

YANKEE ATOMIC ELECTRIC COMPANY

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Suite 200, 19 Midstate Drive, Auburn, Massachusetts 01501

March 12, 2004

Mr. John Hickman
USNRC
1 White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

Dear John,

Yankee Atomic Electric Company has resumed waste shipments from the Rowe site after a thorough investigation of the accident and its causes on Ford Hill Road Tuesday, March 2, 2004. The Ford Hill Road accident scene has been cleaned, surveyed and restored to its original state.

Yankee and its contractors have learned a number of valuable lessons and have implemented the corrective actions necessary to resume a safe transportation operation. We believe the corrective actions and the procedure enhancements planned will prevent a similar type of event from occurring.

We deeply appreciate the feedback from each of you and pledge to strive for excellence during the remaining waste shipment program.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Wood", is written over the typed name.

Brian C. Wood
Site Manager

CR 04-133
Intermodal Loaded with Licensed Materials
Slid from Tractor Trailer While In
Transit

Overview of Accident
Sequence of Events
Corrective Action Recommendations
MHF Root Cause

Reviewed by MRT on March 11, 2004

Executive Summary:

On Tuesday March 2, 2004 at approximately 12:15 in the afternoon an Intermodal (IM) container loaded with very low level radioactive building debris from the Yankee Rowe site slid from the flat bed truck it was being transported on while traveling on Ford Hill Road in Rowe, Massachusetts. The waste was being transported in an Intermodal from the Yankee Rowe site to Palmer, Massachusetts where it was intended to be loaded on a railcar and shipped to Envirocare of Utah for ultimate disposal. The accident occurred when the chain restraint system failed resulting in the Intermodal sliding off of the flatbed while the vehicle was executing a gradual left curve in the roadway. During the accident, the IM struck a large fir tree and a guardrail. The top of the IM broke free and the majority of the IM contents spilled beneath the IM in a gully along the roadway embankment. Clean-up activities were well coordinated and documented and were completed within 24 hours of the accident.

It has been verified that the driver of the truck was traveling in a safe and controlled manner through interviews and by use of installed Global Positioning System (GPS) data. As part of the post accident inspection by the Massachusetts State Police, the trucking company was cited for use of inadequate tie-downs, which did not have an adequate Working Load Limits (WLL).

Several barriers failed resulting in this accident including:

- Qualification and control of contractors
- Procedures did not verify that restraint devices met WLL regulations
- Restraint system equipment design
- Training of personnel securing the load to the trailer

The root cause of the accident as determined by the prime transportation contractor was identified as the use of underrated chains due to failure of the carrier to properly equip the truck with an appropriate restraint system and failure to verify the capability of the equipment utilized.

All shipments of waste from the Yankee Rowe site have been placed on hold pending the completion of identified activities required for restart.

Event Details (Note: A detailed sequence of events is enclosed as part of this package and should be referenced in conjunction with this narrative.)

Container MHFU 010069 contained materials from the demolition of the Safe Shutdown Building and was being transported to Palmer, MA as the first leg in the journey to Envirocare of Utah. During plant operations the Safe Shutdown Building was used as an alternate control room to safely shutdown the plant under a loss of site power. The building contained systems that were interconnected to contaminated site systems and these standby systems become slightly contaminated during operations. Prior to the demolition of the building, the contaminated portions of the systems were removed leaving what was essentially a "clean" building located within the Radiological Control Area (RCA). The waste being transported in the container consisted primarily of building structural debris in a mixture of concrete and rebar. The container was being transported on a flat bed truck utilizing the authorized trucking route.

The container was being shipped under manifest 0336-11-0009D in compliance with waste profile 0336-11. Profile 0336-11 explicitly does not contain PCB materials or other identified hazardous wastes. The package contained an estimated total of 1.25 millicuries of activity, and

was shipped as "Radioactive Material, Excepted Package -- Limited Quantity of Material, 7, UN2910" due to the minimal activity of licensed materials in the package. The maximum contact dose rate on the filled container prior to transport was 0.015 millirem/hour based on the survey taken prior to shipment. This contact dose rate was not corrected for background readings and as such actual dose rates are expected to be lower. The container gross weight was 46,750 lbs. and the net weight was 38,860 lbs. This container will hold about 25 cubic yards of materials.

The load was being trucked by Tufts Transportation as part of a sub-contract to Ameritech and MHF Logistical Solutions, Inc. This company (Tufts) had been providing services to the site since February 1, 2004, and the driver had been on the project for 1.5 weeks. The equipment (chains and tensioning devices) had previously been used without incident with previous similar Yankee Rowe licensed material waste shipments to Palmer Mass. The driver of the truck relayed the following information:

- He was operating under the speed limit.
 - This fact was validated by the Department Of Transportation Inspector (Performed by Mass State Police) utilizing data from the on-board GPS.
- The driver anticipated the hills and curves stating that he was adequately familiar with the roads being used.
- The roadway was clear.
- The driver believed that he heard one of the chains snap and the trailer pull towards the road shoulder.
- The truck started to lift due to the shift in the load and started pulling hard to the right.
- The driver took appropriate evasive actions to maintain the truck on the road and to minimize shifting of the load by counter-steering.
- Following the accident the driver made appropriate notifications calling the Trucking dispatcher as his first notification.
 - All licensed material waste shipments are provided with written emergency response instructions (See attachment 1 - shipping document as an example).
- A Level 1 (full) inspection of the tractor and trailer was performed by the investigating Massachusetts State Police officer (Commercial Vehicle Enforcement Section).
 - Two deficiencies were found -- load capability of tie down chains and inadequate/damaged securement devices (due to nicks and abrasions which may have occurred during the accident).

The accident resulted in the loaded container breaking free of the trailer, impacting an 18 inch fir tree and a guardrail prior to landing in its final resting position turned ¾ of the way over on an embankment in a small gully alongside the road. During the accident, the top of the container broke free and between 70 to 80% of the contents spilled beneath the Intermodal. The contents included rebar and concrete debris meeting soil-like or standard debris sizing. MHF Logistical Solutions has developed a detailed root cause of this event, which is included as attachment 3 of this report. The IM containers used to transport licensed materials are Industrial Package (IP-1) containers. This type of container is designed to maintain its integrity during normal transportation usage. These containers are not designed to maintain their integrity during all accident conditions.

The trucking company was cited as part of the post accident investigation by the Mass State Police due to inadequate tie-downs as the devices which had been in use did not meet the load carrying capability required for the weight of the load as well as chain defects (nicks & abrasions).

The requirements for tie-downs associated with intermodals is prescribed by the US Department of Transportation Federal Motor Carrier Safety Administration part 393. The regulations stipulate that the load will be secure during normal conditions and prevent movement forward, rearward and laterally. The Working Load Limits (WLL) of the restraining device must be at least one half of the weight of the component being secured. Intermodals are required to be independently secured at both the front and the back and secured such that during normal operation they cannot move more than ½ inch in any direction.

Form APF-8329.3 D&D Radioactive Waste Shipment Checklist requires that the Yard Crew verify that the packages have been properly braced in/on the vehicle. This checklist is very detailed with 69 items to be reviewed prior to each D&D licensed material waste shipment. However, there is no specific requirement on the checklist to verify sizing/WLL of the restraint system. A copy of this checklist is attachment 2 of this document.

