



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

April 10, 2018

Mr. Jeff Fulks
Plant Manager
Honeywell Metropolis Works
P.O. Box 430
Metropolis, IL 62960

**SUBJECT: HONEYWELL METROPOLIS WORKS – NUCLEAR REGULATORY COMMISSION
INTEGRATED INSPECTION REPORT 40-3392/2018-002**

Dear Mr. Fulks:

This letter refers to the inspections conducted from January 1 to March 31, 2018, at the Honeywell Metropolis Works facility in Metropolis, IL. The purpose of the inspections was to determine whether activities authorized under the facility's license were conducted safely and in accordance with U.S. Nuclear Regulatory Commission (NRC) requirements. The enclosed report presents the results of the inspections. The findings were discussed with you and members of your staff at an exit meeting held on March 1, 2018, and a follow-up phone call on April 2, 2018, for this integrated inspection report.

During the inspections, the NRC staff examined activities conducted under your license, as they related to public health and safety, to confirm compliance with the Commission's rules and regulations and with the conditions of your license. The inspections covered the areas of Safety Operations, Radiological Controls, and Facility Support. Within these areas, the inspections consisted of examination of selected procedures and representative records, observations of activities, and interviews with personnel. There were no NRC-identified violations of more than minor significance.

In accordance with Title 10 of the *Code of Federal Regulations*, Section 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 Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions concerning the inspections, please contact me at (404) 997-4703.

Sincerely,

/RA/

Omar R. López-Santiago, Chief
Projects Branch 1
Division of Fuel Facility Inspection

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

Enclosure:
NRC Inspection Report No. 40-3392/2018-002
w/Attachment: Supplemental Information

cc: (See page 3)

cc:

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SUBJECT: HONEYWELL METROPOLIS WORKS – NUCLEAR REGULATORY COMMISSION
 INTEGRATED INSPECTION REPORT 40-3392/2018-002

DISTRIBUTION:

J. Zimmerman, NMSS
 O. López-Santiago, RII
 T. Liu, NMSS
 J. Rivera-Ortiz, RII

PUBLICLY AVAILABLE NON-PUBLICLY AVAILABLE SENSITIVE NON-SENSITIVE
 ADAMS: Yes ACCESSION NUMBER: ML18101A012 SUNSI REVIEW COMPLETE FORM 665 ATTACHED

OFFICE	RII:DFFI	RII:DFFI					
SIGNATURE	/RA/	/RA/					
NAME	JRivera-Ortiz	R. Gibson					
DATE	4/6/2018	4/6/2018					
E-MAIL COPY?	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO	YES NO

**U.S. NUCLEAR REGULATORY COMMISSION
REGION II**

Docket No.: 40-3392

License No.: SUB-526

Report No.: 40-3392/2018-002

Licensee: Honeywell International, Inc.

Facility: Metropolis Works

Location: Metropolis, IL 62960

Inspection Dates: January 1 to March 31, 2018

Inspectors: J. Rivera-Ortiz, Sr. Fuel Facility Project Inspector (Sections A.1 and C.1)
R. Gibson, Sr. Fuel Facility Inspector (Section B.1)

Approved by: O. López-Santiago, Chief
Projects Branch 1
Division of Fuel Facility Inspection

Enclosure

Honeywell Metropolis Works
NRC Integrated Inspection Report 40-3392/2018-002
January 1 to March 31, 2018

The U.S. Nuclear Regulatory Commission (NRC) regional inspectors conducted inspections during normal shifts in the areas of Safety Operations, Radiological Controls, and Facility Support. The inspectors reviewed selected licensee activities through direct observation of safety-significant activities and equipment, tours of the facility, interviews and discussions with licensee personnel, and review of facility records.

Safety Operations

The inspectors reviewed a sample of activities in the area of Operational Safety to verify compliance with the conditions of the license and regulatory requirements. No violations of more than minor significance were identified. (Section A.1)

Radiological Controls

The inspectors reviewed a sample of activities related to the Radioactive Waste Management program to verify compliance with the conditions of the license and regulatory requirements. No violations of more than minor significance were identified. (Section B.1)

Facility Support

The inspectors reviewed a sample of activities related to the implementation of the Maintenance Program for safety controls to verify compliance with the conditions of the license and regulatory requirements. There were no NRC-identified violations of more than minor significance. (Section C.1)

Attachment

Key Points of Contact
List of Report Items
Inspection Procedures Used
Documents Reviewed

REPORT DETAILS

Summary of Plant Status

The Honeywell Metropolis Works (MTW) 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). During this inspection period, the facility was shutdown and preparation activities were ongoing to place the facility in a “ready-idle” status as described in a letter from Honeywell to the NRC, dated January 11, 2018 (ADAMS ML18023A384).

