Transportation Emergency Preparedness Program (TEPP) Update

The Council of State Governments (CSG)
Northeast High-Level Radioactive Waste Transportation Task Force
Annual Meeting – Austin, TX

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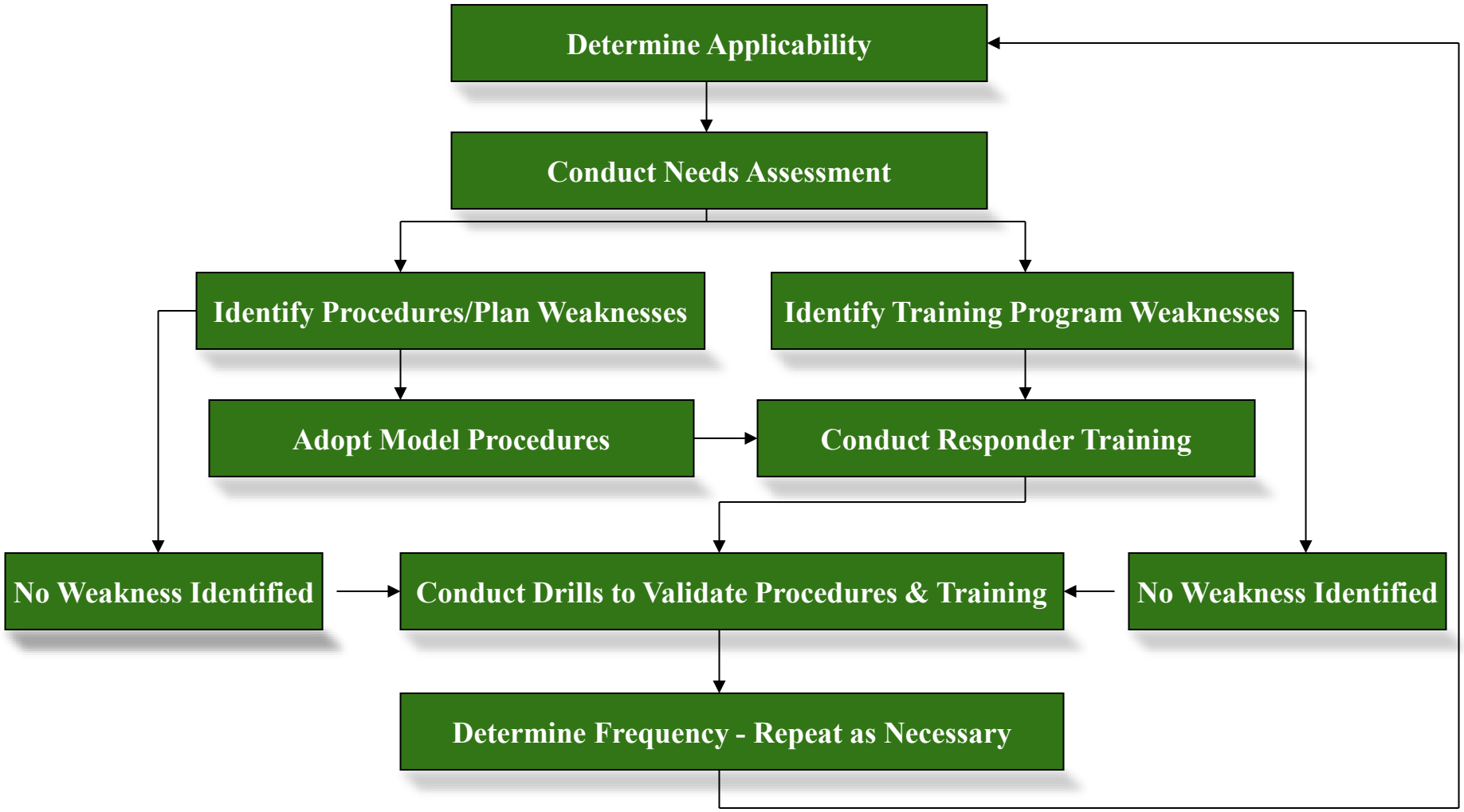
Transportation Emergency Preparedness Program (TEPP)

- TEPP is a component of an overall comprehensive emergency management system and required component of coordination in DOE Order 460.2B, "*Departmental Materials Transportation Management*"
- TEPP training is offered for the HBURC shipment; coordination between DOE-NE and DOE-EM
- TEPP's mission is to "ensure that federal, state, tribal, and local responders have access to the plans, training, and technical assistance necessary to safely, efficiently, and effectively respond to transportation accidents involving DOE-owned radioactive materials"
- TEPP includes multiple tools to help communities understand their current response capacity and develop additional emergency response capabilities
- Learn more at www.teppinfo.com

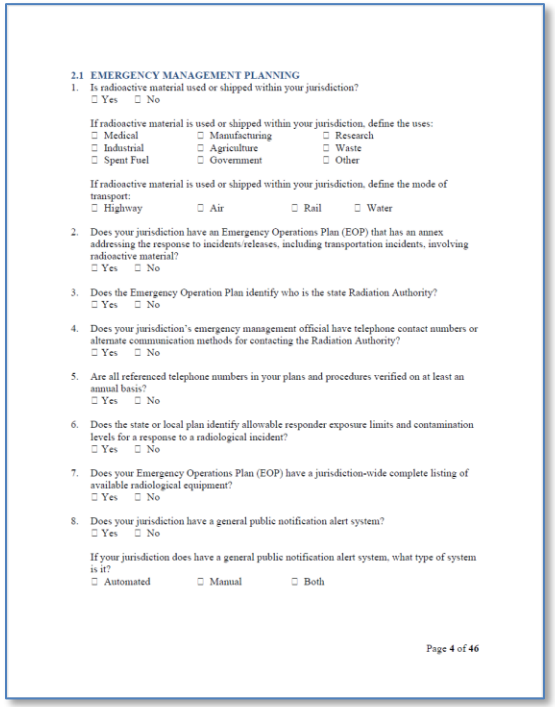
TEPP Implementation Process



TEPP Planning Tools

Model Needs Assessment

- Designed to assist in identifying needed improvement area in planning and training



2.1 EMERGENCY MANAGEMENT PLANNING

1. Is radioactive material used or shipped within your jurisdiction?
   ☐ Yes ☐ No

   If radioactive material is used or shipped within your jurisdiction, define the uses:
   ☐ Medical ☐ Manufacturing ☐ Research
   ☐ Industrial ☐ Agriculture ☐ Waste
   ☐ Spent Fuel ☐ Government ☐ Other

   If radioactive material is used or shipped within your jurisdiction, define the mode of transport:
   ☐ Highway ☐ Air ☐ Rail ☐ Water

