

From: James Heller | e3  
To: "nachowicz.linda@epa.gov"@GATED.nrcsmtp  
Date: Fri, Jun 16, 2000 5:56 PM  
Subject: Fwd: Ins 040-03392-99004 (DNMS)

Linda

the report you requested

jim

B-13

(8)

**From:** Judith Spillman  
**To:** JKH  
**Date:** Thu, Jun 8, 2000 11:32 AM  
**Subject:** Ins 040-03392-99004 (DNMS)

Attached...

December 20, 1999

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

**SUBJECT: NRC INSPECTION REPORT 040-03392/99004(DNMS)**

Dear Mr. Lessig:

On December 7, 1999, the NRC concluded an announced 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 findings were discussed with you and members of your staff identified in the enclosed report.

The inspection included reviews of your operations, training, emergency preparedness, and environmental protection programs. 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 observed at your plant were performed in accordance with approved procedures and effective in ensuring safe operations. 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 placed in the NRC Public Document Room.

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

Sincerely,

/s/ M. P. Phillips

Monte P. Phillips, Acting Chief  
Fuel Cycle Branch

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

Enclosure: Inspection Report 040-03392/99004(DNMS)

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

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Specialty Chemicals  
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J. Lessig-2-

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## U. S. NUCLEAR REGULATORY COMMISSION

## REGION III

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

Report No: 040-03392/99004(DNMS)

Licensee: Honeywell

Facility: Metropolis Works

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

Dates: November 29 through December 7, 1999

Inspector: J. M. Jacobson, Paducah Resident Inspector

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

**EXECUTIVE SUMMARY**  
**Honeywell**  
**NRC Inspection Report 040-03392/99004(DNMS)**

Operations

- Operations were conducted in accordance with the applicable procedures for the specific tasks being performed. A recent plant change to reduce the target fill limit for 48G cylinders had been appropriately implemented by the operations staff. (Section O1.1)

Training

- The plant staff performed training for selected recent plant changes impacting operations and the Radiological Contingency Plan implementation. Responsible plant staff were knowledgeable of the changes. (Section I1.1)
- The licensee conducted the annual training for emergency response team members as required by the license. The training was comprehensive and covered a variety of emergency response duties. (Section I1.2)

Emergency Preparedness

- The licensee conducted the annual emergency exercise which simulated the release of uranium hexafluoride from a cylinder on an outside cooling pad. The response activities observed were timely and communications between the Incident Commander and his supporting officers were clear. The supporting officers were knowledgeable of their duties and responsibilities during the response. The inspector noted one performance issue involving the timely establishment of a definitive hazardous area or "hot zone" and decontamination line for personnel exposed to hydrogen fluoride (chemical) and radioactive contamination as a result of the release. (Section P1.1)
- The licensee maintained an adequate supply of emergency response equipment at various locations around the site as identified in the facility's Emergency Response and Radiological Contingency Plans. (Section P1.2)

Environmental Monitoring

- 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 first three quarters of 1999 were below the action levels identified in Chapter 4. (Section E1.1)



## Report Details

### I. Operations

#### 01.1 Conduct of Operations

##### a. Inspection Scope (88020)

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;
- FMB and control room operations; and
- routine rounds of the FMB.

##### 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. Turnover briefings for the oncoming shift were noted to be brief, but adequately covered the status of equipment and the significant operational issues for the shift.

The plant staff had recently processed a plant change to lower the target fill weight for 48G cylinders from 26,500 pounds to 25,600 pounds as a result of a customer request. (The Department of Transportation shipping limit was 26,840 pounds for natural uranium hexafluoride.) The inspector reviewed the cylinder fill logs and had discussions with distillation operators to ascertain how well the new requirement was understood and implemented. The review indicated that responsible operations staff were aware of the new fill limit and had appropriately implemented the guidance for the 48G cylinders filled since the plant change was approved.

