

REQUEST FOR ADDITIONAL INFORMATION RES NO. 5

11/12/2008

US-APWR Design Certification

Mitsubishi Heavy Industries

DESIGN DATA FOR TRACE ASSESSMENT OF MHI'S 1/5TH AND 1/2 SCALE ADVANCED
ACCUMULATOR TEST FACILITIES

Docket No. 52-021

Please submit the following design data and information:

Items 1 through 6 below are for the 1/5th scale advanced accumulator test facility.

- 1) Wall thickness of the test tank
- 2) Flow areas of the ball and gate valves
- 3) Temperature measurements of the gas in the test tank (in electronic form)
- 4) The test data is inconsistent for all three 1/5th scale tests we are investigating (Tests 2-1, 2-2 and 2-3). Specifically, the flow rate is inconsistent with the test tank water level. As an example, in Test 2-1, the volumetric flow rate (given in units of m³/s) integrated over the first 9.8 s (just prior to the flow rate switch) is 0.237 m³. The water level during this time drops from 1.06 m to 0.68 m. Given the test tank diameter of 1.0 m and a level drop of 0.38 m, this results in a loss of liquid of 0.298 m³, which is about 26% higher than that based on the flow rate measurement.
 - a) Describe how the flow rate is measured
 - b) Provide the uncertainty on all of the measurements
- 5) Roughness of the injection pipe
- 6) Detailed drawings of the 1/5th scale test, in particular, detailed throat dimensions of the injection pipe

Items 7 through 13 below apply to the 1/2 scale advanced accumulator test facility.

- 7) Wall thickness of the test tank
- 8) Roughness of the injection pipe
- 9) Dimensions of the test tank including height of the cylindrical section and height of the top/bottom hemispherical heads
- 10) Elevations of the water level measurements in the test tank and the standpipes
- 11) Flow areas of the ball and gate valves
- 12) Temperature measurements at the top of the test tank (as shown in Figure 4.2.4-1 on page 4.2.4-2 of "*The Advanced Accumulator*", MUAP-07001-P(R1)) in electronic form
- 13) Flow rate data for the 1/2 scale tests (which was not included in UAP-HF-08143, Rev.1) in electronic form