2. Does your jurisdiction have an Emergency Operations Plan (EOP) that has an annex addressing the response to incidents/releases, including transportation incidents, involving radioactive material?
   ☐ Yes ☐ No

3. Does the Emergency Operation Plan identify who is the state Radiation Authority?
   ☐ Yes ☐ No

4. Does your jurisdiction's emergency management official have telephone contact numbers or alternate communication methods for contacting the Radiation Authority?
   ☐ Yes ☐ No

5. Are all referenced telephone numbers in your plans and procedures verified on at least an annual basis?
   ☐ Yes ☐ No

6. Does the state or local plan identify allowable responder exposure limits and contamination levels for a response to a radiological incident?
   ☐ Yes ☐ No

7. Does your Emergency Operations Plan (EOP) have a jurisdiction-wide complete listing of available radiological equipment?
   ☐ Yes ☐ No

8. Does your jurisdiction have a general public notification alert system?
   ☐ Yes ☐ No

   If your jurisdiction does have a general public notification alert system, what type of system is it?
   ☐ Automated ☐ Manual ☐ Both

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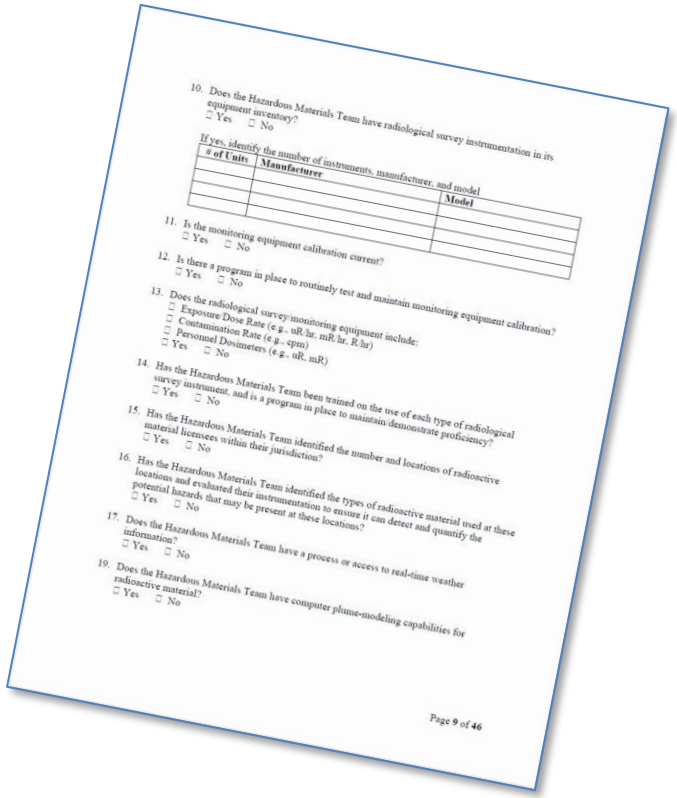

10. Does the Hazardous Materials Team have radiological survey instrumentation in its equipment inventory?
    ☐ Yes ☐ No

    If yes, identify the number of instruments, manufacturer, and model

# of Units	Manufacturer	Model

11. Is the monitoring equipment calibration current?
    ☐ Yes ☐ No

12. Is there a program in place to routinely test and maintain monitoring equipment calibration?
    ☐ Yes ☐ No

13. Does the radiological survey/monitoring equipment include:
    ☐ Exposure Dose Rate (e.g., uR/hr., mR/hr, R/hr)
    ☐ Contamination Rate (e.g., cpm)
    ☐ Personnel Dosimeters (e.g., uR, mR)
    ☐ Yes ☐ No

14. Has the Hazardous Materials Team been trained on the use of each type of radiological survey instrument, and is a program in place to maintain/demonstrate proficiency?
    ☐ Yes ☐ No

15. Has the Hazardous Materials Team identified the number and locations of radioactive material licensees within their jurisdiction?
    ☐ Yes ☐ No

16. Has the Hazardous Materials Team identified the types of radioactive material used at these locations and evaluated their instrumentation to ensure it can detect and quantify the potential hazards that may be present at these locations?
    ☐ Yes ☐ No

17. Does the Hazardous Materials Team have a process or access to real-time weather information?
    ☐ Yes ☐ No

19. Does the Hazardous Materials Team have computer plume-modeling capabilities for radioactive material?
    ☐ Yes ☐ No

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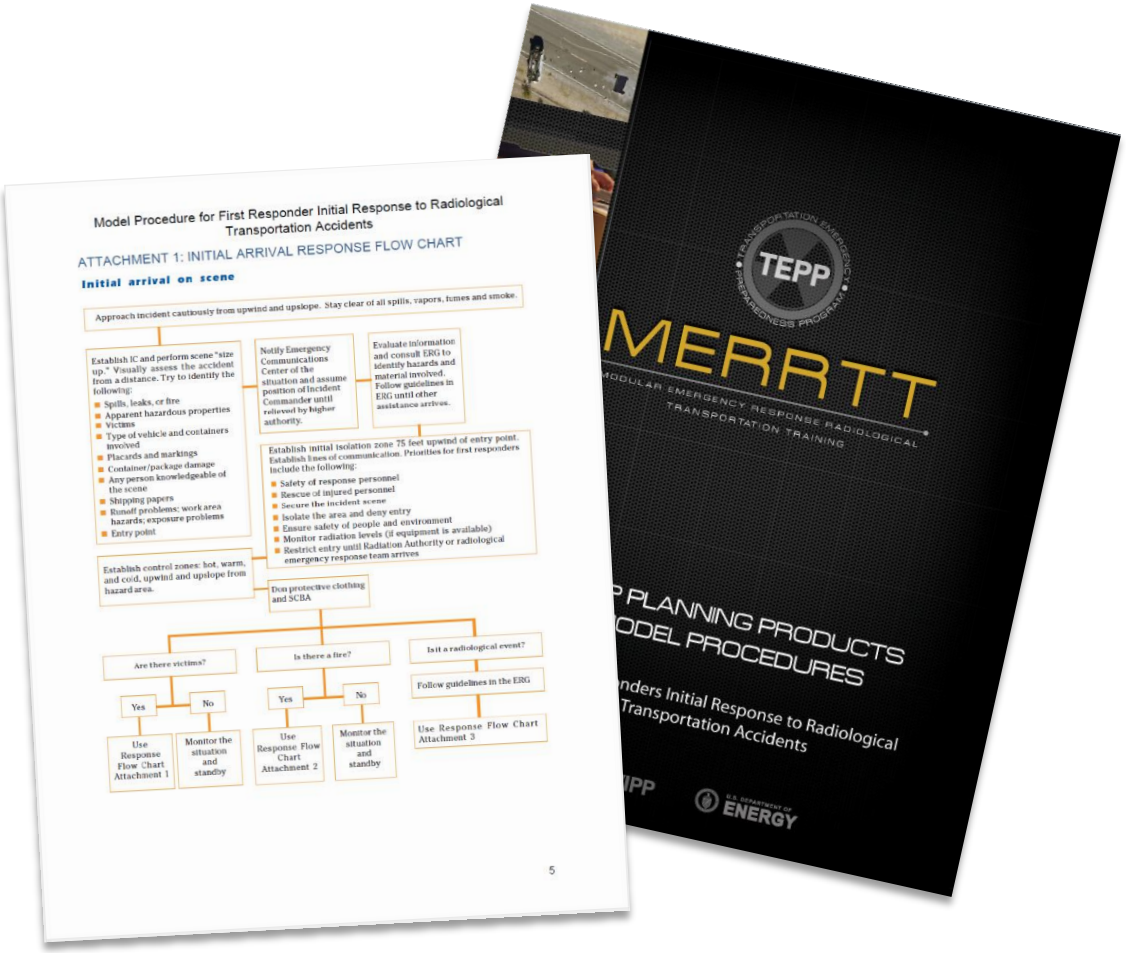
TEPP Planning Tools

