Proposed LTR Outline for Reporting of DSE-Fuel Bundle Analysis and Testing

Executive Summary
Revisions
Acronyms

1. Introduction – Background and Objective
2. Report Content Roadmap – Evaluation, Plant Configurations, Fuel Blockage and Testing
3. Analytical Evaluation Summary – Limiting Results and Conclusion
    a. Inlet Blockage Reference Case Basis (This section will be Proprietary)
        i. Prior to Core Uncovery
        ii. Steam Cooling
        iii. Spray Cooling and Reflood by ECCS
        iv. Top Core Uncovery
    b. Lower Tie Plate Hole Blockage Sensitivity (This section will be Proprietary)
    c. Upper Tie Plate and Spacer Blockage Sensitivity (This section will be Proprietary)
    d. Limiting Blockage Conclusions
        i. Speed of deposition of crud
        ii. Suction source (Amount of crud available for deposition)
        iii. Flow rates (Highest)
        iv. Flow paths
        v. Injection Locations
4. BWR Product Line Distinctions
    a. Reactor Vessel Size
    b. Reactor Vessel Penetrations
        i. Feedwater
        ii. Main Steam Lines
        iii. ECCS Systems
        iv. Reactor Recirculation System
        v. Control Rod Drive System
        vi. Reactor Water Cleanup System
    c. ECCS Systems
        i. Suction Locations
        ii. Injection Locations
        iii. Injection Signals and Logic
    d. LOCA Response By Product Line
        i. Large Break Steamline Short Term Response
        ii. Large Break Steamline Long Term Response
        iii. Large Break Recirculation System Line Short Term Response
        iv. Large Break Recirculation System Line Long Term Response
        v. Small Break Steamline Short Term Response
        vi. Small Break Steamline Long Term Response
        vii. Small Break Recirculation System Line Short Term Response
        viii. Small Break Recirculation System Line Long Term Response

    e. Debris transport characteristics for recirc and steamline breaks
5. BWR Fuel Bundle Information
    a. Critical Fuel Aspects of Limiting Case
        i. Minimum Flow Areas
        ii. Heat Transfer Coefficients
        iii. Counter Current Flow Limits
    b. GNF/GEH (This section will be Proprietary)
        i. Designs in service
        ii. Critical Dimensions
        iii. Selection of Bounding Design
            1. Selection Criteria
            2. Evaluation
            3. Conclusion
6. Evaluation of Full Blockage Bounding Condition – Thermal-Hydraulic analysis of Lower Tie Plate – GNF/GEH Bundle Design
    a. Material deposited
    b. Time to full blockage
    c. Impact on Fuel Cooling
    d. Comparison to existing LOCA/ECCS results
7. Evaluation of Limited Blockage Condition – Thermal-Hydraulic analysis of Lower Tie Plate Holes, Upper Tie Plate and Spacers – GNF/GEH Bundle Design
    a. Material deposited
    b. Time to full blockage
    c. Impact on Fuel Cooling
    d. Comparison to existing LOCA/ECCS results
8. Proposed Confirmatory Fuel Bundle Testing – GNF/GEH
    a. Initial Reflooding Phase Impacts
    b. Core Spray Phase Impacts
    c. Natural Circulation Phase for Covered Core
    d. Bypass Region Flow Path – LTP Backflow Impacts
9. Planned Testing Schedules
    e. GEH Limiting Fuel Bundle Design
    f. AREVA Limiting Fuel Bundle Design (general testing time frame, if required)
    g. Westinghouse Limiting Fuel Bundle Design (general testing time frame, if required)
10. Subsequent Supplements
    h. GNF/GEH Limiting Fuel Bundle Design Test Results
    i. Evaluation of Expansion of Testing
11. Conclusion