February 14, 2013

MEMORANDUM TO: Patricia Silva, Chief
Conversion, Deconversion
and MOX Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

FROM: M. Breeda Reilly, Senior Project Manager ***/RA/***
Programmatic Oversight
and Regional Support Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

SUBJECT: JANUARY 28-29, 2013, SITE VISIT, HONEYWELL METROPOLIS WORKS (TAC NO. L32788)

On January 28-29, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff visited the Honeywell Metropolis Works facility for a presentation by Honeywell on their NRC- licensed processes, a site tour focused on the sources of potential chemical releases, clarification of information provided in Honeywell's Safety Basis and Corrective Action Plan (submitted by letter dated November 30, 2012), and discussion of the draft Request for Additional Information (RAI) and responses.

The purpose of the visit was for familiarization with the site and gathering information related to the planned modifications. The site visit was a useful exchange of information about Honeywell's submittal. No staff decisions were made during the visit.

Enclosure 1 provides a list of the NRC staff who participated in the site visit. Enclosure 2 contains the NRC staff's draft RAI questions, transmitted via e-mail to Honeywell on January 11 and 14, 2013, for the purpose of facilitating discussion. Enclosure 3 contains Honeywell's feedback to the staff's RAI questions as transmitted via e-mail on January 24, 2013.

CONTACT: Breeda Reilly, NMSS/FCSS/PORSB
(301) 492-3110

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

Enclosures:
1. List of NRC participants for site visit
2. Draft requests for additional information regarding Honeywell Metropolis Works' Safety Basis and Corrective Action Plan dated November 30, 2012
3. Honeywell's draft responses (Non-public)

cc: Mark Wolf, Nuclear Compliance Director, Honeywell
Robert Stokes, Nuclear Regulatory Affairs Manager, Honeywell

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TLiu, NMSS

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OFFICE	NMSS/FCSS/PORSB	NMSS/FCSS	NMSS/FCSS/CDMB
NAME	B. Reilly	TRichmond	PSilva
DATE	2/11/13	2/13/13	2/14/ 13

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LIST OF NRC PARTICIPANTS FOR SITE VISIT

HONEYWELL METROPOLIS WORKS

January 28-29, 2013

Robert Prince, Fuel Facility Inspector
Breeda Reilly, Senior Project Manager
Maria Guardiola, Chemical Engineer
Kevin Morrissey, Project Manager
James Hammelman, Senior Chemical Process Engineer

DRAFT REQUESTS FOR ADDITIONAL INFORMATION REGARDING HONEYWELL METROPOLIS WORKS' SAFETY BASIS AND CORRECTIVE ACTION PLAN DATED NOVEMBER 30, 2012 (TAC NO. L32788) January 11, 2013

The estimation of consequences of the release of radiological or toxic materials following seismic-induced releases is a complex problem that involves identifying a sequence of events, including initial release, in-building entrainment/mixing which is relevant for estimating the immediate extent of reactions and dilution followed by release conditions from the building for atmospheric dispersion. There is uncertainty about the details of the release and dispersion events and the parameters used in quantifying the consequences.

The following proposed draft requests for additional information (D-RAIs) from the staff seek to understand the range of potential offsite consequences of seismic-induced releases and its estimate of the more likely consequences. These D-RAIs are intended to consider the sequence of events that would occur during a seismic-induced release and by reacting to the information provided in Honeywell's Safety Basis and Corrective Action Plan (SBCAP) dated November 30, 2012.

Honeywell is requested to provide and/or justify the following information:

D-RAI JH-1

Provide information on the major structural features of the building that would influence the flow of any released material (gaseous and non-gaseous) within the building and the flow of air through the building. Provide the approximate dimensions of rooms that could be pressurized as a result of a liquid UF6 release, flashing and hydrolysis reaction. Describe the ventilation systems and their expected performance following a seismic event.