A. SAFETY OPERATIONS

1. Operational Safety (Inspection Procedure 88020)
 - a. Inspection Scope

The inspectors reviewed the implementation of operational safety activities to verify compliance with Materials License SUB-526 (hereinafter referred as “the license”), documented incorporated by reference therein, and the requirements in 10 CFR 40. Because the facility was in “ready-idle” at the time of the inspection and is expected to remain in that state for an extended period, the inspectors implemented the inspection procedure requirements to the extent applicable, as determined by the operational activities performed since the last NRC inspection in this area.

The inspectors interviewed licensee staff, reviewed records, and conducted plant walk-downs associated with the operation of the FMB and product cylinder storage areas. The inspectors focused their activities on the review of actual and planned configuration of plant systems, and the applicability of safety controls (referred as plant features and procedures or PFAPs) for “ready-idle” status. The inspectors relied on the latest version of the Integrated Safety Analysis (ISA) Summary and Safety Demonstration Report (SDR) to identify risk-significant activities for inspection.

The inspectors reviewed the accident sequences described in the ISA Summary and the hazards evaluated in the SDR, and their corresponding PFAPs and safety features, respectively, to evaluate if those would be applicable during “ready-idle.” The inspectors performed plant walk-downs and reviewed records to determine whether the safety controls that would remain active during “ready-idle” would be available and consistent with the applicable hazards of the facility, and whether the applicable management measures would continue to be implemented as required by the license. For PFAPs and safety features that were identified to remain inactive, the inspectors obtained reasonable assurance that the accident and hazardous conditions associated with those controls would not be applicable during “ready-idle” in accordance with the licensing basis of the facility.

The inspectors interviewed operations staff and conducted walk-downs of the FMB to assess the licensee’s actions completed at the time of the inspection to place the facility in “ready-idle” status. Specifically, the inspectors performed walk-downs of components within the fluorination and distillation systems, including vessels, cold trapping systems, distillation columns, product condensers, and product cylinder filling equipment. For a

sample of components that contain UF₆ during normal operation, the inspectors reviewed records of activities performed to evacuate UF₆ from those components and confirmed through walk-downs that those components were isolated and tagged to control their configuration. The inspectors also reviewed process flow diagrams for the fluorination and distillation systems to verify through walk-downs that the evacuation and isolation points identified in the diagrams were consistent with the current plant configuration.

The inspectors performed walk-downs of other plant areas that support safety operations such as the anhydrous hydrofluoric acid storage (currently vacant), tank farm, natural gas lines, sampling plant, cylinder storage area, and site seismic sensors. The inspectors verified that these areas were maintained in a safe condition and that the applicable safety controls were in place.

The inspectors interviewed personnel from the training organization and reviewed a sample of training material that would be maintained to train future staff on the safety operation of the facility and the implementation of PFAPs and safety features credited in the licensing basis. The inspectors verified that frequent training would be provided for the active PFAPs, and that the licensee would maintain the ability to retrain staff, as described in the management measures section of the ISA Summary. The inspectors also interviewed licensee staff and reviewed documentation to verify that: (1) safety-significant changes to procedures in the area of operations safety, (2) changes to the operations safety program organization, and (3) program audits/self-assessments performed since the last NRC inspection in this area were implemented in accordance with the license requirements. The inspectors reviewed a sample of request for change packages for changes in the distillation system in preparation for “ready-idle” to verify that the system changes were evaluated in accordance with the licensee requirements and program procedures.

Additionally, the inspectors reviewed a sample of corrective action program (CAP) entries (i.e., incident reports or IRs) for the past six months to verify that safety-significant plant issues were entered in the CAP for resolution. The review of corrective actions included the implementation of compensatory measures for unavailable PFAPs to verify compliance with procedure MTW-ADM-OPS-0121, “Management of Plant Features and Procedures.”

b. Conclusion

No violations of more than minor significance were identified.

