



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

June 2, 2004

Mr. Rory J. O'Kane  
Plant Manager  
Honeywell Specialty Chemicals  
P.O. Box 430  
Metropolis, IL 62690

SUBJECT: NRC INSPECTION REPORT NO. 40-3392/2004-004 AND NOTICE OF VIOLATION

Dear Mr. O'Kane:

On April 30, 2004, the NRC completed a special inspection at the Honeywell Specialty Chemicals facility. The purpose of the inspection was to review your corrective actions implemented prior to plant restart in response to the December 22, 2003, Site Area Emergency and determine whether activities authorized by the license were conducted safely and in accordance with NRC requirements. At the conclusion of the inspection on April 30, 2004, the NRC inspectors discussed the findings with members of your staff.

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 this inspection, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. The violation was evaluated in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG 1600, which is included on the NRC's web site at <http://www.nrc.gov/what-we-do/regulatory/enforcement.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 violation involves failure to maintain current letters of agreement with offsite organizations as required by your Emergency Response Plan.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

Honeywell

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and 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>. 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.

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

Sincerely,

**/RA/**

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. Inspection Report 40-3392/2004-004

cc w/encls:  
Gary Wright  
Illinois Department of Nuclear Safety

Distribution w/encls:

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OFFICE	RII:DFFI	RII:DFFI	RII:DFFI	RII:NMSS		
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NAME	D. Hartland	M. Crespo	A. Gooden	M. Baker		
DATE	5/19/2004	5/25/2004	6/2/2004	5/19/2004		
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO
PUBLIC	YES NO					

## NOTICE OF VIOLATION

Honeywell Specialty Chemicals  
Metropolis, Illinois

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

During an NRC inspection conducted on February 23, through April 30, 2004, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below.

License Condition No. 11 of NRC License No. SUB-526, Amendment No. 15, requires, in part, that the licensee maintain and execute the response measures in the Radiological Contingency Plan (Emergency Response Plan) dated August 15, 1993, and as amended by letters dated March 19 and 30, 1999, and June 12, 2000, or as provided by the licensee consistent with 10 CFR Section 40.35(f).

Section 7.6 of the Plan states that letters of agreement with offsite emergency response organizations are reviewed at least once each year and renewed at least once every four years.

Contrary to the above, the inspectors determined that letters of agreement with offsite emergency response organizations including the Massac County Fire Department, Massac County Sheriff, Massac County Emergency Service and Disaster Agency, and Metropolis Police Department have not been renewed within the last four years.

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

Pursuant to the provisions of 10 CFR 2.201, Honeywell Specialty Chemicals is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region II, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, D.C. 20555-0001.

Enclosure 1

Because your response will be made publically available, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made publically available without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld, and provide in detail the basis for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

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

Dated this 2<sup>nd</sup> day of June, 2004

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No. 40-3392

License No. SUB-526

Report No. 40-3392/2004-004

Licensee: Honeywell International, Inc.

Facility: Metropolis Works

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

Dates: February 23, through April 30, 2004

Inspectors: D. Hartland, Senior Fuel Facility Inspector, Region II  
A. Gooden, Senior Fuel Facility Inspector, Region II  
M. Baker, Senior Fuel Facility Inspector, NMSS  
M. Crespo, Fuel Facility Inspector, Region II

Approved By: J. Henson, Chief  
Fuel Facility Inspection Branch 2  
Division of Fuel Facility Inspection

Enclosure 2

## **EXECUTIVE SUMMARY**

Honeywell International, Inc  
NRC Inspection Report No. 40-3392/2004-004 (DFFI)

The purpose of the special inspection was to review corrective actions implemented by the licensee prior to plant restart in response to the December 22, 2003, Site Area Emergency.

### **Emergency Preparedness**

Changes made to the Emergency Response Plan and Radiological Contingency Plan (ERP/RCP) were all considered Plan improvements. The emergency plan implementing procedures adequately implemented the ERP/RCP, but a formalized procedure governing the public siren system had not been developed. A violation was identified for failure to maintain agreement letters in accordance with Section 7.6 of the ERP/RCP.

All ERP/RCP training was completed in accordance with the licensee's commitments for plant restart. The training provided to both onsite and offsite responders was adequate for familiarizing personnel with their roles and responsibilities and the changes made to the emergency preparedness program since the December 22, 2003, incident.

