

# U. S. Nuclear Regulatory Commission



## 2006 National State Liaison Officers Meeting

## Welcome to the 2006 National State Liaison Officers' Meeting

In 1976, the U. S. Nuclear Regulatory Commission initiated the State Liaison Officers (SLO) program in response to recommendations from a number of State organizations including the National Governors' Association for each State to appoint a single person to act as a liaison to the NRC for the purpose of improving Federal/State cooperation and communications. The NRC looks to the Governor-appointed SLO to keep the Governor informed of nuclear regulatory and related public health and safety matters; and to provide NRC with State input and comments on NRC's policy and regulatory framework that could impact the States.

As part of the SLO program, the NRC sponsors this national meeting every three years to discuss issues of interest. We have put together an interesting and comprehensive agenda with topics ranging from the Energy Policy Act of 2005, Congressional District Outreach, New Reactor Licensing and Construction Efforts, Communications during Emergency Preparedness Incidents and Exercises, and Avian Flu Pandemic Implications. Many of these topics include panel presentations and participation by State representatives.

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## OFFICE OF STATE AND TRIBAL PROGRAMS

### NRC LIASION AND COMMUNICATION WITH STATES

August 2006



## OFFICE OF STATE AND TRIBAL PROGRAMS

- Maintains liaison with States, Native American Tribal Governments and other Federal Agencies.
- Recommends policy and develops programs related to regulatory relationships with State and local governments, and some interstate organizations.
- Provides policy and program management for the Agreement State program.



## STATE LIAISON PROGRAM PURPOSE

- To establish and maintain effective communications and working relationships with Federal, State, and local governments; interstate organizations; and Tribal governments.
- To solicit State input and comments on NRC's policy and regulatory framework and provide program guidance on matters which could impact the State Liaison Officers (SLOs).
- To inform SLOs on matters related to nuclear regulations, nuclear security and related public health and safety issues.
- To be responsive to State request in a timely manner.



## NRC State Liaison Program Background

- Statutory authority to establish programs for cooperation with the States with respect to radiation hazards described in Section 274 of the Atomic Energy Act.
- In 1976, NRC established the SLO program after recommendations from several State organizations, including the National Governors' Association, requesting the NRC to appoint to a single person from each State to act as a liaison for the purpose of improving Federal/State cooperation.
- SLOs are Governor-appointed State officials.



## NRC State Liaison Program Key Messages

- The NRC recognizes that stakeholder outreach is an important factor in building and maintaining trust in NRC regulatory policies and programs.
- The NRC's policy is to cooperate with State, local, Federal and Tribal governments on a government-to-government basis.
- State, local, Federal and Tribal governments will receive clear and accurate information about NRC's regulatory programs.
- Affected State, local, Federal and Tribal governments have a meaningful role and will be provided the opportunity for early and substantive involvement in NRC's regulatory programs.



## NRC's Regional State Liaison Officers (RSLOs)

- Serve as an interface between the NRC and other pertinent State and Federal agencies located within the Region and share information relative to the licensing, inspection, security and other regulatory concerns.
- Facilitate effective liaisons with States and local government officials, Federal agencies and Native American Tribal governments (Tribal governments); and participate in
  - Congressional District Outreach meetings
  - Local public meetings with government officials
  - Emergency preparedness drills, training, workshops
  - Nuclear power plant performance and decommissioning activities
  - Waste and nuclear materials (spent fuel) activities
- Part of the NRC's Regional Organization and report directly to the Regional Administrator; their familiarity with Regional issues as well as State-specific or Tribe-specific issues enables them to communicate effectively and efficiently within their Regions.



## State Organizations

National Association of Regulatory Utility  
Commissioners

Conference of Radiation Control Program Directors  
(CRCPD)

Organization of Agreement States (OAS)



## Other Federal Agency Liaison Activities

- Department of Homeland Security/Federal Emergency Management Agency  
and Radiological Assistance Committee
  - Emergency planning and preparedness issues
- Federal Bureau of Investigations
  - Security issues and event response
- Environmental Protection Agency
  - Standards
- Department of Energy
  - Waste decommissioning
- Department of Transportation
  - Radioactive waste shipments



## Native American Tribal Government Activities

- Government-to-government communications with national Tribal organizational and with Federal-recognized Tribal Organizations
  - Yukon River Inter-Tribal Watershed Council
  - National Congress of American Indians
- Current development of NRC policy and regulatory authority with Tribal Governments
- Continued exchanges of information in areas of high-level radioactive waste, low-level radioactive waste storage, transportation, and disposal.



AGENDA  
U.S. NUCLEAR REGULATORY COMMISSION  
2006 NATIONAL STATE LIAISON OFFICERS' TRIENNIAL MEETING  
TWO WHITE FLINT NORTH AUDITORIUM  
AUGUST 1-2, 2006

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**Tuesday, August 1, 2006**

- 8:00-8:30      **Registration**
- 8:30-8:40      **Welcome and Opening Remarks**  
*Janet R. Schlueter, Director, Office of State and Tribal Programs (STP)*
- 8:40-9:10      **Keynote Address**  
*Dr. Dale E. Klein, Chairman*
- 9:10-9:15      **Introduction/Meeting Logistics**  
*Lance Rakovan, Moderator, Office of the Executive Director for Operations (EDO)*
- 9:15-10:00      **SLO 101 - "Roles, Activities, and Responsibilities of a Governor-Appointed State Liaison Officer (SLO)"**  
*David J. Allard, CHP, Director, Bureau of Radiation Protection, Pennsylvania*  
  
*William A. Maier, Regional State Liaison Officer (RSLO), NRC Region IV Office*
- 10:00 - 10:15      **Break**
- 10:15-10:45      **Information Handling Requirements for Safeguards and Security Related Documents**  
*Bern Stapleton, Division of Security Operations, Office of Nuclear Security Incident and Response (NSIR)*
- 10:45-11:00      **Agreement State Procedure, SA-700, "Processing an Agreement"**  
*Kathleen Schneider, Senior Project Manager, STP*
- 11:00-11:45      **Implementation of 2005 Energy Policy Act - NARM Rulemaking, Security/Increased Controls**  
*Scott Moore, Branch Chief, Rulemaking and Guidance Branch, Division of Industrial and Medical Nuclear Safety (IMNS), Office of Nuclear Material Safety and Safeguards (NMSS)*  
  
*Paul Schmidt, Manager, Radiation Protection Section, Division of Public Health, Wisconsin*
- 11:45-1:00      **Lunch**
- 1:00-1:45      **Joint Efforts for Nuclear Source Detection and Accountability NRC, Customs and Border Protection (CBP), and Domestic Nuclear Detection Office (DNDO)**  
*Tom Essig, Branch Chief, Materials Safety and Inspection Branch, IMNS/NMSS*  
  
*Charles Cox, NRC Detailee to DNDO, MSIB*
- 1:45-2:15      **Status Summary of Congressional District Outreach**  
*Rebecca Schmidt, Director, Office of Congressional Affairs*
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**Tuesday, August 1, 2006 (cont'd)**

- 2:15-2:45      **Interim Storage and Transportation of Spent Nuclear Fuel**  
*E. William Brach, Director, Spent Fuel Project Office, NMSS*
- Update on NRC Yucca Mountain Activities**  
*C. William Reamer, Director, Division of High-Level Waste Repository Safety, NMSS*
- 2:45 - 3:15      **Tritium Exit Signs - Labeling, Control and Disposal**  
*David J. Allard, CHP, Pennsylvania*
- 3:15-3:30      **Break**
- 3:30-4:00      **Emerging Fuel Cycle Licensing Activities**  
*Joseph Gitter, Chief, Special Project Branch, Division of Fuel Cycle Safety and Safeguards, NMSS*
- 4:00-5:00      **NRC's New Reactor Licensing and Construction Efforts**  
*Gary M. Holahan, Associate Director for Risk Assessment and New Projects, Office of Nuclear Reactor Regulation (NRR)*
- 5:00              **Closing Remarks/First-Day Adjourn - Lance Rakovan, Moderator**

**Wednesday, August 2, 2006**

- 8:00-9:00      **Cooperative Efforts for Success-Communications and Response Activities during Radiological Incidents and Exercises**  
*Mel Leach, Deputy Director, Incident Response, NSIR*  
*Nader Mamish, Deputy Director, Emergency Preparedness, NSIR*  
*Henry Porter, Assistant Director, Division of Waste Management, South Carolina*
- 9:00-10:30      **Inter-Agency Panel on EP Oversight Activities**
- **Potassium-Iodide (KI) Issues**  
*Patricia Milligan, Senior Advisor for Emergency Preparedness, NSIR*
  - **Department of Homeland Security (DHS) Comprehensive Reviews**  
*Elizabeth Reed, Acting Branch Chief, Nuclear Sector Branch*  
*Chemical and Nuclear Preparedness and Protection Division, DHS*
  - **Security Event-Based EP Drills/Exercises and Review of EP Regulations and Guidance**  
*Joe Anderson, Team Leader, Security Interface Team, NSIR*
- 10:30-10:45      **Break**
- 10:45-11:15      **National Response Plan Overview and NRC Updates**  
*Mel Leach, Deputy Director, Incident Response, NSIR*
- 11:15-12:00n      **Federal Highway Administration (FHWA), U.S. Department of Transportation (DOT) Response and Evacuation Activities**  
*Laurel Radow, Emergency Transportation Operations, FHWA, DOT*
- 12:00-1:15      **Lunch**
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Wednesday, August 2, 2006 (cont'd)

- 1:15-2:00      **Update on Force-on-Force Exercises and Transportation Security Activities**  
*Ron Albert, Chief, Security Performance Evaluation Branch, Division of Security Operations, NSIR*  
*Adelaide Giantelli, Sr Project Manager, Material, Transportation & Waste Security Branch, NSIR*
- 2:00-2:45      **Avian Flu Pandemic Implications/Resource Management**  
*Jacqueline Silber, Deputy Executive Director for Information Services and Administration, OEDO*  
*Mel Leach, Deputy Director, Incident Response, NSIR*  
*Dr. Claude Cadoux, MD, MPH, Medical Director, NRC Health Unit*  
*Gary Wright, Assistant Director, Illinois Emergency Management Agency*
- 2:45-3:00      **Break**
- 3:00-4:00      **Liquid (Tritium) Release Task Force and Associated Pre-emption Activities**  
*Tim Frye, Chief, Health Physics Branch, NRR*  
*Darani Reddick, Attorney, Office of General Counsel, OGC*  
*Roland Lickus, RSLO, NRC Region III Office*  
*Richard Allen, Chief, Bureau of Environmental Safety, Division of Nuclear Safety, Illinois Emergency Management Agency*
- 4:00-4:30      **Facilitated Open Discussions on Topics of Interests - Lance Rakovan, Moderator**  
*Janet R. Schlueter, Director, STP*  
*Margaret V. Federline, Deputy Office Director, NMSS*  
*Gary M. Holahan, NRR*  
*Steven F. Crockett, OGC*  
*Roy P. Zimmerman, Director, NSIR*
- 4:30              **Meeting Adjourn - Lance Rakovan**
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Welcome to the 2006 National State Liaison Officers' Meeting

U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF STATE AND TRIBAL PROGRAMS  
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## OFFICE OF STATE AND TRIBAL PROGRAMS CONTACT LIST

### HEADQUARTERS

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Janet Schlueter, Director	JRS1	3340	O3 D22
Dennis Rathbun, Deputy Director	DKR	2325	O3 D20
Richard Blanton	RLB	2322	O3 H21
Lloyd Bolling	LAB	2327	O3 H11
Gwendolyn Davis	GXD	2325	O3 G6
Kevin Hsueh	KPH	2598	O3 G5
Andrea Jones	ARJ	2309	O3 G7
Kathaleen Kerr	KJK	3340	O3 C7
Sandra Lai (Rotation w/RES)	SXL5	4012	O3 H16
Andrew Mauer (Rotation w/EDO)	ANM	3962	O3 G1
Cardelia Maupin	CHM1	2312	O3 H13
Aaron T. McCraw	ATM	1277	O3 D5
Patricia McGrady-Finneran	PXM1	2326	O3 H18
Monica Orendi	MLO1	3938	O3 H20
Joshua Palotay	JXP5	6231	O3 G9
William Rautzen	WRR	7206	O3 H12
Stephen Salomon	SNS	2368	O3 H9
Kathleen Schneider	KXS	2320	O3 H17
Osiris Siurano	OSP	2307	O3 H10
Shawn Smith	SRS3	2620	O3 G3
Dennis Sollenberger	DMS4	2819	O3 H19
Jennifer Tobin	JCT1	2328	O3 H20
Brenda Usilton	BGU	2348	O3 D18
Rosetta Virgilio	ROV	2367	O3 H15

### REGIONAL STATE LIAISON OFFICERS (RSLOs)

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Region IV	William Maier	WAM	(817) 860-8267

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Region I	Sheri Minnick	SAM9	(610) 337-5358
Region III	James Lynch	JLL2	(630) 829-9661
Region IV	Linda McLean	MLM1	(817) 860-8116
Region IV	Randy Erickson*	RRE	(817) 860-8143

\*Effective 08/28/06

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July 25, 2006

## STATE ATTENDEES\*

Arizona	Aubrey Godwin, Director, Radiation Regulatory Agency
Arkansas	Bernard (Bernie) Bevill, Chief, Radiation Control Section
California	James D. Boyd, Commissioner, California Energy Commission
Colorado	Steve Tarlton, Unit Leader Hazardous Material & Waste Management Division
Colorado	Joe Vranka, Director, Hazardous Materials & Waste Management Division
Connecticut	Edward L. Wilds, Jr., Ph.D, Director, Division of Radiation, Department of Environmental Protection
Delaware	Henry W. Otto, Ph.D., FAIC, Division of Water Services, Department of Natural Resources & Environmental Control
Florida	John A. Williamson, Administrator, Environmental Section, Bureau of Radiation Control
Georgia	James A. Sommerville, Chief, Bureau of Radiation Control
Illinois	Richard A. Allen, Chief, Bureau of Environmental Safety, Division of Nuclear Safety
Illinois	Gary N. Wright, Assistant Director, Division of Nuclear Safety, Illinois Emergency Management Agency
Kansas	Kimberly Steves, Supervisor, Environmental Radiation and Emergency Preparedness
Maryland	Roland G. Fletcher, Environment Program Manager, Radiological Health Program
Maryland	George S. (Tad) Aburn, Jr., Director, Department of the Environment, Air & Radiation Management
Massachusetts	John Giarrusso, Jr., Massachusetts Emergency Management Agency
Michigan	Thor Strong, Chief, Radiological Protection and Medical Waste Section
Minnesota	Linda Bruemmer, Manager, Department of Health, Division of Environmental Health
Minnesota	John Stine, Division Director, Department of Health, Division of Environmental Health
Mississippi	Robert W. Goff, Director, Division of Radiological Health, Department of Health
Missouri	H. Floyd Gilzow, Deputy Director for Policy, Department of Natural Resources
Montana	Dan McGowan, Administrator, Disaster & Emergency Services Division
Nebraska	Robert E. Leopold, Director, Health and Human Services Systems
Nevada	Karen K. Beckley, Supervisor, Radiological Health Section, Bureau of Health Protection Services
New Jersey	Paul Baldauf, Assistant Director for Radiation Protection Programs and Release Prevention Element, Department of Environmental Protection
New Mexico	Cindy Padilla, Director, Water and Waste Management Division
New York	Alyse Peterson, Project Manager, New York State Energy Research and Developmental Authority
North Carolina	Beverly O. Hall, Section Chief, Department of Environment & Natural Resources
North Dakota	Kenneth W. Wangler, Manager, Radiation Control Program
Oklahoma	Mike Broderick, Environmental Program Administrator, Radiation Management Section
Oregon	Ken Niles, Assistant Director, Oregon Department of Energy
Pennsylvania	David Allard, Director, Bureau of Radiation Protection
Rhode Island	John L. Ferruolo, Department of Health, Division of Occupational Health and Radiation Control
South Carolina	Henry Porter, Assistant Director, Division of Waste Management, Bureau of Land and Waste Management
Tennessee	L. Edward Nanney, Director, Division of Radiological Health
Texas	Roger Mulder, State Liaison Officer, State Energy Conservation Office
Utah	Dane L. Finerfrock, Director, Division of Radiation Control Department of Environmental Quality
West Virginia	Dan Hill, Chief, Radiological Health Program Office of Environmental Health
Wisconsin	Paul S. Schmidt, Manager, Radiation Protection Section, Division of Public Health

\*As of July 25, 2006



*Commonwealth of  
Pennsylvania*

**NRC SLO Meeting - "SLO 101"**

August 1, 2006

David J. Allard, CHP

Rev. 7/26/06

**"SLO 101" – Rule #1  
Communication, Communication,  
Communication...**

- Internal; with Rad Control Director
- External: states, utilities
- With NRC HQs; programmatic issues, MoUs, Agreement State issues
- With NRC Region; joint inspections
- Other federal agencies
- Public
- Press

**Routine NRC Communications to States**

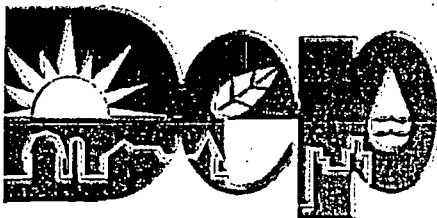
- Commissioner speeches
- Power plant regulatory actions
- Major material regulatory actions
- Staff SECY papers
- Official Use Only security issues
- Meeting notices, e.g., licensees, advisory committees, public meetings, etc.
- Enforcement actions
- Planning for exercises
- Information on interface with external organizations, e.g., NEI, OAS, HPS, CRCPD, et al.

**Commonwealth of Pennsylvania**

**Governor & Staff, General Assembly**

- PEMA
- Homeland Security
- DEP (RP and HazMat Teams)
- Penn State Police
- DVMA (CST)
- DOH, et al.
- Other local Government Emergency Response Agencies, e.g., counties
- Regional Counter - Terrorism Task Force

**PA Department of  
Environmental Protection**



**PA DEP**

- Department Secretary
- Deputy Secretary
  - Bureau of Radiation Protection
  - Bureau Land Recycling and Waste Management (BLRWM)
  - Bureau of Air Quality
- Field Operations Deputate,  
6 Regional Offices
- Water, Mineral Resources, et al.

- **Radiation Protection Act**  
**(Act 1984-147)**
- **Nuclear Safety Oversight**
- **Emergency Response and Preparedness**
- **Environmental Surveillance**
- **Radiation Control**
- **Other LLRW Acts**

- **Central Office in Harrisburg, PA**
- **4 Main Divisions, Admin. Support**
  - **Decommissioning & Surveillance (D&D and Environmental Surveillance)**
  - **Radiation Control (NARM, X-ray)**
  - **Radon (Monitoring and Certification Sections)**
  - **Nuclear Safety (Nuclear Pwr. Plant NS, Emergency Response and LLRW Sections)**

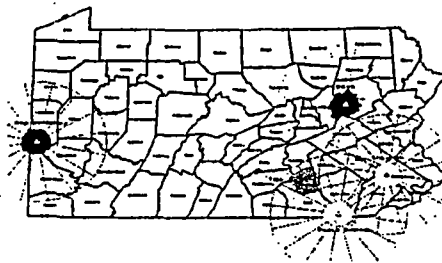
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- **BRP Director, NRC State Liaison Officer (SLO)**
- **Interface w/ Gov. Office, PEMA, HS, PSP, et al.**
- **DEP has 6 Regional Offices (ROs)**
- **RP Program covers state w/ staff in 3 ROs**
- **ROs perform all RAM and X-ray equipment inspections**
- **Region's HPs are also the first to respond to radiological events, NMED reports**
- **ROs have trained Env. Response Teams in each region for HazMat, all have RP training**

- **Issues with five nuclear power plant sites in PA**

- Beaver Valley, 2 PWR units
- Susquehanna, 2 BWR units, w/ ISFSI
- Peach Bottom, 2 BWR units, w/ ISNFI, and 1 defueled HTGR unit
- Limerick, 2 BWR units, soon to have ISNFI
- Three Mile Island, 1 PWR unit, 1 defueled

**Utility interface, other states...**

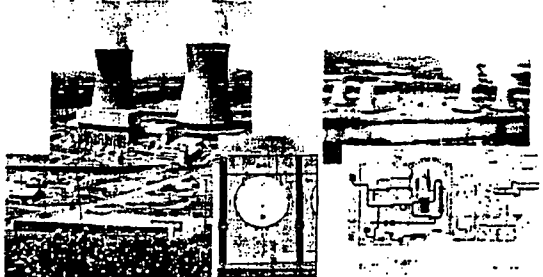




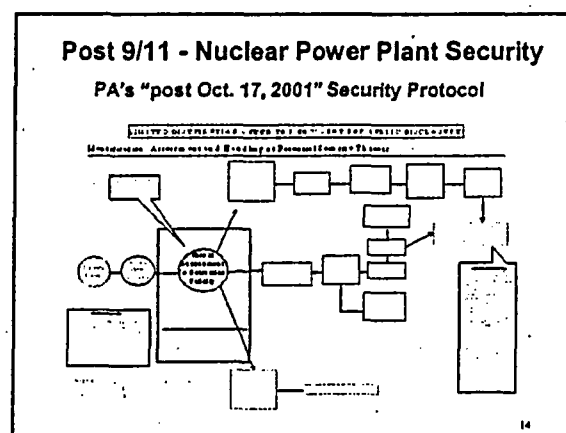
## Bureau of Radiation Protection

**Nuclear Power Plant Issues: DBT, KI, security, SNF, tritium, EPZ, etc.**

Susquehanna      Three Mile Island




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**Nuclear Security Initiatives**

Nuclear Security will remain an important public issue -  
NRC's rev to DBT, PA Gov.'s 2003 Security Task Force....

