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

December 21, 2007

Mr. David Edwards
Plant Manager
Honeywell Specialty Chemicals
P.O. Box 430
Metropolis, IL 62690

SUBJECT: NRC INSPECTION REPORT NO. 40-3392/2007-006 AND NOTICE OF VIOLATION

Dear Mr. Edwards:

This letter refers to the inspection conducted from November 5-30, 2007, at the Honeywell Specialty Chemicals facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspection on November 9, 2007, the findings were discussed with those members of your staff identified in the enclosed report. A second exit was conducted on November 30, 2007, by telephone, to communicate the enclosed violation and to verify corrective actions taken and proposed.

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, observations of activities in progress, and interviews with personnel.

Based on the results of these inspections, the NRC has determined that there was one violation. The violation was evaluated in accordance with the NRC Enforcement Policy included on the NRC's Web site at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. The violation is cited in the enclosed Notice of Violation (Notice), and the circumstances surrounding the violation are described in the subject inspection report.

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to correct the violation and prevent recurrence is already adequately addressed on the docket in Inspection Report No. 40-3392/2007-006. Therefore, you are not required to respond to this letter unless the description herein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if you choose to provide one, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/readingrm/adams.html. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact us.

Sincerely,

/RA/ D. Hartland for

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

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

Enclosures: 1. Notice of Violation
2. NRC Inspection Report 40-3392/2007-006

cc w/encls:
Gary Wright
Emergency Management Agency
Division of Nuclear Safety
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Springfield, IL 62704

Distribution w/encls:
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ADAMS: X Yes ACCESSION NUMBER:

OFFICE	RII/DFFI/FFIB1		RII/DFFI/FFIB2		RII/DFFI/FFIB2		RII/DFFI/FFIB2							
SIGNATURE	JMDiaz-Velez		MLThomas		JMPelchat									
NAME	KMD 12/17		MT 12/19		JMP 12/21									
DATE	12/	/2007	12/	/2007	12/	/2007	12/	/2007	12/	/2007	12/	/2007	12/	/2007
E-MAIL COPY?	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO

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NOTICE OF VIOLATION

Honeywell Specialty Chemicals
Metropolis, Illinois

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

During an NRC inspection conducted from November 5-30, 2007, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below.

> License Condition 18 of NRC License No. SUB-526, Amendment No. 0, states that the licensee shall conduct authorized activities at the Honeywell Metropolis Works Facility in accordance with the statements, representations and conditions (or as revised by change and/or configuration management processes as described therein) in Chapters 1 through 7 of the license application dated May 12, 2006, as supplemented by a letter dated March 20, 2007.
>
> Section 2.6.1 of the license application, dated May 12, 2006, requires that the licensee establish a process to identify those process operations that require procedural guidance to ensure proper execution and require that these process operations be conducted in accordance with approved procedures. Written procedures shall govern the procedure control process. These procedures shall address operating procedure preparation, review, revision, approval, and implementation.
>
> Step 4.1.1 of Procedure MTW-ADM-PRO-0103, "Development and Implementation of Plant Technical Procedures," Revision 12, requires that the department manager or designee determine the need for a new procedure and ensures a procedure is developed, in part, for a task that is critical to plant operations and is not "skill of the craft."
>
> Contrary to the above, prior to October 3, 2007, the licensee failed to appropriately determine the need for a new procedure for a task that was critical to plant operations and was not "skill of the craft." Specifically, the licensee failed to determine the need for a procedure that would ensure process lines were clear and free of blockages before applying heat to the lines.

This is a Severity Level IV violation (Supplement VI).

The NRC has concluded that information regarding the reason for the violation, the corrective actions taken and planned to be taken to correct the violation and prevent recurrence, and the date when full compliance will be achieved, is already adequately addressed on the docket in Inspection Report No. 04003392/2007006. However, you are required to submit a written statement or explanation pursuant to 10 CFR 2.201 if the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to

respond, clearly mark your response as a "Reply to a Notice of Violation," and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001 with a copy to the Regional Administrator, Region II, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

If you choose to respond, your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html. Therefore, to the extent possible, the response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 21st day of December, 2007.