The licensee's actions in the areas of public awareness, training, and communications with the public and offsite support groups adequately addressed the licensee's commitments to improve communications.

The performance by emergency personnel in responding to the postulated accident scenario demonstrated that the corrective actions and changes that were made to the Plan and procedures in response to the December 22, 2003, incident were adequate. The critique was an effective and critical assessment of the licensee's performance during the drill.

The licensee's actions to repair or replace equipment, conduct training on communications equipment, and the coordination of emergency messages with the offsite decision makers resulted in significant improvements to the emergency response communications capability and the system for warning the public in the event of a hazardous materials release.

### **Procedures and Policies**

Overall, the inspectors determined that the quality of new procedures and policies developed was adequate and should improve over time as they are implemented and revised in the field. The inspectors identified a weakness regarding failure to ensure that license requirements were properly flowed down into the procedures.

### **Training**

The inspectors did not identify any significant issues while observing portions of on-the-job training and job performance measures and reviewing associated documentation.

### Management of Change

The licensee adequately revised their management of change process prior to restart of operations.

### Mechanical Integrity

The licensee adequately modified the critical equipment list and performed the mechanical integrity enhancements for restart of operations.

### Engineering Controls

The licensee's required actions were completed satisfactorily. An inspector follow-up item was documented to track the licensee's approach to satisfying software interlocks that might prevent leak testing of fluorination/distillation equipment.

### Corrective Actions and Auditing

The licensee's auditors performed an in-depth review of closure packages and provided effective coverage of plant restart activities in the Feeds Material Building. Issues identified were documented and addressed by the licensee, as required. The inspectors also noted that a web-based corrective action system was established and implementing procedures for its use were approved.

### Plant Restart

The licensee's corrective actions in response to an insulation fire in the green salt process was adequate. Contamination control was an area for improvement as evidenced by uncovered equipment and containers with visible green salt.

### 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**

During the inspection period, the licensee restarted the plant using a phased approach following an extended outage due to the December 22, 2003, uranium hexafluoride (UF<sub>6</sub>) release and subsequent Site Area Emergency.

On March 4, 2004, the licensee issued a letter to the NRC that outlined a phased approach for restart of uranium hexafluoride operations to include the corrective actions presented in the public meeting held on February 11, 2004. Restart action items were identified in seven areas: emergency response, policies and procedures, training, management of change, mechanical integrity, engineering controls, and corrective actions and auditing. The licensee restarted the uranium hexafluoride process in the order material flowed through the process (e.g., ore preparation, green salt, and fluorination/distillation).

The NRC developed a restart readiness oversight plan that included a table of items to be reviewed and completed by the licensee. The inspectors performed a readiness assessment prior to restart of each phase that included a review of closure package evidence for each restart item and observation of activities in progress prior to informing the licensee that there was no objection to restarting the phase.

### **2. Emergency Preparedness**

#### **a. Emergency Response Plan and Radiological Contingency Plan (ERP/RCP)**

##### **(1) Inspection Scope**

Changes made to the ERP/RCP, as a result of the Site Area Emergency on December 22, 2003, were reviewed to determine if changes resulted in Plan improvements or reduced the effectiveness of the previous Plan. The emergency plan implementing procedures (EIPs) were reviewed to determine the adequacy of the procedures in the implementation of the ERP/RCP activities.

##### **(2) Observations and Findings**

The initial ERP/RCP revision submitted by the licensee (dated March 8, 2004) included a number of improvements. However, the inspectors determined that further clarification of the emergency action levels (EALS) and a time commitment to notify the State and local agencies following an emergency declaration were areas requiring additional enhancement. The inspectors also noted several word-processing errors.

In response, the licensee made changes to the ERP/RCP dated March 11 and 24, 2004, respectively. Revised copies of the ERP/RCP were provided to the appropriate State, local, and federal agencies. Official review and approval of the ERP/RCP by NRC headquarters licensing staff was pending at the end of the inspection. However, the inspectors noted that the March 24, 2004, revision appeared to adequately address the licensee's commitments to improve the definition of the EALS and clarify responsibilities for emergency personnel during events.



During further review, the inspectors identified some additional deficiencies in the revised ERP/RCP. The inspectors identified an inconsistency in the frequency for performing the siren operability test between the ERP/RCP (quarterly) and the siren manufacturer's manual (monthly). In addition, agreement letters were not renewed as required by the current ERP/RCP.