*Nuclear Security: Tight, Tighter, Tightest*  
The Industry Has Adjusted the Way It Thinks About Threats to Nuclear Plants



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**2003 Revised Design Basis Threat (DBT)**

- Enhanced plant security

NOTE: Details of DBT are "Safeguards" and "Need to Know," but relate to:

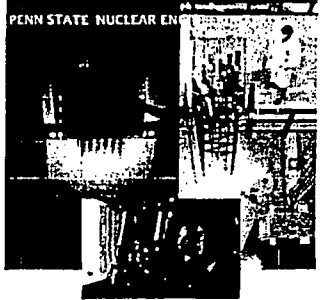
- Barriers and detection zones
- Armed security force
- Patrols and surveillance
- Alarms and closed-circuit TV
- Bullet-resistant barriers for critical areas

- Handling - Safeguards Information

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**Other Nuclear Sites**

Penn State Nuclear Energy Research Reactor



> NRC CMs

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**Radiological Facilities In PA**

- Fixed Radiological Facilities review / ranking
  - > ~ 460 BRP licensees for NARM
  - > ~ 850 NRC licensees for byproduct, source, and special nuclear materials
  - > Many major decommission projects
  - > Co-60 Irradiators
  - > One research reactor at Penn State
  - > Bettis Atomic Lab - DOE / Navy R&D center
  - > Only DOE UMTRCA site east of Miss. river

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## Bureau of Radiation Protection

### RP Program - Routine Emergency Response

- Transportation events involving RAM
- Fixed facility events involving RAM
- Nuclear Power Plants events
- Scrap recycle facility radiation alarms
- Solid waste facility radiation alarms
- Lost or stolen sealed sources

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### Routine Emergency Response - Orphan, Lost or Stolen RAM Sources

- Uncontrolled radium-226 sources
- Discarded NRC General License (GL) RAM (e.g. static eliminators) and thickness gauges
- Stolen or lost sources:
  - Well loggers
  - Moisture / density gauges
- Some RAM are not gamma emitters & can't be detected by usual monitors (e.g., GL tritium EXIT signs)

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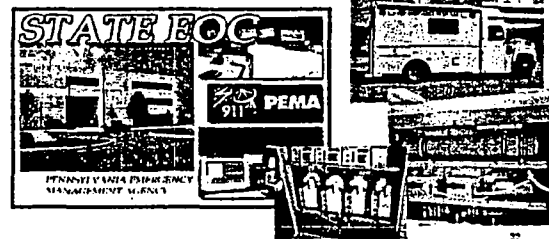
### Security of Radiological Materials

- Transport of radioactive materials (RAM)
- New onsite RAM security requirements
  - No doubt hundreds of shipments per day in PA
  - Routine DOT Class 7 medical and LLRW
  - Special Highway Route Control Quantities (HRCQ) / Reportable Quantity (RQ) RAM
  - Spent Nuclear Fuel (Univ. Res. Rx, W. Valley)
  - Future - SNF #s with Yucca Mt. opening?
  - HLRW and TRU in future
  - DOE / Navy SNF safeguards shipments thru PA?

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### Radiological / Nuclear Emergency Preparedness / Emergency Response - "SLO best know it cold!"

PA State Plans, Procedures and Assets, e.g., state EOC



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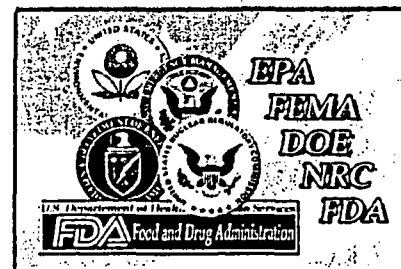
### Radiological / Nuclear EP / ER

- Assessment of response PA capabilities
  - PA has very well established Radiological Emergency Response Programs; post-TMI
  - Established Env. Surveillance Programs
  - Facility assets, EOC, RAC, Bur. of Labs - Radiochem Section
  - Human assets, DEP, BRP, PEMA, CST, county (e.g., REP program), private HPs, federal
  - Radiological survey equipment
  - Mobile assets, DEP, BRP, PEMA, CAP, CST, city and counties, etc.

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### Nuclear / Radiological Events and Issues

#### Other Federal Agencies

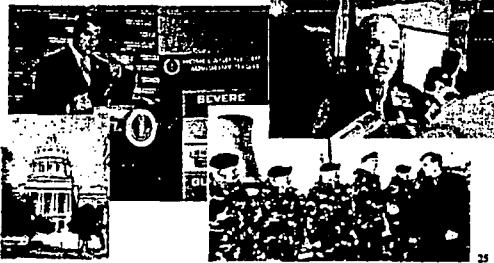


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## Bureau of Radiation Protection

**Communication of Nuclear Issues**

Be prepared, during a nuclear / radiological event, Governors will be looking for answers, they will have to communicate to the public...

**NRC - State Issues**

- NRC; in past had issues on timing of some NRC communications; communications via e-mail only, information often in the press first
- States need verbal notifications on major issues
- HRCQ escorting based on threat level
- NRC needs to provide additional guidance on radioactive materials security at licensee sites for LLEA

**NRC - State Issues - 2**

- Public outreach, e.g., reality of "Dirty Bombs"
- DHS PARs for RDD, or WMD
- KI distribution and replacement
- Notification of any federal or private out-of-state response within a state
- Notice to border states, e.g., plant at Alert or stolen RAM
- Must continued open federal - state communication

**"SLO 101" - Communication, Communication, Communication**

- Internal
- External
- With NRC HQs
- With NRC Region
- Other federal agencies
- Public
- Press

*Questions?*

**Contact information -**

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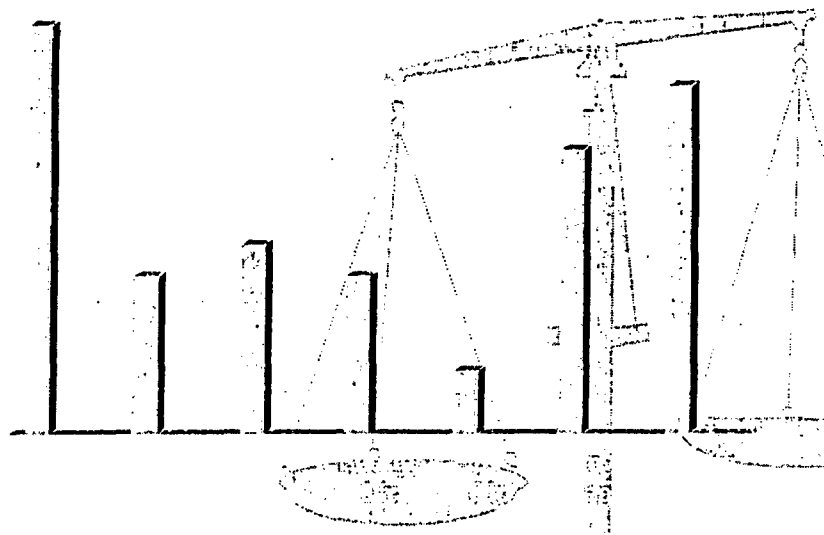
Tel.: 717-787-2480  
Fax: 717-783-8965  
E-mail: djallard@state.pa.us

<http://www.depweb.state.pa.us> "radiation"

# SLO 101 - Roles, Activities and Responsibilities of a Governor-appointed State Liaison Officer (NRC Perspective)

Bill Maier  
Regional State Liaison Officer  
NRC Region IV Office

## Affiliation of SLOs



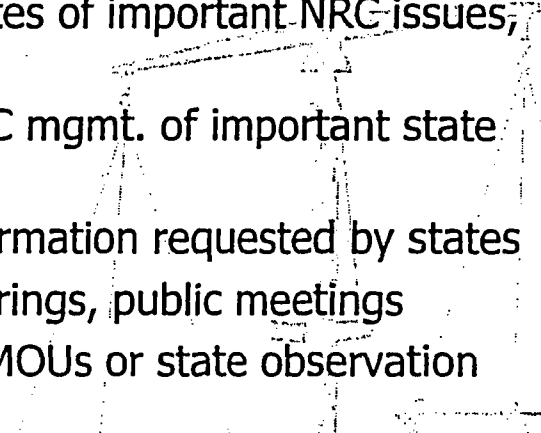
## Facilities of Interest

- 31 States - operating power reactors
- 02 States - reactors w/in 10 miles
- 04 States - spent fuel storage
- 04 States - research or test reactors
- 10 States - radioactive materials

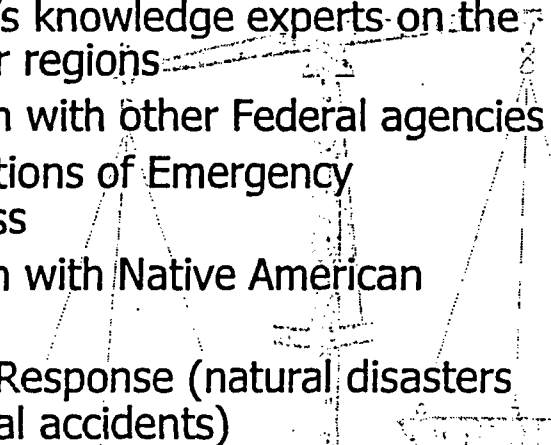
## "The 1st Law of Liaison"

- Excerpt from OSTP procedure SL-100:
  - "Because each Region and each State within a Region have differing priorities and concerns, RSLOs must be flexible in how they implement STP policies and guidance. What is a significant issue in one Region may be a minor concern in another Region. Therefore, the guidance in this document is general in nature. Each RSLO is expected to work with their Regional Administrator and the STP to prioritize their time and resources in accordance with the needs of the States and entities within their specific Region."

## Our Roles (NRC RSLOs)

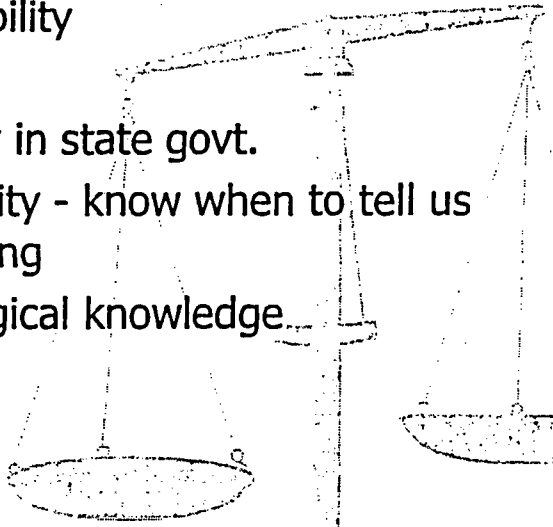
- Inform states of important NRC issues, events
  - Inform NRC mgmt. of important state issues
  - Broker information requested by states
  - Attend hearings, public meetings
  - Negotiate MOUs or state observation protocols
- 

## NRC RSLO Roles (cont'd):

- Be the NRC's knowledge experts on the states in our regions
  - Coordination with other Federal agencies
  - DHS Evaluations of Emergency Preparedness
  - Coordination with Native American govts.
  - Emergency Response (natural disasters & radiological accidents)
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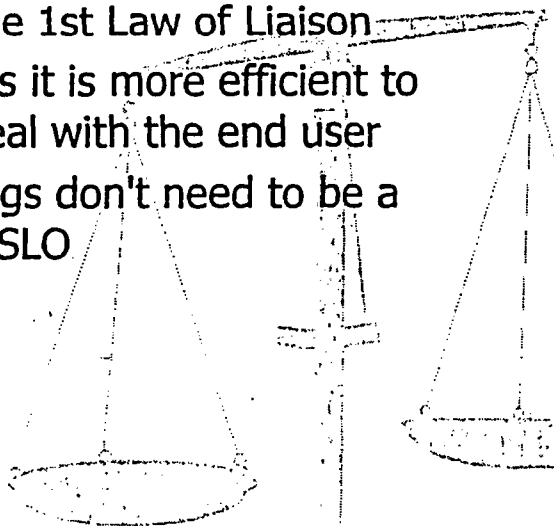
## Our Needs of Gov.-Appointed SLOs

- Accessibility
- Interest
- Visibility in state govt.
- Familiarity - know when to tell us something
- Radiological knowledge



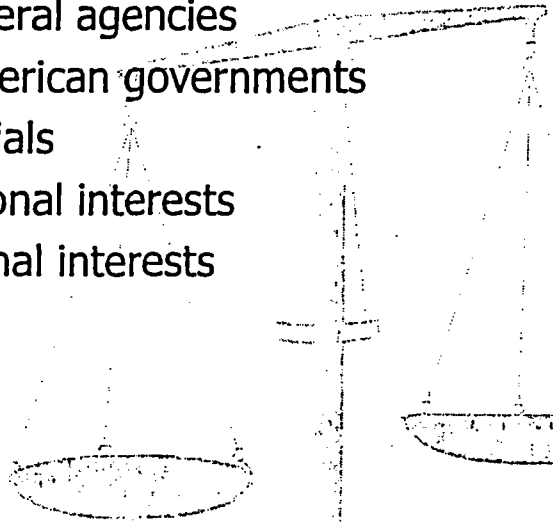
## Parallel Notifications

- Back to the 1st Law of Liaison
- Sometimes it is more efficient to directly deal with the end user
- Some things don't need to be a bother to SLO

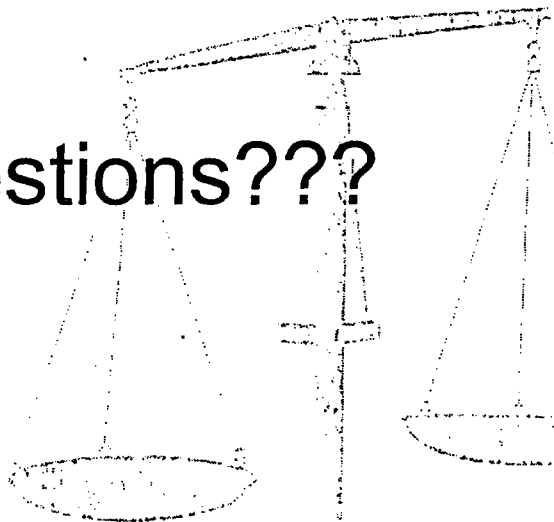


## Other Stakeholders

- Other Federal agencies
- Native American governments
- Local officials
- Congressional interests
- International interests



Questions???



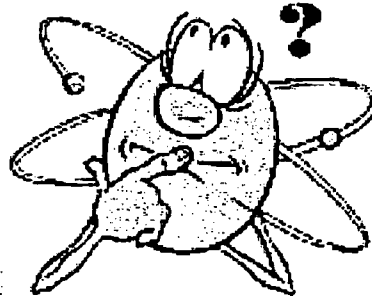


# Information Protection

Bern Stapleton  
U.S. Nuclear Regulatory Commission  
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## Information Protection

- SGI
- 10 CFR 2.390
- SISP
- SUNSI
- PCII



## Types of Sensitive Information

- Safeguards Information (SGI)
- Proprietary (10 CFR 2.390)
- Sensitive Information Screening Project (SISP)
- Sensitive Unclassified Non-Safeguards Information (SUNSI)
- Protected Critical Infrastructure Information (PCII)

## No Comment Policy

Occasionally, sensitive information appears in the public domain without authorization

Questions raised about the accuracy, designation, technical merit of such information should be "no comment"

## Safeguards Information

- Increase in SGI since 9-11
- Expansion of SGI to other licensees
- Legal/Enforcement proceedings
- SGI rulemaking
- Energy Policy Act of 2005

## SGI Examples Include:

Design Basis Threat;

Vulnerability Assessments

Training and Qualifications



## **Proprietary**

- Sensitive unclassified information not rising to level of SGI
- Protected from public disclosure pursuant to 10 CFR 2.390
- Increased use of this category
- Examples include procedures, emergency planning drills, etc.

## **Sensitive Information Screening Project**

- NRC review of website results in numerous documents being removed
- Advisory to licensees to review for sensitive information
- Review of ADAMS shows other sensitive information still remains
- SISP replaced by SUNSI

## **Sensitive Unclassified Non-Safeguards Information**

- Simplify system of designating/handling sensitive information
- Information generally tied to FOIA exemptions
- Better equipped to handle numerous outside agency documents
- *Commission has mandated changes*

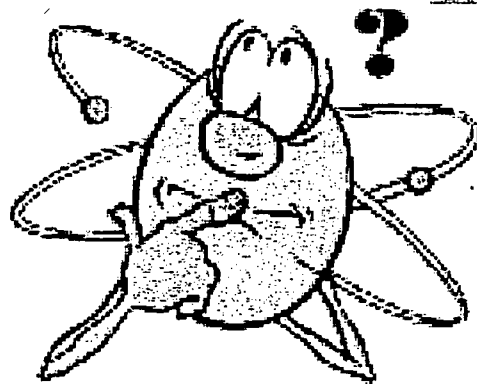
## **Protected Critical Infrastructure Information**

- Critical Infrastructure Information Act of 2002 (part of Homeland Security Act)
- National Infrastructure Protection Plan recognizes importance of protecting and sharing information
- Difficulties in assuring industry how information will be used

## NRC Intent

- Strike a balance between the public's right to information so they can meaningfully participate in regulatory processes and the need to protect sensitive security information from inadvertent release or unauthorized disclosure
- Continue to evaluate its requirements, policies and guidance concerning the protection and unauthorized disclosure of Safeguards Information

## Questions?



## **OVERVIEW OF NRC'S PROCESS FOR SECTION 274b REQUESTS**

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Kathleen Schneider  
Office of State and Tribal Programs

August 1, 2006

### **Why Become An Agreement State?**

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- Retain existing regulatory authority over NARM program
- Places regulatory responsibility for all radiation sources in one agency
- The proximity of licensed users to the State regulating agency
- Creates and maintains a cadre of knowledgeable people in all radiation matters at the State level
- State retains fees vs. NRC retaining fees

## **What Materials Does an Agreement State Regulate?**

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- The State may choose to assume regulatory authority over any combination of the categories:
  - Radioactive materials as defined in Section 11e of the Act. The Energy Policy Act of 2005 added Accelerator-Produced materials and other discrete NORM sources as specified by the Commission to Section 11e of the Act.
    - Byproduct (11e1)
    - Mill Tailings (11e2)
    - NARM (11e3)
    - Discrete Sources (11e4)
  - Source materials
  - Special nuclear materials in quantities not sufficient to form a critical mass
  - Commercial land disposal of low level radioactive waste
  - The evaluation of radiation safety information on sealed sources or devices:

## **Agreement State Procedure, SA-700 "Processing an Agreement"**

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- Provides guidance to State staff on information to include in the request for the 274b agreement
- Provides guidance to NRC staff
  - formal procedural steps for responding to a Governor's request for an Agreement,
  - criteria for evaluating a State's proposed Agreement materials program



## Initial Steps

- **Governor's Letter of Intent**
  - Shows State's commitment to the Agreement.
  - Allows State to attend NRC-sponsored training.
  - Allows State to participate in Agreement State activities and communications.
- **State Actions Prior to Submittal of Draft Application**
  - Legislation in place
  - Regulations issued
  - Staffing Plan
  - Funding for Program

## Key Stages in Formal Process

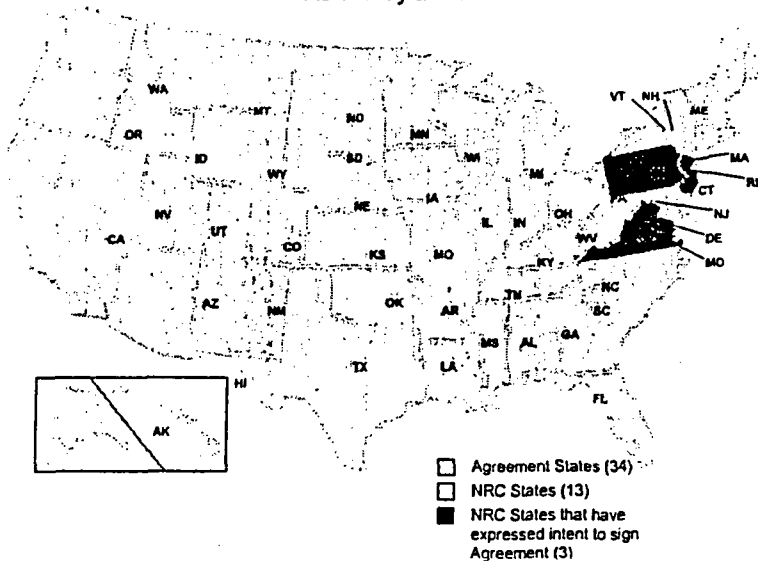
PROCESS STAGE	TIME
Notice of Draft Application	- 8 weeks
Draft Application From State Program Director for NRC Review	T = 0 weeks
Formal Agreement Application from Governor	T + 14 weeks
Federal Register Publication of Application for Public Comments for 4 Consecutive Weeks	T + 32 weeks

## Key Stages in Formal Process

PROCESS STAGE	TIME
NRC Staff Comment Resolution And Recommendation on Application to Commission	T + 40 weeks
Commission Approves Agreement	T + 49 weeks
Effective Date of Agreement	T + 53 weeks

## THE AGREEMENT STATES

As of May 2006



## **Impact of Energy Policy Act (2005) on State Regulation of Radioactive Materials**

- Energy Policy Act of 2005 (EP Act) expands definition of byproduct material to include
  - Any discrete source of Ra-226
  - Any accelerator-produced radioactive material
  - Any discrete source of NORM, other than source material, that poses a similar public health and safety threat as Ra-226.

## **Impact of Energy Policy Act (2005) - Continued**

- EP Act requires NRC to provide a regulatory framework for licensing and regulating the additional byproduct material.
- NRC has issued waiver of byproduct material requirements until August 7, 2009 – unless terminated sooner.

## **Impact of Energy Policy Act (2005) - Continued**

- After 8/7/09 (or earlier), States may no longer assert regulatory authority over the newly covered byproduct materials, unless they are an Agreement State.
- After 8/7/09 (or earlier), non-agreement states will only have:
  - Initial response role for radioactive material incidents
  - Authority over diffuse NORM

## **Agreement State Impact**

- Agreement States make no distinction between NARM and byproduct material (radioactive material).
- Proposed definition of 'discrete' developed by NRC/ Agreement States/ federal agencies.
- Compatibility designation of new definition of 'byproduct material' being discussed.
- Governor will have to recertify state radioactive material program as adequate and compatible for NARM.

### Agency with Regulatory Authority over NARM after 8/7/09

Item	Isotope(s)	Non-Agreement State	NRC	Agreement State
XRF	Co-57	No	Yes (GL)	Yes
Flood Sources	Co-57	No	Yes (GL, SL)	Yes
Moisture density gauge	Ra-226	No	Yes (SL)	Yes
PET Radio-Pharmaceuticals	F-18 (FDG)	No	Yes (SL)	Yes
Prostate Seeds	Pd-103	No	Yes (SL)	Yes
Medical imaging isotopes (gallium, thallium, indium)	Ga-68 Th-201 In-111	No	Yes (SL)	Yes
Radioactivity removal system (diffuse NORM)	Ra-226	No*	No	Yes

\* Although non-agreement states will retain authority over diffuse NORM (ex: radioactivity removal systems), state law may require change to allow oversight of Ra-226 radwaste generated by removal systems.

