

September 28, 2000

Mr. J. William Lessig
Plant Manager
Honeywell International, Inc.
P.O. Box 430
Metropolis, IL 62690

SUBJECT: NRC INSPECTION REPORT 040-03392/2000004(DNMS)

Dear Mr. Lessig:

On September 14, 2000, the NRC concluded 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. At the conclusion of the inspection, the preliminary findings were discussed with you and members of your staff identified in the enclosed report.

The inspection consisted of review of your maintenance/surveillance, environmental protection, emergency preparedness and waste management programs. Within these areas, the inspection included a selective examination of procedures and representative records, interviews with personnel, and observations of activities in progress.

Your conduct of activities observed during the inspection at Honeywell was generally characterized by safety conscious maintenance/surveillance activities, environmental protection and emergency preparedness programs, and adequate radiological waste management controls. No violations of NRC requirements were identified during the course of the inspection.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure 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/NRC/ADAMS/index.html>* (the Public Electronic Reading Room).

W. Lessig

-2-

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

Sincerely,

/RA by M. Phillips acting for/

Patrick L. Hiland, Chief
Fuel Cycle Branch

Docket No. 040-03392
License No. SUB-526

Enclosure: Inspection Report: 040-03392/2000004(DNMS)

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

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 040-03392
License No: SUB-526

Report No: 040-03392/2000004(DNMS)

Licensee: Honeywell International, Inc.

Facility Honeywell Speciality Chemicals
Metropolis Works

Location: P.O. Box 430
Metropolis, Illinois

Dates: September 11-14, 2000

Inspectors: Darrel G. Wiedeman, Senior Health Physicist
John Jacobson, Resident Inspector,
Paducah Gaseous Defusion Plant

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

EXECUTIVE SUMMARY
Honeywell
NRC Inspection Report 040-03392/2000004(DNMS)

Maintenance and Surveillance Testing

- The licensee performed inspections and preventive maintenance tasks in accordance with the checklists and frequencies identified in the Maintenance Management System database, referenced in Section 13.4.8 of the license application. (Section M.1)

Environmental Protection

- The licensee implemented the environmental monitoring program as required by the license for air, liquid, soil, direct radiation and vegetation sampling. Effluent concentrations and the annual doses to members of the public extrapolated from the data available during the inspection met the requirements of 10 CFR 20 and the license. (Section P.1)

Radioactive Waste Management

- Direct radiation measurements and composite sample analysis for samples taken from a calcium fluoride pond were consistent with those found in other products authorized in 10 CFR 40.13 (unimportant quantities of source material). No regulatory issues were identified. (Section W.1)

Emergency Preparedness

- The inspector observed an emergency preparedness exercise drill that the licensee conducted with the local agencies, along with representatives from the Emergency Services Disaster Agency (ESDA) and Illinois Department of Nuclear Safety (IDNS). No major deficiencies were noted during the drill. The licensee continues to maintain an emergency response capability in accordance with the requirements in the license application and Radiological Contingency Plan. (Section E.1)

Report Details

I. Maintenance and Surveillance

M.1 Preventive Maintenance and Inspections for Safety Equipment

a. Inspection Scope (88025)

The inspector reviewed selected 1999-2000 inspection and preventive maintenance records for safety equipment listed in the licensee's Critical Equipment Inspection List and Maintenance Management System.

b. Observations and Findings

The Critical Equipment Inspection List and the Maintenance Management System (MMS) specified the frequencies and types of inspections and preventive maintenance tasks for equipment relied upon for safety. The equipment included fired and unfired pressure vessels, the fire water pump, weight and flow instrumentation for the distillation process, the liquid-UF₆ handling crane, the accountability scale, cylinder haulers and other safety equipment at the site. All inspections and tasks reviewed were performed in accordance with MMS inspection checklists at the frequency identified in the MMS database, including an annual inspection of the UF₆ cylinder crane by an outside vendor.

c. Conclusions

The licensee performed inspections and preventive maintenance tasks in accordance with the checklists and frequencies identified in the MMS database, referenced in Section 13.4.8 of the license application.

II Plant Support

V4 Environmental Protection

V1. Environmental Monitoring

a. Inspection Scope (88045)

The inspector reviewed the licensee's direct radiation, air and liquid effluents, and vegetation and soil sampling programs through discussions with health physics personnel and reviews of sampling records for the period April 1999 through June 2000.

b. Observations and Findings

Chapter 4 of the license application specified the requirements of the environmental protection program for the site. The chapter also specified the monitoring methods and administrative action levels for the various release pathways to the environment.

