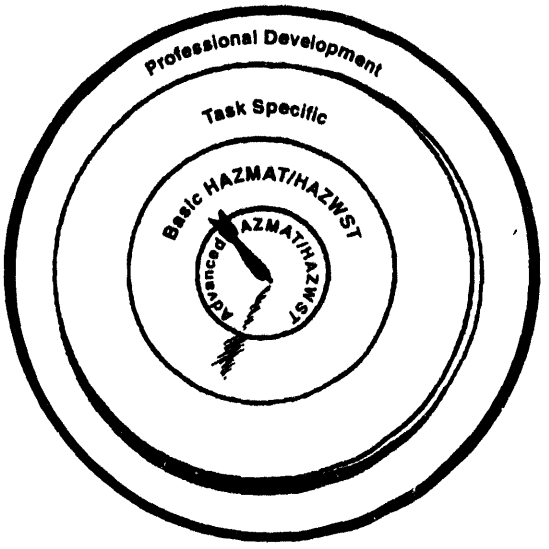
Maintenance is the Responsibility of All of Us



R9305006.12

TMD Training Programs are Designed for a Specific Target Audience

- Professional Development
- Task Specific
- Basic HAZMAT/HAZWST
- Advanced HAZMAT/HAZWST



R9305006.21

The DOE/TMD is Drafting a DOE HAZMAT/HAZWST Shipper Certification Plan

- Establish certification path
- Provide certification tools
- Promote certification
- Monitor and evaluate certification

R9305006.18

TMD Promotes National Unity Through the "Instructor Pool"

- Open invitation
- Selection criteria
- Employee commitment
- TMD's involvement

R9305006.19

The Ultimate Goal is Personnel and Environmental Safety

R9305006.13

DOT Enforcement/Inspector Training

presented by Curnis King, Federal Highway Administration

TRANSPORTATION MANAGEMENT WORKSHOP
DEPARTMENT OF ENERGY

MAY 11-13, 1993

Gaithersburg Mariott
Gaithersburg, Maryland

Presenter: Curnis King
HMPM - Region 10
U.S. DOT/FHWA

Topic: DOT Enforcement/Inspector Training
Time: May 13, 1993, 8:40 a.m.

Presentation will include FHWA/OMC's shipper enforcement program and should benefit DOE and the contractor community.

I. General Applicability of HMR

A. Transports
B. Offers
C. Package (Manufacturers, Repairs, Test, Marks)
D. Under contract with any Department or Agency

II. Shipper Definition

Regulatory responsibilities under the HMR is determined by whomever performs a particular function. That involves a case-by-case determination based on all relevant facts.

Usually those persons who perform, attempt to perform, or under circumstances involved are responsible to perform, any of the functions assigned to the offeror or shipper by the HMR are legally responsible under the HMR for their proper performance.

III. **Shipper's Responsibility**

A. Proper HM classification and description
B. Proper Packaging including proper manufactured, assembled and Marked
C. Proper notification if required (RAM HRQ)
D. Employee training (Subpart H, Part 172)
E. Other communication requirements

IV. **Shipper Enforcement Program**

A. Mandates from Congress:
   1. Prohibits the shipper from using a motor carrier rated "unsatisfactory" for the movement of HM or passengers (Sanitation Act of 1990)
   2. Prohibits shippers from using motor carriers that do not hold safety permits to transport certain designated HM (HMTUSA of 1990)
   3. DOT's move toward international HM standards and performance oriented packaging concepts (rewrite of regulation)

IV. **Shipper Enforcement Program (cont.)**

B. Program Methodology/Initiatives
   1. Update Census
   2. Identify Shipper Population
   3. Applicability to New Regulations
   4. Tracking Systems
   5. Problem Areas
   6. Time Frame
   7. Staffing
   8. Monitoring

IV. **Shipper Enforcement Program (cont.)**

C. Ranking System - Point Values
1. Order of Hazards
   a. RAM/Explosives/PIH
   b. Flammable Gas
   c. Flammable Liquids
   d. Oxidizers
   e. Flammable solids
   f. Corrosives (Liquids)
   g. Poison B
   h. Corrosives (Solids)
   i. Others
2. Violations Discovered
   a. 172
   b. 173
   c. 178
   d. Bulk
   e. Multiple Hazard Classes
   f. Incidents

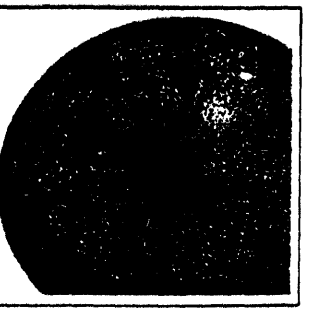
IV. **Shipper Enforcement Program (cont.)**

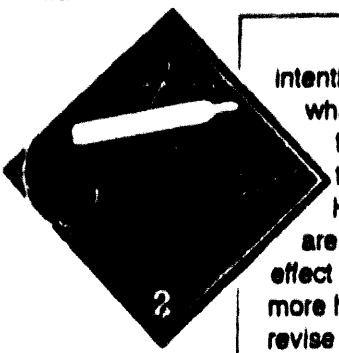
3. Compliance Reviews
4. Roadside Inspections
5. Observations Reports
6. Enforcement Reports
   a. Statutory Minimum per violation $250
   b. Statutory Maximum per violation $25,000

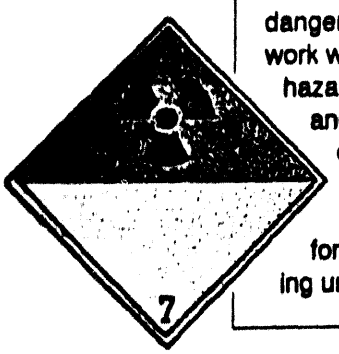
Any Person who performs, attempts to perform, or, under the circumstances involved, is contractually or otherwise responsible to perform, any of the functions assigned to the offeror or shipper by the HMR is legally responsible under the HMR for their proper performance. Performance or attempted performance of any offeror or shipper functions may be evidence of responsibility under the HMR for performance of other offeror or shipper functions. No single commercial act, such as a sale or transfer of ownership, is necessarily determinative of that responsibility.

The Federal Highway Administration, Office of Motor Carriers Presents

Docket HM-181 Video Training Series







Tape #1 is a broad look at the intentions of the new regulations and what they are designed to do. This tape also looks at the areas of transportation that are affected by HM-181. Other topics discussed are when the regulations will take effect and where the viewer can get more help and information. HM-181 will revise hazard classes and introduce a numeric identification system.

Tape #2 in our series will help the viewer understand each of the classes and the divisions that may exist. This tape also helps the viewer be able to properly classify hazardous materials in accordance with the new rules.

Certain hazardous materials carry the designation of Poison-Inhalation Hazard. These materials present special dangers for the public and those who work with them. **Tape #3** looks at the hazard communication requirements and helps to simplify the complex classification process for PIH materials.

Communication requirements for hazardous materials are changing under HM-181. The hazardous materials table and the separate optional hazardous materials table found in 49 CFR are being joined to form one table. **Tape #4** describes the new requirements for shipping papers, labels, markings, and placards that reflect the revised rules and hazard classes.

Tape #5 looks at the new rules concerning performance oriented packaging. Packages that are authorized to carry hazardous materials are now being performance tested for strength and integrity rather than built to specific standards listed in the regulations. This tape looks at the testing process and the benefits and innovation that these new rules will provide.

New highway specific requirements are also coming into effect under docket Hm-181. **Tape #6** in our series will review how the segregation and compatibility tables are changing to accommodate the new hazard classes and divisions. There is also a new "Keep Away From Food" designation for some materials.

Please send me the following tapes:

__Tape #1 - Introduction & Overview
__Tape #2 - Hazard Classification
__Tape #3 - Poison-Inhalation Hazards
Tape #4 - Hazard Communication
Tape #5 - Performance Oriented Packaging
__Tape #6 - Highway Specific Requirements

NAME:_____
ORGANIZATION:_____
ADDRESS:_____
CITY,STATE,ZIP:_____
PHONE:_____

Please include payment of $10.00 per tape ordered. ($15.00 per tape for international shipments) Make checks payable to the IDAHO STATE POLICE. Price includes shipping and handling. Please allow 4 to 6 weeks for delivery. Sorry, no CODs.

Detach and mail to: IDAHO STATE POLICE, MCSAP VIDEO SECTION, 6027 CLINTON, BOISE, ID. 83704

Integrating EPA and OSHA Transportation Training with DOT Requirements

presented by Dean Larson, Argonne National Laboratory

Integrating D.O.T. Safety Training Into Environment, Safety & Health at Argonne National Laboratory

Dean R. Larson
Argonne National Laboratory

BFO

TWO PREMISES

bio\2premis646705

Premise Number One

Nearly every environmental problem has a safety and health implication; seldom does a safety and health incident occur without an effect on the environment.

bio\premis1646705

Premise Number Two

The concerns of environmental protection, occupational safety, and packaging/transportation safety continue to grow closer with boundaries that are difficult, if not impossible, to define.

Argonne Approach

- Matching "person-specific" hazards to training
- New requirements

  Can we combine into an existing course?

  Group specific courses?

Argonne Approach

Training areas

- OSHA
- DOE
- EPA
- DOT

and...

- Literacy

Argonne Approach

- *Dedicated ESH Training Section*
- *Professional*

  CSP

  CIH

  CHP

  CHMM

  Instructional Designers

Intermix of Disciplines

- Trainers have working knowledge of other overlapping disciplines.
- The D.O.T. trainer is the backup for environmental protection training, hazwoper etc...
- This allows better integration of information to related fields.

Coordinated Enforcement

- OSHA and EPA currently coordinate enforcement of hazardous waste sites
- With D.O.T. emphasis shifting from carrier to shipper enforcement, how long until they join the *"sister"* agencies for *"complete coverage"*?

D.O.T. Site Specific Training

Coordinate with Transportation Safety Manager

Include procedures for all movements

Integrate the Transportation Safety Manual procedures into training.

BFO*

**Blinding Flash of the Obvious*

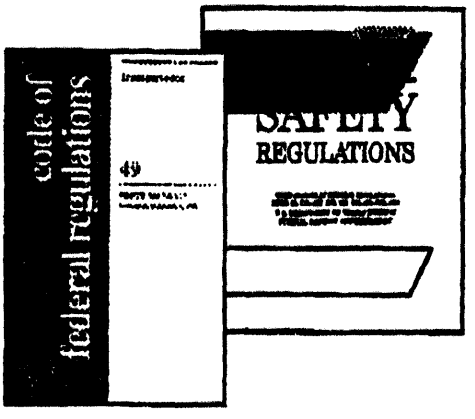
Federal Motor Carrier Safety Training and Drivers' Training

presented by Pete Toolson, Westinghouse Hanford Company/RL

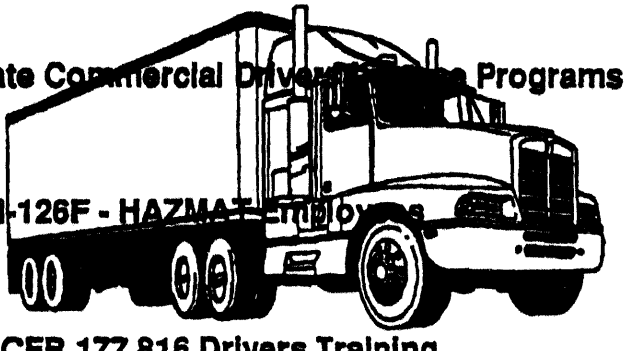
DOE – TMD
Drivers Training Program

presented by:

G. Peter Toolson

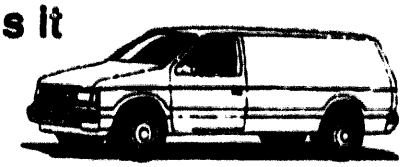


Why Driver's Training?



- State Commercial Driver's License Programs (CDL)
- HM-126F - HAZMAT Employees
- 49 CFR 177.816 Drivers Training

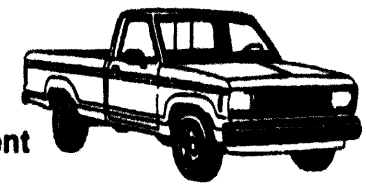
Drivers Training – How is it Accomplished?



- Your State's Licensing Program for CDLs (every four years)
- All DOE and contractor drivers must be sufficiently trained in the applicable Regulations for Highway Transportation of Hazardous Materials found in 49 CFR Part 177, and applicable Federal Motor Carrier Safety Regulations (FMCSR), 49 CFR Parts 383-399
- This new training program (177.816) supports the DOT 2-year retraining requirement for personnel who transport HAZMAT

R9305013. 3

Drivers Training, 49 CFR 177.816, What is Included?

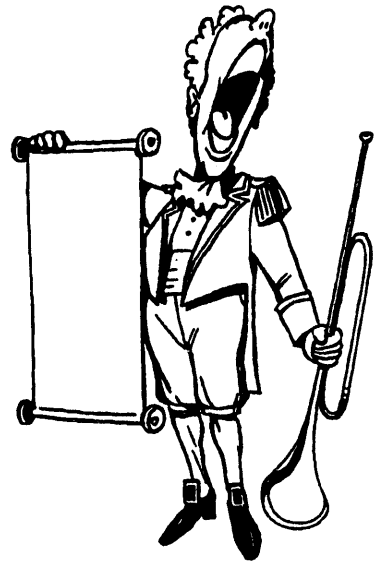


1. Pre-trip safety inspections
2. Use of vehicle controls and equipment
3. Operation of vehicle
4. Procedures for navigating tunnels, bridges, and railroad crossings
5. Requirements for attendance of vehicles, parking, smoking, routing, and incident reporting
6. Loading and unloading of materials
7. Specialized requirements for cargo tanks and portable tanks

R9305013. 4

Benefits to DOE-TMD

- DOE complex-wide standardization
- Cooperation with local, state, and other federal agencies
- Increased safety in transportation on public highways
- Reduced accidents/incidents

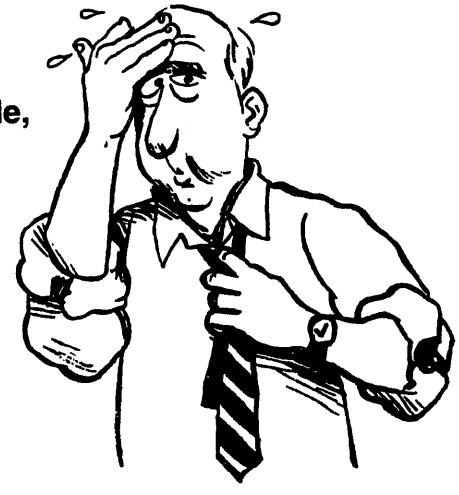


R9305013. 5

Additional Tools for Full Compliance

TMD Training Resources

- TMD Drivers Training Module, (177.816)
- Vehicle Inspection for Maintenance Personnel
- Vehicle Inspection, Load Tie-Down and Securement
- Motor Carrier Evaluation Program



R9305013. 6

Why Drivers Training? (cont.)

FMCSR 391.11(a)

A person shall not drive a motor vehicle unless . . . qualified to drive a motor vehicle . . . or motor carrier shall not require or permit a person to drive a motor vehicle unless that person is qualified to drive a motor vehicle.

R9305013. 7

What is Performance-Based Training Design?

presented by Dennis McCall, Westinghouse Hanford Company/RL

Quality Performance-Based Training Enhances Safe and Effective Transportation Operations

Dennis McCall

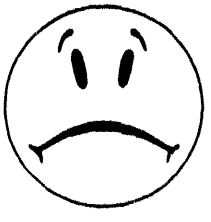
Westinghouse Hanford Company
Richland, Washington

A great deal of time, effort and money is expended in the United States each year to achieve safety in transporting radioactive materials.

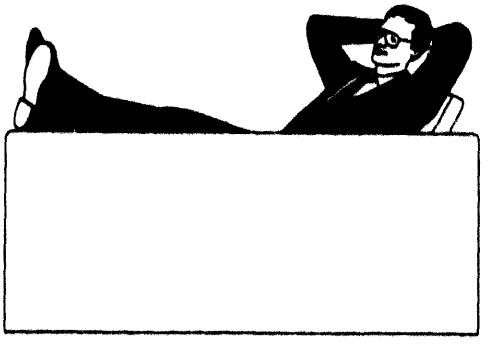
- Statistics support the fact that United States packaging systems are safe.
- Only minor releases have been recorded.
- The record demonstrates that there is little or no potential for physical consequence to the public or environment.

The problem remains that the general public, special interest groups and governmental officials remain unimpressed.

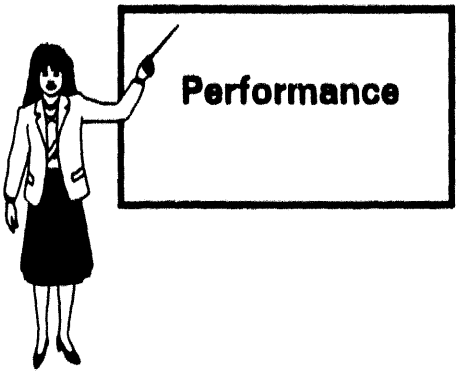
- Tons of hazardous materials move through communities daily.
- Motor vehicle accidents occur daily.
- Hazardous materials, specifically radioactive materials believed to pose significant health and environmental risk.



When transportation accidents and incidents occur, the root cause 90-95% of the time is found to be human error, not package or transport equipment failure.



An effective way to reduce human error is through effective performance-oriented training programs that require each trainee to demonstrate competency.



Training transportation workers in the United States is mandated by Federal law and Federal regulation.

- Hazardous Material Transportation Uniform Safety Act 1990.
- U.S. Department of Transportation Docket HM-126F, "Training for Safe Transportation of Hazardous Materials."
- U.S. Department of Transportation Docket HM-181, "Performance-Oriented Packaging Standards."
- Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) Regulations.

Effective performance-oriented training has several key program elements.

- Analysis
  - Needs assessment
  - Review of regulatory standards
  - Job and task analysis
- Design
  - Detailed work plan and schedule
  - Develop terminal and enabling objectives
  - Prepare course outline and synopsis
- Development
  - Lesson plans, training aids & student materials

Effective performance-oriented training has several key program elements. (continued)

- Implementation
  - In house testing
  - Pilot and prototype delivery
- Evaluation
  - Peer review by technical experts
  - Student review
  - Revise program as necessary
- Documentation
  - Program documentation
  - Student certification
  - Program accreditation

Performance-oriented training has many benefits.

- Reduces student training time.
- Eliminates unnecessary training on skills not needed.
- Ensures standardization of instruction.
- Minimizes impacts of instructor variables.
- Provides documentation of program effectiveness.
- Provides basis for student certification and program accreditation.

The U.S. Department of Energy sponsors several performance-oriented training programs dealing with hazardous material transportation safety.

- "Hazardous Material Modular Training Program."
- "Hazardous Waste Packaging and Transportation Workshop."
- "Advanced Radioactive Materials Training Course."
- "Vehicle Inspection and Load Tie-Down Training."
- Several others aimed at different target audiences.

Performance-oriented training -- An effective means of ensuring personnel are qualified to conduct their assignments safely, efficiently and at a predetermined and acceptable level of expertise and skill.

The result is reduced human error, fewer accidents, more cost effective, efficient and safe operations, and improved public confidence in our industry.

