UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
245 PEACHTREE CENTER AVENUE NE, SUITE 1200
ATLANTA, GEORGIA 30303-1257

April 28, 2011

Mr. Larry Smith
Plant Manager
Honeywell Specialty Chemicals
P.O. Box 430
Metropolis, IL 62960

SUBJECT: NRC INSPECTION REPORT NO. 40-3392/2011-002 AND NOTICE OF VIOLATION

Dear Mr. Smith:

This refers to the inspections conducted from January 1, 2011 through March 31, 2011 at the Honeywell Specialty Chemicals facility. The purpose of the inspections was to determine whether activities authorized under the license were conducted safely and in accordance with NRC requirements. The enclosed report presents the results of this inspection. On January 28, February 17, and March 31, 2011, the findings were discussed with you and other members of your staff. Also, on April 25, 2011, additional findings were discussed in a telephone conversation with members of your staff.

The inspections consisted of examination of activities conducted under your license as they relate to public health and safety to confirm compliance with the Commission's rules and regulations and with the conditions of your license. 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 two Severity Level IV violations of NRC requirements occurred. The violations were evaluated in accordance with the NRC Enforcement Policy. The current Enforcement Policy is included on the NRC's Web site at (http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html).

The violations are citied in the enclosed Notice of Violation (Notice) and the circumstances surrounding them are described in detail in the subject inspection report. The violations are being cited in the Notice because they were identified by the NRC. The first violation involved the failure to notify the NRC within 24 hours after an event that required unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual's clothing in accordance with 10 CFR 40.60(b)(3). The second violation involved the failure to conduct surveys and record results reasonable under the circumstances to evaluate the magnitude and extent of radiation levels and quantities of radioactive materials for the event in accordance with 10 CFR 20.2103(a) and 10 CFR 20.1501(a).

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC

review of your response to the Notice will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

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 or proprietary information so that it can be made available to the Public without redaction.

Thank you for your cooperation. If you have any questions, please call me at (404) 997-4418.

Sincerely,

/RA by J. Calle/

Joselito O. Calle, 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 No. 40-3392/2011-002

cc w/encls:
Gary Wright
Emergency Management Agency
Division of Nuclear Safety
Electronic Mail Distribution

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ADAMS: √ Yes ACCESSION NUMBER: ML111180492 √ SUNSI REVIEW COMPLETE

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Letter to Larry Smith from Joselito O. Calle dated April 28, 2011

Subject: NRC INSPECTION REPORT NO. 40-3392/2011-002 AND NOTICE OF VIOLATION

Distribution w/encls:
T. Hiltz, NMSS
J. Calle, RII
T. Liu, NMSS
B. Reilly, NMSS
D. Hartland, RII

NOTICE OF VIOLATION

Honeywell Specialty Chemicals
Metropolis, IL

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

During an NRC inspection conducted on March 10, 2011, two violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

1. 10 CFR 40.60(b)(3) requires, in part, that each licensee shall notify the NRC within 24 hours after the discovery of an event that requires unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual's clothing or body.

   Contrary to the above, on March 8, 2011, the licensee failed to notify the NRC within 24 hours after the discovery of an unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual's clothing. Specifically, an injured contract employee with spreadable radioactive contamination on his coveralls and his underlying personnel clothing was treated in the licensee's on-site dispensary, was decontaminated, and was transported off-site for further definitive care and the NRC was not notified in accordance with 10 CFR 40.60(b)(3).

This is a Severity Level IV violation (Section 6.9.d.7).

2. 10 CFR 20.2103(a) states in part, that each licensee shall maintain records showing the results of surveys required by §20.1501.

   10 CFR 20.1501(a)(2)(i)(ii) states in part, that each licensee shall make or cause to be made, surveys that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, and concentrations or quantities of radioactive material.

   Contrary to the above, on March 8, 2011, the licensee failed to conduct surveys and record results reasonable under the circumstances to evaluate the magnitude and extent of radiation levels and quantities of radioactive materials for the event involving the medical treatment of an injured contaminated individual treated in the on-site dispensary and transported to an off-site facility for further definitive care.

This is a Severity Level IV violation (Section 6.3.d.3).

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, DC 20555-0001, 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: (1) the reason for the violations, or, if contested, the basis for disputing the violations or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, 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, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because 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, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public 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 bases 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 of receipt.

Dated this 28th day of April, 2011

U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No.:	40-3392
License No.:	SUB-526
Report No.:	40-3392/2011-02
Licensee:	Honeywell International, Inc.
Facility:	Metropolis Works (MTW)
Location:	Metropolis, IL 62960
Dates:	January 24 through 28, February 14 through 17, March 10, and March 28 through 31, 2011
Inspectors:	Richard Gibson, Senior Fuel Facility Inspector Paul Startz, Fuel Facility Inspector Mike Miller, Senior Resident Inspector, Paducah Robert Prince, Acting Senior Resident Inspector, Paducah Regina Russell, Resident Inspector, Paducah
Accompanied by:	Nicholas Peterka, Fuel Facility Inspector-in-Training
Approved by:	Joselito O. Calle, Chief Fuel Facility Inspection Branch 2 Division of Fuel Facility Inspection