Model Procedures

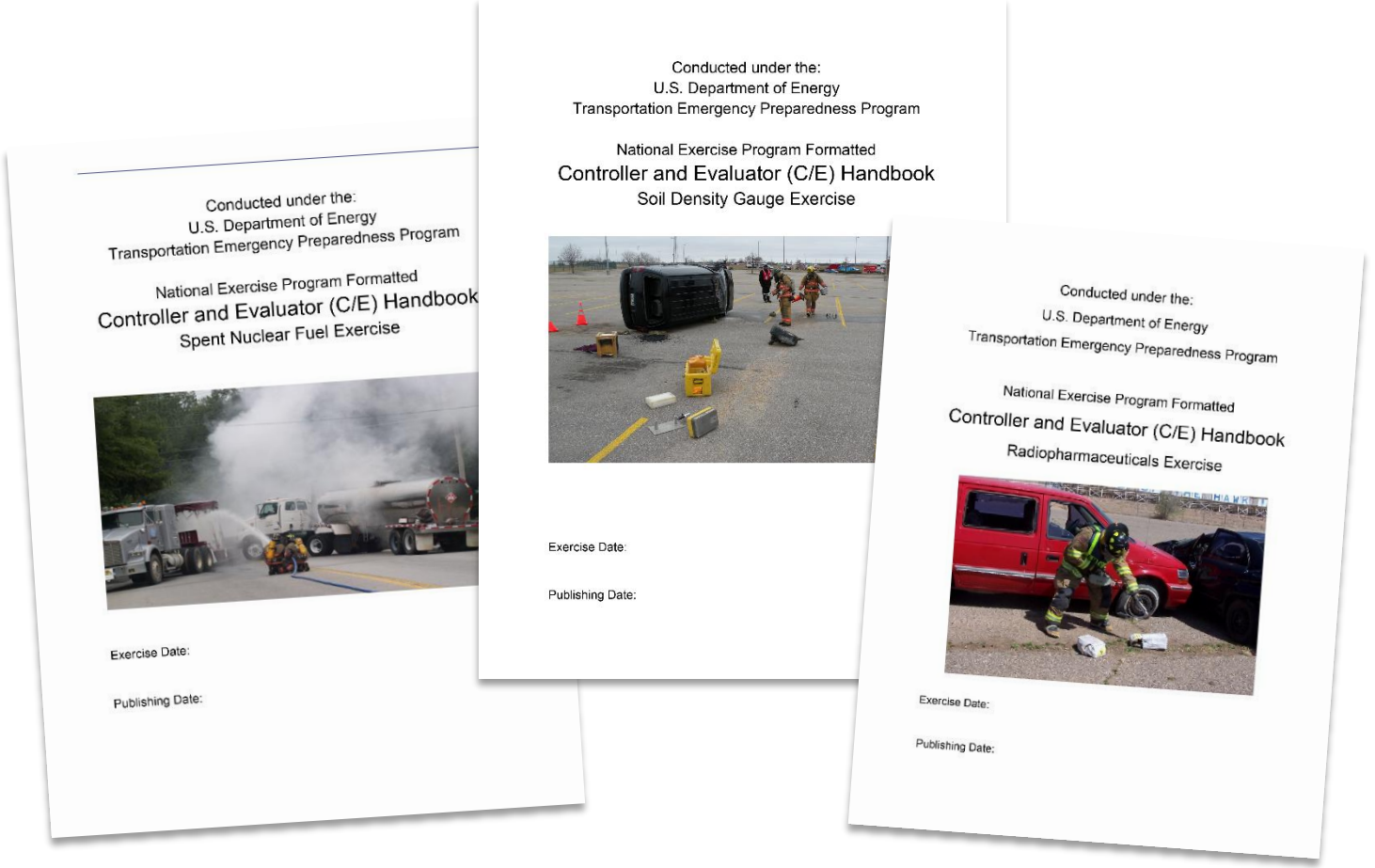
- First Responder Procedure
- Hazardous Materials Team Procedure
- EMS Responder Procedure for Handling a Radiologically Contaminated Patient
- Medical Examiner/Coroner Guide for Handling a Radiologically Contaminated Body/Human Remains
- Radioactive Material or Hazardous Materials Decontamination Procedure
- Law Enforcement Responder Decontamination Procedure
- Recovery Planning



TEPP Planning Tools

Exercise Scenarios

- Spent Nuclear Fuel
- Low Specific Activity Material
- Soil Density Gauge
- Radiopharmaceuticals
- Radiography Device