WHC-SA-1570-FP

Quality Performance-Based Training Enhances Safe and Effective Transport Operations

Prepared for the U.S. Department of Energy
Office of Environmental Restoration and
Waste Management

Westinghouse Hanford Company Richland, Washington

Hanford Operations and Engineering Contractor for the
U.S. Department of Energy under Contract DE-AC06-87RL10930

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Quality Performance-Based Training Enhances Safe and Effective Transport Operations

Dennis L. McCall

Westinghouse Hanford Company, Richland, Washington, United States of America

ABSTRACT

A great deal of time, effort, and money is expended in the United States each year to achieve safety in transporting radioactive materials. Statistics support the fact that packaging systems currently used for this purpose provide adequate safety. The high-quality packaging systems now used essentially eliminate the potential for major physical consequence to either the public or to the environment that could result from a radioactive material transportation incident. A major problem, however, remains. The institutional network in the United States, made up of the general public, special interest groups, Federal, state, local, and tribal government entities, remains to a major degree unimpressed with the U.S. nuclear industry's performance. The institutional network knows that transport accidents occur daily and, as a result, safety during transport is continually questioned. Therefore, the question of whether the United States is putting enough emphasis on critical transport factors other than packaging, such as improving human performance to ensure safety and reduce the level of public concern, must be answered. This paper supports the belief that human performance and safe operations can be enhanced with performance-based, competency-demonstrated training, and that this type of training can also improve the institutional network's perception of U.S. packaging and shipping activities.

This paper discusses the need for performance-based training, identifies key program elements for effective training development, and describes several training courses sponsored by the U.S. Department of Energy, Transportation Management Division, which demonstrate effective training.

INTRODUCTION

A great deal of time, effort, and money is expended in the United States each year to achieve safety in transporting radioactive materials. Many of these resources go into research and development and technology programs that ultimately lead to sophisticated transport packages that will not release their contents under severe accident conditions. Statistics support the fact that the U.S. packaging systems are safe. There are only a few instances of minor radioactive material releases on record, and there has never been a fatality or serious injury attributed to the radioactive nature of the material being transported. The resources allocated to packaging have been well spent to achieve this safety record. With these quality packagings, the nuclear industry has essentially eliminated the potential for major physical consequence to the public or to the environment resulting from the radioactive nature of the material being transported.

The institutional network in the United States made up of the general public, special interest groups, Federal, state, local, and tribal government entities, however, remains unimpressed with the U.S. nuclear industry's performance. Members of the network know, from seeing or hearing about them, that transport accidents occur daily. They know that if hazardous shipments, especially radioactive shipments, are allowed to pass through their community, an accident will eventually occur, and they fear the potential consequences. This perspective results in a difficult political environment for the nuclear industry and others who must transport hazardous materials, specifically radioactive materials. As a result, no matter how safely radioactive materials are packaged, safety during transport continues to be questioned.

APPLICABLE REGULATIONS

There are Federal laws, state laws, and formal regulations that require that transportation personnel be properly trained and qualified. Transportation personnel may include persons associated with the classification of material; its packaging and preparation for transport; package storage and staging; vehicle loading, unloading and movement; as well as vehicle operators who transport the load to its final destination.

The following paragraphs identify some of the current and proposed regulations that have a significant impact on training requirements for hazardous material handling and transportation personnel.

Hazardous Material Transportation Uniform Safety Act of 1990

The U.S Congress in 1990 reauthorized the *Hazardous Material Transportation Act of 1974* (HMTA). In this reauthorization, Congress addressed the issue of training for hazardous material transportation personnel and their employers.

Under the *Hazardous Material Transportation Uniform Safety Act of 1990* (HMTUSA), employers must certify that each employee has received appropriate training and has "been tested" in the appropriate transportation safety areas. The employer must maintain documented proof of the level of training and employee proficiency.

The U.S. Department of Transportation Docket HM-126F, "Training for Safe Transportation of Hazardous Materials"

The U.S. Department of Transportation's (DOT) Docket HM-126F, dated May 15, 1992, is the final rulemaking that requires persons involved with hazardous material transportation activities be trained and requires employers to certify these persons have been trained and tested. The rulemaking addresses the following four distinct training categories: (1) General Awareness and Familiarization, (2) Function Specific, (3) Safety Training and Personnel Protection, and (4) Driver Specific Training. Implementation of this rulemaking will be phased in with full compliance by April 1, 1993.

U.S Department of Energy Docket HM-181, "Performance-Oriented Packaging Standards"

Docket HM-181, effective October 1, 1991, is the final rulemaking that will allow the United States a 5-year phase-in period to adopt performance-oriented packaging standards. The DOT "specification packaging" will be phased out, and new package configurations will have to be tested and documented as meeting international performance standards established through the United Nations, and a vibration standard unique to the United States. In addition, the U.S. system for classifying and describing hazardous materials will be changed to coincide with the international hazard classification system of nine hazard classes with associated divisions. Some regulations unique to the U.S. domestic system will be retained, however. They address diverse topics such as bulk shipments, classification of anhydrous ammonia, consumer commodity and combustible liquid exceptions, hazardous substances, and poison inhalation hazard regulations. New communication and emergency response information standards enacted in 1991 and unique to the domestic system continue.

This major rulemaking will require U.S. employers to completely revise existing training programs and will require, in all practical purposes, teaching a dual system for 3 to 5 years.

U.S. Department of Transportation Docket HM-169A, "Compatibility to IAEA Standards," Notice of Proposed Rulemaking

Docket HM-169A, dated November 14, 1989, could be finalized in late calendar year 1992. If enacted as proposed, it would define Low Specific Activity (LSA) Radioactive Materials based on the International Atomic Energy Agency (IAEA) Safety Series No. 6 regulations. The IAEA regulations place LSA materials into five separate categories [LSA I, LSA II, LSA III, Surface Contaminated Objects (SCO) I, SCO II]. These categories of radioactive materials would require packaging into three types of Industrial Packages (IP-1, IP-2, IP-3). Each of the three IPs would be performance-oriented to ensure materials are contained during normal handling and transport. The new defining criteria for LSA materials and for using industrial packaging will impact training programs for all persons packaging and transporting these radioactive materials.

The U.S. Department of Energy (DOE) uses a formal DOE Order system to communicate departmental policy and requirements to field offices and contractors. Specific Orders address training issues that impact transportation personnel.

U.S. Department of Energy Order 5480.3, "Transportation and Packaging of Hazardous Materials, Hazardous Substances and Hazardous Wastes"

This DOE Order requires specific training for persons involved with packaging and transporting hazardous materials and hazardous wastes, and emphasizes that persons must be properly trained and qualified.

The DOT, the U.S. Environmental Protection Agency (EPA), and the Occupational Safety and Health Administration (OSHA) also define training requirements in *Code of Federal Regulations* (CFR), Titles 49, 40, and 29, respectively, for workers in specific industrial applications. These Federal requirements have been adopted by the DOE and applied to contractor operations. The requirements apply equally to fixed facilities and transportation operations.

KEY PROGRAM ELEMENTS FOR DEVELOPING EFFECTIVE TRAINING

The following paragraphs identify key program elements necessary to ensure training courses are designed and conducted on performance-based principles and that those who receive this training can demonstrate competency on specific tasks.

The Analysis Element includes a needs assessment to determine who needs training and the type of training necessary to ensure knowledge and skills are communicated effectively. The following are steps in performing a needs analysis/assessment.

- Identify target audience
- Review regulatory standards and rulemakings
- Conduct needs survey
- Evaluate survey data
- Develop recommendations
- Draft work plan and schedule.

The Analysis Element also identifies training requirements for a worker based on job and task analysis. The following are steps in conducting a job task analysis.

- Identify minimum qualifications
- Identify minimum training standards
- Identify critical steps and procedures
- Determine knowledge and skill requirements for each task.

The Design Element takes the information assimilated during analysis to prepare a development plan and formulate learning objectives. The objectives focus on the overall training strategies and development of training materials. The following are steps in the design process.

- Develop training/evaluation standards
- Develop detailed work plan and schedule
- Determine entry-level skills and knowledge
- Develop terminal and enabling objectives
- Evaluate existing training and training materials for applicability
- Evaluate methods and strategies for delivery
- Prepare training development and administration guide
- Develop course outline and synopsis
- Develop learning measurement exercises.

The Development Element formalizes training strategies and instructional methodology, and includes the development of lesson plans, instructional aids, and student handout materials that will be valuable for use after course completion. Steps in developing lesson plans, training aids, student materials, and course assembly are defined below.

Development of Lesson Plans/Guides

- Develop flowchart of logic progression
- Develop outline for each module
- Separate research materials into topical areas
- Develop lessons plans for each module.

Development of Training Aids

- Draft development of visual aids to support each lesson and module
- Produce visual aids at graphics.

Development of Student Materials

- Select support materials such as text books and study guides
- Develop handouts including study manuals, reference guides, case studies, class room exercises, and props.

Course Assembly

- Assemble course materials into single program
- Obtain support materials for implementation.

The Implementation Element includes peer review and pilot testing to ensure technical accuracy of the training materials and effectiveness of the program before delivery to actual target audience. The following steps are included in the implementation element.

In-house testing

- Conduct in-house testing to sample audience
- Evaluate and update course material as applicable.

Pilot and Prototype Delivery

- Deliver pilot program at headquarters (HQ)
- Process course materials through Document Clearance
- Deliver prototype at selected site.

The Evaluation Element allows students an opportunity to evaluate the effectiveness of the training program against course objectives and validates the integration of the other elements. After the training program has been evaluated, the following steps should be taken.

- Review student comments
- Revise training materials as necessary
- Make course available to requesting sites.

The Documentation Element is the basis for establishing a formal certification program to certify the student's competency in performing the task or job function required, and is a basis for meeting accreditation objectives and criteria. The following are steps in the documentation element.

Program Documentation

- Prepare document file for course development materials
- Include in support work, as a minimum
  - -Documented needs assessment
  - -Job and task analysis
  - -Minimum qualification and training standards
  - -Course objectives and lesson plans
  - -Course modules and training aids
  - -Master files of graphics
  - -Document release forms.

Certification

- Testing
- Documentation and record keeping.

Accreditation

- Documentation of program
- Evaluation by accreditation board.

BENEFITS OF PERFORMANCE-BASED TRAINING

Performance-based training can accomplish the following.

- Reduce student training time by focusing training efforts on the tasks and objectives that are important for each job or task performance, ensuring standardization of instruction associated with each task, providing documented evidence of student performance through effective testing, and building in appropriate levels of quality control.

- Identify the behaviors and skills necessary to perform the job safely and effectively by using job task analysis. Training can then be developed that addresses only the behaviors and skills desired. This eliminates unnecessary training for skills not needed for the job, reduces development time and cost, and reduces student and instructor classroom commitments.

- Ensure standardization of instruction methods and tools ensuring that all students receive effective training that meets learning objectives identified in the job task analysis. This minimizes impact of instructor variables.

- Provide necessary documentation of the training program and its effectiveness. Student performance is measured through testing and using questions and exercises that require demonstrating specific skills that correspond to learning objectives. This documentation is the necessary basis for student certification programs and training program accreditation.

Training programs effectively designed and developed using these techniques establish a strong instructional foundation that can meet technical training and retraining requirements in the ever changing regulatory environment associated with transportation safety.

U.S. DEPARTMENT OF ENERGY/TRANSPORTATION MANAGEMENT DIVISION PERFORMANCE-BASED TRAINING PROGRAMS

The following are examples of performance-based training programs from the DOE, Transportation Management Division:

TITLE: HAZARDOUS WASTE TRANSPORTATION AND PACKAGING WORKSHOP

LENGTH OF CLASS: Four and one half (4 1/2) days.

TARGET AUDIENCE: Front line workers and their supervisors, waste engineers, and middle and upper management.

OBJECTIVES: To provide students comprehensive understanding of Federal hazardous waste packaging and transportation regulations.

COURSE CONTENT: Covers the DOT and EPA regulations as they pertain to the transportation of hazardous waste. Includes the relationship between the Federal regulations and applicable DOE Orders. The students gain a perspective of the EPA requirements and exceptions for the preparation packaging, and transportation as found in Title 40 CFR, Parts 260-265, 302, and 761, and Title 49 CFR, Parts 171-179.

TITLE: HAZARDOUS MATERIALS TRAINING FOR ONSITE TRANSPORTATION PERSONNEL

LENGTH OF CLASS: One (1) day.

TARGET AUDIENCE: Transportation personnel, including truck drivers, train crew members, warehouse workers, and supervisory personnel responsible for logistical activities as well as planners and schedulers.

OBJECTIVES: To provide students an overview of the DOT regulations as they pertain to hazardous materials, hazardous substances, and hazardous wastes.

COURSE CONTENT: Includes an overview of the relationship between the Federal regulations and applicable DOE Orders, covering transport personnel responsibilities and the proper application of these regulations commensurate with their job assignments. The course covers Title 49 CFR, Parts 171-179, Federal Motor Carrier Safety Regulations in 49 CFR, Part 383, 390-397, and DOE Order 5480.3.

TITLE: SHIPMENT OF RADIOACTIVE AND OTHER HAZARDOUS MATERIALS TRAINING COURSE

LENGTH OF CLASS: Four and one-half (4 1/2) days.

TARGET AUDIENCE: Front line workers and their supervisors, engineers, and management.

OBJECTIVES: To provide students comprehensive understanding of DOT regulations as they pertain to the movement of hazardous materials, with emphasis on radioactive materials.

COURSE CONTENT: Addresses the shippers' responsibilities and liabilities and instructs the students in properly applying the regulations commensurate with their job assignments. The course covers Title 49 CFR, Parts 171-173, with emphasis on radioactive materials packaging and transportation requirements.

TITLE: HAZARDOUS MATERIAL SHIPPING COURSE (COMPUTER ASSISTED TRAINING)

LENGTH OF CLASS: Self-paced, interactive computer program with flexible workbook exercises.

TARGET AUDIENCE: Employees who have had previous experience in hazardous materials shipments. This is an excellent requalification tool.

OBJECTIVES: To achieve the fundamental knowledge required to use the DOT hazardous materials shipping regulations contained in Title 49 CFR, Parts 171-173 and Part 178.

COURSE CONTENT: Includes site-specific data such as facility name and address, local experts, local DOE Orders, and company manuals. In this computer-assisted training program, workbook problems can be selected from the databank, or may be altered to incorporate real-life shipments.

TITLE: VEHICLE INSPECTION AND LOAD TIE-DOWN AND SECUREMENT TRAINING

LENGTH OF CLASS: One (1) day.

TARGET AUDIENCE: Transportation personnel, (i.e., managers, supervisors, specialists) who are authorized to release loads being transported offsite from DOE facilities.

OBJECTIVES: To provide instruction to the student on the DOT regulations as they pertain to the vehicle inspection and tie-down procedures.

COURSE CONTENT: Deals with the relationship involving Federal regulations and applicable DOE Orders and covers personnel responsibilities. It also instructs students in properly applying the vehicle inspection and tie-down regulations commensurate with their job assignments as required in Title 49 CFR, Parts 390-571, Title 10 CFR, Part 71.45, and DOE Order 1540.1.

SUMMARY

If the hazardous materials transportation industry is to reduce human error, reduce accidents, and improve its public image, there must be assurance that transportation personnel are properly trained and qualified to perform their jobs in a safe and efficient manner. This training must make them intimately aware of the hazards and risks associated with transport activities, ensure understanding of responsibilities and liabilities unique to their job, and ensure that they can competently perform functional duties vital to safety. To ensure that trained and qualified personnel are on the job, it is essential that the training be performance-based and require trainees to demonstrate functional proficiency.

Performance-based training has proven to be a highly effective means of ensuring personnel are qualified to conduct their assignments safely and efficiently. This training is designed around the basic premise that training must be provided that supplies the information necessary for each worker to perform their assigned duties at a predetermined and acceptable level of expertise and skill.

REFERENCES

DOE Order 5480.3: Safety Requirements for the Packaging and Transportation of Hazardous Materials, Hazardous Substances, and Hazardous Wastes, U.S. Department of Energy, Washington, D.C. (1985)

DOT Docket HM-126F, Training for Safe Transportation of Hazardous Materials, U.S. Department of Transportation, Washington, D.C., 95 FR 20944 (1992).

DOT Docket HM-169A, Transportation Regulations; Compatibility With Regulations of the International Atomic Energy Agency, U.S. Department of Energy, Washington, D.C., 54 FR 47454 (1989).

DOT Docket HM-181, Performance-Oriented Packaging Standards, U.S. Department of Transportation, Washington, D.C., 55 FR 52402 (1990).

Hazardous Materials Transportation Act of 1974, 46 USC 170; 49 USC 103 et. seq., as amended.

Hazardous Material Transportation Uniform Safety Act of 1990, 49 App. USC 1801 et. seq., as amended.

Title 29, Code of Federal Regulations, Parts 1900-1910, U.S. Department of Labor, Washington, D.C. (1991).

Title 40, Code of Federal Regulations, Parts 260-299, U.S. Environmental Protection Agency, Washington, D.C. (1991).

Title 49, Code of Federal Regulations, Parts 100-177, U.S. Department of Transportation, Washington, D.C. (1991).

DOT Hazardous Materials Initiatives & Training

presented by David Sargent, Department of Transportation/RSPA

U.S. DOT/RSPA/OHMIT

U.S. Department of Transportation (DOT)

Research & Special Programs Administration (RSPA)

Office of Hazardous Materials Initiatives & Training (OHMIT)

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The Hazardous Materials Regulations (HMR)

- Governs transportation of HM by all modes:
  - Air - Vessel - Rail - Highway
- Goal is Safety!!
- Mandates Compliance; Promotes "Voluntary" Compliance.

TRAINING & OUTREACH RATIONALE

- Massive Changes to Regulations in 1992
- Training Requirements Expanded:
  - All HazMat Employees
  - Scope: Awareness, Function-Specific, Safety, Special
  - Train, Test, Certify, & Retain Records
- Oil Spill Pollution Act (OPA)
- Continuous Rule Making

RESOURCES
Hazardous Materials Information eXchange (HMIX)

- Electronic Bulletin Board & Message Exchange
- Uploading/Downloading Data
- Regulations & Proposed Changes
- Available Training Courses
- UN Packagings & International Topics
- 1-800-PLAN-FOR or (708)-972-3275

RESOURCES

- VIDEOS - "Partnership Series":
  - Overview of the HazMat Regulations
  - Effective HazMat Investigations
  - Effective State Programs
  - Impact of Judges and Attorneys
- HazMat Transportation Training Modules:
  - Hazardous Materials Table
  - Shipping Papers
  - Packaging
  - Marking/Labeling
  - Placarding
  - Carriers
  - 1992 Changes to the HMR
  - Cargo Tanks

TRAINING - OUTREACH ACTIVITIES

- Transportation Safety Institute (TSI)
  - Oklahoma City, OK (FAA Facility)
  - On-Site
    - TSI Staff
    - TSI Associate Staff

- Intermodal HazMat Transportation Seminars
  - 5/4-6/93, St. Louis, MO
  - 7/20-22/93, Atlanta, GA

- HazMat Transportation Conference/Institutes
  - 3/19-20, No. Carolina State Univ., Raleigh, NC

OUTREACH - STATES/INDUSTRY

Cooperative HazMat Enforcement Development (COHMED)
- Two COHMED Conferences Annually
- COHMED Reporter
- COHMED Bullets

HM Specialist Program
- 8 week internship with RSPA
- Resident & Field experience
- Goal = Effective State HazMat programs

RSPA's Transportation Safety Newsletter
- Topics on HazMat Trans. issues
- Audience = Fed., State, Local & Private Sector
- Published quarterly

EMERGENCY RESPONSE

- Emergency Response Guidebook (ERG)
  - Published tri-annually
  - Guidance for Critical First-15min.-of-Incident
  - 1 Million copies of ERG to 1st Responder Vehicles

- National Response Team
  - 15 Federal Agency Members
  - National Contingency Plan
  - Represent DOT on NRT Committees:
    - NRT Prevention Committee
    - NRT Preparedness Committee
    - NRT Response Committee
    - NRT Training Committee

PUBLICATIONS (PUBLIC DOMAIN)

- Reproduction/Dissemination Encouraged
- Basic Compliance Guides
- Chart 9, Labels & Placards
- Videos (Partnership Series)
- The President's Annual Report to Congress

For Sample Packet of Training Materials:
USDOT/RSPA/DHM-51
400 7th St. SW
Washington, DC, 20590
(202) 366-4900

Radioactive Materials Regulations Status

presented by Rick Boyle, Department of Transportation

RADIOACTIVE MATERIALS REGULATIONS STATUS

Rick Boyle
U.S. Department of Transportation
Office of Hazardous Materials Technology
(DHM-23)

Outline

Regulations To Be Discussed:

1. HM-169A: Compatibility With Regulation of the International Atomic Energy Agency (Notice of Proposed Rule)
2. HM-126F: Training for the Safe Transportation of Hazardous Materials
3. HM-208: Hazardous Materials Transportation Registration and Fee Assessment Program Technical Revision
4. IAEA Technical Committee Mtg:

Ask Questions Whenever You Like (My phone number is (202) 366-4545)

HM-169A: Compatibility With Regulation of the International Atomic Energy Agency (Notice of Proposed Rule)

1. Intention of the Rule

2. Items currently under review:
   a. Radiation Protection Plans.
   b. New LSA/SCO definitions and packaging criteria.
   c. Required use of SI units.
   d. Additional test conditions and criteria.
   e. Increased number of radionuclides listed in our table of regulated radionuclides.
   f. Adoption of new A_1 and A_2 values (certain radionuclides).