Section 7.6 of the Plan stated that letters of agreement with offsite emergency response organizations were reviewed at least once each year and renewed at least once every four years. The inspectors noted that the current agreement letters for the Massac County Fire Department, Massac County Sheriff, Massac County Emergency Service and Disaster Agency, and the Metropolis Police Department were last renewed on July 8, 1998. Failure to maintain current letters of agreement with offsite emergency response organizations was considered a violation of Section 7.6 of the Radiological Contingency Plan (VIO 40-3392/2004-04-01: Failure To Renew Agreements In Accordance with the ERP/RCP).

In response, the licensee initiated action to update the agreements and expected to have them approved by July 1, 2004. Regarding the siren testing frequency, the licensee indicated that plant maintenance would be required to perform the siren test monthly rather than quarterly, and E-CATs Item MTW20040146-01 was generated to revise Section 7.5.2 of the ERP/RCP by July 1, 2004, to change the test frequency.

The inspectors reviewed the adequacy of the EIPs in the implementation of the ERP/RCP in the areas of emergency classification and notification, protective action recommendations, emergency response organization activation and notification, site evacuation and accountability, emergency response actions, and maintaining emergency preparedness. With the exception of procedure development associated with the public siren system, and improvements to EPIP-008, "Maintaining Emergency Preparedness," procedures adequately implemented the ERP/RCP.

The inspectors determined that no formalized procedure governing the activation, maintenance, testing, and response to spurious siren activations had been developed. In addition, Attachment 2 of EPIP-008, "Emergency Equipment and Supply Inventory and Maintenance," did not include the public siren system for emergency equipment testing. In response to the inspectors observations, the licensee indicated that a procedure governing the public siren system activation, maintenance, testing, and response to spurious siren activations would be developed, and that E-CATs Item MTW20040146-01 would be used to track completion of this item.

(3) Conclusions

Changes made to the Emergency Response Plan and Radiological Contingency Plan were all considered Plan improvements. The emergency plan implementing procedures (EIPs) adequately implemented the ERP/RCP, but a formalized procedure governing the public siren system had not been developed. A violation was identified for failure to maintain agreement letters in accordance with Section 7.6 of the ERP/RCP.

b. Emergency Organization Training

(1) Inspection Scope

The inspectors determined if emergency response training was provided to key onsite and offsite emergency response personnel regarding the revised ERP/RCP.

(2) Observations and Findings

The inspectors observed classroom training conducted for key onsite emergency response personnel and offsite fire fighting personnel. Documentation was reviewed to show that other offsite emergency response personnel (ambulance and law enforcement) were also trained. Following the classroom training provided to onsite emergency personnel, the instructor presented a postulated accident scenario to class participants for role playing as if an actual emergency had occurred.

The combination of the lecture and table top discussions of the postulated accident was an effective method of reinforcing the training and making further enhancements to the EPIPs. The training provided to offsite emergency personnel included the changes to the licensee's ERP/RCP, information regarding the facility's hazardous materials, the interface between the site and offsite during events, protective action recommendations, the public warning system, and methods of communications between the site and offsite during an emergency.

The inspectors determined from interviews with a select number of onsite response personnel that the training was adequate in familiarizing personnel with plan and procedure changes, roles and concept of operations, emergency communications with offsite groups, emergency action levels, and protective action recommendations. The inspectors also verified that security personnel had received training on those key functions as specified in the ERP/RCP. The adequacy of training for onsite emergency response personnel was further demonstrated during the table top drill which was performed on March 11, 2004 (see Paragraph 2.d below).

(3) Conclusions

All emergency training was completed in accordance with the licensee's commitments for plant restart. The training provided to both onsite and offsite responders was adequate for familiarizing personnel with their roles and responsibilities and the changes made to the emergency preparedness program since the December 22, 2003, incident.

c. Offsite Support

(1) Inspection Scope

Licensee activities in the areas of public awareness, training, agreements, and planning for emergencies were reviewed.

(2) Observations and Findings

The inspectors reviewed documentation and observed the training conducted for offsite fire fighting personnel and determined that the licensee was adequately training offsite support groups on changes made to the emergency program since the December 22, 2003, incident. Documentation also indicated that the offsite authorities were involved in the review and approval of the emergency broadcast messages communicated to the public in the event of an accident at the site.