## Agreement State Impact

# Questions?

**Paul Schmidt, Manager**  
**Wisconsin Radiation Protection**  
**Section**



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**Implementation of the  
Energy Policy Act of 2005**

Scott W. Moore  
Chief, Rulemaking and Guidance Branch  
Division of Industrial and Medical Nuclear Safety  
Office of Nuclear Material Safety and Safeguards



*United States Nuclear Regulatory Commission*

**Section 651(e) – NARM Rulemaking  
Accelerator-Produced and  
Other Radioactive Material**

- Amend definition of byproduct material to include:
  - Accelerator-produced radioactive material
  - Discrete sources of radium-226
  - Discrete sources of other NORM that pose a threat similar to discrete sources of radium-226
- EPA Act allows the Commission to grant waivers to allow current programs to continue regulating



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**NARM Rulemaking –  
Outreach**

- To the maximum extent practicable, NRC will:
  - Consult and cooperate with States
  - Use model State standards
- State involvement:
  - FL, MI, OR, TX on Rulemaking Working Group
  - AR and CA reps on Steering Committee
  - OR and NC on NMSS EPAct Task Force
  - CA and IL served as resource members for EPAct Task Force



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**NARM Rulemaking - Status**

- Proposed Rule developed (SECY-06-0069)
- Draft Proposed Rule and SECY Paper publicly available on NRC's RuleForum website (as of 4/7/2006)
- Final Rule due no later than 2/7/2007 (required by EPAct)



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**NARM Rulemaking –  
Key Issues**

- Definition of “discrete source”
- Exercise of authority over accelerator-produced radioactive material in accelerators
- Regulatory approach for certain discrete sources of radium-226
- Compatibility (Management Directive 5.9)
- Waiver termination strategy
  - Governor’s signature
  - Timing



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**NARM Rulemaking –  
Summary and Next Steps**

- NRC interacted with States and other stakeholders to develop a draft proposed rule, in a very short time period, that addresses a number of EPAct issues
- The proposed rulemaking under Section 651(e) is a key expansion of NRC’s authority





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**NARM Rulemaking –  
Summary and Next Steps (cont'd)**

- Once the proposed rule is published, NRC will continue to reach out to Agreement States, non-Agreement States, the public, and affected industry stakeholders
- NRC will hold a public meeting during the public comment period
- Achieving the 2/7/2007 Final Rule date remains a challenge



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**Section 656 –  
Secure Transfer of Nuclear Materials**

- For materials transferred or received in the U.S. by any party pursuant to an NRC import or export license, the Commission shall establish a system such that:
  - Materials are accompanied by a manifest describing type and amount of materials
  - Each individual receiving or accompanying the transfer shall be subject to a security background check conducted by appropriate Federal entities



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**Secure Transfer of Nuclear Materials  
(cont'd)**

- Issue regulations not later than 1 year after date of EPAct, identifying materials and classes of individuals that are appropriate exceptions



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**Secure Transfer of Nuclear Materials –  
Status**

- NRC staff has drafted a proposed rule
- Manifest requirements are already covered by existing DOT and NRC regulations
- Proposed rule initially focuses on most significant quantities of material for fingerprinting and criminal history background checks, and provides exceptions for others.
- This approach allows NRC to address fingerprinting through Orders until the broader Section 652 rulemaking can be completed



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**Section 652 –  
Fingerprinting for Criminal History  
Records Checks**

- The Commission shall require to be fingerprinted any individual who:
  - is permitted unescorted access to –
    - a utilization facility; or
    - radioactive material or other property subject to regulation by the Commission that the Commission determines to be of such significance; or
  - is permitted access to safeguards information under section 147



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**Section 652 –Status**

- The statute requirements for fingerprinting for access to SGI are effective now
- NRC is developing Orders to require fingerprinting for access to radioactive material
- Rulemaking process to implement Section 652 takes place in stages over next two years (e.g., direct final rules giving exemptions, 73.21 rule, final Section 652 rule)



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**Energy Policy Act of 2005 –  
Summary**

- NRC has made significant progress over the past year implementing the EPAct and continues to move rapidly
- NRC reached out to stakeholders within the short time frames given in the statute, and involved States in the NARM rulemaking in an unprecedented manner.
- While NRC has clear accomplishments, the Energy Policy Act requirements still present challenges



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## **Joint Efforts for Nuclear Source Detection and Accountability**

Thomas H. Essig, CHP  
Chief, Materials Safety and Inspection Branch  
Division of Industrial and Medical Nuclear Safety  
Office of Nuclear Material Safety and Safeguards



*United States Nuclear Regulatory Commission*

## **Safety and Security of Radioactive Material**

- Emphasis on safety and security of sources
- Input by NRC and other agencies:
  - IAEA Code of Conduct
  - Import/Export Rule
  - Orders to enhance security
- Emerging issues to enhance security



*United States Nuclear Regulatory Commission*

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**Start of Cooperation Between  
CBP and NRC**

- GAO report on border security
- CBP committed Congress to verify shipments
- CBP requested NRC support to meet this commitment



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**Licensee Shipment Verification**

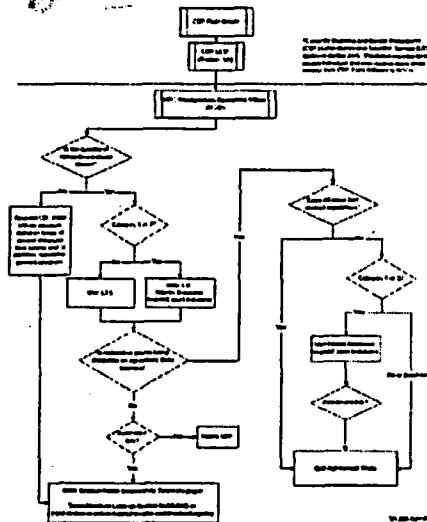
- CBP desired a real-time mechanism to verify shipments
- NRC submitted databases for CBP use to assist in verifying shipments
- NRC, CRCPD, OAS developed a process to provide information for assistance



## United States Nuclear Regulatory Commission

### Radioactive Source Information Flowchart

Customs and Border Protection, U.S. Nuclear Regulatory Commission



## United States Nuclear Regulatory Commission

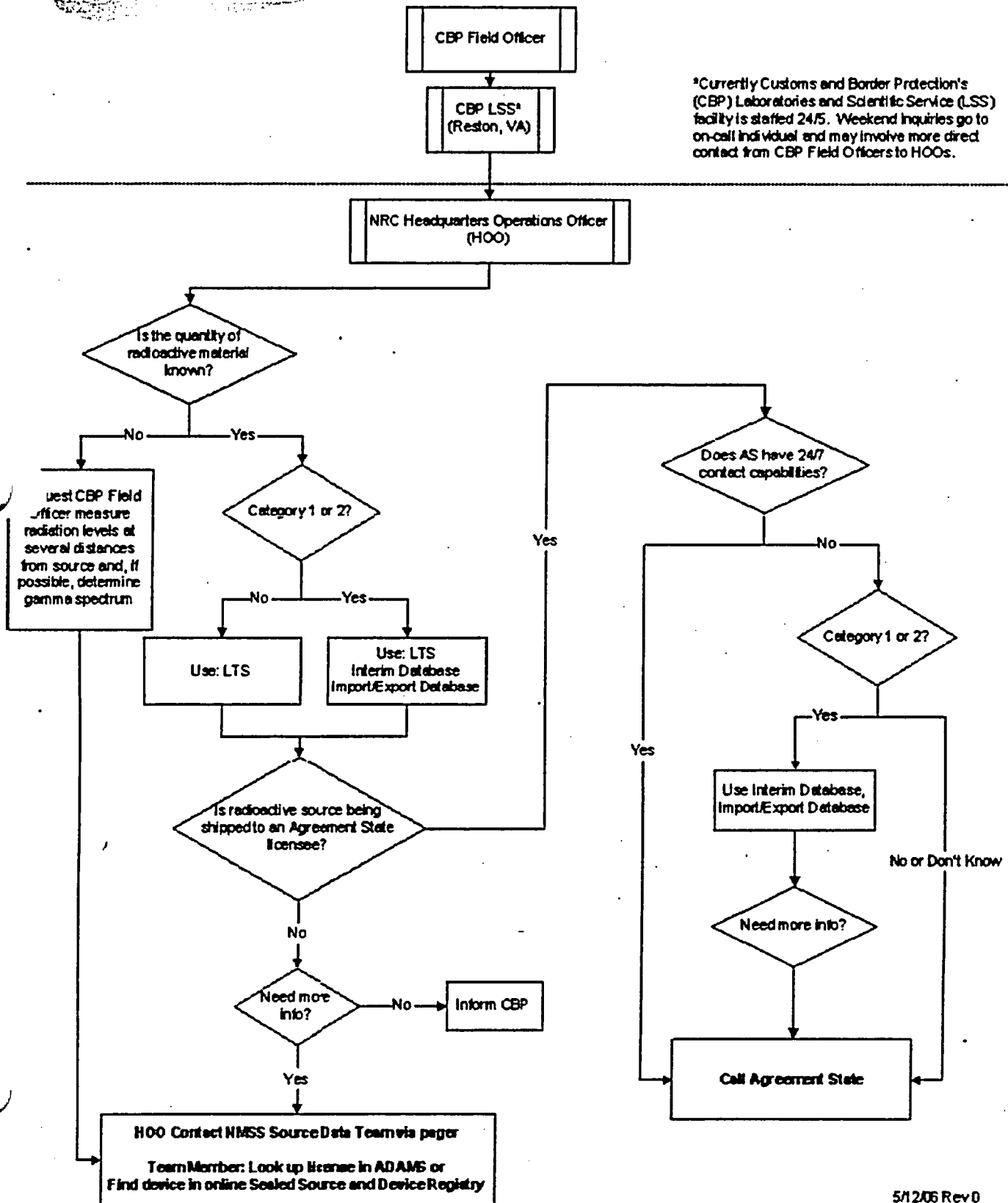
### Example of Assistance to CBP

- Name and address on the shipping manifest did not match with a license
- CBP contacted the Agreement State POC
- State was able to identify manufacturer and verify license
- Assistance lead to timely release of shipment
- CPB was satisfied and thanked Texas and NRC for all assistance provided

# Radioactive Source Information Flowchart

Customs and Border Protection Phone Calls to Nuclear Regulatory Commission

\*Currently Customs and Border Protection's (CBP) Laboratories and Scientific Service (LSS) facility is staffed 24/5. Weekend inquiries go to on-call individual and may involve more direct contact from CBP Field Officers to HOOs.







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**Present and Future  
Activities with CBP**

- Summary of assistance provided (via telephone)
- Updates of databases
- LSS standard operating procedure
- LSS technical support to cover 24/7
- Make program adjustments as needed
- Database improvements to meet CBP needs

## *Domestic Nuclear Detection Office (DNDO)*

### State Liaison Presentation

August 01, 2006

Charles Cox  
Operations Support, DNDO  
Department of Homeland Security



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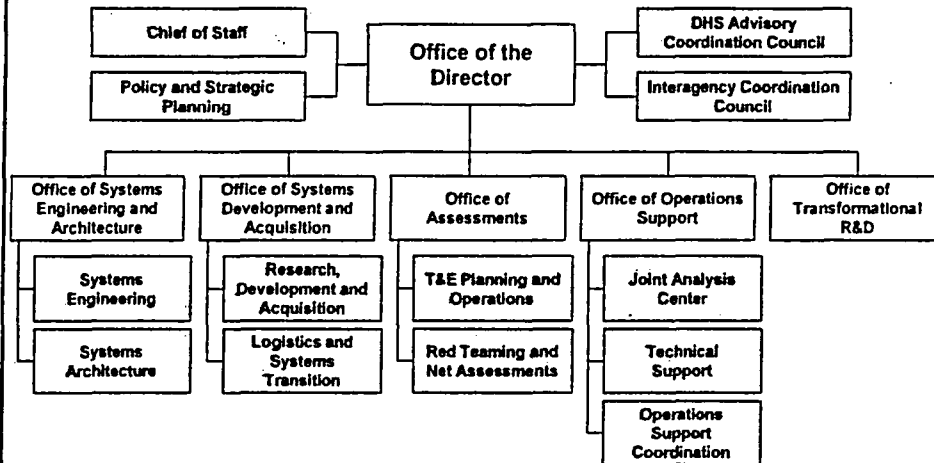
### *DNDO Mission*

The Domestic Nuclear Detection Office (DNDO) is a jointly staffed office established to improve the Nation's capability to detect and report unauthorized attempts to import, possess, store, develop, or transport nuclear or radiological material for use against the Nation, and to further enhance this capability over time.



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## ***DNDO Organization***

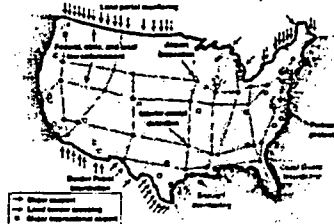


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Security**

## ***Office of Systems Engineering and Architecture***

### **Mission**

- Coordinate and support the implementation of the global nuclear detection architecture
- Develop and validate system requirements
- Evaluate existing systems for effectiveness



### **Accomplishments**

- Designed and developed first ever global detection architecture (four months early)
- Identified (non-ports of entry) key vulnerabilities in deployed architecture



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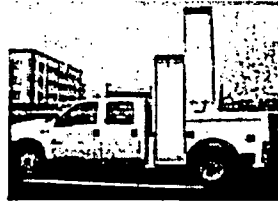
## *Office of Systems Development & Acquisition*

### **Mission**

- Develop and acquire systems
- Coordinate acquisition strategy
- Define standards and protocols
- Develop transition plans and support systems



High-resolution  
isotope identifiers



Mobile Portal monitors

### **Accomplishments**

- Reorganized and managed all detector development programs previously DHS Science and Technology Directorate
- Accelerated programs originally proposed as two-to-three year development cycles into a nine-month design and prototype fabrication process



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## *Office of Assessments*

### **Mission**

- Test and Evaluation
  - Characterize detection systems
- Pilot Programs
  - Validate concepts of operations and system deployment strategies
- Red-teaming
  - Challenge deployed systems and processes
- Net Assessments
  - Independently evaluate planned and deployed rad/nuc detection and reporting architecture



### **Accomplishments**

- Completed performance testing for mobile, handheld, and backpack radiation detection systems
- Began construction of the DNDO Radiological and Nuclear Countermeasures Test and Evaluation Complex (RNCTEC) – the Nation's first permanent detector test and evaluation facility authorized to handle and utilize SNM



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## *Office of Operations Support*

### **Mission**

- Integrate domestic and international reporting
- Develop standards, protocols, and training
- Provide technical reachback



### **Accomplishments**

- Assumed oversight of programs that provide technical support to the law enforcement, diplomatic, and intelligence communities
  - Developed comprehensive USG process for alarm resolution
  - Conducted assessments of nuclear threats and smuggling cases
- Established a strong working relationship with State and local (S&L) stakeholders

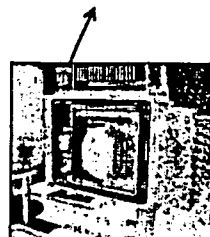


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## *Office of Transformational R&D*

### **Mission**

- Exploratory Research
  - Innovative detection materials and concepts
  - Physics-based phenomenology, experimentation, and modeling
    - Algorithm development for components and systems
    - Advanced SNM interrogation and verification
    - Long-dwell detection in transit
    - Alternate signatures for detection of Rad/Nuc threats
- Advanced Technology Demonstrations (ATDs)
  - Stand-off detection and imaging
  - Intelligent, personal detection systems
- Establish an Academic Research Program



Prototype Compton imager

### **Accomplishments**

- Broad Agency Announcements (BAAs)
  - Exploratory research
  - ATD of Intelligent Personal Radiation Locator (IPRL)
- Competitively selected 44 transformational research proposals from National Laboratories



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### ***VP Brief: Desired End State***

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- Advanced passive and automated radiography systems deployed to all high priority domestic POEs, CSI and Megaports locations (2012)
- **Next generation mobile and handheld systems deployed to:**
  - Border Patrol and US Coast Guard for non-POE interdiction (2008)
  - **Commercial Vehicle Inspection units in all 50 states (2010)**
  - **Expanded surveillance and surge capacity for top 30 high risk cities (2009)**
  - Expanded Federal surge capacity (2009)
- Improved operability demonstrated through deployment of detector variants (straddle carriers, rail configurations) (2010)



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### **Outline of Outreach Plan**

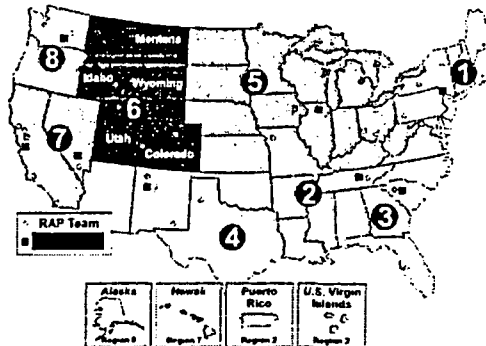
- Establish Regional Task Team (RTT)
- Conduct individual State visits
- Conduct RTT meetings
- Develop Regional CONOPS
- Deploy selected hardware to States
- Establish regional "governance"
- Provide training to State and local participants
- Conduct Regional exercises
  - Functional Exercise – November 2006
  - Full Scale Exercise – June 2007
- Develop overarching Preventive Radiological/Nuclear Detection Guidebook
  - Start with CVI augmentation
  - Add additional features
- Assist in FY07 OG&T Grants application process



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## DNDO Engagement Goals

- Engagement Strategy establishes JAC Connectivity & CONOPs with S&Ls and US territories integrating:
  - Equipment and Procedural Training
  - Regional Reachback
  - Government Programs
- Prioritize using
  - Urban Area Security Initiative (UASI)
  - SETCP
  - NYC Project
  - National Exercise Schedule (T4)
  - Government Programs



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# Homeland Security



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# *Interim Storage and Transportation of Spent Nuclear Fuel*

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2006 National State Liaison Officers'  
Triennial Meeting

August 1, 2006

**E. William Brach, Director**  
**Spent Fuel Project Office**  
*Office of Nuclear Material Safety and Safeguards*  
*U.S. Nuclear Regulatory Commission*



## *Spent Fuel Management*

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- Permanent disposal in a geologic repository is established U.S. policy
- Interim safe storage pending availability of an operating repository
  - Dry cask storage at Independent Spent Fuel Storage Installations (ISFSIs)
- Maintaining awareness of possible changes to National Strategy for spent fuel management



## *Safety Achieved Through:*

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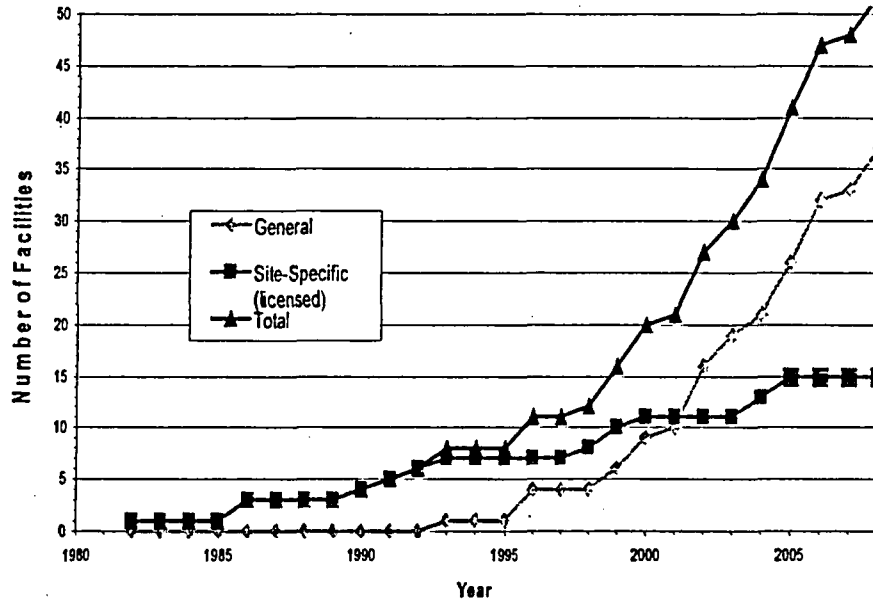
- Established legal and regulatory framework
- Regulations, guidance and orders provide framework for safe management
- Inspections, audits and surveys confirm safe practice
- Continuing questioning attitude
- Collaborative research with DOE and industry on evolving technical issues

## Status of Independent Spent Fuel Storage Installations (ISFSIs)

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- 42 Licensed ISFSIs in 26 States
- 15 announced plans for new ISFSIs
- About 800 loaded dry casks
- 15 approved storage cask designs (includes 8 dual purpose – storage/transportation - cask designs)
- First dry cask placed in service July 1986
- No safety problems

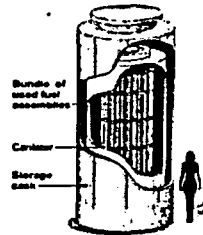
### Growth of Independent Spent Fuel Storage Installations Over Time



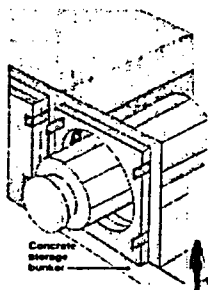
### Spent Fuel Dry Storage Single & Dual Purpose Cask

At some nuclear reactors across the country, spent fuel is kept on site, above ground, in systems basically similar to the ones shown here.

**1** Once the spent fuel has cooled, it is loaded into special canisters which are designed to hold Pressurized-Water Reactor and Boiling-Water Reactor assemblies. Water and air are removed. The canister is filled with inert gas, welded shut, and rigorously tested for leaks. It may then be placed in a "cask" for storage or transportation.

