



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

April 29, 2015

Mr. Jim Pritchett
Plant Manager
Honeywell Metropolis Works
P.O. Box 430
Metropolis, IL 62960

**SUBJECT: HONEYWELL METROPOLIS WORKS – NUCLEAR REGULATORY
COMMISSION INTEGRATED INSPECTION REPORT 40-3392/2015-002**

Dear Mr. Pritchett:

This letter refers to the inspections conducted during the first quarter from January 1 through March 31, 2015, at the Honeywell Metropolis Works facility in Metropolis, Illinois. The purpose of the inspections was to determine whether activities authorized under the license were conducted safely and in accordance with Nuclear Regulatory Commission (NRC) requirements. The enclosed report presents the results of the inspections. At the conclusion of the inspections, the results were discussed with members of your staff at exit meetings held on February 27 and March 27, 2015, for this integrated inspection report.

During the inspections, the staff examined activities conducted under your license, as they relate to public health and safety, in order to confirm compliance with the Commission's rules and regulations and with the conditions of your license. The inspections consisted of facility walk-downs; selective examinations of relevant procedures and records; interviews with plant personnel; and plant observations. Throughout the inspections, observations were discussed with your managers and staff. The inspections covered the following areas: licensee strike contingency plan and operations; radiation protection; and maintenance and surveillance of safety controls. Based on the results of the inspections, no findings of safety significance were identified.

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

J. Pritchett

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Thank you for your cooperation. If you have any questions, please call me at (404) 997-4628.

Sincerely,

/RA/ D. Hartland for
James A. Hickey, Chief
Projects Branch 1
Division of Fuel Facility Inspection

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

Enclosure:

. NRC Inspection Report No. 40-3392/2015-002
w/Attachment: Supplemental Information

cc: (See page 3)

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cc: (See page 3)

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U.S. NUCLEAR REGULATORY COMMISSION
REGION II

INSPECTION REPORT

Docket No.: 40-3392

License No.: SUB-526

Report No.: 40-3392/2015-002

Licensee: Honeywell International, Inc.

Facility: Metropolis Works (MTW)

Location: Metropolis, IL 62960

Dates: January 1 through March 31, 2015

Inspectors: R. Gibson, Senior Fuel Facility Project Inspector
B. Adkins, Senior Fuel Facility Project Inspector

Approved by: J. Hickey, Chief
Projects Branch 1
Division of Fuel Facility Inspection

Enclosure

Executive Summary

Honeywell Metropolis Works
NRC Integrated Inspection Report 40-3392/2015-002

Routine, announced inspections were conducted by regional inspectors during normal shifts and backshifts in the areas of radiation protection; maintenance and surveillance of safety controls, and other areas. The inspectors also performed a selective examination of the licensee's activities regarding the implementation of strike contingency plans. The inspectors evaluated safety significant activities, conducted tours of the facility, interviewed personnel, and reviewed facility documents. The inspections addressed the following aspects of the program as outlined below.

Radiological Controls

- The Radiation Protection program was implemented in accordance with the license and regulatory requirements. (Paragraph A.1)

Plant Support

- The safety-related Plant Features and Procedures that were reviewed were properly implemented and maintained in order to perform their intended safety function. (Paragraph B.1)
- The licensee implemented a strike contingency plan to ensure continued safe operation of the plant after the lock-out of hourly employees. Replacement workers were knowledgeable of their responsibilities and were adequately trained and qualified to perform their assigned duties. (Paragraph B.2)

Attachment

Key Persons Contacted
Inspection Procedures Used
List of Items Opened, Closed, and Discussed
List of Documents Reviewed

REPORT DETAILS

Summary of Plant Status

The Honeywell Metropolis Works (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 (UF₆). The uranium conversion process occurs in the Feed Materials Building (FMB). The facility was in a planned maintenance outage for much of the period. The licensee returned the facility to an operational status during the week of March 15, 2015. No significant events were identified.

A. Radiological Controls

1. Radiation Protection (Inspection Procedure (IP) 88030)

a. Inspection Scope and Observations

The inspectors reviewed the Radiological Protection Program and determined that the program performance was reviewed at least annually to comply with 10 Code of Federal Regulations (CFR) 20.1101. The inspectors reviewed the Health Physics Department organization chart and interviewed staff and determined that the radiation protection program responsibilities and functions were independent from operations and maintenance. The inspectors reviewed a sample of radiological procedures and determined that changes in these procedures, made since the last inspection, were consistent with regulations and license requirements.