Communication equipment was installed for use by the lead local response organization to obtain information during an emergency at the site. In addition, enhancements were made by the licensee in the area of public information via the establishment of a community bulletin mailed to local residents in the vicinity of the plant. The bulletin provided details regarding the various plant activities including the status of emergency preparedness.

A telephone hotline was established for receiving questions or concerns regarding plant activities from local residents. An agreement was executed with the offsite authorities regarding responsibility for the activation, testing, and maintenance of the recently installed public warning (community alert network) and siren system. The offsite authorities participated in the table top drill discussed below (Paragraph 2.d) that was held on March 11, 2004.

(3) Conclusions

The licensee's actions in the areas of public awareness, training, and communications with the public and offsite support groups adequately addressed the licensee's commitments to improve communications with those groups.

d. Drills and Exercises

(1) Inspection Scope

The table top exercise involving the onsite and offsite emergency response organization was observed to determine the adequacy of corrective actions and the changes that were made in response to the incident of December 22, 2003. The effectiveness of the licensee's critique to self-identify areas of improvement was also reviewed.

(2) Observations and Findings

The inspectors observed the performance of key emergency response personnel in responding to the postulated emergency from the plant control room, onsite Emergency Operations Center (EOC), and the offsite EOC. The scenario provided adequate challenges to evaluate the performance of the emergency response organization in meeting the exercise objectives. The event was properly classified, notification to offsite authorities was timely, the appropriate protective action recommendations were made, and frequent communication was observed by the Crisis Manager (CM) with the Incident Commander (IC) and the offsite contact at the local EOC.

The licensee's critique was a candid and critical assessment of the response. Issues observed by the inspectors were similar to those identified by the licensee's evaluators. Specific areas for improvement noted were the lack of a clear and effective turnover briefing between the CM and IC; poor coordination between the CM and IC regarding the decision to de-escalate the event; and the coordination for requesting offsite medical transportation. The inspectors also noted that the licensee and offsite authorities (city/county) identified improvements in the conduct of operations which would reduce communications delays. Additional improvement items were noted by the licensee and incorporated into their corrective action tracking system.

(3) Conclusions

The performance by emergency personnel in responding to the postulated accident scenario demonstrated that the corrective actions and changes that were made to the Plan and procedures in response to the December 22, 2003, incident were adequate. The critique was an effective and critical assessment of the response.

e. Emergency Equipment and Facilities

(1) Inspection Scope

The emergency communications equipment used to notify offsite decision makers and warn the public in the event of an emergency was examined for adequacy and to determine if the equipment was maintained in a state of operational readiness.

(2) Observations and Findings

The inspectors observed the operability of communications equipment during the table top exercise and determined that no significant problems existed and the equipment functioned as designed. The newly installed dedicated phone for communications between the site and offsite authorities during an emergency was verified as operational. During interviews with security and control room personnel, it was determined that additional training was required to ensure that personnel were familiar with the use of the newly installed equipment. In response to the observations, the licensee conducted additional training and posted user instructions in the vicinity of the equipment.

The inspectors reviewed the licensee's commitment to establish a public warning system consisting of sirens, a community alert network (CAN) phone system, and pre-recorded messages broadcasted on local radio stations regarding what actions to take in the event the sirens sounded. The inspectors observed the siren testing and reviewed the pre-recorded message documentation. The sirens were clearly audible at populated locations within approximately 1.5 miles of the site.

The pre-recorded messages provided the protective action recommendations and instructions to protect the public from unnecessary exposure to hazardous materials in the event of an accident. The pre-recorded messages were consistent with messages used at other facilities with similar hazards.

(3) Conclusions

The licensee's actions to repair or replace equipment, conduct training on communications equipment, and the coordination of emergency messages with the offsite decision makers resulted in significant improvements to the emergency response communications capability and the system for warning the public in the event of a hazardous materials release.

**3. Procedures and Policies**

a. Inspection Scope

The inspectors performed a readiness assessment of procedures and policies developed prior to restart of each phase of operation that included a review of closure package evidence of each restart item and observation of activities in progress.

b. Observations and Findings

Policies were written that provided statements of endorsement to reflect the licensee's commitment to comply with regulatory requirements for safe and reliable operation. Policies developed included stop work, management oversight, and procedure use and adherence.