3. Implementation Guidance

HM-126F: Training for the Safe Transportation of Hazardous Materials

1. Intention of the Rule

2. Specifics of the Rule

3. Required Program Starting Date

HM-208: Hazardous Materials Transportation Registration and Fee Assessment Program Technical Revision

1. Intention of the Rule

2. Annual Registration Requirements

IAEA Technical Committee Meeting:

Issues:

1. Technical Document: The Air Transport of Radioactive Material in Large Quantities Or with High Activity.

2. Technical Document: Safe Design of Shipping Packages against Brittle Fracture.

3. LSA/SCO Position Paper.

The Conflict Between IMO and IAEA Regulations on Shipments by Sea

presented by Frank Falci, WPI Consultant

Shipment of Nuclear Materials By Sea

"A Regulatory Conflict"

Transportation Management Workshop
May 13, 1993

Presented by: Frank Falci, IEC

INTERNATIONAL MARITIME DANGEROUS GOODS CLASSES

1. Explosives
2. Flammable Gases
3. Flammable Liquids
4. Flammable Solids; Dangerous When Wet
5. Oxidizers
6. Poisons, Infectious Material
7. RADIOACTIVE MATERIALS
8. Corrosives
9. Miscellaneous

IMDG CODE COVERS SHIP SAFETY FEATURES

...but not much for Class 7

- Class 7 has no special provisions for ship design (beyond SOLAS)

561.1-TM 93-001- 3

INTERNATIONAL CONVENTION ON THE SAFETY OF LIFE AT SEA (SOLAS)

1914	Basic provisions
1929	One-compartment standard for passenger ships only
1948	Added transverse stability criteria, after damage
1974	Watertight bulkheads: aft peak, forepeak, engine room
1987	IMO drafts damage stability criteria for dry cargo ships
1992	Dry cargo ship damage stability adopted

561.1-TM 93-001- 4

THE CONFLICT

- Premise of IAEA regulations (and NRC regs) is inherent containment capability of package
- No contribution to safety is expected from the conveying vehicle
- Ignoring this, IMO initiates special ship design provisions for INF

ISSUE EMERGES AT SAGSTRAM No. 8, DECEMBER 1990

- IMO plan to regulate INF!
- IAEA authorized to issue letter to IMO
- Subsequently, IMO agrees to joint meeting

SAGSTRAM No. 9, OCTOBER 1992
PLANS FOR JOINT MEETING WITH IMO

- IAEA demands recognition of package integrity
- IAEA opposes challenge to Safety Series 6

961 1-TM 93-001- 7

JOINT MEETING IAEA/IMO/UNEP, DECEMBER 1992 REVEALS

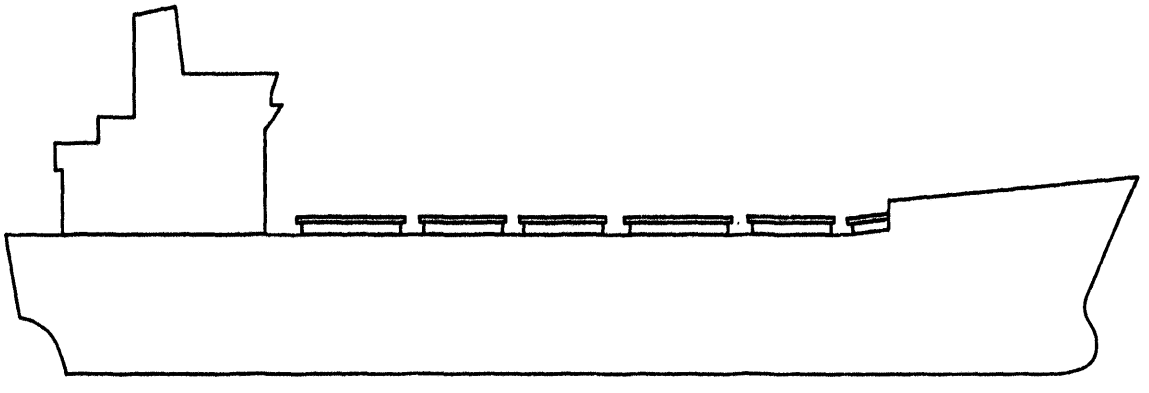
- No risk studies had been performed
- Ship damage stability: Based on bulk chemicals
- New requirements: ventilation, cooling, emergency electric power, damage stability - unrelated to cask performance

961 1-TM 93-001- 8

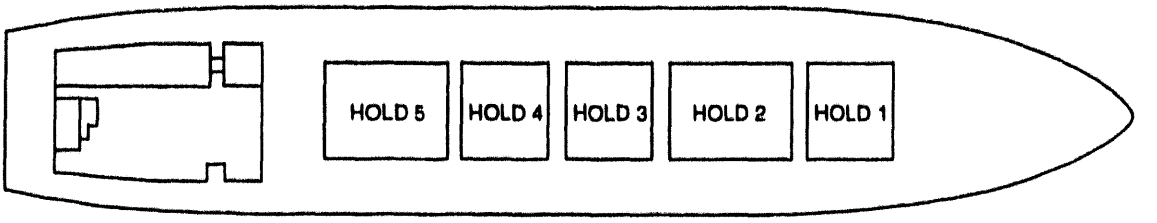
THE NEW DRAFT CODE, APRIL 1993

NEW SHIP CLASS	CARGO	
INF 1:	INF & HLW;	≤ 4,000 TBq
INF 2:	INF & HLW;	≥ 4,000 TBq ≤ 2×10^6 TBq
	Pu ;	≥4,000 TBq ≤ 2×10^5 TBq
INF 3:	INF & HLW;	≥ 2×10^6 TBq ≥ 2×10^5 TBq

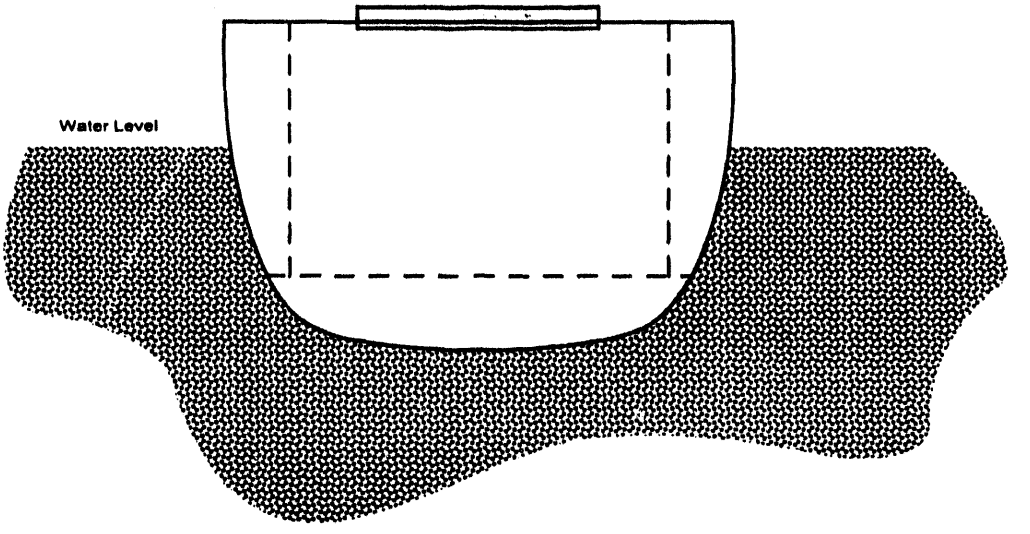
SHIP ELEVATION



SHIP PLAN



SHIP CROSS SECTION



CONCERNS

- Availability of ships meeting the new code
- Insurance costs increasing based on perception of regulatory concern - not on real risk
- New ship features not common on world cargo fleet
- Reluctance of ship owners

FUTURE ACTIONS

- Risk studies through IAEA
- Return to the basic premises of the IAEA regulations
- Possible stowage provisions
- Compulsory salvage provisions!

Waterbone Transport of Radioactive Materials

presented by Robert Sandoval, Sandia National Laboratory/AL

Waterborne Transport of Radioactive Materials

by

Robert P. Sandoval
Sandia National Laboratories/New Mexico

for the
Transportation Management Workshop
May 13, 1993

BACKGROUND

- IMO proposed new code for shipboard transport of Irradiated Nuclear Fuel (INF).
- New code places different requirements depending upon total radioactivity carried aboard ship.

  These requirements are divided into three classes.

EXAMPLES OF PROPOSED NEW REGULATIONS

- New requirements for damage stability (Classes 2 & 3), i.e., INF Class 3 is approximately a 20% increase in damage stability over that for INF Class 2.
- New fire protection requirements (Classes 2 & 3), i.e., fixed-cargo hold cooling system is required for Classes 2 & 3.

PURPOSE OF THIS STUDY

To perform a preliminary assessment of the radiological risks of the shipboard transport of Irradiated Nuclear Fuel (INF).

- Provide information from past studies regarding the radiological risks associated with shipboard transport of INF under current regulations.
- Perform a simple, conservative thermal analysis of a spent fuel cask subjected to a hypothetical shipboard fire in an adjacent cargo hold to demonstrate differences between an IAEA regulatory pool fire environment and potential shipboard fires involving INF.

PURPOSE OF THIS STUDY (cont'd)

- Perform an event tree analysis to show the potential unintended impacts of INF Class 3 vessel stability requirements on fire casualty risks associated with ships which meet the requirements for INF Class 2.

RADIOLOGICAL RISKS

- Past investigations/studies have shown that radiological risk of shipboard transport of INF is low.

- Specifically, a study that assessed port transits of spent fuel showed that:

  1. Maximum incident-free risk for PWR fuel was 0.17 person-rem per cask (including handling & storage operations);

  2. Maximum accident risk for PWR fuel was 0.0086 person-rem per kilometer of port transit.

RADIOLOGICAL RISKS (cont'd)

- This assumes the following:

  1. These risk values were based upon port operations only where health effects would be the greatest;

  2. 150-day-old PWR fuel with an activity of 5 million Curies per assembly;

- Because of conservative assumptions, these risk values are upper bounds on actual values.

FIRE ENVIRONMENTS

Perceptions

- Shipboard fires are believed to have the greatest potential for adverse radioactive releases (and, therefore, risks) because of the potential for long-duration fires.

- Because of the immense physical dimensions of a cargo ship relative to spent fuel casks, severe long-duration fires may have little or no impact on INF casks aboard the ship.

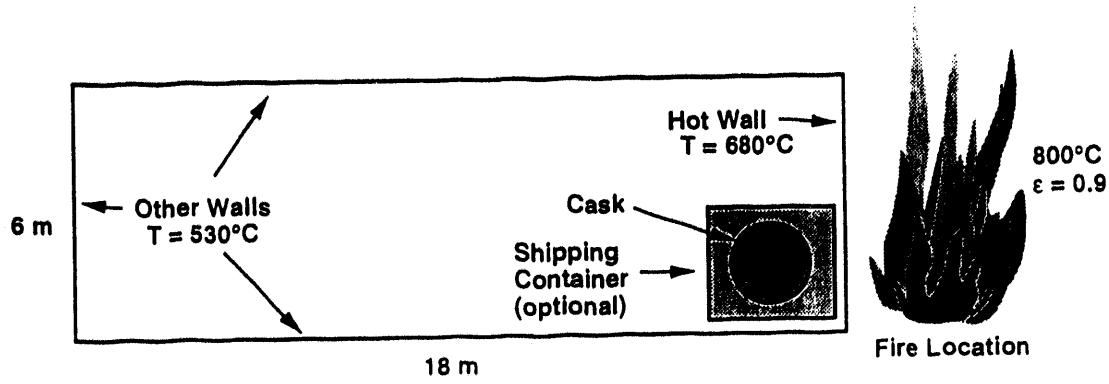
THERMAL ANALYSIS

- As a first analysis, we analyzed the thermal effects on an INF cask from a fire in an adjacent cargo hold.
- Conservative assumptions were made including:
  1. Fully developed fire in adjacent compartment (no credit was given for time of evolution of fire);
  2. No sprinkler system in hold—no attempt to cool cask;
  3. Thermal shielding from intervening objects, impact limiters—neutron absorbing material <u>not</u> considered.

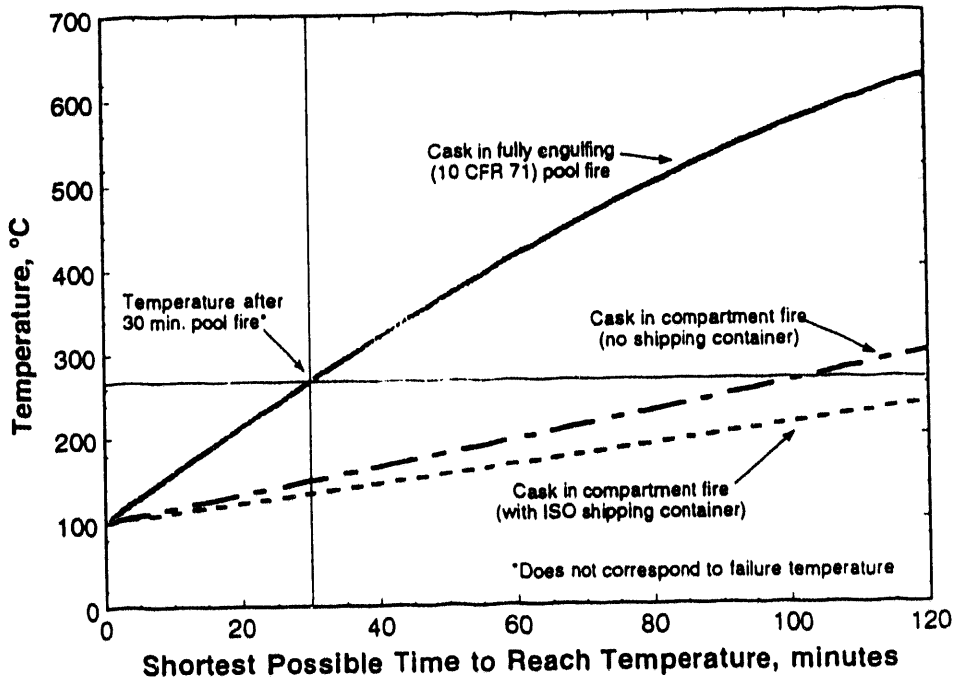
THERMAL ANALYSIS (cont'd)

- Subject to certain packaging constraints, current regulations allow flammable materials to be transported with INF containers in the same cargo hold.
- This scenario was addressed in this study, but time constraints did not allow for detailed analyses.

CARGO HOLD FIRE CONFIGURATION USED FOR THERMAL ANALYSIS



RESULTS OF SIMPLE THERMAL ANALYSIS



EVENT TREE ANALYSIS

- Total accident risk can be defined as the sum of accident risks associated with all credible sequences of accident events.
- The event tree analysis shows that improvements in ship damage stability with the proposed INF Class 3 requirements have the potential for increasing the risks associated with fire casualties when compared to these risks for ships meeting INF Class 2 requirements.

EVENT TREE ANALYSIS (cont'd)

- The reduced likelihood of a vessel sinking as a result of the INF Class 3 damage stability requirements could increase the probability that an INF cask would be subjected to a longer duration fire.
- In the event of a cask failure, the potential radiological health consequences associated with an atmospheric release of radioactive material could be far greater than those health consequences associated with the submersion of the INF cask.

EVENT TREE ANALYSIS (cont'd)

- Improvements in ship damage stability resulting from the proposed INF Class 3 requirements will reduce the probability of cask submersion and, thus, will reduce those risks associated with postulated accident sequences where cask submersion is the only contributor to the accident risks.

CONCLUSIONS

- Past investigations have shown that the radiological risks associated with shipboard transport of INF are extremely low when shipments are in compliance with current regulations.
- Improvements in ship damage stability resulting from proposed INF Class 3 requirements have the potential for unintended impacts on the radiological risks when compared to those for INF Class 2.
- Namely, INF Class 3 requirements have the effect of increasing the radiological risk of an event sequence with cask failure and long-term atmospheric release and subsequent exposure to the public.

CONCLUSIONS (cont'd)

- The simple thermal analysis presented here shows that the thermal flux to an INF cask is much greater for an IAEA regulatory pool fire than in a cargo hold with a severe fire in an adjacent compartment.

- Based upon the information available in the literature and the analyses conducted to date, the carriage of IAEA approved INF casks aboard cargo ships does not present an unacceptable radiological risk to the public when the shipment is in compliance with current regulations.

- Since the radiological risks are already low, the amount of any reduction in radiological risks resulting from the proposed, new IMO code is expected to be insignificantly small.

Sorenson: Bob, I'm curious. You show that the risk was greater for a IF-3 hull design for atmospheric release. I'm curious if you've got a feel for direct risk comparison if the ship sank and the cask went to the bottom of the ocean and released radionuclides that went up into the biological system through the food chain, what the relative risk would be to humans on that basis versus the atmospheric risk?

Sandoval: I can tell you intuitively. I haven't got the numbers with me to back my judgment, but I can tell you, having spent enough time in respirable health effects in my career, and food chain effects and indirect effects through the ingestion chain, that I would expect them to be still significantly lower for the ingestion food cycle chain through the ocean.

The dilution effects of the ocean, the transportability of this type radionuclide fuel to populated areas, by the time you take into account all the dilution effects, the concentration that the public's going to see are going to be much, much lower than had you had an inhalation effect in a populated port with much higher concentrations.

The airborne pathways, as you know, to the pulmonary and nasopharyngeal for INF types of radionuclides have the major impact in health effects.