The inspectors reviewed selected personnel exposure data to verify that exposures were maintained as low as reasonably achievable (ALARA) and within the limits of 10 CFR 20.1201. The inspectors reviewed the Total Effective Dose Equivalent results and determined that they were less than regulatory limit of 5 Roentgen equivalent man (rem)/yr. The licensee's dosimeter provider was certified by the National Voluntary Laboratory Accreditation Program.

The inspectors reviewed the records of Individual Contamination Reports for the calendar year (CY) 2014 and the beginning of 2015. The inspectors determined that, on several occasions, workers were found contaminated above the licensee's administrative limits relevant to the hand and foot monitors. The licensee determined that the negative trend was attributed to: 1) improper doffing of personal protective equipment (PPE) and 2) the process system being open due to the annual shutdown which subsequently exposed workers to uranium. The contamination reports were tracked by the licensee's ALARA Committee and the health physics staff, and were captured in the licensee's corrective action program (CAP). Proposed solutions by the licensee extended from manager coaching up to reporting findings to the plant manager. The inspectors determined that the regulatory limits for personnel contamination were not exceeded.

The inspectors reviewed the licensee's bioassay program and the adequacy of personnel internal 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 analyzed urine samples at the site using a Kinetic

Phosphorescence Analyzer. The inspectors interviewed the individual responsible for the review and maintenance of bioassay exposure records and found the individual to be knowledgeable of program requirements.

The inspectors reviewed the records of the Intake Investigation Report for CY 2014 and the beginning of 2015, and determined that, on several occasions, workers exceeded the licensee's administrative limits on intake. It was also determined that there were repeats for some workers. The licensee determined that the negative trend was due to improper doffing of respirators and PPE. Each investigation was tracked by the licensee's ALARA Committee and the health physics staff, and was captured in the licensee's CAP. Proposed solutions by the licensee extended from manager coaching up to reporting findings to the plant manager. The inspectors determined that the regulatory limits for personnel exposure were not exceeded.

The inspectors reviewed the implementation of the respiratory protection program. The inspectors interviewed contractor employees on the preparation and use of respirators in the plant and reviewed respiratory protection training and procedures. The inspectors determined that the licensee was appropriately requiring medical evaluation of respirator users, fit testing, and user seal checks in accordance with 10 CFR 20.1703. The inspectors examined a random sampling of respirators and cartridges at the south laundry for deterioration and defects and determined that the equipment was in adequate condition.

The inspectors determined that the licensee was phasing in a new air purifying respirator, the North 5500 and/or 7700 series, and phasing out the Advantage 200 half-face respirator and the Advantage 4000 full face respirator by the end of 2015. This new series of respirators was manufactured by Honeywell International Inc., and the respirators were tested and certified by the National Institute for Occupational Safety and Health. The inspectors determined that the respiratory protection program was adequate.

Air monitoring and smear data was reviewed to determine if surveys were effective in the identification of airborne particulates and surface contamination. The inspectors reviewed and determined that the licensee had established schedules for periodic surveys of work areas. The inspectors reviewed a selected sample of survey records since the last inspection. The inspectors determined that the survey program adequately evaluated the magnitude and extent of radiation levels in accordance with 10 CFR 20.1501 and was in compliance with the license.

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. The inspectors interviewed the Regulatory Affairs Manager assigned responsibility for the ALARA evaluations and assessments. The inspectors determined that the licensee utilized procedures and engineering controls to achieve occupational doses which were ALARA as required by 10 CFR 20.1101.

b. Conclusion

No findings of significance were identified.

