CT-1291

MEMORANDUM

To: Dr.A.Bates
Nuclear Regulatory Commission
ACRS
Washington, D.C. 20555

From: A.J.Acosta, Consultant

Re: Comments on the ACRS ECCS Subcommittee and Tour
October 21-23,1980

I would like to make a few comments for the record:

.1 I am in agreement that the pumps should be turned off in a LOCA and that they should be tripped manually to prevent unnecessary pump trips. The argument here is that off-design operation — particularly if "slugging" oscillations develop — is unsafe and may lead to pump failure. This is certainly a most plausible reason. There is the further concern that the bearings of some pump designs are lubricated with the pump flow; it is quite conceivable that under some two-phase flow conditions this bearing supply could be inadequate and failure could occur for that reason.

The concern for the reactor circulating pump reliability there is very real and I agree with the proposed course of action even if it could be shown that from a thermo-hydraulic point of view that it would be advantageous to operate RCP's throughout a LOCA. It is however disconcerting that there is so little quantification of these concerns for pump reliability in the various modes of two-phase flows possible in full scale reactors as well as the research facilities of semi-scale and LOFT. For example, how far from the normal design conditions may the pumps be safely operated in a non-LOCA transient? Is there, or should there be a sensor provided to indicate "excessive" pump vibration in such a transient?

As a final comment, it may happen that for some accident configurations it would be desirable to operate the pumps. Would it be a good idea then for pumps designed in the future to operate in all phases of a LOCA?

.2 The LOFT and SEMI-SCALE facilities are most impressive. As reported, both have ongoing programs to explore the many aspects of the SBLOCA's. Semi-Scale test results exhibited a slugging oscillation not predicted by the code used. I would like the opportunity to review the pump-representation of this code and have asked Dr.C.Solbrig of EGG informally for that information.

.3 LOFT: This expensive to operate facility is nevertheless unique because of its "nuclearness" as so often pointed out. Despite its atypicalities with full scale PWR's one cannot but help believe the work of LOFT including its training aspects could go a long way towards increasing public confidence in the safety of nuclear power.

AJA:sb