MHF-Logistical Solutions has put in place a contingency plan—OPS-FIP-0302137-01—as a project specific contingency plan for the truck and rail movement of licensed material waste from Yankee Rowe to Envirocare of Utah. This document requires notification of the dispatcher and that the dispatcher notify the Yankee Rowe PSS at the emergency response number in the event of an transportation incident. This document, which is now being revised, was reviewed and recommendations for improvements provided to the MHF site representative.

Root Cause Evaluation: (Note: The root cause evaluation presented here was performed by MHF-Logistical Systems and was extracted from a letter from MHF-LS to Mike Zurlo, Demco QA Manager. This root cause was reviewed with MHF-LS and concurred by YAEC/Demco representatives. The formal letter is included as Attachment 3 to this document.)

"The immediate cause of the incident was the use of under rated chains to secure the container. The driver and the truck's GPS equipment indicate that the truck was traveling at a normal or below normal speed and there was no sudden change in the movement of the truck until the load became unsecured, reasonably eliminating the cause being the application of abnormal forces.

The use of under rated chains was due to the failure of the carrier to properly equip the truck with the appropriate chains to secure the load and the failure to utilize and/or check the stamped rating that is to be on every chain.

The failure to equip, utilize and check for proper chain strength was due to the failure of the carrier to have in place or follow required procedures and training that are necessary to prevent the use of insufficient securing devices."

Barrier Analysis:

A barrier analysis was performed with five barriers to occurrence identified. Potential barrier failures were identified in four of the five barriers. The detailed barrier analysis matrix is attached, with the failure points determined by the barrier analysis discussed here.

Qualification and control of subcontractors: The root cause identified by MHF described failures by the carrier to properly equip, utilize and check for proper chain strength and a failure to have in place and follow required procedures and training to prevent the use of insufficient securing devices. This issue is exacerbated by the use of 3 tiers of subcontractors (MHF-LS, Ameritech, and Tufts Transportation) to perform transportation functions, as well as the interface with the shipping brokers who are provided by a fourth sub-contractor. When sub-contracts are put in place it is expected that the company placing the sub-contract will exercise appropriate oversight of the function or activity being "delegated." Also, based on the Human Performance review, there is at least a perception that the managing/ownership of licensed material waste shipments is different than the managing of C&D waste shipments. In reality, Demco manages all transportation functions.

Procedures do not verify that restraint devices meet regulations: The procedures in place to control the shipment of licensed material waste contain checklists such as APF 8329.3 "D&D Radioactive Waste Shipment Checklist" and DPF-8325.1 "Road Worthiness Checklist" which are intended to ensure that all licensed material shipments meet regulations as well as good operating practices. These procedures and checklists were developed when waste shipping did not routinely use Intermodals and have been adapted to their current use. The D&D Radioactive Waste Shipment Checklist does include a verification that "Packages have been properly braced in vehicle" which has been interpreted to include the use of tie-downs. Field practices by the shipping brokers do ensure that the load is restrained, with no obvious deficiencies, but does not overlap to verify that the restraint system meets the regulations for WLL for the load being carried.

Restraint System Equipment: The restraint system utilized did not meet regulations in that some or all of the chains utilized were not of sufficient strength. This is compounded by the difficulty in determining the WLL for tie-down chains. The requirements for tie-downs associated with intermodals is prescribed by the US Department of Transportation Federal Motor Carrier Safety Administration part 393.102.(a) and include the total system of chains, fasteners and tensioning devices. Commercially available equipment must be clearly marked and inspected prior to use to verify that it is capable of performing its intended function.

Training of personnel involved with securing and verifying Intermodals are ready for transport: Several of the personnel involved in the shipping process expressed unfamiliarity with the process for verifying the tie-down chain WLL. While this knowledge deficiency did not exist across-the-board, key personnel, including the truck driver were unaware of how to ensure that transportation regulations were met. This knowledge deficiency is considered a barrier failure because the truck driver, who is the primary individual responsible for the function did not have adequate understanding.

Barriers to occurrence:

Five general barriers to occurrence were identified for this issue with partial failures occurring in four of the barriers. The general barriers, including weaknesses and faults (failures) are identified in the table below

Barrier	Fault	Weakness	Strength
Contract	<ul style="list-style-type: none"> ➤ Qualification and control of sub-contractors was not adequate to ensure that transportation regulations were being followed and that trucks were equipped with and verified that proper equipment was utilized for tie-downs. 	<ul style="list-style-type: none"> ➤ The transportation contract includes many layers of sub-contracts. There were six different companies represented at the initial meeting to review the accident, with each company carrying some of the responsibility for the shipment. As the contract is diluted through the use of sub-contracts the main contract holder becomes insulated from the day-to-day activities. ➤ Perception by field personnel that radwaste transportation contract is only administered by Demco but that contract is in actuality between YAEC and MHF. 	
Procedures	<ul style="list-style-type: none"> ➤ Process for transportation of licensed material waste does not include verification that the restraint system meets regulations. APF-8329.3 requires the shipper to verify that the load is properly braced in the vehicle. However, the responsibility for ensuring that the restraint system meets regulations is left as a responsibility of the driver. 	<ul style="list-style-type: none"> ➤ Threshold for regulatory required notifications was not met. Guidance does not exist to direct notifications to local, state, federal and other concerned parties when conditions warrant notification but regulatory threshold is not reached. 	<ul style="list-style-type: none"> ➤ Specific procedure developed and approved to provide guidance on verification of accident site as part of cleanup process. ➤ Management directed courtesy notifications to local, state, federal and other concerned parties were appropriate and effective. ➤ Documentation for shipment of licensed

			material waste packages is very good and highly detailed.
Barrier	Fault	Weakness	Strength
Equipment Design	<ul style="list-style-type: none"> ➤ Restraint system utilized did not meet regulations. This is compounded by the difficulty in determining the WLL for tie-down chains. 	<ul style="list-style-type: none"> ➤ Methodology utilized to restrain Intermodal to flat bed trailer is considered acceptable by DOT standards. However, other preferred methods are available for restraining the IM's ("Pin" type trailers). 	
Training	<ul style="list-style-type: none"> ➤ Several of the personnel involved in the shipping process expressed unfamiliarity with the process for verifying the tie-down chain WLL. 		
Management		<ul style="list-style-type: none"> ➤ Courtesy notifications were discussed early in the response but were later determined to need improvement particularly for the notification of MEMA, VEMA, CY and MY. 	<ul style="list-style-type: none"> ➤ Excellent site response to control clean-up activities and verify final status of accident site. ➤ Practice to use GPS to monitor truck movement is considered a strength and should be extended to additional trucks.

