



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931**

March 16, 2004

NMED No. 031001

Mr. Rory J. O'Kane
Plant Manager
Honeywell Specialty Chemicals
P.O. Box 430
Metropolis, IL 62960

SUBJECT: NRC INSPECTION REPORT 40-3392/2004-003

Dear Mr. O'Kane:

This report refers to the inspection conducted on February 17 - 19, 2004, at the Honeywell Specialty Chemicals facility. The purpose of the inspection was to review the circumstances for the recent event involving a uranium hexafluoride (UF₆) chemical release, and to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspection on February 19, 2004, the NRC inspectors discussed the findings with members of your staff.

The inspection consisted of an examination of activities conducted under the license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of the license. Areas examined during the inspection are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records.

Based on the results of this inspection, the NRC has determined that two apparent violations of NRC requirements occurred. The apparent violations and the circumstances surrounding the violations are described in the subject inspection report. The first apparent violation involved the failure to conduct plant operations in accordance with written Standard Operating Procedure Manuals. The second apparent violation involved multiple examples of the failure to properly implement the Radiological Contingency Plan as well as the failure to maintain it. No Notice of Violation is presently being issued for the inspection findings and no response regarding the apparent violations is required at this time.

These apparent violations remain under NRC review and the number and characterization of the apparent violations may change as a result of this NRC review. You will be advised by separate correspondence of the results of our deliberations on this matter.

In accordance with 10 CFR 2.390 of NRC's "Rules of Practice," a copy of this letter and its enclosures will be available electronically for public inspection in NRC's Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

If you have questions concerning this inspection please contact me at (404) 562-4731.

Sincerely,

/RA/

Jay L. Henson, Chief
 Fuel Facility Inspection Branch 2
 Division of Nuclear Materials Safety

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

Enclosure: Inspection Report 40-3392/2004-003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No. 40-3392

License No. SUB-526

Report No. 40-3392/2004-003 (DFFI)

Licensee: Honeywell International, Inc.

Facility: Metropolis Works

Location: P. O. Box 430
Metropolis, IL 62960

Dates: February 17-19, 2004

Inspectors: Manuel G. Crespo, Fuel Facility Inspector, Region II
Wayne L. Britz, Fuel Facility Inspector, Region II

Approved By: Jay L. Henson, Chief
Fuel Facility Inspection Branch 2
Division of Fuel Facility Inspection

Enclosure

EXECUTIVE SUMMARY

Honeywell International, Inc
NRC Inspection Report 40-3392/2004-003 (DFFI)

The purpose of this inspection was to review the results and findings from the inspection of the uranium hexafluoride chemical release on December 22, 2003, and determine whether activities authorized by the license were conducted in accordance with NRC requirements..

- One apparent violation was identified for the failure to have a procedure for the evolution of bringing two fluorinators online for dual operation. (Paragraph 2.a)
- A second apparent violation was identified for the failures to properly maintain and implement aspects of the Radiological Contingency Plan. (Paragraph 2.a)
- No deficiencies were identified in the timeliness of the training of the employees designated as emergency officers. However, the failure of the onsite health physicist technician to assume the role of Radiation Officer, as required by the Radiological Contingency Plan, was a further example of the second apparent violation. (Paragraph 2.b)
- The licensee took appropriate actions for assessing the radiological effects of the event. (Paragraph 2.c)

Report Details

1. Summary of Plant Status

During the inspection period, the plant was still in an extended shutdown period due to the uranium hexafluoride (UF₆) chemical release on December 22, 2003. Maintenance activities and minor plant processes were conducted without incident or unusual occurrences.

2. Evaluation of the December 22, 2003 event (Inspection Procedure (IP) 88020)

a. Conduct of Operations and Event Response

(1) Inspection Scope

The inspectors reviewed the reports and documents that described the sequence of events that occurred on December 22, 2003, that lead to the UF₆ release, as well as the actions taken to mitigate the effects of the release.

(2) Observations and Findings

The inspectors noted that, prior to the release, the operators were conducting a process evolution without adequate procedures. The only procedure in use for this evolution was a lock-out/tag-out list that gave no details on how it would affect the fluorinator system. According to the Licensee Application, Chapter 2, Section 2.6, titled, "Operating Procedures," plant operations are to be conducted in accordance with written Standard Operating Procedure Manuals. However, on December 22, 2003, the evolution of bringing two fluorinators online for dual operation was not conducted in accordance with written Standard Operating Procedure Manuals. A standard operating procedure manual had not been written for this process evolution, yet the activity had been performed multiple times in the past two years. This failure to have a procedure for the evolution of bringing two fluorinators online for dual operation appears to be an apparent violation (AV) (40-3392/2004-003-01).

