## FEDERAL RAILROAD ADMINISTRATION Southern States Energy Board Louisville, KY







A presentation by;

Jeffrey Moore, Federal Railroad Administration Hazardous Materials Specialist,

Patrick Brady, BNSF Railway General Director Hazardous Materials Safety

Kenneth (Andy) Elkins of the Association of American Railroads (AAR) Director Hazardous Materials





FRA – Office of Railroad Safety 2/2/2024

Federal Railroad Administration

# The Federal Railroad Administration



- The Federal Railroad Administration (FRA) is an agency in the <u>United</u> States Department of Transportation (DOT) that was created by the Department of Transportation Act of 1966.
- The purpose of the FRA is to promulgate and enforce <u>rail</u> safety <u>regulations</u>, administer railroad assistance programs, conduct research and development in support of improved railroad safety and national rail transportation policy.
- We regulate rail operations that are connected to the general railway system for both passenger and freight lines.





## FEDERAL RAILROAD ADMINISTRATIC FRA's Hazardous Materials Regulatory Authority



- FRA is a modal agency of the US Department of Transportation that enforces rail safety regulations, including hazardous materials regulations promulgated by DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA).
- FRA administers rail safety regulations to establish minimum standards for the safety and reliability of rail transportation vehicles, track structures, certification of train crews, etc.
- FRA's hazardous materials duties include compliance oversight of rail movements of Class 7 (Radioactive Materials (RAM)) material. This includes multimodal shipments when at least 1 leg of transportation is by rail.





3

#### FEDERAL RAILROAD ADMINISTRATION



# **General Topics to Discuss**

- FRA General Operation Overview
- SCCOP
- Review of the Power Point of the Comparison of Truck to Rail Radioactive Materials Shipments
- Introducing the AAR OT-55





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# FRA's Six Main Operating Disciplines



## The Development of this SCCOP-Document and the Reason for the Updates

The Federal Railroad Administration (FRA) first created the Safety Compliance Oversight Plan, or SCOP, for Rail Shipments of High-Level Radioactive Waste and Spent-Nuclear Fuel (SCOP) in 1998 for FRA field personnel to use as a reference for inspections.

In June 2023, the FRA put out an update to the original SCOP to reflect its true current purpose and renamed the document the "Safety <u>Coordination</u> and Compliance Oversight Plan for Rail Transportation of High-Level Radioactive Waste and Spent Nuclear Fuel" (SCCOP).

#### FRA SCCOP Link;

https://railroads.dot.gov/elibrary/safety-coordination-and-compliance-oversight-plan-railtransportation-high-level



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# The Previous SCOP vs the New SCCOP

### **Old SCOP Inspection** Processes 1998

- Specified locations for each inspection, by discipline, that required a commitment of staff and resources from each FRA discipline.
- Indicated reviews of employee training in each operating craft of railroading, specifically including bridge inspection programs, dispatch centers, and field inspection points.
- No specific HM regulations or guidance by DOT on carrier routes.

RAII

Moving America Forward

## **New SCCOP Processes** in 2023

- FRA's Radioactive Materials Specialist(s) will review the previous inspection data across all disciplines and any new inspections addressing rail infrastructure that focus on the primary and alternative routes selected for the movements.
- FRA field inspection personnel will inspect the alternative routes and safety compliance functions.
- Most of the SCCOP inspections are not "route dependent" and will accomplish the same degree of safety assurance regardless of the route used.



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# **SCCOP** Updates...

- The changes in the 2023 document were necessary to account for regulatory changes from the time of the original SCOP to the new SCCOP. Most of the old directives in the 1998 version were absorbed in newer regulations.
- The new SCCOP documents a universally applied standard to both national security shipments transported in accordance with Title 49 Code of Federal Regulations (CFR) Section 173.7(b) and private (or non-government) shipments of these materials.
- This webinar will describe the process that FRA went through to update the SCOP to the SCCOP, as well as exploring the new document itself.
- https://www.ntsf.info/webinars#h.v591hem8who4





# **Comparing the Shipments of SNF between Truck and Rail Transportation**

- Tad Rumas, representing the state of Ohio, and I recently combined efforts to try and create a presentation to show the differences between a road and rail shipment of Spent Nuclear Fuel.
- The presentation spells out similarities and some key differences between highway and rail shipments.
- Link to the PP is listed;
- <u>https://csgmidwest.org/wp-content/uploads/2023/11/Intro-to-HW-and-Rail-Rad-Inspections-Tad-Rumas.pdf</u>







# Federal Regulations vs. Industry Standards



Federal Regulations are the minimum safety standards for commercial transportation.

In the rail industry, the Association of American Railroads created the OT-55 Circular, *Recommended Railroad Operating Practices for Transportation of Hazardous Materials*. (We are now on a new version OT55-R (in Draft)

Link to the OT-55 document is;

https://www.aar.org/wp-content/uploads/2023/09/2023-10-01-OT-55-R-Draft.pdf

This document is an industry standard adopted by all the railroads that operate in the United States.