Sequence of Events (SOE):

- 1 Container MHFU 010069 arrives on site (2/18/2004).
 - a) Container is an IP-1 strong tight container – typical of IMs used on project for licensed materials.
- 2 Receipt inspection and empty survey is performed on the container (2/18/2004).
- 3 Container MHFU 010069 is filled with material from the Safe Shutdown Building (2/19/2004).
 - a) Safe Shutdown building was essentially a clean building within boundaries of the RCA.
- 4 Manifest 0336-11-0009D is prepared for container MHFU 010069 as part of a 6 unit rail car to be shipped from Palmer Mass to Envirocare of Utah (2/28/2004)
 - a) Container is categorized as Envirocare profile 0336-11, which includes soil-like and standard debris. This profile does not include PCB waste or other hazardous constituents.
 - b) Total activity in container is 1.25 millicuries, and is classified as “Radioactive Material, Excepted Package – Limited Quantity of Material, 7, UN2910” due to minimal activity in package.
 - c) Container survey showed maximum uncorrected contact dose rate of 0.015 millirem/hour.
 - d) Package weight was 46,750 lbs. gross and 38,860 lbs. net.
- 5 Container is loaded on flat bed trailer in preparation for transport to Palmer Mass. (3/2/2004 at ~1100 hours)
 - a) Trucking company had been providing services as sub-contractor to MHF/Ameritech since February 1, 2004, and the driver had been on the project for 1.5 weeks.
 - b) Individual driver had made 9 previous trips with similar radioactive loads, using the same truck, trailer and tie-down devices.
- 6 Driver secured the load to the flatbed using what he thought was a DOT approved fastening configuration (chain configuration). (3/2/2004 at ~1100 hours)
 - a) It was later determined that the driver was not aware of how to determine required load handling capability of chains used to secure IM to trailer.

- b) The Licensed Material Shipping broker completed pre-shipment paperwork and required vehicle inspections.
 - c) Package bracing was verified as part of pre-shipment inspection; however, broker has limited responsibility in verifying the adequacy of the restraint system.
 - d) Intermodal tie-down requirements are identified in the Federal Motor Carrier Safety Regulations as prescribed by the USDOT Federal Motor Carrier Safety Administration parts 392 and 393.
 - e) Driver was provided with shipping paperwork including the Bill of Lading, container radiation survey and emergency contact information.
 - f) Vehicle and container are authorized to proceed to Palmer Mass.
- 7 The driver left the site and proceeded along prescribed travel route to a point approximately 1.5 miles along Ford Hill Road. (3/2/2004 at 1215 hours)
- 8 The driver provided the following information:
- a) He was operating under the speed limit (40 miles per hour).
 - (1) This fact was validated by the Department Of Transportation Inspector (Performed by Mass State Police) utilizing data from the on-board GPS.
 - b) The driver anticipated the hills and curves stating that he was adequately familiar with the roads being used and reduced his speed accordingly.
 - c) The roadway was clear with excellent weather.
 - d) The driver believed that he heard one of the chains snap and then felt the trailer pulling towards the road shoulder as he was following a gradual bend in the road to the left.
 - e) The truck started to lift due to the shift in the load and started pulling hard to the right.
 - f) The driver took appropriate evasive actions to maintain the truck on the road and to minimize shifting of the load by counter-steering.
 - g) The load slid off the trailer and came to a stop just off the road.
- 9 The load slid off the trailer and made contact with an 18 inch diameter fir tree and a guard rail prior to coming to a stop off of the road turned $\frac{3}{4}$ of the way over. The majority of the contents from the container spilled onto the roadway embankment beneath the IM.
- a) It is estimated that the distance between where the intermodal first contacted the guardrail and its final resting-place was 60 feet.

- 10 No people were injured or other vehicles damaged as there were no pedestrians or vehicles on or near the roadway where the accident occurred.
- 11 As the container traveled along the collapsing guardrail, a second section of the guardrail punctured the partially inverted container.
- 12 Some damage to the flatbed trailer attachment point occurred on the right side of the trailer.
- 13 Following the accident the driver made appropriate notifications calling the dispatcher who in turn relayed the accident information to the Waste Shipping Manager as his first emergency contact.
 - a) All licensed material waste shipments are provided with written emergency response instructions (See attachment 1 - shipping document as an example).
 - b) A Level 1 (full) inspection of the tractor and trailer was requested by the driver to the investigating Massachusetts State Police officer (commercial vehicle division). Note: Following an accident the investigating officer will normally do an inspection of the vehicle. The inspection requested by the driver exceeds the minimum requirements for this accident.
 - c) Cell phone signal was not available at the accident site and driver made notifications from a local residence.
- 14 The Waste Shipping Manager dispatched a team of two individuals (both qualified Radiation Protection techs.) to assess and stabilize the accident area.
- 15 MHF-Logistical Solutions dispatched their on-site shipping coordinator to the accident site (3/2/2004 at 1245 hours).
- 16 MHF Standard Operating Procedure Number OPS-FIP-0302137-01 "Project Specific Contingency Plan For The Truck & Rail Movement Of Radioactive Waste From The Yankee Rowe Nuclear Power Station Located At Rowe Massachusetts To Envirocare Of Utah, Inc" Rev 0 dated 1/19/2004 was initiated to ensure appropriate notifications were made.
- 17 The Demco Site Safety Manager arrived at the accident scene to perform an independent safety assessment. (3/2/2004 at 1330 hours)
- 18 A conference call was conducted with MHF to finalize the cleanup plan and responsibilities. Cleanup would be performed by personnel at the Yankee Rowe site due to proximity to the plant. Cleanup activities commenced. (3/2/2004 at ~1430 hours).
- 19 YAEC Radiation Protection Manager designated individual in charge of cleanup.

- 20 A Level 1 (full) inspection of the transport vehicle was performed with two violations noted (3/2/2004 at ~ 1430 hours):
- a) Improper securement system (tie down assemblies) was identified—Inadequate working load limit of tie down chains (total WLL 9,250 lbs. – required 23,000 lbs.) IAW 393.102.(a).
 - b) Inadequate/damaged securement device/system was identified– Chain defects – links with nicks, abrasions IAW 393.104(a).
 - c) Massachusetts State Police Commercial Vehicle Enforcement Section Driver/Vehicle Examination Report MAAY00003794.
 - d) Massachusetts Uniform Citation M0716846 was issued against the transportation company for Defective/Inadequate tie down chains.
- 21 YAEC Sample Plan for MHFU 010069 Truck Accident implemented to provide specific monitoring and sampling requirements for radiological cleanup of the accident site.
- 22 Condition report CR 04-133, which documented this issue, was evaluated and the condition determined to be reportable to the NRC under 10CFR50.72(b)(2)(xi) with notification made by the Yankee Rowe Plant Shift Supervisor (3/2/2004 at 1555 hours).
- 23 Demco Surveillance Report Number S459-027 was completed at the work site. No deviations from standard radiation protection protocols were observed.
- 24 MHF-LS notified the USDOT of the accident per the requirements of 49CFR. The incident was assigned case #714909. (3/2/2004 at ~ 1630 hours)
- 25 The damaged Intermodal container was upended and returned to the Yankee Rowe site.
- 26 Two previously empty Intermodals were brought to the accident site and used to collect the building debris material from the accident site.
- 27 Measured Radiological Survey Information (3/2/2004 at 1700 hours).
- a) Debris pile general area 3-7 uR/hr (natural background range in that area 5-15 uR/hr)
 - b) Debris pile highest reading 70 uR/hr (on a piece of conduit)
 - c) Debris pile highest frisker reading 10 Counts Per Minute (CPM) > background
 - d) No loose surface contamination
- 28 The driver returned to the plant site to provide a statement and submitted to drug and alcohol testing.