Falci: Let me offer what I think is a significant comment on this point. When faced with this very issue at the last meeting between IMO and IAEA and UNEP, there were two countries that spoke up about this very problem, about the threat of sinking something near their shores. One was Iceland and the other was the Solomon Islands. If you think they might have been worried about the threat of radioactive material release, that wasn't it. Most of what they were concerned about was their fishing market.

They figured if something went down that was radioactive, and it got in the newspapers, that would about wipe out their fish market for a year or more.

Sandoval: Yes, I think we need to spend a little bit more time looking at that. And I'd like to request from EM-561 the opportunity to do exactly that, to look at that impact. Here it is, the economical impact on the fishing industry. I think nowadays that's a major concern. It's not outside our capability to do a study like that. We do have some economic codes, and we do have the health codes, and we could make some analyses to get some answers to those concerns.

Radioactive Materials Packaging for Onsite Transportation

presented by J. Greg Field, Westinghouse Hanford Company/RL

RADIOACTIVE MATERIAL PACKAGING FOR ONSITE TRANSPORTATION

J. G. Field
Packaging Safety Engineering
Transportation and Packaging Department

Westinghouse Hanford Company
Richland, Washington

Transportation Management Workshop
May 11-13, 1993
Gaithersburg, Maryland

Onsite Transportation Safety Program

- Onsite Packaging Safety Requirements
- Equivalent Safety Concept
- Packaging Selection Method
- Packaging Safety Acceptance Criteria
- Packaging Safety Evaluation Process

Onsite Packaging Safety Requirements

- Directed in RL 5480.1, Change 1, Chapter III
- Implemented in WHC-CM-2-14, "Hazardous Material Packaging and Shipping"
- New Transportation Safety Manual being drafted by RL

Onsite Packaging Safety Requirements (cont.)

- Packagings meeting offsite transportation regulations shall be used whenever technically and economically practicable (10 CFR 71, 49 CFR 171-179).
- Packagings must provide "equivalent degree of safety" in comparison to the transportation regulations.
- Radiation exposure to individuals shall be as low as practicable.
- Packaging safety assessments must be specifically documented.

Equivalent Safety Concept

- Packaging design, evaluation, acceptance criteria, and documentation are based on transportation regulations.
- Credit for the site environment conditions and public access restrictions are considered.
- The transportation activity is considered as part of the packaging safety evaluation.
- Risk acceptance is included in the packaging evaluation.

Equivalent Safety Concept (cont.)

- Packaging evaluations are based on the DOT graded approach (LQ, LSA, Type A, Type B, etc.)
- Normal transport conditions and credible accidents are considered
- Containment, shielding, and criticality evaluations are emphasized
- Individual packaging designs are evaluated independently

Packaging Selection Method

- Assess technical/economic factors, including ALARA.
- Select the packaging based on assessment:
  - DOT/NRC/DOE packaging per approval
  - DOT/NRC/DOE packaging modified for onsite
  - Packaging meeting the performance standards of DOT/NRC/DOE with onsite approval
  - Packaging meeting the onsite risk acceptance criteria with onsite approval

Packaging Safety Acceptance Criteria

- Full compliance with DOE/NRC/DOE regulations
- Compliance with onsite packaging risk acceptance criteria

ONSITE PACKAGING RISK ACCEPTANCE CRITERIA (ONSITE WORKERS)

Frequencies Between 1.0×10^{-3}/yr to <1.0/yr (up to one thousand-year accident)

PROBABLE

The ICRP-60 recommended an individual occupational exposure limit of 2 rem/year. Westinghouse Hanford Company subsequently established a set of conservative limits of 1 rem/year for radiation workers and 0.1 rem/year for non-radiation workers.

It is conservative to use 0.2 rem/year limit for onsite workers as the consequence limit based on release in this accident frequency range.

ONSITE PACKAGING RISK ACCEPTANCE CRITERIA (ONSITE WORKERS)

Frequencies between 1.0×10^{-6}/yr to $<1.0 \times 10^{-3}$/yr (up to one million-year accident)

The ICRP-60 recommended an occupational exposure limit of an effective dose of 2 rem/yr averaged over 5 years providing the effective dose does not exceed 5 rem in a single year. DOE Order 5480.11 and IAEA also use a 5 rem/yr limit for occupational exposure. The IAEA uses 5 rem/accident as the bases for packaging performance criteria.

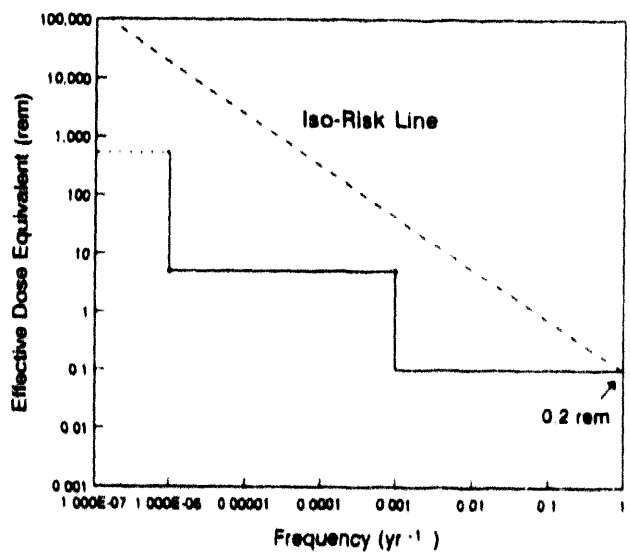
It is conservative to use 5 rem/year as the basis for the accident release limit in this frequency range.

ONSITE PACKAGING RISK ACCEPTANCE CRITERIA (ONSITE WORKERS)

Frequencies $<1.0 \times 10^{-6}$/yr
(Incredible Accidents)

Any traffic accident associated with a frequency less than 10^{-6}/year is considered incredible. No further evaluation is required.

Radiological Risk Acceptance (Onsite Workers)



ONSITE PACKAGING RISK ACCEPTANCE CRITERIA (OFFSITE PUBLIC)

Frequencies Between 1.0×10^{-3}/yr to <1.0/yr
(up to one thousand-year accident)

PROBABLE

DOE Order 5400.5 and EPA 40 CFR 61 place an allowable airborne pollutant release limit of 10 mrem/yr for offsite public members.

This low quantitative value (3% of background radiation) is insignificant and very conservative as the basis for the accident release limit at this frequency range.

ONSITE PACKAGING RISK ACCEPTANCE CRITERIA (OFFSITE PUBLIC)

Frequencies Between 1.0×10^{-6}/yr to <1.0×10^{-3}/yr
(up to one million-year accident)

DOE Order 5400.5 allows an effective dose equivalent of 0.5 rem/yr to the public in special cases if the average lifetime dose is less than 0.1 rem/yr. IAEA Safety Guides (Safety Series #7) also support the same limit.

It is conservative to use 0.5 rem/year as the basis for the accident release limit in this frequency range.

ONSITE PACKAGING RISK ACCEPTANCE CRITERIA (OFFSITE PUBLIC)

Frequencies $<1.0 \times 10^{-6}$/yr
(Incredible Accidents)

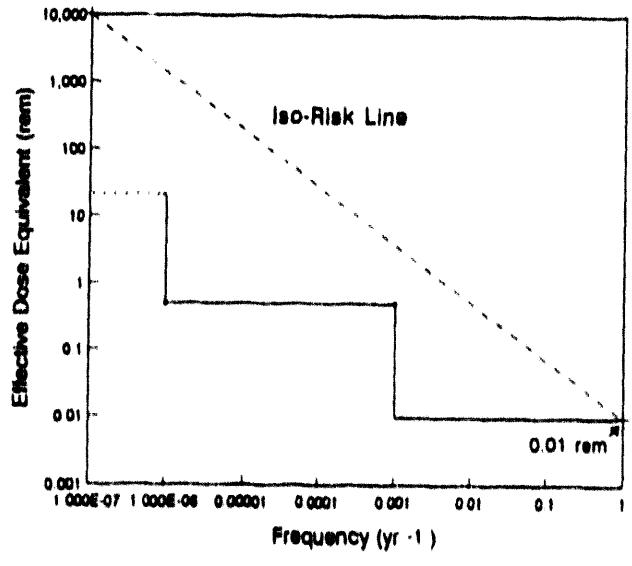
Any traffic accident associated with a frequency less than 10^{-6}/year is considered incredible. No further evaluation is required. However, an administrative limit of 25 rem is applied for frequencies near 10^{-6}/year.

Hanford

RADIOACTIVE MATERIAL PACKAGING FOR ONSITE TRANSPORTATION

Packaging Safety Engineering

Radiological Risk Acceptance Guidelines (Offsite Public)



Hanford

RADIOACTIVE MATERIAL PACKAGING FOR ONSITE TRANSPORTATION

Packaging Safety Engineering

Packaging Safety Evaluation Process

- Approvals based on quantity and type of material following a graded approach.
- Packaging Design Criteria (PDC) (selection justification, acceptance criteria)

Packaging Safety Evaluation Process (cont.)

- Safety Analysis Report for Packaging (Onsite) (SARP) (Type A and LSA Fissile, Type B)
- Safety Evaluation for Packaging (SEP) (Non-radioactive hazardous material, Type A and LSA; temporary Type B)
- Documentation and Analysis for Packaging (DAP) (DOT compliance)

Summary

- Onsite Packaging Safety Criteria based on transportation regulations
- Site conditions, environment and operations factored into safety evaluation
- Packaging selection based on graded approach
- Onsite packaging risk acceptance criteria established for packaging safety evaluation
- The onsite packaging safety program appears to be effective, simple and safe

Field Questions - TM Workshop

Sell: Something you said early in your talk I interpreted, and that's why I wanted to get the interpretation from you, it sounded like you were saying that the Headquarters TMD interest is somehow disconnected or disjointed from on-site transportation. That doesn't seem to me to be the Headquarters interpretation. They're very interested in safety on-site. Perhaps I misunderstood what you said.

Field: That's a good point. I believe they are interested and concerned. The point I wanted to make, though, is that in reality this activity is EM-30 funded primarily, and that's because it's not technically transportation, in a classic sense. There has been work by TMD to develop transportation safety on-site. In fact, the Transportation Safety Manual that's being prepared, at Hanford, is being prepared based on the TSM concepts that came out of the EH and EM work on the Transportation Safety Committee. So, that is true. There is a definite interest. We've also tried to take that into account such that these criteria would be consistent with what we think that guidance might be. That is a good point.

Innovations in Tritium Packaging Design and Hardware

presented by Mark Van Alstine, Westinghouse Savannah River Company

Innovations in Tritium Packaging Design and Hardware

Mark N. Van Alstine
SRTC/Packaging and Transportation

Transportation Management Workshop
May 11–13, 1993
Gaithersburg Marriott
Gaithersburg, Maryland

Prior WSRC Tritium Packaging Usage

- Bulk gas packaging of SR origin for product shipment and retrieval (ex: LP-50)
- Hardware components packaging of other than SR origin (ex: UC-609)
- Weapons component packagings (not topic of this presentation)

Present WSRC Packaging Status

LP-50 B() Bulk Gas Packaging

- Main DOE bulk gas packaging, SR design
- Dates to 1950s — nearing end-of-life, not cost effective to upgrade to B(U)

UC-609 B(U)* Hardware Packaging

- Main DOE Tritium hardware packaging, LLNL design
- *Upgrading to B(U)

Perceived Tritium Packaging Needs

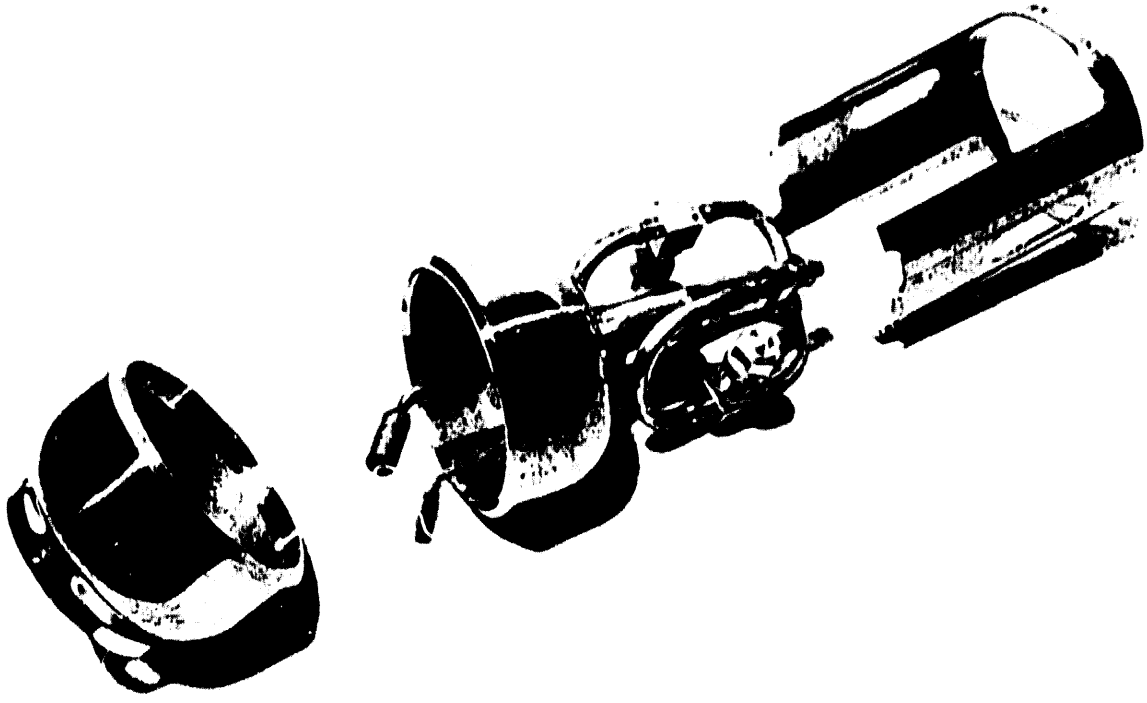
- Affected by mission uncertainties
- Metal hydride-based solid storage packaging for bulk pure gas
- Gaseous storage packaging for bulk reactive mixtures or pure gas
- Hardware packaging for component sizes beyond UC-609 capability

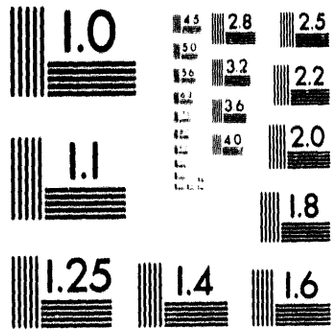
Current WSRC Tritium Packaging Activity

- Developed application-specific Hydride Transport Vessel (HTV)
- Developing solid hydride packaging as LP-50 replacement
- Committed to sustaining LP-50 B() until solid hydride replacement packaging completed

Review of WSRC HTV Development

- 18g tritium capacity uranium hydride vessel, 4.5 inch diameter, 10 inch height, 9.3 pounds
- Normal condition transportation containment
- Facility design to 945 psig at 1112 °F
- RG 7.6 and ASME Section VIII structural qualification
- Category I fabrication per NUREG/CR-3019 and 3854
- Addressed permeation leakage, service life

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1.8
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1.6

6 of 7

Suggested Tritium Packaging Direction

- Develop and implement state of the art packagings
- Develop both a solid hydride and a gaseous bulk packaging, possibly using common overpacking
- Develop a packaging expanding capability now provided by the UC-609

Conclusions

- Existing tritium packaging designs are inadequate for anticipated needs
- Bulk tritium packagings should provide gaseous and solid hydride capabilities
- A hardware packaging allowing component sizes greater than allowed by the UC-609 is anticipated

Potential Advantages of Automating Waste Package Handling

presented by Phil Bennett, Sandia National Laboratory/AL

Potential Advantages of Automating Waste Package Handling

P. C. Bennett

Transportation Systems Development
Sandia National Laboratories
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Sandia National Laboratories

Waste Transportation Casks Should Be Designed And Tested For Automated Handling

Advantages include:

A. Functional

B. Radiological / Hazardous

C. Economic

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A. Functional Advantages

Speed

Laboratory demonstrations show handling processes at least match human speeds.

Automated machinery has the potential to cut process times by factors of 2 to 4.

Accuracy

Automation can quickly and accurately position handling tools and waste loads (.1 inch) without precision fixturing.

Potential Integration With Packaging Processes

Automated transport package loading can be integrated into a larger automated waste management system. Human contact with wastes and waste packages can be eliminated from retrieval to final emplacement.

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The Advanced Cask Handling Technologies Project Demonstrated The Feasibility of Automating Most Major Handling Operations

1. Remote Radiation Survey and Analysis System (RRSAS)
2. Cask tiedown and impact limiter manipulation
3. Cask uprighting and movement
4. Cask lid operations

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B. Radiological Advantages

Elimination of the majority of process doses can be achieved by removal of operators from the radiation fields.

Contact Handled TRU
- INEL 0.3 person-rem/year
- WIPP 4.7 person-rem/year

High Level Waste
- MRS 0.2 - 0.6 rem/cask
  200-600 rem/year

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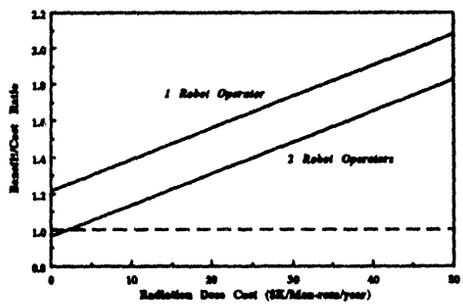
C. Economic Advantages: CH-TRU WIPP Example

TRUPACT-II Economic Analysis Benefit/Cost Ratio



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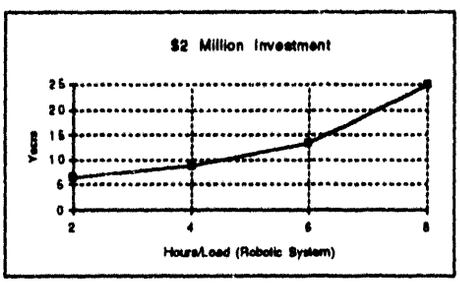
C. Economic Advantages: CH-TRU INEL Example

Payback on a robotic loading system for TRUPACT-II loading at INEL



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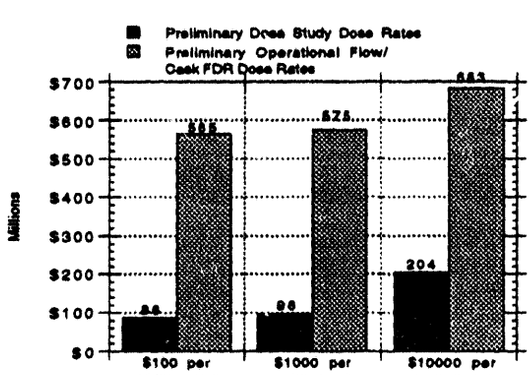
C. Economic Advantages: High Level Waste (MRS Example)



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Some Economic Impacts Are Difficult To Anticipate: Litigation

K. Silkwood
- $10.5 Million awarded by jury to the estate
- $1 Million or more in defense
- Total dose 1/4 maximum permissible
- No cancer or other ill effect due to radiation exposure

J. Downing
- Rocky Flats radiation worker
- Died of cancer ruled caused by radiation exposure
- $350,000 estate award

Sandia National Laboratories

Some Economic Impacts Are Difficult To Anticipate: Litigation

Fernald
- $78 Million settlement with neighbors (1989)
- Primarily to compensate for fear.