Procedures, which were written and approved, described the requirements and writing conventions for administrative and technical implementing procedures. These guidance procedures also ensured that procedure development was based on accepted industry practices and were consistent and accurate for safe plant operation.

Licensee staff also performed a detailed job/task analysis process incorporating system walk-downs, review of process hazard analyses, interviews with operations personnel, review of prior incident reports, and validation by subject matter experts. From that analysis, operations procedures for restart were identified and developed for ore preparation, green salt, distillation, and fluorination. The types of procedures developed included standard, abnormal, emergency, and alarm response.

Each technical procedure went through a formal verification and validation process prior to implementation. Verification was performed by subject matter experts. The verification focused on technical and regulatory requirements and the review of existing plant drawings. Validation was a field walk-down of the procedure by operators to confirm that the steps could be performed as written and that components were properly labeled.

Overall, the inspectors determined that the quality of new procedures and policies developed was adequate and should improve over time as they are implemented and revised in the field. The inspectors identified a weakness regarding failure to ensure that license requirements were properly flowed down into the procedures. Some examples were as follows:

- Administrative controls relied upon as safety features (outlined in Chapter 13 of the license) were not adequately incorporated into procedures until the inspectors raised the issue with licensee staff. The administrative controls included an abnormal operations procedure to respond to an overfilled cold trap (Section 13.3.7.14) and procedural guidance for monitoring surge tank weight before and after a cold trap was heated (Section 13.3.7.6).
- Section 13.4.4.1 of the license required that all standard operating procedures (SOPs) be reviewed by Health Physics (HP). The inspectors noted that some approved SOPs did not include a review signature on the cover page for HP. The inspectors also noted that Procedure MTW-ADM-PRO-0103, "Development and Implementation of Plant Technical Procedures," did not properly address this requirement. During follow-up, the HP Manager determined that there were two distillation SOPs that he had not previously reviewed. He completed those reviews without significant comments. In addition, E-CATS Item No. MTW20040124-03 was initiated to track resolution of this issue.
- Procedure MTW-ADM-PRO-0103 defined a change in an operating parameter as a minor change that did not require the management of change process (PT-101) be implemented unless training was required. The inspectors noted that this was not consistent with Section 13.4.9.1 of the license which specifically required a PT-101 for a change to a process parameter. The licensee staff subsequently revised Procedure MTW-ADM-PRO-0103 to address this deficiency.
- Other safety features that were described in Chapter 13, such as the control room's green salt emergency shut off buttons, were not included on the "A" critical equipment list. During follow-up, the licensee determined that the preventative maintenance for those items had been completed, with the exception of two items: the flow totalizers (used to measure the amount of UF<sub>6</sub> filled into a cylinder) and the valves that automatically open to provide nitrogen on loss of normal plant air. The licensee staff successfully tested those items and ensured that components relied on for safety, as described in the license, were included on the "A" list.

In response to the inspectors' issues, the licensee generated an E-CATS item to train personnel on license requirements and ensure that requirements were flowed into procedures. Completion of the training and review to ensure that license conditions were adequately captured in procedures was an inspector follow-up item (IFI 04003392/2004-004-02).

The inspectors identified some additional deficiencies during review of procedures:

- Alarm response procedures (ARPs) initially prepared were not consistent with the requirements of Procedure MTW-ADM-PRO-0103. They did not include a description of automatic actions and possible causes. After discussion with the inspectors, the ARPs were revised to the correct format.

- The licensee did not initially provide a startup sequence procedure for green salt operation as committed to in their March 4, 2004, letter. Startup procedures for each system (reduction and hydrofluorination) allowed individual steps to be performed in parallel. However, the inspectors noted that, depending on the status of plant equipment, some steps did not apply while others needed to be performed in series. Following discussion with the inspectors, the licensee prepared a procedure governing the use of standing orders to provide sequencing for system startup.
- The inspectors also noted the procedure approved for emptying tank cars containing hydrofluoric acid did not include installation of wheel chocks and the new motion detector. In response, the licensee issued a standing order to prohibit emptying a car until the procedure was revised.

c. Conclusions

Overall, the inspectors determined that the quality of new procedures and policies developed was adequate and should improve over time as they are implemented and revised in the field. The inspectors identified a weakness regarding failure to ensure that license requirements were properly flowed down into the procedures.