B. Facility Support1. Maintenance and Surveillance of Safety Controls (IP 88025)a. Inspection Scope and Observations

The inspectors interviewed licensee personnel responsible for the scheduling and tracking of maintenance and surveillance work packages for Plant Features and Procedures (PFAPs) and LR-1 (License-Related) components and other safety-related controls to assure that controls are available and reliable to perform their safety function when needed. The inspectors verified that the licensee's work control program had provisions to ensure the adequate pre-job planning, scheduling, and preparation of work orders to support preventive maintenance (PM) and surveillance activities. The inspectors reviewed selected maintenance and surveillance work orders for completeness and accuracy and to ensure that test packages challenged and verified operability of PFAPs and safety controls. Completed work orders were adequately reviewed prior to returning equipment to service. The scheduling and performance of routine PM was adequate to ensure reliability and availability of PFAPs and LR-1 designated components. Responsible personnel were knowledgeable of their responsibilities, and activities were planned and executed in accordance with the licensee's program.

The inspectors toured the maintenance calibration shop to determine if the licensee adequately controlled calibration of PFAP and/or LR-1 instrumentation. The inspectors interviewed shop personnel and reviewed calibration records for PFAP and/or LR-1 components to ensure the components were calibrated with standards traceable to the National Institute of Standards and Technology. The inspectors reviewed various PFAP/LR-1 instruments in the plant to verify they were within calibration.

The inspectors observed maintenance work activities in the field on selected systems and processes and noted that work activities were conducted in accordance with licensee requirements and approved procedures. The inspectors observed personnel as they verified the proper placement of lock-out/tag-outs (LOTOs) in the field prior to authorizing work activities. Licensee personnel verified that LOTO locks were placed in the field, associated LOTO paperwork was complete and available, and tags placed on required components. Work areas were properly posted with caution ribbon and information tags while work activities were ongoing. Appropriate work documents were in-hand and work was performed in a deliberate manner. Appropriate PPE was worn and the work activities completed with no issues noted. Supervisor support was available in the field as necessary.

The inspectors observed performance of a LR-1 PM procedure to ensure that the UF₆ Handling Crane would be reliable and available to perform its intended safety function. The inspectors noted that the PM was performed by a qualified crane vendor and included both preventive and corrective maintenance activities. The inspectors verified that the work was properly authorized by operations prior to the start of work and that the crane vendor was signed on to an active lockout covering the PM procedure. The inspectors verified that the work order included adequate procedural steps, acceptance criteria, and sign-offs for each completed step. The inspectors observed the vendor conduct the PM as well as training of maintenance and surveillance staff following installation of a new crane remote controller. The inspectors reviewed previous crane

inspection reports from 2014 to ensure that deficient items identified during the previous inspection were completed in a timely manner and that the inspections were conducted within the prescribed frequency.

The inspectors observed work activities associated with welding of a new off gas nozzle on the "B" Top R-601 Hydrofluorinator. The inspectors verified that the welder and weld procedure were qualified in accordance with American Society of Mechanical Engineer requirements for pressure vessels. The inspectors reviewed the work package to ensure it contained the necessary steps to complete the weld including independent weld inspections by quality control personnel. The inspectors verified that the licensee had adequate steps to protect the workers including proper use of PPE and proper controls for hot work.

b. Conclusion

No findings of significance were identified.

2. Review of Licensee Strike Contingency Plan and Implementation (92711)

a. Inspection Scope and Observations

The inspectors reviewed the licensee's strike contingency plan and discussed the implementation with licensee management. The inspectors reviewed a representative sample of records documenting the various aspects of the licensee's training program including classroom training, on-the-job training, and practical examination. The inspectors observed a plant walk-down by the instructor with contractor employees familiarizing them with equipment and components in the FMB. The inspectors determined that the replacement workers were knowledgeable of their responsibilities and were adequately trained and qualified to perform their assigned duties. The inspectors did not identify any significant issues with training of the replacement workers.

b. Conclusion

No findings of significance were identified.

C Other Areas

1. Follow-up on Previously Identified Issues

a. (Closed) Violation (VIO) 40-3392/2008-001-01, Failure to Implement Management Measures to Ensure Reliability of Safety Controls