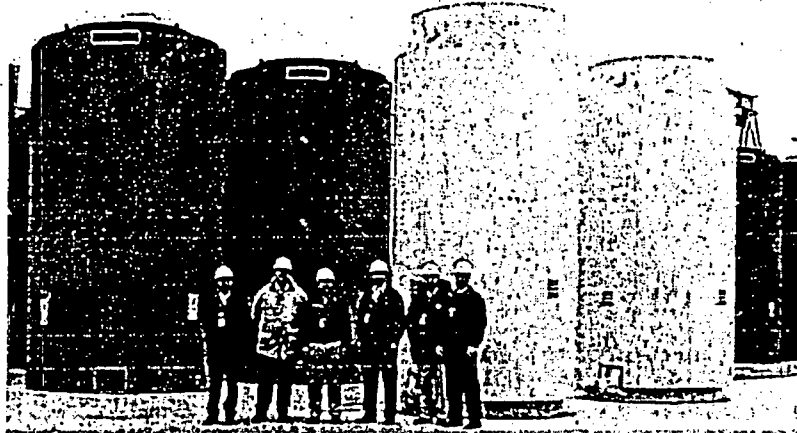


**2** The canisters can also be stored in above-ground concrete bunkers, each of which is about the size of a one-car garage. Eventually they may be transported elsewhere for storage.



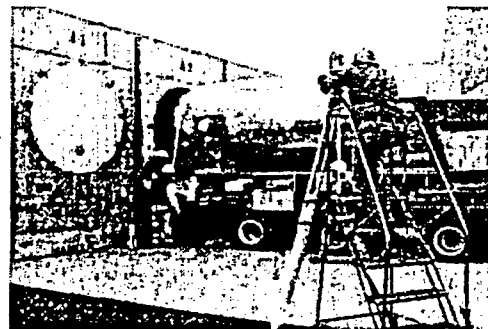
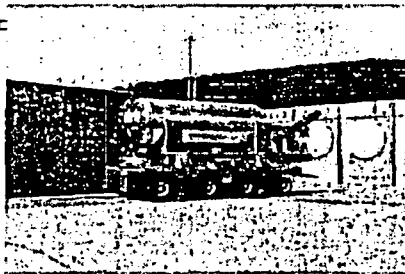
## Dresden Dry Cask Storage

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## Susquehanna Dry Cask Storage

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Susquehanna uses a horizontal storage module, a Transnuclear model NUHOMS 52-B. Note the transporter and alignment of the transport cask so that the canister containing the spent nuclear fuel can be pushed into the storage module by a hydraulic ram.

## Transportation Role

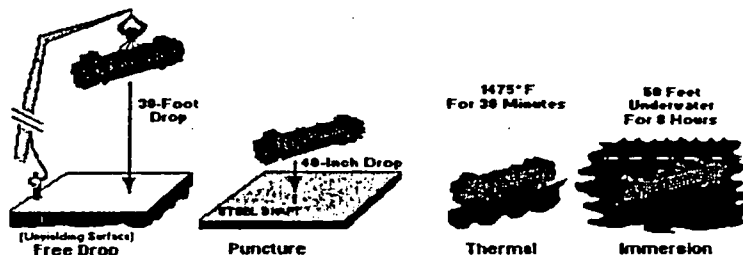
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- Co-regulate with U.S. DOT
- Review and approve Type B & fissile transportation packages.
- Certify casks as accident resistant
  - Comprehensive review
  - Stringent test/analysis requirements
- Inspect cask designers, fabricators, and shippers and shipments
- Co-US representative to IAEA Transportation Safety Standards Committee (TS-R-1)

## Hypothetical Accident Conditions

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- Spent Fuel Casks are certified to be accident resistant. They must withstand:
  - Thirty foot drop onto unyielding surface
  - Forty inch drop onto a steel puncture pin
  - Thirty minute fully engulfing 1475 °F fire



## Favorable Transportation History

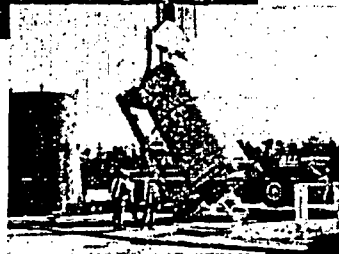
---

- Over 1,400 spent fuel shipments since 1979 in NRC approved packages
- ZERO spent fuel package failures
- Greater than 10,000 daily shipments of radioactive materials (all types)

## Summary

---

- Deep geologic disposal is national responsibility
- Safe and secure storage, on or off site, until repository is available
- Integrated solutions are needed
- Changing National Strategy





## U.S. NUCLEAR REGULATORY COMMISSION HIGH-LEVEL WASTE PROGRAM

2006 National State Liaison Officers'  
Triennial Meeting

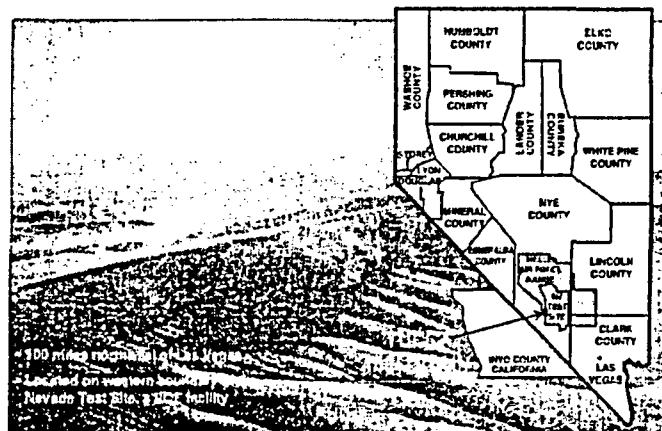
August 1, 2006

C. William Reamer, Director  
Division of High-Level Waste Repository Safety  
U.S. Nuclear Regulatory Commission

August 1, 2006



## Location of Proposed High-Level Waste Repository



August 1, 2006



## **NRC Responsibilities**

- **Serve as Independent Regulator with Oversight Responsibilities for Yucca Mountain**
- **Set Licensing Criteria Consistent with EPA Standards for Yucca Mountain through Rulemaking**
- **Conduct Public Pre-Licensing Interactions**
- **Complete Safety Review of DOE License Application**

August 1, 2006



## **NRC Responsibilities (Continued)**

- **Make a Construction Authorization Decision on DOE License Application in 3-4 Years**
- **Develop and Maintain Licensing Support Network (LSN)**
- **Adopt Environmental Impact Statement (EIS) Prepared by DOE for Yucca Mountain to Extent Practicable**
- **Conduct Formal Adjudicatory Hearing in Regard to DOE License Application**

August 1, 2006



## **Current NRC Activities**

- **Finalize Part 63 Based on Public Comments and Final Revisions to EPA Yucca Mountain Standard**
- **Continue Pre-License Application Interactions with DOE**
- **Interact With Interested Stakeholders Through Public Outreach to Maintain Openness**
- **Maintain Staff Readiness to Review DOE License Application**

August 1, 2006



## **Revising NRC Licensing Criteria**

- **The Public Comment Periods on Both the EPA Standard and NRC Regulation (Part 63) Have Ended**
- **NRC Staff's Goal Is to Have Draft Final Regulations Ready for Commission Approval Shortly After EPA Issues its Final Standard**
- **NRC Will Update its Regulatory Guidance as Necessary to be Consistent with the Revised Part 63**
- **NRC is Revising its Analytical Tools to be Prepared to Conduct a Review Using the Revised Regulations**

August 1, 2006





## **Pre-License Application Interactions**

- **Monitor and react to Changes to DOE's Repository Program and Continue to Identify Regulatory Issues**
- **Monitor and respond to Quality Assurance and Technical Issues Associated With DOE Activities**
- **Identify Important Technical and Regulatory Issues and Pursue Public Interactions with DOE**

**August 1, 2006**



## **Future NRC Activities**

- **Make Decision About Adoption of DOE EIS for Yucca Mountain**
- **Complete Acceptance Review of DOE License Application**
- **Develop Safety Evaluation Report**
- **Evaluate Contentions and Conduct Pre-Hearing Activities (ASLB)**

**August 1, 2006**



## **Future NRC Activities (Continued)**

- **Respond to Contentions and Participate in Pre-Hearing Activities (NRC Staff)**
- **Continue to Interact with Interested Stakeholders through Public Outreach**
- **Operate and Maintain Computer-Based Electronic System to Support HLW Licensing and Adjudicatory Processes**

August 1, 2006



## **Program Uncertainties**

- **Establishment of a Final Regulatory Framework**
- **Date of DOE Document Certification for LSN**
- **Date for Submission of DOE License Application**
- **Quality of DOE License Application and Supporting Data**
- **Number and Complexity of Issues for Hearing**

August 1, 2006



## SUMMARY

- **NRC Has a Program in Place to Conduct a Fair and Independent Review of a DOE License Application for Yucca Mountain**
- **NRC Is Actively Engaging the DOE to Address Technical and Regulatory Issues Relevant to DOE Developing a High-Quality License Application**

August 1, 2006

## **NRC SLO Meeting August 1, 2006**

### **Tritium EXIT Signs in Solid Waste and Landfill Leachate**

**David J. Allard, CHP, Director  
PA DEP, Bureau of Radiation Protection**



(Rev. 7/26/2006)

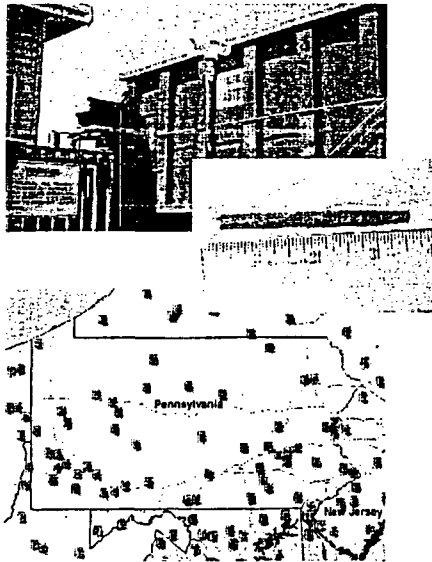
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## **Purpose**

- **Provide an overview of solid waste (SW) radiation monitoring in PA**
- **Discuss the properties and uses of tritium**
- **Discuss the regulation of tritium devices**
- **Discuss tritium in landfill leachate**
- **EPA training to identify tritium EXIT signs**
- **Path forward – "tritium strategy"**

2

## SW Radiation Monitoring



- All SW facilities monitor in PA
- Standard alarm set points
- Action Levels for response
- Practical protocol for responding
- Training and reporting of alarms
- Experience to date
- Model regs and guidance
- Tritium EXIT signs

3

## Properties of tritium

### What is tritium?

- radioactive isotope of hydrogen; or H-3
- can be a gas under controlled conditions
- tritium gas reacts with oxygen to form water
- half-life of about 12 years
- emits a very weak beta particle

4

## **Common uses of tritium**

### **How is tritium used?**

- **Creates a continuous light source in presence of phosphor**
  - » aircraft dials / gauges
  - » gun sights / scopes
  - » watch dial illumination
  - » EXIT signs and runway markers
- **atomic weapon component**
- **trace material for groundwater migration and bio-medical research**

5

## **Regulation**

### **How are tritium EXIT signs regulated?**

**Nuclear Regulatory Commission regulation 10 CFR 30.19 & 31.5  
for self luminous devices containing tritium**

#### **General license –**

- **End user not required to inventory or test for leaks**
- **User should identify a "responsible individual"**
- **Licensees must maintain labels, follow instructions for safe use, store & dispose of the device properly, and report transfer and failure of or damage to the device**

6

## How to identify

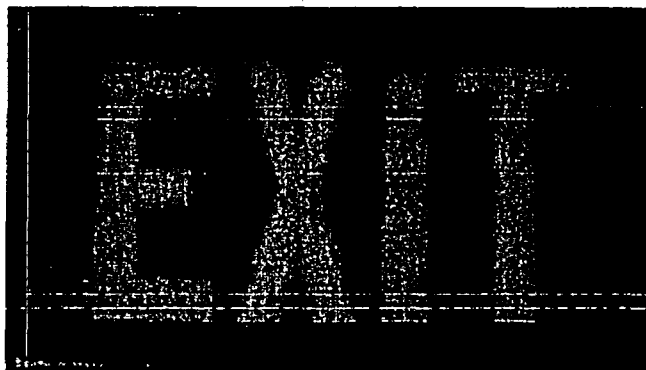
- Inner glass tubes emit a green glow
- Usually visible from the outside



7

## How to identify

- Low lumen green glow

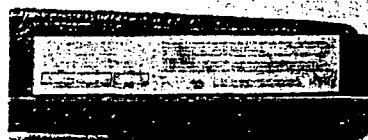


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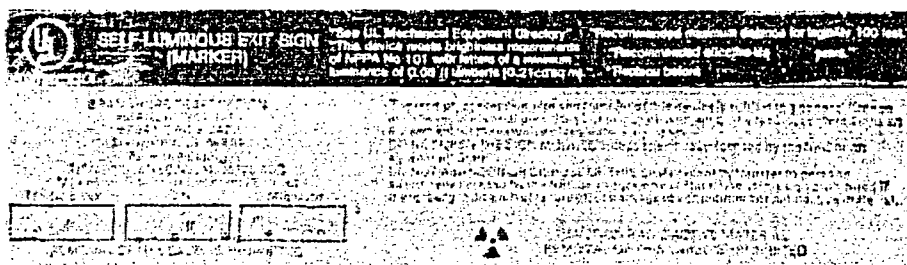
## How to absolutely identify



Label on front



Label on edge



Exit Sign Label - "Caution - Radioactive Material"

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## How to identify - Summary

- Glass tubes
- Greenish glow
- Clear window exposes tubes
- No electric power evident
- Label with –  
**"Caution – Radioactive Material" and small  
 radiation trefoil symbol**



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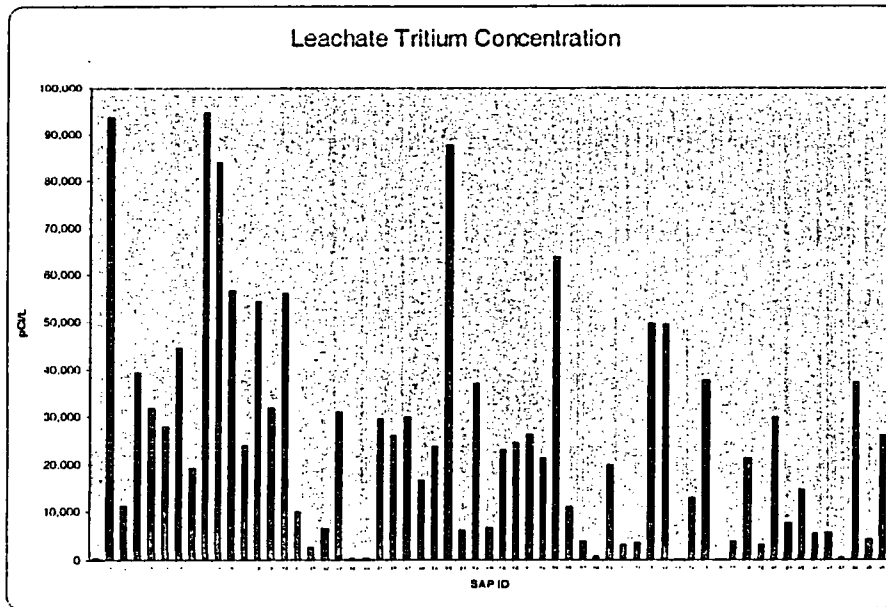


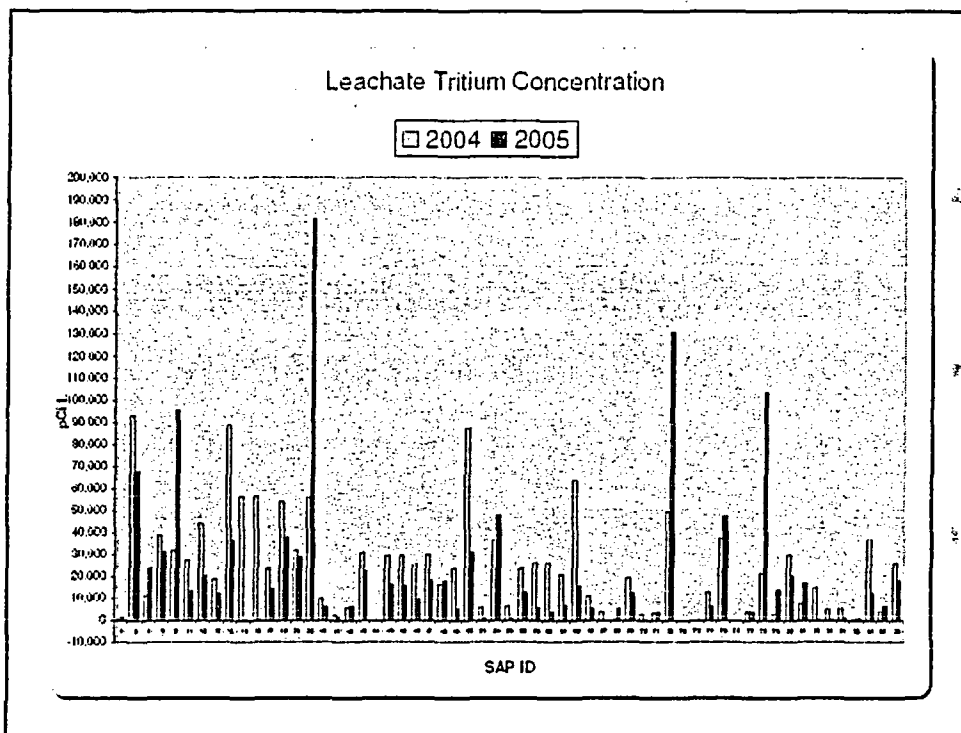
## Landfill Leachate Findings

- In 2004 evaluated gross alpha, (follow-up) alpha spec, beta, gamma spec and tritium; all results NORM - except tritium
- In 2004 tritium concentrations well above - 150 pCi/L background in over 90% of the leachate samples; over 50% of the landfills had over 20,000 pCi/L (i.e., EPA drinking water MCL standard)
- Recent testing performed in 2005 again has identified tritium contamination in nearly all active landfills
- BRP believes that inappropriate disposal of tritium emergency EXIT signs is the cause
- Often, owners don't know the regulations - devices end up in solid waste, thus, landfills or incinerators

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## 2004 Tritium Leachate Findings





## What can we do?

- **NRC should revise requirements to include better labeling and controls; pre-pay disposal**
- **Educate building owners and contractors**
- **Identify EXIT signs before building demolition**
- **Provide information to solid waste handlers**
- **Inform the other states**

## **What now?**

- **Provide the solid waste industry with a Fact Sheet & List of Brokers / Processors**
- **Ensure EXIT signs are removed from buildings**
- **Requesting NRC enhance labeling & control**
- **Working with federal and state agencies to research alternative EXIT sign technologies**
- **Continue to monitor H-3 in leachate from landfills**

15

## **What now? (cont.)**

- **Monitor groundwater impact**
- **Evaluate down-stream impact of effluents**
- **Set "action level" at which landfill must notify impacted drinking water suppliers**
- **Evaluate onsite / offsite impact of H-3 exposure**
- **Notify PA tritium EXIT sign owners**
- **Work with EPA on national training program**

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# Questions?