**4. Training**

a. Inspection Scope

The inspectors performed a readiness assessment of training performed prior to restart of each phase of operation that included a review of closure package evidence of each restart item and observation of activities in progress.

b. Observations and Findings

The detailed job/task analysis process identified tasks requiring training for restart. On-the-job training (OJT) and job performance measures (JPMs) for restart tasks were established and implemented for UF<sub>6</sub> process operators. Personnel, as applicable, also received training on plant policies for procedure use, stop work authority, the STAR (Stop Think Act Respond) concept, verification and validation techniques for procedure reviews, and on how to conduct OJT and JPM.

Once operators had completed their required JPMs and other training listed on their qualification summary card, their card was signed by the UF<sub>6</sub> Production Manager. The inspectors observed portions of OJTs and JPMs and reviewed associated documentation. No significant issues were identified.

c. Conclusions

The inspectors did not identify any significant issues while observing portions of OJTs and JPMs and reviewing associated documentation.

## 5. **Management of Change**

### a. **Scope**

The inspectors reviewed the revised Management of Change (MOC) procedure, Plant Policy PT-1, and attended training for authorized originators of proposed modifications to assess readiness for plant restart .

### b. **Observations and Findings**

The inspectors verified that the MOC procedure applied to all process changes. The inspectors also verified that responsibilities and authorities for MOCs were properly delineated. In addition, the inspectors also verified that the requirements for the extended pre-startup safety review were added. The inspectors identified no issues.

The inspectors also confirmed that the training sessions for authorized originators (engineers and supervisors) were of suitable scope and depth. Measurement of the effectiveness of the sessions was demonstrated by a written test.

### c. **Conclusions**

The licensee adequately revised their management of change process prior to restart of operations.

## 6. **Mechanical Integrity**

### a. **Scope**

The inspectors evaluated the licensee's enhancements to their mechanical integrity program and their readiness to restart operations. The inspectors reviewed the licensee's list of critical equipment ("A" list) to ensure that the items were properly classified in accordance with site procedures.

A sample of the maintenance and surveillance records for safety-related items in green salt and fluorination/distillation were examined to verify that preventive maintenance had been completed. The inspectors also interviewed the reliability engineer regarding the vibration analysis program and reviewed a sample of the data.

### b. **Observations and Findings**

Upon review of the critical equipment list for green salt and fluorination/distillation, the inspectors noted some significant equipment, such as the reducers and safety features described in Chapter 13 of the license, was not listed. When the licensee was informed of the discovery, the equipment list was reviewed and modified to ensure that equipment was categorized correctly and according to procedure.

The inspectors verified that green salt and fluorination/distillation subsystems had been pressure tested and all leaks repaired prior to restart. The inspectors also verified that



rupture disks on cold traps within the distillation subsystem had been inspected and replaced, where required. In addition, the inspectors confirmed that a procedure had been established for leak-testing expansion joints during operations. The inspectors performed a field verification of a sample of relief valves to confirm that they had been tested. No discrepancies with the maintenance records reviewed were identified.

The inspectors confirmed that vibration analysis of the following equipment items would be postponed until after restart because the equipment was not operating:

- ▶ P-476, "B" Fluorinator combustion air blower
- ▶ P-847, South ferrous sulfate reactor decant pump
- ▶ P-849, North ferrous sulfate reactor decant pump
- ▶ P-480, KOH filter pump
- ▶ P-834, South ferrous sulfate muds pump
- ▶ P-835, North ferrous sulfate muds pump

c. Conclusions

The licensee adequately modified the critical equipment list and performed the mechanical integrity enhancements for restart of operations.

7. **Engineering Controls**

a. Scope

The inspectors reviewed the failure modes and effects analysis (FMEA) and "deep dive" documents to ensure that the high consequence events had been addressed.

b. Observations and Findings

The inspectors verified that the high consequence events from the FMEA that the licensee had determined to require immediate action were addressed prior to plant restart. Also, the inspectors verified that the long-term engineered controls that had been recommended were properly prioritized and scheduled for implementation.