EXECUTIVE SUMMARY

Honeywell Specialty Chemicals
NRC Inspection Report 40-3392/2011-02

Routine announced and unannounced inspections were conducted in the area of management organization and controls, operator training/retraining, radiation protection, maintenance and surveillance, and operational safety at the Honeywell Specialty Chemicals facility. The inspection involved observation of work activities, a review of selected records and procedures, interviews with plant personnel, and a review of the plant features. The inspections identified the following aspects of the program as outlined below:

Management Organization and Controls (88005)

- The licensee had two open vacancies at the management level for a Training Manager and a Technology Manager. Also, reorganization in the management structure has created a new position for a Nuclear Compliance Director. The Quality Assurance Program was comprehensive with helpful recommendations from the audits of each program. The licensee's corrective action program (ITCA – Incident Tracking and Corrective Actions) was commensurate with safety significant issues identified by employees and tracked to completion. Procedures reviewed appeared to be adequately written and approved by management before use (Paragraph 2.a).

Operator Training/Retraining (88010)

- Training of new employees to become operators was in accordance with the training program and applicable procedures. The licensee had been replacing contracted operators with Honeywell workers. Observation of an on-the job evaluator performing job performance measures with a new employee was in accordance with the license and procedure requirements (Paragraph 3.a).

Events Follow-up

- Two incidents occurred during the inspection period. There was a release of uranium ore from the Ore Blender and a leak of hydrogen fluoride from an expansion joint of the B-Hydrofluorinator in the Feed Materials Building (FMB). The licensee secured the spills, cleaned, and decontaminated all of the affected areas of the FMB. Bioassay results did not identify any elevated levels of exposure to the employees (Paragraph 4.a).

Radiation Protection (88030)

- Two violations of NRC's requirements were identified which include failure to notify within 24 hours after an event that required unplanned medical treatment at a medical facility, and failure to conduct surveys and record results (Paragraph 5.a).

- Radiation protection procedures were reviewed, approved, and implemented in accordance with regulations and license requirements (Paragraph 5.b).

- Radiation protection instruments and equipment were calibrated and operated in accordance with the applicable license requirements and licensee procedures (Paragraph 5.c).

- The exposure control program was implemented in a manner to maintain doses ALARA. Exposures were less than the occupational limits in 10 CFR 20.1201. The inspectors concluded that the licensee's respiratory protection program was adequate (Paragraph 5.d).

- Radiological safety postings and the use of the monitoring system were properly used to communicate potential hazards and protective equipment requirements to workers (Paragraph 5.e).

- The radiation and contamination survey programs were appropriately implemented to protect workers, and to identify potential work areas posing an internal or external radiation hazard to workers (Paragraph 5.f).

- Based on records review and interviews, the inspectors concluded that the licensee's ALARA program was properly implemented (Paragraph 5.g).

Maintenance and Surveillance (88025)

- The inspection was performed during the annual plant shutdown and included observations of significant maintenance projects being conducted in the materials feed building. The inspection also included reviews of periodic preventative maintenance of safety related equipment and instrumentation. The inspection included the review of selected procedures, surveillance and calibration records, and the management system used for tracking and trending of maintenance data necessary for maintaining equipment and component reliability (Paragraph 6.a).

Routine Site Operations (92711)

- The resident inspectors assigned to the Paducah resident office made routine visits to the Honeywell site. The purpose of these visits was to perform plant observations and to inspect ongoing operations and maintenance activities at the facility. The inspectors

noted that operators were knowledgeable of plant status and control room activities were properly performed. The inspectors evaluated the emergency and fire protection equipment for storage and staging of supplies and accessibility in the event of an emergency. The inspectors evaluated the material condition and housekeeping of plant areas.

A release of Hydrogen Fluoride (HF) occurred from a flange of a rupture disk at the HF tank farm. The licensee activated the emergency response team and the mitigation spray towers to secure the release. The release of HF was not radioactive and did not reach the site boundaries (Paragraph 7.a).

Attachment:
Partial Listing of Persons Contacted
List of Items Opened, Closed and Discussed
Inspection Procedures Used
List of Acronyms Used

REPORT DETAILS

1. Summary of Plant Status

The Honeywell Specialty Chemicals (licensee) uranium conversion facility is located on a 1,100 acre site (60 acres within the fence line) near Metropolis, IL. The licensee is authorized to possess 150 million pounds of natural uranium ore and to convert this material to uranium hexafluoride (UF_6). The uranium conversion process occurs in the Feed Materials Building (FMB).

2. Management Organization and Controls (IP 88005)

a. Inspection Scope and Observations

The inspectors reviewed management structure changes since the last inspection. There were two vacancies opened at the management level for a Training Manager and a Technology Manager. Both positions had qualified individuals acting until the licensee could fill them. The Technology Manager was promoted to a Nuclear Compliance Director position after reorganization by the licensee. The inspectors reviewed the qualifications of the new Compliance Director and determined them to be adequate. The inspectors interviewed the Plant Manager and other members of his staff and verified that their qualifications and responsibilities were consistent with the license and procedure requirements.

The inspectors verified that the licensee's corrective action program (ITCA – Incident Tracking and Corrective Actions) was commensurate with safety significant issues identified by employees and that those issues were tracked to completion. The inspectors reviewed multiple samples of ITCA reports related to safety issues and determined that the findings were appropriately documented in accordance with the licensee's program and established procedures.

