

April 10, 2002

Mr. J. William Lessig
Plant Manager
Honeywell International, Inc.
P.O. Box 430
Metropolis, IL 62960-0430

SUBJECT: NRC INSPECTION REPORT 04003392/2002-002(DNMS) - HONEYWELL

Dear Mr. Lessig:

On March 15, 2002, the NRC completed a routine inspection at your Metropolis, Illinois facility. The purpose of the inspection was to determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. The NRC inspectors discussed the findings with members of your staff on March 15.

Areas examined during the routine resident inspection period are identified in the enclosed report. Within these areas, the inspection consisted of a selective examination of procedures and representative records, interviews with personnel, and observations of activities in progress.

Licensed activities involving source materials at your plant were performed in accordance with approved procedures and license requirements and were effective in ensuring safe operations.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response to this letter will be available electronically for public inspection in the NRC 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).

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

/RA/

Patrick L. Hiland, Chief
Fuel Cycle Branch

Docket No. 04003392
License No. SUB-526

Enclosure: Inspection Report 040-03392/2002002(DNMS)

cc w/encl: T. Ortigier, Illinois Department of Nuclear Safety

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No. 04003392

License No. SUB-526

Report No. 04003392/2002-002 (DNMS)

Licensee: Honeywell International, Inc.

Facility: Metropolis Works

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

Dates: March 11 through 15, 2002

Inspector: Mary L. Thomas, Paducah Resident Inspector

Approved by: Patrick L. Hiland, Chief
Fuel Cycle Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY

**Honeywell International, Inc.
Metropolis Works
NRC Inspection Report 04003392/2002-002(DNMS)**

This inspection included aspects of licensee operations, maintenance, fire protection, and transportation.

Operations

- The inspectors concluded that licensee had established onsite safety review committees (or their equivalents) that functioned in accordance with license conditions. In addition, the inspectors determined that the licensee had established and implemented a system to perform internal reviews, self-appraisals, and audits in accordance with the license. (Section O7.1)

Maintenance and Surveillance

- The inspectors determined that general maintenance operations, surveillance tests, and calibrations were being conducted in accordance with license requirements and approved procedures. In addition, the inspectors determined that emergency utility services and process monitoring instrumentation was being maintained and calibrated as required. (Section M1.1)
- The inspectors concluded that the licensee identified and corrected problems before equipment was placed back into service for selected maintenance activities in the Feed Materials Building. The license did not require the licensee to implement a corrective maintenance program. (Section M1.2)

Plant Support

- The inspector concluded that the licensee's performance complied with the requirements contained in 10 CFR 20.1201(e) and 20.1703 with respect to a batch of uranium tetrafluoride that was known to contain plutonium-239. (Section R1.1)

Fire Protection

- The inspector concluded that the licensee's facility, processes, and fire protection equipment were suitably designed, but that the material condition of the fire water pump and process water supply pipe was poor. (Section F2.1)
- The inspectors concluded that the licensee maintained personnel and equipment in readiness to implement the Pre-Fire plan. Training for all Emergency Response Team personnel was current and the facility emergency response equipment and emergency response vehicle were maintained in readiness to implement the Pre-Fire plan. (Section F5.1)

Transportation

- Uranium hexafluoride cylinder shipments were properly secured, radiation and contamination surveys were properly performed, and radiological conditions of shipments were within Department of Transportation and US Nuclear Regulatory Commission regulatory limits. Shipping papers were properly maintained in the vehicles carrying the shipments, and the vehicles were properly placarded. Health physics technicians properly performed swipes and surveillance of cylinders leaving Honeywell. (Section T1.1)

I. Operations

O7.1 Safety Committee Review

a. Inspection Scope (88005)

The inspectors evaluated whether the licensee had established onsite safety review committees (or their equivalents) that functioned in accordance with license conditions. The inspectors also evaluated whether the licensee had established and implemented a system to perform internal reviews, self-appraisals, and audits.

b. Observations and Findings

Chapter 2.3 of the license required the establishment of three committees, the "A" Council Safety Committee, the "B" Council Safety Committee, and an As-Low-As-Reasonably-Achievable (ALARA) Committee. The inspector reviewed the records of the "A" and "B" Council Safety Committee to confirm that the licensee was conducting meetings monthly and that the composition of the committee was in accordance with the license. In addition, the inspector attended a "B" Council Safety Committee meeting and noted that attendees included the Health Physics (HP) Manager, and various supervisors and hourly personnel. The committee discussed recent safety accidents and any questions or concerns of plant personnel; and reviewed certain safety procedures, regulations, the status of safety projects, and the training program for plant safety.

