

Questions:

General questions about the submission:

1. Describe the logic of the ISA, including how different controls contribute to the determination of highly unlikely?

MTW Response:

Making multiple upgrades (structures, piping, eqpt restraints) to reduce likelihood or subsequent consequences resulting from hazardous material release from design EQ. Addressing both likelihood (seismic hardening) and consequence (confinement/dispersion). Risk reduction factor (0.01) for seismic hardening actions based on type and qualitative assessment of retrofits (robust PECs, safety margins in design, additional safeguards; seismic safety system, confinement). The risk reduction is conservatively taken at 1E-2 instead of a possible 1E-4. See Section III.C.3.b.1 of Safety Basis Document.

Likelihood: $2E-3 \times 0.01 = 2E-5$ (less than 1E-4 "highly unlikely" definition)

2. Clarify whether Honeywell considered one accident sequence or multiple accident sequences?

MTW Response:

No, HON considered either an EQ or a tornado event. The potential fire case has been mitigated through the installation of the seismic valve on the natural gas supply.

3. What are the most important sequences?

MTW Response:

All have potential to seriously impact the public (Consequence 3 – High consequence)

4. How were the consequences determined for the unmitigated accident?

MTW Response:

UF6 release: see Section III.B.3. in Safety Basis document:

Assumed worst case – loss of 206k lbs UF6 to environment due to seismic damage. RASCAL modeling for HF and UO2F2 plumes

NH3 release: not modeled – assumed High Consequences based on prior RMP calcs for loss of containment of NH3 storage tanks on-site

5. Does the event tree look at all chemicals or only UF6?

MTW Response:

CO states violation written specifically for UF6: "(1) the failure to identify all relevant accident sequences related to credible seismic events and tornados, that could result in large UF6 releases for which protective actions may be needed as required by 10CFR40.31(j)(3)". Event tree addresses only UF6 release scenarios in the FMB. Liquid UF6 presents greatest risk in FMB; bounds anhydrous HF hazards associated with the HF vaporizers.

6. The controls are defined in general terms. How does that fit into your evaluation? How can they be prioritized in terms of importance to safety?

MTW Response:

Controls encompass large SSC (e.g., FMB structure, pipe rack, tank farm structure, entire UF6 piping systems); all are equally necessary to ensure risk performance. See PFAP table on page 2 of the Safety Basis document.

7. It appears that some PFAPs are not credited?

MTW Response:

Credit was determined collectively for all structure, equipment restraint, piping and seismic shut-off valves retrofits due to the complexity and interdependence of the PFAP protection. It was judged impractical to attempt to itemize the contribution of each retrofit to the overall risk improvement. The composite risk reduction credit is conservatively set to 1E-2 (See question 1 above).

8. Some administrative controls are not listed as PFAPs. What is the rationale?

MTW Response:

Administrative controls associated with beyond design basis events (Section III.C.3.d. in Safety Basis document) are not required to meet current design basis license requirements. These procedures are therefore defined as safe-guards and not PFAPs.

9. Appendix A: What is the purpose of the "PFAP Design Basis Documents" in Appendix A. On Page 10 there is the statement "Additional details for each scope item are included in the Design Basis Documents in Appendix A." There doesn't appear to be any other introduction or explanation as to what these documents are intended to accomplish. Are they documents required to be filled out by some existing Honeywell procedure that is invoked by their "Quality Plan"? Are they required to be signed? Why are the "Reviewed By" and "Approved By" spaces not filled in?

MTW Response:

These documents are utilized by Honeywell to document specific design basis information as PFAP projects progress through the project execution phase. They are work-in-progress and at the earliest stages of development. This is a Honeywell procedure and not a license requirement.

10. Is digital instrumentation and control expected to be associated with any of the controls/PFAPs?

MTW Response:

No digital instrumentation/control will be utilized for seismic or wind/tornado PFAPs.

11. Page 2-3: The list of valve installation locations in item 7 on page 2 is not the same as item PFAP-EQ-4 on page 3. Why are they different?