The inspectors verified that the Quality Assurance Program was comprehensive in conducting audits of the safety programs and it provided helpful recommendations that were appropriately documented in the corrective actions program. The inspectors determined that the reviewed internal audits were thorough and reflected a low threshold for identification and documentation of discrepancies. The inspectors reviewed the minutes from the plant Safety Committee for the calendar year 2010 and determined that the meeting was chartered, and the members met the terms and conditions stipulated in the license. The inspectors also determined that safety recommendations from the meeting were entered in the corrective actions program for tracking.

The inspectors interviewed personnel responsible for the Document Control Program and reviewed the program for the issuance and revision of plant procedures. The inspectors determined that the licensee had adequate controls in place to ensure that

procedures were reviewed by the required disciplines and approved by management before use. The inspectors determined that procedures were written and revised as needed and they were done in accordance with the license and implementing procedures.

b. Conclusions

The licensee had two open vacancies at the management staff level for a Training Manager and a Technology Manager. Also, reorganization in the management structure has created a new position for a Nuclear Compliance Director. The Quality Assurance Program was comprehensive with helpful recommendations from the audit of each program. The licensee's corrective action program (ITCA – Incident Tracking and Corrective Actions) was commensurate with safety significant issues identified by employees and tracked to completion. Procedures reviewed were adequately written and approved by management before use. No findings of significance were identified.

3. Operator Training/Retraining (IP 88010)

a. Inspection Scope and Observation

The inspectors reviewed the licensee's operator training and qualification program. The inspectors evaluated the training program structure and determined that no substantive programmatic changes had occurred since the last inspection. The licensee continued training new Honeywell workers to replace the operators who were contracted since the plant lock-out. Also, the inspectors observed on-the-job training and evaluation of a new employee who was required to demonstrate his knowledge to locate system components and critical monitoring instrumentation. The new employee was training to become an operator.

The inspectors reviewed training for the production operators. The inspectors verified that the operators received the initial and annual refresher general employee training and job-specific production training.

The inspectors reviewed procedures and documentation associated with the training and qualification program. The inspectors determined that the procedures were updated and revised as needed, and the procedures adequately addressed the administrative aspects of the training and qualification program. The inspectors reviewed training records for operators and verified that the operators were reviewing revised procedures as required by the training program.

b. Conclusion

Training of new employees to become operators was in accordance with the training program and applicable procedures. The licensee had been replacing contracted operators with Honeywell workers. Observation of an on-the job evaluator performing job performance measures with a new employee was in accordance with the license and procedure requirements. No findings of significance were identified.

4. Events Follow-up

a. Inspection Scope and Observations

On February 14, 2011, an ore preparation operator noticed a sharp drop in the weight reading for the blender in Ore Preparation. It was determined by the operator that the blender drum-off valve was in the open position and approximately 6,200 total pounds of feed material (U_3O_8) was released to the first floor and the basement. The operator closed the valve under the blender and notified the supervisor of what took place. The licensee initiated an airborne radioactivity area requirement for the second, first and basement floors by the illumination of the red lights. Stationary air samples collected from the illuminated floors indicated concentrations of 1 to 2 ½ derived air concentration (DAC) on the morning of February 15, 2011. Airborne radioactivity area requirements were removed later in the day when the concentrations averaged <30% DAC over the affected floors. The licensee did not identify any elevated exposures from the bioassay results taken from the employees involved.

On February 17, 2011, the licensee discovered a small hydrogen fluoride (HF) leak from a crack in the expansion joint to the B-4 inlet HF filter of the B-Hydrofluorinator. The licensee estimated that approximately two pounds of HF escaped. The licensee initiated an airborne radioactivity area requirement for the fourth and the fifth floors by the illumination of the red lights. Stationary air samples collected from the floors indicated a concentration of 1 DAC on the fourth floor. The licensee removed airborne requirements from the floors after the air concentration of the areas averaged <30% DAC over the affected floors. The results from the bioassays did not identify any elevated exposures to the employees.

b. Conclusion

Two incidents occurred during the inspection period. There was a release of uranium ore from the Ore Blender and a leak of hydrogen fluoride from an expansion joint of the B Hydrofluorinator in the Feed Materials Building (FMB). The licensee secured the spills, cleaned, and decontaminated all of the affected areas of the FMB. Bioassay results did not identify any elevated levels of exposure to the employees. No findings of significance were identified.

5. Radiation Protection (IP 88030)

a. Radiation Protection (RP) Program

(1) Scope and Observations

The inspectors reviewed the RP program to determine the adequacy of the RP health and safety function. The inspectors discussed organizational changes and personnel responsibilities with the Health Physics (HP) Supervisor. There have been no major organizational changes since the last inspection. The inspectors verified the RP Program was independent of Operations with the RP Program Manager reporting to the Nuclear Compliance director. The inspectors reviewed audits AUD-2009-008, AUD-2010-0002, AUD-2010-0004, AUD-2010-0005, AUD-2010-006, AUD-2010-0007, AUD-2010-0008, and AUD-2010-0010 performed by the Quality Assurance department.

Event Description: On March 8, 2011, a maintenance worker was working on the U-13 tank replacement job in the wet process area building. The tank had been washed prior to maintenance to remove residual material. On the day of the incident, the disassembled parts of the tank were laying about the work area. In the morning while attempting to relocate the motor/agitator assembly of the tank, a worker sustained a cut when the assembly rotated and the blade cut the worker's wrist.

