

March 13, 2001

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

SUBJECT: NRC INSPECTION REPORT 040-03392/2001-001(DNMS) (HONEYWELL)

Dear Mr. Lessig:

On February 16, 2001, 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 identified in the enclosed report were discussed with you and members of your staff.

Areas examined during the inspection are identified in the 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. Based on the results of the inspection, the NRC has determined that no violations of NRC requirements occurred.

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).

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

Sincerely,

/RA/

Monte Phillips, Acting Chief
Fuel Cycle Branch

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

Enclosure: Inspection Report 040-03392/2001001(DNMS)

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

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 040-03392/2001-001(DNMS)

Licensee: Honeywell Specialty Chemicals

Facility: Metropolis Works

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

Dates: February 12 through 16, 2001

Inspector: Mary L. Thomas, Fuel Facility Inspector
William G. Snell, Senior Health Physics Inspector
C. A. Blanchard, Paducah Senior Resident

Approved By: Monte Phillips, Acting Chief
Fuel Cycle Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY
Honeywell Specialty Chemicals
NRC Inspection Report 040-03392/2001-001(DNMS)

Operations

- Operations were conducted in accordance with the applicable procedures for the specific tasks being performed. Operators were knowledgeable of safe operating parameters, surveillance requirements, and safety interlocks for cognizant equipment. The inspector concluded that the FMB operators' command and control of the effects of the sanitary water main break promoted the safe operation of cognizant equipment. (Section O1.1)

Maintenance

- The licensee is adequately implementing its current maintenance management system and required inspections for the uranium hexafluoride (UF₆) Cylinder Scale and the UF₆ handling crane. In addition, the inspectors observed that the maintenance staff who performed the monthly UF₆ Cylinder Scale calibration were well trained and very knowledgeable of the components of the UF₆ Cylinder Scale. (Section M1.1)

Radiation Protection

- The internal dosimetry program was effectively implemented in accordance with license conditions and 10 CFR Part 20, but that there were many possibilities for contamination of the bioassay samples. (Section R 3.1)
- The licensee is adequately implementing a respiratory protection program. Licensee staff appeared to be well trained and cognizant of respiratory protection requirements. (Section R 3.2)
- The licensee was effectively implementing the contamination survey and instrument calibration programs. Health physics staff were knowledgeable of current plant operating conditions and conducted surveys and sample analyses in accordance with site procedures. (Section R 3.3)

Management Controls

- The ALARA meetings were being conducted in accordance with the license requirements. (Section MC1.1)

Report Details

I. Operations

01.1 Conduct of Operations

a. Inspection Scope (88020 and TI 2600/003)

The inspector observed general operations in the Feed Materials Building (FMB), ore sampling facility, and other areas onsite. In particular, the inspector observed the following activities:

- cylinder disconnect, weighing, and storage; and
- FMB and control room operations.

b. Observations and Findings

The inspector noted that these activities were conducted in accordance with applicable procedures and postings, and that operators used appropriate protective clothing and equipment. The FMB units (ore preparation, hydrofluorination, fluorination, and distillation) operated without any abnormal conditions during the inspection. Control room operations were conducted with attention focused on equipment important to safety. Operation log books were current and conclusive for activities conducted during the shift.

During facility tours, the inspector observed housekeeping practices. The inspector noted that the floors of the FMB were clear of obstructions and appeared generally clean.

On February 14, at approximately 0200 hours, a break in the sanitary water main occurred. This resulted in a loss of plant safety shower makeup water. The plant was shutdown while water from the process water well was connected to the sanitary water lines. The plant resumed operations at approximately 0300 hours. This was reported as a 24-hour report on February 14, 2001, in accordance with 10 CFR 40.60(b)(2)(i) as an event in which equipment was disabled or failed to function as designed when the equipment was required by regulation or license condition to mitigate the consequences of an accident. The sanitary water main was repaired and reconnected on February 14 at approximately 2200 hours. On February 15, the inspectors noted that all sanitary water was back on and that the sanitary water lines were being flushed. Samples from these lines were taken for fecal coliform testing. An announcement was made that the staff could not drink the water from these lines. The plant had brought in portable toilets and bottled water for the duration of this event. This event resulted in a split fill of one cylinder because the plant was shutdown until the process water line was connected. This cylinder had to be put on total reflux until filling was resumed on the afternoon of February 14. This cylinder was sampled on the morning of February 15.