D-RAI JH-2

Provide more detailed information on the physical distribution of the material throughout the Feed Material Building than is provided in Table 1 of the November 2012 Safety Basis and Corrective Action Plan (SBCAP). Provide information at a level of detail comparable to what was provided in the July 20, 2012, Recovery Plan. Discuss the differences between the current inventory estimate and past practice. It is noted that Table 1 of the SBCAP provides a 4^{th} floor equipment inventory estimate of 36,000 lbs while the July 20, 2012 recovery plan reported an actual 4^{th} floor inventory estimate of about 85,000 lbs.

D-RAI JH-3

Identify which UF6 vessels or process lines are more susceptible to failure given an earthquake and what is the expected nature of the failure (crack vs. clean break). A discussion of what is meant by weak, medium and strong piping identified in Figure 2 and Table 8 of the SBCAP would help provide this understanding.

D-RAI JH-4

Identify the estimated range of release rates and release duration from these vessels and process lines. Describe how such information was used to develop the two overall estimates presented in the SBCAP: the 199 lbs/sec presented on page 6 and the 136 lbs/minute (1,361 lbs over 10 minutes) presented on page 16. The November 28, 2012, email from K. Vilas to J. Price indicates that the smaller release rate and duration is comprised from smaller releases on the 4^{th}, 5^{th} and 6^{th} floors. In the case of the lower release rate case (assumed to apply after completion of the seismic upgrades), are there other internal releases estimated that are not expected to exit the Feed Material Building? What features are projected to function to limit the releases below the 206,000 lbs as was estimated for the case of the existing (unmodified) facility?

D-RAI JH-5

Describe any other detailed release scenarios (e.g., initial UF6 release/flash/reaction followed by later, shower hydrolysis of solid UF6) that were considered and evaluated before selecting the overall release rate and location discussed on page 16 of the SBCAP. Were various plant siding conditions considered? The staff noted that Table 8 of the SBCAP suggests the potential for different siding conditions (i.e., minor and severe damage). Describe these conditions.

D-RAI JH-6

Describe any consideration that was given to releases of other materials (e.g., water, natural gas) that might increase or reduce the severity of the consequences.

D-RAI JH-7

What is the basis for assuming that the hydrolysis of exposed, solid UF6 would be negligible when estimating the release rate from the Feed Material Building?

D-RAI JH-8

Provide assumptions made regarding hydrolysis and dilution of the UF6 within the process building before its release from the building. Include the range of reasonable in-building dilution assumptions based on the nature of the tank/line failure or the performance of building walls/window and ventilation systems following the earthquake.

D-RAI JH-9

Provide the estimated UF6/HF release rates and gas conditions (density, concentrations) for the material released from the building. Are there multiple release locations, rates and concentrations? Are there alternate release locations/rates/concentrations for material initially released within the building depending on the response of the building and ventilation equipment to the 475-year earthquake?

D-RAI JH-10

Describe the fundamental features of the dispersion analysis conducted by BakerRisk and discussed in the November 28, 2012, email from K. Vilas to J. Price. What are the 15 ACH and

the severely damaged panels identified in the email and what is the basis for their estimated performance?

D-RAI JH-11

Clarify whether other release-reaction-dispersion estimates have been prepared that consider other reasonable conditions (e.g., leakage from both lower level floors as a result of ventilation systems or pressurized rooms created by the flashing of released UF6. If so, provide additional relevant details.

D-RAI JH-12

For the release and consequence scenarios that have been identified and analyzed, provide a listing of conservative and non-conservative factors inherent in the assumptions that are part of the analysis.

January 14, 2013

In its Safety Basis and Corrective Action Plan (SBCAP) dated November 30, 2012, Honeywell has chosen to demonstrate Metroplis Works' (MTW's) acceptable performance within its current safety basis due to a seismic event by using a risk-informed methodology similar to those used by other fuel cycle facilities regulated by 10 CFR Part 70. For the methodology that Honeywell has chose to use, it is necessary to demonstrate the acceptable likelihoods and consequences associated with an accident and the safety controls which would prevent or mitigate consequences to workers and the public due to hazardous radiological or chemical releases.