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	40-3392
License No.:	SUB-526
Report No.:	40-3392/2007-006
Licensee:	Honeywell International, Inc.
Facility:	Metropolis Works
Location:	P. O. Box 430 Metropolis, IL 62960
Date:	November 5-30, 2007
Inspector:	Mary L. Thomas, Senior Fuel Facility Inspector Fuel Facility Inspection Branch 2
Accompanied by:	José M. Díaz-Vélez, Fuel Facility Inspection Branch 1
Approved by:	Jay L. Henson, Chief Fuel Facility Inspection Branch 2 Division of Fuel Facility Inspection

Enclosure 2

EXECUTIVE SUMMARY

Honeywell International, Inc.
NRC Inspection Report No. 40-3392/2007-006

This routine, announced inspection was conducted in the areas of radiation protection and transportation. The inspection involved observation of work activities, a review of selected records, and interviews with plant personnel. The inspection identified the following aspects of the licensee programs as outlined below:

Radiation Protection

- The survey instruments identified during walk-downs were found to be in good operating condition. The licensee's survey instrument calibration surveillance program was being adequately implemented. The licensee used survey instruments that were appropriate for the type and intensity of radiation measured. (Paragraph 2.a)

- The external and internal exposure monitoring program was implemented in a manner to maintain doses as low as reasonably achievable (ALARA). Exposures were less than the occupational limits in 10 CFR 20.1201. (Paragraph 2.b)

- The licensee's respiratory protection program was found to be adequate. Issuance and maintenance of respiratory protection equipment met regulatory requirements. (Paragraph 2.c)

- Radiological safety postings and warning lights were properly utilized to communicate potential hazards and the need for additional protective equipment to workers. Notices and/or postings required by 10 CFR Part 19 and 21 were properly posted. (Paragraph 2.d)

- Routine and non-routine surveys were adequate in the identification of potential airborne and contaminated areas. (Paragraph 2.e)

- The licensee's ALARA program was properly implemented. (Paragraph 2.f)

Transportation

- The licensee maintained an effective program to ensure radiological safety in the packaging and delivery of licensed radioactive materials. The licensee's transportation activities were in compliance with the requirements in 10 CFR Part 71 and 49 CFR Parts 171 - 178. (Paragraph 3.a)

Event Followup

- The licensee took appropriate emergency response action for a uranium hexafluoride (UF_6) release from a distillation system condenser valve. (Paragraph 4.a)

- The root cause analysis performed by the licensee adequately addressed the mechanical aspects of the release but did not address human performance. The inspectors identified a violation regarding the licensee's failure to adequately determine

the need for a procedure to ensure line clarity upon the discovery of a cold UF_6 process line.

Attachment:
Partial List of Persons Contacted
Inspection Procedures Used
Items Opened, Closed, and Discussed
List of Acronyms Used

REPORT DETAILS

1. Summary of Plant Status

The Honeywell Speciality Chemicals (licensee) uranium conversion facility (known as the Metropolis Works or MTW) is located on a 1,100 acre site (60 acres within the fence line). The licensee is authorized to possess 150 million pounds of natural uranium ore and to convert this material to uranium hexafluoride (UF_6). The uranium conversion and cylinder filling processes occur in the Feeds Material Building (FMB). During the inspection period, no significant operational issues or events occurred.

2. Radiation Protection (83822) (R1)

a. Instruments and Equipment (R1.03)

(1) Inspection Scope and Observations

The inspectors selected instruments during walk-downs from different plant areas to determine their operability and proper alarm setting (when applicable). The inspectors reviewed select records to determine instrument calibration status and to verify implementation of the licensee's calibration surveillance program.

(2) Conclusions

The survey instruments identified during walk-downs were found to be in good operating condition. The licensee's survey instrument calibration surveillance program was being adequately implemented. The licensee used survey instruments that were appropriate for the type and intensity of radiation measured.

b. External and Internal Exposure Control (R1.04 and R.1.05)

(1) Inspection Scope and Observations

The inspectors interviewed licensee representatives, reviewed radiation protection procedures, and reviewed personnel exposure data to determine if exposures were in compliance with 10 CFR Part 20.1201 limits.

Based on interviews, procedural reviews, and observations of plant personnel inside radiation control areas, the inspectors determined that the licensee's monitoring program for external and internal exposure was consistent with the requirements in 10 CFR Part 20. The program was adequate for the type of operations and work activities performed.

The inspectors observed bioassay procedures performed by the laboratory technician. The inspectors also discussed the calibration and procedure for operation of the kinetic phosphorescence analyzer with health physics staff.

The inspectors verified that the licensee's dosimetry provider was certified by the National Voluntary Laboratory Accreditation Program. The inspectors reviewed

dosimetry results for calendar year 2006 and determined that the maximum assigned external exposure was well below the limits for occupational exposure specified in 10 CFR 20.1201.