17

## Contact Information -

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PADEP / Bureau of Radiation Protection  
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Fax: 717-783-8965

E-mail: [djallard@state.pa.us](mailto:djallard@state.pa.us)

[http://www.depweb.state.pa.us  
"radiation"](http://www.depweb.state.pa.us/radiation)

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## STATE ATTENDEES\*

Arizona	Aubrey Godwin, Director, Radiation Regulatory Agency
Arkansas	Bernard (Bernie) Bevill, Chief, Radiation Control Section
California	James D. Boyd, Commissioner, California Energy Commission
Colorado	Steve Tarlton, Unit Leader Hazardous Material & Waste Management Division
Colorado	Joe Vranka, Director, Hazardous Materials & Waste Management Division
Connecticut	Edward L. Wilds, Jr., Ph.D, Director, Division of Radiation, Department of Environmental Protection
Delaware	Henry W. Otto, Ph.D., FAIC, Division of Water Services, Department of Natural Resources & Environmental Control
Florida	John A. Williamson, Administrator, Environmental Section, Bureau of Radiation Control
Georgia	James A. Sommerville, Chief, Bureau of Radiation Control
Illinois	Richard A. Allen, Chief, Bureau of Environmental Safety, Division of Nuclear Safety
Illinois	Gary N. Wright, Assistant Director, Division of Nuclear Safety, Illinois Emergency Management Agency
Kansas	Kimberly Steves, Supervisor, Environmental Radiation and Emergency Preparedness
Maryland	Roland G. Fletcher, Environment Program Manager, Radiological Health Program
Maryland	George S. (Tad) Aburn, Jr., Director, Department of the Environment, Air & Radiation Management
Massachusetts	John Giarrusso, Jr., Massachusetts Emergency Management Agency
Michigan	Thor Strong, Chief, Radiological Protection and Medical Waste Section
Minnesota	Linda Bruemmer, Manager, Department of Health, Division of Environmental Health
Minnesota	John Stine, Division Director, Department of Health, Division of Environmental Health
Mississippi	Robert W. Goff, Director, Division of Radiological Health, Department of Health
Missouri	H. Floyd Gilzow, Deputy Director for Policy, Department of Natural Resources
Montana	Dan McGowan, Administrator, Disaster & Emergency Services Division
Nebraska	Robert E. Leopold, Director, Health and Human Services Systems
Nevada	Karen K. Beckley, Supervisor, Radiological Health Section, Bureau of Health Protection Services
New Jersey	Paul Baldauf, Assistant Director for Radiation Protection Programs and Release Prevention Element, Department of Environmental Protection
New Mexico	Cindy Padilla, Director, Water and Waste Management Division
New York	Alyse Peterson, Project Manager, New York State Energy Research and Developmental Authority
North Carolina	Beverly O. Hall, Section Chief, Department of Environment & Natural Resources
North Dakota	Kenneth W. Wangler, Manager, Radiation Control Program
Oklahoma	Mike Broderick, Environmental Program Administrator, Radiation Management Section
Oregon	Ken Niles, Assistant Director, Oregon Department of Energy
Pennsylvania	David Allard, Director, Bureau of Radiation Protection
Rhode Island	John L. Ferruolo, Department of Health, Division of Occupational Health and Radiation Control
South Carolina	Henry Porter, Assistant Director, Division of Waste Management, Bureau of Land and Waste Management
Tennessee	L. Edward Nanney, Director, Division of Radiological Health
Texas	Roger Mulder, State Liaison Officer, State Energy Conservation Office
Utah	Dane L. Finerfrock, Director, Division of Radiation Control Department of Environmental Quality
West Virginia	Dan Hill, Chief, Radiological Health Program Office of Environmental Health
Wisconsin	Paul S. Schmidt, Manager, Radiation Protection Section, Division of Public Health

\*As of July 25, 2006



## *Commonwealth of Pennsylvania*

### **NRC SLO Meeting - "SLO 101"**

**August 1, 2006**

**David J. Allard, CHP**

(Rev. 7/26/06)

### **"SLO 101" – Rule #1 Communication, Communication, Communication...**

- **Internal; with Rad Control Director!**
- **External: states, utilities**
- **With NRC HQs; programmatic issues, MoUs, Agreement State issues**
- **With NRC Region; joint inspections**
- **Other federal agencies**
- **Public**
- **Press**



## Emerging Fuel Cycle Licensing Activities

Joseph G. Glitter  
Chief, Special Projects Branch  
Division of Fuel Cycle Safety and  
Safeguards/NMSS

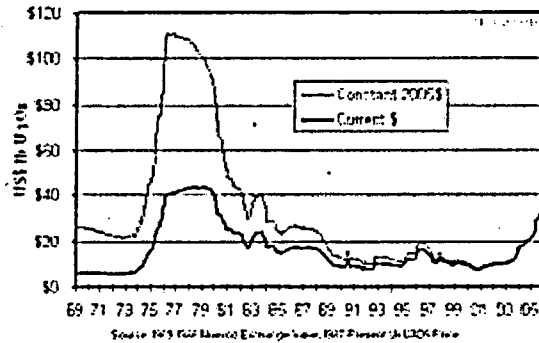
## Major Drivers of Change



- Economic
  - price of uranium
  - rising oil and gas prices
- Geo-Political
  - supply/demand
  - new reactors
- Technical
  - fuel burn-up
  - enrichment
- Societal
  - public views
- Other licensing activities
  - Mining and Milling
  - Honeywell
  - LES/USEC
  - Fuel Fabrication
  - MOX
  - GNEP



## Economic



- Prices continue to increase
  - supply vs demand
  - energy prices across the board
  - only about 5% of the cost of nuclear electricity comes from the uranium price

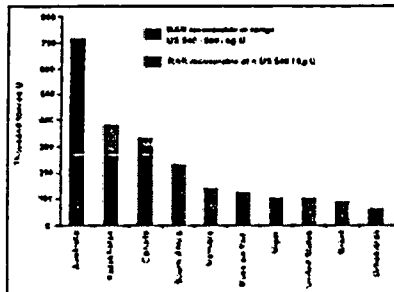
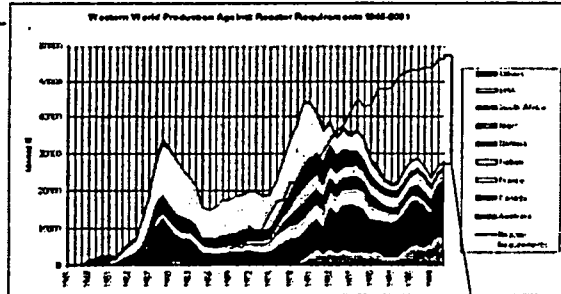
Currently ~\$45

07-06-06

## Geo-Political



- The world is using considerably more uranium than it's producing
  - Difference is met by secondary supplies that include excess inventory and downblended HEU from weapons programs
- Large and easily recoverable reserves exist



### ■ New reactor interest

- China
- India
- Russia
- U.S.
- Canada
- Europe

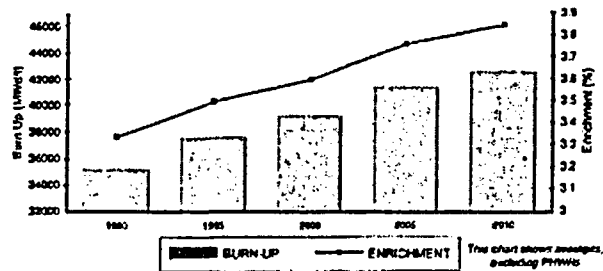
Excess mine production from 1960's, 1970's and Downblended HEU



## Technical



WORLD-WIDE TREND OF BURN-UP AND ENRICHMENT



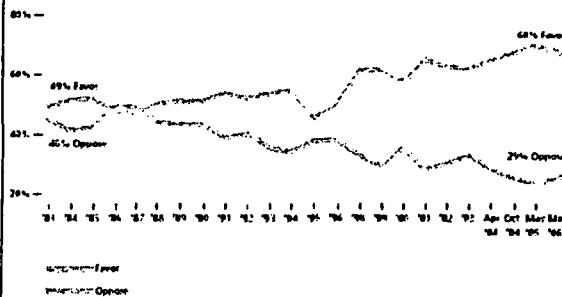
- Trend toward greater burn-up to allow reactors to operate longer between refueling outages
- Current U.S. average
  - 4 5,000 MWD/t
  - What is the limit?

## Societal



Percent Who Favor, Oppose Nuclear Energy

"OVERALL, DO YOU STRONGLY FAVOR, Slightly FAVOR, Slightly OPPOSE OR STRONGLY OPPOSE THE USE OF NUCLEAR ENERGY AS ONE OF THE WAYS TO PROVIDE ELECTRICITY IN THE UNITED STATES?"



The Washington Post (5/25, A4, Baker, Mufson, 744K) reports, "Opinion polls suggest public attitudes toward nuclear power are shifting. Support for expanding the use of nuclear energy has grown from 43 percent to 55 percent in the past three years, according to surveys by the Gallup Organization."

## Uranium Mining and Milling



- Currently Operating Uranium Mines and Mills under NRC licenses
  - Crow Butte (Cameco)- Crawford, Nebraska
  - Smith Ranch (Cameco)- North Butte, Wyoming
- New ISL or conventional milling operations in the works
  - 7 companies have expressed interest in submitting applications

## Uranium Conversion (Honeywell)



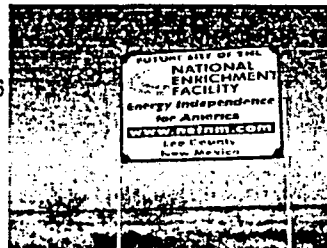
- Production
  - Most  $UF_6$  is exported ~60%
  - Currently producing ~62% of the nations demand
  - May be able to meet the needs of the U.S. with improvements
    - reduce downtime
    - possible capacity increase
    - more efficient enrichment (GDP or gas centrifuges)
  - Little to no reserves



## Uranium Enrichment



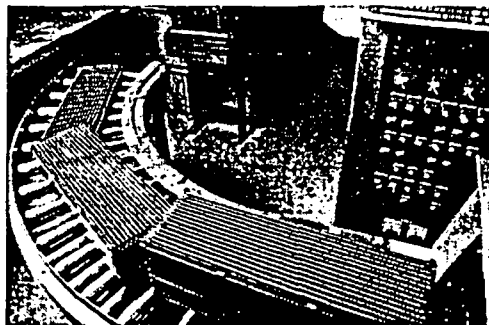
- National Enrichment Facility (near Eunice, NM) License issued (LES) on June 23, 2006
  - Contracts to produce SWUs in 2009
- USEC American Centrifuge Plant (near Piketon, Ohio)
  - Final Environmental Impact Statement April 2006
    - EPA Notice of Availability May 2006
  - Safety Evaluation Report (SER)
    - staff anticipates completing in Aug 2006
  - Mandatory Hearings to be Scheduled
    - shortly following SER
- GE Purchase of SILEX Technology



## Fuel Fabrication



- Companies
  - Areva
  - Global Nuclear Fuel
  - Westinghouse
- Capacity
  - Operating below capacity
  - Could handle fuel requirements for a small number of additional reactors
- Problems
  - Capacity issues if many new reactors come online
  - May not be equipped to make fuel for new (non-LWR) technology reactors



## HEU



- **USEC**
  - Downblending of surplus Russian HEU
    - 5.5 million SWU (~½ of U.S. demand)
    - Expires in 2013, Russians won't renew
  - Russia wants to sell enriched uranium directly to U.S. utilities
    - Expect U.S. International Trade Commission ruling soon (July-Aug)
- **NFS (BLEU)**
  - Downblending of domestic HEU
- **BWXT**
  - Downblending of domestic HEU



## MOX



- **Bilateral effort between the United States and the Russian Federation to convert 34 tonnes of surplus weapons-grade plutonium into more proliferation-resistant forms**
  - **Environmental Impact Statement for a MFFF**
    - Jan 2005
  - **Construction Authorization**
    - March 2005
- **The License Application is expected this September**
  - **Outlook**



# GNEP

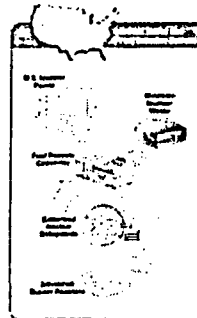


## ■ Global Nuclear Energy Partnership

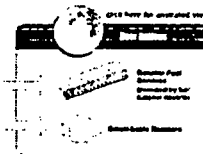
### ■ Part of the administration's Advanced Energy Initiative

### ■ Advanced fuel cycle

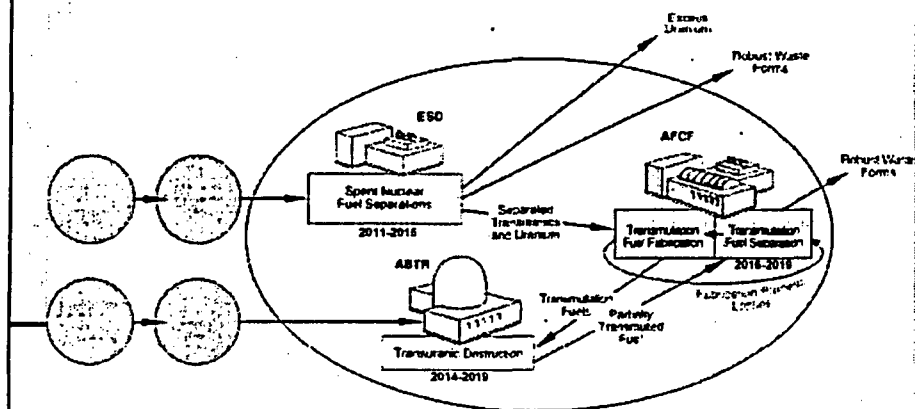
- enhances energy security
- promotes nonproliferation
- reduce the number of geologic waste repositories needed



The Key Elements of the Global Nuclear Energy Partnership



# GNEP



## Conclusion



- The direction and speed of changes in the U.S. fuel cycle industry are largely influenced by complex economic, geo-political, technical, and societal factors.
- Currently, these factors would indicate a significant increase in the number of new applications for fuel cycle facilities, particularly for new uranium recovery applications.
- Under the Global Nuclear Energy Partnership the focus is on spent fuel management rather than high level waste disposal.
- States will continue to be vital partners to the NRC in ensuring that new fuel cycle facilities and technologies continue to be safe and secure.

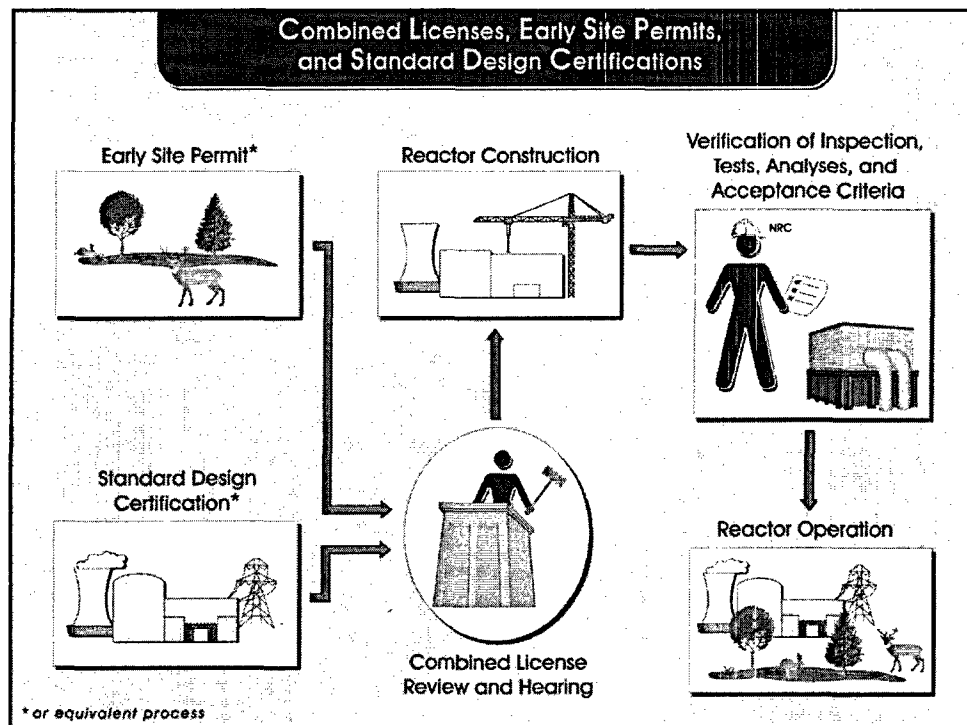


## **NRC's New Reactor Licensing and Construction Efforts**

**Gary Holahan**  
**Associate Director For Risk Assessment  
and New Projects**

### **Topics for Discussion**

- **Challenges**
  - Level of expected licensing activities
  - Schedules and expectations
  - Resources
- **Strategies for new reactor licensing activities**
- **Key infrastructure development activities**



## Design Certifications

- **Certified design is appendix to 10 CFR Part 52**
- **Allows an applicant to obtain pre-approval of an essentially complete plant design**
- **Reduces licensing uncertainty by resolving all design issues**
- **Facilitates standardization**
- **Higher degree of regulatory finality**
- **15 year duration**

4



## **Design Certification Review**

- **What is Reviewed:**
  - Final Design Information w/Inspections Testing Analysis and Acceptance Criteria (ITAAC)
  - Postulated Site Parameters
  - Interface Requirements
  - Resolution of Severe Accident Issues
  - Advanced Reactor Testing Requirements
- **What is Not Reviewed:**
  - Site Safety
  - Environmental Impact
  - Operational Programs
  - Site-Specific Design Features
  - Selected Design Areas (Design Acceptance Criteria)

5

## **Design Certifications**

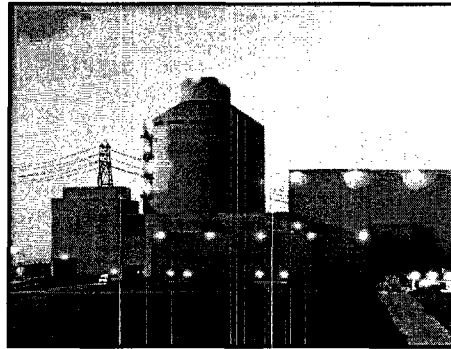
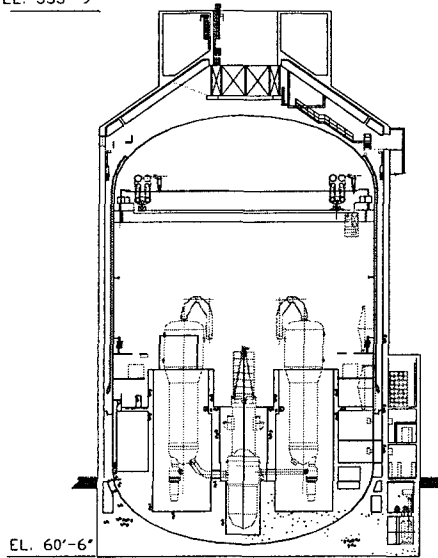
- **NRC review and approval of a standardized design by rulemaking**
- **Already certified:**
  - C-E System 80+
  - General Electric Advanced Boiling Water Reactor (ABWR)
  - Westinghouse AP600
  - Westinghouse AP1000
- **Design Certification review- In progress:**
  - General Electric Economic and Simplified Boiling Water Reactor (ESBWR)

6

# Westinghouse AP1000

EL. 333'-9"

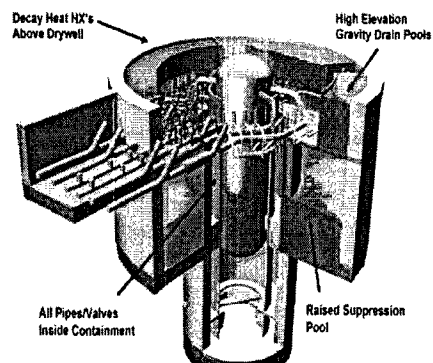
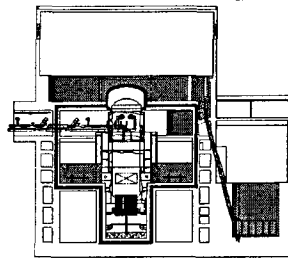
Certified January 2006



7

# General Electric ESBWR

Reactor and Fuel Building



(Currently in NRC review)

8

(currently in pre-application review)

Reactivity Mechanism Deck **ACR-700**

## **Early Site Permit (ESP)**

- **An NRC decision that ensures that the proposed site is suitable for construction and operation of a nuclear power plant or plants**
- **Allows an applicant to “bank” a site**
- **Reduces licensing uncertainty by resolving site-related issues early in the licensing process**
- **10 – 20 year duration**

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## **ESP**

- **Applications Under Review**
  - Dominion (North Anna)
  - Exelon (Clinton)
  - Entergy (Grand Gulf)-ASLB Hearing
  - Southern (Vogtle) (Expected August 2006)

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## **ESP Review**

- **Site Safety Review:**

- Seismology
- Geology
- Hydrology
- Meteorology
- Geography
- Demography (population distribution)
- Site Hazards Evaluation

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## **ESP Review**

- **Emergency Preparedness Review:**

- Evaluate proposed emergency plan, or emergency preparedness information
- Evaluate physical impediments, population distribution, & transportation routes
- Federal Emergency Management Agency (FEMA)

- **Environmental Protection Review:**

- Surface water quality, hydrology, & use
- Aquatic ecology
- Ground-water use & quality
- Threatened or endangered species

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## **ESP Review**

- **Environmental Protection Review (Cont.):**
  - Air quality
  - Land use
  - Uranium fuel cycle & waste management
  - Human health
  - Socioeconomics
  - Postulated accidents
  - Decommissioning
  - Environmental justice
  - Alternative sites

15

## **Combined Operating License**

- **COL is the fundamental licensing process in Part 52 for reducing regulatory risk for companies building nuclear power plants**
- **May reference an ESP, a standard design certification, both, or neither**
- **Objective is to resolve all safety & environmental issues before authorizing construction**
- **Prior to fuel load, must verify the facility has been constructed in accordance with COL (CIP-ITAAC)**

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# New Reactor Licensing Activities Forecasted

(As of July 31, 2006)

Organization (Docket Number or Project Number)	Sites Under Consideration (Units)	Applications Planned or Submitted
<b>AP 1000 Certified Design</b>		
Duke (742)	William S. Lee (2)	COL: Oct 2007
NuStart (740)	Bellefonte (2)	COL: Oct 2007
Progress Energy (738)	Shearon Harris (2)	COL: Oct 2007
	Florida (2)	COL: July 2008
South Carolina Electric and Gas (743)	Summer (2)	COL: 3 <sup>rd</sup> Qtr 2007
Southern Nuclear Operating Company (737)	Vogtle (2)	ESP: 8/2006 COL: 3/2008
<b>ESBWR Design</b>		
Dominion (741)	North Anna	ESP: submitted in 2003 COL: Nov 2007
Entergy (745)	River Bend	COL: May 2008
NuStart (744)	Grand Gulf	ESP: submitted in 2003 COL: Nov 2008
<b>EPR Design</b>		
Constellation (746)	Calvert Cliffs 3 additional COLs Nine Mile Point	COL: 4 <sup>th</sup> Qtr 2007 COL: 1 <sup>st</sup> half of 2008 COL: 3 <sup>rd</sup> Qtr 2008

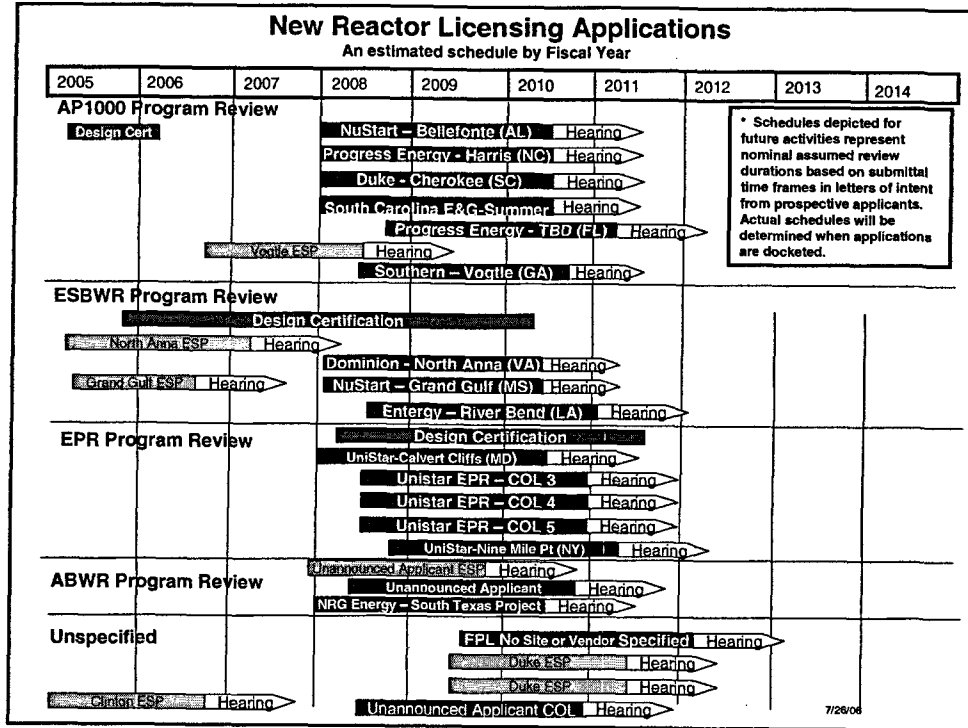
17

# New Reactor Licensing Activities Forecasted

(As of July 31, 2006)