The inspectors verified that the following equipment was installed:

- ▶ HF tank car motion detector ZS-655
- ▶ HF unloading hose low pressure switch PSL-657 and HF unloading valve
- ▶ HF storage tank load cell interlock to unloading valve
- ▶ HF scrubber low flow switch PSL-827 and interlock
- ▶ dust collector drain line
- ▶ emergency relief valve (ERV) tank U-225 and pump P-629

The inspectors expressed concern that Procedure MTW-SOP-TFO-0210, "HF Unloading Operations," specified the HF storage tank high level switch as the normal control used to shut off unloading operations. Licensee staff explained that the storage tank high-high alarm was independent of the high level switch, and its set point was ten to fifteen percent higher than the high level switch set point. The inspectors determined that this was an acceptable practice.

The inspectors reviewed the operation of the ERV tank as described in Procedure MTW-SOP-GSO-0202, "U-225 Emergency HF Relief Valve Tank Operation." The inspectors performed a document review as well as field verification of the installation of level detection instrumentation in the "C" filter fines hopper. The inspectors examined piping and instrumentation diagrams, loop check certification documents, and performed a field verification of the installation of potassium hydroxide scrubber pump flow transmitters FT-615A&B and FT-448A&B. No issues were noted.

The inspectors confirmed that improved controls for fluorinator fluidizing air had been installed. The inspectors confirmed that interlocks requiring either opening the dust collector valves or operation of the Nash vacuum pumps were captured in Procedures MTW-SOP-F2N-0200 and MTW-SOP-F2N-0100, respectively. An issue was identified regarding the inability of production personnel to leak test the systems with the interlocks as originally installed. The licensee's solution to this problem was not finalized at the end of the inspection. This issue will be tracked as Inspector Follow-up Item 40-3392/2004-004-03.

The inspectors examined the documentation package and standard operating procedures and confirmed that high pressure alarms had been installed and that the primary cold trap inlet pressure was interlocked with the fluidizing air inlet valve to ensure that the fluidizing air would be shut off upon high pressure (low negative pressure).

The inspectors reviewed relief valve calculations to ensure that the valves were properly sized and did not discharge into systems with incorrect pressure ratings. Some inadequate procedures for ensuring proper valve positioning for protecting the low boiler condenser during specific operations were identified. The licensee issued a standing order to require revision to the affected procedures prior to performing those operations.

c, Conclusions

The licensee's required actions were completed satisfactorily. Inspector Follow-up Item 40-3392/2004-004-03 was identified to track the licensee's approach for satisfying software interlocks that might prevent leak testing of fluorination/distillation equipment.

**8. Corrective Actions and Auditing**

a. Inspection Scope

The inspectors performed a readiness assessment of corrective actions and auditing enhancements developed prior to restart of operation that included a review of closure package evidence of each restart item and observation of activities in progress.

b. Observations and Findings

The licensee hired contractors to perform on-shift audits of restart activities and established procedures for performing the audits and reporting findings. The auditors were also tasked with reviewing closure packages for the individual action items to

ensure completeness. The inspectors observed that the auditors performed an in-depth review of the packages and provided effective coverage of plant restart activities in the Feeds Material Building (FMB). Issues identified were documented and addressed by the licensee, as required.

The inspectors also noted that a web-based corrective action system (E-CATS) was established along with approved implementing procedures for its use. The licensee staff intended to input items from legacy systems and determine a mechanism for using the new system to identify adverse trends and perform effectiveness reviews of corrective action implementation. The inspectors review of the licensee's implementation of E-CATS will be assessed during future inspections and will be tracked by previously identified IFI 40-3392/2003-007-04.

c. Conclusions

The licensee's auditors performed an in-depth review of the packages and provided effective coverage of plant restart activities in the FMB. Issues identified were documented and addressed by the licensee, as required. The inspectors also noted that a web-based corrective action system (E-CATS) was established and implementing procedures for its use were approved.

9. **Observation of Plant Restart**

a. Scope

The inspectors observed plant restart to ensure that activities were performed in accordance with license requirements. The inspectors also reviewed an event that resulted in the smoldering of the insulation covers on a green salt hydrofluorinator.

b. Observations and Findings

The inspectors observed that, overall, plant restart activities were performed safely and in accordance with procedural requirements. However, on April 16, 2004, an event occurred that resulted in the smoldering of the insulation covers on a green salt hydrofluorinator.

