

Regulatory Guide Periodic Review

Regulatory Guide Number: 1.78, Revision 1

Title: Evaluating the Habitability of a Nuclear Power Plant Control Room During a Postulated Hazardous Chemical Release

Office/division/branch: NRO/DSRA/SCVB

Technical Lead: Jim O'Driscoll

Staff Action Decided: Revise

1. What are the known technical or regulatory issues with the current version of the Regulatory Guide (RG)?

Per the Office of New Reactors (NRO), Division of DSRA memorandum dated August 8, 2011 [ML111020652](#), RG 1.78 Revision 1 endorses the use of NUREG/CR-6210, "Computer Codes for Evaluation of Control Room Habitability (HABIT)", which is an integrated set of computer codes designed to evaluate control room (CR) habitability following a postulated release of toxic chemicals or radioactive materials. Based on the technical reviews of several combined operating license (COL) applications and the interaction with contractors over the last couple of years, NRO has concluded that the toxic chemical portion of HABIT would benefit from improvements to become a more useful tool for the staff in performing confirmatory CR habitability toxic gas analyses. NRO has formulated this user need request to RES which includes tasks to improve and benchmark the HABIT code for toxic gas evaluation for CR habitability; and to assess ALOHA to develop insights into its use for toxic gas evaluations. The activities proposed in this user need request lead to regulatory insights into the use of HABIT and ALOHA for CR toxic gas evaluation that would require updating Regulatory Guide (RG) 1.78. There is an open action on the RES Operating Plan under this user need request to update RG 1.78 and for RES/DSA to submit the draft RG to RGGIB, as part of Phase III of the project.

2. What is the impact on internal and external stakeholders of not updating the RG for the known issues, in terms of anticipated numbers of licensing and inspection activities over the next several years?

Reference NRO User Need memorandum dated August 8, 2011 [ML111020652](#).

3. What is an estimate of the level of effort needed to address identified issues in terms of full-time equivalent (FTE) and contractor resources?

Phase 3 of the project has commenced and are expected to be completed in this fiscal year. No additional resources are needed.

4. Based on the answers to the questions above, what is the staff action for this guide (Reviewed with no issues identified, Reviewed with issues identified for future consideration, Revise, or Withdraw)?

RES/DSA to complete remaining actions under NRO User need 2011-007, and submit the draft RG to RES/RGGIB per the open action in the RES Operating Plan.

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5. **Provide a conceptual plan and timeframe to address the issues identified during the review.**

Reference open actions under NRO-2011-007 in the [RES User Need and Operating Plan](#).

Reference

1. Memorandum, "User-Need Request For The Office Of Nuclear Regulatory Research To Improve And Benchmark The Control Room Habitability Package Code and Assess The Areal Locations Of Hazardous Atmospheres Code For Control Room Habitability" U.S. Nuclear Regulatory Commission, August 2011, ADAMS Accession No. ML111020652.

NOTE: This review was conducted in March 2017, and reflects the staff's plans as of that date. These plans are tentative and are subject to change.