

PRA Issue List Regarding APR-1400, DCD Tier 2, SECTION 19.1

Issue # PRA-225 (AI 19-248)

The analysis for Source Term Category 11 in APR1400-K-P-NR-013603-P, "APR1400 Design Certification Probabilistic Risk Assessment: Full Power Level 2 PRA: Source Term Category Analysis," Revision 0, July 2013, assumes that late containment sprays operate from 25.5 hours to 73.5 hours. The reason for stopping late sprays after operation of 48 hours is not explained. It is not clear why the spray flow would not reach the reactor cavity and cool core debris and reduce or terminate the cavity concrete ablation. (Figure A.11-9 shows that the spray flow is suppressing containment pressure. However, Figure A.11-10 suggests that the spray flow is not affecting the concrete ablation rate.)

Response

- 1 The reason for stopping late sprays after operation of 48hours: It was modelled by the design criteria of ECSBS. According to the design criteria, ECSBS is designed to operate within 24hrs after core damage for a period of 48hrs. Thus late containment spray stops at 73.5hrs (after operation for 48hrs).
- 2 Why the spray flow would not reach the reactor cavity: The flow of spray by containment spray system and ECSBS is not directly drained into the reactor cavity. It drained into Holdup Tank and IRWST. After the valves of cavity flooding system opens, the flow goes to reactor cavity from HVT.

The STC 11 defined as dry cavity due to the failure of cavity flooding system, thus no water is drained into the reactor cavity (dry cavity).

Impact on DCD

There is no impact on the DCD.

Impact on PRA

There is no impact on the PRA.

Impact on Technical Specifications

There is no impact on the Technical Specifications.

Impact on Technical/Topical/Environmental Reports

There is no impact on any Technical, Topical, or Environmental Reports.