(2) Conclusions

The external and internal exposure monitoring program was implemented in a manner to maintain doses as low as reasonably achievable (ALARA). Exposures were less than the occupational limits in 10 CFR 20.1201.

c. Respiratory Protection (R1.04)

(1) Inspection Scope and Observations

Respiratory protection equipment testing, issuance, storage, maintenance, and training were examined for adequacy to determine if respirators were properly maintained and only issued to certified users.

During several plant walk-downs, the inspectors observed plant operators wearing respirators as required while working. The inspectors observed activities at the respirator facility involving fit testing and issuance of equipment. Observed fit testing was carried out in accordance with licensee and industry standards. The inspectors reviewed licensee records to determine if employees underwent respirator fit testing at 12 months intervals as required. No examples were noted of unauthorized use of equipment by untrained personnel or by workers with expired training or medical certifications.

The inspectors also observed activities in the respirator refurbishment facility. The inspectors discussed refurbishing activities with cognizant licensee employees and determined that disassembly, radiation monitoring of cartridges, washing, drying, inspection, and reassembly of respirators was performed in accordance with licensee procedures. The inspectors examined a sample of respirators in various stages of the refurbishment process and found that the respirators were properly reassembled, in good condition with no visible cracks or rot, and only minimal evidence of wear.

(2) Conclusions

The licensee's respiratory protection program was found to be adequate. Issuance and maintenance of respiratory protection equipment met regulatory requirements.

d. Postings, Labeling and Control (R1.05)

(1) Inspection Scope and Observations

The inspectors reviewed the licensee's program for postings as required by 10 CFR 19.11 and 10 CFR 21.6 to determine if documents were posted in sufficient places to permit individuals engaged in licensed activities to observe them. Several work locations were examined to determine if radioactive containers were properly

labeled and to assess the adequacy of contamination control barriers and posting of radiation areas as required by 10 CFR 20.1902.

The inspectors determined through direct observation and from discussions with the licensee that it used a remote annunciator system in the health physics lab and in the FMB control room to monitor the status of flashing lights on each floor of the FMB. These lights were illuminated to indicate the existence of, or potential for, elevated levels of airborne radioactive materials that would have necessitated the use of respiratory protection. The inspectors verified the proper operation of the annunciator system by performing walk-downs of the FMB, reviewing log books, and interviewing operators in the control room.

(2) Conclusions

Radiological safety postings and warning lights were properly utilized to communicate potential hazards and the need for additional protective equipment to workers. Notices and/or postings required by 10 CFR Part 19 and 21 were properly posted.

e. Surveys (R1.06)

(1) Inspection Scope and Observations

The licensee's health physics survey program was reviewed to determine if surveys were effective in the identification of radiological conditions within the facility and were performed in accordance with license requirements.

Interviews and review of records indicated that the licensee performed comprehensive radiation surveys of restricted and unrestricted areas. These surveys included weekly contamination surveys of areas within the restricted area in which licensee personnel were permitted by the license to eat and drink, such as the lunch room and the FMB control room.

(2) Conclusions

Routine and non-routine surveys were adequate in the identification of potential airborne and contaminated areas.

f. Implementation of ALARA Program (R1.08)

(1) Inspection Scope and Observations

The licensee's program to keep doses ALARA was reviewed to determine if the program and its goals were developed and implemented in accordance with the license. The inspectors performed reviews of ALARA audits to determine if the licensee was making reasonable effort to maintain exposures to radiation as far below the dose limits in 10 CFR Part 20 as possible considering the licensed activities performed.

The inspectors interviewed the health physics supervisor assigned responsibility for the ALARA evaluations and assessments associated with external and internal exposures.

On a quarterly basis, the licensee conducted ALARA Committee meetings that reviewed ALARA goals and exposure summaries to identify undesirable trends. Licensee staff demonstrated an adequate knowledge and/or understanding of ALARA concepts. During walk-downs of the FMB and other plant areas, the inspectors observed that, generally, licensee personnel were using good radiation safety practices.

(2) Conclusions

Based on direct observations, review of records, and interviews, the inspectors concluded that the licensee's ALARA program was properly implemented.

g. Follow-up of Previously Identified Issues (R1.09)

(Discussed) Inspector Follow-up Item (IFI) 40-3392/2007-001-01): Implementation of the corrective action program. The inspectors observed a corrective action program review meeting to assess the licensee's ability to identify, characterize, prioritize, and resolve identified issues in accordance with MTW-POL-QA-0003, "Corrective Action Program Policy," and MTW-ADM-QA-0110, "Corrective Action Program Procedure." The inspectors noted that the licensee's recently revised corrective action program was in development and initial steps of implementation. The inspectors also noted that the licensee hired additional staff with experience working with corrective action programs at commercial nuclear reactors. Inspector Follow-up Item (IFI) 40-3392/2007-001-01 remains open to track the licensee's progress in implementation of the revised corrective action program.