B. RADIOLOGICAL CONTROLS

1. Radioactive Waste Processing, Handling, Storage, and Transportation (Inspection Procedure 88035)

a. Inspection Scope

The inspectors reviewed and observed the licensee’s radioactive waste handling activities which they had increased to prepare the facility for “ready-idle” status. Activities included shipping of waste from demolished trailers, dry active waste, a moly cylinder, and radioactive waste in rail cars and intermodals.

The inspectors evaluated whether the licensee had established and maintained procedures and a quality assurance program to ensure compliance with the requirements of 10 CFR Part 20 and 10 CFR Part 61, applicable to low-level radioactive waste form, characterization, classification, stabilization, and shipment manifests/tracking.

The inspectors reviewed the quality assurance program for radioactive waste management to verify that the licensee was performing the required audits and presenting the annual audit results to the management team. The findings from these audits were entered into the licensee's corrective action program for resolution. The inspectors reviewed the licensee's radioactive waste program to verify that it was being implemented in accordance with the license and regulations.

The inspectors reviewed procedures and observed performance of tasks related to radioactive waste to verify that the procedures were clearly written and adequately delineated responsibilities related to radioactive waste management. The inspectors observed material handlers performing radioactive waste activities in order to verify that the material handlers were familiar with their responsibilities as they performed their tasks in accordance with the site procedures. Also, the inspectors reviewed training records to verify that the materials handlers were trained in accordance with the license application, as incorporated by reference in the license.

The inspectors evaluated the licensee's program for classifying low-level radioactive waste by reviewing procedures for classifying waste, as well as, records relating to waste. The inspectors reviewed the licensee's program for ensuring that waste was properly packaged to ensure that the waste form met the requirement of 10 CFR 61.55. The inspectors performed visual examinations of the waste storage areas located on storage pads and fenced areas at the site. The inspectors reviewed inventories and inspected a sample of waste containers stored in the sorting and segregating areas at the facility. The inspectors also inspected the staging areas for radioactive waste staged for loading into the Gondola rail cars. The inspectors conducted these activities to verify that the licensee was in compliance with federal regulations and the license.

The inspectors evaluated the licensee's program for characterizing low-level radioactive waste by reviewing documents and records of activities which have been established and are being maintained to verify whether low-level radioactive waste meets the waste characterization requirements of 10 CFR 61.56.

The inspectors reviewed the licensee's procedures for labeling waste shipments and tracking radioactive waste. The procedures instructed how radioactive waste was to be properly labeled and specified actions to be taken should the shipments not reach the intended destination in the time specified. The inspectors also reviewed procedures for placement, inspection, and repackaging of radioactive waste to verify that they met the provisions of the license application.

The inspectors performed walk-downs of selected radioactive material storage areas in order to verify proper postings and to ensure that proper storage of materials in the designated areas in accordance with the license requirements. The inspectors observed containers to verify proper labeling and acceptable physical condition. The inspectors walked-down the disposal areas for surveying, sorting, and segregating waste with the Environmental Leader as he explained the preparation of radioactive waste for disposal.

The inspectors walked-down the disposal areas to verify that the areas were posted in accordance with the licensee's procedures. Also, the inspectors observed material handlers perform the loading of low-level radioactive waste containers in Gondola rail cars scheduled for shipment to waste disposal facilities. The inspectors verified that the low-level radioactive waste was loaded in accordance with the licensee's procedures.

b. Conclusion

No violations of more than minor significance were identified.

C. FACILITY SUPPORT

1. Maintenance and Surveillance of Safety Controls (Inspection Procedure 88025)

a. Inspection Scope

The inspectors assessed the implementation of the Maintenance and Surveillance Program to verify compliance with the license and documents incorporated by reference therein. Because the facility was in "ready-idle" at the time of the inspection and is expected to remain in that state for an extended period, the inspectors implemented the inspection procedure requirements to the extent applicable, as determined by the activities performed since the last NRC inspection in this area, maintenance activities taking place at the time of the inspection, the safety controls that will require maintenance during "ready-idle" status.