c. Conclusion

Operations were conducted in accordance with the applicable procedures for the specific tasks being performed. Operators were knowledgeable of safe operating parameters, surveillance requirements, and safety interlocks for cognizant equipment. The inspector concluded that the FMB operators' command and control of the effects of the sanitary water main break promoted the safe operation of cognizant equipment.

II. Maintenance and Surveillance

M1.1 Conduct of Maintenance

a. Inspection Scope (88025)

The inspectors reviewed required inspection records for the uranium hexafluoride (UF₆) Cylinder Scale and the UF₆ handling crane. In addition, the inspectors observed the maintenance staff perform the monthly UF₆ Cylinder Scale calibration.

b. Observations and Findings

The inspectors reviewed monthly, quarterly, and annual calibration records for the UF₆ cylinder scale. The inspectors reviewed the 2000 and 2001 quarterly and monthly calibrations for the UF₆ cylinder scale and determined that the scale met all of the as found tolerances. In addition, the inspectors observed the maintenance staff perform the monthly UF₆ Cylinder Scale calibration. Specifically, the scale was tested with certified weights in thousand pound increments decreasing from 32,000 pounds. The inspector noted that the scale was accurate within the required 2 pounds tolerance for monthly calibrations.

The inspectors reviewed the weekly UF₆ handling crane inspection. The weekly inspection was thorough and verified all aspects of the crane's mechanical and electrical functions. The inspection was conducted in accordance with an associated checklist. The inspectors noted the annual UF₆ handling crane inspection had been performed by a certified crane inspection company and within the grace period for yearly inspections as allowed in Procedure MP0240, "MTW Equipment Inspection Frequency."

The inspectors discussed the maintenance program with the Reliability Engineer. During this discussion it was brought out that there is low personnel turnover at the plant. There are approximately 75 hourly staff who work days and evenings, Monday through Friday, eight staff on rotating shifts, and an electrician and instrument mechanic on each shift. In addition to these personnel, there is a pump shop crew, a reliability team, and 2 hourly staff, one of whom lubricates the equipment and the other of whom performs ultrasonic testing and vibration monitoring of rotating equipment. Mechanics take the procedures with them based on their level of experience. There is no requirement for the procedures to be "in-hand."

The inspectors reviewed the maintenance management system (MMS) with the Reliability Engineer and discussed the new maintenance database that the plant is implementing. This new database will be able to track the maintenance and the cost for performing the maintenance. The implementation is expected to become effective on April 1, 2001. The inspectors reviewed the process to control required maintenance inspection activities for safety equipment addressed on the licensee's critical equipment inspection list and MMS. The inspectors noted that reliability engineering issued a monthly report to maintenance and operations which identified the required inspections for the following 60 days. The report was generated from the licensee computerized MMS database. During the review of the MMS the inspectors noted which pieces of equipment were listed as critical equipment. The inspectors verified that the listed equipment was appropriate.

c. Conclusions

The licensee is adequately implementing its current maintenance management system and required inspections for the uranium hexafluoride (UF₆) Cylinder Scale and the UF₆ handling crane. In addition, the inspectors observed that the maintenance staff who performed the monthly UF₆ Cylinder Scale calibration were well trained and very knowledgeable of the components of the UF₆ Cylinder Scale.

