UNITED STATES
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October 25, 1996

MEMORANDUM TO: File

FROM: Ronald B. Eaton, Senior Project Manager
Project Directorate I-2
Division of Reactor Projects I/II

SUBJECT: HANDOUT FOR NEI/GPUN-OC/NRC CONFERENCE CALL ON NEI/EPRI REVISED SOURCE TERM TASK FORCE (OYSTER CREEK PILOT PLANT REQUEST)

Please place the attached subject correspondence received on October 9, 1996 in Docket File 50-219.

Docket No. 50-219

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**Noteworthy Aspects Regarding**
**Application of the Revised DBA Source Term to Oyster Creek**

| Aspect | Contrast with Other Pilot Applications | Generic Value |
|---|---|---|
| 1. Credit is being taken for drywell sprays for the removal of airborne radioactivity as well as for the reduction of containment pressure. | Of the two other BWR pilots, only Perry has taken credit for sprays, and those sprays are in the containment (Mark III design) rather than in the drywell (Mark I/II design). | One can readily envision that other small-containment BWRs (i.e., Mark I and II designs) may wish to apply drywell spray credit to the revised DBA source term. Drywell sprays may be the single most effective feature of small-containment BWRs for aerosol removal . |
| 2. GOTHIC-calculated containment thermal-hydraulics and containment atmosphere mixing rate (with DBA LOCA + core-damage mass and energy releases) are being employed. | In order to properly assess spray performance, pool scrubbing, and containment pressure vs. time, it is necessary to use containment thermal-hydraulics consistent with the core-damage nature of the event. In the case of some other applications, adjustments were made to the existing containment analysis thermal-hydraulics, but for Oyster Creek an integrated analysis is being performed. | Use of an integrated analysis provides the most direct means of addressing the containment thermal-hydraulic issues and may be used in future applications for that reason. |
| 3. There is a significant | Small BWR containments, in | It is expected that the |

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| potential for no engineered pH control being needed based on negligible quantities of chloride-bearing insulation within the containment and the relatively small ratio of gas-space volume to water volume. | general, present the smallest potential for substantial re-evolution of elemental iodine from containment water. This is apparent from the fact that in the Browns Ferry application acceptable dose results were obtained assuming a pH of 6.0 rather than 7.0. However, use of a buffer will still be required at Browns Ferry. This may not be necessary for Oyster Creek. | revised DBA source term will require engineered pH control in most applications. The exact nature, timing and magnitude of chemical addition, however, will vary from plant to plant. The Oyster Creek application would appear to present one end of a spectrum of results; i.e., a plant where analysis may show that supplementary chemical addition may not be required at all. |
| 4. No Control Room charcoal or particulate filters are being credited (per the original plant design). | Other applications have at least credited particulate filters; some have credited both. | While most plants have some filtration for the control room (i.e., intake and/or recirculation), there is always the potential for unfiltered in-leakage during some portion of the 30-day dose calculation period. The Oyster Creek original design presents a limiting case for consideration. |
| 5. Reactor Building/SGTS bypass pathways are being considered including isolation condenser non-condensable vents which bypass the MSIVs. | Other BWR applications do not have isolation condensers. | Potential bypass flowpaths vary from plant to plant, but this (or a similar) flowpath could exist at many BWRs. Radioactivity attenuation along such bypass flowpaths has been credited in the analyses of |

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| | | some BWRs using TID-14844, but has not been developed fully for the revised DBA source term. |
| 6. Pressure-dependent MSIV leak rates are being used (as credited in existing analyses of record for Oyster Creek). | Other BWR applications have not credited pressure-dependent MSIV leak rates. | While not limited tc the application of the revised DBA source term (witness the existing credit in the case of Oyster Creek), the use of the revised DBA source term changes the relationship between drywell pressure and drywell activity concentration as credited. Pressure-dependent MSIV leakage has the potential for broad application. |
| 7. No credit is being sought for the main condenser as a mitigation feature. | While Perry has made a submittal seeking no credit for the main condenser, Perry is a Mark III with a third, safety-related manual isolation valve outboard of the outboard MSIV in each of four steam lines. The Oyster Creek plant has no such valve. | The Oyster Creek geometry (even though it makes use of only two steam lines) is more typical of operating Mark I and Mark II containments which greatly outnumber Mark III designs. |

More generally, application of the revised DBA source term to Oyster Creek focuses at this time on demonstrating the adequacy of an original design in the face of additional requirements rather than on increasing allowable MSIV leak rates or other design improvements. While there is one other Mark I-containment BWR among currently agreed-upon pilots, that plant is not crediting drywell sprays (nor are that plant's

sprays independent of the ECCS), that plant does not employ and isolation condenser (hence no MSIV bypass), and that plant is seeking to credit the main condenser for mitigation (and to increase the allowable MSIV leak rate). Therefore, the Oyster Creek work in progress constitutes a unique and demonstrably useful pilot application supporting NRC's rulemaking for the application of the revised DBA source term to operating plants.

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