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October 7, 2005

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U.S. Nuclear Regulatory Commission
Director, Office of Nuclear Material Safety and Safeguards
Attention: Document Control Desk
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Rockville, MD 20852-2738

Subject: 30-Day Written Follow-up Report to NRC Event Number 41977 Reported
September 9, 2005 to Nuclear Regulatory Commission Operations Center
Docket No. 04003392, License No. SUB-526

Honeywell Chemicals, Specialty Materials, Metropolis Works (MTW) facility reported to the Nuclear Regulatory Commission (NRC) Operations Center as per 10CFR40.60 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 required follow-up report to address specific items required by the regulations.

NRC Event Number 41977 dated September 9, 2005, reported:

An unplanned contamination event occurred on 8 September 2005. This is a reportable event in accordance with 10 CFR 40.60 sub paragraph (1) based on additional radiological controls being required for more than 24 hours. The 24 hour period ended at 1000 on 9 September 2005 [the reported event], The additional control imposed was the wearing of air purifying respirators on the second floor of the Feed Materials Building. The location of the events was the Feed Materials Building second floor. The Feed Materials Building converts milled uranium oxide material to uranium hexafluoride by using a dry process. Air samples from the second floor were analyzed and the airborne radioactivity averaged approximately $6.5E-11$ microcuries/ml. The airborne contaminate 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 licensee stated that bioassay sampling of exposed individuals will be performed within the routine sampling frequency, but prior to 09/30/05.

The licensee has notified NRC Region II (D. Collins).

IE72

10CFR40.60 (c) (2) Written 30-day follow-up report required:

- (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 airborne contamination event, resulting in no measurable off-site radioactivity, occurred at approximately 1000, September 9, 2005. This is a reportable event in accordance with 10CFR40.60 subparagraph (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 on the second floor of the Feed Materials Building (FMB).

Milled uranium oxide material is converted to uranium hexafluoride in process equipment contained within the FMB.

At 1000 on September 8, 2005 the Health Physics staff identified elevated airborne radioactivity on the fixed samplers on the second floor of the FMB for a floor average of $6.5E-11$ microcuries/ml. This exceeded the administrative limit of $5E-11$ microcuries/ml which is based on 30% of the DAC for the isotopes of concern.

The additional control to wear air-purifying respirators was imposed and investigation and cleanup activities were initiated immediately. During the investigation activities, the average airborne radioactivity for the second floor remained elevated for more than a 24-hour period resulting in a reportable event. The process equipment suspected of emitting the airborne contamination was then secured. Additional air sampling then indicated the area average airborne radioactivity returned below the administrative levels at 2100 on September 9, 2005. Bioassay results from the employees affected during the event indicated no uptake of radioactivity in excess of normally expected results.

The equipment investigation consisted of visual inspection of the operating Ore Preparation equipment. The investigation identified two specific pieces of equipment that were found to have visual leakage paths. The Ore Blender, manufactured by Sprout Waldron, had a leak in the shaft packing. The shafts on the #2 Prepared Feed Mill, manufactured by Ludman Machine Company, were emitting airborne uranium due to insufficient vacuum on the system.

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

The high airborne radioactivity was located on the second floor of the Feed Materials Building in the vicinity of the Ore Blender and the #2 Prepared Feed Mill in the Honeywell-MTW facility at Metropolis, IL.

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

The isotope released was natural uranium. The physical form was a light dust and chemical form was U_3O_8 . The average airborne radioactivity concentration for the second floor was $6.5E-11$ microcuries/ml, which is less than 1 gram of natural uranium concentrates suspended in air for the event period.

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

This event began at approximately 1000, September 8, 2005.

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

The following actions have been taken or are planned in response to this event:

1. The radioactive contamination resulting from this release was cleaned from the FMB and airborne radioactivity levels returned to less than actionable levels at 2100 on September 9, 2005. COMPLETE
2. Routine surveys indicated that surface and airborne contamination was isolated to the second floor of the FMB. Perimeter air samplers were analyzed and no radioactivity above background levels were found. COMPLETE
3. The shaft packing was replaced on the Ore Blender. COMPLETE
4. The vacuum line for the #2 Prepared Feed Mill was cleared and sufficient vacuum restored. COMPLETE
5. The #2 Prepared Feed Mill vacuum system, mill design, mill capacity, and engineering controls will be evaluated. (4 Qtr 2005)

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

Following the release, routine bioassay samples were collected from employees who were present in the building during the occurrence. The most significant bioassay result was 9 µg/L which results in an exposure of < 10 mrem (CEDE).

Fixed air samplers in the FMB analyzed after the event, indicated the highest air activity on the second floor during the event was 2.13E-10 µCu/ml. The building second floor average was 6.5E-11 µCu/ml. Respiratory protection is required at a floor average of ≥5E-11 µCu/ml.

NRC Region II (D. Collins) was notified following the event.

Further questions regarding the above report can be directed to Mr. James Tortorelli, Regulatory Affairs Manager, at 618-524-6221 or Mr. Darren Mays, HS&E Manager, at 618-524-6396.

Sincerely,



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Plant Manager

Cc: Regional Administrator
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