Direct Radiation Monitoring

The licensee maintains eight gamma radiation monitoring locations surrounding the Metropolis facility with six in unrestricted areas and two in restricted areas of the plant. Direct radiation monitoring is conducted using environmental thermoluminescent dosimeters (TLDs). The TLDs are collected by the licensee and read quarterly by the licensee's contractor. A review of the direct radiation monitoring data for calendar year 1999 and the first two quarters of 2000 indicated that all unrestricted areas being monitored were well below the target value of less than 100 millirem/year (<1.0 mSv).

Air Effluent Monitoring

For the period April 1999 through June 2000, air effluent sample results for continuous environmental air samplers located onsite at the fence line and on the owner-controlled property yielded average concentrations which were below the 10 CFR 20 annual average concentration of 9×10^{-14} microcuries per milliliter. In addition, calculations based on the air sampling data for the environmental monitor located at the nearest residence to the site indicated the dose from airborne uranium was less than 10 millirem (0.1 mSv) and indicated a calculated dose of 1.2 mrem (0.01 mSv). Quarterly determinations of the radium-226 and thorium-230 concentrations (uranium progeny) and the uranium solubility fractions were performed as required for use in determining the dose to the maximally exposed member of the public.

Liquid Effluent Monitoring

Liquid effluent sample results for the monitor located at the licensee's outfall discharging to the Ohio River yielded an average concentration for the period January through June 2000 which was below the 10 CFR 20 limit of 3×10^{-7} microcuries per milliliter. The licensee discharged approximately 3.3 million gallons of water per day through the outfall. The radioactive concentrations in the effluent volume equates to an average of 242 pounds of uranium that was discharged through the outfall for the first 6 months of 2000. The concentration of uranium in the liquid effluent discharged to the Ohio River through the effluent weir (Outfall 002) was continuously sampled using a composite sampler and was below the action level of one part per million.

Vegetation and Soil Sampling

The licensee collected semi-annual soil and vegetation samples during 1999-2000 in accordance with the requirements in Chapter 4 of the license. As in previous years, the only samples with elevated readings were the sediment samples taken from the effluent ditch leading to the Ohio River. As indicated above, the slight levels of uranium contamination in the effluent yield quantities of uranium because of the large volume of effluent released on a daily basis. The ditch is contained on the owner-controlled area of the site. Water samples taken at and near the confluence of the ditch with the Ohio River did not yield any results above background, indicating that the uranium had fallen out of the stream before reaching the Ohio River. Vegetation samples were taken both onsite and offsite and analyzed for uranium and fluoride concentrations, with no adverse trends noted. All vegetation sample results were below the target value of 30 picocuries/gram (pCi/g) uranium. Soil and sediment samples were taken at the site fence line, effluent ditch, and at other locations around the community, with no adverse trends noted. However, the effluent ditch results (owner controlled property) and onsite samples continued to indicate detectable levels of contamination as in past years.

c. Conclusions

Based on a review of selected environmental monitoring data, the licensee maintained the environmental protection program identified in Chapter 4 of the license application. Monitoring results for the period April 1999 through June 2000 were below the action levels identified in Chapter 4. Effluent concentrations and the annual doses to members of the public extrapolated from the air effluent concentration data available during the inspection met the requirements of 10 CFR 20.

III Waste Management Program

W.1 Radiological Protection and Controls

a. Inspection Scope (83822)

The inspector toured the scrap iron waste storage facility, the legacy waste storage area and the perimeter of a calcium fluoride settling pond and took independent direct radiation measurements and a composite sample for laboratory analysis.

b. Observations and Findings

At the time of this inspection, the licensee was in the process of evaluating the extent of low level uranium contamination in a calcium fluoride settling pond (Pond A, which is going to be decommissioned), that contained approximately 215,000 cubic pounds (Lbs³) of calcium fluoride. Also at the time of this inspection, the licensee was in the process of requesting a license amendment to treat the calcium fluoride sludge as 10 CFR 40.13 (unimportant quantities of source material) waste, provided the average concentration is below 500 parts per million of uranium. During the last inspection, a composite sample was split between the NRC and the licensee. The NRC sample analysis showed 303 parts per million (ppm) which equates to 205 picocuries/gram (pCi/g) and the licensee's sample showed 430 ppm which equates to 291 pCi/g. The NRC sample indicated 0.03 weight percent (wt%) and the licensee's sample showed 0.04 wt%. Typical radiation levels around the calcium pond indicated less than 100 microrentgens/hour on contact with the calcium fluoride sludge.

c. Conclusions

Direct radiation measurements and composite sample analysis for the wt% of uranium were consistent with those found in other products authorized in 10 CFR 40.13 (unimportant quantities of source material). No regulatory issues were identified.

