ATTACHMENT 2 TO AEP:NRC:1275

CURRENT PAGES MARKED-UP TO REFLECT PROPOSED CHANGES
TO TECHNICAL SPECIFICATIONS

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SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying during a recombiner system functional test that the heater sheath temperature increases to ≥ 1200°F within 5 hours and is maintained for at least 4 hours.

4. Verifying the integrity of all heater electrical circuits by performing a continuity and resistance to ground test ~~immediately~~ following the above required functional test. The resistance to ground for any heater phase shall be ≥ 10,000 ohms.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with:1) zirconium-water reactions, 2) radiolytic decomposition of water, and 3) corrosion of metals within containment. These hydrogen control systems are consistent with the recommendations of Regulatory Guide 1.7, "Control of Combustible Gas Concentrations in Containment Following a LOCA," March 1971.

The acceptance criterion of 10,000 ohms is based on the test being performed with the heater element at an ambient temperature, but can be conservatively applied when the heater element is at a temperature above ambient.

added

3/4.6.5 ICE CONDENSER

The requirements associated with each of the components of the ice condenser ensure that the overall system will be available to provide sufficient pressure suppression capability to limit the containment peak pressure transient to less than 12 psig during LOCA conditions.

3/4.6.5.1 ICE BED

The OPERABILITY of the ice bed ensures that the required ice inventory will 1) be distributed evenly through the containment bays, 2) contain sufficient boron to preclude dilution of the containment sump following the LOCA and 3) contain sufficient heat removal capability to condense the reactor system volume released during a LOCA. These conditions are consistent with the assumptions used in the accident analyses.

The minimum weight figure of 1333 pounds of ice per basket contains a 5% conservative allowance for ice loss through sublimation. In the event that observed sublimation rates are equal to or lower than design predictions after three years of operation, the minimum ice baskets weight may be adjusted downward. In addition, the number of ice baskets required to be weighed each 18 months may be reduced after 3 years of operation if such a reduction is supported by observed sublimation data.

3/4.6.5.2 ICE BED TEMPERATURE MONITORING SYSTEM

The OPERABILITY of the ice bed temperature monitoring system ensures that the capability is available for monitoring the ice temperature. In the event the monitoring system is inoperable, the ACTION requirements provide assurance that the ice bed heat removal capacity will be retained within the specified time limits.

ATTACHMENT 3 TO AEP:NRC:1275

PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

3/4.6.2.1 CONTAINMENT SPRAY SYSTEM

The OPERABILITY of the containment spray system ensures that containment depressurization and cooling capability will be available in the event of a LOCA. The pressure reduction and resultant lower containment leakage rate are consistent with the assumptions used in the accident analyses.

3/4.6.2.2 SPRAY ADDITIVE SYSTEM

The OPERABILITY of the spray additive system ensures that sufficient NaOH is added to the containment spray in the event of a LOCA. The limits on NaOH minimum volume and concentration, ensure that 1) the iodine removal efficiency of the spray water is maintained because of the increase in pH value, and 2) corrosion effects on components within containment are minimized. These assumptions are consistent with the iodine removal efficiency assumed in the accident analyses.

3/4.6.3 CONTAINMENT ISOLATION VALVES

The OPERABILITY of the containment isolation valves ensures that the containment atmosphere will be isolated from the outside environment in the event of a release of radioactive material to the containment atmosphere or pressurization of the containment. Containment isolation within the time limits specified ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a LOCA.

The opening of containment purge and exhaust valves and locked or sealed closed containment isolation valves on an intermittent basis under administrative control includes the following considerations: (1) stationing a qualified individual, who is in constant communication with control room, at the valve controls, (2) instructing this individual to close these valves in an accident situation, and (3) assuring that environmental conditions will not preclude access to close the valves and that this action will prevent the release of radioactivity outside the containment.

3/4.6.4 COMBUSTIBLE GAS CONTROL

The OPERABILITY of the equipment and systems required for the detection and control of hydrogen gas ensures that this equipment will be available to maintain the hydrogen concentration within containment below its flammable limit during post-LOCA conditions. Either recombiner unit is capable of controlling the expected hydrogen generation associated with: 1) zirconium-water reactions, 2) radiolytic decomposition of water, and 3) corrosion of metals within containment.

The acceptance criterion of 10,000 ohms is based on the test being performed with the heater element at an ambient temperature, but can be conservatively applied when the heater element is at a temperature above ambient.

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ATTACHMENT 4 TO AEP:NRC:1275

WESTINGHOUSE LETTER DESCRIBING THE HYDROGEN RECOMBINER
RESISTANCE TO GROUND TEST

Westinghouse Electric Company,
a division of CBS Corporation

Energy Systems

Nuclear Services Division

Box 355
Pittsburgh, Pennsylvania 15230-0355

AEP-98-023

NSD-SAE-ESI-98-079

February 20, 1998

Mr. Bob Vasey
American Electric Power
D. C. Cook Nuclear Plant
One Cook Place
Bridgman, Michigan 49106

AMERICAN ELECTRIC POWER
DONALD C. COOK NUCLEAR PLANT UNITS 1 & 2
<u>Hydrogen Recombiner System Surveillance Test</u>

Dear Mr. Vasey:

The Electric Hydrogen Recombiner System surveillance test program includes a number of tests which, all together, provide assurance of the operability of the system. As a means to provide indication that the heater electric power circuits within the Electric Hydrogen Recombiner (EHR) System have maintained their integrity, an insulation resistance test is included within the EHR surveillance test program. This insulation resistance test is performed at the EHR System power supply cabinet, and includes all of the plant cabling, internal cabling, containment penetration(s), and all of the heater elements which make up all three power phases of the system plus neutral. This test is sequenced to follow the full temperature heat-up test, however, the insulation resistance test is independent of the heat-up test. It is sequenced in this manner in the technical specifications so that any unexpected degradation of the heater circuit integrity due to the EHR full temperature heat-up would be identified. There is no intention to impose a time requirement between the completion of the heat-up test and the performance of the insulation resistance test.

The acceptance criteria for the insulation resistance test is that the measured resistance shall be greater than or equal to 10,000 ohms. This acceptance criteria takes into consideration the large number of heater elements that are being tested in parallel and is appropriate to provide indication of adequate integrity of the insulation resistance of the heater elements, cabling, and other components within the heater power circuits. This acceptance criteria is based on the test being performed with the heater elements at an ambient temperature, but can be conservatively applied when the heater elements are at an above ambient temperature. The insulation material used within the heater elements is magnesium oxide. Based on operational experience for these heaters, it is expected and considered normal that the heater element insulation resistance will decrease as the temperature of the elements is increased. This is due, to some extent, to the slight reduction in the electrical resistance properties of the magnesium oxide material at temperatures in excess of 1000°F. It would not be considered

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unusual or unacceptable for the insulation resistance as measured during this insulation resistance test to fall below the 10,000 ohm criteria when the heater elements are at are very near their operating temperature of 1200°F. What could be of concern, or possible indication of a problem, would be a downward trending of the measured insulation resistance over a number of surveillance test periods when the measurements are made with the heaters at approximately the same temperature from one period to the next.

Should you have any questions, please contact Mr. Don Peck (412-374-5683) or me.

Very Truly Yours,

Donald E. Peck / for

Nancy Kury
Customer Projects Manager

DEP/kk

cc:	Mike Finissi	- Cook Plant
	Mark Ackerman	- Cook Plant
	Steve Brewer	- AEP
	John Olvera	- AEP
	Vance VanderBurg	- AEP