UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

MAY 01 1979

MEMORANDUM FOR: Paul Check, Chief, Reactor Safety Branch
Division of Operating Reactors

FROM: Vincent S. Noonan, Chief, Engineering Branch
Division of Operating Reactors

SUBJECT: INITIATION OF TECHNICAL ASSISTANCE PROGRAM
FOR TASK ACTION PLAN A-3

Revision 2 of Task Action Plan (TAP) A-3 regarding steam generator tube integrity indicates that the Reactor Safety Branch requires a technical assistance program in FY 1979 in order to evaluate the effect of secondary-to-primary leakage as a consequence of a LOCA on the core wide Zr-water reaction and the effects on the ECCS system. The need for this program was identified by K. Parczewski of your staff during the process of revising the TAP. The need for this program and its interaction with other tasks in the TAP was discussed in a March 23, 1979 memo from V. Noonan to D. Eisenhut which provided a summary and status report on TAPs A-3, A-4, and A-5 regarding Westinghouse, Combustion Engineering, and Babcock and Wilcox steam generators, respectively. As indicated in that memo this task is on the critical path of the TAP and the desired June 1980 completion date was based on the initiation of this program at the earliest possible date.

Initiation of the program is already behind schedule. We are therefore requesting that Reactor Safety Branch prepare a scope of work and take the necessary action to establish this program as soon as possible. We have advised management of the importance of this effort and have requested that they regard placing this contract as a high priority activity. Please inform us of any difficulties which may arise in the planning or implementation of this program.

Vincent S. Noonan, Chief
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Division of Operating Reactors

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cc: See page 2

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cc: V. Stello, Jr.
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A-3 MSLB

- Initial Tube Leakage?
- Iodine Spike

1. Model for Generic Dose Calculations
   a.) Assumptions re:
   - Primary Coolant Activity
   - Location of Tube Failures in S/G
   - Meteorology
   - Site Boundary Distance

   Parametric Study
   b.) Decision — Can we get enough info from one set of assumptions or do we need to analyze a range of conditions

2. Model for Systems Analysis
   a.) Assumptions re:
   - Initial Conditions
   - Equipment Failures
   - Operator Actions?

   b.) How long to run?
   - LOOP?

   c.) Criteria for determining fuel failures?
   d.) What parameters vs. time are needed?

3. Acceptance Criteria for Dose Calculations
   - Small fraction of Part 100 (Rationale?)

4. Change in ISI vs. no. of tube failures

5. Increased ISI has what kind of impact
   - Longer inspection time — controlling for refueling outage
   - Increased Occupational Exp.?

1. Do it the same way as Primary Activity Tech Specs? (Parametric evaluation of typical site locations)

Primary Activity Specs are generic, but there is a qualifier that states that we are [redacted] "finalizing site specific criteria which will be used as the basis for the reevaluation of the specific activity limits at the site."

Has this been done?

2. ⓐ Applications on the one hand → Tech Specs - operational limit ([redacted] to failed fuel)

ⓑ Application on the other → ISI reqts. — nos. of tubes to be inspected to achieve statistically sound program

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– Meeting With Strosnider –

① He is anxious to get moving on systems stuff, but needs some guidance. He has spoken with systems people (Paczewski, Adensam). They are helpful, but are looking to Jack for guidance.

② Jack thinks, and I agree, we need to give Fuat some guidance right away as to what is needed from the systems analysis, so that he can make the right runs.

③ Jack also feels, and I agree, that we should establish the criteria on which we are going to judge success or failure of the analysis, i.e., how many tube failures are OK.

e.g. • What criteria do we use to determine fuel failure? DNBR? other?

• What assumptions do you make in dose calcs? – Meteorology? Others

Plant

- Very ~~se~~ specific — Can we make a generic assessment or should we simply describe a way of doing it that is acceptable ⟹ i.e. In Chapter 15 of every application.

Although this really must be decided afterwards — should we not make sure that what we do generically will in fact help us make this decision

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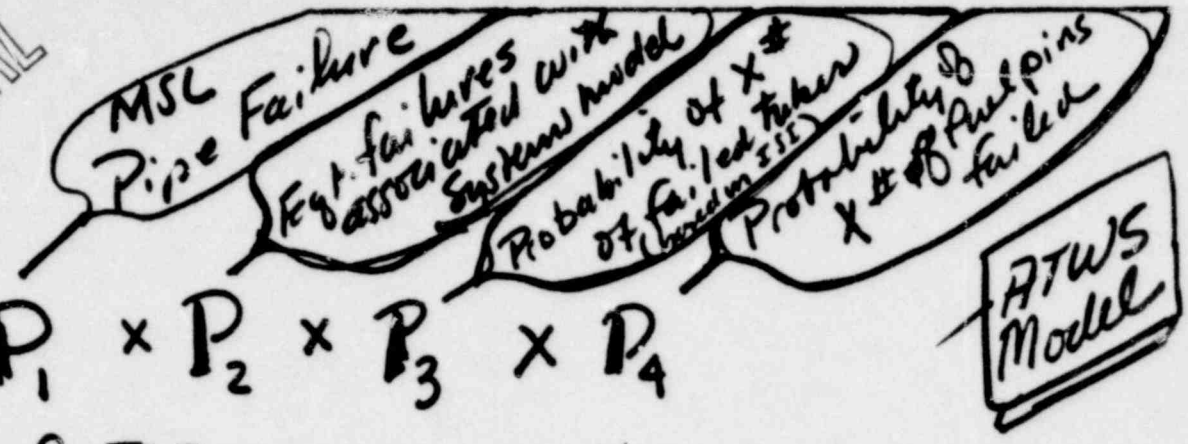

- That the ISI requirements should give me a probability of not exceeding Part 100 of $\sim 10^{-6}$ with

(1) Use a conservative met and site model based on parametric study of typical sites
Use conservative initial system & core conditions

(2) Use Part 100 limits (300R Thyroid
25R Whole Body
→ 2 hrs at Site Boundary.

P_1 for large pipes — $10^{-3} - 10^{-5}$

$P_1 = \sim 10^{-4}$ → Pipe Break

$P_2 = P_{LOOP}^{Hi} \times P_{MSLB-F}^{?} = ?$ → Fgt failures for System Response

P_3 = Insert a probability based on ISI (a range should be analyzed)
← Tube Failures

P_4 = Probability of fuel pin failures (Based on DNBR) — a range of fuel pin failures
← Fuel Failures

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Appropriately small fraction of 10 CFR 100 (Based on fact that NSLB Acc Prob of ~10^{-3}

① He needs to fully understand the basis, calcs, model acceptance criteria, etc. of Primary Coolant Activity Tech Spec.

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Task Manager Reports

- Do not distribute to Task Managers
- Remove Start Dates
- Delete Old [redacted] TACS nos.
  (Role up manpower and save)
- Quality extremely poor

  eg. A-2 — only one major milestone
  A-3 — two major milestones

Need to Get White Book Up To Date:

— QA it with vigor —

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