- 29 The accident area remediation was completed and environmental concerns for disturbed area addressed.
- 30 Post cleanup analysis of accident area samples taken IAW sample plan was that no licensed materials identified.
- 31 Massachusetts Department of Public Health obtained independent samples at the accident scene (3/8/2004 at 0830 hours).
 - a) Mass DPH will also perform independent analysis of samples previously collected by YAEC

Facts:

1. Driver was traveling at appropriate rate of speed. (Sequence Of Events (SOE) 8)
2. Restraint system failed without unusual transportation forces such as hard breaking or abrupt turns applied to load. (SOE 8)
3. Restraint system did not meet DOT requirements for Working Load Limits. (SOE 8, 20)
4. Shipping checklist does not verify Working Load Limits of restraint systems. (SOE 5, 6)
5. Driver was unaware of Working Load Limits of chains used to restrain load. (SOE 5, 6, 8)
6. IP-1 Container released its contents during the accident. (SOE 1, 9 11)
7. Required notification procedures and mechanisms worked well (SOE 6, 13, 14, 15, 16, 18, 22, 23 24)
 - Note: It was also recognized that courtesy notifications should have been broader in scope than what actually occurred.
8. Container MHFU 010069 contained licensed materials but was essentially benign with only one item identified above background radiation levels. (SOE 4, 27)
9. Clean-up and recovery activities were well coordinated and effective (SOE 5 through 18)

Recommendations:

The recommendations identified here include the corrective actions identified when the Condition Report initial response was generated, as well as additional corrective actions identified during the MHF Root Cause Evaluation, YAEC Barrier Analysis and YAEC/Demco Human Factors review.

Immediate Corrective Actions - Required to complete initial clean-up of accident site:

Note: Several immediate actions were taken in response to the condition and are not restated here.

1. Complete performance and review of YAEC radiation sample plan for MHFU 010069 Truck Accident. Responsibility Greg Babineau Due 3/4/2004 COMPLETE
2. Ensure as left condition of the accident site is acceptable for environmental controls including placement of hay to prevent erosion of soil materials. Responsibility Ken Dow Due 3/4/2004 COMPLETE
3. Coordinate with the Town of Rowe to ensure adequate safety postings are available and initially placed in the vicinity of the damaged guardrail.. Responsibility Brian Wood Due 3/4/2004 COMPLETE
4. Provide letter to landowner stating that cleanup activities are complete and that all licensed material has been removed from the accident site. Responsibility Greg Babineau. Due 3/19/2004

Interim Corrective Actions - Required prior to restart of shipping evolutions:

1. Develop procedure and checklist and perform inspection of all "pin trailer" attachment devices. MHF to provide guidelines for inspection. Responsibility: MHF Due 3/10/2004
2. Complete root cause evaluation of accident. Provide briefing to drivers on root cause of incident prior to them performing their next shipment. Responsibility MHF Due 3/10/2004
3. Perform training on "pin trailer" attachment devices for load handling requirements. MHF to supply briefing materials. Include clarification of hand-offs between organizations. Responsibility MHF Due 3/10/2004
4. Develop time line and detailed sequence of events. Responsibility Rod Dee Due 3/9/2004 COMPLETE
5. Interview driver and personnel associated with loading of container on truck for potential human factor issues. Responsibility Don Calsyn Due 3/8/2004 COMPLETE

Additional Corrective actions which are required prior to the restart of shipping which were added subsequent to initial response.

6. Perform review of trucking contractor and sub-contractor procedures and training to ensure the required procedures to support transportation of intermodals are in place and being implemented. Responsibility: MHF Due 3/10/2004

7. Place "pin" trailer in exclusive use for transport of loaded Intermodals for initial restart of shipping evolutions. Responsibility: MHF Due 3/10/2004
8. Ensure all tractors used for transporting licensed material are equipped with industry standard GPS tracking devices. Responsibility: MHF Due 3/10/2004 COMPLETE
9. Redefine expectations of project rules and regulations and implement or enforce an appropriate "zero tolerance" policy with respect to transport operations. Responsibility: MHF Due 3/10/2004
10. Review procedure AP-8329 and make modifications as necessary based on the results of the root cause evaluation. Resp: Greg Babineau Due 3/11/2004.
11. Contact Key Stakeholders with notification that shipping will be restarted. Responsibility: Brian Wood Due 3/10/2004

Long Term Corrective Actions – may be completed after restart of shipping:

1. Complete revision to contingency plan OPS-FIP-0302137-01 to ensure notifications are made for transportation issues where increased public attention may occur. Resp: MHF Due: 4/1/2004.
2. Develop or enhance Operations Memo for notifications to local state and federal organizations for significant issues that do not meet Regulatory guidelines for notifications. Resp Rick Williams Due 4/1/2004

Corrective actions which are considered enhancements, added subsequent to initial response:

3. Verify adequacy of previous due diligence surveillance of vendors providing transportation support of Licensed Material Waste Shipping. Resp Mike Zurlo Due 4/30/2004
4. Prior to continued use of flat bed trailers to transport intermodals loaded with Licensed Materials, ensure that revised procedure for tie-down of loads is developed (ensure arrangement of tie downs that exceed minimum standards) and provide training to drivers. Include YAEC authorization as part of restart requirements. Responsibility MHF Due 3/31/2004
5. Revise loading and tie down procedure load diagram to incorporate additional chains and straps as additional securement for configurations other than "pin" trailers. Responsibility: MHF Due 3/12/2004
6. Evaluate additional communication tools for driver to make notifications in area where no cell phone signal is available. Responsibility MHF Due 3/31/2004
7. Evaluate Emergency Response protocols for various areas along the route to Envirocare of Utah to determine who would provide emergency response team. Responsibility MHF Due 3/31/2004
8. Determine the amount of stored historical data is available from GPS system. Responsibility MHF Due 3/31/2004
9. Provide closure documentation for independent clearance survey of accident site by Massachusetts Department of Public Health. Responsibility Greg Babineau Due 3/31/2004
10. Verify adequate asbestos-trained RP techs are available to respond to a combined Rad and asbestos truck accident. Responsibility Kurt Myers Due 3/31/2004

ATTACHMENT 1

SHIPMENT NO: 0336-11-0009D	SHIPMENT DATE: 3-2-04	PAGE: 1 OF 4
TRAVEL ROUTE: Bestway	CARRIER: AmeriTech Environmental Serv, Inc. 93 Dow Highway Elliot, ME 03903	TRACTOR: 37255 117 TRAILER: 0J7648 11E
TO: (CONSIGNEE)	FROM: (CONSIGNOR)	

MASS CENTRAL RAILROAD ONE WILBRAHAM ST. PALMER, MA 01069	YANKEE ATOMIC ELECTRIC CO 49 YANKEE RD. ROWE, MA 012467
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NO. OF PKGS.	HM	DESCRIPTION - PROPER SHIPPING NAME	WEIGHT															
1	X	RADIOACTIVE MATERIAL, EXCEPTED PACKAGE-LIMITED QUANTITY OF MATERIAL, 7, UN2910 PACKAGES: (1) STEEL BOX <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 5px;"> <thead> <tr> <th style="width: 15%;">Container#</th> <th style="width: 15%;">MBq</th> <th style="width: 15%;">(mCi)</th> <th style="width: 15%;">Weight(lbs)</th> <th style="width: 20%;">Seal Numbers</th> </tr> </thead> <tbody> <tr> <td>MHFU 010069</td> <td>4.63E+01</td> <td>(1.25e0)</td> <td>46750</td> <td>002534 002547</td> </tr> <tr> <td colspan="2" style="text-align: right;">Totals:</td> <td>4.63E+01</td> <td>(1.25e0)</td> <td>46750</td> </tr> </tbody> </table> ISOTOPEs: Co60, Cs134, Cs137 WASTE CLASSIFICATION: CLASS A WASTE (U) PHYSICAL FORM: SOLID CHEMICAL FORM: DEPOSITED METALLIC OXIDES MARKING: RADIOACTIVE PLACARDS: NONE REQUIRED	Container#	MBq	(mCi)	Weight(lbs)	Seal Numbers	MHFU 010069	4.63E+01	(1.25e0)	46750	002534 002547	Totals:		4.63E+01	(1.25e0)	46750	21202 kg (46750) lbs
Container#	MBq	(mCi)	Weight(lbs)	Seal Numbers														
MHFU 010069	4.63E+01	(1.25e0)	46750	002534 002547														
Totals:		4.63E+01	(1.25e0)	46750														

