

**Facility: All DOE SITES**

**BEST PRACTICE TITLE: Non-DOE Owned Transport Equipment Return to Service Inconsistencies**

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**Brief Description of Best Practice:**

The Energy Facility Contractor Group (EFCOG) Packaging and Transportation (P&T) Subgroup of the Waste Management Working Group identified inconsistency occurring throughout the Department regarding the radiological clearance and return to service of non-DOE owned transportation equipment and potential ALARA actions that would reduce the likelihood of radioactive contamination of these vehicles. This Best Practice provides background discussion of the issue and ALARA recommendations that all shippers and receivers should consider in their policies and procedures.

Recent changes to the Department of Transportation (DOT) regulations via the regulations promulgated in the HM 250 rule established the DOT's position for the release of commercial carrier transport equipment used to transport radioactive materials and waste that is not remaining as an "exclusive use" service. The DOT clarified that the DOE and its contractors were responsible for the radiological clearance of commercial carrier transport equipment after the transport of radioactive shipments containing DOE radioactivity.

Additionally, the P&T subgroup identified inconsistencies in Department requirements and orders that contributes to field impacts. Therefore, with this change in the DOT regulations DOE and its contractors could place themselves in a situation where they could incur additional, potentially avoidable costs, and increased liability due to inconsistent return to service controls, requirements, and common processes. This discussion provides specific best practices and technical guidance that if implemented should significantly reduce the inconsistent application of clearance criteria as well as the cost of the potential delay in the return to service of non DOE owned transport equipment used to transport radioactive material and or wastes in support of DOE missions.

Collectively these situations have contributed to over \$500,000 of avoidable costs being incurred by DOE and its contractors. The Department is evaluating update of radiological clearance values contained in 10 CFR 835 and DOE O 458.1. This Best Practice provides improvements in the applications of existing DOE radiological clearance values, supplemented by local

requirements. P&T will continue to work with the Department to resolve conflicting requirements for evaluation and clearance of non-DOE owned commercial vehicles.

Recommendations: Below are comments, best practices, and guidance that if considered could aid in reducing both costs, project impacts and improving compliance for evaluating non-DOE owned commercial transport equipment that transport DOE owned radioactivity. This document additionally may aid in resolving conflicts between DOE directives as well as the difference in Federal regulatory requirements for clearance and release of non-DOE owned conveyances to public transport

- Perform pre-load radiological monitoring of conveyances to reduce potential liability if radioactivity is found during unloading or clearance procedures by the receiver. If pre-load contamination is detected the shipper should work with their local DOE Office for guidance and resolution. P&T will continue to work with DOE to establish guidance for situations where non-DOE owned radioactive material is detected during initial pre-load monitoring of conveyance equipment
- Implement ALARA processes and procedures to minimize or prevent DOE owned radioactive contamination of non-DOE commercial transport equipment. Management actions, such as, the use of various removable barriers between the load and conveyance (e.g. friction mats or additional package wrap), prior to loading a shipment also will reduce the potential for contamination of non-DOE owned equipment. Also the use of trailers with aluminum or metal floors instead of wooden decks would aid in reducing the impact of any radiological release or leaching.
- The detection limits and clearance criteria for a conveyance must be evaluated and established by both the shipper and receiver in advance. Clear understanding and communications of monitoring protocols and criteria being applied to assure transportation conveyances are properly managed. The shipper must understand in advance is which clearance criteria will be applied by the receiver organization.
- Develop recommended contract language to improve management of equipment non-DOE owned equipment. If needed, clarify notifications and actions, including demurrage payment, if non-DOE owned conveyances are held beyond defined timeframes. Consider defining the process for obtaining concurrence for any incident that would potentially require modification or repair to the conveyance due to radiological contamination.
- Non-DOE owned equipment should not be introduced into a Contamination Area, High Contamination Area, or Airborne Radioactivity Area as defined by 10 CFR 835, Occupational Radiation Protection.

**Why the Best Business Practice was used:**

To communicate the identified issue and interim solutions that would reduce future costs and impacts to shippers and receivers in several scenarios. The inconsistency between the DOE

directives, commercial facility license requirements to use NRC requirements, local site requirements and DOE contamination release limits has led to increased costs to DOE contractors in the form of required decontamination costs for the release of commercial transport equipment as well as the daily demurrage and detention costs for the retained trailers per the HQ DOE Office of Packaging and Transportation (OPT) Transportation Rules Tariff (DOE 190J).