During facility tours, the inspector observed housekeeping practices. The inspector noted that attention to housekeeping in the FMB and other facilities had improved since the last inspection. The floors of the FMB were clear of obstructions and appeared generally clean. Fewer steam condensate leaks were noted than in the past. The licensee indicated that a concerted effort to improve the housekeeping practices for the plant had been undertaken. In addition, the licensee had made progress in shipping contaminated wastes, in particular wood chips and used ore concentrates drums, for disposal. The inspector noted that the amount of contaminated wastes stored onsite had been reduced from previous inspections.

##### c. Conclusions

Operations were conducted in accordance with the applicable procedures for the specific tasks being performed. A recent plant change to reduce the target fill limit for 48G cylinders had been appropriately implemented by the operations

staff.

## II. Training

### 11.1 Operations Training

#### a. Inspection Scope (88010)

The inspector reviewed selected training records and had discussions with plant staff concerning training on recent plant changes which had been approved by plant management using the PT-101 process.

#### b. Observations and Findings

The changes reviewed included changes in the methodology for performing quarterly tests of the cylinder valve closer system in the Distillation Plant, changes to the 48G cylinder fill limits, Radiological Contingency Plan changes, and other minor changes. Based on the review, the inspector noted that the responsible plant staff were aware of the changes. The inspector noted that there was some confusion on the part of plant staff as to when the "Training Documentation" part of the PT-101 form was to be checked. Although training had been performed for the changes reviewed, the "Training Documentation" part of the form was not always checked. The plant management indicated that this part of the form was generally intended for more formal training, such as classroom training, rather than less formal training for minor changes, such as shift briefings or required reading. The inspector noted that the use of the form should be consistent as it was the means used by plant management to ensure the change was effectively communicated to the plant staff involved in the implementation.

#### c. Conclusions

The plant staff performed training for selected recent plant changes impacting operations and the Radiological Contingency Plan implementation. Responsible plant staff were knowledgeable of the changes.

### 11.2 Emergency Response Training

#### a. Inspection Scope (88010, 88050)

The inspector reviewed the training performed for emergency response team members during 1999.

#### b. Observations and Findings

The license application required that members of the emergency response team receive 24 hours of training related to their duties on an annual basis. During the year 1999 to the date of the inspection, the licensee provided training on hazardous materials responses, fire control and suppression, the Radiological Contingency and Emergency Response Plans, first aid, and protective equipment donning and doffing. Training was provided both onsite and at locations offsite with dedicated training facilities. In addition, a number of drills were conducted to enhance the emergency response capabilities of the plant staff. In addition to plant maintenance staff, a number of operations staff received the training to allow selected operators to respond to emergencies. Based on

the review, the licensee conducted over 24 hours of training for the current emergency responders at the site.

c. Conclusions

The licensee conducted the annual training for emergency response team members as required by the license. The training was comprehensive and covered a variety of emergency response duties.

### III. Emergency Preparedness Program

P3.1 Annual Emergency Exercise

a. Inspection Scope (83822)

The inspector observed selected aspects of the licensee's annual emergency exercise conducted on December 1, 1999. Pertinent sections of the licensee's Radiological Contingency Plan were also reviewed.

b. Observations and Findings

The exercise scenario involved a release of uranium hexafluoride from a cylinder sitting on the facility's cooling pad due to an accident in which a fork truck contacted the cylinder and dislodged the cylinder plug. As a result of the release, hydrogen fluoride (HF) vapor, a byproduct of the reaction of uranium hexafluoride with moisture in the air, was carried northeastward over the site fence causing a Site Area Emergency. The scenario also involved the simulation of a minor paper fire occurring in the Administration Building shortly after the cylinder release began.

The inspector observed the establishment of the incident command function and preparation of emergency response teams for the event. The Incident Commander (IC) had to relocate the Command Post (CP) twice from its normal location outside the south door of the FMB Distillation Area because of the HF plume carried by the simulated prevailing wind direction. The IC was able to effectively complete the relocation of the CP. Communications with the other emergency response staff via radios purchased since the last annual exercise were clear and generally concise. The IC was able to communicate the priorities, and receive return communications, for the emergency response teams entering the hazardous environment or "hot zone" to rescue injured personnel and stop the release. The various emergency response control officers reporting to the IC appeared to be knowledgeable of their roles and responsibilities and to support the IC as needed during the response. The emergency responders identified and rescued two injured operators and ended the release by plugging the cylinder.