The following proposed draft requests for additional information (D-RAIs) from the staff seek to understand the potentially high consequence events due to the initiation of a seismic event, and how they are adequately prevented or mitigated due to the controls designated by Honeywell in its demonstration.

Honeywell is requested to provide and/or justify the following information:

D-RAI KM-1

Provide clarification of the term "connected" when stating that (Section 2, pg 5 of 29) in the worst case release scenario all liquid UF6 piping is assumed ruptured and "connected" vessel inventories are released. Provide a list or summary of all vessels, or vessel types, that are connected and an estimate of their inventories.

D-RAI KM-2

In the demonstration of meeting highly unlikely as provided in Figure 2, the likelihood for a general passive control was given. Provide an explanation of the likelihood assumed addressing whether the likelihood of failure is conditional based on the seismic event or independent of the likelihood of the initiating event. Also provide a listing or summary (by type) of the controls included in this composite passive control and the estimated individual likelihoods of each control type.

D-RAI KM-3

Supplement the data in Figure 2 by providing an estimate of the assumed material released or resulting consequences for the intermediate conditions assumed for various pipe failure scenarios. For the intermediate scenarios, is it assumed that only the contents of the pipes would be released or would the contents of the vessels associated with the pipes be expected to be released as well? What are the assumptions associated with damage and release for each of the pipe damage scenarios?

D-RAI KM-4

Honeywell has made the argument that the seismic safety system provides defense in depth, and that the system is not required for demonstration of meeting risk-based performance requirements. In order to understand the benefit of this system and the possible value for defense in depth it provides for preventing or mitigating possible consequences, provide either an impact on the unmitigated consequences or an estimation of the possible material at risk that would be prevented from release by these features.

D-RAI KM-5

In the Summary of Plant Features and Procedures (PFAP), the descriptions of the controls appear to be based on administrative processes that control the design and change processes associated with the controls leading one to assume that these could be administrative controls. In the ISA demonstration, the controls are described and credited as passive engineered controls. Provide an explanation of the possible inconsistency in the description and use.

D-RAI KM-6

In Section 3 (pg 13 of 29) for the modified design assessment, Honeywell has made an statement that the evaluation is based on the release of hazardous chemicals (e.g., UF6, UO2F2, HF, NH3), yet the consequence analysis seems only to address liquid UF6. Describe the assumptions made in the modified assessment in terms of evaluation of possible material at risk and possible quantities of hazardous chemicals assumed to result in the estimated consequences.

D-RAI KM-7

The statement is made in Section 2, Consequences (pg 17 of 29), that the likelihood of the accident scenario is highly unlikely and that the consequence is effectively mitigated by a “see and flee” protocol. Explain the above statement and provide a discussion of whether the control is being credited in the demonstration and needs to be included in the credited PFAPs. If credited, provide justification for the mitigative value as assumed by the analysis.

D-RAI KM-8

Similar credit for worker action as described above also seems to be taken in Honeywell’s evaluation of the NH3 storage tank and pipe rack analysis. Provide additional discussion and justification for taking this credit.

D-RAI KM-9

For the NH3 storage tank and pipe rack analysis, were the unmitigated consequences evaluated? Are there likelihoods of failure assumed for the structures associated in this analysis? What is the basis for the statement that the structures far exceed the capability needed to survive a design basis seismic event?

D-RAI KM-10

Provide the associated quantities of materials for the new rail car versus the previous use of HF storage tanks. Is the rail car material a consideration in any of analyses performed? What safety impact is there, and what if anything is being credited by Honeywell in either a preventative or mitigative manner?

D-RAI KM-11

In describing the PFAPs (pg 2 of 29), Honeywell made the statement that "the following list of PFAPs must operate in the event of an earthquake… to ensure required risk performance." The staff has noted that not all PFAPs in the list appear to be credited. Honeywell is requested to provide clarification for the statement made in describing these PFAPs.

D-RAI KM-12

Provide what it is determined whether a release is assumed to occur from vessels. What is the structural failure mechanism assumed? Are assumed releases based on failures of equipment restraints or piping failures of pipes connected to a vessel and/or both?