Organization (Docket Number or Project Number)	Sites Under Consideration (Units)	Applications Planned or Submitted
<b>ABWR Certified Design</b>		
NRG Energy	South Texas Project (2)	COL: Late 2007
Unannounced Applicant	TBD (2)	ESP: 3 <sup>rd</sup> Qtr 2007 COL: TBD
<b>Unannounced Technology</b>		
Florida Power and Light	TBD	COL: 2009
Unannounced Applicant	TBD	COL: 1 <sup>st</sup> half of 2008
Duke	Davie County, NC Oconee County, SC	ESP: TBD ESP: TBD
<b>US APWR Design</b>		
Mitsubishi Heavy Industries, LTD	N/A	DC: 1 <sup>st</sup> Qtr 2008

18



## NRC Human Capital

- Recruiting
- Training
- Knowledge Management

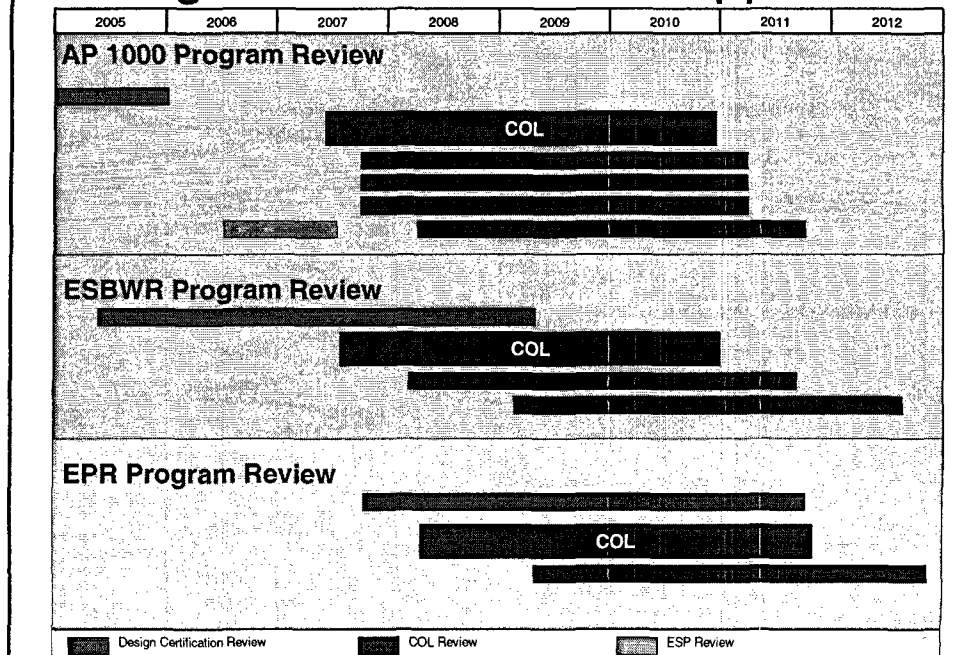


## Strategies for New Reactor Licensing

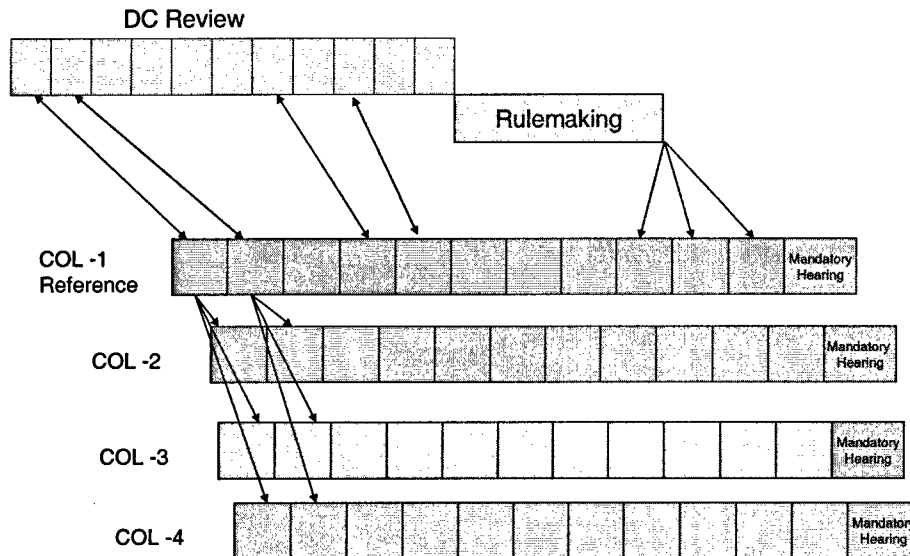
- **Design Centered Approach**
  - Maximize Standardization
- **Optimize Review Process**
  - Infrastructure Development
  - Detailed Planning
  - Pre-application Reviews
  - Accountability - quality and schedule
  - Management Attention
- **Increase Qualified Resources (internal and external)**

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## Design-Centered Review Approach



## One Decision – Multiple Applications



Similar approach used on site reviews (environmental and safety)

## Strategies for New Reactor Licensing (Cont.)

- **Business Process Integrator (BPI)**
  - Newly established position within NRR
  - Integrating preparations across the Agency for new reactor licensing and oversight
- **New Plant Oversight Committee (NPOC)**
  - Members consist of chief nuclear officers of companies with interest in new plant construction
  - Discuss with NRC senior managers strategies and issues related to new reactor licensing, such as standardization
- **Multinational Design Approval Program (MDAP)**
  - Stage 1: Knowledge transfer
  - Stage 2: Align various international regulatory frameworks

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## **Key Infrastructure Activities**

- **10 CFR Part 52 Rulemaking**
- **Develop Combined License (COL) Regulatory Guide**
- **Update and Revise NUREG-0800, "Standard Review Plan"**
- **Develop Construction Inspection Program**

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## **10 CFR Part 52**

- **More predictable licensing process**
- **Resolve safety and environmental issues before authorizing construction**
- **Encourage standardization of nuclear plants**
- **Rulemaking in process**
- **Final proposed rule to be provided to the Commission by October 2006**

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## **COL Regulatory Guide**

- **DG-1145 - Combined License Applications for Nuclear Power Plants (LWR Edition)**
- **Complete set of information required by 10 CFR Part 52**
- **Follows Standard Format and Content (RG 1.70)**
- **Draft issued for public comment in June 2006**
- **Posted on NRC public web site:  
<http://www.nrc.gov/reactors/new-licensing/col-appl-guide.html#draft>**

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## **Standard Review Plan**

- **Accelerated efforts**
- **Identified SRP Section Prioritization**
- **Completion by March 2007**
- **Updates to Regulatory Guides referenced in SRP sections are being considered consistent with the March 2007 time frame**
- **Developing Generic Risk Insights to Focus Reviews**
- **Posted on NRC public web site:  
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800>**

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## **Construction Inspection Program**

- **Inspection Guidance Supporting New Reactor Licensing**
  - ESP Inspections
  - Pre - COL Inspections
  - ITAAC Inspections
  - Non - ITAAC Inspections
- **Dedicated organization to be located in NRC Region II Office**

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## **Conclusions**

- **NRC is preparing for an unprecedented level of new reactor licensing activity**
- **In order for the NRC to accomplish our mission to ensure adequate protection of public health and safety for new reactors licensed under 10 CFR Part 52 (given resource constraints, schedule pressures, and stakeholder expectations), a standardized, uniform, design-centered approach to both COL application development and NRC review is essential.**

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# Cooperative Efforts for Success

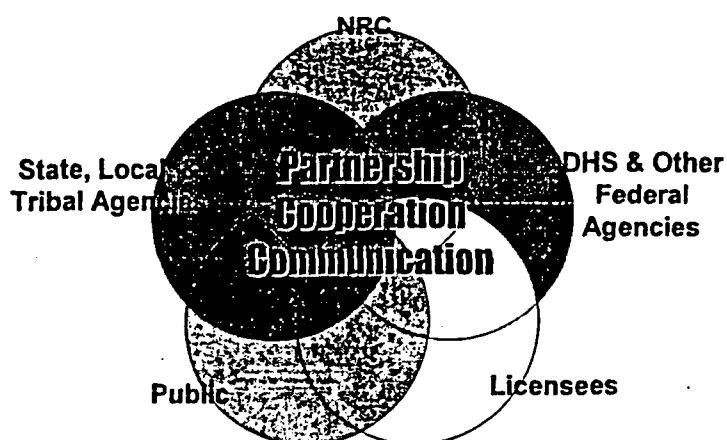
## Communications and Response Activities During Radiological Incidents and Exercises

Melvyn Leach

Nader Mamish

Henry Porter

## Emergency Response Is A Cooperative Effort.





United States Nuclear Regulatory Commission

## Potassium Iodide "KI"

Patricia A. Milligan, RPh, CHP  
Senior Advisor for Emergency Preparedness  
[pxm@nrc.gov](mailto:pxm@nrc.gov)  
301-415-2223



United States Nuclear Regulatory Commission

## Potassium Iodide

- Potassium iodide-chemical symbol is KI.
- Taken at the appropriate time & dose, effective in blocking thyroid gland uptake of radioactive iodine.
- Reduces, does not eliminate, risk of future thyroid disease.



United States Nuclear Regulatory Commission

## Potassium Iodide

- NRC published rule change in April 2001.
- Implemented distribution program in December 2001:
  - Two doses per person in the 10-mile EPZ;
  - Available as 65 and 130 mg tablets.
- Cooperative effort with HHS to distribute pediatric liquid KI to 10-mile EPZ.



United States Nuclear Regulatory Commission

## Potassium Iodide

- Twenty-one states have requested/received KI from NRC:
  - ~ 12 million tablets distributed;
  - ~ \$2.3 million dollars.
- Thirty-three States, one Tribal Government eligible to participate in NRC KI program.
- Replacement of expiring KI stockpiles.





United States Nuclear Regulatory Commission

## Public Law 107-188 "Bioterrorism Act."

- Section 127-expanded distribution of KI to 20 miles from nuclear power plant.
- Required National Academy of Sciences to conduct study on mass distribution of KI.
  - NAS published study in January 2004.
- HHS to administer program, including publication of guidelines.
- Current status of expanded distribution.



United States Nuclear Regulatory Commission

## Potassium Iodide

Questions?



United States Nuclear Regulatory Commission

## **Security-based EP Drills/Exercises**

- **Recent Activities:**
  - Bulletin 2005-02
  - Endorsement of NEI White Paper
  - Completion of pilot tabletops & facility drill
- **Future Milestones:**
  - Industry drill/exercise guidelines (NEI 06-04)
  - Security event-based EP drills at each site
- **Challenges:**
  - DHS exercise evaluation methodology (EEM)
  - Scenarios testing full spectrum of capabilities



United States Nuclear Regulatory Commission

## **Review of EP Regulations and Guidance**

- EP Review Process
  - Public Meetings
    - August 31-Sept. 1, 2005
    - May 19, 2006
    - July 19, 2006
- <http://www.nrc.gov/public-involve/public-meetings/stakeholder-mtngs-wksp.html>
- Future Milestones
    - Paper due to the Commission in late September 2006
    - Follow-up w/ rulemaking plan (including options for continued stakeholder involvement)

# Comprehensive Review (CR) Overview

## July 2006



**Homeland  
Security**

## Comprehensive Review Overview

### Orchestrating Readiness and Response

The Comprehensive Review is a Cooperative government, community, and private sector analysis of high-consequence critical infrastructure and key resources (CI/KR) to prevent, mitigate, and respond to catastrophic all-hazard events.

#### Explore:

- Exposure to potential terrorist attack
- Consequences of attack
- Integrated prevention and response capabilities

#### Enhance regional and site security:

- On-site/regional protective and coordination measures
- Risk-based investments and research and development decisions



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## CRs: Meeting Missions and Mandates

### Comprehensive Reviews

Cooperative government & private sector analysis of high-consequence CI/KR to prevent, mitigate, and respond to catastrophic all-hazard events.

Concurrent multi-agency review of:

- Vulnerability to terrorist attack
- Consequences
- Integrated CI/KR/community prevention and response capabilities

Enhanced regional/site readiness and preparedness

- Gaps/Enhancements
- Short term, low cost measures
- Continued partnerships among local law, emergency management, first responders (fire, rescue)
- Risk data for cross-sector analysis

### Legislative

Homeland Security Act of 2002, P.L. 107-296

Coast Guard and Maritime Transportation Act of 2004, P. L. 108-293

H.R. 109-79, IAIP commendation for initial nuclear sector CRs. \$5M to expand to other high value sectors

### Presidential

HSPD 5 Management of Domestic Incidents

HSPD 7 Critical Infrastructure Identification, Prioritization and Protection

HSPD 8 National Preparedness

Executive Order 13286, 68 Fed. Reg. 10619, DHS  
Federal coordination authority

Homeland Security Council: Principles

National Strategy for Homeland Security

### National Plans

National Infrastructure Protection Plan, June 2006

National Response Plan, Dec. 2004

National Preparedness Goal, Dec. 2005

National Protection Plan, Feb. 2004



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## Principles

Developed for high-value CI/KR by partnership of Industry (NSCC) and Government (GCC):

- Minimize impact on stakeholders through careful planning and integrated Federal efforts
- Provide candid and open dialog among Federal agencies, private sector owners/operators, state and local law enforcement, and emergency responders/management
- Protect sensitive information
- Standardize methodology and assessment tools for application of the process across CI/KR sectors
- Use results to enhance security and preparedness postures, and to inform future investment and R&D decisions



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## Scope

### Commercial Nuclear Reactors and Associated (Spent Fuel) Facilities

- 28 of 71 Commercial Nuclear Reactor and Associated (Spent Fuel Storage) Facilities completed
- Remaining facilities scheduled through August 2007

### Chemical Manufacturing, Processing, Distributing, and Storage Facilities

- Priority on highest consequence assets
- High potential impacts to public health/safety and the economy
- Number of chemical facilities per region depends on CR site selection criteria
- Sector includes over 3,600 facilities with impact on 1,000 or more people in the event of a catastrophic breach

### Future sectors may include

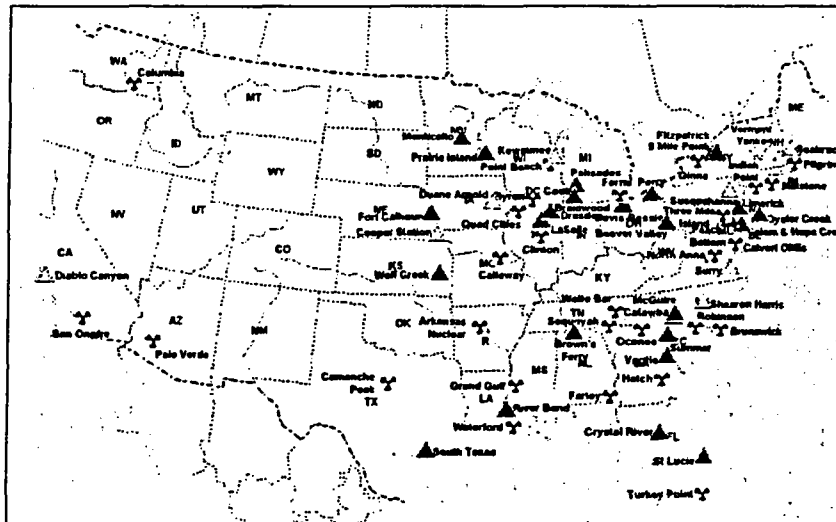
- Energy
  - Liquefied Natural Gas (LNG)
  - Petroleum Refineries
- Dams
- Commercial Facilities

High Risk and  
High Value  
Sectors



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## Nuclear Comprehensive Review Status



★ CRs Completed /... CRs Scheduled Through September 2006 ▲ CRs Scheduled Later



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## Components of the CR

Facility characterization and identification of critical assets

Threat analysis based on standardized threat streams

Assault planning

Explosive ordnance disposal

Law enforcement resources

Emergency preparedness posture

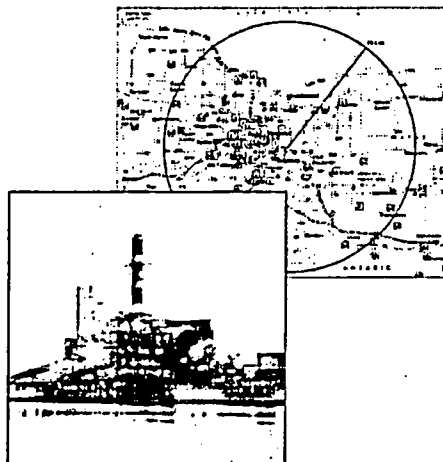
Maritime assessment

Buffer zone planning

Take back planning

Cyber assessment

Transportation assessment



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## Comprehensive Review Partners

### Federal Interagency Assessment Team

- DHS Risk Management Division (RMD)
- DHS Chemical and Nuclear Preparedness and Protection Division (CNPPD)
- Nuclear Regulatory Commission (NRC) – Nuclear Only
- DHS United States Coast Guard (USCG)
- DHS Transportation Security Agency (TSA) – Chemical Only
- DHS National Cyber Security Division (NCSD) – Chemical Only
- Federal Bureau of Investigation (FBI)
- Environmental Protection Agency (EPA) – Chemical Only

### State and Local

- State Homeland Security Advisor (HSA)
- Local, Regional, and State Emergency Services Agencies
- National Guard

### Private

- Industry Associations (NSCC, CSCC)
- Facility Owners and Operators



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## Round Table Discussions

**Goal:** Explore potential gaps in law enforcement and emergency services planning, preparedness, and coordination

**Discussion topics:**

- Information sharing and awareness
- Tactical prevention and deterrence activities
- Protective measures
- Vulnerability and consequence mitigation strategies
- Emergency response coordination and communications

**Participants:**

- Facility owners/operators and emergency managers
- State and local emergency service and law enforcement leaders
- Federal representatives from the region (including FEMA, EPA)



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## Benefits of Comprehensive Reviews

Opportunity to receive a no-fault, outside perspective on gaps and possible items for consideration

Build and maintain relationships between facilities and emergency service organizations

Business continuity planning

Validate previous risk and vulnerability assessment results

Combines several agency assessments into a single visit

Address functions of prevention, protection, mitigation, and emergency response at the same time

Opportunity for emergency services to learn about hazards and risks so they can better protect each facility and the community

Expand buffer zone security beyond the owner/operator "space"

Increased preparedness throughout the community

Grant funding for State and local emergency services to mitigate capability gaps



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## Immediate Outcomes of CRs

First time access of LLE and emergency responders– gained familiarity with site and site security personnel

First time access of National Guard– agreement to test security equipment at Guard site

Communications link re-established between Coast Guard and State Law Enforcement after frequency reassignment

National Guard provided communications equipment to LLE and local Emergency Management Agency

FBI training facility made available to SWAT to enhance tactical capabilities

Enhanced maritime patrols using State Department of Natural Resources assets

DHS replacement of out-of-date bomb squad gear

Perimeter barrier enhancement



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## Long-Term Outcomes

On-going dynamics among local agencies with high-value owner/operators and first responders

"Effective practices" for security/response adaptable within and across sectors

Continued and often improved coordination among state/local agencies and sites for shared resources

Federal prevention and response capability enhancements

Empirical data for future protective measures investments and Science and Technology decisions



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## State Liaison Officer Partnership

Follow-up with communities

Iterate the importance of compatible and ongoing communications among State and local governments

Explore options to improve Federal and State security measures

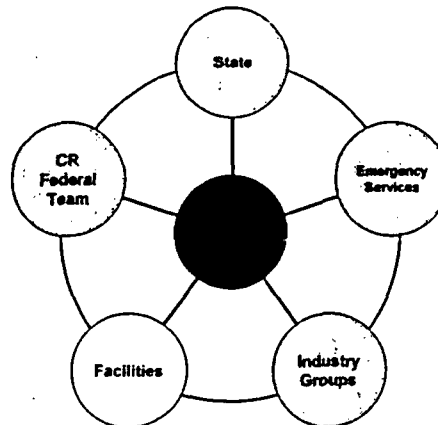
Coordinate with the State Administrative Agent (SAA) to ensure appropriate flow of grant funds



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## Comprehensive Review Partnership

Together, we can reduce the nation's vulnerability to terrorism.



Protection of the Nation's CI/KR depends on this cooperative partnership.



