

(PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

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Surry Power Station, Unit 1
Docket No: 50-280
Report No: 78-035/01T-0
Event Date: 11-09-78

Safety Injection Accumulator Errors

1. Description of Event:

An engineering study of tank level instrument calibration techniques demonstrated that the indicated level in Safety Injection (SI) accumulators is lower than the actual level. As a result, the maximum volume limits stated in Technical Specification 3.3 may have been exceeded but the minimum volume requirements have always been met. In the worst case condition (maximum indicated level and 650 psia) the excess volume is 5.7 cubic feet (over 989) for Unit 1 and 8.0 cubic feet (over 1089) for Unit 2. These excess levels decrease the pressurized gas volume by no more than 1.15% in Unit 1 and 2.0% in Unit 2. In actual level, the differences amount to 0.7 inches in Unit 1 accumulators and 0.99 inches in Unit 2 accumulators. This event is reportable in accordance with Technical Specification 6.6.2.a.(2) and is applicable to Surry Units 1 and 2.

2. Probable Consequences/Status of Redundant Systems:

The consequence of a higher-than-indicated level would be to reduce the volume of pressurized gas available to inject the accumulator contents. Accident analyses are conducted based on minimum level and minimum pressure conditions. Maximum levels are specified to assure that the accumulator contains sufficient pressurized gas to accomplish the injection. In the worst case identified by the study, the maximum possible level reduced the gas volume by 2% but this was at a condition of gas pressure 8% over minimum required pressure. It is considered that even in "worst case" level error, the accumulator systems would have performed the intended function fully. Therefore, the health and safety of the public were unaffected.

3. Cause:

The condition was discovered as the result of a rigorous review of the factors affecting the output of a differential pressure type liquid level indicator system. The factors included in the study were calibration standards and techniques, boron concentrations, pressurized gas density variations, and variations in ambient temperature of the accumulators.

4. Immediate Corrective Action:

The accumulator levels were lowered to the indicated levels recommended by the study on 11-9-78.

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5. Subsequent Corrective Action:

The station administrative documents for accumulator setpoints were changed on 11-15-78.

6. Actions Taken to Prevent Recurrence:

Future level requirements for accumulator levels will be verified by the calculational methods outlined in the study.

7. Generic Implications:

No other analagous situation is known to exist at Surry Power Station.