PDR 7/13/79

CF-1126

Battelle
Pacific Northwest Laboratories
P.O. Box 999
Richland, Washington U.S.A. 99352
Telephone (509) 946-2222
Telex 32-6345

June 18, 1979

Dr. Dade W. Moeller
Advisory Committee for Reactor Safeguards
Nuclear Regulatory Commission
Washington, D. C. 20555

COMMENTS ON RELATIVE RISK

Dear Dade:

I shall not be able to attend the next subcommittee meeting on the study of Licensee Event Reports because of the current hazardous condition of airplane travel in the U.S.

The normal transportation to Washington meetings includes a non-stop DC-10 flight between Seattle and Washington, D.C. Substitute flights will involve either more take-offs, which represent the most dangerous segments of flights, or the use of stand-by craft, whose condition may be as bad or worse than that of DC-10s, or both.

Since the LER study was begun, two untoward events have occurred which are relevant to the origins of the study. One is the Three Mile Island incident in which the actual loss of life was zero, and the hypothetical future loss estimated as about one to two[1]. The other is the catastrophic loss of a DC-10 at O'Hare with a prompt loss of 275 lives. Nevertheless, the ratio of public attention was almost the reciprocal of the consequences ratio. This grossly distorted perception has a bearing on the rationale of your current major studies of LER. It is my understanding that these came about through the activities of Mr. Udall and of Dr. Harold Lewis, that they arise from a perception that the pursuit of transportation safety as by the National Transportation Safety Board is a model to be emulated, and that nuclear safety could be improved by closer following of NTSB methods. The re-analysis of LER's was apparently seen as one fruitful step in that direction.

I suspect that a good case could be made that if air transport had been controlled since 1944 with the diligence that has been applied

(1) "Population Dose and Health Impact of the Accident at the Three Mile Island Nuclear Station" dated May 10, 1979, (A preliminary assessment for the period March 28 through April 7, 1979) by the Ad Hoc Population Dose Assessment Group.

841 165

to nuclear safety, a considerable reduction in real fatalities in transportation might have occurred.

The early systems for improving radiation safety were naturally based on general safety practice and reporting of industrial accidents. They involved investigative reports of actual radiation incidents of various specified degrees of severity and of incidents where the potential for radiation exposure arose although none actually occurred. In the formative years, it was this latter class that provided the best basis for safety improvement. The principal tricks in achieving success from such a mechanism lie in prompt, efficient, and locally informed analysis. The essence of the problem lies in the logistics of very few reports of major incidents, few reports of serious incidents, some of which may be potentially indicative of future problems. The present LER system generates thousands of reports mostly in the minor categories. Headquarters' review of such material or review by teams of consultants, as in your present program, is likely to produce a low yield of safety improvement.

Dr. Grendon and I have been attempting the review of those LER's classified under specific radiation protection titles. We find most of the reports to be trivial with potential real risks unascertainable from the recorded data.* Thus the yield from our review seems to be out of proportion to the effort. It is possible that the yield may be acceptable for such categories as valve failures or certain systems interactions. However, for my assigned contributions, I am compelled to conclude that the benefits of the study are minimal, whereas the risks of attending your meetings are real and present.

---

* As a typical example we have several pages of computer print-out in which the issue is "G.M. tube failed due to reaching the end of its natural life." If that tube is one in a properly planned redundant set, the issue is trivial; if it is one alone in the final effluent release monitor, the potential hazard could be high.

NTSB investigations of major crashes and their painstaking reconstruction of the causes of accidents generally earn the admiration of the technical community.** This is not amenable to transfer to the nuclear safety issue because there have not yet been major destructive accidents in that field (excluding the SL-1 incident which was reasonably well analyzed, and to a lesser extent the Windscale and Three Mile Island incidents). The DC-10 incident exposes the fact that utilization of lesser data, such as the numerous records of problems with the engine mounting has been deficient. This is quite a close parallel with LER analysis, I believe.

The vacillation of the governing bodies following the DC-10 incident must have permanently damaged public confidence in the process. I for one stared with astonishment at a TV machine that noted (in one of the oscillatory cycles) that NTSB had approved the resumption of DC-10 flights, and then displayed an interview with a board member who flatly stated that he would not fly until further investigations had been made.

Currently, then, I have to weigh the probable low benefit of my part of the LER study against the demoralization of the airplane safety regulatory process and the consequent lack of assurance of acceptable risk in attending Washington meetings

If the insecurity continues for some length of time, I would suggest that I write a closing report on my assigned portion of the LER study, and retire from it.

Very truly yours,

H. M. Parker
Consultant

** The word "generally" has to be inserted in this sentence to take care of cases which may be considered politically biassed or self-serving. For example, in the recent San Diego catastrophe, supporters of public transportation may believe that the true cause was not pilot-error, but more basically the failure to separate commercial and private privileged transportation terminals.