Upon sustaining the injury, the individual proceeded to the onsite medical facility where he was treated by the contractor's emergency medical technician (EMT)/nurse. The EMT/nurse washed and cleaned the wound and noted that a deep cut had been sustained. The individual sustained no injury to the underlying muscle or tendons as noted by the EMT/nurse's evaluation. The individual's coveralls, work boots and personal pants were also found to be contaminated. All contaminated clothing articles, including the individual's personal pants were removed and retained by the health physics (HP) technician. The technician did not provide the results from the survey of the boots and coveralls. On the report for the individual's jeans, the technician documented the contamination was greater than the threshold of 1000 dpm/100cm^2 but did not provide the actual numeric results. In the noted surveys, the licensee failed to provide results in order to determine the magnitude or extent of the contamination. The swipe test results of the blade showed contamination of approximately 500 dpm/100 cm^2. The HP technician surveyed the wound after it had been cleaned and no contamination was detected. The HP technician conducted a whole body survey of the individual prior to him leaving the onsite medical facility and found no detectable contamination. The individual was taken by car to an off-site health care facility where he received eight stitches.

Later that afternoon, the individual returned to the site and provided a bioassay sample for analysis. The bioassay results showed the individual was positive for a uranium uptake, which was above the licensee's action levels. The individual provided additional

samples the next few work days and the samples were found positive for uranium, but had decreased. The individual wore respiratory protection while performing the U-13 tank activities. Bioassay samples obtained from the three other co-workers on the same job who also wore respirators were negative. The licensee performed a dose assessment attributed to an exposure through the wound and assigned the dose to the individual.

The inspectors reviewed the event and circumstances surrounding the contaminated worker and questioned the licensee in light of the 24-hour reporting requirement to the NRC. The licensee decided to make an event report (EN 46682) to the NRC on March 18, 2011 for unplanned medical treatment for an individual involving contamination.

The inspectors reviewed the documentation of the surveys of the worker, the clinic, and the clothing. The HP technician reported she did not document the results of the individual's whole body survey and provided limited documentation of the clothing and clinic surveys.

10 CFR 40.60(b)(3) requires, in part, that each licensee shall notify the NRC within 24 hours after the discovery of an event that requires unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual's clothing or body.

Contrary to the above, on March 8, 2011, the licensee failed to notify the NRC within 24 hours after the discovery of an unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual's clothing. Specifically, an injured contract employee with spreadable radioactive contamination on his coveralls and his underlying personnel clothing was treated in the licensee's on-site dispensary, was decontaminated, and was transported off-site for further definitive care and the NRC was not notified in accordance with 10 CFR 40.60(b)(3). This violation (VIO) is identified as 40-3392/2011-02-01.

10 CFR 20.2103(a) states in part, that each licensee shall maintain records showing the results of surveys required by §20.1501.

10 CFR 20.1501(a)(2)(i)(ii) states in part, that each licensee shall make or cause to be made, surveys that are reasonable under the circumstances to evaluate the magnitude and extent of radiation levels, and concentrations or quantities of radioactive material.

Contrary to the above, on March 8, 2011, the licensee failed to conduct surveys and record results reasonable under the circumstances to evaluate the magnitude and extent of radiation levels and quantities of radioactive materials for the event involving the medical treatment of an injured contaminated individual treated in the on-site dispensary and transported to an off-site facility for further definitive care. This violation is identified as 40-3392/2011-02-02.

(2) Conclusions

Two violations of NRC's requirements were identified which include failure to notify the NRC within 24 hours after an event that required unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination, and failure to conduct surveys and record results.

a. Radiation Protection Procedures

(1) Scope and Observations

The inspectors reviewed the following RP procedures to determine that the details specified in the procedures were consistent with regulations and license requirements:

- MTW-ADM-HP-0100, "Radiological Protection Program" Rev. 3
- MTW-ADM-HP-0113, "Respiratory Protection Program" Rev. 1
- MTW-ADM-HP-0118, "External Radiation"
- MTW-SOP-HP-0112, "Release of Personnel Material and Equipment"
- MTW-SOP-HP-0113, "Respiratory Protection Program"
- MTW-SOP-HP-0201, "Determination of Airborne Radioactivity" Rev. 3
- MTW-SOP-HP-0213, "Kinetic Phosphormetric Determination of Uranium and Calibration" Rev. 3
- MTW-SOP-HP-0216, "Respirator Fit Testing" Rev. 1
- MTW-SOP-HP-0220, "Calibration of the Tennelec XLB Series 4 and 5" Rev. 3
- MTW-SOP-HP-0232, "Smear and Radiation Dose Surveys" Rev. 5
- MTW-SOP-LAU- 0200, "South Laundry" Rev. 0
- MTW-SOP-LAU-0202, "North Laundry" Rev. 1
- Honeywell Metropolis Works Internal Dosimetry Technical Basis Manual

Through interviews with responsible staff, the inspectors determined that RP procedures were reviewed and updated when necessary and contained reasonable level of detail for the operations involved.

(2) Conclusions

Radiation protection procedures were reviewed, approved, and implemented in accordance with regulations and license requirements. No findings of significance were identified.

b. Instruments and Equipment

(1) Scope and Observations

The inspectors examined selected portable survey instruments and fixed monitoring equipment to determine operability and calibration status. The inspectors reviewed records associated with portable instruments and hand-and-foot monitors. Procedures for calibration and functional checks of the instruments were found to be current and adequate. The inspectors noted the licensee utilizes an off-site contractor to calibrate the hand-and-foot monitors by means of an electronic calibration. The inspectors reviewed selected calibration records for the hand-and-foot monitors for accuracy and completeness.