(Closed) Violation (VIO) 40-3392/2007-02-01: Failure to clean area following completion of work. The inspectors' review of the South Pad indicated that it had received adequate management attention to ensure the area was cleaned regularly. The inspectors confirmed the corrective actions had been developed and were being implemented by the licensee. The corrective actions were to clean the South Pad on a regular basis, train operators and supervisors to conduct pre-job briefings for licensee maintenance staff and contractors, and to include South Pad hazard awareness in all contractor orientation and training. The inspectors had no further questions. This item is closed.

3. Transportation (IP 86740) (R4)

a. Preparation of Packages for Shipment and Delivery of Completed Packages to Carriers (R.4.01/4.02)

(1) Inspection Scope and Observations

Records related to the preparation and delivery of completed packages for shipment of source material were reviewed in order to verify shipping requirements were being properly implemented. The inspectors reviewed the licensee's program for routine UF_6 cylinder shipments to determine whether the licensee had established and maintained an effective program to ensure radiological safety in the packaging and delivery of licensed radioactive materials, and to determine whether transportation activities were in

compliance with the requirements in 10 CFR Part 71 and 49 CFR Parts 171 - 178. The inspectors' review included procedural guidance, quality control activities, and maintenance of required records.

(2) Conclusions

The licensee maintained an effective program to ensure radiological safety in the packaging and delivery of licensed radioactive materials. The licensee's transportation activities were in compliance with the requirements in 10 CFR Part 71 and 49 CFR Parts 171 - 178.

4. Event Followup (IP 88003)

Followup on October 3, 2007 Uranium Hexafluoride (UF_6) Release

a. Background

On October 3, 2007, the distillation operator and the assistant distillation operator [operators] were in the process of preparing a distillation system condenser (DSC) for cleaning. The operators stopped because they noticed that valves and piping for out-of-service DSC systems were not warm to the touch. Upon further investigation, the operators found that the steam tracing supply valve to the affected components was shut. In response, the supervisor instructed the operators to open the steam tracing supply valve to the affected components.

Some time later, a maintenance supervisor observed smoke in the distillation area from an adjacent room and notified the FMB Control Room. The licensee responded in accordance with emergency response procedures and determined that one of the valves on the out-of-service DSC was leaking from the body-to-bonnet flange and placed the distillation system in a safe mode to allow evacuation of the affected components.

(1) Observations and Findings

The inspectors evaluated the licensee's response to the release. The inspectors determined the that licensee took the appropriate emergency response actions and correctly declared the event as a plant emergency, as the release was limited to the FMB without any off-site consequences.

The inspectors verified that bioassays of the involved personnel did not have a measurable uptake of uranium, as the maintenance supervisor was in an adjacent room to the release and the responders were wearing the appropriate personal protective equipment.

(2) Conclusions

The licensee took appropriate emergency response action for a uranium hexafluoride release from a distillation system condenser valve.

b. Inspector's Evaluation of Response Actions and Review of RCA

(1) Observations and Findings

Following the release, the licensee assembled a team to perform a root cause analysis (RCA) using the Apollo investigation tool. The RCA team determined that UF_6 solidified in a portion of the DSC piping due to the closed steam tracing supply valve. The licensee also determined that the steam tracing heated the distillation system piping too quickly, which caused a hydrostatic UF_6 pressure event, i.e., the UF_6 present in the heated line vaporized and increased in pressure until the valve leaked resulting in a UF_6 release.

The RCA team's proposed corrective actions were to administratively manage the heating of cold UF_6 lines when they were found using the STAR approach. In addition, the RCA also proposed evaluating the replacement of steam tracing with electric heat tracing with controllable thermostats to enable slower heating of cold UF_6 lines. Also, the licensee conducted informal "crew huddles" as a means of informing the staff of the event.

The inspectors determined that the licensee's investigation addressed the mechanical aspect of the release but did not address human performance. The inspectors discussed the lack of human performance analysis with licensee personnel. Licensee staff responded that the version of the root cause program they used did not cover human performance. The engineers assigned to the root cause team believed that an analysis of human performance would be speculative.