TEPP Planning Tools

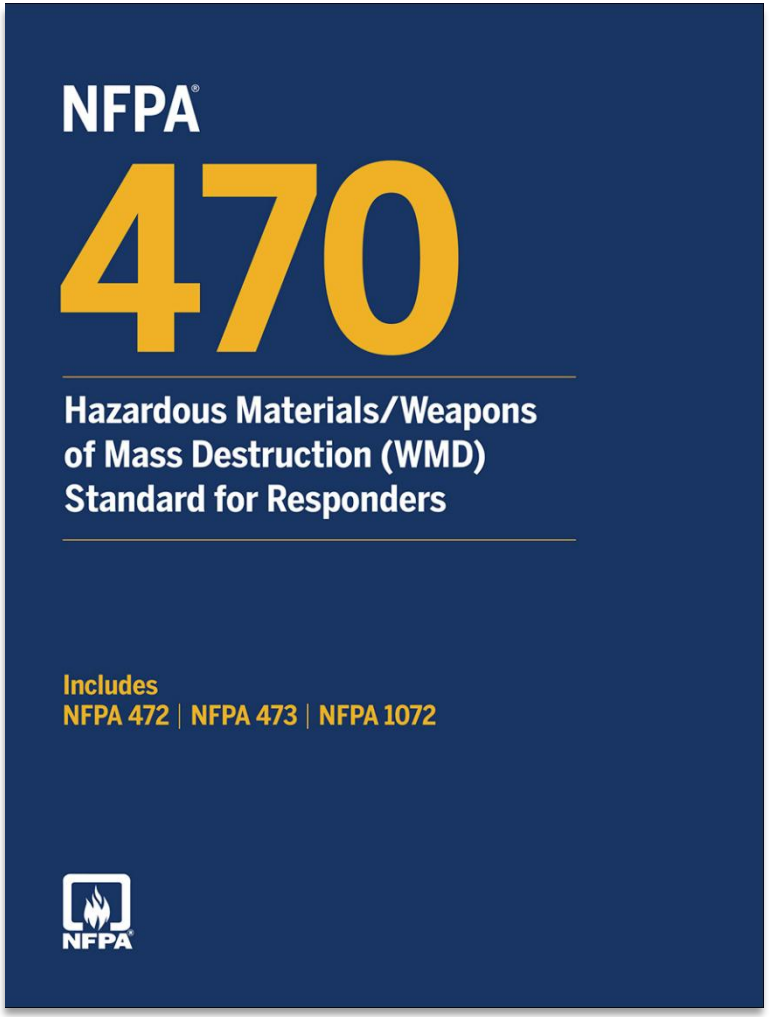
Realistic Exercise Scenarios

- Use of live fire, if possible
- Victim moulage with live actors
- High activity (live) radiation sources

TEPP Training

Training Programs

- All TEPP training programs are aligned with National Fire Protection Association (NFPA) Standards 470
- NFPA 470 defines competency requirements for personnel, ranging from initial awareness and operations to technician-level response, as well as specialized roles like Radiation Specialists

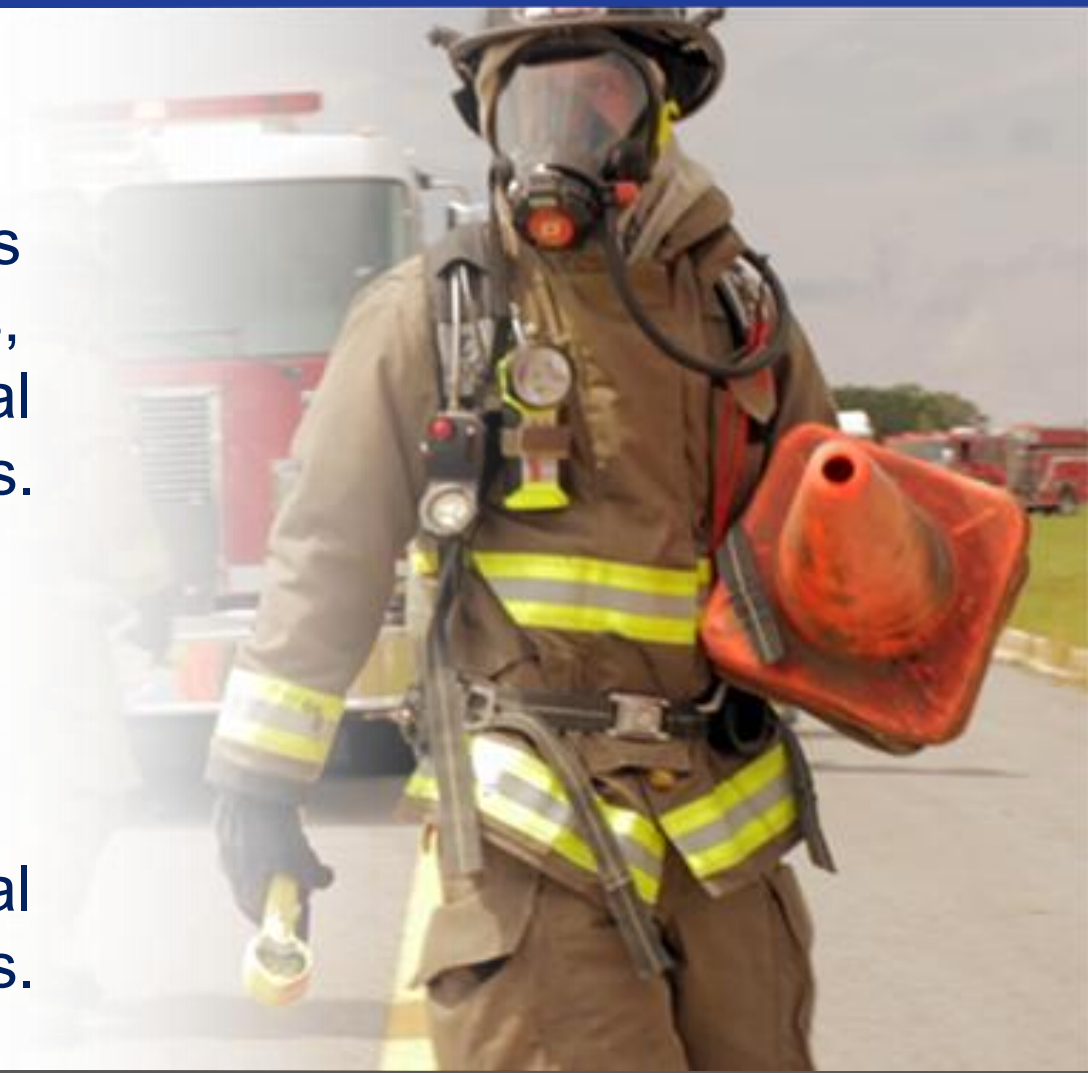


TEPP Training

- **CMERRTT**
  Designed as an 8-hour training program that addresses core responder competencies that consist of 7 modules, four textbook activities, and four hands-on activities. Most frequently used as an orientation or refresher training program. Awarded 5 continuing education hours.
- **MERRTT**
  Designed as a 16-hour training program that addresses awareness and operation level competencies and some technician level competencies. Program consists of 14 modules, five textbook activities, and six hands-on activities and an exam to prove competencies. Awarded 9 continuing education hours.

TEPP Training

- **TMERRTT**
  Designed as an 8-hour training program that addresses technician level competencies. This training program consist of pre-test, 4 modules, and involves the use of high activity radiological sources during three or four hands-on activities.
- **Radiation Specialist**
  Designed as a 40-hour training program that address specialist competencies. Training consist of 20 modules, five hands-on activities, and involves the use of high activity radiological sources during three or four hands-on activities.