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## **AAR OT-55**



#### "Key Trains" is any train with:

- One tank car load of Poison or Toxic Inhalation Hazard1 (PIH or TIH) (Hazard Zone A,
- B, C, or D), anhydrous ammonia (UN1005), or ammonia solutions (UN3318), or;
- 20 car loads or intermodal portable tank loads of any combination of hazardous material, or;
- One or more car loads of Spent Nuclear Fuel (SNF), High Level Radioactive Waste (HLRW)

#### **Restrictions:**

- 1. Maximum speed -- "Key Train" 50 MPH
- 2. Unless siding or auxiliary track meets FRA Class 2 standards, a Key Train will hold main track at meeting or passing points, when practicable.
- 3. Only cars equipped with roller bearings will be allowed in a Key Train.
- 4. If a defect in a "Key Train" bearing is reported by a wayside detector, but a visual inspection fails to confirm evidence of a defect, the train will not exceed 30 MPH until it has passed over the next wayside detector or delivered to a terminal for a mechanical inspection. If the same car again sets off the next detector or is found to be defective, it must be set out from the train





#### Rail Security-Sensitive Materials (RSSM) – includes Explosives (1.1, 1.2 and 1.3), Poison Inhalation Hazards (PIH) and Radioactive (highway route quantities)

- **1. Shipper Pre-Trip Inspection**
- 2. "Attendance" in High Threat Urban Areas (HTUA)
  - Is physically located on-site in proximity the rail car
  - Capable of promptly responding to unauthorized access at or near the rail car
  - Immediately respond to any unauthorized access or activity near the rail car
- 3. Chain of Custody (hard copy or electronic) accepting, interchange and delivery
  - Car initial and Number
  - Company and Name/Employee Number of individual attending the transfer
  - Location
  - Date





Annual Risk Route Analysis is required for

- More than 2,268 kg (5,000 lbs.) in a single carload of a Division 1.1, 1.2 or 1.3 explosive;
- A quantity of a material poisonous by inhalation in a single bulk packaging;
- A highway route-controlled quantity of a Class 7 (radioactive) material, as defined in §173.403 of this subchapter;
- A high-hazard flammable train (HHFT) as defined in §171.8 of this subchapter; or Methane, refrigerated liquid when transported in a rail tank car.



## **Risk Route Analysis**



 Carrier must analyze the safety and security risks for the transportation routes and alternative routes using 27 factors

| <ol> <li>Volume of hazardous material transported;</li> <li>Rail traffic</li> <li>Trip length for route;</li> <li>Presence and characteristics of railroad facilities;</li> <li>Track type, class, and maintenance schedule;</li> <li>Track grade and curvature;</li> <li>Presence or absence of signals and train control systems along the route ("dark" versus signaled territory);</li> <li>Presence or absence of wayside hazard detectors;</li> <li>Number and types of grade crossings;</li> <li>Single versus double track territory;</li> <li>Frequency and location of track turnouts;</li> <li>Proximity to iconic targets;</li> <li>Environmentally sensitive or significant areas;</li> <li>Venues along the route (stations, events, places of congregation);</li> </ol> | <ul> <li>16. Emergency response capability along the route;</li> <li>17. Areas of high consequence along the route, including high consequence targets as defined in §172.820(c);</li> <li>18. Presence of passenger traffic along route (shared track);</li> <li>19. Speed of train operations;</li> <li>20. Proximity to en-route storage or repair facilities;</li> <li>21. Known threats, including any non-public threat scenarios provided by the Department of Homeland Security or the Department of Transportation for carrier use in the development of the route assessment;</li> <li>22. Measures in place to address apparent safety and security risks;</li> <li>23. Availability of practicable alternative routes;</li> <li>24. Past incidents;</li> <li>25. Overall times in transit; el of crews; and</li> <li>27. Impact on rail network traffic and congestion.</li> </ul> |
|--|--|
|--|--|

Analysis is audited by the FRA and has been shared with the DOE for SNF



## **Risk Route Analysis**



 All Class 1 Carriers use Rail Corridor Risk Management System (RCRMS)



| RCRMS Risk Mode  | ling                      |
|--|---------------------------|
| <ul> <li>Three-parameter models for safety and<br/>security</li> </ul> |                           |
| Safety   | Security                  |
| $R = F \times P \times C$  | $R = T \times V \times C$ |
| where:   | where:                    |
| R = Risk value   | R = Risk value            |
| F = Frequency  | T = Threat                |
| P - Drobability  | V = Vulnerability         |
| r = Probability  |                           |







## S-2043 - SNF/HLRW Cask Car



- On board defect detection detectors that are monitored by the escorts.
- Escorts are in communication with train crews
- Detects car related performance issues which could cause a derailment







## **Incident/Derailment Notification**







#### **Emergency Response and Command Struc** ASSOCIATION OF AMERICAN RAILROADS



*Likely to fail in multi-jurisdiction/multi*agency incidents

#### **Unified Command**

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Preferred in multi-jurisdiction/multiagency incidents



## **Positive Train Control (PTC)**



- Positive Train Control to prevent <u>train-to-train collisions</u>, <u>overspeed</u> <u>derailments</u>, <u>incursions into work zones</u> and <u>improper movement through</u> <u>switches</u>
- DOT requires main lines that transport poison- or toxic-by-inhalation hazardous materials and any main lines with regularly scheduled intercity or commuter rail passenger service.







# ANY QUESTIONS of us?







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