The inspectors reviewed a list of preventive maintenance activities that will remain active during "ready-idle" to verify that preventive maintenance activities for active PFAPs and other safety controls were included. The inspectors also reviewed lists of preventive maintenance activities for various plant processes that would remain inactive during "ready-idle" to verify that the licensee had adequate tracking record of maintenance activities that would need to be reinstated for normal operations.

The inspectors selected a sample of work orders (WOs) for maintenance activities performed in preparation for "ready-idle" and reviewed, as applicable, work control procedures, pre-job planning, maintenance observations, post-maintenance testing, and completed work package to verify compliance with the license and licensee procedures for maintenance control. The WO's selected were: WO 101152971, "Installation of Flange Blanks in the Fluorination System," dated December 2017; and WO 101150571, "E-724 Wash Low Boiler Condenser No. #4," dated December 2017.

The inspectors reviewed training records and interviewed staff from the training organization to determine if training for maintenance and surveillance was in compliance with license requirements. The inspectors also discussed with licensee staff their plan to maintain training in this area during the "ready-idle" period. The inspectors reviewed changes in the maintenance and surveillance program organization as a result of the "ready-idle" status to verify compliance with the position-specific requirements of the license.

Additionally, the inspectors reviewed a sample of CAP entries (i.e., IRs) for the past six months to verify that the licensee identified safety-significant maintenance issues at an appropriate threshold and entered them in the CAP for resolution. This included the

review of audits or self-assessments in the area of maintenance and surveillance of safety controls to verify these were performed in accordance with licensee procedures and that audit findings were entered in the CAP for resolution.

b. Conclusion

The inspection resulted in a licensee-identified Severity Level IV (SL-IV) violation of the license requirements. Materials License SUB-526, Condition 18, states in part that the licensee shall conduct activities in accordance with the statements and representations in the latest revision of the ISA Summary. Section 4.6 of the ISA Summary document states that management measures are applied to PFAP to ensure that these are designed, implemented, and maintained as necessary to ensure they are available and reliable to perform their function when needed. Contrary to this requirement, in October 2017, the licensee failed to implement adequate management measures for product isolation valve FV-E42104 credited as a PFAP in the ISA Summary. Specifically, the licensee failed to properly install the instrument air inlet to the valve's isolation solenoid due to inadequate configuration of the valve prior to installation, work instructions, and post-maintenance testing. However, the valve was still capable of performing its safety function based on redundant controls that would isolate the valve under the same conditions described in the applicable accident sequence. No actual safety consequences occurred. On October 4, 2017, the licensee entered this issue into the CAP as IR-17-1166, "Seismic Solenoid for LR-1 Component Was Not Assembled Properly," performed a root cause evaluation, and implemented corrective actions. The inspectors evaluated the significance of the violation in accordance with IMC-0616 and determined it was consistent with Example 6.2.d.2 in the NRC Enforcement Policy for a SL-IV violation because a failure of a safety control occurred such that the safety margin was affected, but the failure did not result in a substantial increase in the likelihood of an accident commensurate with a high consequence accident in 10 CFR Part 70, Subpart H. This violation is dispositioned as a non-cited violation (NCV) in accordance with the criteria in Paragraph 2.3.2.b of the NRC Enforcement Policy.

C. 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 March 1 and April 2, 2018, to Mr. Jeff Fulks, Plant Manager, and other staff members. Proprietary information was discussed but not included in the report.

SUPPLEMENTAL INFORMATION

1. KEY POINTS OF CONTACT

Licensee personnel

<u>Name</u>	<u>Title</u>
B. Hunt	Maintenance Manager
D. Goss	Material Handler
D. Kitchens	Material Handler
E. Robinson	Technical Lead
F. Taylor	Supervisor Material Operations
G. Grimes	Material Handler
J. Fulks	Plant Manager
J. Taylor	Training Lead
K. McBride	Material Handler
M. Wolf	Nuclear Compliance Director
R. Lindberg	Health Physics Supervisor
R. Sanders	Sr. Quality Engineer
S. Chisek	Environmental Leader
S. Patterson	Regulatory Affairs Manager

2. LIST OF REPORT ITEMS

None

3. INSPECTION PROCEDURES USED

88020 Operational Safety
88025 Maintenance and Surveillance of Safety Controls
88035 Radioactive Waste Processing, Handling, Storage, and Transportation