TEPP Training

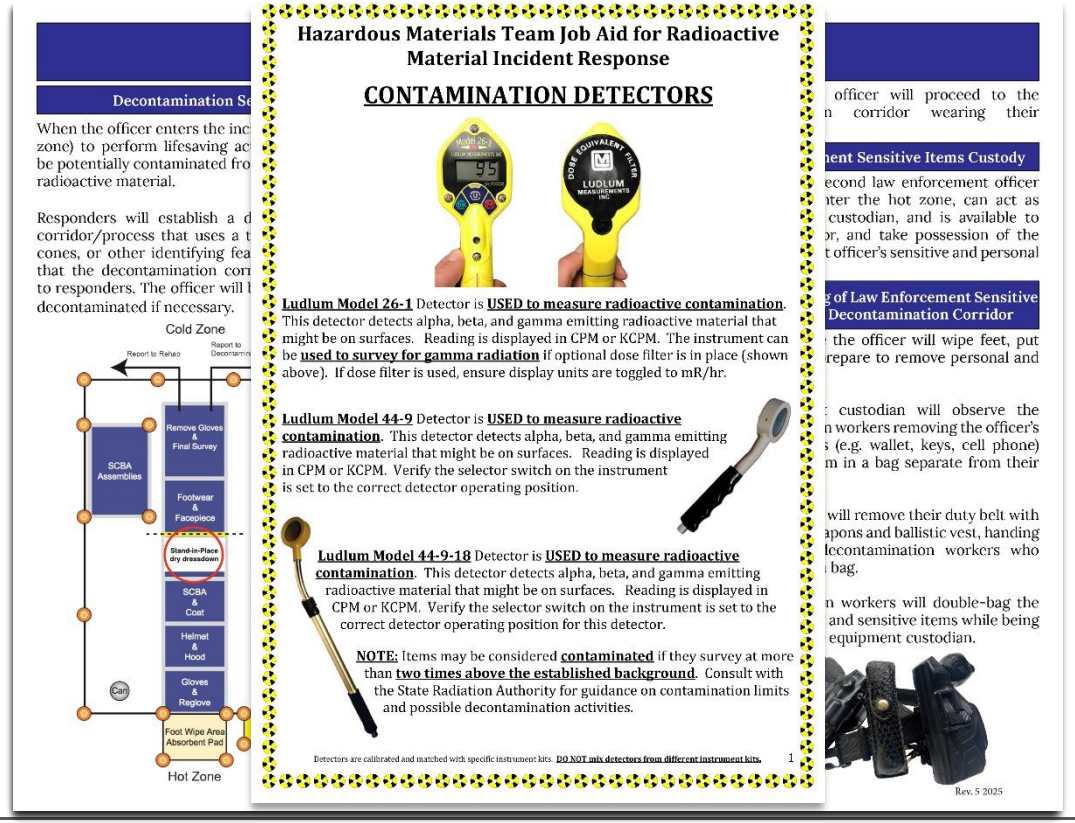
- **Coroner/Medical Examiner**
  An 8-hour training program on rad basics, bio effects, survey instruments, precautions for handling and decontaminating a decedent, incident scene considerations, and proper disposition of the remains.
- **Hospital Care Providers**
  An 8-hour training program on radiation, bio effects, facility preparation, survey instruments, patient decontamination, care and treatment. Training also includes a hands-on exercise for handling/treating patients who have been exposed or contaminated with radioactive material.

TEPP Training

- **Online MERRTT**
  Provides interactive refresher training on transportation accidents involving radioactive material. This training is roughly 2 hours long and participants will receive a certificate of completion at the end of the training.
- **Customized Training Sessions for Workshops or Conferences**
  Are designed to be delivered in one, two, or three-hour blocks to discuss:
  - Preparing for response to a transportation accident involving radioactive material
  - Radiological instrument operations
  - Understanding Radiological Threats in Your Community

TEPP Responder Resources

- **Job Aids**
  - [illegible] Decontamination



Hazardous Materials Team Job Aid for Radioactive Material Incident Response

CONTAMINATION DETECTORS

Ludlum Model 26-1 Detector is **USED to measure radioactive contamination**. This detector detects alpha, beta, and gamma emitting radioactive material that might be on surfaces. Reading is displayed in CPM or KCPM. The instrument can be **used to survey for gamma radiation** if optional dose filter is in place (shown above). If dose filter is used, ensure display units are toggled to mR/hr.

Ludlum Model 44-9 Detector is **USED to measure radioactive contamination**. This detector detects alpha, beta, and gamma emitting radioactive material that might be on surfaces. Reading is displayed in CPM or KCPM. Verify the selector switch on the instrument is set to the correct detector operating position.

Ludlum Model 44-9-18 Detector is **USED to measure radioactive contamination**. This detector detects alpha, beta, and gamma emitting radioactive material that might be on surfaces. Reading is displayed in CPM or KCPM. Verify the selector switch on the instrument is set to the correct detector operating position for this detector.

NOTE: Items may be considered **contaminated** if they survey at more than **two times above the established background**. Consult with the State Radiation Authority for guidance on contamination limits and possible decontamination activities.

Detectors are calibrated and matched with specific instrument kits. DO NOT mix detectors from different instrument kits. 1