- $100 Million claim (scheduled for jury trial 2/16/93)
- Present and past employees for lifelong monitoring and punative damages, citing severe emotional distress.

"...merely following the letter of minimal federal safety standards is not a bar to a citizen jury determining that personal injuries caused by the regulated industry should be compensated; and failure to make more than the required steps may be so 'unreasonable' as to warrant punative damages." Annas, G.J., "The Case of Karen Silkwood," Am. J. Public Health 1984 May;74(5):516

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Conclusions

- Analyses indicate an economic advantage to automating transport package handling.
- Elimination of the majority of handling dose is reasonably achievable.
- DOE Order 6430.1A strongly recommends such measures at special DOE nuclear facilities.
- Use of such technology requires transport packages designed to allow it.

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Conclusions (cont')

Cask handling demonstrations have shown feasibility of automated handling and resulted in design guidance for waste transport packages

Automated handling demonstrations have matched manual handling speeds and shown the potential for considerable acceleration.

Cask component demonstrations are applicable to most HLW casks.

Control architecture, modelling and automated equipment are applicable to TRUPACT-II packages.

TRUPACT-II did not benefit from ongoing efforts and handling features have not been demonstrated for automated handling.

Sandia National Laboratories

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Sandia National Laboratories

SA's Activities in Approving Air Terminals for Constant Security Surveillance Shipments

presented by Cathy Tullis, DOE/SA-23

Department of Energy
Office of Safeguards and Security

ACTIVITIES IN APPROVING AIR TERMINALS

CATHERINE A. TULLIS
POLICY STANDARDS, AND ANALYSIS DIVISION (SA-12)
TECHNICAL AND OPERATIONS SECURITY BRANCH (SA-123)

Department of Energy
Office of Safeguards and Security

EMERY

- DOE 5634.1B - FACILITY APPROVALS, SECURITY SURVEYS AND NUCLEAR MATERIAL SURVEYS
- EMERY PROCEDURES DATED MAY 1, 1993
- SURVEYS BY OPERATIONS OFFICES

EMERY

- DOD ACTIVITIES
- ACCEPTANCE OF DOD FACILITY APPROVALS

Department of Energy
Office of Safeguards and Security

EMERY

- DOE HAS APPROVED 10 TERMINALS
- DOD HAS APPROVED 14 OF 30 TERMINALS

Purchase: I want to thank you for resurrecting this Emery deal again. I understand it's been in limbo, and I know it's been in limbo for quite a while. Has any consideration been given to re-approving any Federal Express locations? For instance, in Albuquerque we have no Emery approved service as we don't have most of our Albuquerque contractors because of the Facility Data Approval Records (FDARs). Have you also worked with Albuquerque to get them off the dime, so to speak, on the FDARs?

Tullis: FDARs specific to Federal Express and Emery or just FDARs in general for mailing classified?

Purchase: Well, it's for classified because they have virtually shut us down except on Ross. Ross is an expensive method of moving classified. Another thing is, while express mail has been approved up through Secret, where you have hazardous materials involved then you are dead in the water. If we had approval, say for Emery, we could save the government many bucks (or Federal Express which we used for many years without any known pilferage or loss of product). This is the reason I'm real concerned that we have another look at Federal Express.

Tullis: It was just about two months ago that I learned that the FBI was doing a pilot project with Federal Express. Back in the late '80s, when we terminated Federal Express it was because there were some problems that DOD experienced with some compromises of information. When they did their investigation they found out that the procedures that Federal Express was supposed to be following, weren't being followed. That basically shut them down for the entire government. We are keeping up with what the FBI is doing with Federal Express since they have been briefing the Information Security Oversight Office. If they give us the go-ahead, we will definitely go ahead and approve Federal Express. But, at this time I can't tell you to go ahead and use it. The local Field Office should be looking at the Emery location that services Albuquerque to see if they can approve it if you need it. Now, there might be some problems with that because Emery doesn't fly directly into Albuquerque. But, if you have a lot of shipments, I think that if it was worth their time Emery would make arrangements to service your area. They have been real good about working with us so maybe what we need to do is elevate it to the Security Officer here in Headquarters at Emery and see what they are willing to do to serve us. I'll work with Larry's group and we will talk with the Security Officer over at Emery.

Wiles: Cathy, In your conversations with DOD have they mentioned anything about a test with Federal Express on electronic signature service?

Tullis: DOD has not. I haven't heard of their use of Federal Express at all.

Wiles: The last time we talked with Federal Express they were in the process of testing, with DOD, electronic signature service for classified. In some of your future conversations you might want to touch base with DOD and ask them if the ones you're contacting are aware of that test and what their findings are.

Tullis: I will call their transportation management center and find out what they're doing from a security standpoint.

Package Response to Severe Impact Accidents

presented by Douglas Ammerman, Sandia National Laboratory/AL

PACKAGE RESPONSE TO SEVERE IMPACT ACCIDENTS

Douglas J. Ammerman
Sandia National Laboratories

May 13, 1993

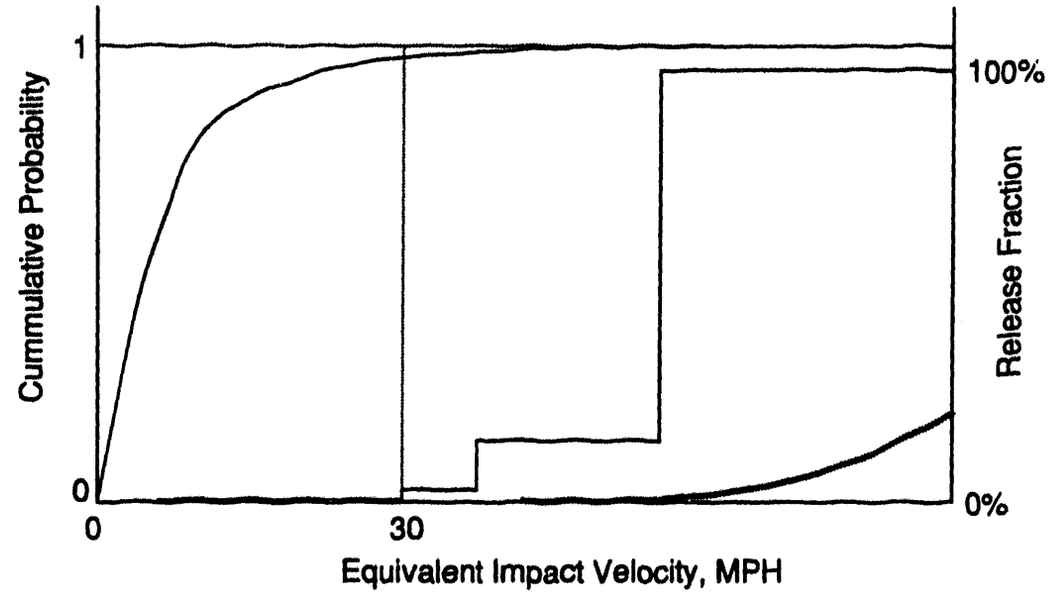
Sandia National Laboratories

5/11/93:DJA:6642

Purpose

The goal of the transport accident environment task is to define the accident environment for generic radioactive materials (RAM) transport packages and to evaluate their response to that environment. This allows a more accurate assessment of the safety of transporting RAM, eliminates the need for excessively conservative risk estimates, and provides evidence to dispel the notion that transport of RAM is unsafe. Defining the accident environment and assessming package response is part of any EA or EIS that deals with RAM transportation, either on-site or on public roadways. The information generated by this task can be used in any EA/EIS as needed, and package-specific responses will not need to be developed for each program.

Surface Travel Impact Accidents



Task Description

To define the accident environment for radioactive material transport packages the effects of impacts at various angles, orientations, and velocities onto real targets are being investigated. These impacts are being related to equivalent impacts onto an unyielding target.

The response of packages to impacts onto an unyielding target is being investigated by subjecting an idealized package model to impacts with varying velocities. This work will be used to benchmark computational predictions of package response, thereby allowing the response of packages with differing parameters to be characterized without the expense of full-scale testing.

Test Instrumentation

Accelerometers (10)

- 2 on impact lid
- 2 on opposite end lid
- 2 on contents
- 4 on cask body

Strain gages (16)

- 4 in axial direction on outer wall
- 4 in hoop direction on outer wall
- 4 in axial direction on inner wall
- 4 in hoop direction on inner wall

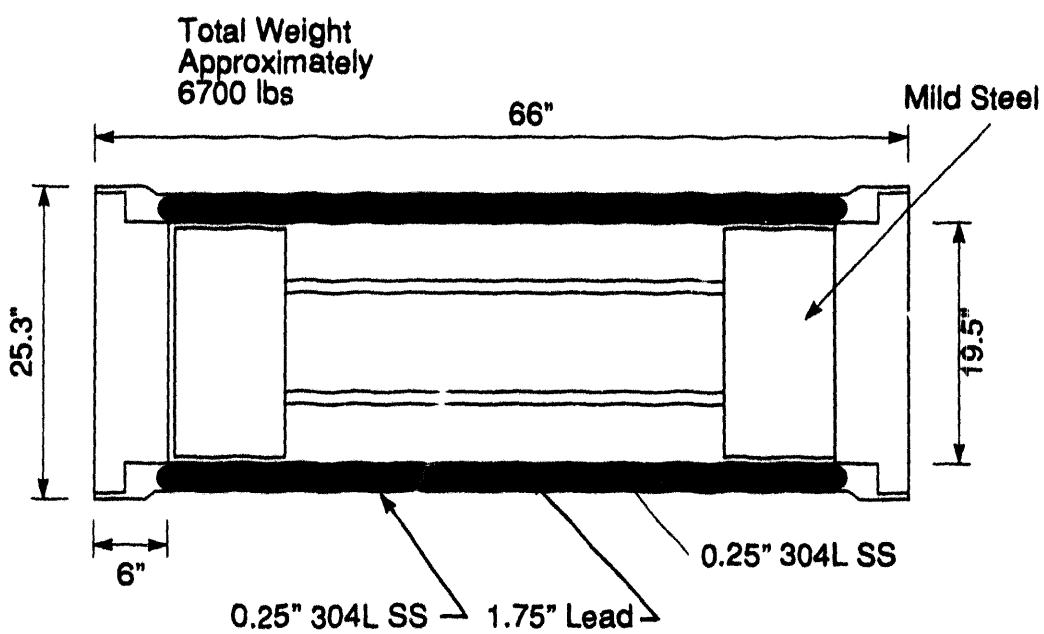
Strain gage bolts - 4 attaching impact lid to cask body

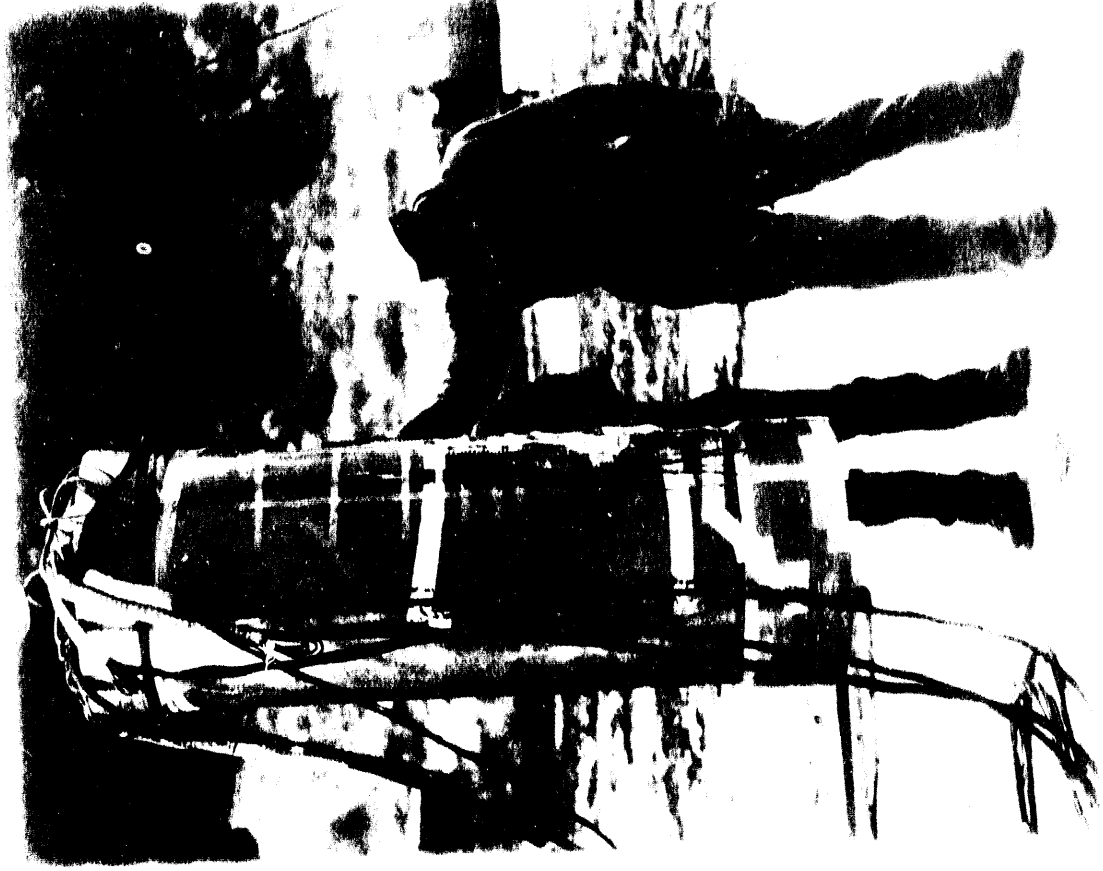
LVDTs - 4 measuring relative displacement of impact lid

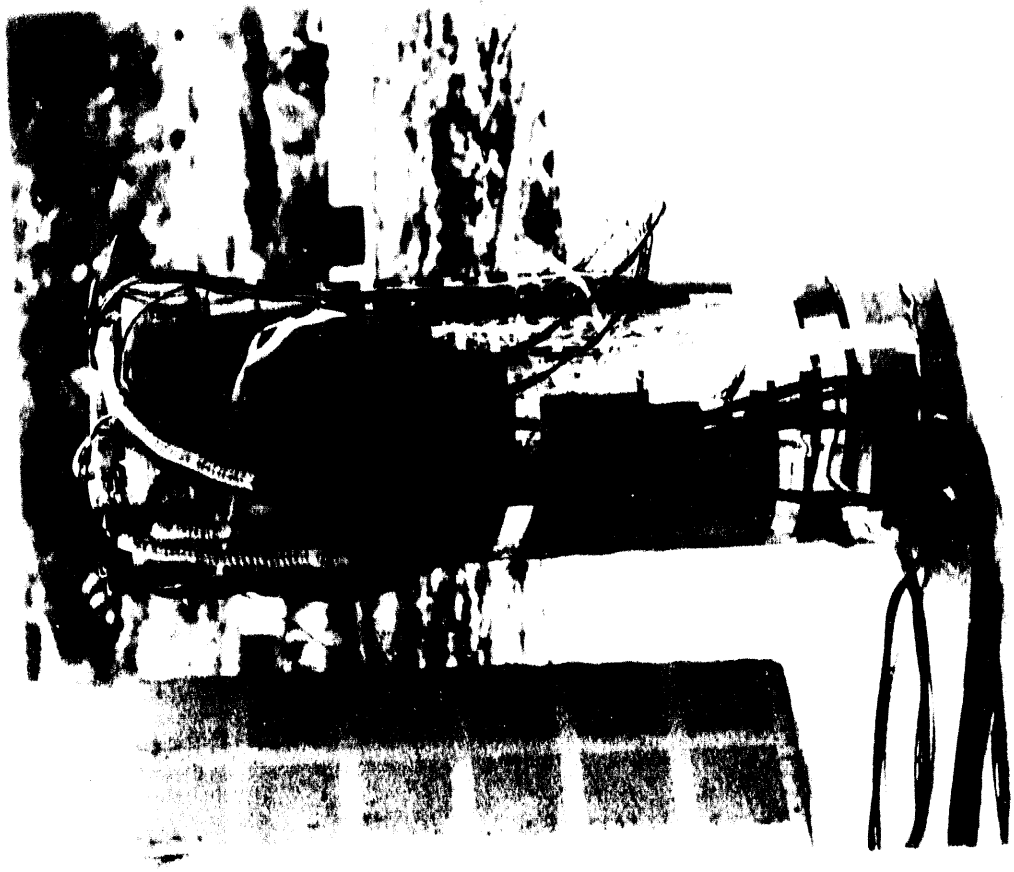
Dummy channels - 1 accelerometer and 2 strain gages

