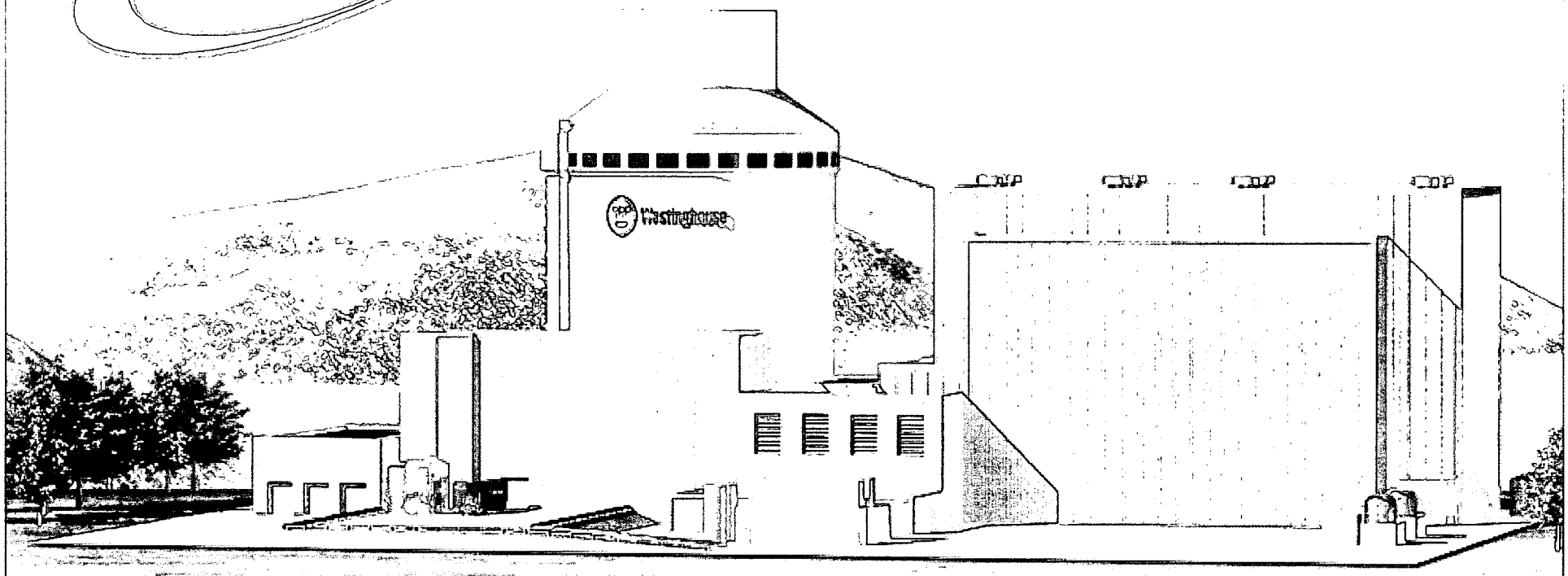
ENCLOSURE 4

Westinghouse Non-Proprietary Class 3

AP1000 Shield Building Update – (Non-Proprietary)

AP1000 Shield Building Update



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Westinghouse Non-Proprietary Class 3

Topics of Discussion

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Overview

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Westinghouse Interpretation of NRC Letter

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Shield Building Organizational Chart

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Westinghouse Approach to License the Shield Building

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Westinghouse Approach to License the Shield Building (cont'd)

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Westinghouse Approach to License the Shield Building (cont'd)

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Steel Lined Concrete

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Shield Building

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Westinghouse Design Process

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Ring Girder and Air-inlet Region

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Ring Girder and Air-inlet Region

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Buckling, Creep & Shrinkage Effects

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Daily and Seasonal Thermal Cycling

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Integration

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SC/RC Connection to Basemat

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Corner Connection Detail

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Corner Connection Detail

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Corner Connection Detail

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Reinforcement Details Below Grade

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Rebar Details below 100'

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Shield Building Cylindrical Wall – Design Modifications

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Shield Building Cylindrical Wall – Design Modifications

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Shield Building Cylindrical Wall – Design Modifications

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Shield Building Cylindrical Wall – Design Modifications

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Air Inlet Design Modifications

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Air Inlet Design Modifications

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Air Inlet Design Modifications

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Overall FIE Model and Loading

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Equivalent Seismic Accelerations

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Loading – Based on 100 - 40 – 40 Rule

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Water Tank Seismic Loading

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Concrete Modeling

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Nonlinear Liner Modeling

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Air Inlets, Tension Ring and Adjoining Area Details

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Steel Beams Modeling

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Roof and Tension Ring Rebars Modeling

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Steel Stiffeners Modeling

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Summary of Peak Stress Values

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Conclusions on New Design

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Testing Matrix

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Anchorage Test

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3D View of Anchorage Test

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Preliminary Test Results

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Out of Plane Shear w/out Tension

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Out of Plane Shear Plus Tension

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In Plane Shear Plus Tension

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In Plan Shear Plus Tension

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In Plane Shear Plus Tension

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Self Consolidating Concrete Material Testing

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AP1000 Testing

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Toshiba Mock Up Tests in Japan

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Toshiba Mock Up Tests in Japan

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Toshiba Mock Up Tests in Japan

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Construction Experience of SC Structures in Japan

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Construction Experience of SC Structures in Japan

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Shaw Construction

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Shield Building Issues

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Conclusion

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