EMERGENCY CONTACT #: (413) 424-2235

THIS PACKAGE CONFORMS TO THE CONDITIONS AND LIMITATIONS SPECIFIED IN 49 CFR 173.421 FOR RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL, 7, UN2910

Shipper: <u>Yankee Atomic Electric Co.</u> PER:	DATE: 3-2-04
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CARRIER: <u>AmeriTech</u> PER:	DATE: 3-2-04
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225 cu yds

Emergency Response Information
(49 CFR 172.600,602,604)
0336-11-0009D

1 Proper Shipping Name and Hazard Class

RADIOACTIVE MATERIAL, EXCEPTED PACKAGE-LIMITED QUANTITY OF MATERIAL, 7, UN2910

POTENTIAL HAZARDS

A. HEALTH

1. Radiation presents minimal risk to transport workers, emergency response personnel, and the public during transportation accidents. Packaging durability is related to potential hazards of material.
2. Undamaged packages are safe. Contents of damaged packages may cause higher external radiation exposure, or both external and internal radiation exposure if contents are released.
3. Low radiation hazard when material is inside container. If material is released from package or bulk container, hazard will vary from low to moderate. Level of hazard will depend on the type and amount of radioactivity, the kind of material it is in, and/or the surfaces it is on.
4. Some material may be released from packages during accidents of moderate severity but risks to people are not great.
5. Released radioactive materials or contaminated objects usually will be visible if packaging fails.
6. Some exclusive use shipments of bulk and packaged material will not have "RADIOACTIVE" labels. Placards, markings, and shipping papers provide identification.
7. Some packages may have a "RADIOACTIVE" label and a second hazard label. The second hazard is usually greater than the radiation hazard; so follow this Guide as well as the response Guide for the second hazard class label.
8. Some radioactive materials cannot be detected by commonly available instruments.
9. Runoff from control of cargo fire may cause low-level pollution.

B. FIRE OR EXPLOSION

1. Some of these materials may burn, but most do not ignite readily.
2. Uranium and Thorium metal cuttings may ignite spontaneously if exposed to air (See Guide 136).
3. Nitrates are oxidizers and may ignite other combustibles (see Guide 141).

PUBLIC SAFETY

1. CALL Emergency Response Telephone Number on Shipping Paper first. If Shipping Paper not available or no answer, refer to appropriate telephone number listed on the inside back cover.
2. Priorities for rescue, life-saving, first aid, and control of fire and other hazards are higher than the priority for measuring radiation levels.
3. Radiation Authority must be notified of accident conditions. Radiation Authority is usually responsible for decisions about radiological consequences and closure of emergencies.
4. Isolate spill or leak area immediately for at least 25 to 50 meters (80 to 160 feet) in all directions. Stay upwind. Keep unauthorized personnel away.
5. Detain or isolate uninjured persons or equipment suspected to be contaminated; delay decontamination and cleanup until instructions are received from Radiation Authority.

A. PROTECTIVE CLOTHING

1. Positive pressure self contained breathing apparatus (SCBA) and structural firefighters' protective clothing will provide adequate protection.

B. EVACUATION

1. Large Spill
Consider initial downwind evacuation for at least 100 meters (330 feet).
2. Fire
When a large quantity of this material is involved in a major fire, consider an initial evacuation distance of 300 meters (1000 feet) in all directions.

EMERGENCY RESPONSE

A. FIRE

1. Presence of radioactive material will not influence the fire control processes and should not influence selection of techniques.
2. Move containers from fire area if you can do it without risk.
3. Do not move damaged packages; move undamaged packages out of fire zone.
4. Small Fires
Dry chemical, CO2, water spray or regular foam.
5. Large Fires
 - a. Water spray, fog (flooding amounts).
 - b. Dike fire-control water for later disposal.

B. SPILL OR LEAK

- Do not touch damaged packages or spilled material.
- Cover liquid spill with sand, earth or other noncombustible absorbent material.
- Dike to collect large liquid spills.
- Cover powder spill with plastic sheet or tarp to minimize spreading.

C. FIRST AID

1. Medical problems take priority over radiological concerns.
2. Use first aid treatment according to the nature of the injury.
3. Do not delay care and transport of a seriously injured person.
4. Apply artificial respiration if victim is not breathing.
5. Administer oxygen if breathing is difficult.
6. In case of contact with substance, wipe from skin immediately; flush skin or eyes with running water for at least 20 minutes.
7. Injured persons contaminated by contact with released material are not a serious hazard to health care personnel, equipment or facilities.
8. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves and prevent spread of contamination.

24 HOUR EMERGENCY CONTACT:

TELEPHONE NUMBER (413) 424 2235

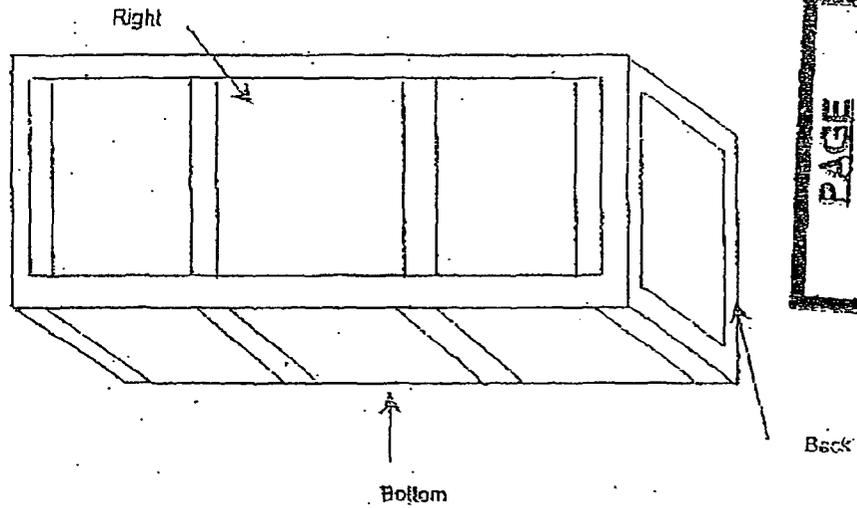
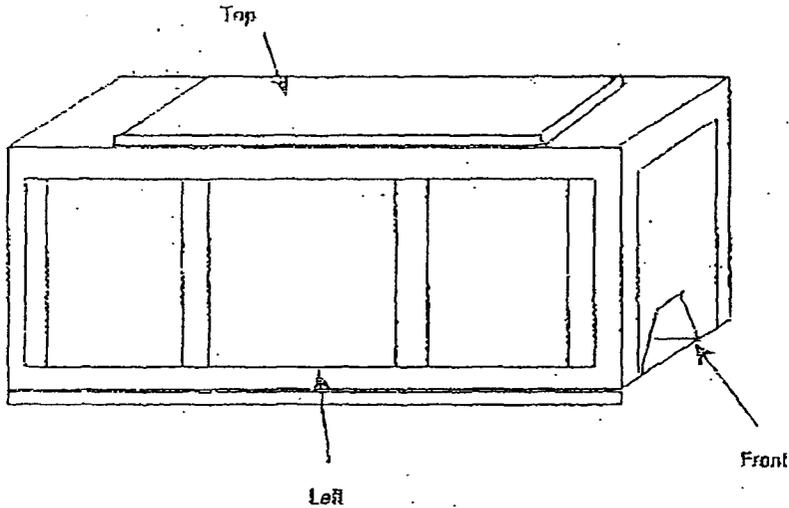
EMERGENCY CONTACT: YANKEE ATOMIC ELECTRIC COMPANY
PLANT SHIFT SUPERVISOR