Following the discovery of the UF₆ release, the licensee personnel began implementing the Radiological Contingency Plan (RCP), as required under Safety Condition 11 of the license. However, the inspectors noted that certain provisions of the RCP were not performed. First, in Appendix A, it stated that, "If the UF₆ release cloud is visible going over the North plant fence anywhere between the Sampling Plant and Liquid Propane Gas facility, the health physics (HP) technician will instruct the Guard to implement the 'Procedure for Alerting Residents of Plant Emergencies.'" However, on December 22, 2003, when the UF₆ release cloud was visible and going over the North plant fence between the Sampling Plant and Liquid Propane Gas facility, the technician failed to instruct the Guard to implement the "Procedure for Alerting Residents of the Plant Emergencies." This procedure was not readily available and therefore was never implemented. Based on discussions with the licensee, the procedure was supposed to have been eliminated based on discussions the licensee had with local emergency responders several years prior. However, the inspectors noted that the failure to maintain the "Procedure for Alerting Residents of the Plant Emergencies," or provide an adequate substitute, was a modification that decreased the effectiveness of the

approved emergency response plan. According to 10 CFR 40.35(f), such modifications could only be implemented with application to and prior approval by the NRC. Therefore, the failure to properly maintain the RCP was an example of what appears to be a second apparent violation (AV 40-3392/2004-003-02).

In addition, the inspectors noted a failure to comply with the RCP. Section 4.3, titled "Off-Site Assistance to Facility," stated that the Crisis Manager or his designee is responsible for reporting the meteorological conditions to the off-site agencies and to the NRC. However, on December 22, 2003, the Crisis Manager or his designee did not report meteorological conditions to off-site agencies. This represented the second example of what appeared to be the second apparent violation (AV 40-3392/2004-003-02). The combination of these failures to implement the RCP lead to communication difficulties with local emergency responders as well as deficiencies in providing additional information that would have assisted the local authorities in their response decisions.

(3) Conclusions

One apparent violation was identified for the failure to have a procedure for the evolution of bringing online two fluorinators online for dual operation. A second apparent violation was identified for the failures to properly maintain and implement aspects of the RCP.

b. Training

(1) Inspection Scope

The inspectors reviewed the training records of the individuals assigned emergency response roles at the facility to verify that they were appropriately trained for their position in an emergency.

(2) Observations and Findings

The inspectors saw that most of the employees at the facility had taken the course on emergency operations, titled "Industrial Incident and Emergency Operations Center," during the last quarter of 2003. The inspectors noted the employees who were involved with the response to the event were up-to-date on their emergency response role training. However, the HP technician onsite at the time of the event, who was on the training list, did not demonstrate adequate knowledge of his role in emergency situations.

The RCP stated that the role of the Radiation Officer would be performed by the HP technician. The Radiation Officer was the one to be responsible for directing activities through the Incident Commander (IC) to minimize public and employee exposure in the event of a release of radioactive materials. However, the HP technician failed to assume the role of the Radiation Officer and did not direct activities through the IC to minimize public and employee exposure during the event of December 22, 2003. Instead, the HP technician was assigned the role of First Aid Officer. The failure of the HP technician to perform the role of the Radiation Officer was identified as the third example of what appeared to be the second apparent violation (AV 40-3392/2004-003-02).

(3) Conclusions

No deficiencies were identified in the timeliness of the training of the employees designated as emergency officers. However, the failure of the onsite HP technician to assume the role of Radiation Officer, as required by the RCP, was a further example of what appeared to be the second apparent violation.

c. Event Follow-up Activities

(1) Inspection Scope

The inspectors reviewed the event assessment data, bioassays, and surveys performed by the licensee to verify that the appropriate actions had taken place.

(2) Observations and Findings

Following the event, the licensee conducted radiation surveys on five trucks and six fallout collectors in the direction of the plume. The trucks and fallout collectors did not require decontamination. Based on these results, no further surveys were conducted. No issues regarding surveying were noted.