This violation identified three examples of failure to implement adequate management measures to ensure that PFAPs were reliable and available to perform their intended safety function. Example 1 identified that green salt operators were not familiar with the conditions necessary to implement Procedure MTW-EOP-GSO-0600, Green Salt Emergency Shutdown. As a response to this example, the licensee conducted an assessment of green salt operator knowledge of the shutdown procedure. Based on the results of the assessment, the licensee did not identify a knowledge deficiency on the procedure, but agreed to conduct specific briefings on the procedure as a refresher. Example 2 identified that the PM procedure for PFAP 35 (automatic shutdown of

ammonia feed) was not performed within the required time period of two years. The corrective action for this issue was to complete the missed PM (PM-5467) and establish the correct frequency in the PM computer tracking database. Example 3 identified that the licensee failed to include an integrated functional test of PFAP 35 (automatic shutdown of ammonia feed). The associated corrective action for this example was to develop and issue an integrated functional test procedure. Based on their review, the inspectors concluded that the corrective actions taken by the licensee were adequate and VIO 2008-001-01 is considered closed.

- b. (Closed) Inspector Followup Item (IFI) 2010-005-01, Tracking the licensee's progress converting all PFAP related PMPs to LR-1

During an inspection in 2010, the inspectors identified that the licensee had categorized some preventive maintenance plans (PMPs) for PFAPs as LR-2 instead of LR-1. LR-1 was a designation indicating that the PM activity is license or safety-related PFAP and requires that the frequency of the PM be performed annually instead of biennially for LR-2. The inspectors reviewed Procedure MTW-ADM-OPS-0121, Management of Plant Features and Procedures, and confirmed that PFAPs required a designation of LR-1. The inspectors reviewed a report from maintenance showing that all PFAPs were classified as LR-1. The inspectors also reviewed as sampling of PMPs for PFAPs and confirmed they were listed as LR-1 and that PM was being performed on them at the appropriate frequency. Based on their review of the issue, the inspectors closed IFI 2010-05-01.

- c. (Closed) VIO 40-3392/2014-004-01, Ore prep operators were not trained and qualified for the filling of Green Salt Drums task

Corrective actions by the licensee were to develop training to reinforce the requirements of the procedure, MTW-SOP-GSO-0200, "Activation of Red Lights." Warning signs were posted at the Green Salt station regarding adequate training before dumping green salt. A training binder was placed in the control room to identify qualified green salt operators. The green salt operators received on-the-job training on the procedure for dumping green salt. The inspectors reviewed the training records for the green salt operators and determined they were adequate. This item is closed.

- d. (Closed) VIO 40-3392/2013-005-01, Failure to govern the use of and adherence to written procedures

The licensee conducted an apparent cause investigation to determine the reason for the failure to adhere to written procedures by the operators. The licensee conducted a detailed training package regarding adherence to written procedures for all fluorination, distillation and assistant operators, supervisors, and superintendents. In addition, the licensee revised the procedure to provide more details for the installation of dust collector bags including an independent verification. This item is closed.

2. Event Follow-up

- a. (Closed) Events Notices (ENs) 50073, 50081, 50312, 50352 50383 and 50391.

The licensee submitted to the NRC a 30-Day written follow-up report for each EN. The inspectors reviewed the corrective actions taken by the licensee to address the ENs listed above and determined them to be adequate. These items are closed.

D. Exit Meeting

The inspection scope and results were presented to members of the licensee's staff at various meetings throughout the inspection period and were summarized on February 27 and March 27, 2015, with J. Pritchett, Plant Manager, and other members of the licensee's staff. No dissenting comments were received from the licensee. Proprietary information was discussed but not included in the report.

SUPPLEMENTAL INFORMATION

1. KEY POINTS OF CONTACT

Licensee Personnel

D. Bilski, Security Manager
D. Craig, Operation Manager
J. Cybulski, Site Survey Manager
S. Patterson, Regulatory Affairs Manager
J. Price, Engineering Manager
J. Pritchett, Plant Manager
J. Smith, Maintenance Manager
T. Watson, Training Manager
M. Wolf, Nuclear Compliance Manager

2 INSPECTION PROCEDURES USED

88025 Maintenance and Surveillance of Safety Controls
88030 Radiation Protection
92711 Implementation of Licensee Contingency Plans During a Strike/Lockout

3. LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

| <u>Item Number</u> | <u>Status</u> | <u>Description</u> |
|-------------------------|---------------|--|
| VIO 40-3392/2008-001-01 | Closed | Failure to Implement Adequate Management Measures to Ensure Reliability of Safety Controls |
| IFI 40-3392/2010-005-01 | Closed | Tracking the licensee's progress converting all PFAP related PMPs to LR-1 |
| 40-3392/2014-004-01 | Closed | VIO - Ore prep operators were not trained and qualified for the filling of Green Salt Drums task |
| 40-3392/2013-005-01 | Closed | VIO - Failure to govern the use of and adherence to written procedures |
| 40-3392/2014-04-0 | Closed | EN 50073, Unplanned medical treatment |
| 40-3392/2014-05-0 | Closed | EN 50081, Unplanned medical treatment |
| 40-3392/2014-06-0 | Closed | EN 50312, Unplanned medical treatment |
| 40-3392/2014-07-0 | Closed | EN 50352, Unplanned medical treatment |
| 40-3392/2014-08-0 | Closed | EN 50383, Unplanned medical treatment |
| 40-3392/2014-09-0 | Closed | EN 50391, Unplanned medical treatment |

Attachment

4. DOCUMENTS REVIEWED

Records:

Work Order 70683617, /c/r-400 UF6 Cyl Crane, (E), Wk, dated January 12, 2015
 Work Order 70685068, CR-400 UF6 Cyl Crane, (E), Wk, dated January 19, 2015
 Work Order 70650535, FV-E42104 Dist Prod Flow Valve ASD (1) YR, dated January 16, 2015
 Work Order 100996490, Replace Off-gas Nozzle R-Stamp Weld Rep, dated February 26, 2015

Procedures:

MTW-ADM-OPS-0121, Management of Plan Features and Procedures, Revision (Rev.) 14
 MTW-ADM-QA-0160, Performance of Internal Audits, Self-assessments, and Inspections, Rev. 4
 MTW-TRN-OGQ1-0003, Shutdown Abnormal and Emergency Operations Green Salt Operator, Rev. 0
 MTW-ADM-MT-0001, Control of Maintenance and Modification Activities Associated with PFAP Related Equipment (LR-1), Rev. 2
 MTW-ADM-REG-0110, Corrective Action Program, Rev.4
 MTW-POL-HP-0009, "Eating and Drinking", Rev.0
 MTW-SOP-HP-0216, "Respiratory Protection Training and Fit Testing", Rev.6
 MTW-SOP-HP-0240, "Radiological Contamination Control for On-site Treatment and Offsite Treatment of Injuries and Other Medical issues", Rev.5
 MTW-ADM-HP-0100, "Radiological Protection Program", Rev.13
 MTW-ADM-HP-0118, "External Radiation Exposure Control", Rev.2
 MTW-SOP-HP-0201, "Determination of Airborne Radioactivity", Rev.7
 MTW-ADM-HP-0113, "Respiratory Protection Program", Rev.8
 MTW-ADM-HP-0101, "Bioassay Sampling", Rev.1
 MTW-SOP-HP-0232, "Smear and Radiation Dose Surveys", Rev.8

Condition Reports Review:

Incident Report 14-3014, Found J-411 B HV vaporizer outlet line EXV J41108 valve pinned in the open position, dated December 15, 2014
 Incident Report 14-0867, Vaporizer seismic valve replaced without CGD verification completed, April 10, 2014
 Event 49552, Honeywell Incident Report 13-2290, #2 FS automatic valve closer fell off the cylinder valve. Corrective actions still ongoing.
 Incident Report 14-2721, Natural Gas Seismic Valve Failed to reset, dated November 11, 2014
 Incident Report 14-0101, Plugged spray nozzles on Green Salt HF mitigation spray rings, dated January 12, 2014
 Incident Report IR-14-2733, Mitigation tower805 did not function as designed during a Emergency Preparedness drill on November 12, 2014

Other Documents:

Integrated Safety Analysis Summary, Rev. 6, dated October 28, 2013
 KONE Cranes Service Inspection ID 140128-0490, dated December 19, 2014
 AuD-2014-0007, Corporate HSE Process Safety Audit, dated September 13, 2014
 Training Records for Green Salt Operators
 AUD-2014-0006, "Exposure Control and Radiation Work Permit Procedures"
 AUD-2014-0009, "Respiratory Protection Program"
 AUD-2014-0008, "ALARA Policy and Safety Reviews Committees"

AUD-2014-0013, "Work Area Air Sampling"