LOCATION: YANKEE NUCLEAR POWER STATION CONTROL ROOM
ROWE, MASS.

DATE:

3-2-04

TANSEE ATOMIC ELECTRIC COMPANY
SHIPPING SURVEY FORM



PAGE
4 of 4

COPY

Actual container may appear different from drawing

Background NOT subtracted from dose rate measurements

Contact in mR/hr	1 Meter in mR/hr	Location	Smear #	*By dpm/100 cm ²	*α dpm/100 cm ²
.01	.01	Top	1	<LLD	<LLD
			2		
.01	.01	Front	3		
			4		
.01	.01	Right	5		
			6		
.01	.01	Rear	7		
			8		
.01	.01	Left	9		
			10		
.015	.01	Bottom	11	↓	↓
			12	<LLD	<LLD

*If <LLD:
By LLD = 23.65 DPM
α LLD = 10.65 DPM

Shipping Container Survey				
Container # <u>MHEU-010069</u>				
Date <u>2-19-04 / 2330</u>				
Surveyor <u>Don Wallace</u>				
Gross Wt. (lbs.) <u>46,750</u>				
Tare Wt. (lbs.) <u>7,890</u>				
Net Wt. (lbs.) <u>38,860</u>				
Seal #'s <u>002534 / 002547</u>				
Max Contact: <u>.015</u> mR/hr / Max. 1 Meter: <u>.01</u> mR/hr				
Instrument	Serial No.	Src. Check	Cal. Due	Bkg.
BICRON	5550	SAT	5-12-04	0.01 mR/hr
PIC 2	5712	SAT	10-19-04	SEE LLD @ LEFT
N/A	N/A	N/A	N/A	N/A
↓	↓	↓	↓	↓

APF 29.2
Orig J

Reviewed by [Signature]
Radwaste Manager male

ATTACHMENT 2

D&D Radioactive Waste Shipment Checklist				
Shipment Number:				
Shipment Date:				
Consignee:				
Scheduling Activities		Envirocare Bulk	Initials	Reviewer
1	Envirocare has been notified if configured shipment contains more than 8000 pCi/gm of the following radioactive elements; Th, Np, Am, Pu, U, Cm, OR contains any amount of Cl			
2	Envirocare has approved this shipment in advance, IF it contains Al-36, Bk-247, Ca-41, Cf-249, Cf-250, Re-187, Tb-157, or Tb-158.			
3	Current copy of consignee license is in the possession of YAEC and is consistent with the isotopes, activities, and forms to be shipped.			
4	YAEC has on file a valid radioactive waste profile record (Envirocare Form EC-0230) that is consistent with the waste to be shipped.			
5	YAEC possesses a valid notice to transport (Envirocare Form EC-1800).			
6	The 5 Day Shipment Notification Form has been submitted to Envirocare a minimum of 5 working days prior to shipment.			
7	YAEC possesses a valid User's Permit issued by the state of Utah.			
8	The YAEC Hazardous Waste Co-ordinator has reviewed and approved the LDR notification form and the Uniform Hazardous Waste Manifest.			
9	A shipment ID number has been obtained from Envirocare.			
10	Waste has been properly classified for transportation.			
11	Waste to Envirocare does not exceed Class A			
12	The inspection of transship waste has been documented (if applicable)	NA	NA	NA
13	Waste containers have no more than 15% void space.			
14	If waste class is * 90% of unity perform a verification calculation to ensure package has been properly classified.			
15	Waste has been evaluated for addition Hazard Classes IAW with 49CFR172.101.			
16	Massachusetts and/or Vermont Dept of PH Notification has been submitted			

D&D Radioactive Waste Shipment Checklist				
Yard Crew activities				
		Envirocare Bulk	Initials	Reviewer
1	Packages have been inspected and approved for use.			
2	Each package has a completed checksheet attesting that they have been properly inspected and can be shipped for disposal.			
3	The gross weight has been marked on each package.			
4	Packages containing "Radioactive LSA" or "Radioactive SCO" to be shipped exclusive use have "Radioactive LSA" or "Radioactive SCO" stickers applied to opposite sides of each package.			
5	Packages containing reportable quantities have the marking "RQ".			
6	Non-LSA and non-SCO packages and packages shipped non-exclusive use are marked and labeled in accordance with 49 CFR 172 and 173.			
7	The waste class is durably marked on the side of each container (intermodals and sealands) and on top for all other containers			
8	The loading of non-bulk containers into bulk containers has been verified and documented on checksheet.			
9	Waste Acceptance Criteria vehicle-loading requirements have been met.			
10	Packages have been properly braced in vehicle.			
11	Any packaged handled during a reconfiguration of the load has been re-inspected and is acceptable for shipment.			
12	Vehicle has been properly placarded in accordance with 49CFR 172, if applicable			
13	Seals have been applied to container			

D&D Radioactive Waste Shipment Checklist				
Data Entry Activities				
		Envirocare Bulk	Initials	Reviewer
FORM 540 AND 540A				
1	Verify all blocks are complete.			
2	Verify Block 4 is correct.			
3	Verify Shipper (Block 5) and Consignee (Block 9) are correct.			
4	Verify Shipment ID Number and User Permit Number (Block 5) are correct.			
5	Verify that Proper Shipping name (Block 11) is correct (Reference 49CFR172.202.			
6	Verify that "RQ" is on package survey for each package with "RQ" in its Proper Shipping Name (Block 11).			
7	Verify that the entries in Blocks 12, 13 and 17 are consistent with the Proper Shipping Name (Block 11).			
8	Verify that the total package activity in Block 16 matches the total shipment activity from Block 15 of Form 541/541A.			
FORM 541 AND 541A				
1	Verify all blocks are complete.			
2	Verify Blocks 2 and 4 match Blocks 5 and 8 of Form 540.			
3	Verify Blocks 5 through 10 match the package survey form.			
4	Verify dose rate in Block 9 matches dose rate map.			
5	Verify Blocks 11 and 12 are consistent with the Overpack Breakdown Report, if applicable			
6	Verify proper solidification media in Block 13. NOTE: DURATEK IS NOT AUTHORIZED TO SHIP SOLIDIFIED MATERIAL TO ENVIROCARE CWF.	NA	NA	NA
7	Verify radionuclides and activity (Block 15) are consistent. NOTE: ENVIROCARE CAN ONLY ACCEPT CLASS A WASTE FOR DISPOSAL.			
8	Verify dose rates in Block 11 are consistent with dose rates on Form 541 Block 9.			