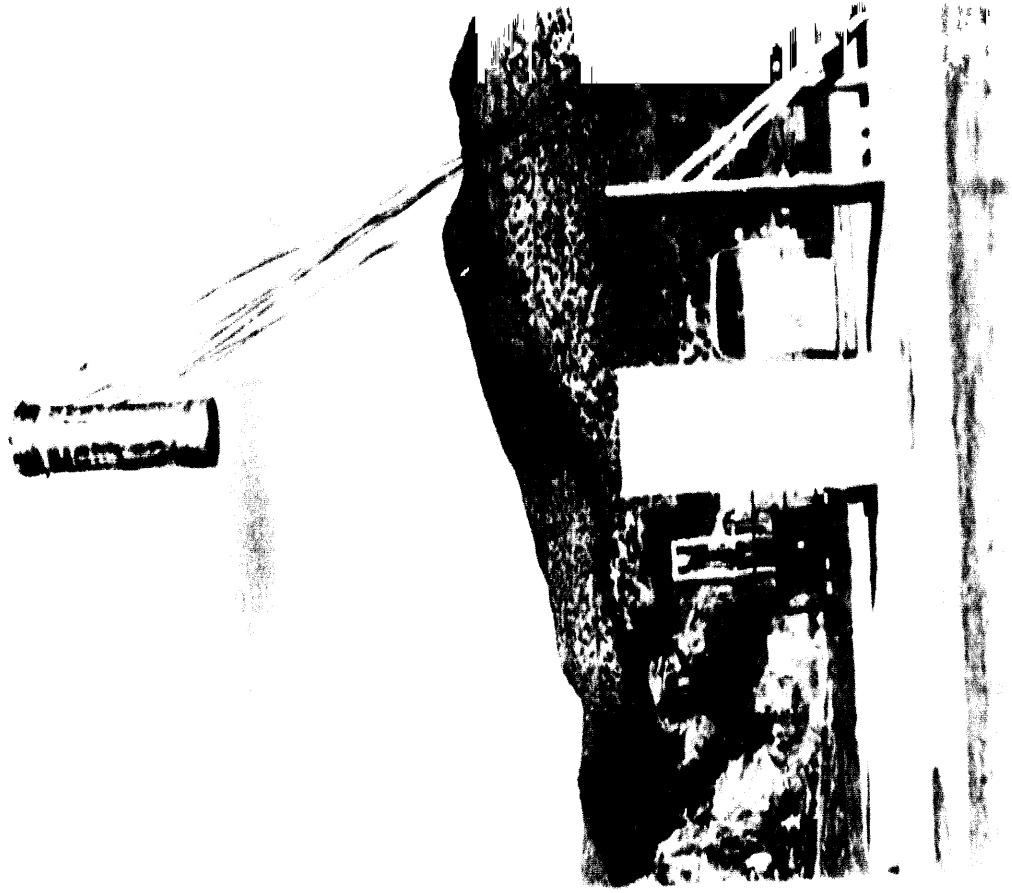
Thermocouple - 1 on outer shell

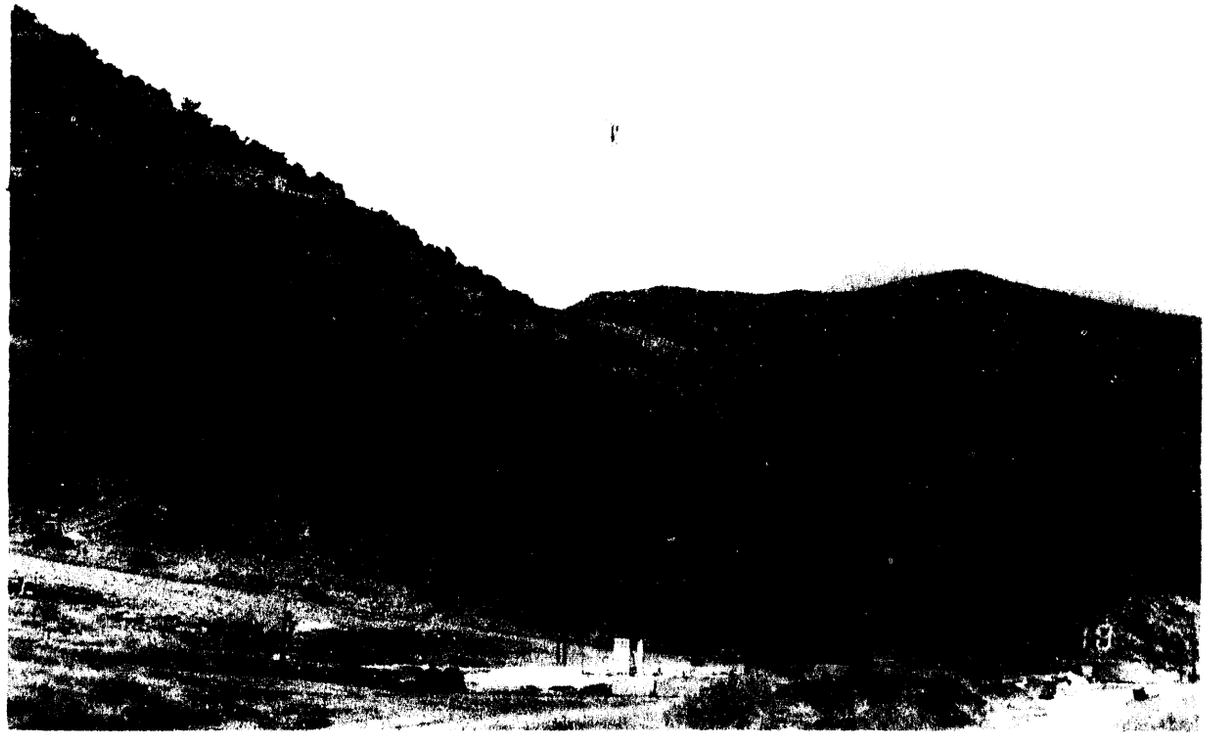
Test Package

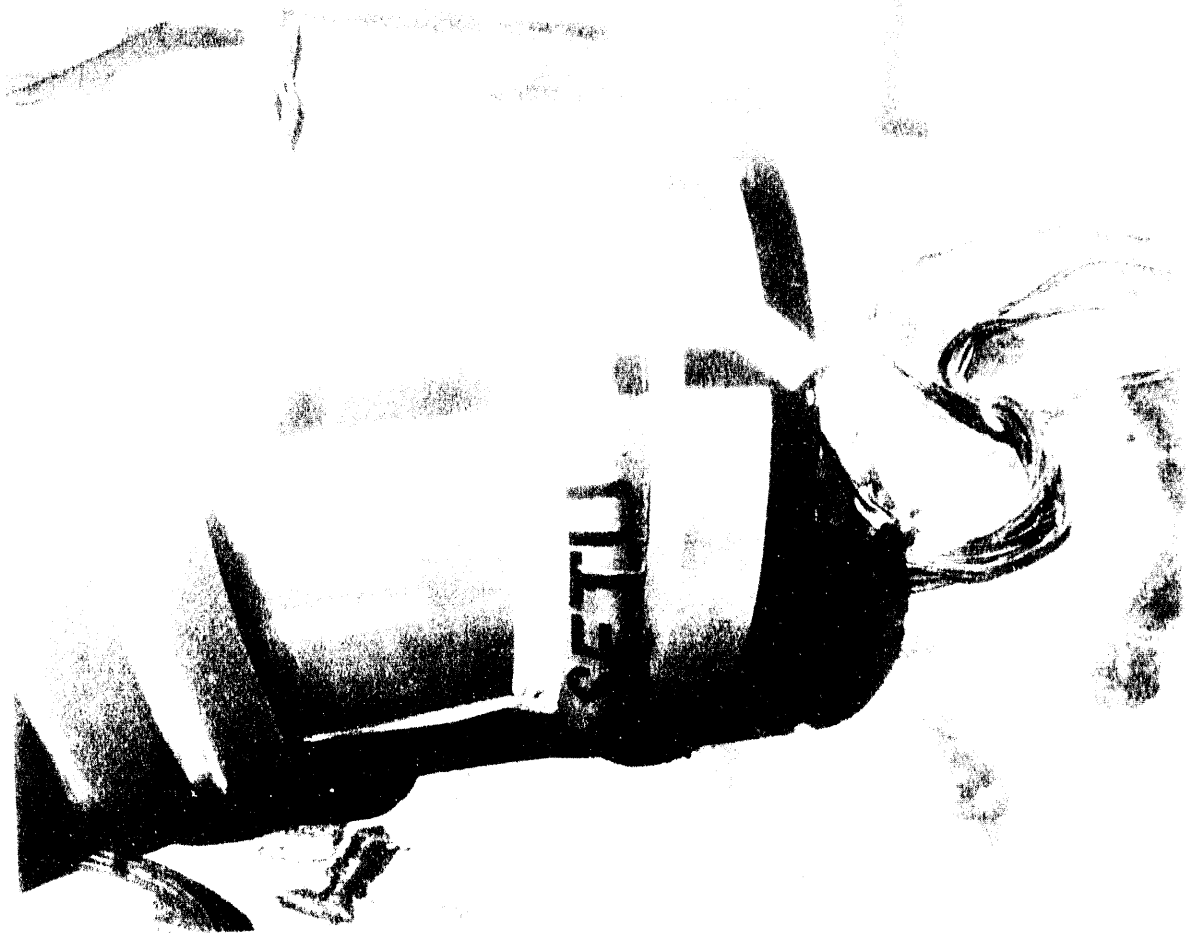


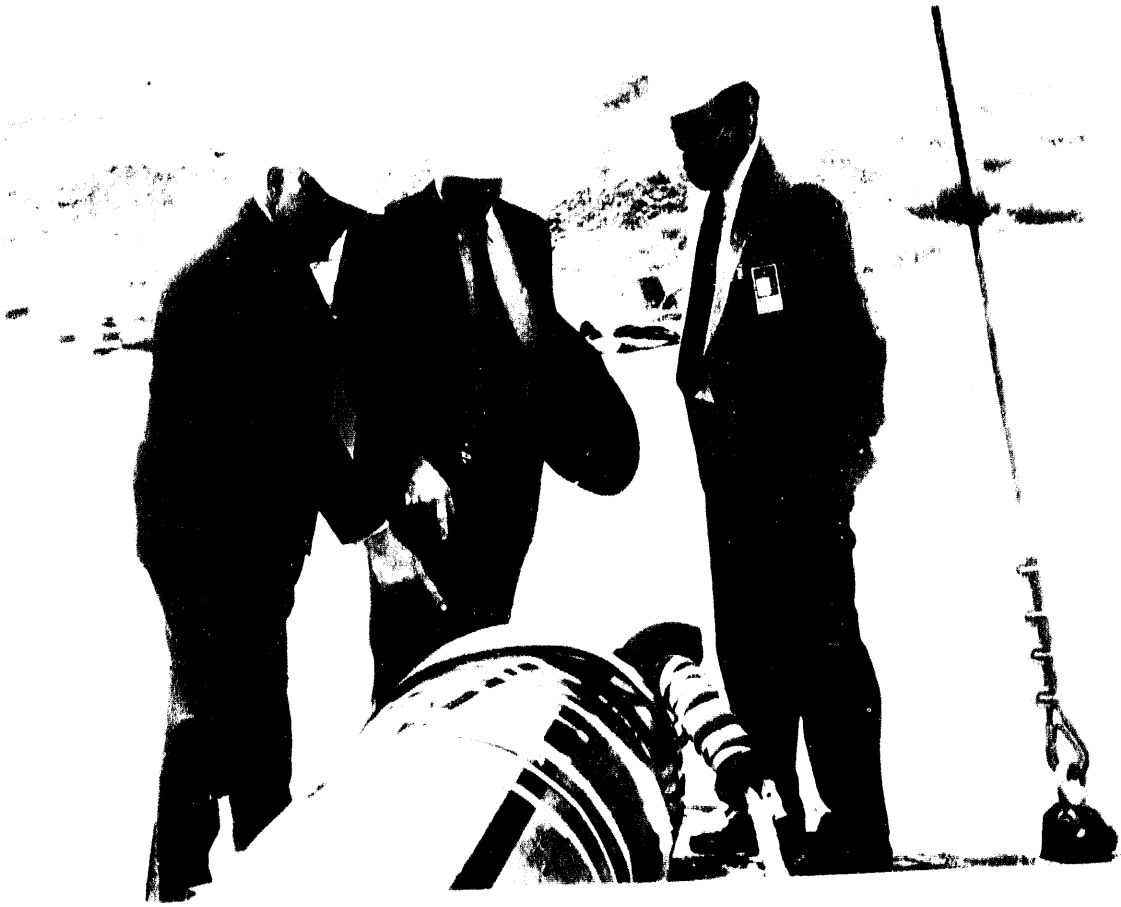












Sorenson: I've got a question for you, Doug. I may have missed it during your talk, but how many Gs, did the cask see in that last test, that 120-foot drop?

Ammerman: The body saw about 1,000 Gs, the impact end lid saw about 12,000; the top lid saw about 1,400; and the contents saw about 21,000.

Sorenson: It's just a tremendous knock that it takes. I think for a standard cask drop test, with impact limiters, you see anywhere from 60 to 300 Gs. That took up to 1,000 Gs and still maintained its containment. I think that gives us an indication of the factor of safety we're designing to.

Ammerman: That's right. We have a tremendous factor of safety that we're not taking credit for.

Emergency Management Division

presented by Wally Weaver, DOE/EM/TMD

Transportation Emergency Preparedness Program (TEPP)

Wallace Weaver

Emergency Management Division (EM-562)

TEPP Program Initiatives

1. **Centralize Program Coordination**

2. **TEPP Steering Committee**

3. **Develop a TEPP Multi-Year Program Plan**

4. **Establish a TEPP External Coordination Mechanism**

5. **Establish Planning Requirements for Transportation Incident Response**

TEPP Program Initiatives (cont'd)

6. Develop Training & Exercise Program for Transportation Incident Response

7. Develop Program Verification Procedures

8. Establish Field Assistance Program

9. Establish Support Program for States, Tribes and Local Governments

10. Establish Technology Application Program To Support Emergency Response

TEPP Coordination

- Coordinated HQ Position
  - TEPP Coordinator (5500.1B)
  - TEPP SC - OE/EM Co-Chair

- Multi-Faceted Program

DP	EM
OE	RW

  & Other Program Elements

- Multi-Discipline Implementation

EMAC	TMC
TCG	TITF

External Coordination

- International
  - IAEA
- Federal
  - FRPCC
  - NRT
  - HMTUSA
- State-Tribe-Local
  - TEC Working Group
  - STGWG

TEC Working Group

- Latest Meeting held in Chicago, July 20, 1993
- After 3 Meetings & 1½ Years, Now Looking to Validate Purpose & Refine Mission/Procedures
- TEC Working Group *Work Plan* covering 7 Topics
  - General Planning
  - Safe, Routine Transport
  - Inspection & Enforcement
  - Emergency Management
  - Training
  - Technical Assistance
  - Public Information & Education

Field Assistance Program

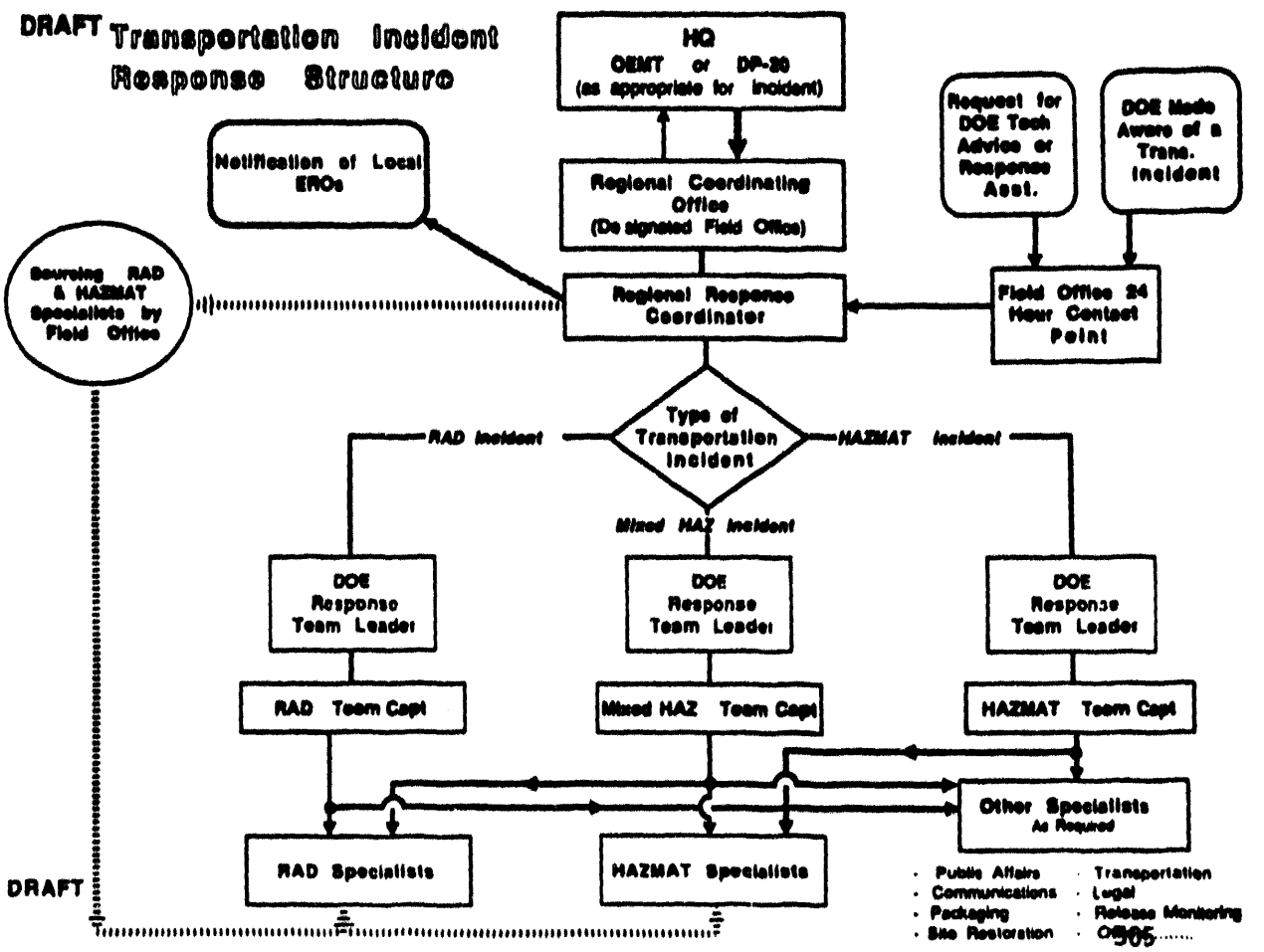
- Designed to Establish Effective Transportation Emergency Response Capabilities within DOE Response Assets
- EM Funded Activities to Build Baseline Capabilities
  - Planning
  - Training
  - Exercises
  - External Coordination/Outreach
- Initial Focus on WIPP Transportation Exercises
- Field Offices Active in Program Include:
  AL, ID, OR, RF, & RL

Field Assistance Program Funding

- Current Activities
  - TRANSAX Series
  - WIPPTREX Support
  - TEPP Implementation
  - Training / Exercises
- Future Activities
  - TBD from Field Requests

Establishment of Transportation Incident Response Planning Requirements

- Under DOE Orders: Transportation = Facility
- DP/EM working jointly on Transportation Incident Response Policy
- Transportation EALs & Plan Review Criteria proposed for development
- INEL's TEPP (ITEPP)



- TETRA, with modules for:
  - TEP-RAP
  - WIPP
  - Rail (TBD)
  - Public Affairs
  - HAZCHEM
  - T-T-T (TBD)
- RERO-RETLR
- Orientation Seminar
- Hanford Advanced
- REAC/TS Video Tapes
- FEMA Courses
- STEP Training
- Shipment Specific Info Kits
  (cesium campaign is an example)

Exercise Program

- TRANSAX '92
- TRANSAX '93
- WIPPTREX (UT)
- Transportation Exercises
  Confederated Tribes of the Umatilla/Cabbage Hill
- Facility Exercises
  (now including transportation incident scenarios)

- Training & Exercises
- TEC Working Group
- Institutional Materials
- TRANSAX Reports & Video Tapes
- Spinoff from Field Assistance Program
- Cooperative Agreements (AIPs, MAAs, MOAs, & MOUs)
- Working to Identify Technical Assistance Opportunities

Technology Applications to Support Emergency Response

- Satellite Communications
- AMS
- TRANSCOM
- TRANSIMS

Tank Farm Waste Equipment Packaging and Transportation

presented by Don Calmus, Westinghouse Hanford Company/RL

1

TANK FARM WASTE EQUIPMENT PACKAGING AND TRANSPORTATION

D. B. Calmus
Packaging Safety Engineering
Transportation and Packaging Department

Westinghouse Hanford Company
Richland, Washington

Transportation Management Workshop
May 11-13, 1993
Gaithersburg, Maryland

2

Background Information

Acceptable packaging for onsite transport and disposal of large/long equipment removed from waste storage tanks does not presently exist.

3

Waste Equipment

- 300 to 500 pieces of equipment (tanks & facilities)
- Pumps, thermocouples, air lances, tanks, etc.

4

Equipment Classification

- Mixed or non-mixed Low Level Waste (LLW)
- Mixed or non-mixed TRU waste

5

Equipment Disposal

- Non-mixed waste transported for direct burial
- Mixed waste transported for storage (90 days)
- TRU waste transported for storage

Hanford

TANK FARM WASTE EQUIPMENT PACKAGING AND TRANSPORTATION

Packaging Safety Engineering

6

Past Practice

- Wrapping equipment in two layers of plastic material
- Triple rinsing to non-mixed waste requirements

Hanford

TANK FARM WASTE EQUIPMENT PACKAGING AND TRANSPORTATION

Packaging Safety Engineering

7

Present Methods

- Consider equipment removed from tanks as mixed waste unless otherwise designated
- If practical, clean mixed waste to non-mixed using debris rule

NOTE: At the present time, it is not considered practical to meet debris rule performance standards at the tank farms, and equipment will be managed as mixed waste.