The inspectors reviewed the meeting minutes for 2001 of the ALARA Committee and noted the following:

- Attendees included the Plant Manager, HP Manager and Supervisor, the Vice-President and President of the local union, and a majority of the Department Managers;
- Meetings were conducted quarterly;
- Meeting minutes attested that the committee reviewed the radiological safety program performance for the previous quarter and formulated and completed actions for reducing employee or environmental radiation exposure; and
- Graphs were used to illustrate radiation exposures to workers and the closest resident and uranium losses to the environment.

The inspectors noted that the licensee was complying with the requirements specified in Chapter 2.3 of the license for the conduct of the required three committees.

Chapter 2.7 of the license specified that internal audits and inspections are conducted on an annual basis. The inspectors determined that the licensee had divided the plant into four sections such that one section of the plant was audited and inspected on a quarterly basis to comply with the annual basis requirement in the license. The inspector reviewed the audit results for 2001 and determined that all audits were conducted as specified.

c. Conclusion

The inspectors concluded that licensee had established onsite safety review committees (or their equivalents) that functioned in accordance with license conditions. In addition, the inspectors determined that the licensee had established and implemented a system to perform internal reviews, self-appraisals, and audits in accordance with the license.

II. Maintenance and Surveillance

M1.0 Maintenance and Surveillance Activities

M1.1 Preventive Maintenance Program

a. Inspection Scope (88025)

The inspectors evaluated whether general maintenance operations, surveillance tests, and calibrations were being conducted in accordance with licensee requirements and approved procedures. In addition, the inspectors assessed whether emergency utility services and process monitoring instrumentation were being maintained and calibrated as required.

b. Observations and Findings

The inspectors reviewed work control procedures in order to verify that work was controlled within the boundary of the operating plant, within process operating areas, and near vital equipment. In addition, the inspectors verified that maintenance procedures controlled special processes and potential fire hazards. Appropriate administrative controls were in place to control the initiation and completion of work activities. The inspectors performed these verifications by a review of procedures and regulatory commitments, interviews of selected employees, observations of selected maintenance activities, and the assessment of selected work orders. The inspectors did not identify any issues.

The inspectors verified that the licensee was meeting the required frequency of surveillance tests for systems important to safety that were specified in the license requirements. In addition, the inspectors verified that surveillance tests were performed using properly approved procedures which met the license requirements. The inspectors performed these verifications by a review of procedures and regulatory commitments, interviews of selected employees, observations of selected surveillance activities, and reviews of selected surveillance tests. In particular, the inspectors reviewed the completed worksheet and checklist for the Uranium Hexafluoride (UF₆) Fill Spot Weight Recorder Instrument Loop semiannual inspection from December 2001. The inspectors also reviewed the preventive maintenance tracking system for this system. In addition, the inspectors discussed this system with cognizant maintenance staff. The inspectors did not identify any issues.

c. Conclusions

The inspectors determined that general maintenance operations, surveillance tests, and calibrations were being conducted in accordance with license requirements and approved procedures. In addition, the inspectors determined that emergency utility

services and process monitoring instrumentation was being maintained and calibrated as required.

M1.2 Corrective Maintenance

a. Inspection Scope (88025)

The inspectors observed selected maintenance activities and reviewed selected records for various systems in the Feed Materials Building even though a corrective maintenance program was not required by the license.

b. Observations and Findings

The inspectors observed the replacement of the rupture disk for the “A Top Hydrofluorinator” pressure relief valve and the idle end seal ore calciner riding ring. Difficulties were experienced with both replacements with respect to putting each system back into its original configuration.

The rupture disk for the “A Top Hydrofluorinator” pressure relief valve failed and required replacing. The licensee removed the “A Top Hydrofluorinator” from service and initiated a replacement. During the installation of the replacement rupture disk the mechanics installed the rupture disk backwards. The issue arose because the pressure indicating gauge on the rupture disk was facing the wrong direction, such that it was measuring the pressure in the line above the rupture disk versus the pressure in the “A Top Hydrofluorinator.” This issue was identified by licensee personnel, and promptly corrected.

Three eighth-inch shims had previously been used on the calciner riding ring. The presence of these shims caused the new riding ring not to fit correctly. During the inspectors’ review of various drawings for the system, the inspectors determined that none of the drawings clearly showed where the shims were to be placed, nor did the drawings show how the system should be bolted back together. The inspectors discussed this with cognizant maintenance personnel, which resulted in the cognizant maintenance foreman going to the jobsite to observe the work and ensure that the assembly was properly conducted. Once these shims were removed, the riding ring fit correctly.

c. Conclusions

The inspectors concluded that the licensee identified and corrected problems before equipment was placed back into service for selected maintenance activities in the Feed Materials Building. The license did not require the licensee to implement a corrective maintenance program.

