



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

February 19, 1999

Dr. William D. Travers  
Executive Director for Operations  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Dr. Travers:

SUBJECT: SECY-98-244, "NRC HUMAN PERFORMANCE PLAN"

During the 459<sup>th</sup> meeting of the Advisory Committee on Reactor Safeguards, February 3-6, 1999, we reviewed the current version of the NRC Human Performance Plan (HPP) contained in SECY-98-244 and the staff's strategy for completing the development of the HPP. Since February 1996, we have held several meetings with the staff to discuss various versions of the HPP and have issued three reports. During our most recent review, we had the benefit of discussions with representatives of the staff and of the documents referenced.

Observations and Recommendations

- We continue to believe that human performance is a major factor in the safe operation of nuclear power plants.
- We reiterate our previous recommendation that a well-planned research effort in human performance is needed to support both the present regulation of plant operations and the transition to risk-informed, performance-based regulation.
- The staff described a disciplined strategy for future development of a technically justified HPP. We believe that the following two elements of this strategy are valuable:
  - review of the Accident Sequence Precursor (ASP) data to identify the contribution of human performance to significant events, and
  - interaction with other organizations, such as the Institute of Nuclear Power Operations (INPO), that have a strong focus on human performance.
- Additional steps are needed to complete the development of the HPP, as discussed below.

## Discussion

The staff has formulated an interim process for prioritizing human performance activities within the agency. This approach was based on the judgments of managers using information and knowledge available to them. The product of this "modified Delphi" process is a prioritized list of human performance activities with highest priorities assigned mostly to near-term activities.

Of more importance, the staff has formulated a disciplined strategy to develop a more technically defensible HPP. The future development of the HPP will begin with the identification of agency needs in the field of human performance. These identifications will be made quantitatively where possible. The ASP data for events, over the last five years, with conditional core damage probabilities greater than  $10^{-5}$  will be reviewed to isolate the human performance contributions. Licensee event reports, insights from individual plant examinations, NRC inspection reports, and results of system studies performed by the then Office for Analysis and Evaluation of Operational Data will also be reviewed. The findings from these efforts will be augmented by human reliability analysis sensitivity studies. We believe that these findings should be compared to error classifications available in the literature. This strategy will lead to the formulation of a list of agency needs that can be justified by NRC line organizations and understood by stakeholders.

The list of human performance needs for NRC will be prioritized by a process now being developed within the Office of Nuclear Regulatory Research. Requirements and closure conditions for the priority activities will be defined, quantitatively where possible, using regulatory analysis guidelines and risk criteria such as those described in Regulatory Guide 1.174.

There are additional steps that will have to be defined to complete the process for the disciplined planning of technically justified work in human performance. Strategies to develop alternative candidate solutions to the prioritized needs will have to be developed. Testing and validation of solutions, as well as requirements for the interfaces among elements of the plan, will also have to be developed. We were pleased to see that the staff plans to interact with INPO in the search for agency needs and candidate solutions.

We are looking forward to the development and implementation of the proposed approach, and plan to hold future meetings to review progress in completing the development of the Human Performance Plan.

Sincerely,

A handwritten signature in black ink that reads "Dana A. Powers". The signature is fluid and cursive, with the first name "Dana" being the most prominent part.

Dana A. Powers  
Chairman

References:

1. Memorandum dated October 22, 1998, for The Commissioners, from William D. Travers, Executive Director for Operations, NRC, SECY-98-244, Subject: NRC Human Performance Plan.
2. Report dated June 12, 1998, from R. L. Seale, Chairman, ACRS, to Shirley Ann Jackson, Chairman, NRC, Subject: Proposed Final Draft of the NRC's Human Performance Plan.
3. Letter dated October 8, 1997, from R. L. Seale, Chairman, ACRS, to L. Joseph Callan, Executive Director for Operations, NRC, Subject: Human Performance and Human Reliability Implementation Plan.
4. Report dated February 13, 1997, from R. L. Seale, Chairman, ACRS, to Shirley Ann Jackson, Chairman, NRC, Subject: Human Performance Program Plan.
5. U. S. Nuclear Regulatory Commission Regulatory Guide 1.174, "An Approach for Using Probabilistic Risk Assessment in Risk-Informed Decisions on Plant-Specific Changes to the Licencing Basis," July 1998.

