SAFE, PROVEN AND RELIABLE VENTING PROCESS

Los Alamos National Laboratory has developed a safe, proven and reliable process for venting Flanged Tritium Waste Containers (FTWC). Emission controls, including a filtering system, are in place to capture tritium during venting. The venting process will undergo real-time monitoring to ensure that public health and safety is protected and that no regulatory limits are exceeded in accordance with Department of Energy (DOE) and Environmental Protection Agency (EPA) requirements.

The venting process will be carefully controlled and monitored and the final results will be made available to the public in the Laboratory's Annual Site Environmental Report (ASER) and the Laboratory's Electronic Public Reading Room.

FTWC BACKGROUND INFORMATION

The Laboratory uses a variety of containers for the storage and transport of waste to meet regulatory requirements and environmental cleanup goals.

For waste that requires more comprehensive storage measures, like tritium waste, LANL uses containers specifically designed to ensure the contents pose no health or safety risk to the public, employees or the environment. Flanged Tritium Waste Containers are among the more robust containers LANL uses to manage and store this waste.

Tritium is an isotope of hydrogen that has two neutrons in the nucleus and one proton. It has a decay half-life of 12.5 years, as it decays it separates into non-radioactive helium and hydrogen. Tritium is a key component of the U.S. nuclear deterrent.

In 2007, LANL packaged four FTWCs for disposal at Technical Area 54. The FTWCs were stored safely and compliantly above ground awaiting burial. As part of our efforts to reduce the amount of waste stored on site, the Laboratory decided instead to ship the containers off-site to a licensed storage facility.

However, in order to ship the containers off site, the pressurized gases inside the containers must be vented to meet regulatory requirements of the U.S. Department of Transportation (DOT).

FREQUENTLY ASKED QUESTIONS

Q. Why is venting necessary?
A. The Laboratory has a goal of reducing the volume of waste on site. As part of this effort, the four FTWCs were identified for treatment on site and eventual shipment to a licensed off-site facility. Before we move the containers to the Weapons Engineering Tritium Facility (WETF), we must relieve pressure that has built up inside. Once the pressure is relieved, the containers will be transported to WETF. To safely move the containers and prepare them for shipment to a licensed off-site facility, we need to vent them first. In their current state, the pressure exceeds DOT limits for transportation. Therefore, we cannot move them or dispose of them until we vent them.

Q. How do you know venting is safe?
A. Laboratory engineers have done a careful analysis of the venting process to ensure that the release is controlled. The process has been tested at WETF and proven effective. This methodology has been evaluated and observed by representatives from the EPA who will be monitoring the effort. Additionally, strict limits have been placed on the amount of tritium that

can be released and we will be monitoring closely to ensure those limits are not exceeded.

Throughout the process, Laboratory engineers will be carefully monitoring the amounts of tritium released. We have also developed a system to capture much of the gas while it is being released. Strict regulatory limits prevent us from releasing more than we are allowed for each individual container. These precautions are designed to prevent any off-site health or environmental impacts.

Q. What is tritium and is it dangerous?
A. Tritium is a radioactive isotope of hydrogen. Naturally occurring tritium is very rare in our atmosphere. It is not chemically toxic and the amount we plan to release poses no risk to public health and safety or the environment.

Q. If you can't release the tritium during the outbreak of COVID-19, is there any danger to the public from continued storage?
A. The FTWCs are designed specifically to contain gas under pressure. The containers are in a safe configuration at Technical Area 54. We will not attempt to vent the FTWCs until we are sure it is safe to proceed.

Q. When do you expect to vent the FTWCs?
A. Due to impacts of the COVID-19 pandemic, Los Alamos National Laboratory is delaying the venting of four FTWCs until we have the necessary staff on hand to complete the work safely and compliantly. The FTWCs are stored in a safe and secure manner at LANL and do not represent a risk to the public or the environment. Safety is our number one priority. The schedule for venting will be developed when we have necessary staff to support these operations at the Laboratory.

For more information, contact us at: envoutreach@lanl.gov.

The Flanged Tritium Waste Containers are pressure vessels specifically designed to contain waste metal that has been exposed to tritium. As the tritium ages and separates into helium and hydrogen, those gases can create pressure inside the container. This is expected and accounted for in the design.

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