

## **Technical Evaluation Report on the Acceptability of an Integrated Safety Analysis Summary Submitted by Honeywell Metropolis Works to Replace the Current Integrated Safety Analysis**

### **License Amendment Request**

The license amendment request, dated September 30, 2008 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML082770112) proposes to substitute an integrated safety analysis (ISA) summary for the full ISA that Honeywell Metropolis Works (Honeywell) originally submitted on October 25, 2006 (ADAMS Accession No. ML070820545). No regulations would prohibit such a substitution. Licensees under Title 10, Part 70, "Domestic Licensing of Special Nuclear Material," of the *Code of Federal Regulations* (10 CFR Part 70) submit only ISA summaries to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. However, because the October 25, 2006, Honeywell ISA was incorporated into the facility's licensing basis, the staff reviewed this request to ensure that the change would continue to ensure public health and safety. In addition, the applicant requested that the staff incorporate into this review a request originally received on May 12, 2008, (ADAMS Accession No. ML081350501). This request was to modify language in License Condition 20 (LC-20), and the corresponding language within the License Application, to make it more consistent with 10 CFR 70.72, "Facility Changes and Change Process"; the regulation on which LC-20 was based.

### **Background**

On May 27, 2005, Honeywell requested renewal of its source materials license. The renewal application contained a license application (ADAMS Accession No. ML0523103820), a safety demonstration report (ADAMS Accession No. ML052310387), and an emergency plan. The staff accepted the renewal application for review on June 27, 2005 (ADAMS Accession No. ML051880293).

However, the staff noted in its June 27, 2005, application acceptance letter that Honeywell's May 27, 2005, submittal contained several omissions and deficiencies. The most significant of these was that Honeywell had failed to fully comply with the requirements of 10 CFR 40.31, "Application for Specific Licenses," which requires, in part, that the applicant identify types of accidents, classification of accidents, detection of accidents, and systems and procedures for the mitigation of consequences. The safety analysis report dated May 27, 2005, simply stated that a release of hydrogen fluoride (HF) from a tank car is the maximum credible accident and that the effects of that release are bounding for all accidents at Honeywell. The material that the licensee submitted provided neither a basis for this statement nor a classification of that accident as it compares to other potential accidents; therefore, the NRC requested additional information from Honeywell.

In response to this request for additional information, Honeywell submitted an ISA dated November 7, 2005 (subsequently revised in the October 25, 2006 submittal). The purpose of the ISA, as stated (in part) within the document, was as follows:

Honeywell commissioned a quantitative analysis of the risks posed by operation of the facility. Although not subject to the requirements of 10 CFR 70, Honeywell elected to analyze site risks using the Integrated

Safety Analysis (ISA) methodologies prescribed by 10 CFR 70. The purpose of this document, the Honeywell Metropolis Works Integrated Safety Analysis, is to provide the results of the ISA, including the information specified for certain special nuclear material licensees in 10 CFR 70.65(b). This ISA identifies potential accident sequences, designates Plant Features and Procedures (PFAP) to either prevent such accidents or mitigate their consequences to an acceptable level, and describes management measures to provide reasonable assurance of the availability and reliability of PFAP. The Metropolis Works Plant (MTW) ISA focuses on high-risk accident sequences with consequences that could exceed the performance criteria of 10 CFR 70.61.

Because Honeywell was not subject to the requirements in Subpart H, "Additional Requirements for Certain Licensees Authorized To Process a Critical Mass of Special Nuclear Material," to 10 CFR Part 70, the staff did not perform a detailed ISA review of this document. Instead, the staff reviewed selected sections to confirm compliance with the requirements of 10 CFR Part 40, "Domestic Licensing of Source Material," specifically, those requirements that demonstrated compliance with 10 CFR 40.31. On May 12, 2006, Honeywell submitted an update to its renewal application and the NRC staff noted within the technical evaluation report dated May 11, 2007 (ADAMS Accession No. ML062640369), issued in support of the license renewal, where the ISA was considered in reaching the renewal decision.