The inspectors reviewed the results of the bioassays of employees that were conducted after the release. The License Application, Section 3.2.5, "Radiation Exposure, Bioassay," states that:

"The evaluation level used is 15 micrograms per liter (ug/L), and the investigation level is 60 ug/L urinary uranium. Employees whose urinary excretion rate exceeds 15 ug/L are resampled for confirmation. If the excretion rate exceeds 60 ug/L, the intake is investigated and daily urinary uranium samples are normally obtained until the results are less than the evaluation level." For uranium hexafluoride, an uptake of 15 ug/L would result in a dose to an individual of less than one millirem and 60 ug/L would result in a dose of less than 3 millirem.

Urine samples measuring above 15 ug/L were reevaluated. There were eleven samples greater than 60 ug/L. All samples were below the 60 ug/L investigation level on the second sample which generally occurred at about one day after the event, indicating that the uranium passed through the body. The inspectors verified that the uranium content of the samples trended downward to less than 15 ug/L. The uranium was determined to be in the soluble form which passes through the body faster than the insoluble form. The inspectors noted no issues with regard to the evaluations and reviews of the bioassays results.

The inspectors also reviewed the results of bioassays from members of the public, including police officers, who accepted the licensee's offer to check for possible uranium uptakes. Some of the urine samples indicated levels above 15 ug/L. Subsequently, those samples were reevaluated. All samples were below the 15 ug/L evaluation level on the second sample about one day after the event. The inspectors determined that no issues were present as the results of the bioassays from the members of the public were below the evaluation level.

(3) Conclusions

The licensee took appropriate actions for assessing the radiological effects of the event.

d. Review of Transportation Event

Honeywell ships drums of dust fines to a contractor in Colorado to reclaim any uranium in the fines. In February 2004, the contractor found a drum of uranium ore that was inadvertently shipped to them as part of a shipment of dust fines. The uranium ore was improperly labeled as a Limited Quantity Radioactive material when it should have been labeled Class 7 Radioactive substance. When the contractor notified Honeywell of the discovery, Honeywell immediately halted all shipments of material. The licensee's corrective action consisted of performing visual inspections of all the drums prior to shipment (which was not performed previously). The actual number of inadvertently shipped drums had not been determined at the time of this inspection because it could take as long as 2 months for the contractor to process all the drums in the shipment. After the licensee has determined the number of drums erroneously shipped, this issue will be reassessed. This issue will be followed-up as unresolved item (URI) 40-3392/2004-003-03.

3. Exit Meeting Summary

The inspectors presented the inspection results to members of the plant staff and management at the conclusion of the inspection on February 19, 2004, and re-exited by telephone on March 9, 2004. The plant staff acknowledged the findings presented.

ATTACHMENT

1. PARTIAL LIST OF PERSONS CONTACTED

Honeywell Specialty Chemicals

- *R. O’Kane, Plant Manager
- *T. Plunkett, Director of Operations
- *M. Davis, Health Physics Supervisor
- *M. Ginzel, Health Physics Manager
- *D. Mays, Environmental and Regulatory Affairs Manager
- *P. Bryan, Production Manager
- *B. Vandermeulen, Quality Assurance/Supply Chain Manager
- *J. Milhoan, Consultant

* Denotes those present at the exit meeting on February 19, 2004.

2. INSPECTION PROCEDURES USED

88020 Regional Nuclear Criticality Safety Inspection Program

3. ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
40-3392/2004-003-01	Open	AV - Licensee’s Failure to Have a Procedure for the Duel Fluorinator Setup Process (Paragraph 2.a).
40-3392/2004-003-02	Open	AV - One Example of Licensee’s Failure to Maintain the RCP and Two Examples of Failure to Implement It (Paragraph 2.a & 2.b).
40-3392/2004-003-03	Open	URI - Inadvertent shipment of uranium ore instead of dust fines to contractor (Paragraph 2.b).

4. LIST OF ACRONYMS USED

AV	Apparent Violation
ADAMS	Agency Document Access and Management System
CFR	Code of Federal Regulations
DFFI	Division of Fuel Facility Inspection
HP	Health Physics
IC	Incident Commander
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission

PARS	Publicly Available Records
RCP	Radiological Contingency Plan
UF ₆	Uranium Hexafluoride
ug/L	micrograms per liter
URI	Unresolved Item