III. Radiation Protection

R3.1 Internal Dosimetry Program

a. Inspection Scope (83822)

The inspector reviewed the plant's internal dosimetry program and current bioassay data for plant personnel. Several internal dose investigations for bioassay results, in excess of administrative plant limits, were also reviewed.

b. Observations and Findings

The inspector reviewed the internal dosimetry program procedures and noted that the procedures implemented the internal dosimetry program as described in Chapter 3.2.5 of the license application. Plant staff whose routine duties require entry into radiological contaminated areas or duties requiring direct contact with radioactive material participated in the routine bioassay program. Hourly employees scheduled for sampling submitted routine urine samples twice a month; the salaried employees submitted samples on a monthly frequency within one to two days of being notified. Special samples that were collected during or at the end of a work day were to be collected after the employee had changed out of their work clothes and taken a shower. Sample collection cups and lids were provided in the men's and women's locker rooms for urine sample collection.

The inspector verified that plant employees, who did not submit urine samples within the applicable scheduled test date, were not generally allowed to clock in until the routine bioassay was collected. Delinquent salary staff were issued delinquency reminder cards until routine bioassays were collected.

Procedure, "Bioassay Sampling," listed scheduling criteria, frequencies and protocols for the bioassay program. The inspector reviewed the current list of plant personnel participating in the internal dosimetry program and found the practices to be in accordance with the procedural requirements. Internal dosimetry logs indicated routine and special bioassays were conducted according to the criteria described in the procedure.

Section 1 of the licensee's procedure, "Bioassay Sampling," establishes two administrative action levels (flags) for routine or special uranium bioassay exposure results. The limits are 15 and 60 micrograms per liter of uranium ($\mu\text{g/L}$). Bioassay results greater than the 15 $\mu\text{g/L}$ limit requires re-sampling. Bioassay results in excess of 60 $\mu\text{g/L}$ requires an investigation and an intake restriction evaluation, in addition to daily re-sampling until bioassay results returned to levels below 15 $\mu\text{g/L}$. The inspector reviewed several corresponding investigation reports of bioassay results that exceeded 60 $\mu\text{g/L}$ from July 2000 to January 2000. The inspector determined the investigations were thorough and extensive in determining the root cause of the uptakes. In all cases, the investigation results determined that the intakes were less than the toxicity limit for soluble uranium of 10 milligrams/week required by 10 CFR 20.1201(e).

Several other investigations for bioassay results above 15 $\mu\text{g/L}$, but below 60 $\mu\text{g/L}$, were also reviewed and determined to be equally thorough and extensive. All re-samples for bioassays above administrative limits were conducted until a final result below 15 $\mu\text{g/L}$ was observed.

The inspectors discussed the possibilities for contamination of bioassay samples with the laboratory personnel. The laboratory personnel stated that although the lab was wiped down at least weekly to minimize any problems with contamination, occasionally contamination did show up in the lab. Based on an inspection of the laboratory and discussions with laboratory personnel, it was determined that it was possible for a urine sample to be inadvertently contaminated in the laboratory.

The potential is high for contamination to be brought into the locker rooms as workers enter the locker rooms at the end of their shift to change clothes and shower. Therefore, it is possible that the cups and/or lids could become inadvertently contaminated. In addition, there was the possibility that a worker could provide a urine sample prior to changing their work clothes, and/or prior to showering, which could cause an inadvertent contamination of the sample. Also, the cups and lids were left unattended in the locker rooms, thus making it possible for them to be intentionally contaminated. However, once the urine sample had been collected, the sample was placed in a refrigerator next to the guard desk. Since the lid was on the cup at that point, and that was the only use of that refrigerator, it was very unlikely that a sample could have been inadvertently or intentionally contaminated while in the refrigerator.

c. Conclusion

The internal dosimetry program was effectively implemented in accordance with license conditions and 10 CFR Part 20, but that there were many possibilities for contamination of the bioassay samples.

R3.2 Respiratory Protection Program

a. Inspection Scope (83822)

The inspector reviewed the respiratory fit testing facility and program, and observed respirator fit testing.

b. Observations and Findings

The inspector observed respirator fit testing activities being conducted during the week. The licensee appropriately requires the medical determination that the worker is approved for the use of respiratory protection. The respirator program and fit testing activities effectively addressed all the relevant NRC regulatory requirements and Occupational Safety and Health Administration issues concerning respirator use. The licensee tracks all plant employees' respiratory certification via a computer database. The HP staff were knowledgeable on proper respirator use and hygiene, and addressed any questions regarding respiratory protection and the plant policies.