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## Points of Contact

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Sector-Specific Agent,  
Chemical and Nuclear Preparedness and Protection Division  
[Elizabeth.reed@dhs.gov](mailto:Elizabeth.reed@dhs.gov)

Patricia E. Burt, Ph.D.  
Program Manager, Comprehensive Reviews,  
Risk Management Division  
[pat.burt@dhs.gov](mailto:pat.burt@dhs.gov)



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Security

# **National Response Plan Overview & NRC Updates**

**Melvyn Leach**

## **National Response Plan**

- **NRP Applies To Incidents of National Significance (INS), and "Incidents Requiring Federal Coordination"**
- **NRC Response Plan Is An "Integrated Component" of NRP**

## **National Response Plan Nomenclature**

- Domestic Readiness Group (DRG)  
Develops & Coordinates Government  
Preparedness & Response Policy
- Incident Advisory Council (IAC) Replaces  
The Interagency Incident Management  
Group
- National Operations Center (NOC) Is  
Successor To The Homeland Security  
Operations Center

## **Nuclear / Radiological Incident Annex**

- No Changes To The NRC's Roles &  
Responsibilities
  - Source Term Estimation
  - Plume Dispersion
  - Dose Assessment Calculations
  - Protective Action Recommendations
  - Independent Assessments of Incidents
  - Licensee Oversight
  - Technical Experts
- Minor Changes To Reflect IAC & NOC

## Nuclear / Radiological Incidents

- Scenario #1
  - Nuclear Power Plant "Accident" Incident
  - Emergency Classification – Alert
- Scenario #2
  - Nuclear Power Plant "Accident" Incident
  - Emergency Classification – General Emergency
- Scenario #3
  - Nuclear Power Plant "Terrorism" Incident
  - Emergency Classification – Various

## Nuclear / Radiological Incidents

- Scenario #4
  - Transportation Accident (Agreement State)
  - Radio-Pharmaceutical Delivery of Iodine-131
  - Contaminated, Injured Personnel, Fire
- Scenario #5
  - Transportation Accident (Non-Agreement State)
  - Radio-Pharmaceutical Delivery of Iodine-131
  - Contaminated, Injured Personnel, Fire

## Scenario #1

- Event
  - Notional NRC-licensed commercial power reactor (any site)
  - Initial Conditions: Normal Operations at 100% Power
  - Incident: Degradation of Reactor Systems meet criteria (i.e., EAL) for ALERT Emergency Class (e.g., steam generator tube failure)
- Response:
  - Nuclear / Radiological Incident Annex (Overall Federal Interagency Response)
  - NRC is Coordinating Agency
  - DHS does not coordinate overall Federal response

## Scenario #2

- Event
  - Notional NRC-Licensed commercial power reactor
  - Initial Conditions: Normal Operation at 100% power (or continuation / degradation from Scenario #1)
  - Incident: Failure of Reactor Systems with release to environment (airborne) – EAL(s) for GENERAL EMERGENCY (e.g., steam generator tube failure; steam generator safety valve stuck open; containment monitors indicate clad failure)
- Response
  - National Response Plan + Nuc/Radiological Incident Annex (Overall Federal Interagency Response)
  - NRC is Coordinating Agency (Nuc/Rad Annex)
  - DHS does coordinate overall Federal response

## Scenario #3

- Event
  - Notional NRC-Licensed commercial power reactor
  - Initial Conditions: Plant Normal Operation at 100% power; National-level reporting of terrorism threats to the nuclear power infrastructure (e.g., HSAS at "Elevated" – Orange Level)
  - Incident: Terrorism Attack (e.g., Initiation of land-based attack on the facility by unknown quantity of armed individuals)
- Response
  - National Response Plan + Nuclear/Radiological Annex + Terrorism Incident Annex (Overall Federal Interagency Response)
  - DHS does coordinate overall Federal response
  - FBI is Coordinating Agency (Terrorism Annex)
  - NRC is Coordinating Agency (Nuc/Rad Annex)

## Scenario #4

- Event (Agreement State)
  - Radio-Pharmaceutical delivery vehicle traveling on public roads
  - Transporting an ampoule of liquid Iodine-131 (200 millicuries)
  - Container ejected from vehicle & ampoule broken
  - Driver ejected from vehicle and injured, vehicle fire
  - Witness rendering aid is contaminated; First Responders contaminated; Emergency vehicle contaminated en-route to ER
- Response (Agreement State)
  - Nuc/Rad Incident Annex
  - Local Law Enforcement & Fire Department Respond
  - Agreement State Agency Responds to Scene (e.g., Surveys, etc)
  - NRC is Federal Coordinating Agency Providing Support to State

## Scenario #5

- Event (Non-Agreement State)
  - Radio-Pharmaceutical delivery vehicle traveling on public roads
  - Transporting an ampoule of liquid Iodine-131 (200 millicuries)
  - Container ejected from vehicle & ampoule broken
  - Driver ejected from vehicle and injured, vehicle fire
  - Witness rendering aid is contaminated; First Responders contaminated; Emergency vehicle contaminated en-route to ER
- Response (Non-Agreement State)
  - Local Law Enforcement & Fire Department Respond
  - Nuc/Rad Incident Annex
  - NRC is Federal Coordinating Agency
  - NRC Responds (may request DOE RAP Team)



## Federal Highway Administration (FHWA) Response and Evacuation Activities

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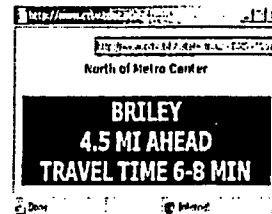
Laurel Radow  
Office of Transportation Operations  
Office of Operations, FHWA  
August 2, 2006



## Federal Highway Administration

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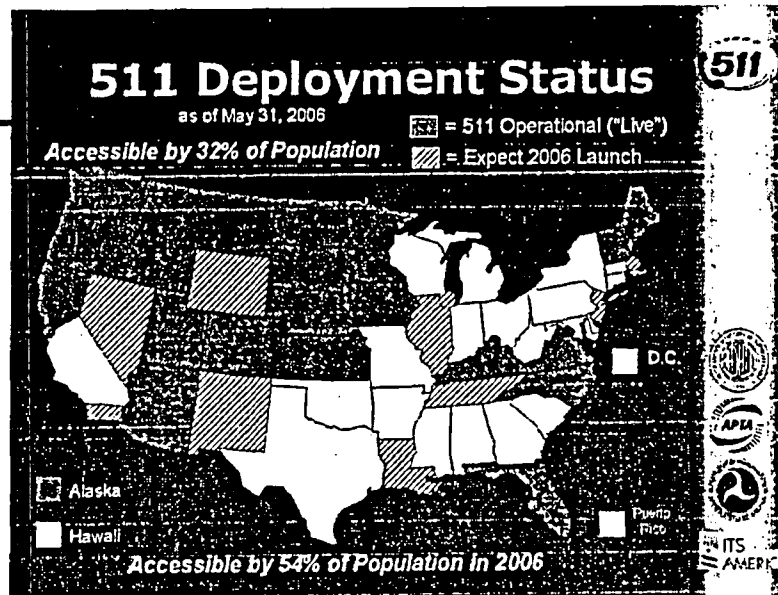
- Agency of the U.S. Department of Transportation.
  - FHWA's primary partners are the state and local departments of transportation and metropolitan planning organizations.
  - We work through our ITS Specialists located in our division offices – usually in the state capital.
-



## Transportation Management Centers



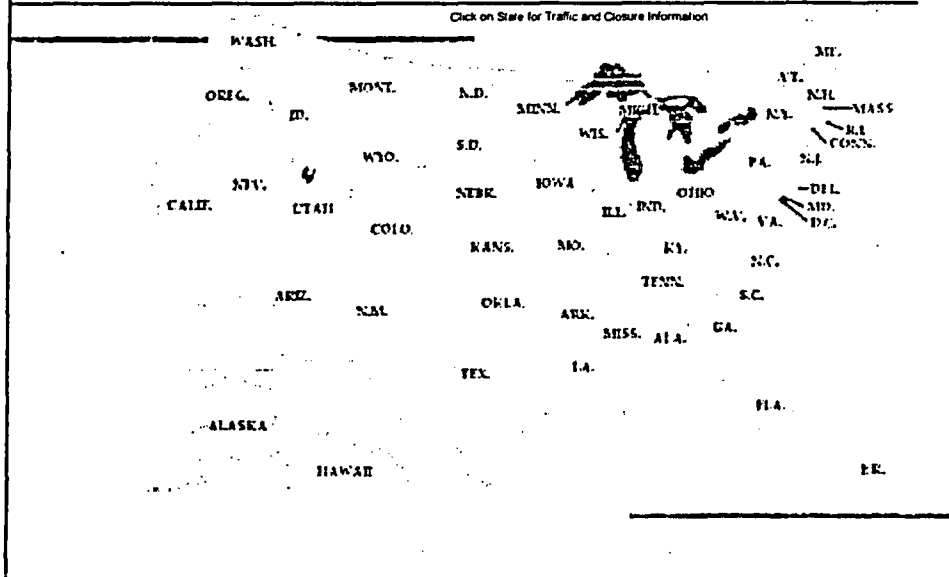
- TMCs
  - Function as the key technical and institutional hub to focus on the common goal of optimizing the performance of the entire surface transportation system.



## Traffic Cameras

- Video images and data from cameras on the Interstate and, in some localities, on city streets enable TMC operators to update radio, television, and Internet reports with the latest traffic conditions information.

## National Traffic and Road Closure Information



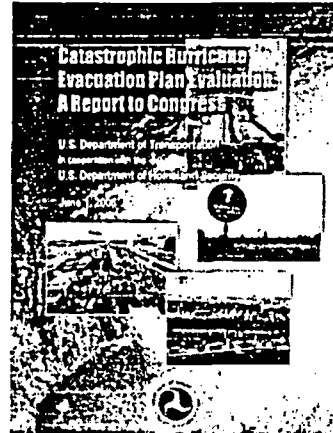
## FHWA's ITS Specialists

- Knowledgeable on ITS and Operations of the surface transportation network.
- FHWA field staff serves as our contact with state and local departments of transportation.
- Your connection to transportation.

## FHWA – Current Activities

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- Report to Congress on Catastrophic Hurricane Evacuation Plan Evaluation (June 1, 2006)
- Simplified Guide to Incident Command System



## FHWA – Current Activities

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- Routes to Effective Evacuations Primers Series
  - Overview
  - Highways
  - No-notice
  - Public Transit and Special Needs Populations

## Final Thoughts

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- Departments of Transportation
    - Resources
      - Technological
      - Operational
  - Federal Highway Admin./Nuclear Regulatory Commission
    - Future Activities
- 

## Transportation Websites

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**Federal Highway Administration home page**

<http://www.fhwa.dot.gov/index.html>

If you go to the right hand side of the page, *Planning a Trip* will get you to the following web site:

**National Traffic and Road Closure Information**

<http://www.fhwa.dot.gov/trafficinfo/index.htm>

**Websites that show the use of traffic cameras**

<http://www.hudsonvalleytraveler.com/perl/TrafficCameras.pl> - New York Dutchess County (video)

<http://www.dot.ca.gov/dist8/tmc/webmap.htm#instructions> - (route 210)

<http://www.chart.state.md.us/TravInfo/trafficCams.asp>

<http://www.virginiadot.org/comtravel/eoc/eoc-mainWEBcams.asp>

<http://www.az511.com/CameraImages/index.php>

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## Contact Information

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- Laurie Radow
  - Federal Highway Administration
  - [Laurel.Radow@dot.gov](mailto:Laurel.Radow@dot.gov)
  - 202/366-2855

**THANK YOU**

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## Transportation Websites and Contact Information

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<http://www.dot.ca.gov/dist8/tmc/webmap.htm#instructions> - (route 210)

<http://www.chart.state.md.us/TravInfo/trafficCams.asp>

<http://www.virginiadot.org/comtravel/eoc/eoc-mainWEBcams.asp>

<http://www.az511.com/CameralImages/index.php>

**FHWA Office of Operations - <http://ops.fhwa.dot.gov/>**

### Current Programs and Activities

Arterial Management	National Transportation Operations
Access Management	Coalition (NTOC)
Operations Asset Management	Planning for Operations (formerly
Congestion Mitigation	Regional Transportation Operations
Corridor Traffic Management	Collaboration and Coordination -{RTOCC})
Emergency Transport. Operations	Performance Measurement
Facilitating Integrated ITS	Real Time Traveler Information
Deployment	Road Weather Management
Freeway Management	Tolling and Pricing Program
Freight Analysis	Travel Demand Management
Freight Infrastructure	Traffic Analysis Tools
Freight Operations and	Traffic Incident Management
Technology	Planned Special Events Traffic
Freight Professional Development	Management
Manual on Uniform Traffic Control	Vehicle Size and Weight
Devices (MUTCD)	Work Zone Management

### Contact Information

Laurie Radow

Federal Highway Administration

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202/366-2855



## FHWA ITS Specialists Ordered by Office

- FHWA ITS Specialists Ordered by Last Name
- FTA ITS Specialists Ordered by Region
- FTA ITS Specialists Ordered by Last Name

Last Name	First Name	Office	Title	Address	City	State	Zip Code	Phone	Fax	Email/Alt
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Guin	Linda	Alabama Division Office	Safety Engineer	500 Eastern Boulevard, Suite 200	Montgomery	AL	36117-2018	(334) 223-7373	(334) 223-7325	Guin, Linda
Fletcher	Al	Alaska Division Office	Safety/ ITS engineer	709 W. Ninth Street, Suite 851	Juneau	AK	99802-1648	(907) 586-7245	(907) 586-7420	Fletcher, Al
Hansen	Alan	Arizona Division Office	Transport Engineer	One Arizona Center, 400 E. Van Buren St., Ste. 410	Phoenix	AZ	85004-2285	(602) 379-3645 ext 108	(602) 379-3608	Hansen, Alan
DalPorto	Gary	Arkansas Division Office	Planning and Research Engineer	700 West Capitol Avenue, Suite 3130	Little Rock	AR	72201-3298	(501) 324-6441	(501) 324-6423	DalPorto, Gary
Heflin	Joseph	Arkansas Division Office	Safety Engineer	700 West Capitol Avenue, Suite 3130	Little Rock	AR	72201-3298	(501) 324-6443	(501) 324-6423	Heflin, Joseph
Cechini	Frank	California Division Office	Statewide ITS Manager	650 Capitol Mall, Suite 4-100	Sacramento	CA	95814	(916) 498-5005	(916) 498-5008	Cechini, Frank
Kochevar	Ken	California Division Office	ITS/Safety Engineer	650 Capitol Mall, Suite 4-100	Sacramento	CA	95814-4708	(916) 498-5853	(916) 498-5008	Kochevar, Ken
Santos	Richard	Colorado Division Office	Transportation Specialist	12300 W Dakota	Lakewood	CO	80228-1097	(720) 963-	(720) 963-	Santos, Richard

				Avenue, Suite 180				3009	3001	
Ramirez	Robert	Connecticut Division Office	ITS and Traffic Engineer	628 Hebron Avenue, Suite 303	Glastonbury	CT	06033- 5007	(860) 659- 6703 ext 3004	(860) 659- 6724	Ramirez, Robert
Kennedy	Patrick	Delaware Division Office	Highway Safety Engineer	300 South New Street, Suite 2101	Dover	DE	19904- 6726	(302) 734- 5326	(302) 734- 3066	Kennedy, Patrick
Mirack	Frank	District of Columbia Division Office	Highway Engineer	1990 K Street, NW, Suite 510	Washington	DC	20006- 1178	(202) 219- 3516	(202) 219- 3545	Mirack, Francis
Corrado	Frank	Eastern Federal Lands Highway Division	Traffic Operations Engineer	Loudoun Tech Center, 21400 Ridgetop Circle	Sterling	VA	20166- 6511	(703) 404- 6372	(703) 404- 6217	Corrado, Frank
Habib	M.G.	Eastern Federal Lands Highway Division	ITS Traffic Engineer	Loudoun Tech Center, 21400 Ridgetop Circle	Sterling	VA	20166- 6511	(571) 434- 1575	(703) 404- 6217	Habib, M.
Hebbani	Lokesh	Florida Division Office	Traffic Operations/ITS Engineer	545 John Knox Road, Suite 200	Tallahassee	FL	32303- 1330	(850) 942- 9650 ext 3040	(850) 952- 9691	Hebbani, Lokesh
Tran	Chung	Florida Division Office	Traffic Operations/ITS Engineer	545 John Knox Road, Suite 200	Tallahassee	FL	32303- 1330	(850) 942- 9650 ext 3041	(850) 952- 9691	Tran, Chu
Smith	Mshadoni	Georgia Division Office	Traffic Management Engineer	61 Forsyth Street, S.W. - Suite 17T100	Atlanta	GA	30303- 3104	(404) 562- 3638	(404) 562- 3703	MKSMITH
Takara	Richelle	Hawaii Division Office	Transportation Engineer	Prince Jonah Kuhio Kalaniana'ole Federal	Honolulu	HI	96850- 9685	(808) 541- 2700 ext	(808) 541- 2704	Takara, Richelle

				Building, 300 Ala Moana Boulevard, Suite 3-306				311		
Johnson	Lance	Idaho Division Office	Safety Program Manager	3050 Lakeharbor Lane, Suite 126	Boise	ID	83703- 6354	(208) 334- 9180 ext 124	(208) 334- 1691	Johnson, Lance
Mentjes	Dean	Illinois Division Office	Mobility Engineer	3250 Executive Park Drive	Springfield	IL	62703- 4514	(217) 492- 4631	(217) 492- 4231	Mentjes,
Stippich	Karen	Indiana Division Office	Safety Engineer	575 N. Pennsylvania Street, Suite 254	Indianapolis	IN	46204- 1576	(317) 226- 7122	(317) 226- 7341	Stippich, Karen
Brachtel	Jim	Iowa Division Office	ITS/Design Engineer	105 Sixth Street	Ames	IA	50010- 6337	(515) 233- 7305	(515) 233- 7499	Brachtel,
Alva	Robert	Kansas Division Office	ITS/Safety Engineer	3300 South Topeka Blvd., Suite 1	Topeka	KS	66611- 2237	(785) 267- 7299 ext 339	(785) 267- 7290	Alva, Rob
Loyselle	Michael	Kentucky Division Office	Area/ITS Engineer	John C. Watts Federal Building, 330 W. Broadway	Frankfort	KY	40601- 1981	(502) 223- 6734	(502) 223- 6735	Loyselle, Michael
Glazer	Jesse	Los Angeles Metropolitan Office	ITS Engineer	888 S. Figueroa Street Suite 1850	Los Angeles	CA	90017- 5467	(213) 202- 3955	(213) 202- 3961	Glazer, Lawrence Jesse
Broemmelsiek	John	Louisiana Division Office	Traffic Operations/ITS Engineer	5304 Flanders Dr., Suite A	Baton Rouge	LA	70808- 4348	(225) 757- 7614	(225) 757- 7601	Broemme John
Stringfellow	Mary	Louisiana Division Office	Technology Management Systems Engineer	5304 Flanders Dr., Suite A	Baton Rouge	LA	70808- 4348	(225) 757- 7610	(225) 757- 7601	Stringfelli Mary

Davies	Michael	Maine Division Office	ITS/Traffic Operations/Safety Engineer	Edmund S. Muskie Federal Building, 40 Western Avenue, Suite 614	Augusta	ME	04330-6394	(207) 622-8350 ext 117	(207) 626-9133	Davies, Michael
Jeffers	Breck	Maryland Division Office	Transportation Management Engineer	The Rotunda, 711 West 40th Street, Suite 220	Baltimore	MD	21211-2108	(410) 962-4342 ext 129	(410) 962-4054	Jeffers, B
Otaluka	Promise	Massachusetts Division Office	ITS/Safety Engineer	55 Broadway, 10th Floor	Cambridge	MA	02142-1093	(617) 494-2528	(617) 494-3355	Otaluka, Promise
White	Timothy A.	Massachusetts Division Office	Senior Area Engineer/ITS Specialist	55 Broadway, 10th Floor	Cambridge	MA	02142-1093	(617) 494-3280	(617) 494-3355	White, Timothy A.
Hoevel	Morrie	Michigan Division Office	Urban Mobility Engineer	315 West Allegan Street, Suite 201	Lansing	MI	48933-1514	(517) 702-1834	(517) 377-1804	Hoevel, Morrie
McCarthy	Jim	Minnesota Division Office	Traffic Operations Engineer	Galtier Plaza, 380 Jackson St., Suite 500	St. Paul	MN	55101-2904	(651) 291-6112	(651) 291-6000	McCarthy, James
Cribb	Michael	Mississippi Division Office	ITS/Safety Engineer	666 North Street, Suite 105	Jackson	MS	39202-3199	(601) 965-4220	(601) 965-4231	Cribb, Michael
Stephen	Edward	Missouri Division Office	Transportation Engineer/ ITS Implementation	3220 W Edgewood, Suite H	Jefferson City	MO	65109	(573) 638-2610	(573) 636-9283	Stephen, Edward
Budd	Gregory	Missouri Division Office	Operations Engineer/ITS Program Manager	3220 W Edgewood, Suite H	Jefferson City	MO	65109	(573) 638-2616	(573) 636-9283	Budd, Gregory
Seliskar	Bob	Montana Division Office	Transportation Specialist	2880 Skyway Drive	Helena	MT	59602-1230	(406) 449-5302 ext 244	(406) 449-5314	Seliskar, Bob

Grate	Daniel	National Resource Center - Atlanta	Rural ITS Specialist	61 Forsyth Street, S.W. - Suite 17T26	Atlanta	GA	30303-3104	(404) 562-3912	(404) 562-3700	Grate, Da
Jones	Greg	National Resource Center - Atlanta	ITS Specialist	61 Forsyth Street, S.W. - Suite 17T26	Atlanta	GA	30303-3104	(404) 562-3906	(404) 562-3700	Jones, Gr
Zammit	Grant	National Resource Center - Atlanta	ITS Specialist	61 Forsyth Street, S.W. - Suite 17T26	Atlanta	GA	30303-3104	(404) 562-3575	(404) 562-3700	Zammit, .
Olson	Paul	National Resource Center - Lakewood	ITS Technology Engineer	12300 West Dakota Avenue - Suite 340	Lakewood	CO	80228	(720) 963-3239	(720) 963-3232	Olson, Pa
Knopp	Martin	National Resource Center - Olympia Field	Team Leader and Operations TST	19900 Governors Drive, Suite 301	Olympia Fields	IL	60461-1021	(708) 283-3514	(708) 283-3501	Knopp, M
Lister	Mac	National Resource Center - Olympia Field	ITS Technology Specialist	19900 Governors Drive, Suite 301	Olympia Fields	IL	60461-1021	(708) 283-3532	(708) 283-3501	Lister, Ma
Murphy	Ray	National Resource Center - Olympia Field	ITS Specialist	19900 Governors Drive, Suite 301	Olympia Fields	IL	60461-1021	(708) 283-3517	(708) 283-3501	Murphy, I
Sturdevant	James	National Resource Center - Olympia Field	Traffic Management/System Operation	19900 Governors Drive, Suite 301	Olympia Fields	IL	60461-1021	(708) 283-3552	(708) 283-3501	Sturdeva James
Tolle	John	National Resource Center - Olympia Field	Traffic Management/Operations Engineer	19900 Governors Drive, Suite 301	Olympia Fields	IL	60461-1021	(708) 283-3541	(708) 283-3501	Tolle, Joh
Wood	Ken	National Resource Center - Olympia	Traffic Operations Engineer	19900 Governors Drive, Suite 301	Olympia Fields	IL	60461-1021	(708) 283-4340	(708) 283-3501	Wood, Ke

