Midwestern Radioactive Materials Transportation Committee (MRMTC)-2022
Rapid City, South Dakota

Non-Compliant Railcar Transportation for Low-Level Radioactive Waste Class 7
A joint multi-Federal and State Government investigation of Defective Rail Cars carrying Class 7 Low Level Radioactive Waste found in Transportation
Background on LLRW Generator Site
Site Decommissioning

- Former site of a carnotite ore extraction facility
- Extracted elemental radium (Ra-226) in the early 20th century
- City of Chicago acquired the property in support of landing the 2016 summer Olympics. The property was intended to the site of the Olympic Village
- Phase I and II ESA identified radiological contamination
- City of Chicago became a radioactive materials licensee of the state of Illinois in 2015
Site Decommissioning

• Based off site characterization data constituents of concern are total U, Th-230, and Ra-226

• Soil remediation criteria set as:
  • Total U (U-238 as segregate) 20 pCi/g plus background
  • Th-230 5 pCi/g plus background
  • Ra-226 5 pCi/g plus background

• Approximately 17,000 cubic yards of waste
Site Decommissioning
Site Decommissioning
Background on Covered Hopper Investigation

• FRA through its state partners were made aware of a shipping campaign of a former hospital site in Chicago, IL. The shipments were intended to be shipping by rail to Waste Control Specialist (WCS) approximately 6 months ago.

• FRA conducted a follow up inquiry and determined that the truck to rail shipping of Low-level Radioactive Waste had been operational for approximately one month. At that time, FRA was informed of 2 rail cars that were bad-ordered in Salem, IL.
Background on Covered Hopper Investigation

• FRA made several inquiries to the Class 1 rail carrier, the Union Pacific (UP) inquiring for details of the damages to the cars.

• It was at that point that FRA was informed that the cars were observed to be structurally damaged due to modifications.
  – UP received an initial report from a conductor of a local freight train who observed the cars physical deformities and set the cars out of his train.

• The enclosed pictures were provided by FRA mechanical and Illinois State FRA Certified Inspectors.
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Car photos in Transportation

Aug 29, 2022 at 10:29:45 AM
785–869 Edgewood Rd
Salem IL 62881
United States
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Car Photos in Transportation

Aug 29, 2022 at 10:27:52 AM
Salem IL 62881
United States

Aug 29, 2022 at 10:38:47 AM
795-869 Edgewood Rd
Salem IL 62881
United States
Additional Investigation details-ongoing of Car Type

- FRA’s ongoing investigation has determined that a transportation contractor had obtained 25, “Aluminum Bethgon II Aluminum open top cars for this project.” These cars are primarily used for coal and designed for loose product loading and unloading. The unloading process for this car based on its design and is intended to be used in a rotary dump operation.

  The car is designed with 5 lateral braces attached from side to side for structural support.
Interior of Modified car to show causes of Defective conditions that led to Deformities in Transportation

See the following locations where the transportation contractor had cut three of the five structural supports to accommodate the loading of the bags in the cars.

At this time, FRA has not determined how many of these cars were modified, but we have determined that no approval from the car owner was obtained, and no AAR approval was obtained to alter, or modify the cars.
Shipper/ Transportation Contractor involvement

• The actual shipper is officially the City of Chicago’s prime contractor, but as we all know, several contractors are involved with the project, including a transportation contractor.

• This contractor arranges the actual loading of the super sack bags at the cite in downtown Chicago from site to truck, then the trucking movement to the rail transload site. At that point, a sub-contractor conducts the transload from truck to rail, and the final disposition to Waste Control Specialist in Andrews, TX for disposal.

**It was at the transload site where the decision was made to cut the center support bars out of the rail cars to accommodate the loading.**
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Unfortunate Circumstances of car Modifications

• Two Type IP-1 Lift Pac bags were torn, one containing HM and one Non-hazmat.

• The bags were identified by one of the FRA HM inspectors assigned who was tracking down the car series. The car was found in another rail yard less than 20 miles from the transload site.

• During this loading processes in an unlined rail car/modified car. This triggered the **NRC Report # 1346116**
DESCRIPTION OF INCIDENT

///POTENTIAL RELEASE REPORT///
CALLER REPORTS A POTENTIAL RELEASE OF RADIOACTIVE MATERIAL FROM A RAIL CAR'S CARGO. A SOLITARY GONDOLA RAIL CAR WAS LOADED WITH 10 BAGS (UNKNOWN CAPACITY OF EACH BAG) OF CLASS 7 RADIOACTIVE MATERIAL DESCRIBED AS UN2912 - LSA1 - LOW SPECIFIC ACTIVITY. ONE BAG WAS RIPPED DURING LOADING, POTENTIALLY RELEASING THE MATERIAL. A RELEASE HAS NOT BEEN CONFIRMED AT THIS POINT. CALLER STATES THAT DOT REGULATIONS WERE POTENTIALLY VIOLATED IN THE MANNER IN WHICH THE BAGS WERE STACKED / STORED.
VMCX 961690- This is a car with no liner. The dangers of using any railcar without a liner, overlapping metals, aluminum in this car causes jagged edges and can create this potential... The IP-1 was removed form the car and placed in another IP-1 overpack under the supervision of the IL depart of Radiation Safety.
Rail Car Modification Update

• The transportation contractor had leased 25 cars and unfortunately through information obtained by the car owner all 25 were modified and had the center 3 braces removed. We have now determined that 3 additional cars were also modified from a separate car owner.

• According to the most current information, all the cars are stopped in transportation at various locations between Chicago, Arkansas, and Texas with plans to transload bags out the cars to conduct the necessary repairs.
On Going Investigation - Items Still Pending

• We are still investing all circumstances with both the consignee and consignor.
• We are also discussing the balance of the responsibilities of the offeror, sub-contractors involved with the loading, shipping paper prep, etc..
• The licensee is listed as the City of Chicago.
Thank you

Any Questions?

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