III. Plant Support

R1 Radiological Protection Controls

R1.1 Internal Exposure

a. Inspection Scope (83822)

The inspectors evaluated whether the licensee's performance was in accordance with 10 CFR 20.1201(e) with respect to a batch of uranium tetrafluoride (UF₄) that was known to contain plutonium-239 (Pu-239). The inspectors also evaluated whether the licensee's respiratory protection program performance was in accordance with 10 CFR 20.1703 with respect to a batch of UF₄ that was known to contain Pu-239.

b. Observations and Findings

The licensee had purchased several drums of UF₄ from the Department of Energy (DOE) facility located in Fernald, Ohio. The licensee was told by DOE-Fernald that the UF₄ was processed in a system that had also been used to process plutonium, resulting in the UF₄ containing some amount of Pu-239. The Department of Energy, Fernald, OH, provided data to the licensee confirming the presence of Pu-239. The licensee also sent samples of the UF₄ to two independent laboratories for analysis of the amount of Pu-239 in the UF₄.

The inspector reviewed the plutonium analysis data provided by the licensee and determined the gram Pu-239 per gram uranium results from DOE-Fernald and two independent laboratories were within reasonable agreement. The inspector used this data to calculate the potential dose to a worker from plutonium-239 on a per gram uranium basis. The potential doses calculated on a per gram uranium basis were below regulatory limits for internal exposure. The inspector also determined that the 10 milligrams in a week soluble uranium intake limit stated in 10 CFR 20.1201(e) with which the licensee is required to comply is more restrictive than the associated dose limits specified in 10 CFR Part 20. In addition, the inspector determined that the assigned protection factor for the half facepiece respirator, 10, which the licensee provided to its staff would further reduce the potential dose to a worker by a factor of 10. Based on the inspector's evaluation of the data provided, the inspector determined that the licensee's performance was in accordance with 10 CFR 20.1201(e) and 20.1703 with respect to a batch of UF₄ that was known to contain Pu-239.

c. Conclusions

The inspector concluded that the licensee's performance complied with the requirements contained in 10 CFR 20.1201(e) and 20.1703 with respect to a batch of uranium tetrafluoride that was known to contain plutonium-239.

IV. Fire Protection

F2 Status of Fire Protection Facilities and Equipment

F2.1 Fire Water System and Suppression Equipment

a. Inspection Scope (88055)

The inspector evaluated whether the licensee's facility, processes, and fire protection equipment were suitably designed and adequately maintained.

b. Observations and Findings

The inspector toured the Feed Materials Building and observed that fire extinguishers and fire water hose reels were located on each floor of the Feed Materials Building in all but one location. The inspector pointed out this discrepancy to the Safety Manager who had the missing fire extinguisher replaced. All of the fire extinguishers in the Feed Materials Building had been inspected within the past month.

The inspector determined that the material condition of the fire water pump and process water supply pipe was poor as evidenced by the following:

- The drain line for the electric-motor-operated side of the fire-water-pump coupling was blocked, resulting in the water draining out of holes in the drain housing onto the support pad for the pump. The licensee personnel had been using absorbent pads to collect the water versus submitting a work order to unblock the line. The inspector discussed the material condition of the coupling with cognizant safety and maintenance personnel. The inspector also observed that the drain line on the diesel generator-operated end of the fire water pump was not directed into the floor drain. A maintenance supervisor moved this drain line back into position over the floor drain.
- Oil absorbent pads were in place under the diesel generator. The inspector discussed the use of oil absorbent pads with cognizant safety personnel who stated that the oil had been recently changed in the diesel generator and that pads were used in the event of an inadvertent oil spill.
- The wooden support for the diesel generator batteries was deteriorating because of the uncorrected oil and water leaks.
- The process water supply pipe to the fire water pump had a line of corrosion running the length of the pipe from where it penetrated the ceiling to where it turned to connect to the fire water pump. A large section of corrosion could be seen in one place. The inspector discussed the material condition of this pipe with cognizant safety and maintenance personnel. Maintenance personnel took thickness measurements to confirm that the thickness of the pipe wall was acceptable for eight-inch Schedule 40 pipe. The inspector observed the thickness measurements and had no further concerns.

c. Conclusions

The inspector concluded that the licensee's facility, processes, and fire protection equipment were suitably designed, but that the material condition of the fire water pump and process water supply pipe was poor.