The inspector noted that the plant staff completed the accountability for personnel onsite in a timely manner and identified that two operators were injured. The locations of the injured individuals were identified and the injured were taken to the plant medical facility. The inspector noted that the CP staff had difficulty establishing the "hot zone" for the event and, as a result, one of the individuals who suffered from respiratory problems as a result of exposure to HF, was taken to the medical facility without going through the

decontamination process. Had this been a real event, this oversight could have caused personnel in the medical facility to be potentially exposed to receiving secondary chemical burns due to any HF remaining on the injured operator. The confusion over the area considered to be the "hot zone" may have been an artifact of the exercise in that the scenario wind conditions and the actual wind conditions were different. Nevertheless, the lack of a firm initial decision on what constituted the "hot zone" and where to establish the decontamination line increased the potential that unprotected individuals involved with treating the injured could be inadvertently contaminated with a hazardous material. The licensee's corrective actions for this exercise performance issue will be tracked as an Inspector Followup Item (IFI 040-03392/99004-01).

The inspector also observed several members of the emergency response team don their protective equipment and self-contained breathing apparatuses (SCBA). The members appropriately donned the Level A chemical suits and checked the SCBAs before use. Checks of the low-air alarms for the air tanks were also performed. The inspector noted that the responders were knowledgeable of donning techniques and suited themselves in a timely manner, although some minor delays with opening new Level A suits and preparing the suits for donning were noted.

After the exercise, the licensee held a critique of the response and identified both positive actions and areas for improvement. These items were documented for followup review and corrective action as necessary. The inspector noted the critique was self-critical and a number of insight observations and comments were made by the plant staff involved.

c. Conclusions

The licensee conducted the annual emergency exercise which simulated the release of uranium hexafluoride from a cylinder on an outside cooling pad. The response activities observed were timely and communications between the IC and his supporting officers were clear. The supporting officers were knowledgeable of their duties and responsibilities during the response. The inspector noted one performance issue involving the timely establishment of a definitive hazardous area or "hot zone" and decontamination line for personnel exposed to hydrogen fluoride (chemical) and radioactive contamination as a result of the release.

P1.2 Emergency Response Supplies

a. Inspection Scope (83822)

The inspector inventoried various emergency response supply and equipment cabinets and the emergency response van onsite to verify the cabinets were adequately stocked for use.

b. Observations and Findings

The licensee's Emergency Response and Radiological Contingency Plans identified inventories of supplies and equipment that were required for various supply cabinets located at strategic positions around the site and in the FMB. The cabinets were located

so as to provide ready access to supplies for responding to certain anticipated emergencies. In addition, the licensee maintained an emergency response van which contained a large supply of protective equipment, first aid supplies, and maintenance equipment which might be required during an event response. The inspector reviewed the items stored in the supply cabinets and van against the approved inventories. The supply cabinets and van were stocked in accordance with the inventories in the Emergency Response Plan. The inspector also noted that the cabinets were normally sealed to prevent unauthorized entry except during an emergency or drill.

c. Conclusions

The licensee maintained an adequate supply of emergency response equipment at various locations around the site as identified in the facility's Emergency Response and Radiological Contingency Plans.

