

**Specialty Materials**

Honeywell  
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August 5, 2009

Mail Stop EBB 2-C40M  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike  
Rockville, MD 20852

Docket No. 40-3392  
License No. SUB-526

Subject: 30-Day Written Follow-Up Report to NRC Event Number 45195 Reported  
06//12/2009 to NRC Operations Center

Dear Sirs:

The Honeywell Metropolis Works facility (MTW) reported to the NRC Operations Center in accordance with 10 CFR 40.60 (b)(1) the occurrence of an unplanned contamination event that required access to be restricted for more than 24 hours by imposing additional radiological controls. This letter is a follow-up report to address specific items required by 10 CFR 40.60(c)(2).

**NRC Event Number 45195 dated July 12, 2009 reported:**

An unplanned contamination event occurred on 10 July 2009. This is a reportable event in accordance with 10 CFR 40.60 sub paragraph (1) based on an unplanned event that resulted in additional radiological controls being required for more than 24 hours. The 24 hour period ended at 2000 CDT on 11 July 2009 (the reported event). The additional control imposed was the wearing of air purifying respirators on the fourth floor of the Feed Materials Building. The location of the event was the Feed Materials Building fourth floor. The Feed Materials Building converts milled uranium oxide material to uranium hexafluoride by using a dry process. Air samples from the fourth floor were analyzed and the airborne radioactivity averaged approximately  $6.11E-11$  microCuries/ml. The airborne contaminant was natural uranium ore concentrate and the physical form is a light microscopic dust. The processes in the area of elevated levels of airborne radioactivity have been secured and potential leakage paths are being investigated.

The license will notify NRC Region II.

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The following update was provided by Honeywell-Metropolis to the NRC Operations Center @ 1628 EDT on July 14, 2009.

The isotope responsible for the increased controls was natural uranium in the chemical form of uranium tetrafluoride (UF<sub>4</sub>); green salt. The amount of unplanned contamination that was released in the form of green salt was estimated to exceed 5 times the ALI [Annual Limit on Intake] (3 grams). The airborne activity averaged approximately 6.11E-11 microCuries/ml. (5.0E-11 microCuries/ml is 30% of 1 DAC [Derived Air Concentration]).

The licensee states that bioassay sampling of any potentially exposed individuals will be performed within the routine sampling frequency, but prior to 7/30/09.

The licensee has notified NRC Region II.

### **10 CFR 40.60(c)(2) Written 30-day follow up report required sections**

*(2)(i) A description of the event, including the probable cause and the manufacturer and model number (if applicable) of any equipment that failed or malfunctioned.*

An unplanned contamination resulting in no measurable off-site radioactivity occurred during the period from 2000 July 10 to 0800 July 12, 2009. This is a reportable event in accordance with 10 CFR 40.60, subparagraph (b)(1) based on additional radiological controls being required for more than 24 hours. The additional control imposed was the requirement to wear air purifying respirators in the Feed Materials Building (FMB) where the event occurred. Milled uranium oxide is converted to uranium hexafluoride in the process equipment contained within the FMB.

When conducting routine walkthrough inspection during normal shift activities on the 4<sup>th</sup> floor of the FMB, an operator noticed that the screen access door of #1 UF<sub>4</sub> mill was not fully closed/seated; this allowed material to leak out. The mill door could not be fully closed because the UF<sub>4</sub> screen was not properly reinstalled after cleaning. These two components could not be properly assembled because of insufficient cleaning of the mill tray.

The airborne material was natural uranium in UF<sub>4</sub> (uranium tetrafluoride) chemical form. It should be noted that the airborne material was erroneously identified in the initial 24-hour telephone report as uranium ore concentrate. A follow-up report dated July 14, 2009 corrected this error. The physical form of airborne uranium tetrafluoride was a light microscopic dust.

The operator notified a foreman, immediately initiated respiratory protection (air purifying respirators) by turning on the warning lights on the 4<sup>th</sup> floor of the FMB, and started a cleanup.

A Five Why Apparent Cause investigation identified the following immediate causes of the event:

- An operator who performed the mill cleaning activities did not understand the significance of proper cleaning and assembling of mill components;
- Due to a tight and restricted work space the operator was not able to verify whether the mill door was fully closed.

NRC Region II inspector was notified of event on July 13, 2009.

*(2)(ii) The exact location of the event.*

The material was released from #1 UF<sub>4</sub> mill on the 4<sup>th</sup> floor of the Feed Materials Building of the Honeywell facility in Metropolis, IL.

*(2)(iii) The isotopes, quantities, and chemical and physical form of the licensed material involved.*

The isotope released was the natural uranium in Uranium Tetrafluoride. The material chemical form was Uranium Tetrafluoride (UF<sub>4</sub>), and the physical form was a dust particulate.

The highest average airborne activity concentration for the 4<sup>th</sup> floor was 6.80E-11 μCi/ml.

*(2)(iv) Date and time of the event.*

The event occurred between 2000 CST on July 10 and 0800 CST on July 12, 2009.

*(2)(v) Corrective actions taken or planned and the results of any evaluations or assessments.*

The following actions have been taken:

1. Air purifying respirator requirement was imposed on the 4<sup>th</sup> floor of the FMB at the time of event identification on July 10, 2009.
2. Investigation was initiated and completed, and an associated problem report (PER) IR-09-2103 was filed in the plant's Corrective Action system (IT&CA) on July 10, 2009.
3. Radioactive contamination resulting from this event was cleaned from the 4<sup>th</sup> floor of FMB. Airborne radioactivity returned to the levels below an administrative action level of 5.0E-11 μCi/ml (for the floor average) at 0800 on July 12, 2009.
4. Routine bioassay results evaluation for potentially affected workers was performed within the routine sampling frequency by July 30, 2009. Bioassay results review and evaluation was performed on August 3, 2009.

The following actions are recommended by the Five Why Apparent Cause investigation in response to this event:

- Evaluate the feasibility of expanding platform at the two screen access door areas to improve accessibility of servicing the screens and, if feasible, initiate a Project Initiation form. Target date: 08/15/2009.
- Ensure operators are trained to understand the proper installation of the screen so the door is properly sealed closed. Add this action to the fluorination assistant's qualified training check sheet. Target date: 09/16/2009.

*(2)(vi) The extent of exposure of individuals to radiation or to radioactive materials without identification of individuals by name.*

Routine bioassay results evaluation performed for potentially affected individuals did not identify any significant uptakes of radioactivity that have occurred as a result of this contamination event.

Please contact Mr. Michael Greeno, Regulatory Affairs Manager, at 618-309-5005, if you have additional comments or questions regarding this matter.

Sincerely

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Attention: Mr. John M. Pelchat, Senior Health Physicist  
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