A temperature strip chart had been producing random inaccurate results and was subsequently removed from service to investigate and repair the device. Upon removal of the strip chart, the temperature signal from hydrofluorinator was apparently lost, which registered as a zero temperature reading on a programmable logic controller (PLC). The PLC then adjusted the hydrofluorinator furnace temperature to maximum to compensate for the zero reading. The hydrofluorinator heated up to a point that the insulation covers began smoking. Operators in the area noted the smoke coming from the insulation covers and responded appropriately to extinguish the fire. The entire green salt process was also immediately shutdown.

The licensee's formal investigation into the event revealed that the affected PLC was not programmed to fail safe on a loss of signal. The inspectors verified that the licensee's

software engineer made the appropriate modifications to the PLC software to ensure that the device would fail safe on the loss of the signal. During the review for extent of condition, the engineer identified and corrected a similar issue with a PLC associated with operation of the HF vaporizers. The inspectors found the licensee's extent of condition review for PLCs to be adequate.

The inspectors verified that the insulation around the smoldering areas was repaired prior to restart. The licensee also placed a fire watch on all of the heated lines for the hydrofluorinator as well as those lines that had yet to be heated. The inspectors found this corrective action to be adequate to detect heat control/insulation issues. The licensee also entered into their corrective action program (E-CATS) long-term items for review, such as reevaluating insulating techniques.

During routine plant tours, the inspectors noted areas in the FMB where housekeeping improvements were necessary to reduce the potential for spread of contamination and unnecessary personnel exposure following the extended plant outage. Visible contamination was noted on a primary cold trap shell that was disassembled for repairs; a drum containing large pieces of green salt was left uncovered; several drums containing filters with visible green salt were left uncovered; and improper storage of respirator masks and disposal of potentially contaminated gloves. The licensee staff took appropriate action to address these housekeeping issues.

c. Conclusions

The licensee's corrective actions in response to the green salt insulation fire were adequate. Contamination control was an area for improvement as evidenced by uncovered equipment and containers with visible green salt.

10. Exit Meeting Summary

The inspector presented the inspection results to members of the plant staff and management at the conclusion of the inspection on April 30, 2004. 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.

## ATTACHMENT

### 1. PARTIAL LIST OF PERSONS CONTACTED

#### Honeywell Specialty Chemicals

\*R. O’Kane, Plant Manager  
P. Bryan, Nuclear Fuel Manager  
\*M. Ginzel, Health Physics Manager  
J. Malanowski, Engineering Manager  
D. Mays, Environmental and Regulatory Affairs Manager  
\*B. Vandermeulen, Quality Assurance/Supply Chain Manager

\* Denotes those present at the exit meeting on April 30, 2004

### 2. INSPECTION PROCEDURES USED

IP 88003      Reactive Inspection For Events At Fuel Cycle Facilities

### 3. ITEMS OPENED, CLOSED, AND DISCUSSED

<u>Item Number</u>	<u>Status</u>	<u>Description</u>
40-3392/04-04-01	Open	Violation - Failure To Renew Agreements In Accordance with the ERP/RCP
40-3392/04-04-02	Open	IFI - Completion of the training and review to ensure that license conditions were adequately captured in procedures
40-3392/04-04-03	Open	IFI - Problem with testing the fluorination/distillation equipment with interlocks in place.

### 4. LIST OF ACRONYMS USED

ADAMS	Agency Document Access and Management System
ARP	Alarm Response Procedure
CAN	Community Alert Network
CFR	Code of Federal Regulations
CM	Crisis Manager
DFFI	Division of Fuel Facility Inspection
EAL	Emergency Action Level
EOC	Emergency Operations Center
EPIP	Emergency Plan Implementing Procedure
ERP/RCP	Emergency Response Plan/Radiological Contingency Plan
ERV	Emergency Relief Tank
FMB	Feeds Material Building
FMEA	Failure Modes And Effects Analysis
HF	Hydrofluoric Acid
HP	Health Physics

IC	Incident Commander
IFI	Inspector Followup Item
IP	Inspection Procedure
JPM	Job Performance Measures
MOC	Management Of Change
No.	Number
NRC	Nuclear Regulatory Commission
OJT	On-The-Job-Training
PARS	Publicly Available Records
PLC	Programmable Logic Controller
PMT	Post Maintenance Testing
SOP	Standard Operating Procedure
UF <sub>6</sub>	Uranium Hexafluoride