

P₄ Production, LLC

Soda Springs Plant
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October 27, 2016

Jason Dykert
Radiation Specialist
U.S. Nuclear Regulatory Commission
1600 E. Lamar Blvd.
Arlington, Texas 76011-4511

RE: Materials License #11-27361-01, Event #52268, 30-Day Follow-Up Report

Dear Sir,

On September 28, 2016, P₄ Production, LLC (P₄) notified the U.S. Nuclear Regulatory Commission of a potential radiation exposure incident. This letter is a written report of that incident.

Description of Event/Exact Location

In November 2015, P₄ installed a nuclear device (Berthold Model LB7409-3 moisture analyzer) on a Coke Fines vessel at P₄'s Soda Springs, ID, facility. In June 2016, P₄ engaged Berthold to commission the device. However, Berthold was unable to make the device to operate as intended due at least in part to a problem with another piece of equipment in the vessel, the dip tube. During its attempted commissioning, Berthold removed the plug that shields the source within the device. At the conclusion of the work, Berthold did not reinstall the plug and turned the device key to the locked position. Based on the key's position and Berthold's communication, P₄ understood that the source was locked in the device in a retracted and shielded position. Berthold did not communicate to P₄ that it was necessary to reinstall the plug when the device was detached in order to shield/shutter the source.

On September 27, 2016, P₄ tasked a contract electrician to remove the defective dip tube from the Coke Fines vessel. This work was not coordinated with P₄'s RSO. To do the dip tube work, the electrician detached the device from the side of the vessel. Shortly afterwards, the electrician noticed a cylinder sticking several inches out of the device. At this time, the electrician stopped work, used a wrench to partially push the cylinder back into the device, applied barricade tape across the top of the cylinder to hold it in place in the device, and reported what he had seen to his P₄ supervisor. P₄ immediately contacted Berthold. Based on

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Berthold's information, P4 determined that the device's source likely became exposed when the electrician detached the device. P4 then re-attached the device, effectively minimizing potential for exposure to the source. As a precautionary measure to ensure compliance with 10 CFR 30.50(2)(i), P4 notified the NRC of the incident within 24 hours of discovery. P4 also initiated an investigation.

Isotope and Quantity of Isotope

Americium 241 – Beryllium (300 mCi)

Date and Time of Event

Tuesday, 9/27/16, approximately 1330 MST (1530 EST)

Corrective Actions

P4 has determined that the cause of the incident is that the source was not secured and shielded within the device. Accordingly, P4 has identified the following corrective actions:

1. Survey all nuclear devices at P4's facility to confirm that the devices have built-in shutters and the shutters can be locked out.
2. Evaluate whether to continue using the Coke Fines vessel moisture analyzer or to return the device to Berthold (in coordination with NRC).
3. Update the site Ionizing Radiation Safety Procedure to require that, for any future new design or style of radiation source holder, the RSO works closely with the manufacturer to ensure a thorough understanding of the operational safety instructions unique to that device.

In addition, P4 has identified the following additional response actions:

- A. Replace signage located at nuclear devices, removing signage that states, "Caution Radioactive Materials", and installing signage that states, "Caution Radioactive Materials, Contact RSO prior to working on or near".
- B. Re-train all plant personnel and contractors on the requirement to coordinate any work on or near nuclear devices with the RSO.
- C. Communicate to all plant personnel the causes and corrective actions identified in the investigation.
- D. Review the Radioactive Materials License and pursue amendments as appropriate to align license conditions with current facility operations.

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Exposure to Individuals

Ten CFR 20.1301(a)(1) identifies a 100 mR/year dose limit for individual members of the public. In coordination with Berthold and based on interviews of the electrician, P4 estimates the electrician's exposure as follows:

Scenario 1 – based on Testimony from Electrician

Whole Body Dose = 3.91 mR

Extremity Dose = 10.83 mR

Scenario 2 – Worst Case

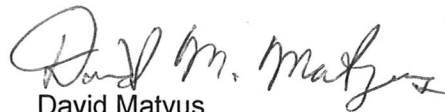
Whole Body Dose = 23.87 mR

Extremity Dose = 42.98 mR

Accordingly, a report under 10 CFR 30.50(2)(i) was not necessary.

We feel confident that the corrective actions described above will prevent reoccurrence of this type of incident. Please feel free to contact us if clarification or further information is required regarding this letter.

Sincerely,

A handwritten signature in dark ink, appearing to read "David M. Matyus". The signature is fluid and cursive, with the first name "David" and last name "Matyus" clearly distinguishable.

David Matyus
Industrial Hygienist/RSO