4. DOCUMENTS REVIEWED

Records:

Annual Assessment of Waste Program
Audits by the Illinois Environmental Protection Agency
Calibration of Scale for Waste Shipment
List of Detector PMs Disabled during Idle State
List of Instrumentation PMs Disabled during Idle State
List of PMs Disabled during Idle State – Distillation Process
List of PMs Disabled during Idle State – Fluorination Process
List of PMs Disabled during Idle State – Green Salt Process
List of PMs Disabled during Idle State – Ore Preparation Process
List of PMs Disabled during Idle State – Tank Farm
List of PMs Disabled during Idle State – Wet Process

Packaging and Surveying Radioactive Waste Shipment
 Quality Assurance Self-Assessment (Corporate)
 State License/Permit for Energy Fuels, Energy Solutions, and US Ecology
 Straight Bill of Landing
 Training Qualification Cards for Material Handlers
 Training Qualification Records for Maintenance Personnel: B. Lancaster, B. Ramsey, K.
 Risley, C. Hayden
 Waste Manifest

Drawings:

C4118, Process Flow Diagram Fluorination Cold Traps, Revision (Rev.) 0
 C4122, Process Flow Diagram Distillation Low Boiler Column, Rev. 0
 C4123, Process Flow Diagram Distillation High Boiler Column, Rev. 0
 MTW-1691, Plant Wide Natural Gas Lines
 MTW-4523, Feed Material Building Cold Traps Process Flow Diagram, Rev. D

Procedures:

MTW-ADM-ENV-0100, Waste Management, Rev. 6, dated August 17, 2017
 MTW-ADM-ENV-0102, Waste Characterization and Inventory, Rev. 2, dated August 17,
 2017
 MTW-ADM-MT-0001, Control of Maintenance and Modification Activities Associated with
 PFAP-Related Equipment (LR-1), Rev. 4
 MTW-ADM-OPS-0121, Management of Plant Features and Procedures, Rev. 22
 MTW-ADM-REG-0120, Management of Change, Rev. 6
 MTW-ADM-REG-0122, Right of Approval for Changes Impacting the NRC Licensing
 Documents, Rev. 7
 MTW-SOP-HP-0222, Packaging and Surveying Bulk Radioactive Waste Shipments, Rev. 5,
 dated March 7, 2017
 MTW-SOP-RADW-0201, Documentation and Compliance of Bulk Radioactive Waste
 Shipments, Rev. 3, dated October 3, 2016
 MTW-SOP-RADW-0202, Disposal of Clothing/Other Debris Contaminated With Blood,
 Rev. 1, dated August 13, 2014

Work Orders:

WO 101142312, BD-29 Fill In Area Where Water Collects, November 2017
 WO 101150571, E-724 Wash Low Boiler Condenser No. #4, December 2017
 WO 101152971, Installation of flange blanks in the Fluorination System, December 2017

Corrective Action Program Documents (Incident Reports):

IR-17-0554	IR-17-1181
IR-17-0716	IR-17-1183
IR-17-0766	IR-17-1372
IR-17-0954	IR-17-1373
IR-17-1044	IR-18-0002
IR-17-1158	IR-18-0141**
IR-17-1166	IR-18-0159
IR-17-1178	IR-18-0193**
IR-17-1181	

**Identified as a result of NRC inspection.

Other Documents:

AUD-2017-0006, Audit A-82 Maintenance, dated December 20, 2017

DIST-00141, Lock, Tag, Try Permit for #3 Low Boiler Condenser, dated December 3, 2017

Distillation Equipment Evacuation Certification Instructions, completed on December 18, 2017

Fluorination Equipment Evacuation Certification Instructions, completed December 19, 2017

Form A – Right of Approval Pre-Screening and Screening, dated February 15, 2018

Honeywell Metropolis Works - Safety Demonstration Report for USNRC Source Materials License SUB-526, Rev. 30

MTW Integrated Safety Analysis Summary, Rev. 14

RFC 17ALL4431, Idle UF₆ Production for MTW Idle UF₆ Production, dated December 1, 2017

RFC 18ISC4461, Idle Distillation, dated January 4, 2018