(2) Conclusions

Radiation protection instruments and equipment were calibrated and operated in accordance with the applicable license requirements and licensee procedures. No findings of significance were identified.

c. Exposure Controls

(1) Scope and Observations

The inspectors reviewed personnel exposure data to verify that exposures were maintained ALARA and within the limits of 10 CFR 20.1201. The licensee's dosimetry provider was certified by the National Voluntary Laboratory Accreditation Program. Table 1 below displays the occupational exposure data for CYs 2008, 2009, and 2010.

Table 1 - Occupational Exposure Data

Year	Number of Monitored Individuals	Average Total Effective Dose Equivalent (TEDE) - (rem)	Maximum TEDE - (rem)	Total Collective TEDE - (rem)
2008	683	0.172	1.271	117.303
2009	817	0.197	1.741	161.055
2010	1281	0.134	1.227	172.270

The inspectors discussed with the HP manager the upward trend in the collective TEDE. The inspectors learned this was due to the number of monitored individuals increasing from 2008, 2009, and 2010. The inspectors also noted there has been a general downward trend for the average TEDE even though there has been an increase in the number of monitored individuals.

The inspectors reviewed the licensee's bioassay program associated with the evaluation of worker intake of uranium and the adequacy of personnel exposure assessments. The inspectors reviewed procedures and documentation associated with bioassay exposure

calculations. Personnel were knowledgeable of the procedures for preparing and processing urine samples for uranium analysis. The licensee performed all bioassay analysis on site.

The inspectors reviewed portions of the licensee's program relating to the use and maintenance of respiratory protection equipment. The licensee utilizes two types of respirators at the site, half-face and full-face respirators. Both respirators are single use only and the staff members responsible for maintenance of the equipment break down, clean, and rebuild the respirators prior to reuse. The licensee uses either a chemical or a particulate cartridge in the respirators depending on the work being conducted. The chemical cartridge is for single use only, while the particulate cartridge is used until the cartridge reads 300 counts per minute (cpm). Based on field observations and discussions with responsible personnel, the inspectors determined that respiratory protection equipment was adequately maintained and handled in accordance with approved procedures. Provisions to ensure that only qualified individuals use respiratory protection equipment were adequate and implemented in accordance with approved procedures.

(2) Conclusions

The exposure control program was implemented in a manner to maintain doses ALARA. Exposures were less than the occupational limits in 10 CFR 20.1201. The inspectors concluded that the licensee's respiratory protection program was adequate. No findings of significance were identified.

d. Posting, Labeling, and Control

(1) Scope and Observations

The inspectors reviewed radiological sign postings within the controlled areas and to entrances leading into the controlled areas to determine compliance with regulatory requirements. Radiological areas were posted in accordance with license conditions and accurately reflected the radiological conditions in the areas.

The inspectors determined from discussions with the licensee, that the licensee continued to use the airborne monitoring system in the health physics lab to monitor which floors were on airborne restrictions. The inspectors observed the monitoring equipment and verified that the correct floors were being identified by performing walk-downs of the Feed Materials Building (FMB), reviewing log books and interviewing operators in the control room. There were no problems noted.

(2) Conclusions

Radiological safety postings and the use of the monitoring system were properly used to communicate potential hazards and protective equipment requirements to workers. No findings of significance were identified.

e. Surveys

(1) Scope and Observations

The air sampling and contamination control survey programs were reviewed to determine if surveys were effective in the identification of airborne particulates and surface contamination and were performed in accordance with procedures.

The results disclosed that the routine and non-routine surveys were adequate in the identification of potential airborne and contaminated areas. The inspectors observed the daily air sample locations on all floors and also observed plant operators conducting work requiring respirators. In addition, the inspectors observed a HP technician collecting stationary air samples in the wet process area and the FMB.

The inspectors reviewed the survey records from the event on March 8, 2011 involving a contaminated worker who required medical treatment.

(2) Conclusions

The radiation and contamination survey programs were appropriately implemented to protect workers, and to identify potential work areas posing an internal or external radiation hazard to workers. A violation was identified involving the failure to conduct surveys to evaluate the magnitude and extent of radiation levels and quantities of radioactive materials. See discussion in paragraph 5(a)(2) above.

f. ALARA

(1) Scope and Observations

The licensee's ALARA program was reviewed to determine if the program and ALARA goals were developed and implemented in accordance with the license. On a quarterly basis, the licensee conducted ALARA Committee meetings detailing ALARA goals and exposure summaries to identify undesirable trends. In those cases where exposures were elevated, consideration was given to ways for reducing exposures. The inspectors interviewed the Health Physicist Supervisor assigned responsibility for the ALARA evaluations and assessments associated with external and internal exposures.

The inspectors noted the licensee was currently in the process of acquiring and replacing a feed auger in the FMB. The licensee stated the new auger will increase equipment reliability and additionally decrease occupational exposure.

(2) Conclusions

Based on records review and interviews, the inspectors concluded that the licensee's ALARA program was properly implemented. No findings of significance were identified.