Cold Zone

Remove Gloves & Final Survey

SCBA Assemblies

Footwear & Facepiece

Stand-in-Place dry dressdown

SCBA & Coat

Helmet & Hood

Gloves & Regloves

Can

Foot Wipe Area Absorbent Pad

Hot Zone

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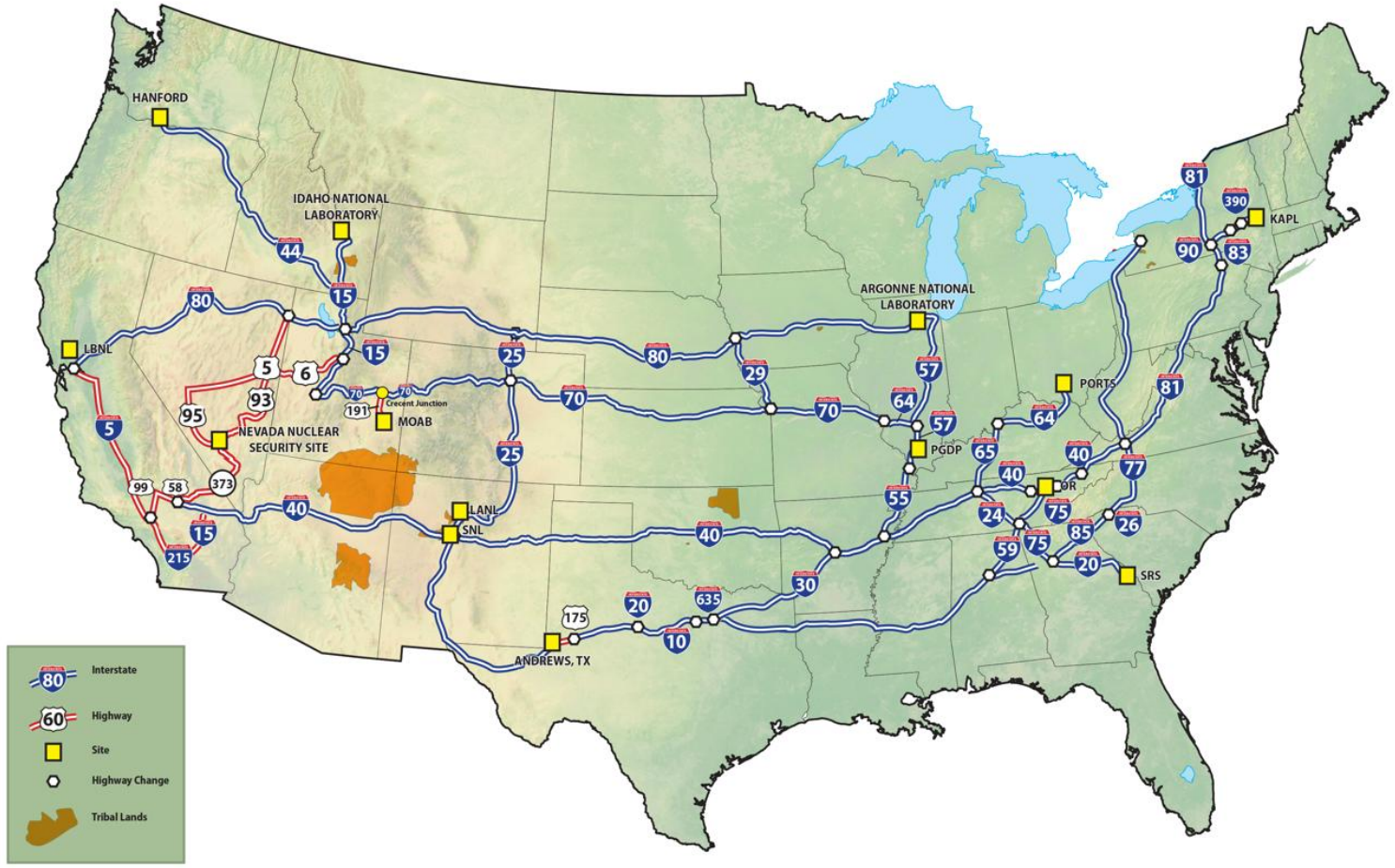
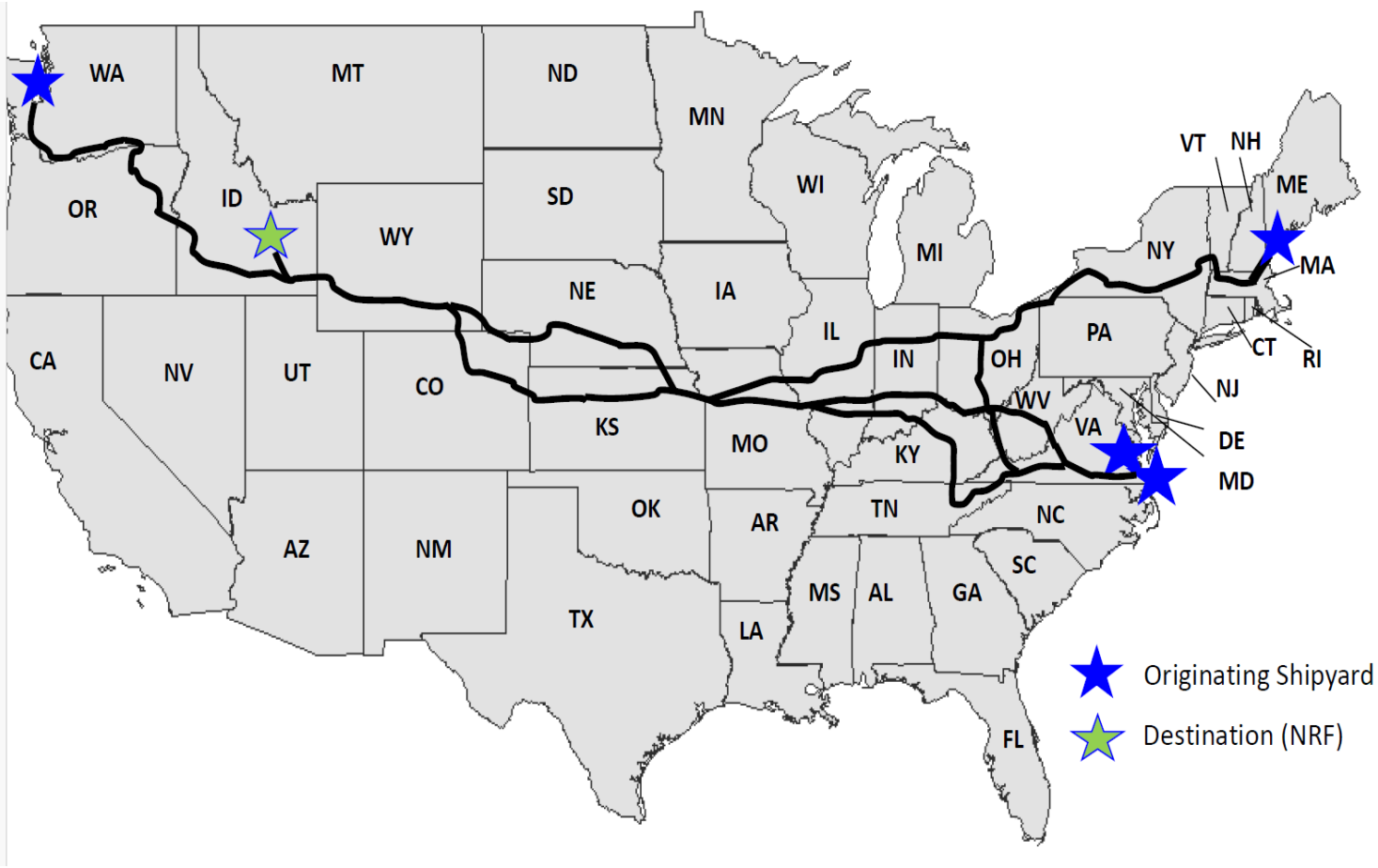
DOE Shipping Routes – EM



DOE Shipping Routes – WIPP

DOE Shipping Routes – NNSS

DOE Shipping Routes – Naval Spent Fuel



Discussion Topics

- HBURC Shipment Information
- TEPP Planning Tools
- TEPP Training Programs
- Responder Resources
- Internet Resources
- Route Coordination
- TEPP Implementation Process