Discussions with selected plant employees indicated that the respiratory training appeared effective and that these employees were cognizant of issues related to the proper use of respiratory protection.

c. Conclusion

The licensee is adequately implementing a respiratory protection program. Licensee staff appeared to be well trained and cognizant of respiratory protection requirements.

R3.3 Radiological Surveys and Survey Instrumentation

a. Inspection Scope (83822)

The inspector reviewed records of daily, weekly and monthly contamination surveys. The inspector also reviewed records of instrument calibrations, and observed the use of radiation survey instruments.

b. Observations and Findings

The inspector noted that routine facility alpha contamination surveys are performed in accordance with the frequency and action levels specified in Table 3.2.6, "Surface Contamination Monitoring," of the license application. The inspector reviewed HP Procedure Manual Part I, Section 2, "Contamination Control," dated March 9, 1999 and accompanied a security staff member during a routine vehicle contamination survey. Health Physics staff highlighted that smears above the administrative limits would be scheduled for decontamination and subsequently resurveyed. A selected review of

records from November 2000 to February 2001 of routine plant smear surveys indicated that some weekly smears were above the administrative limit. The affected areas were decontaminated in a timely manner.

Frequency of calibration and instrumentation operability was adequately tracked by the HP staff. During facility and HP laboratory tours by the inspector, the inspector observed that survey instruments in use were operational and within the current calibration period.

Also during the facility tours, the inspector noted that radioactive material, radiation, and airborne radioactivity areas were adequately posted in accordance with the requirements of 10 CFR Part 20. Labeling of radioactive materials and containers were consistent with 10 CFR Part 20, and the exemptions allowed by Part I, Chapter 1, of the license for radioactive materials and containers.

c. Conclusion

The licensee was effectively implementing the contamination survey and instrument calibration programs. Health physics staff were knowledgeable of current plant operating conditions and conducted surveys and sample analyses according to site procedures.

IV. Management Controls

MC1.1 Safety Committee Review

a. Inspection Scope (88005)

The inspectors reviewed the As-Low-As-Reasonably-Achievable (ALARA) committee meeting agenda, frequency, and attendees for compliance with the requirements established in Chapter 2.3 of the license.

b. Observations and Findings

Chapter 2.3 of the license application requires, in part, that an ALARA committee shall be utilized by management to ensure that exposures and effluent releases are effectively controlled. The inspectors reviewed meeting minutes for 2000 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.

c. Conclusion

The inspectors concluded that the ALARA meetings were being conducted in accordance with license requirements.

V. Management Meeting

X. 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 16, 2001. The plant staff acknowledged the findings presented. The inspectors 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
- J. Lessig, Plant Manager
- * H. Roberts, Health Physics Manager
- * M. Shepherd, Manager, Environmental and Regulatory Affairs

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

INSPECTION PROCEDURES USED

- IP 88005 Management Organization and Controls
- IP 88020 Operations Review
- IP 88025 Maintenance and Surveillance
- IP 83822 Radiation Protection

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

None

Closed:

None

Discussed:

None

LIST OF ACRONYMS USED

| | |
|-----------------|--|
| ADAMS | Agency Document Access and Management System |
| ALARA | As-Low-As-Reasonably-Achievable |
| CFR | Code of Federal Regulations |
| DNMS | Division of Nuclear Material Safety |
| FMB | Feed Materials Building |
| HP | Heath Physics |
| IP | Inspection Procedure |
| MMS | Maintenance Management System |
| MTW | Metropolis Works |
| NRC | Nuclear Regulatory Commission |
| PARS | Publicly Available Records |
| SNM | Special Nuclear Material |
| UF ₆ | Uranium Hexafluoride |