6. Maintenance and Surveillance (88025)

a. Maintenance

(1) Scope and Observations

The inspectors concentrated efforts on evaluating work activities associated with projects involving heavily contaminated equipment including: (1) Cold Trap Tube Repair per work order 100770772, (2) Low Boiler Condenser #2 per work order 100774154, and (3) Replacement of the Rotary Valve on Mud-Baller #3 per work order 100769127. The inspectors determined that technicians involved with the projects were observed to be in compliance with safety requirements and demonstrated knowledge of the requirements contained in work packages.

The inspectors reviewed procedures associated with the preventive maintenance, surveillance testing, and work control programs. Procedure reviews included: (1) MTW-SAF-LS-0001, Revision 8, Special Work Permits, (2) MTW-SAF-LS-0007, Revision 1, Line Breaking, and (3) MTW-SAF-LS-0002, Revision 3, Control of Hazardous Energy (Lock-out/Tag-out). Based upon a review of these procedures, observation of work activities, and interviews with responsible personnel; inspectors determined that the procedures and work control programs were adequately implemented and that personnel were knowledgeable of their responsibilities and program requirements.

The inspectors reviewed the licensee's program for tracking and managing maintenance activities, and for maintaining equipment and component reliability including safety related Plant Features and Procedures (PFAPS). Based on a review of associated documentation and discussions with responsible personnel, the inspectors noted that the licensee's program is undergoing major revisions as a result of implementing a revised integrated safety analysis and migrating some key functions to an additional maintenance management system. The licensee's current program incorporated various performance indicators to track system condition in accordance with current requirements. Licensee personnel described the current processes detailing how the various maintenance indicators are tracked and utilized to ensure the availability of equipment important to maintaining safe plant operations versus how similar activities and functions will be conducted in the future. The inspectors determined that personnel were knowledgeable of their responsibilities and of the importance of monitoring the performance of plant equipment and components that are important to plant safety.

(2) Conclusions

Maintenance and surveillance activities were implemented in accordance with approved procedures and timeliness requirements. Personnel demonstrated knowledge of their responsibilities for safety and procedure compliance. Individuals demonstrated effective communication and self-verification techniques in the field to minimize human performance related errors. The inspectors noted that acceptance criteria, where appropriate, were provided in work packages. The inspectors reviewed completed work package documents for accuracy and completeness. No findings of significance were identified.

b. Maintenance Procedures

(1) Scope and Observations

The inspectors reviewed samples of following procedures to determine that details specified in the procedures were consistent with regulations and license requirements:

- MTW-ADM-OPS-0121, “Management of Plant Features and Procedures”, Rev. 9
- MTW-ADM-ENG-0001, “Equipment Criticality Classifications”, Rev. 1
- MTW-SAF-LS-0007, “Line Breaking”, Rev. 1
- MTW-SAF-LS-0001, “Special Work Permits”, Rev. 8
- MTW-SAF-LS-0002, “Control of Hazardous Energy (Lockout/Tagout)”, Rev. 3
- MTW-AOP-FN2-0500, “Fluorination Abnormal Operation”, Rev. 10
- MTW-AOP-ORE-0500, “Ore Preparation Abnormal Operations”, Rev. 6
- MTW-AOP-GSO-0500, “Green Salt Abnormal Operation”, Rev. 9
- MTW-AOP-WTP- 0500, “Pond Muds Calciner Abnormal Operation”, Rev. 1

(2) Conclusions

Through interviews and observations of operations personnel and staff, the inspectors determined that procedures were reviewed, revised, and retraining was conducted when necessary and contained an adequate level of content for the operations involved. No findings of significance were identified.

7. Routine Site Operations (92711)

(1) Scope and Observations

The resident inspectors assigned to the Paducah resident office made routine visits to the Honeywell site. The purpose of these visits was to perform plant observations and to inspect ongoing operations and maintenance activities at the facility. The inspectors noted that operators were knowledgeable of plant status and control room activities were

properly performed. The inspectors evaluated the emergency and fire protection equipment for storage and staging of supplies and accessibility in the event of an emergency. The inspectors evaluated the material condition and housekeeping of plant areas.

The inspectors observed control room operations to determine whether proper control room staffing was maintained, access to the control room was properly controlled, and operations conducted in a manner commensurate with the plant configuration and plant activities in progress. The inspectors examined the status of selected control room annunciators, instrumentation, and computer controllers to identify abnormalities and to determine the plant status. The inspectors reviewed control room and plant shift superintendent log books, daily operating instructions, and corrective action program entries to obtain information concerning operating trends and activities.

The inspectors observed selected maintenance activities in the field to determine if maintenance and surveillance activities were completed in accordance with approved work documents. Inspection activities consisted of observations, conducting reviews, and interviewing maintenance personnel. Maintenance activities were evaluated to determine the adequacy of the reliable operation of the plant's safety systems and if activities were performed in accordance with regulatory requirements. The inspectors observed the licensee resolve a line blockage problem in the distillation system between the product feed tanks and the fill tanks.

The inspectors reviewed the lock-out/tag-out (LOTO) records for selected systems to determine if there was an impact on the system's operability status. The inspectors selected LOTOs in effect and independently evaluated if they were prepared and implemented by verifying proper selection and placement of tags on breakers, switches, and valves. Additionally, the inspectors verified that tagged components were in the required positions. The inspectors evaluated the LOTO, special work, and confined space entry work permit for the E-492 B1 primary cold trap maintenance package (work permit # F2N-05664 issued 01/27/2011).

