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

April 16, 2024

MEMORANDUM TO: Michael X. Franovich, Director
Division of Risk Assessment
Office of Nuclear Reactor Regulation

FROM: Christian Araguas, Director
Division of Risk Analysis
Office of Nuclear Regulatory Research

Signed by Araguas, Christian on 04/16/24

SUBJECT: RESEARCH INFORMATION LETTER (RIL) 2024-03, "INTEGRATED HUMAN EVENT ANALYSIS SYSTEM (IDHEAS) – TIME AND TIME UNCERTAINTY

Enclosed for your information and use is Research Information Letter (RIL) 2024-03, "Integrated Human Event Analysis System (IDHEAS) – Time and Time Uncertainty." This report (RIL 2024-03) provides guidance and data basis to assess operator performance time and uncertainty, which are two parameters in NRC's IDHEAS human reliability analysis method for event and condition assessments (IDHEAS-ECA, documented in NUREG-2256) to estimate human error probabilities (HEPs). Time uncertainty could be the dominant contributor to the HEPs of the time-critical human actions in probabilistic risk assessment models.

IDHEAS-ECA was created in response to the SRM-M140529's instruction that "the staff should develop application specific guidance as part of its Integrated Decision-tree Human Event Analysis System (IDHEAS) project." The Office of the Advisory Committee on Reactor Safeguards (ACRS) recommended to the Commission (ADAMS Accession No. ML21076A421) that "IDHEAS-ECA provides a specific derived application... Peer review is needed."

This report (RIL 2024-03) is a product of the Office of Nuclear Regulatory Research, Division of Risk Analysis's (RES/DRA) contract with Pacific Northwest National Laboratory (PNNL) to peer review and enhance IDHEAS-ECA's data basis. This report documents PNNL's analysis of the time data of the operator reliability experiments conducted by the Electric Power Research Institute (EPRI) in 1980's and quality checked the analysis results against the time data of the simulator experiments conducted by the Halden Reactor project.

The staff intends to move forward with posting this document on NRC's RIL public website 14 days after the date of this memo.

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

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301-415-2378

Enclosure: RIL 2024-03

RIL 2024-03 IDHEAS Time and Time Uncertainty DATE April 16, 2024

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**ADAMS Accession No.: ML24088A144; ML24088A147**

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