### **ISA Summary Amendment Review**

The staff received the ISA summary as part of the Honeywell amendment request dated September 30, 2008. As with the full ISA, the NRC continues to withhold the ISA summary from public disclosure under the provisions of 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

This review focused on the portions of the original ISA (as revised) that the staff used to ensure that Honeywell had provided adequate information for the staff to conclude that Honeywell could continue to operate their facility safely and, therefore, that Honeywell should be issued a renewed license. After identifying these areas, the staff could determine if the ISA summary provides adequate information to replace the full ISA.

The ISA was referenced in section 6.0, "Organization and Administrative Procedures," and Section 12.0, "Chemical Process Safety," of the license application. The following discussion describes the staff's use of the ISA in these two areas.

#### **(1) Section 6.0, "Organization and Administrative Procedures"**

##### **Original Review**

##### **Regulatory Requirement**

As the regulatory bases for its review, the NRC used the general and additional contents of an application intended to protect health and minimize danger to life and property specified in 10 CFR 40.31(j) and 10 CFR 40.32(c). Regulatory Guide 3.55, "Standard Format and Content for the Health and Safety Sections of License Renewal Applications for Uranium Hexafluoride Production," discusses the specific requirements for compliance with these sections.

## **Staff Review and Analysis**

The May 11, 2007, technical evaluation report states, “to address 10 CFR Part 40.31(j), Honeywell submitted in May 2006, a document entitled ‘Integrated Safety Analysis’ (ISA).” This ISA was modeled after the requirements for a 10 CFR Part 70 ISA; however, it was not intended to be in compliance with a full 10 CFR Part 70 ISA. The Honeywell ISA identified accident sequences and based on those sequences, Honeywell designated PFAPs to either prevent such accidents or to mitigate their consequences.

After review of the original ISA (and other licensing documents), the staff found that Honeywell had considered a wide range of accidents using a structured approach to identify hazards. The chemotoxic exposure to hydrogen fluoride (HF), uranium hexafluoride (UF<sub>6</sub>), and uranyl fluoride (UO<sub>2</sub>F<sub>2</sub>) was the principal consequence of concern. Honeywell also evaluated the release of ammonia. Only those accidents considered “highly unlikely,” and then only when unmitigated by PFAPs, result in significant offsite effects. To determine what plant equipment and procedures were critical to the safe operation of the facility, Honeywell used a process hazard analysis method that was consistent with the guidance provided in NUREG-1513, “Integrated Safety Analysis Guidance Document,” issued May 2001.

## **Review of the ISA Summary**

As the regulatory requirements have not changed, the staff reviewed the ISA summary and found that it contains the same commitments for written procedures and updates, and that the administrative practices commitments have not changed. The staff has concluded that if the original license renewal request had included this summary, the staff would have reached the same conclusions.

## **Finding**

With regard to organization and administrative procedures, the staff concludes the ISA summary contains the same or similar information as that in the full ISA, and therefore, is an adequate substitute as a reference for Section 6.0 of the license application.

### **(2) Section 12.0, “Chemical Process Safety”**

#### **Original Review**

#### **Regulatory Requirements**

As the regulatory bases for its review, the NRC used the general and additional contents of an application intended to protect health and minimize danger to life and property specified in 10 CFR 40.31(j) and 10 CFR 40.32(c).

#### **Staff Review and Analysis**

The primary purpose of the review was to determine whether the licensee had designed and was operating Honeywell in a manner that will adequately protect workers, the public, and the environment against the chemical hazards of licensed materials and their byproducts during both normal and credible abnormal operations. The licensee must also protect against conditions or operator actions that can affect the safety of licensed materials.

The NRC staff reviewed the safety demonstration report, license application, ISA, and other documentation submitted by Honeywell and considered the following four areas:

- (1) chemical process description
- (2) chemical accident sequences
- (3) chemical process PFAPs
- (4) management measures

After review of the original ISA (and other licensing documents), the staff concluded that, based on the review of the license application and site examination, Honeywell has described and assessed accident consequences, including but not limited to, an HF unloading accident, rupture of an HF storage tank, ammonia unloading accident, failure of an ammonia storage tank, release of vapor or liquid from the still feed tank, and UF<sub>6</sub> product cylinder pigtail failure. For both workers and the general public, Honeywell calculated the radiological and chemical consequences that can result from the handling, storage, and processing of licensed material. Honeywell has evaluated those hazards and potential accidents and established safety controls and programs capable of providing reasonable assurance of safe facility operation.