The inspectors followed up on the fire water line failure that affected the fire water system in the feed material building (FMB). The inspectors reviewed shift logs and conducted interviews to determine the operational status of the plant during the fire water outage and to evaluate the licensee's action to isolate the line break and conduct repairs.

The inspectors evaluated off-going product cylinder shipments for compliance with applicable requirements. The inspectors reviewed the truck placarding, shipment labeling and documentation, shipment radiation surveys and transportation indices, and drivers' knowledge for the shipments.

Event Description: On December 23, 2010, a security guard observed a white dense cloud coming from the area of the tank farm. The security guard immediately reported

the incident to the supervisor. The control room supervisor announced that a release of hydrogen fluoride (HF) was from the tank farm and activated the emergency response team. The licensee then activated three mitigation towers to spray water on the tank farm. The spray was initiated in order to subdue the release and ensure that no off-site release occurred. The water from the mitigation towers were captured in a dike and pumped to a collection tank, sampled to ensure the water met the Environmental Protection Agency (EPA) limits and then released to the Ohio River.

The emergency team first responders responded in Level A Hazmat suits, were able to identify the release and secured it. It was determined that the release was from the flange of a rupture disk that was installed on the outlet of a relief valve for the HF storage tank #1. It was further determined that the flange had an incorrect torque specification for the gasket that was installed. The licensee removed the old rupture disks from the tank farm and replaced them with new gaskets and rupture disks that met the correct torque specification. There was no personnel injury or safety issues identified from the release or the mitigation of the HF.

(2) Conclusions

A release of Hydrogen Fluoride (HF) occurred from a flange of a rupture disk at the HF tank farm. The licensee activated the emergency response team and the mitigation spray towers to secure the release. The release of HF was not radioactive and did not reach the site boundaries. No findings of significance were identified.

8. Follow-up of Previously Identified Issues

a. Violation (VIO) 40-3392/2010-002-01: Failure to Safeguard Training Materials and Failure to Prevent Coaching During On-The-Job Evaluations

The inspectors reviewed documentation and observed an evaluator performing on-the-job evaluations with a new employee. The new employee had been taken to a private room by the evaluator to perform a job performance measures (JPM) evaluation and simulation. The licensee provided additional training to the evaluator regarding the expectations from the company in providing on-the-job evaluation and training to new employees. The training emphasized that there was to be no coaching or guiding the new employee during on-the-job evaluation and training. This item is closed.

b. VIO 40-3392/2010-006-01: Press Release Contradicted Actual Plant Conditions

This violation was captured in the licensee's corrective action program (ITCA). The licensee failed to issue an accurate press release during the exercise and documentation of notification to off-site organizations was inadequate. The inspectors reviewed documentation and interviewed Crisis Managers regarding press notification. Retraining was provided to the Crisis Managers and the Corporate Media with emphasis

placed on that the Crisis Manager must approve all media notifications prior to making them. The licensee had met with off-site responders to improve communication. This item is closed.

c. VIO 40-3392/2010-002-02: Failure to Complete Investigations on the Process Stack Secondary Dust Collectors

The licensee failed to perform the required investigation to identify the source and subsequent corrective actions when the process stack exceeds the administrative limit. Management actions to correct this deficiency were evaluated during an inspection conducted the week of March 28, 2011. The violation and the corrective actions were captured in licensee's corrective action program. Licensee's procedure MTW-ADM-HP-0100, "Radiation Protection Program" Revision 3 had been revised with new requirements and a new check list that included investigating and tracking elevated stack emissions. Also, procedure MTW-SOP-HP-0104, "Control of Gaseous Effluents" was revised to require production operations to conduct an investigation and take actions to decrease emissions when the stack exceeds the administrative limit. This item is closed.

d. VIO 40-3392/2010-002-03: Failure to Demonstrate the Total Effective Dose Equivalent (TEDE) for the Public Dose Analysis

The licensee implemented a desk instruction, MTW-DI-HP-0005, "Preparation of the Total Annual Dose to the Public Report" to comply with 10 CFR 20.1301. In the future, the licensee will be using the desk instruction to prepare the total annual dose to individual member of the public reports for inhalation, ingestion, and external exposure, which will include the liquid effluent, the ambient air, stack releases, and the environmental TLD. Management corrective actions were evaluated during an inspection conducted the week of March 28, 2011. The violation and the subsequent corrective actions were captured in licensee's corrective action program. This item is closed.

e. VIO 40-3392/2010-001-01: Two examples of failure to perform adequate surveys as they relate to analysis and evaluation of uranium bioassay samples

The licensee failed to account for the total activity present in the uranium bioassay samples from uranium daughter products and did not sum the results of routine and special bioassay samples to determine worker exposure. The inspectors reviewed the licensee's corrective actions they had committed to and determined the implementation to be adequate. Specifically, the inspectors learned the licensee hired a contractor to rewrite their technical basis manual for internal dosimetry assessment and created a computer code process library in Microsoft Access to account for all calculations being

performed. The inspectors interviewed the HP supervisor and applicable staff and determined they understood the changes to the program and its proper implementation going forward. This item is closed.

f. VIO 40-3392/2010-05-03 Failure to conduct operations in accordance with approved procedures when restarting the natural gas fired burner on the "B" fluorinator.