**What problems/Issues were associated with the Best Business Practice?**

Several inconsistencies with the application of existing requirements as well as conflicts within existing DOE documents were identified while researching DOE orders and DOT regulations for this document. These issues have contributed to unplanned costs and delays in returning non-DOE owned equipment to their owner or potentially returning equipment to their owner that did not satisfy DOE requirements. Below are comments, best practices, and guidance that if considered will aid in reducing both costs, project impacts and improving compliance for evaluating non-DOE owned commercial transport equipment that transport DOE owned radioactivity. P&T will continue to work with the department, as approved, to assist in improved clarification and alignment of requirements.

**Description of process using the Best Business Practice:**

- Perform pre-load radiological monitoring of conveyances to reduce potential liability if radioactivity is found during unloading or clearance procedures by the receiver. If contamination is detected the shipper should work with their local DOE Office for guidance and resolution. P&T will continue to work with DOE to establish guidance for situations where non-DOE owned radioactive material is detected during initial pre-load monitoring of conveyance equipment
- Implement ALARA processes and procedures to minimize or prevent DOE owned radioactive contamination of non-DOE transport equipment. Management actions, such as, the use of various removable barriers between the load and conveyance (e.g. friction mats or package wrap), prior to preparing a shipment also will reduce the potential for contamination of non-DOE owned conveyances. Also the use of trailers with aluminum or metal floors instead of wooden decks would aid in reducing the impact of any release or leaching.
- The detection limits and clearance criteria for a conveyance must be evaluated and established by both the shipper and receiver in advance. Clear understanding and communications of monitoring protocols and criteria being applied to assure transportation conveyances are properly managed. The shipper must understand in advance in which clearance criteria will be applied by the receiver organization.

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- Develop recommended contract language to improve management of equipment not owned equipment. If needed, clarify notifications and actions, including demurrage payment, if non-DOE owned equipment is held beyond defined timeframes. Consider defining the process for obtaining concurrence for any incident that would potential require modification or repair to the conveyance due to radiological contamination.
- Non DOE owned equipment should not be introduced into a Contamination Area, High Contamination Area, or Airborne Radioactivity Area as defined by 10 CFR 835, Occupational Radiation Protection.
- P&T will continue to support Department efforts to evaluate and revise existing guidance. Specific examples include P&T recommendation that DOE O 458.1 should be revised to contain an exemption provision similar to that of 10 CFR 835.1(b) and that DOE O 458.1 clearance values should adopt ANSI 13.12 values. DOE OPT should not establish consolidated clearance values or separate clearance values from those of DOE O 458.1 except in situation where the isotope is not included in DOE O 458.1/ANSI 13.12.

### **How the success of the Best Business Practice Was Measured:**

The success of this Practice is demonstrated by the reduction in time involved and number of pieces of commercial transport equipment detained and resulting demurrage and detention cost for transport equipment that are held at DOE site facilities awaiting contamination surveys for “release back into the public sector”. Many of the recommendations noted cost little to implement yet avoid significant subsequent costs in those limited situations where DOE owned radioactive contamination is detected above approved limits for the scenario.

### **Conclusion/Summary:**

DOE and its contractors are incurring additional potentially avoidable costs and increased liability due to inconsistent return to service controls, requirements, and common processes. This document provides specific best practices and technical guidance, that if implemented should significantly reduce the inconsistent application of release criteria and the cost of the potential for delay in return to service of non-DOE owned transport equipment used to transport radioactive materials to support DOE missions. Based on the limited review performed by P&T each eliminated event due to implementation of the recommendations of this practice avoids \$10,000 or more in avoidable cost and mission impacts.

### **References:**

EFCOG BEST BUSINESS PRACTICE

Report titled: “Return to Service of Commercial Non DOE Owned Transport Equipment”  
Transportation Conveyance Return to Service Document Joint Document Created by the  
EFCOFG P&T Sub Group and the Radiation Protection Group. **Dated: xxx**