August 25, 1992

Docket No. 50-289

Distribution:
Docket Files
NRC & Local PDRs
SVarga
JCalvo
EJordan
JKramer
RHernan
SNorris
PD I-4 File
OGC
ACRS (10)
JFRogge, RI

Mr. T. Gary Broughton, Vice President
and Director - TMI-1
GPU Nuclear Corporation
Post Office Box 480
Middletown, Pennsylvania 17057

Dear Mr. Broughton:

SUBJECT: THREE MILE ISLAND UNIT 1 - NRC RESEARCH PROGRAM ON HUMAN PERFORMANCE RATES

The NRC has a contract with George Mason University to develop and evaluate models, based on actual human performance data from non-nuclear tasks, that will predict human error rates for the tasks involved in operation of a nuclear power plant. This effort has progressed to the stage of requiring validation of the model with personnel in the nuclear power industry who have experience in various plant operations, particularly control room operations and instrumentation and control. Because GPU Nuclear has been very cooperative in participating in past NRC research projects, we are soliciting your voluntary participation in this effort. I emphasize that participation is strictly voluntary.

The scope of your participation would be a 2-3 day site visit by a small group of researchers who would be working with two groups of TMI-1 employees. One group would be 8-10 control room and operations personnel (SROs, ROs, AOs, possibly a Shift Foreman or Shift Supervisor, and possibly someone from the TMI-1 Training Department). The second group would be a similar number of people with instrumentation and control experience (technicians, supervisors, engineers). Participation by your human factors expert would also be welcome. The research team visualizes spending about 2 hours with each group, either as an entire group or in smaller groups at your option. Two timeframes would be suitable to the staff; September 2-4 or September 9-11. Written material would be provided in advance to familiarize the participants with the project (see enclosure).

Please contact me regarding your willingness to participate in this effort or if you need additional information.

Sincerely,

Original signed
by

Ronald W. Hernan, Sr. Project Manager
Project Directorate 1-4
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc w/enclosure: See next page

OFFICE	LA:PDI-4	PM:PDI-4	D:PDI-4		
NAME	SNorris	RHernan:cn	JStolz		
DATE	8/20/92	8/25/92	8/24/92	/ /	/ /

OFFICIAL RECORD COPY
Document Name: LETTER

cc:

Michael Ross
O&M Director, TMI-1
GPU Nuclear Corporation
Post Office Box 480
Middletown, Pennsylvania 17057

Michael Laggart
Manager, Licensing
GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, New Jersey 07054

Robert E. Rogan
TMI Licensing Director
GPU Nuclear Corporation
Post Office Box 480
Middletown, Pennsylvania 17057

Ernest L. Blake, Jr., Esquire
Shaw, Pittman, Potts & Trowbridge
2300 N Street, NW.
Washington, DC 20037

Chairman
Board of County Commissioners
of Dauphin County
Dauphin County Courthouse
Harrisburg, Pennsylvania 17120

Chairman
Board of Supervisors
of Londonderry Township
R.D. #1, Geyers Church Road
Middletown, Pennsylvania 17057

Francis I. Young
Senior Resident Inspector (TMI-1)
U.S. Nuclear Regulatory Commission
Post Office Box 311
Middletown, Pennsylvania 17057

Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

Robert B. Borsum
B&W Nuclear Technologies
Suite 525
1700 Rockville Pike
Rockville, Maryland 20852

William Dornsife, Acting Director
Bureau of Radiation Protection
Pennsylvania Department of
Environmental Resources
Post Office Box 2063
Harrisburg, Pennsylvania 17120

REQUEST TO COLLECT DATA AT A NUCLEAR POWER PLANT FACILITY

Background

A major objective of our research is to develop and evaluate models, based on actual human performance data from non-nuclear tasks, that will predict human error rates for the tasks involved in NPP operations. Presently, we have successfully identified a large, non-nuclear human performance data base of maintenance and control room tasks and developed a taxonomic system for classifying these tasks in order to identify their similarity with NPP tasks. Initial pilot research applying the taxonomic system to both nuclear and non-nuclear tasks has yielded encouraging results.

Subject Matter Experts

In order to replicate and extend the prior results, we are currently seeking the expertise of additional subject matter experts (SMEs) to determine the requirements to perform NPP tasks by: (1) rating nuclear power plant maintenance and control room tasks on several dimensions of the Ability Requirements taxonomy and (2) estimating the human error rates for these same nuclear power plant tasks. Analysis of this data will allow us to identify clusters of similar nuclear tasks and examine their associated error rates.

More specifically, we are seeking two groups of approximately 10 people each, with one group familiar with Control Room operations and the other with the Instrument and Control Technician duties. SMEs should be either job incumbents or their supervisors and have at least six months of experience.

Procedure

We will inform the SMEs of the research purpose of the project and assure them of the anonymity of their responses. The following materials will then be distributed to the SMEs.

(1) SME Background Information (see Attachment A).

(2) Job-Appropriate Task List (see Attachment B for the Control Room List and Attachment C for the Instrument and Control Technician List).

(3) Human Error Probability Rating Scales (see Attachment D).

(4) Selected Scales from the *Fleishman-Job Analysis Survey (F-JAS)*, formerly referred to as the Ability Requirements Dimensions (see Attachment E).

(5) Response Sheets for the Rating Scales (see Attachment F).

Upon completion of the Background Information, SMEs will be instructed in the use of the rating scales to estimate the human error probability of each of the tasks. (The Control Room SMEs will rate each task on both the direct-estimate and task-anchored scales; the Instrument and Control Technician SMEs will only use the direct-estimate scale.)

The SMEs will then be instructed in the use of the Ability Requirements Dimensions and, subsequently, will rate each of the same tasks on one dimension before proceeding to each of the other eight dimensions. The SMEs will complete as much of this as session time permits. For any unfinished ratings, SMEs will be requested to complete them at their convenience and return them to us by mail. Stamped envelopes will be provided.

Time Required

We are requesting to meet with the groups for a period of 1½ hours. Separate sessions for the Control Room SMEs and Instrument and Control Technician SMEs would be needed. If multiple sessions are required in order to get a total of 10 people for each SME group, we will be willing to schedule sessions over a two-day period.

We are quite flexible on the logistics of collecting the rating data and will be guided by the concerns and constraints of the NPP facility.