The license failed to follow the standard operating procedure when restarting the natural gas fired burner on the "B" fluorinator heater. On September 16, 2010, the licensee experienced a pressure transient in the "B" Fluorinator Heater resulting in significant damage to the "B" Fluorinator Heater. Personnel performing the heater restart sequence had not performed the restart in accordance with the check list in procedure MTW-SOP-F2N-011, Fluorination Startup Checklist - Starting the Fluorinator Heating System. The licensee also discovered that some interlocks related to natural gas safety shut off valves were not properly functioning. The licensee initiated a safety stand down of all similar process heaters to determine the cause of the malfunction and the full extent of condition throughout the facility. The licensee implemented multiple corrective actions including revising operating procedures MTW-SOP-F2N-0500, MTW-SOP-ORE-0500, MTW-SOP-GSO-0500, MTW-SOP-PMC-0500, and completed training and qualification requirements concerning the revised heater procedures. The licensee replaced and refurbished the natural gas control systems on all applicable process heaters. The licensee implemented new preventative maintenance and surveillance activities to ensure that the natural gas control systems are maintained in good operating condition. The licensee production manager conducted follow up safety meetings with operations personnel to emphasize the importance of following operating procedures and not putting production ahead of safety. The inspectors determined the three areas of corrective actions were adequate to provide reasonable assurance that the event will not likely recur. This item is closed.

g. Inspector Follow-up Item (IFI) 2010-005-01, Tracking progress in converting all PFAPs relating to PMPs to LR-1.

Management corrective actions to address this IFI were evaluated during an inspection conducted the week of March 28, 2011. The inspectors reviewed preventative maintenance plans (PMP's) used to evaluate and test the functionality of safety related equipment including equipment identified as Plant Features and Procedures. The previous inspection 2010-005 noted that most PMP's were properly identified as License Related #1 (LR-1) PFAP's. However, several PMP's were identified as being incorrectly identified as LR-2 PMP's; inconsistent with the licensee's programmatic requirements. The March 28, 2011 inspection identified additional inconsistent LR-1 designations on PMP's. With the licensee's ongoing ISA revision process continuing for several more years and the current effort to migrate preventative maintenance document management functions into a new computerized maintenance management system, inconsistencies were expected to continue. Discussions with the system administrator indicated that there were no planned periodic audits to verify that LR designations were accurately

identified as the new ISA and other programmatic changes are implemented. The inspectors will maintain the IFI as open and will periodically evaluate progress.

9. Exit Meeting

The inspection scope and results were summarized on January 27, February 17, March 31, 2011, and April 25, 2011 with Larry Smith, Plant Manager, and other members of the licensee's staff. Although proprietary information and processes were reviewed during this inspection, proprietary information is not included in this report.

ATTACHMENT

1. LIST OF PERSONS CONTACTED

J. Assad, Corrective Action Program Administrator
D. Bartholomew, Senior Human Resources Manager
D. Bilski, Security Project Manager
J. Cybulski, Site Service Manager
M. Greeno, Regulatory Affairs Manager
D. Palmer, Operations Manager
B. Stokes, Radiation Protection Program Manager
S. Patterson, Health Physics Supervisor
L. Smith, Plant Manager
M. Wolf, Nuclear Compliance Director

Other licensee employees contacted included operation, management staff, engineers, HP-technicians, security and office personnel.

2. LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Item Number	Status	Description
40-3392/2010-002-01	Closed	VIO – Failure to Safeguard Training Materials and Failure to Prevent Coaching During on-the-job Evaluations
40-3392/2010-006-01	Closed	VIO – Press Release Contradicted Actual Plant Conditions
40-3392/2010-002-02	Closed	VIO – Failure to Complete Investigations on the Process Stack Secondary Dust Collectors
40-3392/2010-002-03	Closed	VIO – Failure to Demonstrate the Total Effective Dose Equivalent (TEDE) For the Public Dose Analysis
40-3392/2010-001-01	Closed	VIO – Failure to Make Required Surveys With Two Examples
40-3392/2010-005-03	Closed	Failed to follow SOP during restart of “B” Fluorinator heater.
40-3392/2010-005-01	Open	IFI - Tracking progress in converting PFAPs relating to PMPs to LR-1, and then IROFS
40-3392/2011-002-01	Open	VIO - Failed to notify the NRC within 24 hours after the discovery of an unplanned medical treatment at a medical facility of an individual with spreadable radioactive contamination on the individual’s clothing
40-3392/2011-002-02	Open	VIO- Failure to conduct surveys and record results to evaluate the magnitude and extent of radiation levels and quantities of radioactive materials for the unplanned medical event.

3. INSPECTION PROCEDURES USED

IP 88005	Management Organization & Controls
IP 88010	Operators Training/Retraining
IP 88030	Radiation Protections
IP 88025	Maintenance and Surveillance
IP 92711	Resident Inspector Continued Implementation of Strike Plans

4. LIST OF ACRONYMS USED

DAC	Derived Air Concentration
HP	Health Physics
IP	Inspection Procedure
ITCA	Incident Tracking and Corrective Actions
JPM	Job Performance Measures
TEDE	Total Effective Dose Equivalent
TLD	Thermoluminescence Dosimetry
VIO	Violation
IFI	Inspector Follow-up Item