D&D Radioactive Waste Shipment Checklist				
Shipping & Receiving Activities		Envirocare Bulk	Initials	Reviewer
1	The Uniform Low-Level Radioactive Waste Manifest has been submitted to Envirocare at least 3 business days prior to scheduled arrival of shipment.			
2	Copy of the manifest has been submitted to the Utah Division of Radiation Control prior to shipment arrival.			
3	Waste has been properly classified for disposal in accordance with the Waste Acceptance Criteria			
4	Waste has been packaged in accordance with the appropriate disposal facility Waste Acceptance Criteria.			
5	Package contamination levels have been documented and do not exceed the limits established in YAEC procedures			
6	Package radiation levels have been documented and do not exceed the limits established in YAEC procedures			
7	Incoming vehicle survey has been performed and documented, if applicable.			
8	Document the vehicle inspection on Form DPF-8325.1			
9	For shipment by highway directly to consignee, an overweight permit has been obtained for vehicle in excess of 80,000 pounds gross vehicle weight.			
10	Outgoing contamination survey is complete and contamination levels do not exceed the limits established YAEC procedures.			
11	Outgoing radiation survey is complete and dose rate levels do not exceed the limits established in YAEC procedures			

D&D Radioactive Waste Shipment Checklist				
	DRIVER DOCUMENTS	Envirocare Bulk	Initials	Reviewer
1	NRC Uniform LLRW Manifest Forms 540, 541, and 542 (facility specific)			
2	NRC Form 540 Attachment for Rail Shipments, if applicable			
3	Radioactive Material Shipment Exclusive Use Instructions, if applicable			
4	The applicable instructions from the current version of the ERG booklet.			
5	Full Vehicle Survey for exclusive use shipments complete if applicable			
6	Special Nuclear Material, NRC 741 Form, if applicable	NA	NA	NA
7	Special Nuclear Material Exemption (Attachment EC-0230-SNM), if applicable	NA	NA	NA
8	Reportable Quantity List, if applicable			
9	Final En Route Shipment Inspection Checklist.			
10	Uniform Low Level Radioactive Waste Manifest Isotopes Report (Radman Generated Reports)			
11	Sum of Fractions Calculation			
12	Billing Information,if applicable			
13	Uniform Hazardous Waste Manifest or Mass version if applicable			
14	Land Disposal Restriction Notice (mixed waste only)			
15	A copy of the Uniform Low Level Radioactive Waste Manifest has been sent to the appropriate facility.			
16	Envirocare has been notified of any modifications to the 5 Work-Day Shipment Notification.			
17	Driver has been briefed on the exclusive use requirements.			
18	Driver has been briefed on the shipment inspection requirements.			
19	Load and conveyance have been photographed.			
20	Bill of Lading has been completed			
21	Verify that the driver has a valid motor vehicle operators license, and displays no apparent signs of aberrant behavior.			

ATTACHMENT 3



800 Cranberry Woods Drive, Suite 450, Cranberry Township, PA 16066, Cranberry Township, PA 16066
Phone: 724.772.9800, Fax: 724.772.9850, Web Site: www.mhfs.com

March 11, 2004

Mr. Mike Zurlo
DEMCO
Yankee Atomic Electric, Co.
49 Yankee Rowe
Rowe, MA. 01367

Subject: Truck incident on March 2, 2004 : Root Cause/ Corrective Actions

Dear Mr. Zurlo:

The following is a detailed Root Cause and Corrective Action report of the truck incident on 3/2/04. In this report you will find a description of the incident, immediate corrective actions taken by MHF-LS and others, investigation of root cause, measures taken to prevent recurrence, and copies of associated documentation.

Description of the Incident:

On 3/2/04 at 12:15 PM an Ameritech truck transporting a container MHFU010069 (46,750 lbs gross weight), loaded with radioactive material limited quantity was involved in an incident on Ford Hill Road, Rowe, MA. MHF-LS received notification from DEMCO at approximately 12:30. The incident occurred approximately 5 miles from the Yankee site.

The incident occurred when the flat bed truck (truck registration PIPN59255) transporting the intermodal container executed a left bend in the road. While maintaining a controlled speed, the driver of the truck (Tim Sanville) heard a snapping sound and felt a rightward force coupled with a load shift from the back of his vehicle. He gained control of his truck and after stopping determined the container had separated from the trailer and was on the ground. The driver determined there were no other vehicles or personal injuries involved. Further observation determined the container had struck trees and the guardrail and rolled onto its side coming to rest on an embankment between the road and a ditch that was alongside the road. The container had been breeched through its lid and most of its contents had spilled onto the ground in the area of the ditch.

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Immediate Response Actions:

Utilizing the emergency response information provided with his transport paperwork the driver made appropriate notifications and secured the incident area. MHF-LS dispatched Larry Simon (on-site MHF-LS shipping coordinator) to the incident site at 12:45 PM on 3/2/04. Demco and Yankee personnel received notice and were also mobilized to the scene. There were further measures taken to secure and prevent migration of material from the incident scene. Local authorities notified Yankee Rowe, Mass DEP and the NRC about the incident and the immediate corrective actions that had been taken.

At approximately 2:30pm 3/2/04, a conference call occurred between Yankee and its contractors regarding clean up efforts. Despite the readiness of off site emergency response capabilities MHF-LS concurred with Yankee Rowe that the quickest method of performing cleanup would be to utilize resources from the Yankee site (personnel and equipment). The clean up execution plan was confirmed via email.

At 4:30 PM on 3/2/04 MHF-LS notified USDOT of the incident per the requirements of 49CFR. The report was filed with Mr. White and he provided us with case number #714909.

USDOT investigated the incident and at the site of the incident issued a citation (#M0716846) to the carrier, Tufts Transportation, for inadequate securement of load (chains weren't rated properly for the load they were securing).

The driver was taken back to Yankee to provide a statement and for drug and alcohol testing between 5:00-6:00 PM on 3/2/04.

As an aside, MHF-LS has received a call from Mike Berry (Boston office) EPA Region 1 to thank everyone for their quick response and prompt notification and stated that everything was reported properly and the situation seemed to be under control.

Root Cause:

The immediate cause of the incident was the use of under rated chains to secure the container. The driver and the trucks GPS equipment indicate that the truck was traveling at a normal or below normal speed and there was no sudden change in the movement of the truck until the load became unsecured, reasonably eliminating the cause being the application of abnormal forces.

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The use of under rated chain was due to the failure of the carrier to properly equip the truck with the appropriate chains to secure the load and the failure to utilize and/or check the stamped rating that is to be on every chain.

The failure to equip, utilize and check for proper chain strength was due to the failure of the carrier to have in place or follow required procedures and training that are necessary to prevent the use of insufficient securing devices.

Prevention of Recurrence:

The below corrective actions combine those identified when the YAEC CR initial response was generated, as well as additional corrective actions identified during the MHF Root Cause Evaluation, YAEC Barrier Analysis and YAEC/Demco Human Factors review.