Hanford

TANK FARM WASTE EQUIPMENT PACKAGING AND TRANSPORTATION

Packaging Safety Engineering

8

Packaging Containers

- Provide packaging suitable for both the transport and storage of mixed LLW (TRU will be re-evaluated)

Hanford

TANK FARM WASTE EQUIPMENT PACKAGING AND TRANSPORTATION

Packaging Safety Engineering

Tank 241-SY-101 Packaging Project

Remove three permanent air lances from storage tank due to damage or potential damage from hydrogen gas releases. Lances 2" diameter pipe, 56 feet long.

Scope

- Provide packaging for transport and disposal
- Provide design and safety documentation

11

Initial Concept

- Cut pipe into 17' lengths during removal and install in 22' long rigid receivers.
- Triple rinse and classify equipment as non-mixed waste.
- Approve rigid receivers as HIC packaging for transport and disposal (burial) of non-mixed LLW.

NOTE: HIC is a high integrity container requiring only one containment barrier for direct burial of LLW.

12

Final Concept

- ALARA and other concerns resulted in bolting three rigid receivers together and installing the 56' long lances in 66' long receiver assemblies.
- Lances were classified as mixed waste (triple rinsing eliminated) requiring two containment barriers for storage.

Final Concept (cont.)

- 70' long x 26" diameter packaging containers with flanged end closures were provided. Packaging was primary containment for transport and secondary containment for storage.
- Packaging requirements for transport and storage included:
  - Structurally safe for transport
  - Compatible with waste contents
  - 20 year service life
  - Shielding (100 mrem/H at surface)
  - Primary containment barrier for transport
  - Secondary containment barrier (mixed waste storage)

Design and Safety Documentation

- Packaging Design Criteria (PDC).
  - PDC included packaging design, descriptions of waste contents, and estimated waste classification.

15

Safety Evaluation for Packaging (SEP)

- Developed to approve package transport for a one time campaign
- Demonstrated that onsite transport of the package provided an equivalent degree of safety to a package meeting DOT requirements
- SEP evaluations included:
  - Normal conditions of transport
  - Accident frequency analysis
  - Dose consequence analysis
  - Venting, shielding, thermal, gas generation

16

Project Conclusions

- Packaging provided acceptable containment for onsite transfer and storage of equipment
- Rinsing of equipment at tank farm to minimize waste resulted in surface radiation dose less than 100 mrem/H (external shielding was not required)
- Waste classification should be confirmed immediately after equipment removal to address potential 90 day temporary storage of mixed waste

Project Conclusions (cont.)

- Assure that package tiedown system is identified and approved prior to transport
- Provide accurate waste material source term data and provide realistic estimates of waste material attached to equipment after removal and rinsing
- Assure that shielding is, or will be available, to reduce worst case dose rates to acceptable limits

RTG Packaging

presented by Pat Ferrell, Westinghouse Hanford Company/RL

U.S. Department of Energy

Transportation Management Division Workshop

May 11 - 13, 1993

Radioisotope Thermoelectric Generator (RTG) Transportation System

P. C. Ferrell

Westinghouse Hanford Company

RTG TRANSPORTATION SYSTEM

Objective

To Design, Develop, and Fabricate a Transportation System for Shipping Various Types of RTGs. The System will Include:

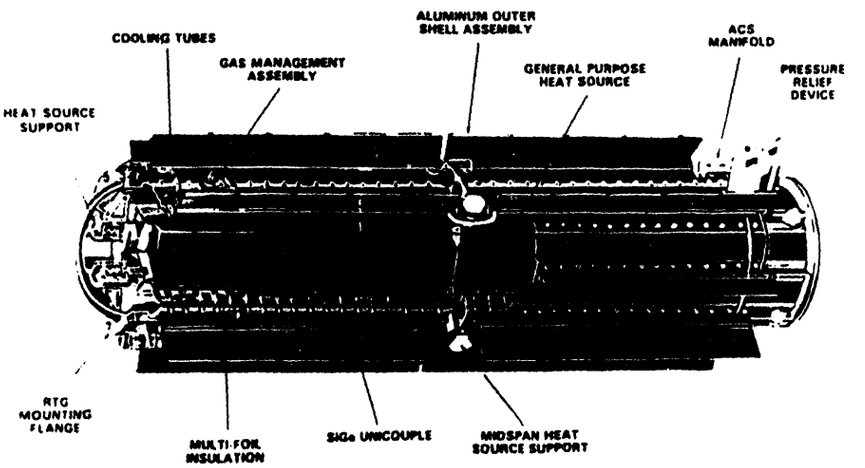
- A Type B Packaging That Will be Built and Certified to the Requirements of 10 CFR 71
- An Exclusive-Use Trailer to Ship the Package and Associated Equipment
- Ancillary Equipment for Operating and Handling the System

RTG TRANSPORTATION SYSTEM

Payloads

- Three Types of RTG Payloads
  - Up to 4500 Watts Heat Load
  - Up to 11,300 Grams Pu O_2 (Mostly ^{238}Pu)
  - Up to 620 lbs
- For Certification Purposes, Payloads Do Not Provide Containment Function
- RTGs Are Used as Remote Power Sources For Marine, Terrestrial and Space Applications

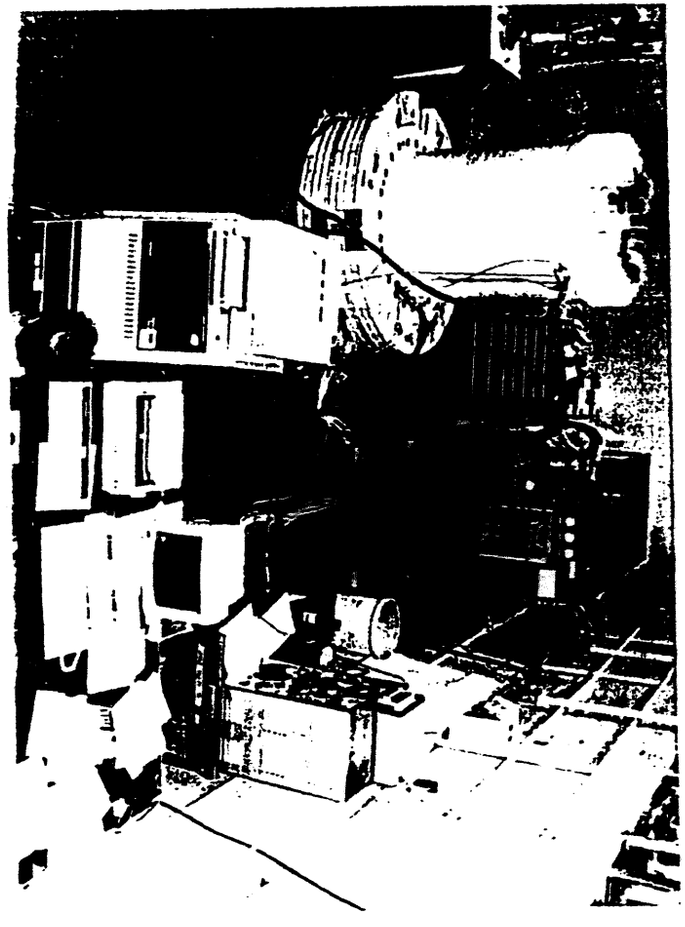
GPHS-RTG



RTG TRANSPORTATION SYSTEM

System Description - Packaging

- Two Separate Containment Systems
- Removable Polyurethane Foam Impact Limiter
- Redundant Cooling Systems
- Shock Isolation System



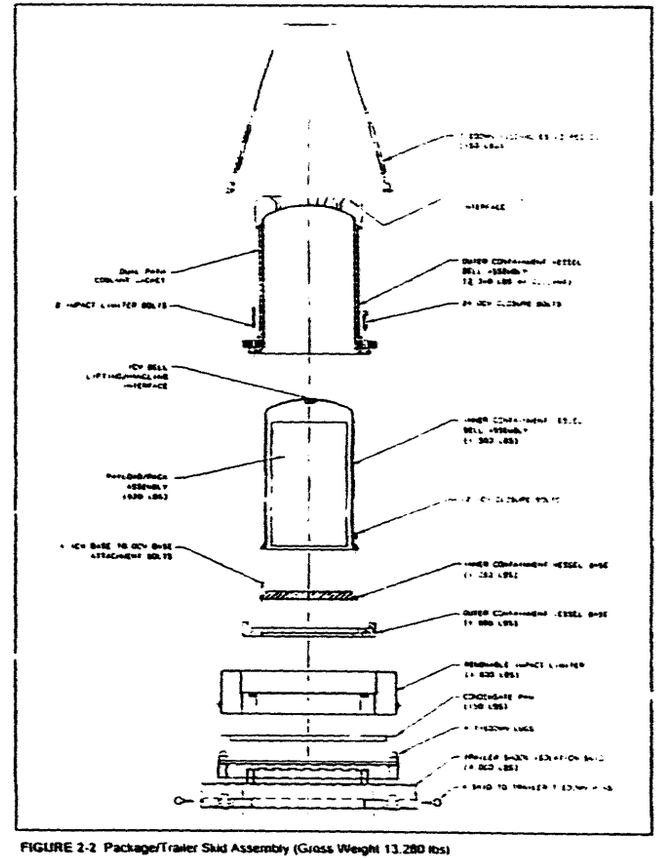
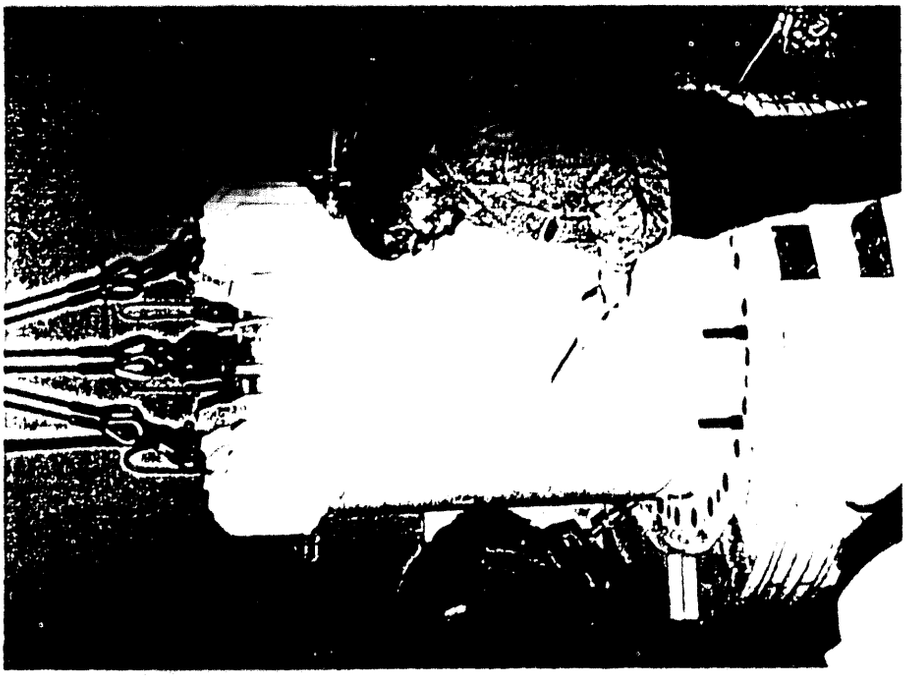


FIGURE 2-2 Package/Trailer Skid Assembly (Gross Weight 13,280 lbs)



RTG TRANSPORTATION SYSTEM

System Description - Trailer

- Standard 40-Ft Trailer
- Ship up to Two Packages
- 5000 Watt Maximum Heat Load
- Contains Redundant Cooling Systems
- Facility Cooling System and Handling Skid
- Instrumentation and Alarm System

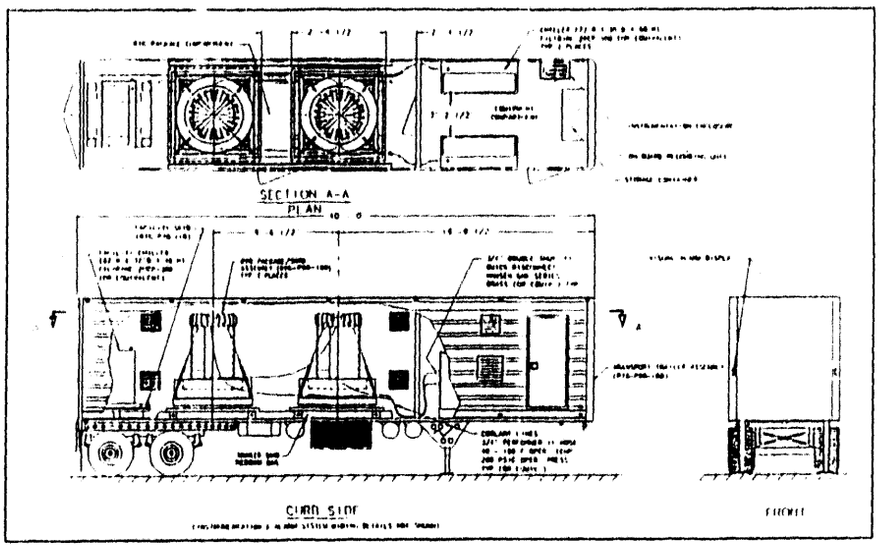


FIGURE 2-1 RTG Transportation System Assembly

RTG TRANSPORTATION SYSTEM

Program Status

- Fixed-Price Contract Placed 4/90
- System Scheduled for Delivery 9/95
- Final Design of Licensed Hardware Near Completion
- Operations Thermal Qualification Tests Complete for Two Payloads 3/93
- Draft SARP to WHC 5/93

RTG TRANSPORTATION SYSTEM

Future Activities

• Structural Certification Tests	9/93
• Initiate Design of Non-Licenced Hardware	9/93
• Final Operations Thermal Qualification Tests	11/93
• SARP to DOE	1/94

Development of a Quality Program for the Design and Testing of Performance Oriented Packaging

presented by Arthur Guthrie, Los Alamos National Laboratory

QUALITY PROGRAM DEVELOPMENT
FOR
DESIGN AND TESTING
OF
PERFORMANCE ORIENTED PACKAGING

Presented by Arthur A. Guthrie

Los Alamos National Laboratory

Los Alamos

Introduction

Why a Packaging Engineering Function at LANL.

Applicable Quality Requirements.

How the Program was Developed.

Los Alamos

Background: Why a Packaging Testing Function at LANL?

1) Testing was available from multiple DOT 3rd party testing labs.

2) Testing would be at a cost comparable to an in-house testing cost.

3) Turn around time was currently on the order of one month but could be expected to be many months as the full impact of "POP" hit the hazardous materials industry.

4) Quality assurance was an unknown consideration for all of the more inexpensive testing labs.

5) The DOT 3rd party test labs understood the nonradioactive regulations but had little experience with the radioactive side of the regulations.

Los Alamos

Background: Why a Packaging Testing Function at LANL?

We determined that in-house testing of packagings would:

1) be the most responsive to shipper and programmatic needs;

2) be cost effective; and

3) provide the highest degree of assurance that the packages would be safe and meet all regulatory requirements.

Los Alamos

5700.6C Defines a Quality Assurance

"The overall program established by an organization to implement the requirements of this order. The Program assigns responsibilities and authorities, defines policies and requirements and provides for the performance and assessment of work."

Los Alamos

How do we start?

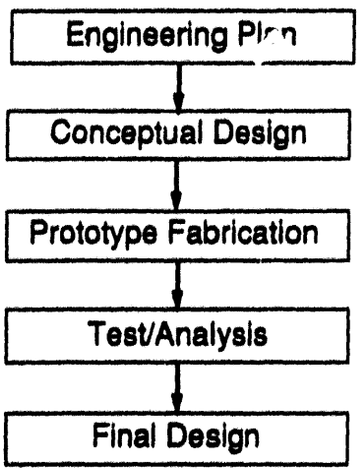
First document the way we actually perform our work;

Then add the controls such as peer reviews that we deem necessary and achievable; and

Finally, evaluate the proposed program against accepted quality standards

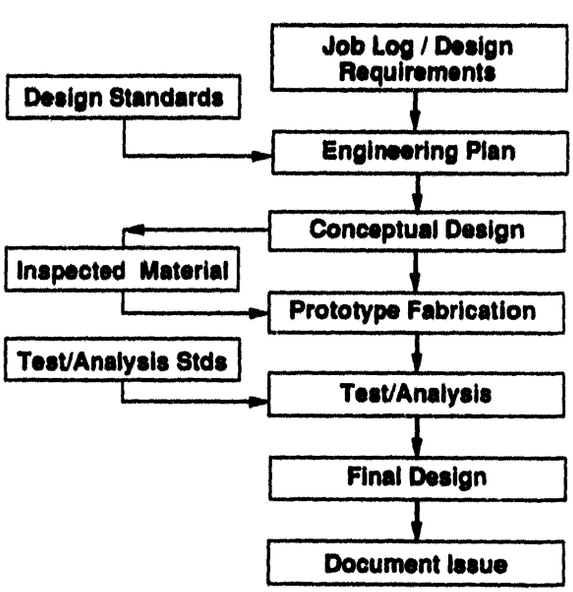
Los Alamos

The Simplified Engineering Process



Los Alamos

The Completed Engineering Process



Los Alamos

Packaging Engineering Manual Contents

Section 1 - General Information

Section 2 - Organization & Performance Evaluation

Section 3 - Engineering Process & Documentation

Section 4 - Configuration Control

Section 5 - Test Facilities And Equipment

Section 6 - Records

Section 7 - Vendor Quality Assurance

Section 8 - References

Los Alamos

Conclusion:

It is up to us to define the quality program.

Los Alamos

Procurement for Successful Performance Oriented Packaging Design

presented by Thomas Shanley, Los Alamos National Laboratory

PROCUREMENT FOR SUCCESSFUL PERFORMANCE ORIENTED PACKAGING DESIGN

Presented by Thomas M. Shanley

Los Alamos National Laboratory

Los Alamos

WHAT'S THE PROBLEM?

OCTOBER 1994

DOT Specification packages may no longer be manufactured

↓

OCTOBER 1996

DOT Specification packages may no longer be used for shipments

Los Alamos

178.205-3 Classification of board.

(a) Fiberboard is hereby classified by strength[1] of completed board as in the first column of the following table; weights specified in the table are the minimums authorized.

Classified strength[1] of completed board	Solid fiberboard-Minimum combined weight of component plies exclusive of adhesives (pounds per 1,000 sq. ft.)	Facings for corrugated fiberboard	
		Double faced—Minimum combined weight of facings (pounds per 1,000 sq. ft.)	Double wall—Minimum combined weight of facings including center liner (pounds per 1,000 sq. ft.)
175	149	75	.....
200	190	84	92
275	237	136	110
325	237	136	110
350	283	180	126
375	283	180	180
400	283	180	180
450	283	180	180

[1] Mullen or Cady test (minimum).

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CURRENTLY:

The vendor certifies his containers by marking them in accordance with their specification.

DOT- 12B65

Los Alamos

FEDERAL SPECIFICATIONS:

- PPP-F-320 Fiberboard; Corrugated and Solid
- PPP-T-60 Tape; Packaging, Waterproof
- L-P-375 Plastic Film, Flexible, Vinyl Chloride
- PPP-D-729E Drums, Shipping and Storage, Steel, 55-Gallon

Los Alamos

TITLE: FIBERBOARD CONTAINERS for DOT 7A-LASL SHIELDED LIQUID CONTAINER (pages F-6 thru F-10 of MLM-3245)

PAGE 1 OF 2

1.0 TECHNICAL REQUIREMENTS

1.1 The boxes shall meet the requirements of Federal Specification PPP-B-636, and Department of Transportation box specification DOT-12B65 (49CFR178.205) as follows:

1.1.1 Federal Specification No.: PPP-B-636; "BOXES, SHIPPING, FIBERBOARD"; September 9, 1988 - Type CF; Class Weather-Resistant; Variety SW; Grade V3c; Style RSC; Special Requirements Apply--Type II Load (per Table II).