Fok	Ed	National Resource Center - San Francisco	Traffic Mgmt & Systems Operations Engineer	201 Mission Street, Suite 2100	San Francisco	CA	94105-1838	(415) 744-0113	(415) 744-2620	Fok, Edw.
Perry	John J.	Nebraska Division Office	Safety, ITS and Traffic Engineer	100 Centennial Mall North Federal Building, Suite 220	Lincoln	NE	68508-3851	(402) 437-5974	(402) 437-5146	Perry, Jol
Novak	Greg	Nevada Division Office	Technology and Operations Engineer	705 North Plaza Street, Suite 220	Carson City	NV	89701-4066	(775) 687-1203	(775) 687-3803	Novak, G
Calawa	Martin	New Hampshire Division Office	ITS and Safety Engineer	19 Chenell Drive, Suite One	Concord	NH	03301-8539	(603) 228-3057 ext 108	(603) 228-2829	Calawa, M
Phomsavath	Ekaraj	New Jersey Division Office	ITS Engineer	840 Bear Tavern Road, Suite 310	West Trenton	NJ	03301-8539	(609) 637-4231	(609) 538-4913	Phomsavath Ekaraj
O'Connor	Art	New York City Metropolitan Office	Transportation Management Engineer	One Bowling Green, Suite 428	New York	NY	10004-1415	(212) 668-2206	(212) 668-5239	O'Connor Arthur
Schauer	Mike	New York Division Office	Senior Transportation Management Engineer	Leo W. O'Brien Federal Building, Clinton Ave & North Pearl Street, Suite 719	Albany	NY	12207-2378	(518) 431-4125 ext 236	(518) 431-4121	Schauer, Michael
Zell	Jerry	New York Division Office	Transportation Management Engineer	Leo W. O'Brien Federal Bldg, Suite 719	Albany	NY	12207-2378	(518) 431-4125 ext 228	(518) 431-4121	Zell, Jero
Geigle	Joseph	North Carolina Division Office	Traffic Operations and Safety Engineer	310 New Bern Avenue, Suite 410	Raleigh	NC	27601-1441	(919) 856-4354 ext	(919) 856-4353	Geigle, Jc

								123		
Tate	Max	North Carolina Division Office	Research & Technology Engineer	310 New Bern Avenue, Suite 410	Raleigh	NC	27601- 1441	(919) 856- 4354 ext 125	(919) 856- 4353	Tate, Josi M.
Busek	Steven	North Dakota Division Office	Safety/Traffic Operations/ITS Engineer	1471 Interstate Loop	Bismarck	ND	58503- 0567	(701) 250- 4343 ext 112	(701) 250- 4395	Busek, St
Buckson	Jim	Ohio Division Office	Mobility & Traffic Operations Engineer	200 North High Street, Suite 328	Columbus	OH	43215- 2408	(614) 280- 6846	(614) 280- 6876	Buckson, James
Velasco	Hilda	Ohio Division Office	ITS Engineer	200 North High Street, Suite 328	Columbus	OH	43215- 2408	(614) 280- 6879	(614) 280- 6876	Velasco, I
Jurey	Richard	Oklahoma Division Office	ITS Engineer	300 North Meridian, Suite 105 South	Oklahoma City	OK	73107- 6560	405- 605- 6040 ext 323	(405) 605- 6170	Jurey, Ric
Fijol	Robert	Oregon Division Office	ITS Engineer PDP	The Equitable Center, 530 Center Street, NE, Suite 100	Salem	OR	97301- 3740	(503) 587- 4711	(503) 399- 5838	Fijol, Rob
Price	Nathaniel	Oregon Division Office	ITS/Operations Engineer	The Equitable Center, 530 Center Street, NE, Suite 100	Salem	OR	97301- 3740	(503) 587- 4709	(503) 399- 5838	Price, Nathaniel
Hunt	Jim	Pennsylvania Division Office	Transportation Management Engineer	288 Walnut Street, 5th Floor	Harrisburg	PA	17101- 1720	(717) 221- 4422	(717) 221- 3709	Hunt, Jim
Mento	Tony	Pennsylvania Division Office	Area Engineer	288 Walnut Street, 5th Floor, Suite 536	Harrisburg	PA	17101- 1720	(717) 221- 3412	(717) 221- 3494	Mento, Tc

Fiscina	Carmine	Philadelphia Metropolitan Office	Technology and Safety Engineer	1760 Market Street, Suite 510	Philadelphia	PA	19103-4124	(215) 656-7111	(215) 656-7269	Fiscina, Carmine I
Rivera	Eddie	Puerto Rico/Virgin Islands Division Office	ITS Specialist	350 Carlos Chardon Street, Suite 210	San Juan	PR	00918-1755	(787) 766-5600 ext 232	(787) 766-5924	Rivera, E
Brazao	Gabriel	Rhode Island Division Office	ITS/Safety Engineer	380 Westminster Mall, Suite 547	Providence	RI	02903-3246	(401) 528-4551	(401) 528-4542	Brazao, Gabriel
Garling	Jim	South Carolina Division Office	Transportation Engineer	Strom Thurmond Federal Building, 1835 Assembly Street, Suite 1270	Columbia	SC	29201-2459	(803) 253-3883	(803) 253-3989	Garling, J
Hunt	Bruce	South Dakota Division Office	ITS Specialist	The Sibley Building, 116 East Dakota Avenue	Peirre	SD	57501-3110	(605) 224-7326 ext 3038	(605) 224-1766	Hunt, Bru
Fouch	Brian	Tennessee Division Office	Safety & Traffic Operations Engineer	640 Grassmere Park Road, Suite 112	Nashville	TN	37211-3678	(615) 781-5765	(615) 781-5773	Fouch, Br
Gedge	Donald	Tennessee Division Office	Information Technology Specialist	640 Grassmere Park Road, Suite 112	Nashville	TN	37211-3678	(615) 781-5769	(615) 781-5773	Gedge, D
Olson	Mark	Texas Division Office	Traffic Operations Engineer	Federal Office Building, 300 East Eighth Street, Suite 826	Austin	TX	78701-3276	(512) 536-5972	(512) 536-5990	Olson, Ma
Robertson	Russell	Utah Division Office	ITS Engineer	2520 West 4700 South,	Salt Lake City	UT	84118-1847	(801) 963-	(801) 963-	Robertson Russell



				Suite 9A				0078 ext 229	0093	
Matzke	Michael	Vermont Division Office	Safety and ITS Engineer	PO Box 568, 87 State Street, RM 216, Federal Building	Montpelier	VT	05601- 0568	(802) 828- 4423	(802) 828- 4424	Matzke, Michael
Jenkins	Daniel	Virginia Division Office	ITS Engineer	PO Box 10249	Richmond	VA	23240- 0249	(804) 775- 3347	(804) 775- 3356	Jenkins, Daniel
Jennings	Tom	Virginia Division Office	Transportation Management Engineer	PO Box 10249	Richmond	VA	23240- 0249	(804) 775- 3357	(804) 775- 3356	Jennings,
Brower	Mike	Washington Division Office	Transportation Mobility Engineer	711 South Capitol Way, Suite 501, Evergreen Plaza	Olympia	WA	98501- 1284	(360) 753- 9550	(360) 753- 9889	Brower, Michael
Satterfield	Cathy	West Virginia Division Office	Safety & Traffic Engineer	Geary Plaza, 700 Washington Street East, Suite 200	Charleston	WV	25301- 1620	(304) 347- 5473	(304) 347- 5103	Satterfield, Cathy
Berg	John	Wisconsin Division Office	ITS Engineer	567 D'Onofrio Drive	Madison	WI	53719- 2814	(608) 829- 7515	(608) 829- 7526	Berg, Joh.
Harker	Paul	Wyoming Division Office	ITS, Safety & Traffic Operations Engineer	2617 E. Lincolnway, Suite D	Cheyenne	WY	82001- 5662	(307) 772- 2004 ext 143	(307) 772- 2011	Harker, P

 FHWA

# Avian Flu Pandemic Implications/Resource Management

Panel Presentation to the NRC –  
State Liaison Officers Meeting  
August 2, 2006

## Pandemic Response

- Panel Members
  - Jacqueline Silber, DEDIA
  - Melvin Leach, Deputy Director for Incident Response
  - Dr. Claude Cadoux, MD, MPH
  - Gary Wright, Assistant Director, Illinois Emergency Management Agency

## **Pandemic Response**

### **■ Overview of Panel**

- Dr. Cadoux: The Medical Perspective
- Jacqueline Silber: The NRC Response
- Mel Leach: NRC response coordination
- Gary Wright: A State perspective

## **Avian Influenza: The Medical Perspective**

**Claude Cadoux MD MPH**

**An overview of  
Probability, Impact, Preparation**

## Flu terms

- Seasonal Flu: Human-to-Human(H2H), respiratory, community immunity exists, vaccine exists
- Avian Flu: occurs naturally in wild birds, can be spread to domestic birds, humans and other animals, no community immunity, no vaccine
- Pandemic Flu: may or may not be an Avian Flu, global H2H illness and death, no immunity, no vaccine

## Probability

- Unknown at this time
- H5N1 strain continues to show potential
- WHO Stage 3 of 6, unchanged



## Tracking a Suspect: H5N1 Milestones

- 1997: Hong Kong, 18 cases, 6 dead
- 1997-2003: Period of quiet, WHO Stage 3
- 2003: S.E. Asian poultry in 8 nations
- Dec. 2003 Vietnam: renewed human deaths
- Apr. 2006: Sumatra, proven H2H transfer
- Is this WHO Stage 4?

## Pandemic Impact

- Community outbreaks
  - 6-8 weeks duration, multiple seasons
- Peak absenteeism
  - May be 40%
  - Arising from illness, fear, care-giving needs
- Work absenteeism variables
  - severity, attack rates, age, occupation, public health measures (closing schools, snow days)



## Pandemic Impact

- Illness and death rates are not easily predicted-we can only estimate 2% or less
- Unlike SARS, the virus is passed for 2 days by the infected but well patient
- Children and adolescents and elderly may be most seriously affected

## Impact: CDC Scenarios

Characteristic	Moderate	Severe(1918-like)
<b>Illness</b>	<b>90 million (30%)</b>	<b>90 million (30%)</b>
<b>Outpatient medical care</b>	<b>45 million (50%)</b>	<b>45 million (50%)</b>
<b>Hospitalization</b>	<b>865,000</b>	<b>9,900,000</b>
<b>ICU care</b>	<b>128,750</b>	<b>1,485,000</b>
<b>Mechanical ventilation</b>	<b>64,875</b>	<b>745,500</b>
<b>Deaths</b>	<b>209,000</b>	<b>1,903,000</b>

## Pandemic Preparation: Key Assumptions

- Global spread will be rapid-perhaps a month
- People will be contagious before ill
- Simultaneous outbreaks across country
- Overwhelming demand on healthcare system
- Shortages in viral pharmaceuticals
- Compromise of industry and infrastructure
- Fall and Winter peaks
- Duration vs. mortality: a public health option

## Pandemic Preparation

*"If we prepare now,"  
Dr. Gerberding said,  
"we may be able to  
decrease the death rate  
and keep society  
functioning."*

By N.Y. Times, "States and Cities Lag in Bird Flu Readiness" D. Mcneil  
Jr. February 6, 2006. Accessed July 7, 2006

## Federal Plans for Pandemic

- National Strategy issued Nov 05
- FEMA drafting interim guidance for agencies
  - Moves beyond traditional Continuity of Operations (COOP)
- NRC Plan submitted to Commission

## NRC

- NRC Assessment
- Human Capital
  - Continue Operations
  - Essential Functions
  - NRC Stakeholders – State Government
- Staff recommendations under review by the Commission



## FEMA Guidance

- Major human capital element
  - Mandatory sick leave
  - Medical screening
  - Survivor assistance
- Maintain sustained operations
- Delegations/Succession
- Telework
- Records management

## Impact to the Workforce

- NRC Impacts
  - Security force, Responders, Inspectors, etc.
  - Human capital challenge
  - Knowledge management

## WHO Pandemic Alert Phase

Inter-pandemic phase	Low risk of human cases	
	Higher risk of human cases	
New virus in animals, no human cases		
Pandemic alert	No or very limited human-to-human transmission	3
New virus causes human cases	Evidence of increased human-to-human transmission	4
	Efficient and sustained human-to-human transmission	5
Pandemic		6

## Licensee Impacts

- Need to balance nuclear safety & security with infrastructure needs
- NRC licensee workshop in April on reactor impacts (NSIR lead)
- Possibility of increased NOED & Exemption requests during NRC staff shortages

## Potential Pandemic Impacts on Critical Infrastructure

- Disruption of the transportation system
- Loss of utility services
- Disruption of telecommunications networks

## NRC Response

- Supplement response staff
- Seek an efficient way to resolve industry issues
- Work with States to discuss pandemic concerns involving preparedness and response
- Increase communications during pandemic outbreaks

# A State Perspective

Gary N. Wright  
Assistant Director  
Illinois Emergency  
Management Agency

## Background

- 11 Reactors at six sites
- Nuclear provides more than 50% of power to Chicago and northern Illinois
- Public safety requires that plants continue to operate

## Major Issues for State

- Assist utility and NRC in keeping stations operating
- Maintain State and Local response nuclear emergency response capabilities

## Maintaining Station Operations

- Monitor station operations and staffing
- Ensure critical station staff receive adequate priority in receiving medications
- Assist critical plant staff in handling family related problems

## Maintaining Response Capabilities

- Allow critical state responders to work from home where possible
- Monitor local response capabilities and provide state assistance as necessary
- Ensure responders get appropriate priorities in receiving medications
- Sheltering would likely be favored over evacuation during an accident due to flu transmissibility at relocation centers



## LIQUID RADIOACTIVE RELEASE LESSONS LEARNED TASK FORCE

Tim Frye, Chief  
Health Physics Branch  
Office of Nuclear Reactor Regulation, USNRC  
August 2, 2006

### • Sources of tritium

- A radioactive form of hydrogen found in air and water
- Occurs naturally due to cosmic ray interaction with the atmosphere and falls to the earth as rain
- Produced by nuclear weapons testing
- By-product of nuclear reactor operation

- **Dose limits for radioactive material releases to the environment**

- NRC dose limit is 100 millirem per year to individual members of the public
- NRC design objective to meet "As-Low-As-Reasonably-Achievable" (ALARA) is 3 millirem per year for liquid releases
- Average radiation dose to the general public from natural and man-made sources is about 360 millirem per year
- Cross country airplane flight is about 3 millirem

3

- **EPA limit for tritium in drinking water**

- EPA limit due to man-made radionuclides is 4 millirem per year
- If all attributed to tritium, this equals drinking 2 liters per day for 1 year at 20,000 picocuries per liter

- **Licensee programs to ensure that they remain within these limits**

- **Radioactive Effluent Controls Program**
  - Allowed to discharge radioactive effluents within regulatory limits
  - Control, Monitor, Document, and Report
- **Radiological Environmental Monitoring Program**
  - Periodically sample various environmental pathways
  - Assess and report results

4



- Ground-water contamination events seen nation-wide
  - Indian Point
  - Hatch
  - Braidwood
  - Byron
  - Dresden
  - Callaway
- Negligible impact to public health for all events

5

- NRC actions to date
  - Revised inspection program for effluent releases
  - Issued Information Notice
  - Web page on tritium at the NRC Website:  
<http://www.nrc.gov>
  - Lessons Learned Task Force Chartered

6

- Lessons Learned Task Force

- All major NRC program and regional offices involved
- Includes rep from State of Illinois
- Report to be issued August 31, 2006
- Conclusions and recommendations still pre-decisional

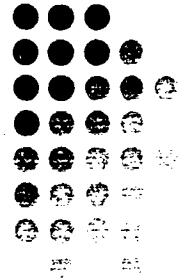
7

- LLTF areas of review

- Review historical record of spills/leaks since 1996
- Assess impact on public health and safety
- Assess regulatory framework
- Evaluate NRC inspection and enforcement history
- Review industry actions, including remediation
- Insights from decommissioning activities
- Consider reporting requirements (Both Federal and State)
- Consider international perspectives

8

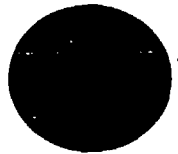
# TRITIUM RELEASE PANEL



**Roland Lickus**  
**State & Government Affairs**  
NRC, Region III

# Types of Ionizing Radiation

Radiation  
Source



## Alpha Particles

Stopped by a sheet of paper or dead layer of skin

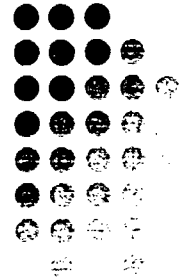
## Beta Particles

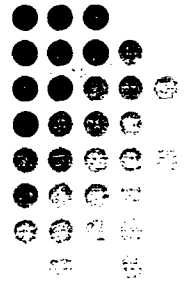
Stopped by a layer of clothing or less than an inch of a substance (e.g. plastic)

## Gamma Rays

Stopped by inches to feet of concrete or lead

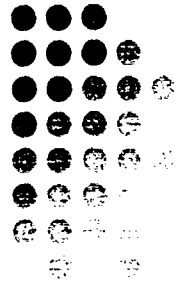
**Neutron Radiation** - Particle with no charge. Source is an operating reactor. Poses a whole body hazard.





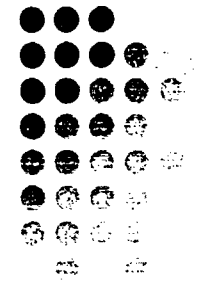
# What is tritium?

- Tritium (chemical symbol H-3) is a radioactive isotope of the element hydrogen (chemical symbol H).
- Emits a low energy beta
  - 0.005 MeV (ave) / 0.018 MeV (max)



# Where does tritium come from?

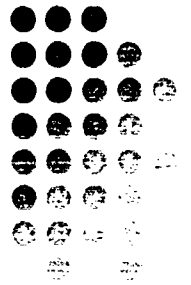
- Produced naturally in the upper atmosphere when cosmic rays strike air molecules.
- Produced during nuclear weapons explosions.
- Produced as a byproduct in commercial nuclear reactors.
- Produced in special production reactors (military purposes).



# What are the properties ?

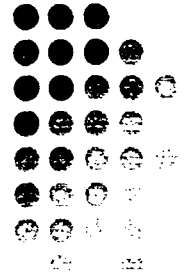
- Tritium is a hydrogen atom that has 2 neutrons in the nucleus, in addition to its single proton, giving it an atomic weight near 3.
- Tritium can be a gas, but its most common form is in water, because, like non-radioactive hydrogen, radioactive tritium reacts with oxygen to form water.
- Tritium replaces one of the stable hydrogens in the water molecule,  $H_2O$ , and is referred to as tritiated water.
- Like  $H_2O$ , tritiated water is colorless and odorless. Tritium has a half-life of 12.3 years and emits a very weak beta particle.

# Tritium at Nuclear Power Plants



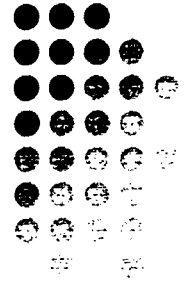
- Controlled Releases to the Environment:
  - Through controlled and monitored discharges; and only after the proposed discharge inventory has been sampled, analyzed and evaluated for environmental and regulatory impact.
- Uncontrolled Releases to the Environment
  - If leaks of on-site equipment (underground pipes / tanks, discharge lines, etc.) are not addressed in a timely manner, the tritium will potentially migrate to the water table (on-site and off-site)





# Limits for releasing tritium to the environment

- NRC limit is 100 millirem per year (all pathways)
  - Compliance to this requirement for tritium is for licensees to maintain the annual average concentration of tritium  $\leq 1,000,000$  pCi/L ( $1\text{E}-3$   $\mu\text{Ci}/\text{ml}$ )
- EPA limit is 25 millirem per year (all pathways)
- NRC design objective to meet “As-Low-As-Reasonably-Achievable” (ALARA) is 3 millirem per year (liquid effluent constraint)
- Average radiation dose to the public from all sources is about 360 millirem per year
- Cross country airplane flight is about 3 millirem

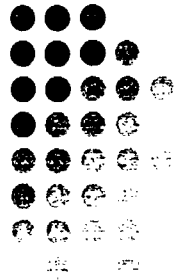


# Limits for tritium in Drinking Water

- EPA limit due to man-made radionuclides is 4 millirem per year
- If all exposure is attributed to tritium, this equates to 20,000 picocuries per liter.
  - Consumption Rate - Standard man drinking 2 liters of water/day
- How do utilities meet these limits?
  - Radioactive Effluent Controls Program
    - Control, Monitor, Document, and Report
  - Radiological Environmental Monitoring Program
    - Sample various environmental pathways

# **NRC Licensee Tritium Leaks**

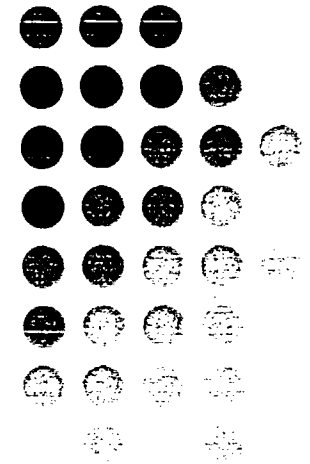
**Reported Over the Last Five (5) Years**

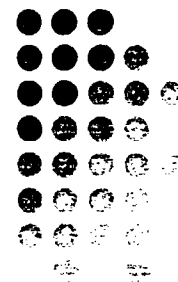


- Indian Point – Spent Fuel Pool (SFP)
- Salem Unit-1 – Spent Fuel Pool (SFP)
- Seabrook – Fuel Transfer Canal / Cask Handling Area
- Braidwood - Rad Waste Effluent / Circulating Water Line
- Byron – Rad Waste Effluent / Circulating Water Line
- Dresden – Condensate Storage Tank – Underground Piping
- Callaway – Pipe Break Caused by On-Site Construction Activities
- Palo Verde – Elevated Tritium in Wells by On-site Vaults – Water Source Not Yet Definitive
- Watts Bar – Trace Tritium Identified and the Source Not Yet Isolated (Most Probable Include: Refuel Water Tank / SFP)
- Perry – Underdrain System (Attributed to a Leaking Feedwater Flange)
- Haddam Neck – Spent Fuel Pool (SFP)

# Status of Braidwood Inspection

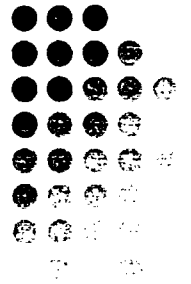
Findings and SDP Evaluation





# White Finding

- Failure to properly quantify, assess, and report the radiological impact of the unplanned releases from the circulating water blowdown line in a timely manner when the releases were initially identified



# Who's Been Interested

- Senators Durbin (IL) and Obama (IL)
- US Representatives Weller (IL), Biggert (IL) and Markey (MA)
- State of Illinois
- Will County
- Braidwood, Godley
- Union of Concerned Scientists, et al
- Public