Immediate Corrective Actions - Required to complete initial clean-up of accident site:

1. Complete performance and review of YAEC radiation sample plan for MHFU 010069 Truck Accident. Responsibility Greg Babineau Due 3/4/2004
COMPLETE
2. Ensure as left condition of the accident site is acceptable for environmental controls including placement of hay to prevent erosion of soil materials. Responsibility Ken Dow Due 3/4/2004 **COMPLETE**
3. Coordinate with the Town of Rowe to ensure adequate safety postings are available and initially placed in the vicinity of the damaged guardrail.. Responsibility Brian Wood Due 3/4/2004 **COMPLETE**
4. Provide letter to landowner stating that cleanup activities are complete and that all licensed material has been removed from the accident site. Responsibility Greg Babineau. Due 3/19/2004

Interim Corrective Actions - Required prior to restart of shipping evolutions:

1. Develop procedure and checklist and perform inspection of all "pin trailer" attachment devices. MHF to provide guidelines for inspection. Responsibility: MHF Due 3/10/2004

MHF-LS has initiated the use of a daily inspection form which will document the site managers verification that all 4 locks have been engaged by the driver and

are in the proper locked position. The form will also record the use of security seals placed on each lock as a failsafe device.

2. Complete root cause evaluation of accident. Provide briefing to drivers on root cause of incident prior to them performing their next shipment. Responsibility MHF Due 3/10/2004

MHF-LS performed an initial Training seminar for several staff members at the YAEC site involved with the shipping of licensed materials as well as management and all current drivers from our subcontractor. This training will be provided by MHF-LS for all persons utilized on the project going forward without exception and prior to their arrival on site.

3. Perform training on "pin trailer" attachment devices for load handling requirements. MHF to supply briefing materials. Include clarification of hand-offs between organizations. Responsibility MHF Due 3/10/2004

Topic included in the training mentioned above. See training agenda and support documentation.

4. Develop time line and detailed sequence of events. Responsibility Rod Dee Due 3/9/2004 COMPLETE

MHF-LS agrees with the content and sequence of the timeline issued by YAEC.

5. Interview driver and personnel associated with loading of container on truck for potential human factor issues. Responsibility Don Calsyn Due 3/8/2004 COMPLETE

Additional Corrective actions, which are required prior to the restart of shipping using pin chassis, which were added subsequent to initial response

6. Perform review of trucking contractor and sub-contractor procedures and training to insure the required procedures to support transportation of intermodals are in place and being implemented. Responsibility: MHF Due 3/10/2004

MHF-LS QA Manager Ken Grumski reviewed the audit files for the subcontractor (Ameritech) and has concluded that the audit performed was done in accordance with MHF-LS ASL requirements. Additional certifications related to subcontractor management and training were requested and issued to the satisfaction of MHF-LS management. MHF-LS will guarantee that each person introduced to the YAEC site will be fully trained and qualified to accomplish the tasks required to ensure against introduction of persons not adequately trained in the future.

7. Place "pin" trailer in exclusive use for transport of loaded Intermodals for initial restart of shipping evolutions. Responsibility: MHF Due 3/10/2004
3 Pin Chassis Trailers were delivered to the YAEC site on 2/27/04 that will support restart operations. Additional pin trailers are being mobilized to the site. All units will be identical by design (See Specification Sheets attached)
8. Ensure all tractors used for transporting licensed material are equipped with industry standard GPS tracking devices. Responsibility: MHF Due 3/10/2004
COMPLETE
9. Redefine expectations of project rules and regulations and implement or enforce an appropriate "zero tolerance" policy with respect to transport operations.
Responsibility: MHF Due 3/10/2004
Topic addressed in Training provided and Instruction Sheets were signed by all current drivers (See attached forms)
10. Review procedure AP-8329 and make modifications as necessary based on the results of the root cause evaluation. Resp: Greg Babineau Due 3/11/2004.
11. Contact Key Stakeholders with notification that shipping will be restarted.
Responsibility: Brian Wood Due 3/10/2004

Long Term Corrective Actions – may be completed after restart of shipping:

1. Complete revision to contingency plan OPS-FIP-0302137-01 to ensure notifications are made for transportation issues where increased public attention may occur. Resp: MHF Due: 4/1/2004.
2. Develop or enhance Op Memo for notifications to local state and federal organizations for significant issues that do not meet Emergency Action Level guidelines. Resp Rick Williams Due 4/1/2004

Corrective actions which are considered enhancements, added subsequent to initial response:

3. Verify adequacy of previous due diligence surveillance of vendors providing transportation support of Licensed Material Waste Shipping Resp Mike Zurlo Due 4/30/2004
4. Prior to continued use of flat bed trailers to transport intermodals loaded with Licensed Materials, ensure that revised procedure for tie-down of loads is developed (ensure arrangement of tie downs that exceed minimum standards) and provide training to drivers. Include YAEC authorization as part of restart requirements. Responsibility MHF Due 3/31/2004

Mr. Mike Zurlo
March 11, 2004
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5. Revise loading and tie down procedure load diagram to incorporate additional chains and straps as additional securement for configurations other than "pin" trailers. Responsibility: MHF Due 3/12/2004
6. Evaluate additional communication tools for driver to make notifications in area where no cell phone signal is available. Responsibility MHF Due 3/31/2004
7. Evaluate Emergency Response protocols for various areas along the route to Envirocare of Utah to determine who would provide emergency response team. Responsibility MHF Due 3/31/2004
8. Determine the amount of stored historical data is available from GPS system. Responsibility MHF Due 3/31/2004
9. Provide closure documentation for independent clearance survey of accident site by Massachusetts Department of Public Health. Responsibility Greg Babineau Due 3/31/2004
10. Verify adequate asbestos-trained Radiation Protection technicians are available to respond to a combined Licensed Material and asbestos truck accident. Responsibility Kurt Myers Due 3/31/2004

In support of the above corrective actions measure commitments made by MHF-LS an initial training seminar was held at the YAEC facility on Tuesday March 9, 2004. A complete copy of the training agenda, participant roster and support documents is attached to this letter and incorporated into our corrective action plan.

MHF-LS has committed to only provide staff and drivers to the YAEC site who have completed the training, which is referenced, and no exceptions to this policy will be made for the duration of the project. Additional Training segments may be added as the project progresses as required however no training segments will be removed regardless of the project duration or subcontractors utilized. MHF-LS management will perform surveillance activities daily to ensure that the Corrective Actions set forth are understood and followed. MHF-LS has established a firm commitment from all contractors, subcontractors and individual employees involved with our work to abide by the Corrective Action measures, the Site Rules and the governing laws.

Mr. Mike Zurlo
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Conclusion:

MHF-LS will implement the above preventative measures and continue to monitor the carriers to eliminate the chance of any such occurrence in the future. If you should have any questions please feel free to contact me at any time.

Sincerely,



Jim Christafano
Senior Project Manager

Enclosures:

- Agenda Cover – Training Program started 3/9/04
- Driver Roles/Responsibilities- Zero Tolerance Policy
- Strick Pin Chassis specification Sheet
- Strick Twist Lock Specification Sheet
- Federal Inner Bridge Formula Guidelines
- MHF-LS Emergency Contingency Plan
- Northern Trucking Route
- MHF-LS Interchange Lease Agreement
- Daily, Monthly and Annual Chassis Inspection Guidelines
- Annual Chassis Preventative Maintenance Guidelines
- Roadable Chassis Inspection Criteria
- YAEC CR 04-133 Document Draft Version 3/8/04
- Pin Trailer Lock Down Inspection Sheet