

## Human Performance Improvement #244

**Title** Waste Water Tote Leak (Tritiated, DOT Non-Regulated)

**Event Date** 04/29/2019

**Close Out Date** 06/11/2019

**Performed On** Environment, Safety and Health Section

**Led By** Environment, Safety and Health Section

**Department** David Hockin

**Manager**

**Location** Energy Solutions TSDF, Clive, Utah

**ORPS** Yes

**ORPS** Informational

**Reporting**

**Level**

**Incident** Unexpected Outcome

**Category**

**Entered By** Amy Pavnica 06/28/2019 00:00

**Updated By** Bridget Iverson 07/14/2020 15:25

**Incident Description** 3 oz of DOT non-regulated, tritiated waste water was found leaking from a tote on a truck that had just delivered 14 totes of this material to Energy Solutions Treatment Storage and Disposal Facility in Clive, Utah. Based on the state of Utah's administrative code, the Director of the Division of Waste Management and Radiation Control issued a Notice of Violation to FNAL for failed package integrity.

**What Happened?** When the truck was being unloaded, an Energy Solutions employee noticed the leak on the trailer-bed. The small amount of water was cleaned up and checked for contamination. No contamination was found. The waste tote was still full and accepted for disposal. The leak appeared to have originated from the valve collar of the tote. Energy solutions notified Fermilab's Hazard Control Technology Team on April 29, 2019 that a small amount of tritiated waste had leaked out of a tote onto the bed of the shipper's trailer. The HCTT was requested to supply a Corrective Action Plan (CAP) to Energy Solutions. This CAP was submitted to Energy Solutions on June 11th. On June 27th, correspondence from ES stated that the CAP was accepted. Investigation into the leak did not reveal any obvious conclusions of the cause of the valve leak. A Notice of Violation (NOV) was issued to Fermilab on June 19, 2019, as a result of the failed integrity of the waste package. Because of the NOV, a CAP will be submitted to the State of Utah by July 19, 2019.

**Immediate Actions Taken** Energy Solutions checked for contamination. FNAL was notified of the leak. Documentation was submitted to ES from the HCTT Supervisor. A CAP was requested from ES, and was submitted from the HCTT Supervisor.

**Why Did It Make Sense At The Time** When the totes are first received (new), they are inspected with a checklist for their integrity. As the 14 totes were filled, none of them exhibited any sign of leakage. Once the totes were loaded, the load was inspected and a checklist was again used. Pictures were also taken at this time. There was no sign of leakage or package failure.

**Follow Up** The shipment checklist has been revised and the CAP will be followed for future shipments (the next shipment in July 2019).

**Topic(s)** Documentation | Environmental Protection | Process | Radiological Protection | Transportation

**Lead Reviewer** Pavnica, Amy 10683N (ES)

**Review Team** Hockin, David 06020N (ES)

**Involved Person** Carrigan, Stephen 02980N ()

**Involved Person** Curatolo, Daniel 15611N (ES)

**Involved Person** Hockin, David 06020N (ES)

**Organizational Weakness** Design or Process Change: Tote valve collar was found to have a leak after the load was transferred from Fermilab to Clive, Utah.

Procedure Development or Use: Checklist for container loading did not include a further step for sealing the valve threads. The checklist also did not specify that the totes should be braced individually. Totes were braced and blocked as a group which could increase vibration as the load was traveling on the road.

**Error Precursor** Human Nature / Habit patterns: Totes haven't leaked in the past. Assumed that current checklist is accurate.

Work Environment / Unexpected equipment conditions: Assumed that new totes are delivered at the recommended torque and would not leak

### iTrack Items

Item	Responsible Person	Category	Item Title	Item Description	Item Due Date	Item Status	CAP	CAP Scheduled Date	CAP Close Date	CAP Title	CAP Description	CAP Resolution	CAP Status
101720	Hockin, David	Recommendation	Group Blocking and Bracing Totes	Once full totes are loaded on the bed of the truck,	12-JUL-19	Closed	83551	12-JUL-19	28-JUN-19	Stabilize totes individually for transport	Modify checklist for shipping waste water so that totes	Procedure now specifies that the totes will	Closed

				they are blocked and braced to keep them in place during transport. They were braced in groups, which was not effective from keeping the drums from vibrating.							are banded and braced individually, rather than as a group.	be banded and braced individually to further stabilize the totes during transport.	
101721	Hockin, David	Recommendation	Application of	Valve collars will be "caulked" to further prevent leaks during transport.	12-JUL-19	Closed	83552	12-JUL-19	27-JUN-19	Prior to loading totes,	Update checklist to reflect the "Flex Shot" application. The TSDf was notified of this and concurred. The tote manufacturer has also been notified.	The checklist for container loading now includes a verification step for the "Flex Shot" application to the valve collars to further prevent leaking during transport.	Closed
101776	Hockin, David	Recommendation	Revise Shipment Checklist	Energy Solutions Shipment Checklist will need to be revised to reflect the CAP of "Flex Shot" application and final visual inspection.	12-JUL-19	Closed	83594	12-JUL-19	03-JUL-19	ES Shipment Checklist Revision	Checklist should be revised to include the application of "Flex Shot" and a final visual inspection.	Checklist has been revised, which now includes the application of "Flex Shot" and a final visual inspection.	Closed

Uploaded File(s) Energy Solutions Shipment Checklist.pdf — Uploaded: 07/10/2019 09:57 by Amy Pavnica Response to NOV.pdf — Uploaded: 07/10/2019 14:04 by Amy Pavnica Tote Leak\_Energy Solutions\_2019.pptx — Uploaded: 10/01/2020 20:16 by Dave Baird Jr.