P8.0 Emergency Preparedness Miscellaneous Items

- P8.1 (Closed) Inspector Followup Item 040-03392/98006-05: Lack of effective command and control of Chief Officer during the 1998 annual exercise. Based on the effective communications between the IC and the other emergency response officers and the observed coordination of activities during the 1999 annual exercise, this item is considered closed.
- P8.2 (Closed) Inspector Followup Item 040-03392/98006-06: Lack of effective command and control of Chief Control Officer during the 1998 annual exercise. Based on the effective communications between the IC and the other emergency response officers and the observed coordination of activities during the 1999 annual exercise, this item is considered closed.
- P8.3 (Closed) Inspector Followup Item 040-03392/98006-07: Lack of effective command and control of emergency officers during the 1998 annual exercise. Based on the effective communications between the IC and the other emergency response officers and the observed coordination of activities during the 1999 annual exercise, this item is considered closed.
- P8.4 (Closed) Inspector Followup Item 040-03392/98006-08: Weakness in fit testing or respiratory protection equipment for operability prior to use during the emergency exercise. Based on observations of emergency responders testing SCBAs and air tank alarms prior to donning the equipment in the 1999 emergency exercise, this item is considered closed.
- P8.5 (Closed) Inspector Followup Item 040-03392/98006-09: Lack of effective command and control of the Emergency Response Team Leader during the 1998 annual exercise. Based on the effective communications between the IC and the other emergency response officers and the observed coordination of activities during the 1999 annual exercise, this item is considered closed.

**IV. Environmental Protection Program**

E1.1 Environmental Protection Program Monitoring

a. Inspection Scope (88005)

The inspector reviewed selected aspects of the licensee's monitoring program for potential releases of radioactive materials to the environment, including liquid effluent monitoring, air effluent monitoring, soil and sediment monitoring, and vegetation monitoring.

b. Observations and Findings

Chapter 4 of the license application identified the requirements of the environmental protection program for the site. The chapter identified the monitoring methods and administrative action levels for the various release pathways to the environment. The inspector reviewed the environmental monitoring data for the first three quarters of 1999 and noted the following:

- The concentration of uranium in the liquid effluent discharged to the Ohio River through the effluent weir (Outfall 002) was continuously sampled (composite sampler) and was below the action level of one part per million.
- The average airborne concentrations of total alpha activity monitored at the site fence and the nearest residence were below the action level of  $3.0 \times 10^{-14}$  microcuries per milliliter.
- 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 most exposed member of the public.
- Monitoring well samples were taken and analyzed for gross alpha and beta activity by an independent laboratory, with no adverse trends noted.
- Vegetation samples were taken both onsite and offsite and analyzed for uranium and fluoride concentrations, with no adverse trends noted.
- 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 and onsite samples continued to indicate detectable levels of contamination as in past years.

The license application did not identify specific action levels for the soil, sediment, vegetation, or well samples. The Health Physics Supervisor indicated, however, that the results were routinely reviewed to identify adverse impacts on the environment from plant operations. Although the licensee had not completed the calculation of public exposure for the year, the results for the first three quarters of 1999 were similar to results from previous years and indicated that the annual dose would likely be less than 10 millirem as in previous years. This dose would be well within the limits of 10 CFR 20 for members of the public.

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 first three quarters of 1999 were below the action levels identified in Chapter 4.

VII. 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 December 7, 1999. 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  
N. Rogers, Health Physics Staff  
M. Shepherd, Manager Environmental and Regulatory Affairs

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

**INSPECTION PROCEDURES USED**

IP 88010: Operator Training  
IP 88020: Operations Review  
IP 88045: Environmental Protection  
IP 88050: Emergency Preparedness

**ITEMS OPENED, CLOSED, AND DISCUSSED**Opened

040-03392/99004-01 IFI Establishment of "hot zone" during the annual emergency exercise.

Closed

040-03392/98006-05 IFI The lack of effective command and control by the Chief Officer in the overall coordination of emergency response activities.

040-03392/98006-06 IFI The lack of effective command and control by the Chief Control Officer in the overall coordination of emergency response activities.

040-03392/98006-07 IFI The lack of effective command and control of emergency officers during the 1998 annual exercise.

040-03392/98006-08 IFI Fit testing of respiratory protection equipment during annual exercise.

040-03392/98006-09 IFI The lack of effective command and control by the Team Leader during the annual emergency exercise.

Discussed

None

**LIST OF ACRONYMS USED**

ALARA	As-Low-As-Reasonably-Achievable
CP	Command Post
CFR	Code of Federal Regulations
DNMS	Division of Nuclear Material Safety
FMB	Feed Materials Building
HP	Heath Physics
IC	Incident Commander
IP	Inspection Procedure
NRC	Nuclear Regulatory Commission
UF <sub>6</sub>	Uranium Hexafluoride

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