The staff concluded that Honeywell's plan for managing chemical process safety meets the regulatory requirements of 10 CFR Part 40 and provides reasonable assurance that public health and safety, and the environment will be protected.

### **Review of the ISA Summary**

As the regulatory requirements have not changed, the staff reviewed the ISA summary and found that it contains the same accident analysis descriptions and conclusions that were supplied in the original ISA. The staff determined that it would have reached the same conclusions had the summary been part of the original submission.

### **Finding**

With regards to chemical process safety, the staff concludes that the ISA summary document contains the same or similar information as that in the full ISA and therefore, is an adequate substitute as a reference for Section 12.0 of the license application.

### **Overall Conclusion**

The revised LC-18 shall state the following (new material is in bold):

The licensee shall conduct authorized activities at the Honeywell Metropolis Works Facility in accordance with the statements, representations, and conditions (or as revised by change and/or configuration management processes as described therein) in:

- A. License Application dated May 12, 2006, as supplemented by a letter(s) dated March 20, 2007 **and May 12, 2008**;
- B. Safety Demonstration Report dated May 12, 2006;
- C. Emergency Response Plan (ERP) dated May 27, 2005;
- D. Integrated Safety Analysis **Summary** submitted by letter dated **September 30, 2008**;

- E. Site Reclamation Cost Estimate for Metropolis Plant dated January 10, 2007;
- F. Amendment Request dated December 27, 2006, to possess and use sealed sources; and
- G. Exemption request dated February 9, 2007, for relief from some of the Decommissioning Funding provisions of 10 CFR 40.64.

### **Language Modification to LC-20**

In a May 12, 2008, submittal, the licensee requested a change to LC-20 to incorporate plant-specific language used in its ISA. At the request of the licensee, the NRC deferred action on that amendment request to consider it in conjunction with the of this ISA summary-related amendment. The proposed change involves the following related amendment text, with the specific change in bold:

For changes to the site, structures, processes, systems, components, computer programs, and activities of personnel **within the identified plant features and procedures and safety control boundaries** that do not require prior NRC approval, Honeywell shall prepare and submit to the NRC, within 30 days after the end of the calendar year in which the change was implemented, a brief summary of all such changes.

### **Regulatory Requirement**

As the regulatory bases for its review, the NRC used the general and additional contents of an application intended to protect health and minimize danger to life and property specified in 10 CFR 40.31(j) and 10 CFR 40.32(c).

### **Staff Review and Analysis**

As one component of the license renewal, Honeywell incorporated a system of configuration management, detailed in Section 4.5.1.2 of the ISA and section 2.6.3 of the License Application. The configuration management process remains in Section 4.6.2 of the ISA summary.

The staff reviewed the request to add the language “within the identified plant features and procedures and safety control boundaries” and found that the language is consistent with the intent of 10 CFR 70.72(d)(2), which was the foundation on which Honeywell built the ISA.

### **Finding**

The addition of this language clarifies that Honeywell must submit, on an annual basis, only a summary of the specified changes that fall within the safety control and PFAP boundaries and that do not require prior NRC approval pursuant to Section 2.6.3 of the License Application. Therefore, the change is acceptable.

### **The revised LC-20 shall state the following:**

For changes to the site, structures, processes, systems, components, computer programs, and activities of personnel **within the identified plant features and procedures and safety control boundaries** that do not require prior NRC approval, Honeywell shall prepare and submit to the NRC, within 30 days after

the end of the calendar year in which the change was implemented; a brief summary of all such changes. For all changes that affect the MTW ISA, Honeywell shall submit to the NRC, within 30 days after the end of the calendar year in which the changes were implemented, either a revised ISA, or revised ISA pages, as appropriate.

Technical Review: Michael Raddatz