




UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

January 6, 2025

MEMORANDUM TO: Meena Khanna, Director  
Division of Risk Assessment  
Office of Nuclear Reactor Regulation

Russell Felts, Director  
Division of Reactor Oversight  
Office of Nuclear Reactor Regulation

Jeremy Bowen, Director  
Division of Advanced Reactors and Non-Power Production  
and Utilization Facilities  
Office of Nuclear Reactor Regulation

FROM: Brian Smith, Director  Signed by Smith, Brian  
Division of Risk Analysis on 01/06/25  
Office of Nuclear Regulatory Research

SUBJECT: RESEARCH INFORMATION LETTER (RIL) 2024-17,  
"INTEGRATED HUMAN EVENT ANALYSIS SYSTEM FOR  
EVENT AND CONDITION ASSESSMENT (IDHEAS-ECA)  
EVALUATIONS OF STANDARDIZED PLANT ANALYSIS RISK  
(SPAR) MODEL HUMAN FAILURE EVENTS"

Enclosed for your information and use is RIL 2024-17, "IDHEAS-ECA Evaluations of SPAR Model Human Failure Events." This report captures IDHEAS-ECA evaluations of SPAR model human failure events (HFEs) performed by NRC staff. These evaluations were performed on several of the most risk significant HFEs in the base SPAR model and HFEs associated with the implementation of a selection of the diverse and flexible (FLEX) mitigation strategies. These evaluations provide a good start to building a knowledge base that analysts can leverage in future event and condition analyses (ECAs) using the IDHEAS-ECA Method.

In addition to the IDHEAS-ECA evaluations, this report provides results of benchmarking activities using the human error probabilities (HEPs) for the reevaluated base SPAR model HFEs to determine potential impacts to core damage frequency. Two postulated ECA examples were also performed to provide insights on how reevaluated HFEs could result in different risk-informed decision-making.

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The report finishes with a summary of conclusions and observations from these evaluations. The analyst working group also provides recommendations on improvements needed for the IDHEAS-ECA Method and application guidance. In addition, recommendations were also made regarding potential human reliability analysis changes that are not specific to the use of the IDHEAS-ECA Method.

Please notify the responsible staff contact if you have any questions concerning the impending publication of this report.

Enclosure:

1. RIL 2024-17

RES DRA to NRR DRA RIL 2024 17 DATE January 6, 2025

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**\* via email**

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