

Specialty Materials

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April 23, 2009

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US Nuclear Regulatory Commission
Director, Office of Nuclear Material Safety & Safeguards
Attention: Document Control Desk
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Docket No. 40-3392
License No. SUB-526

Subject: 30-Day Written Follow-Up Report to NRC Event Number 44939 Reported
03//26/2009 to NRC Operations Center

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 44939 dated March 26, 2009 reported:

On Tuesday March 24th 2009 Production personnel were trouble-shooting a vacuum problem with the Green Salt blender on the 4th floor of the FMB. The troubleshooting activity caused a mass of fine particle green salt material to become dislodged from the "A" secondary dust collector. The material flowed through a locked out rotary valve and traversed the piping where a section of the pipe had been removed for maintenance allowing the majority of the material was dispersed in the basement of the FMB. Four employees were working in the basement of the FMB at the time of the event. All of the personnel exited the area. The event was reportable under 10 CFR 40.60 (b) Unplanned Contamination. All personnel were decontaminated and left bioassay samples for analysis.

The area was restricted requiring respiratory protection at 1330 on March 24th. The area was released from that restriction at 1200 on March 26th.

Notified region 2 inspector of event at 1600 March 24th.

An investigation has been initiated at the site.

Isotope, Quantities and Chemical Form

Natural uranium, approximately 100lbs Uranium Tetrafluoride (green salt) Personnel
Radiation Exposure Date (if applicable)

1) 8.15 mrem, 2) 9.77 mrem, 3) 2.52 mrem 4) 4.96 mrem

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 1330 March 24 to 1200 March 26, 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.

The "A" Uranium Tetrafluoride (UF₄, Green Salt) filter/dust filter drain line was undergoing maintenance. A section of the piping had been removed to facilitate the work, leaving the system open to the atmosphere. A blank had been installed in the past to ensure that the secondary dust collector could not pick up material from a reverse flow through the drain. However, the blank below the secondary dust collector air lock had not been installed on this occasion. The decision not to install the blank was made under the assumption that the air lock would be sufficient to block that flow path.

At the same time when the drain line work was being conducted, vacuum on the UF₄ blender, on the 4th floor of the FMB, had degraded resulting in some dusting of UF₄ around the blender. The source of vacuum for the blender is the "A" UF₄ dust collector system. A separate maintenance activity was conducted to alleviate this problem. A differential pressure tap on the secondary dust collector blowback system was found plugged. After the differential pressure tap was cleaned, the blowback system was tested by momentarily opening the blowback air solenoid valve by manually closing the system's pressure switch. UF₄ immediately dusted out of the dust collector drain nozzle on the 6th floor. There was a customary mechanical jolt to the bag house when the blowback occurred. A significant amount of UF₄ (approximately 100 lbs) was released from the open drain line on the 1st floor into the basement of the FMB. It could have been caused by either the air pressure or the mechanical shaking.

A root cause analysis identified the following immediate causes of the event:

- The blank was left out after maintenance activities on the "A" UF₄ secondary dust collector (due to difficulties with blanking the drain line);
- The air lock (rotary valve) did not seal the fine dust in the hopper.

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

The significant amount of Green Salt was released from the open drain line on the 1st floor into the basement 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 (UF₄), and the physical form was a dust particulate.

The highest average airborne activity concentration for the basement was 15.8 µCi/ml.

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

The event occurred between 1330 on March 24 and 1200 on March 26, 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 at the time of event identification on March 24, 2009.
2. Investigation was initiated and an associated incident report was filed in the plant's Corrective Action system (IT&CA) on March 24, 2009.
3. Radioactive contamination resulting from this event was cleaned from the FMB. Airborne radioactivity returned to the levels below an administrative action level of 5.0 E-11 µCi/ml (for the floor average) at 1200 on March 26, 2009.
5. Special bioassay samples were collected from personnel potentially affected by the event. Bioassay results evaluation was completed on March 26, 2009.
6. Root cause (APOLLO) investigation was initiated to identify causes and recommend corrective actions. A draft investigation report was issued on 4/15/2009.

The following actions are recommended by the root cause (APOLLO) investigation in response to this event:

- Install slide valves at the secondary Green Salt dust collector air lock locations. Ensure Operating procedures and Process and Instrument Diagrams (P&ID) are revised to identify normal valve position. Target date: 08/01/2009.
- Evaluate need for slide valves at uranium-bearing dust collector bag houses, then revise corrective action plan as necessary. Target Date: 09/01/2009
- Replace A Green Salt secondary dust collector air lock. Target Date: 09/01/2009
- Install local vacuum gauges or other instrumentation to allow troubleshooting the dust collector blowback system. Target date: 09/01/2009.
- Install necessary equipment to utilize DCS logic to flag when dust collector maintenance or troubleshooting is necessary. Target date: 09/01/2009.

All corrective actions to prevent this event from occurring in the future are planned to be completed by 12/01/2009.

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

Four employees who were working in the basement of the FMB at the time of the event were decontaminated to prevent chemical burns.

Immediately following the event, the special bioassay samples from these employees were collected and analyzed. Acute internal radiation doses of 8.15 mrem, 9.77 mrem, 2.52 mrem and 4.96 mrem indicate that no significant uptakes of radioactivity have occurred as a result of this event.

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

Sincerely



Mitch Tillman
Plant Manager

cc: Regional Administrator
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