1.1.2 Box shall also meet the requirements of 49CFR178.205 (DOT-12B) with a 65 lb. weight designation. Liners are not permitted.

1.1.3 The minimum strength of fiberboard shall be 375 psi for doublefaced and 275 psi for doublewall corregated fiberboard as determined by the Mullen or Cady test.

1.2 The manufacturer's joint shall be stapled.

1.3 The inside dimensions are 14" x 14" x 14".

1.4 The boxes shall have the following printing in Black, 1/2" high (minimum) lettering.

1.4.1 Bottom Flap: Federal Specification Number and Grade; DOT-12B Specification Number, and Name and Address, or Mark of person certifying the DOT-12B designation (49CFR178.205-18(a)); Inside Dimensions; Box Makers Certification.

1.4.2 Side Panels: "USA DOT 7A Type A"
"Radioactive Material"
"Los Alamos National Lab"
"Los Alamos, NM 87545" (Place as close to bottom score as is practical)

Los Alamos

2.0 QUALITY ASSURANCE

2.1 University Acceptance At Destination: Articles ordered under this Contract are subject to final acceptance at the University facility

2.2 Material And Process Conformance: The Supplier shall submit with each shipment, a Certificate of Conformance, signed by an authorized Supplier's Representative, stating that the materials furnished to the University are (1) in conformance with applicable requirements of the contract, drawings and specifications, and (2) that supporting documentation is on file and will be made available to the University, or a Government Representative, upon request. Certification shall include the name of the Supplier for materials being supplied, quantity shipped, and Contract number. An example of an acceptable statement of Certification of Conformance is as follows: "This is to certify that all items noted are in conformance with the Contract, drawings, specification and other applicable documentation of Purchase Order Number _____, that all process certifications, chemical and physical test reports, are on file at this facility and are available for review by the University and/or a Government Representative."

2.3 University/Government Source Inspection Requirements: During performance of this order, the Supplier's quality control or inspection system and manufacturing processes are subject to review, verification, and analysis by authorized Government representatives or University representatives. The University/Government reserves the right to inspect any or all of the work included in this Contract at the Supplier's plant.

Los Alamos

CONCLUSION:

DOT SPECIFICATION PACKAGES

R. I. P.

→

NEED

for a Material Specification System

Los Alamos

Specifying Non-Bulk Packaging for Optimum Use and Economy

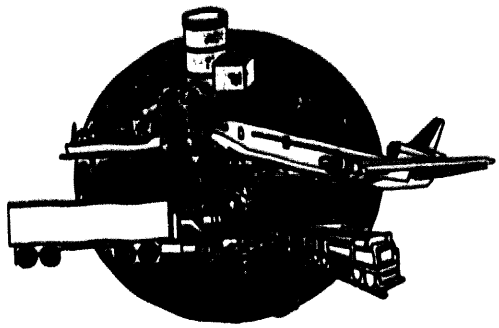
presented by Michael Bohlen, Analysas

Optimum Use and Economy

Presented By

Mike Bohlen

Analysas CORPORATION



TMD Workshop
May 13, 1993

Compliance Deadlines For HM-181

Mandatory Now!:

* International Shipments
* Classification & Communication For New Explosives & PIH's

Coming Soon:

* 10/01/93-Class. & Communication For All Other Hazardous Materials

* 10/01/93-Revised Modal Requirements (Segregation, Stowage, Etc.)

* 10/01/93-Packaging Requirements For PIH's

* 01/01/94-Class. & Communication For Infectious Substances

Compliance Deadlines For HM-181

Just Around The Corner:

* 10/01/94-Manufacturing of "Old DOT Spec" Containers No Longer Authorized

Sink Or Swim:

* 10/01/96-Only UN/POP/HM-181 Packaging Will Be Permitted

Combination Packagings: Inner Packagings Variation 1

* Lesser Number Allowed (Use Cushioning To Fill Voids)
* Same or Smaller Size (Use Cushioning To Fill Voids)
* Not To Exceed Gross Mass Of Tested Type

Variations That Do Not Require Retesting [49 CFR, Sections 178.601(g)] Combination Packagings: Inner Packagings Variation 1

* Similar Shape And Closure
* Equal Or Better Material
* Same Orientation

Variations That Do Not Require Retesting
[49 CFR, Sections 178.601(g)]
Combination Packagings: Inner Packagings of Any Type IF
Variation 2 ("V" Pack)

* Outer Package = PG I Drop Tests Using Glass Inner Packagings

* Outer Package Meets Stacking Test W/O Support From Inner Packaging (i.e. Empty)

* "New" Inner Packaging <= 1/2 The Wt. Of The Tested Inner Packagings

Variations That Do Not Require Retesting
[49 CFR, Sections 178.601(g)]
Combination Packagings: Inner Packagings of Any Type IF
Variation 2 ("V" Pack)

* Never Decrease The Cushion Thickness Anywhere

* Enough Absorbant To Soak Up All Liquid Contents

* Outer Container Marked With The Letter "V"

Variations That Do Not Require Retesting
[49 CFR, Sections 178.601(g)]
Single/Composite Packagings:
Variation 3

* 25% Smaller Size Yet Otherwise Identical To Tested Type

* Marked Gross Mass Must Also Be Reduced Accordingly

Variations That Do Not Require Retesting
[49 CFR, Sections 178.601(g)]
Combination Packagings: Outer Packagings
Variation 4

* Size <= Tested Type

* Same Design Method & Materials

* Identical Inner Packagings Only Smaller & Lighter
  -or-
  Use Variation #1

Variations That Do Not Require Retesting
[49 CFR, Sections 178.601(g)]
Combination Packagings: Outer Packagings
Variation 4

* Same Dunnage & Absorbant

* Never Decrease The Cushion Thickness Anywhere

Variations That Do Not Require Retesting
[49 CFR, Sections 178.601(g)]
Single/Composite Packagings:
Gaskets & Closures
Variation 5

* Solids: Repeat 1 (Worst Case) Drop Test

* Liquids: Repeat 1 (Worst Case) Drop Test, Leakproof Test, & Pressure Test

* "New" Gasket/Closure Will Qualify For Use With Other Tested Container Sizes

What To Look For (Or Require) In Test Documentation

General: Specification, Dates, Locations, Names, Sample Material, Sample Weight, Conditioning, Closure, Observations, & Equipment

Drop Tests: PG Level, Height, & Orientations

Stack Tests: Duration & Calculations

What To Look For (Or Require) In Test Documentation

Leakproof Tests: Method, Pressure Applied, & Duration

Pressure Tests: Method, Pressure Applied, & Duration

Vibration Tests: Method & Duration

What To Look For (Or Require) In Test Documentation

General: Specification, Dates, Locations, Names, Sample Material, Sample Weight, Conditioning, Closure, Observations, & Equipment

Drop Tests: PG Level, Height, & Orientations

Stack Tests: Duration & Calculations

What To Look For (Or Require) In Test Documentation

Leakproof Tests: Method, Pressure Applied, & Duration

Pressure Tests: Method, Pressure Applied, & Duration

Vibration Tests: Method & Duration

Liquids: Converting From A Higher PG To A Lower PG

Specific Gravity Marked On The Container	Max Spec. Gravity Allowed	
	PG II	PG III
PG I -Spec. Gravity<1.2	1.8	2.7
PG I -Spec. Gravity>1.2	1.5 X S/G	2.25 X S/G
PG II-Spec. Gravity<1.2	N/A	1.8
PG II-Spec. Gravity>1.2	N/A	1.5 X S/G

Package Testing

* Every 12 Months For Single/Composite Packages

* Every 24 Months For Combination Packages

* Tests:
  - Leakproofness (Liquids)
  - Hydrostatic Pressure Test (Liquids)
  - Drop
  - Stacking
  - Vibration

Converting Containers Tested For Liquids For Use With Solids

Specific Gravity Marked On The Container	Max Gross Mass (Kg) Of Solid Material Allowed		
	PG I	PG II	PG III
PG I -S/G<1.2	1.2 x C/C	1.8 x C/C	2.7 x C/C
PG I -S/G>1.2	S/G x C/C	1.5 x S/G x C/C	2.25 x S/G x C/C
PG II-S/G<1.2	N/A	1.2 x C/C	1.8 x C/C
PG II-S/G>1.2	N/A	S/G x C/C	1.5 x S/G x C/C

Summary of Explosives Breakout Session

presented by Richard Genoni, Westinghouse Hanford Company/RL

Review of Explosives Breakout Session

- The Explosives Breakout Session was attended by approximately 27 people representing 14 contractors or operation offices.
- Explosives classification status was covered to highlight what has happened since the last workshop. Approximately 57 classifications have been processed including new, interim, and reclassifications.
- A reminder of the upcoming October 1, 1993 deadline for reclassifications was discussed. Contractors were alerted to be on the lookout for an EM-561 letter requesting backup documentation for older DOT classifications to help facilitate that effort.
- The renewals of three DOT exemptions (DOT-E 8451, 10536, 10885) key to explosives transportation were discussed and the latest revisions were available for those who had not received a copy.

Review of Explosives Breakout Session

- Mike Tandy from LLNL gave an excellent overview of LLNL's efforts to manage and ship explosives waste. His presentation covered:
  - Permitting
  - Processing changes
  - Waste minimization
  - Waste segregation
  - Waste characterization
  - Shipping problems and costs

Traffic Manager's nightmare - Transportation $4,735.00 - Treatment $10.00/lb

- Activities to revise the Explosives Safety Manual to incorporate and document DOE testing variations were presented.

- Ross Aviation's "no news is good news" status on their ability to transport explosives was discussed. Ross Aviation is currently moving explosives in accordance with the DOT_E 10888 Exemption without difficulties. Remember only approved explosives.

- The DOT determination on what means could be used for determination that an article was not in the Explosive Class was discussed and copies made available to those in attendance.

- An invitation to see the upgraded demonstration of the Explosives Classification Tracking System was made.

Review of Explosives Breakout Session

- Jay Stimmel from the LANL Explosives Technology Group gave a detailed presentation on LANL's effort to develop and classify a container for shipping small quantities of high explosives. This work is funded during FY 1993 by EM-561.

  - The container is modified Hoke gas sampling cylinder with a fixed internal containment system.

  - Two systems will be qualified to contain 15 and 25 grams of HE, respectively.

  - A mock-up of the packaging was presented for viewing

  - Jay then discussed the need for another smaller container for milligram quantities of HE due to the return problems associated with the pipe and hoke container packagings and their associated construction costs. The smaller package would be an off-the-shelf item that could be disposable.

Training ...

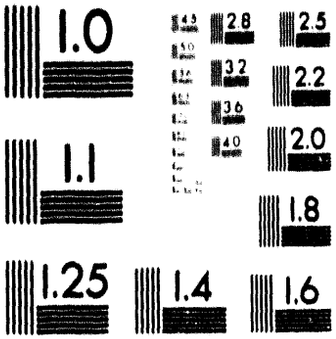
- Wade gave a brief description of what the module was intended to cover. He ... solicited help from those in attendance to help provide him support and ideas for what activities to include in the module. He also asked for support to review the module when completed to ensure it addressed all relevant functional issues.

Review of Explosives Breakout Session

- Mike Kelley from Martin Marietta Specialty Components gave an excellent presentation on the Pinellas Plant HM-181 compliance efforts.

  Discussed during this presentation were:

  - Hazardous material shipments
  - Explosives packaging design and testing efforts
  - Packaging configurations
  - Packaging instructions
  - Packaging problems (Return of empties, need for DOT-E 8451, etc.)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7 of 7

Overview: Brittle Fracture Evaluation Criteria

Ken B. Sorenson
Sandia National Laboratories

Transportation Management Division Workshop
May 13, 1992
Gaithersburg Marriott

The Issue

There is a gap in the RAM cask design/development industry that limits the ability to evaluate candidate structural materials for cask construction.

10CFR71

- Stipulates mechanical and environmental loading criteria
- Does not stipulate what constitutes a successful design

NRC Regulatory Guide 7.6

- Provides structural design guidance and stipulates acceptance criteria
- Excludes all materials that may behave in a brittle manner

NRC Regulatory Guides 7.11 & 7.12

- Reg. Guide 7.11 provides brittle fracture guidance for structural *ferritic steel* components less than 4 inches thick
- Reg. Guide 7.12 provides brittle fracture guidance for structural *ferritic steel* components greater than four inches thick

A Need Exists for the Capability to Assess other Structural Materials Against Brittle Fracture

- EM site restoration activities will require packagings for storage, transportation , and disposal far in excess of the currently available packaging inventory.
- New regulations and new waste streams will require innovation in new packaging design.
- The lack of an identified repository for many of these waste streams implies long-term interim storage.
- The role of the multi-purpose cask may become more important as waste streams are processed and stored pending disposal.

⇩

Result: There is a legitimate need to be able to assess other candidate structural materials for cask construction.

Examples of Candidate Materials

- Ferritic Steels
- Borated Stainless Steel
- Titanium
- Ductile Iron
- Depleted Uranium
- Aluminum

Potential Applications

- Type B transportation cask containment boundary
- HLW multi-purpose cask containment/shielding boundary
- Spent fuel multi-purpose cask containment/shielding boundary
- LLW Type A transportation cask containment boundary
- LLW multi-purpose cask containment/shielding boundary
- Spent fuel basket
- Overpack to meet specific storage, transportation, or disposal criterion

An Effort is Underway to Develop a New Brittle Fracture Evaluation Criterion Through the IAEA

- An IAEA Technical Document (TECDOC) has been written that provides brittle fracture evaluation guidance based on linear-elastic fracture mechanics (LEFM).
- The LEFM methodology allows the ability to assess brittle fracture potential of a structural component manufactured from broad range of structural materials.
- It is intended that the TECDOC would be incorporated into Safety Series #37, Appendix IX during the 1995 revision process.

Precedence for the LEFM Methodology

The fracture mechanics methodology is a mature engineering discipline:

- ASME Boiler and Pressure Vessel Code, Section III, Appendix G
  - Design for Nuclear Power Plant Components
- ASME Boiler and Pressure Vessel Code, Section XI, Appendix A
  - In-Service Inspection
- Aircraft Industry

Status of the IAEA TECDOC

- The TECDOC will be considered at the up-coming IAEA Review Panel Meeting; May 17-21,1993.
- The U.S. position will be neutral with regard to the IAEA action taken on the TECDOC.
- Prior to the U.S. taking an official position on the TECDOC, the DOT will attempt to resolve outstanding issues.

Conclusions

Irrespective of NRC acceptance of this TECDOC, it is still a useful criterion for several reasons;

- The criterion can be used to assess brittle fracture potential for specific materials and designs for other than Type B transportation applications; i.e. Type A applications
- DOE packaging development efforts will be enhanced by having a single criterion by which to evaluate brittle fracture

Closing Remarks

presented by Larry Blalock, DOE/EM/TMD

I think we've had an interesting meeting. As usual, our audience participation is changing. It really started to evolve about three years ago. The evolution has continued. As I stepped up to the mike the first thing on Tuesday morning, I looked out over the audience and I said to myself, "My gosh, I don't know but about a third of the people here!"

But the bright young folks have joined us. They see the future in transportation. I think they see future careers. They see that they cannot only be of help to us, but we can be of help to them, and we're very appreciative of the fact that these young folks are joining our program. I think the agenda showed this. We had a lot of young folks standing up behind the mike this week giving presentations on some very technical matters that not in the too distant past we would have thought only belonged to the old gray hairs. We welcome these young folks and we look forward to working with them. We know that they're going to push us to stay very, very current and to get even better than we have been as far as our programs are concerned.

You've heard some interesting remarks. I think probably one of the most interesting remarks that we heard this week is attributed to Chuck McDonald over at NRC who accused some of saying, "We don't know what provides safety, but we know what is safe."

I found that very interesting coming from Chuck because, I think we've been guilty of a similar approach to a lot of things in our program management in the past. That "bring me another rock," syndrome. "We don't really know what we want, but by golly, we'll know it when we see it."

Probably the most salient comments, aside from the neat programs that are being conducted throughout our complex, came from Ed Bonekemper from DOT, when he talked about the initiatives and activities they have ongoing, ranging from training regulations to sanitary food transport. Or the fiasco they're into over the definition of oil.

He also talked about enforcement, which of our contractors they had enforcement authority over, which they did not, and the basis for that. There is a conflict, even within the agency, as to the status of some of our contractors as far as enforcement powers are concerned.

The bottom line is, folks, irrespective of your status in terms of a state agency -- DOE contractor, private corporation -- it is the U.S. Department of Energy policy that for any material you move off site, whether it be by government owned conveyance or in a commercial vehicle that you've hired, **you will comply** with U.S. Department of Transportation regulations. That will be codified in the new DOE Order 1540 and 5480 series.

We've had an interesting week. We started out talking about the future, about growth. I'll basically close with a little story that I was given this week by one of the members of the audience who came up and said, "I think I heard something that might just be the gist of what you're trying to tell us," and that is, this fellow goes off and had a dream. He dreamed of both heaven and hell. In the dream, the Archangel was giving him a tour of both places. He took

him down to hell first, and of course he could hear all the screams and crying and everything behind the door, and the Archangel opened the door and inside, and wafting out, was this tremendous, beautiful aroma of a big pot of stew. It was just great looking. You could tell from the smell that it would taste absolutely fantastic.

But everyone was standing around this big pot crying and screaming and yelling. In essence, they were living through a perpetual "starving to death" lifestyle. The reason for this dilemma was that in their present configuration their arms were short. They had spoons for the stew, but the problem was, the spoons were so long that they could not feed themselves. They couldn't get the food up to their mouths.

Next, they went up to heaven, opened the door and low and behold here is the same pot of stew, the same wonderful aroma. Further, in heaven, all the people around it faced the same bodily configuration with the short arms and the long spoons. But, they were well fed, they were happy, they were telling jokes, probably about the U.S. government. They were telling stories to each other, very happy.

The fellow asked the Archangel, "What's the difference? Everybody looks the same, they have the same stew, they have the same spoons." He said, "Well, the difference is that here in heaven we've learned how to feed each other."

So, that's the position we'd like to take as far as TMD is concerned. That we're not lone rangers in this group. We don't have to rely on ourselves in terms of our futures. We can rely on each other. Our future started about three years ago. And, as I said Tuesday morning, that our future is really now. We don't have time to plan for a lot more things. HM-181 has come, is in effect, and as you saw just from the last presentation, the dates are getting very, very close.

HM-169(a) will be out, we hope, in my lifetime, but we expect to see it out some time this year. We expect to have a grace period, a phase-in period, similar to that of HM-181, but as we can see from 181, how quickly the time flies. I think Wade Winters had some rather interesting graphics showing that when 126F was published, we had a few months, we got a little extension, but when you start looking at the number of people to be trained, even that little extension was not nearly enough time to get everybody in our complex fully trained to be fully compliant.

I assume that everyone has enjoyed the Workshop. I know my staff has enjoyed it. We've had a good time. We've learned a lot. We've met a lot of new friends. We've met a lot of new co-workers. We look forward to working with each and every one of you in the future. If you liked the Workshop, please go back and tell those you work with what a great meeting it was and how much we got accomplished.

So, assuming there are no questions from the audience, this Workshop is adjourned, and we thank you for having been here.

Appendix A
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