HBURC Shipment Information

- The U.S. Department of Energy (DOE) partnered with the Electric Power Research Institute (EPRI) to lead a research project focused on “high burnup” spent or used nuclear fuel—referred to as (SNF) or (UNF)
- High burnup fuel refers to reactor fuel that remains in nuclear reactors longer in order to maximize energy output
- DOE will transport the High Burnup Research Cask (HBURC), which was loaded with high burnup UNF at North Anna Power Station (Virginia) and placed into dry storage in 2017
- The cask lid was modified with instrumentation that monitors internal temperatures at 63 different locations inside the cask

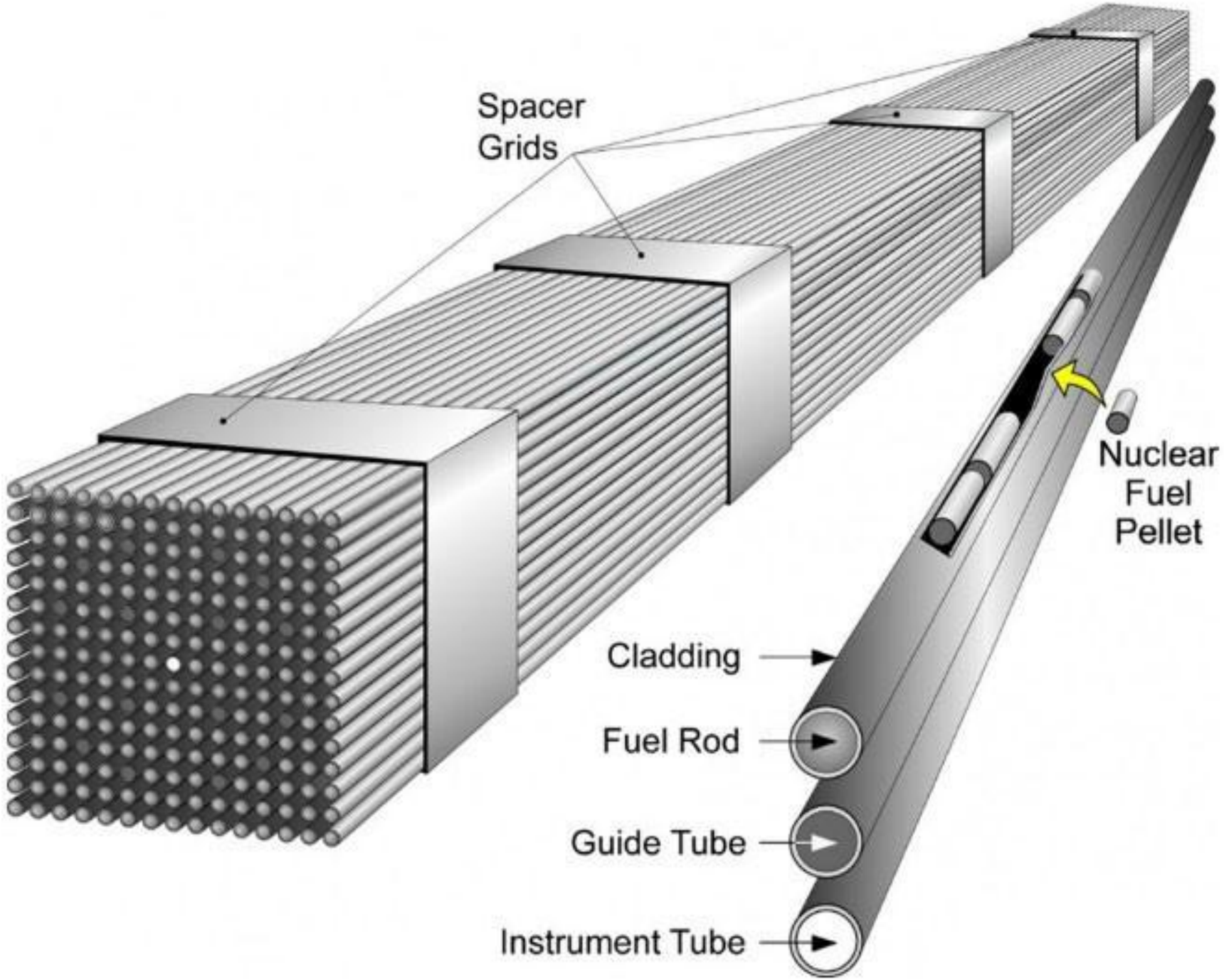
HBURC Shipment Information

- The HBURC will be moved from its current dry storage location and transported by rail to DOE's Idaho National Laboratory (INL)
- At INL, experts will open the cask and examine the UNF using specialized hot-cell and laboratory equipment
- Post-storage inspections will provide valuable data to support safe storage of UNF for the majority of currently operating U.S. nuclear power plants and for DOE's future federal facility(s)

HBURC dry storage location in VA

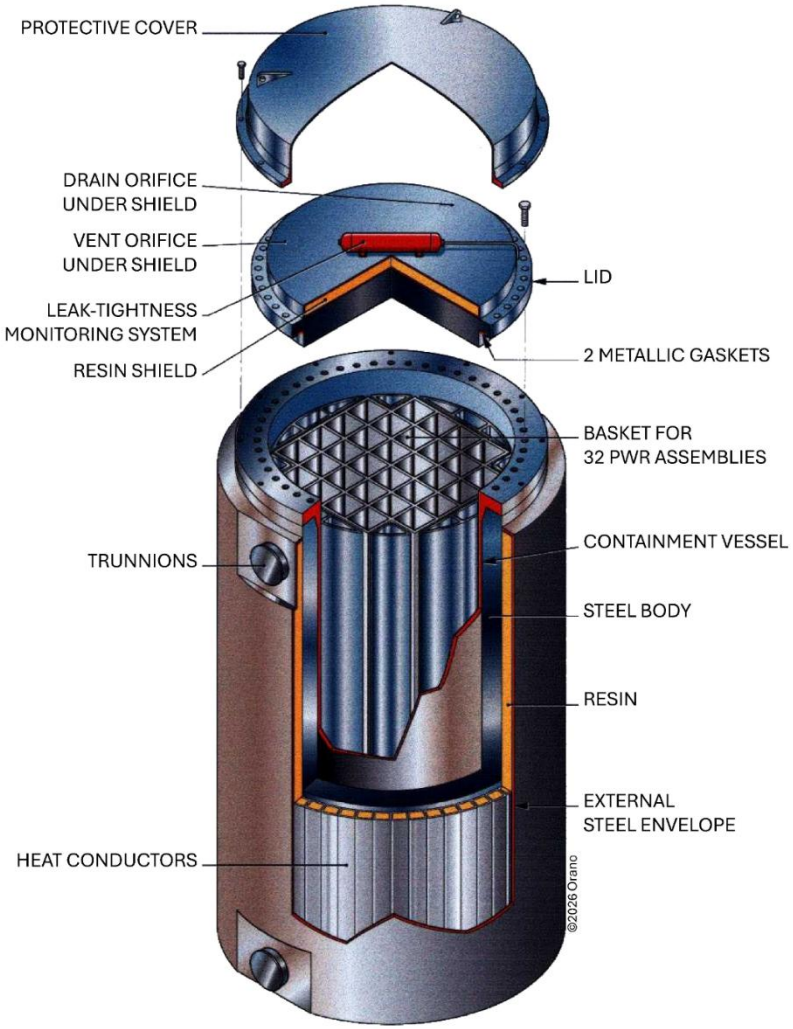
HBURC Used Nuclear Fuel (UNF) Characteristics