MTW Response:

Item 7 on pg 2 is inadvertently missing the N2 Purge to Fluorinators valve and Nat Gas valve (will correct). This table also lists valves for Primary Cold Traps and Distillation vessels which are itemized in greater detail in Section III.C.2.b.7. Also note that the Item 7 entity titled "HF Vaporizers" consists of both Green Salt HF Vaporizers and GF2 HF Vaporizers as described in the PFAPs list on page 3.

12. Section III.B.1, page 5 states "The TI inspection also identified concerns related to the UF6 and H F source terms used as a basis for the MTW Emergency Response Plan (ERP)." Yet Page 27 states "Assuming all modifications are implemented, no changes to the Emergency Response Plan are needed." These two statements seem contradictory.

MTW Response:

The statement on page 27 is based on the condition of the facility following completion of all repairs; whereas, the statement on page 5 refers to the non-compliant "as-found" condition at the time of the TI inspection. Once implemented, the seismic retrofit projects return the facility to the license basis design conditions upon which the existing ERP is based.

13. Page 17 contains the following statements:

“Not shown on the event tree, but also contributing to the overall seismic safety of the FMB are seismically activated shut-off valves on all inlets and outlets of the Primary Cold Traps, Distillation Columns, Reboilers, Condensers and the UF6 Vaporizer. Purpose and function of these valves are to “lock in” UF6 inventory during a seismic event to prevent loss of uranium bearing materials (uranium accountability). As this investment is being installed for asset protection purposes, these valves are not classified as PFAPs; they are not required to meet risk performance requirements. However, these valves provide a means of securing liquid UF6 inventories because they will be actuated via the Seismic Safety System PFAP. This actuation will neither interfere with nor impede proper functioning of the PFAP seismic safety valves.”

What asset are these valves protecting in the event of a seismic event?

MTW Response:

These valves are being added by Honeywell to “lock-in” UF6 inventories in associated UF6 vessels during a beyond design basis EQ thereby preventing potential de-inventorying of large quantities of UF6 to the environment if downstream pipe damage is incurred. These valves are not necessary to meet current design basis EQ risk performance requirements. Per Section III.C.3.b.2., the likelihood of a significant UF6 release following retrofits is $<1E-4$ (“Highly Unlikely”). Since these valves are being added for beyond design basis events which are outside the current license basis (475-yr EQ), these valves will be classified as safe-guards for asset protection and not PFAPs.

14. In an August 21, 2012 Honeywell slide presentation the following information appeared:

“Volume Reduction (Source Control)

Install Isolation Valves on critical equipment containing liquid UF6

Isolation Valves supported to equipment and equipment to structure – valves will remain attached to the equipment

Assumed failure is in pipeline between valves

Minimizes the release potential”

This seems to be a change in philosophy by not crediting this group of valves with containing large quantities of UF6 in a seismic event and thus limiting the size of a liquid UF6 release. What is the reason for this change in philosophy?

MTW Response:

See response to Question 13: indicated valves are not required to meet design basis (475-yr) EQ event risk performance requirements. The valves indicated in the PFAP table on page 3 (Item PFAP-EQ-4) are required to meet current license design basis requirements.

15. Explain Figure 2 on page 18 of 29. What is the origin of the probability values?

MTW Response:

Refer to Section III.C.3.b. in Safety Basis document. Event tree describes FMB UF6 release probabilities based on critical component fragility (Table 8) estimates. Fragility values represent order of magnitude approximations by seismic consultants based on reasonable expectations of FMB equipment response following retrofitting for a design basis (475-yr) EQ event. This information is provided to show relative value of protection layers (structure, piping, equipment restraints, confinement) employed to meet risk requirements. The fragility probability table values do not contribute to the determination of the composite risk reduction factor utilized in determining likelihood of the seismic accident scenario.

16. During a site visit the week of November 5 there was discussion of the need to upgrade the Administration Building for seismic ruggedness before facility restart because it contains security, communications and emergency response equipment. Why is that not addressed in the Honeywell submittal?

MTW Response:

The facility can be safely operated within license requirements were this building to be severely damaged by EQ. However, it is Honeywell's decision to make these repairs prior to start-up for asset and personnel protection purposes. There are no PFAPs associated with this building.