IV Emergency Preparedness

E.1 Emergency Preparedness Annual Exercise

a. Inspection Scope (88050)

The inspectors observed the licensee's annual emergency preparedness exercise that was held on September 13, 2000, for conformance with the guidance in the Emergency Plan (EP) and applicable Radiological Contingency Plan dated 4/9/98. The inspectors

also observed the licensee's critique of the emergency response exercise held after the conclusion of the exercise.

b. Observations and Findings

The exercise scenario involved an inadvertent release of hot UF₆ gas outside the Feed Materials Building. The licensee sounded the emergency evacuation alarm at the start of the exercise to simulate an actual alarm. There were three simulated injured workers as a result of the excursion.

The inspectors noted that the facility staff evacuated the area within five minutes of the alarm. In addition, the plant staff completed the accountability of the staff within the restricted area fence line and identified the injured personnel in a timely manner. The Incident Commander (IC) reported directly to the Crisis Manager (CM) and classified the emergency as a "Plant Emergency" which was later re-classified as a "Site Area Emergency". The emergency medical staff also called "911" to request assistance from the local ambulance service and hospital. Other notifications to offsite agencies, such as the NRC and Illinois Department of Nuclear Safety, were made within the required time frame. The inspectors noted that the IC prioritized the response activities based upon the information available during the exercise. A "Plant Emergency" is defined by the licensee as a hazardous materials event that occurs within the immediate area and does not impact employees or process outside of that area.

The inspectors also observed the licensee's critique of the exercise. The critique was probing and a number of issues for review and follow up were identified by the plant staff involved. The inspectors noted that the issues identified during the critique were similar to observations made by the inspectors, although the scope of some of the issues was not fully identified. In particular, the inspectors noted that issues concerning event management, communications with outside agencies and the media, and proper classification of the event were not fully discussed.

The inspectors noted that the Incident Commander (IC) exhibited good command and control of the emergency response from the Command Post. The officers reporting to the IC presented options and then effectively implemented the response strategy once a decision was made. The IC quickly identified and initiated treatment for three injured personnel. In addition, the plant staff identified the "hot" zone or contaminated area in a timely manner and established a decontamination line for the emergency response teams exiting the area.

Communications between the IC and the Feed Materials Building Control Room, which dispatched the first two emergency response teams to the release point, were clear and straightforward. Backup response teams were available before each team was sent into the "hot" zone to perform its mission. The first two teams put carbon dioxide on the simulated leaking cylinder valve to cool the liquid uranium hexafluoride and plug the leak, and the third team simulated putting water on the cylinder to cool the uranium hexafluoride remaining in the cylinder. The response actions taken were appropriate for the type of release simulated.

The inspectors noted that the response to the event onsite was well-coordinated. However, the decisions to upgrade and downgrade the event classification based upon the offsite consequences to members of the public were perfunctory. For example, the

decision to downgrade from a Site Area Emergency at the end of the exercise did not simulate the evaluation of the type of information necessary, such as survey and sample results, which would be needed to recommend changes to protective actions (such as sheltering residents in place) be made.

c. Conclusions

The licensee's emergency response to a simulated off site release of UF₆, held to satisfy the license requirement for a annual emergency exercise, was adequate. Timely evacuation, personnel accountability, and identification and transport of the injured personnel to a local hospital were noted to be strengths. Areas for improvement included stronger use of emergency response managers to assist the Crisis Manager, and proper classification of the event.

V. Management Meeting

X Exit Meeting Summary

The inspector presented the inspection results to members of the plant staff and management at the conclusion of the inspection on September 14, 2000. 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

- # M. Davis, Health Physics Supervisor
- # W. Lessig, Plant Manager
- # H. Roberts, Health Physics Manager
- # M. Shepard, Manager, Regulatory Compliance
- K. Keene, Supervisor, Maintenance
- K. Benard, Maintenance, Scheduling and Planning

Attended the exit meeting on September 14, 2000

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

INSPECTION PROCEDURES USED

- IP 88045 Environmental Protection
- IP 88025 Maintenance and Surveillance
- IP 88035 Radioactive Waste Management
- IP 88050 Emergency Preparedness

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

Legacy waste issues.

LIST OF ACRONYMS USED

ALARA	As-Low-As-Reasonably-Achievable
CFR	Code of Federal Regulations
CM	Crisis Manager
DNMS	Division of Nuclear Material Safety
EP	Emergency Procedures
FMB	Feed Materials Building
HP	Heath Physics
IC	Incident Commander
IP	Inspection Procedure
MMS	Maintenance Management System
mrem	millirem
mSv	millisievert
pCi/g	picocurie/gram
NRC	Nuclear Regulatory Commission
UF ₆	Uranium Hexafluoride
Wt%	weight percent