

# APR1400 HFE

- **Resolution Summary of Acceptance Review Results**
- **Introduction**
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- **Summary**

# Resolution Summary of Acceptance Review

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17<sup>th</sup> Pre-application Review Meeting

# Resolution Summary of Acceptance Review

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# Resolution Summary of Acceptance Review

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17<sup>th</sup> Pre-application Review Meeting

# Resolution Summary (15<sup>th</sup> PARM - HFE)

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# Resolution Summary (14<sup>th</sup> PARM - HFE)

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# Resolution Summary (14<sup>th</sup> PARM - HFE)

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# Introduction: Tier 1

- ITAAC for six elements of the HFE program

- OER
- FRA & FA
- TA
- S&Q
- TIHA
- HSI Design

Design Commitment	Inspection, Test and Analysis	Acceptance Criteria
<b>Operating experience review identifies past human factors issues</b>	An inspection will verify the operating experience review was conducted in accordance with the Operating Experience Review Implementation Plan.	A report exists and concludes that the operating experience review was conducted in accordance with the Operating Experience Review Implementation Plan.

Standard language example for OER

# Introduction: Tier 1- continued

- **ITAAC for two elements of the HFE program**
  - V&V
  - Design Implementation

Design Commitment	Inspections, Tests and Analyses	Acceptance Criteria
<u>V&amp;V</u>  <b>The Control Room design incorporates human factors engineering principles that minimize the potential for operator error.</b>	An integrated System Validation Test (ISV) will be performed in accordance with the Verification and Validation Implementation Plan.	All pass/fail criteria associated with each test scenario are passed either on initial performance of the scenarios or following remediation of failures.
<u>Design Implementation</u>  <b>The as-built Control Room Human-System Interface is consistent with the final validated design specifications.</b>	An inspection of the as-built Control Room Human-System Interfaces will be performed.	The as-built Control Room Human-System Interface conforms to the validated design with no configuration deviations.

# Schedule of Submittals

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- **IPs and TeRs**
  - All documents will be submitted with the DCD, December 2014
- **Result Summary Reports**
  - KHNP goal is to complete the following ReSRs, December 2017
    - OER
    - FRA/FA
    - TA
    - TIHA
  - ITAACs for these program elements are included in Tier 1
  - Considerations
    - Timely NRC approval of IPs and TeRs
    - Timely NRC approval of Chapters 7, 15 and 19

# HFE Program Status

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- **All documents revised at least once**
  - Implementation Plans
  - Technical Reports
    - Basic HSI Platform
    - V&V Scenarios
    - Style Guide
  - DCD Chapter 18, Tier 1 and Tier 2
- **Revision process ~80% completed**
  - One more review/revision cycle
  - Revision 0 documents by the end of September for final internal review
  - Final documents will be submitted with DCD (December 2014)

# General Work To Be Done by September 2014

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- **Program integration**
  - Document internal and external referencing
  - Interface reconciliation
  - Unify definitions and abbreviations
- **Increase level of detail**
- **Editing**
  - Technical clarity and consistency
  - Definitive language (e.g., shall vs. may)
  - English language and grammar
  - Format standardization
- **Continuation and completion of independent reviews**
- **Responses to 17<sup>th</sup> PARM comments**

# Document Review

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- PP
- Basic HSI TeR
- Others

# NRC Comment: PP

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# NRC comment: PP

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# NRC Comment: PP

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# NRC Comment: PP

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# NRC Comment: Basic HSI TeR

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# NRC Comment: Basic HSI TeR

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# NRC Comment: Basic HSI TeR

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# Supplemental Material

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- FRA/FA
- TA
- S&Q
- TIHA
- HD
- V&V
- Scenarios

# IP revisions: FRA / FA

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# IP revisions: FRA / FA

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# IP revisions: FRA / FA

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# IP revisions: FRA / FA

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# IP revisions: FRA / FA

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# IP revisions: TA

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# IP revisions: S&Q

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# IP revisions: S&Q

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# IP revisions: S&Q

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17<sup>th</sup> Pre-application Review Meeting

# IP revisions: TIHA

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17<sup>th</sup> Pre-application Review Meeting

# IP revisions: TIHA

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17<sup>th</sup> Pre-application Review Meeting

# IP revisions: HD

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# IP revisions: HD

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# IP revisions: HD

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# IP revisions: V&V

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# IP revisions: V&V-continued

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# IP revisions: V&V

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# TeR Revisions

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# Summary

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- All IPs and TeRs will be revised to incorporate the 17th PARM results
- Tier 1 and Tier 2 of Ch. 18 will be revised to incorporate Acceptance Review results and 17th PARM results.
- All DCD, IPs, TeRs will be submitted to NRC before Readiness Assessment