To: E. A. DeZubay and ~~A. Bortax~~ **E. LAYLAND**

Subject: Protection Cup Corrosion

Requested By:

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Dept: RMD and Reactor Analysis

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Approvals:

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Reactor Analysis: *J. B. Schuyler*

Reactor Design: *J. B. Schuyler*

Paragraph Headings:

1. Distribution

2. Purpose

3. Components Involved

4. Data Required

5. Test Conditions

1. Distribution:

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INFORMATION CATEGORY

UNCLASSIFIED

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Information Category Date

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2. Purpose:

The final design configuration of the skirtless block and tab-tip blockless cluster tie rod hardware include a protection cup surrounding the tie rod button, support washer, and support cup. This protection cup is directly impinged upon by the effluent streams from the fuel elements after passing through the final cluster supporting member. It is necessary to determine the corrosion resistance of this cup under simulated reactor conditions.

3. Components Involved

Coated protection cups of A5 and A6 experiment design will be used. The cups will be assembled with their associated hardware into a coated holding fixture with a graphite screw. Reference should be made to Dwg. No. 909E940 for detailed fixture discussions. The fixture allows for flow through 18 holes for impingement onto the protection cup and will be located in the diffuser section downstream of the single element furnace.

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4. Date Required:

Run duration and test conditions should be recorded. In addition, high magnification photographs and detailed metallographic analysis should be made. Tape tests should also be made to indicate coating integrity. Specimens should be weighed after coating and after corrosion testing. Strength tests should be made after corrosion testing.

5. Test Conditions:

The test fixture is to be located downstream of a single element corrosion test. The test conditions should be 1B with durations of 20, 30, and 40 minutes. If necessary this could be made up of shorter interval tests such as 1B10 + 10 + 10 etc.