- The HBURC contains 32 pressurized water reactor high burnup UNF assemblies
- To maximize research data, the UNF assemblies in the cask have four different cladding types
- At the time of shipment, the UNF will have been in dry storage, collecting data for approximately 10 years

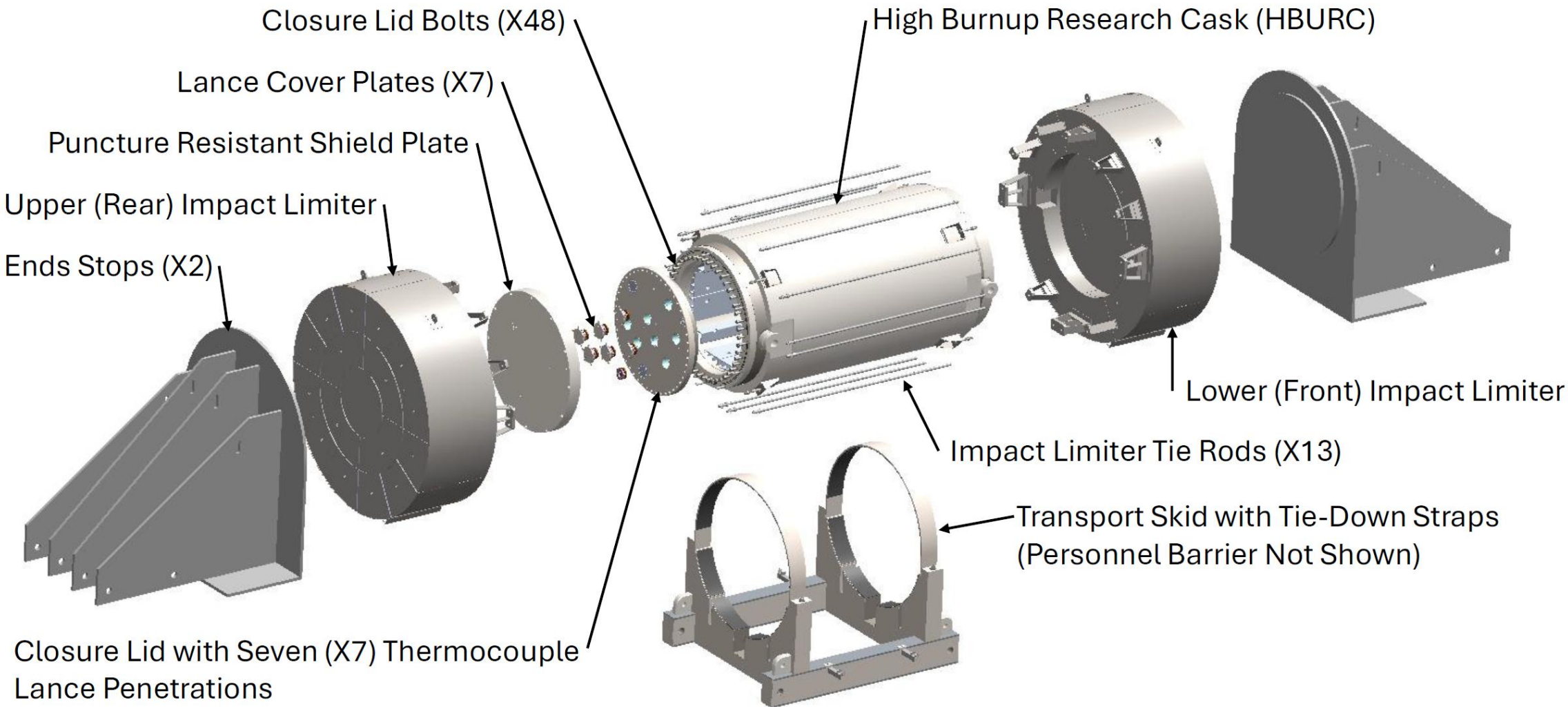

Spacer
Grids
Nuclear
Fuel
Pellet
Cladding
Fuel Rod
Guide Tube
Instrument Tube

HBURC: Cask Characteristics

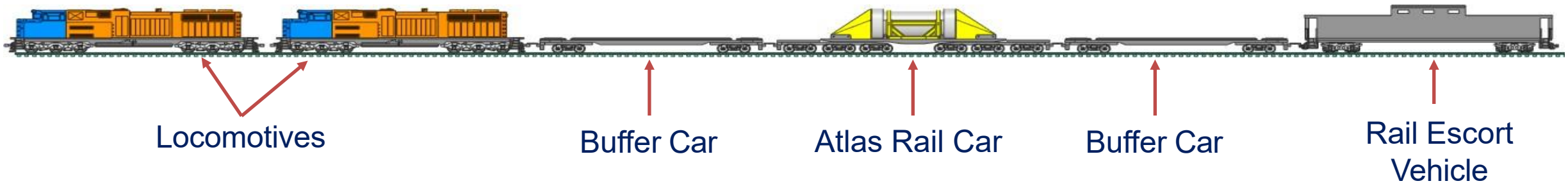
- The cask is a TN-32B model cask certified by the U.S. Nuclear Regulatory Commission (NRC) for storage and transportation of UNF/SNF
- The cask is made of steel and provides containment and shielding to protect the public
- TN-32B and hardware for shipment is 361,855 pounds (181 tons)



HBURC: Cask Characteristics



HBURC: What Will the Train Look Like?



Rail Escort Vehicle (REV)

- The REV provides enhanced security, communication, and surveillance capabilities
- Carries armed guards onboard
  - The guards' primary duty is to protect the cask (security)
  - In the event of an incident, they communicate with the train crew, the movement control center, and local responders to share information

Upcoming Midwest Training

- MERRTT – Schnecksville, PA, October 21 – 22
- TMERRTT – Schnecksville, PA, October 23
- CMERRTT – Beaver Falls, PA, November 12/18

Internet Resources

- **www.teppinfo.com**
  - National Training and Events Calendar
  - Planning Tool Information
    - Model Procedures
    - Exercise Scenarios
  - Training Program Information
  - Points of Contact
  - Additional Resources
    - Videos
    - Job aids

Questions