F5 Fire Protection Staff Training and Qualification

F5.1 Emergency Response Team

a. Inspection Scope (88055)

The inspector evaluated whether the licensee maintained personnel and equipment in readiness to implement the Pre-Fire plan.

b. Observations and Findings

The inspector reviewed the training records for Emergency Response Team personnel and determined that all Emergency Response Team personnel received a total of 24 hours per year training in first aid, cardiopulmonary resuscitation, hazardous work permits, confined space entry, and fire control. The inspector toured the facility and emergency response vehicle and determined that the licensee was maintaining equipment in readiness to implement the Pre-Fire plan.

c. Conclusions

The inspector concluded that the licensee maintained personnel and equipment in readiness to implement the Pre-Fire plan. Training for all Emergency Response Team personnel was current and the facility emergency response equipment and emergency response vehicle were maintained in readiness to implement the Pre-Fire plan.

V. Transportation Activities

T1 Transportation

T1.1 Conduct of Transportation

a. Inspection Scope (86740)

The inspector observed preparation and shipment of several 14-ton UF₆ cylinders bound for Russia to verify that the shipments were made in accordance with Department of Transportation requirements. The inspector also reviewed required documentation for various shipments from the last quarter. The inspector also reviewed the following procedures:

- Health Physics Procedures, Part II, Section 21, "Procedures for Monitoring Contamination on UF₆ Cylinders"
- UF₆ Cylinder Quality Assurance Manual, Section 17, "UF₆ Cylinder Shipping and Receiving Inspection"

b. Observations and Findings

The inspector observed the licensee prepare truck shipments of 14-ton UF₆ cylinders that were ultimately being sent to Russia. Health physics technicians appropriately performed swipes on various UF₆ cylinders that were shipped the following day. The counts on the swipes were well below regulatory limits. The inspector observed the movement of various UF₆ cylinders from the dock onto the trucks and offsite. The operators properly transported and secured the cylinders. Health Physics technicians performed appropriate surveys to ensure that removable contamination and radiation levels were below the regulatory limits. The shipments were appropriately labeled and placarded in accordance with Department of Transportation requirements.

The inspector reviewed shipping manifests and verified that the information required by the Department of Transportation was available in the shipping documentation and that the documents were readily available to the driver of the vehicle.

The inspector reviewed Health Physics Procedures, Part II, Section 21, "Procedures for Monitoring Contamination on UF₆ Cylinders" and UF₆ Cylinder Quality Assurance Manual, Section 17, "UF₆ Cylinder Shipping and Receiving Inspection." The Health Physics Procedures stated that swipes shall be done around the valve and on the sides, and the UF₆ Cylinder Quality Assurance Manual stated that cylinders shall be inspected and prepared for shipment up to 48 hours prior to departure. The inspector observed the health physics technicians perform the swipes and verified that the swipes were done according to procedures.

c. Conclusions

Uranium hexafluoride cylinder shipments were properly secured, radiation and contamination surveys were properly performed, and radiological conditions of shipments were within Department of Transportation and US Nuclear Regulatory Commission regulatory limits. Shipping manifests were properly maintained in the vehicles carrying the shipments, and the vehicles were properly placarded. Health physics technicians properly performed swipes and surveillance of cylinders leaving Honeywell.

VI. Management Meetings

X1. Exit Meeting Summary

The inspector presented the inspection results to members of the plant staff and management at the conclusion of the inspection on March 15, 2002. The plant staff acknowledged the findings presented. The inspector asked the plant staff whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Honeywell Specialty Chemicals

- * W. Lessig, Plant Manager
- * H. Roberts, Health Physics Manager
- * M. Shephard, Regulatory Affairs Manager
- * D. Mays, Safety Leader
- * J. Pratte, Maintenance Manager

Other members of the licensees' staff were also contacted during the inspection.

* Denotes those attending the exit meeting on March 15, 2002.

INSPECTION PROCEDURES USED

IP 88005: Management Organization and Controls
IP 88025: Maintenance and Surveillance Testing
IP 88055: Fire Protection
IP 86740: Transportation Activities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

None

Closed:

None

Discussed:

None

LIST OF ACRONYMS USED

ADAMS	Agencywide Document Access and Management System
ALARA	As-Low-As-Reasonably-Achievable
CFR	Code of Federal Regulations
DNMS	Division of Nuclear Material Safety
DOE	Department of Energy
DOT	Department of Transportation
HP	Health Physics
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records
PDR	Public Document Room
PERR	Public Electronic Reading Room
UF ₆	Uranium Hexafluoride
UF ₄	Uranium Tetrafluoride