The inspectors also noted that, although licensee staff recognized that heating a UF_6 line could have caused a hydrostatic UF_6 pressure event, they did not have a controlled process for applying external direct heat to process lines without verifying line clarity. Application of external heat to a plugged process line has been shown under, certain circumstances, to develop large hydraulic forces in the pipe, creating the risk of a large UF_6 release due to pipe rupture. The inspectors also concluded that actions to prevent applying direct heat to plugged process lines was not "skill of the craft," and thus required an approved procedure.

Section 2.6.1 of the license application, dated May 12, 2006, required that the licensee establish a process to identify those process operations that require procedural guidance to ensure proper execution and require that these process operations be conducted in accordance with approved procedures. Written procedures shall govern the procedure control process. These procedures shall address operating procedure preparation, review, revision, approval, and implementation.

Step 4.1.1 of Procedure MTW-ADM-PRO-0103, "Development and Implementation of Plant Technical Procedures," Revision 12, required that the department manager or

designee determine the need for a new procedure and ensured a procedure was developed, in part, for a task that was critical to plant operations and was not "skill of the craft."

Contrary to the above, prior to October 3, 2007, the licensee failed to appropriately determine the need for a new procedure for a task that was critical to plant operations and was not "skill of the craft." Specifically, the licensee failed to determine the need for a procedure that would ensure process lines were clear and free of blockages before applying heat to the lines.

After subsequent discussions with Region II management and staff and in response to the violation, Honeywell revised their corrective actions to include:

(1) conduct of formal "crew huddles" with staff to discuss the event and document attendance;

(2) complete a root cause analysis of this event to include human performance elements to determine why the steam valve to the condenser piping was closed. The analysis would also determine how the decision-making process resulted in the operators turning the steam trace back on without ensuring line clarity, i.e., free from blockages;

(3) develop a formal process that operators must follow when they identify a cold line or system component of unknown condition that could potentially contain uranium hexafluoride. This process would also describe the actions to be taken when there is a known blockage of uranium hexafluoride in a line or system component; and

(4) publish the formal process in a written document, such as a stand-alone procedure, or incorporate the process into existing procedures, and train staff on the formal process.

(2) Conclusions

The root cause analysis performed by the licensee adequately addressed the mechanical aspects of the release but did not address human performance. The inspectors identified a violation regarding the licensee's failure to adequately determine the need for a procedure to ensure line clarity upon the discovery of a cold UF_6 process line.

5. Exit Meeting Summary

The inspectors presented the inspection results to members of the plant staff and management at the conclusion of the inspection on November 9, 2007 and on November 30, 2007. The plant staff acknowledged the findings presented. Although proprietary documents may have been reviewed during this inspection, the proprietary nature of these documents are not included in this report. No dissenting comments were received from the licensee.

ATTACHMENT

1. PARTIAL LIST OF PERSONS CONTACTED OR ATTENDED EXIT MEETING

Licensee

R. Erickson, Operations Manager
K. Babcock, Fluorine Products Leader
C. DeLand, Maintenance/Reliability Manager
M. Greeno, Regulatory Compliance Manager
B. Klinghammer, USW-Local President
D. Mays, Safety and Environmental Manager
M. Millman, Engineering Manager
S. Patterson, Health Physics Supervisor
D. Steele, Supply Chain/Tank Farm
B. Stokes, Regulatory Affairs

Other licensee employees contacted included engineers, technicians, and office personnel.

2. INSPECTION PROCEDURES (IPs) USED

IP 86740	Transportation
IP 88003	Reactive Inspection for Events at Fuel Cycle Facilities
IP 88030	Radiation Protection

3. ITEMS OPENED, CLOSED, AND DISCUSSED

Item Number	Status	Description
VIO 40-3392/2007-006-01	Open	Failure to identify the need for a procedure to use upon the discovery of a cold UF_6 process line to ensure line clarity.
VIO 40-3392/2007-002-01	Closed	Failure to clean area following completion of work.
IFI 40-3392/2007-001-01	Discussed	Track the licensee's progress in implementation of the revised corrective action program.

4. LIST OF ACRONYMS USED

ADAMS	Agency Document Access and Management System
ALARA	as low as reasonably achievable
CFR	Code of Federal Regulations
DSC	Distillation System Condenser
FMB	Feed Materials Building

MTW	Metropolis Works
NRC	United States Nuclear Regulatory Commission
RCA	Root Cause Analysis
UF_6	Uranium Hexafluoride
USW	Untied Steel Workers
VIO	Violation