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SOUTHERN COMPANY

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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555-0001

Edwin I. Hatch Nuclear Plant
Response to NRC Request for Additional Information Regarding a Revision to
Technical Specification 3.7.5, Control Room Air Conditioning System

Ladies and Gentlemen:

By letter dated January 16, 2014, (Agencywide Documents Access and Management System Accession No. ML14016A202) Southern Nuclear Operating Company (SNC), a licensee of Edwin I. Hatch Nuclear Plant, Units 1 and 2 (HNP), submitted a License Amendment Request pursuant to the requirements of Title 10 of the Code of Federal Regulations Parts 50 and 73. SNC requested the U.S. Nuclear Regulatory Commission (NRC) review and approval of a revision to HNP Technical Specifications LCO 3.7.5, "Control Room Air Conditioning (AC) System". The purpose of the revision is to provide new Required Actions for one, two, or three Main Control Room air conditioning subsystems inoperable, and make other required corresponding changes.

By letter dated April 3, 2014, the NRC requested that SNC provide additional information for their review. The Enclosure provides the SNC response to the NRC request for additional information.

This letter contains no NRC commitments. If you have any questions, please contact Ken McElroy at (205) 992-7369.

Mr. C. R. Pierce states he is Regulatory Affairs Director of Southern Nuclear Operating Company, is authorized to execute this oath on behalf of Southern Nuclear Operating Company and, to the best of his knowledge and belief, the facts set forth in this letter are true.

Respectfully submitted,

C. R. Pierce

C. R. Pierce
Regulatory Affairs Director

CRP/RMJ/lac

Sworn to and subscribed before me this 2nd day of May, 2014.

Notary Public

My commission expires: 1/2/2018

Enclosure: SNC Response to NRC RAI

cc: Southern Nuclear Operating Company
Mr. S. E. Kuczynski, Chairman, President & CEO
Mr. D. G. Bost, Executive Vice President & Chief Nuclear Officer
Mr. D. R. Vineyard, Vice President – Hatch
Mr. B. L. Ivey, Vice President – Regulatory Affairs
Mr. D. R. Madison, Vice President – Fleet Operations
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RType: CHA02.004

U. S. Nuclear Regulatory Commission
Mr. V. M. McCree, Regional Administrator
Mr. R. E. Martin, NRR Senior Project Manager – Hatch
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State of Georgia
Mr. J. H. Turner, Environmental Director Protection Division

Edwin I. Hatch Nuclear Plant
Response to NRC Request for Additional Information Regarding a Revision to Technical Specification 3.7.5, Control Room Air Conditioning System

Enclosure

SNC Response to NRC RAI

RAI #1

Please identify the emergency safety functions of the Main Control Room (MCR) Air Conditioning (AC) Systems and discuss the licensing basis analyses of Design-Basis Accidents (DBA) consequences. Please identify specific Updated Final Safety Analysis Report (UFSAR) sections where the MCR AC systems isolation configuration is described (does it rely on recirculation or outside air supply).

SNC Response to RAI #1

The design basis of the MCR AC System is to maintain the MCR temperature for a 30 day continuous occupancy. During emergency operation, the MCR AC System maintains a habitable environment and ensures the OPERABILITY of components in the MCR. The MCR AC system consists of three 50% capacity subsystems, and it functions to maintain controlled temperature in the MCR for the comfort of the operators and to maintain the integrity of the MCR components. The airside of the MCR AC system is also a part of the MCR environmental control (MCREC) system which consists of redundant filtration units. During normal plant operation, the MCREC is maintained in a standby condition, and is only activated during accident conditions to maintain habitability in the MCR. Also during normal plant operation, the outside air supply to the MCR bypasses the MCREC system. During accident conditions, the MCREC system provides filtered outside air for pressurization of the MCR. A single failure of a component of the MCR AC System does not impair the ability of the system to perform its design function. The MCR AC System is designed in accordance with Seismic Category I requirements.

The MCR AC units are required to be Operable in Modes 1, 2, or 3 to ensure that the control room is habitable, from a temperature perspective, should a design basis event such as LOCA/LOSP occur. Additionally, the MCR AC units ensure that the controls necessary for mitigating DBA events remain Operable. The MCR AC units are also required to be Operable during activities such as Core Alterations where the radiological consequences of other DBAs, such as the Fuel Handling Accident, could be significant. The MCR AC system design information is described in Chapter 9.4.1 of the Unit 2 FSAR. This section is common to both units.

Note: Specification 3.7.5, Control Room Air Conditioning (AC) System (which is being modified per this amendment request) addresses control room temperature control; Specification 3.7.4, Main Control Room Environmental Control (MCREC) System, (which is not being modified per this amendment request) addresses control room radiological control.

RAI #2

Please provide a summary of the HNP Control Room Area heat load analysis. Please include inputs, assumptions and boundary conditions utilized. Discuss against the cooling capacity of the MCR AC system, with one or two trains out of service and including limiting outside/inside air temperatures for each case.

SNC Response to RAI #2

The heat load of the MCR consists of the transmission load (walls, roof and floor), internal load (equipment, people, and lighting), and outside air load. The inputs/assumptions for the heat load computation consist of the surrounding and outside air temperatures, lighting in the area, equipment heat losses, and service water temperature for the water cooled condensing unit. The cooling capacity of the MCR AC is verified by Technical Specification Surveillance 3.7.5.1. The surveillance verifies that the heat removal capability of the system is sufficient to remove the computed control room heat load assumed in the safety analysis.

Normally, two MCR AC Systems are needed to maintain acceptable MCR temperature. However, one MCR AC subsystem can maintain acceptable MCR temperature provided the outside air temperature is ≤ 65°F.

RAI #3

Please explain what is the minimum system configuration needed in order to perform the systems emergency safety function (e.g., failures of emergency fans, chilled water pump trip, manual restart of the different control room Heating, Ventilation, and Air Conditioning (HVAC) trains, Loss Of Offsite Power (LOOP), and Station Blackout (SBO)).

SNC Response to RAI #3

There are a total of three air handling units (AHU), two of which are capable of performing the MCR AC System's safety function, as described in the response to RAI #1. Consequently, three 50% capacity subsystems of the Control Room AC System are required to be OPERABLE, per LCO 3.7.5, to ensure that at least two are available, assuming a single failure disables one of the systems. The AC portion of the MCREC System provides temperature control for the MCR. Specification 3.7.4 lists the Limiting Condition For Operation (LCO) for the MCREC System, and provides Actions to take if the LCO is not met.

Each AHU consists of a condensing unit cooled by Plant Service Water, cooling coils used to transfer heat from the air to the refrigerant, and a fan to move air through the individual unit. Failure of one of these could result in the loss of its respective AHU, but will not render the Air Conditioning System incapable of performing its safety function since two AHUs are capable of providing the required control room environment in both normal and accident conditions. Consequently, a single failure of a component of the control room AC system, assuming a loss of offsite power, does not impair the ability of the system to perform its design function.

The AHUs are powered from the safety related 600V buses. They are therefore available during a design basis loss of offsite power event, following the start of the emergency diesel generators. Also, the system operating procedure contains provisions for the manual initiation of the MCREC system pressurization mode of operation should the auto start fail. The instructions include the opening of the inlet dampers to the AHUs, if necessary.

The HNP licensing basis Station Blackout scenario, which has a coping time of 4 hours, assumes the "1B" swing diesel generator is recovered within one hour as the alternate AC source. The station procedures, however, contain actions for varying scenarios of power recovery including the eventual availability of one or two emergency buses. The power availability will affect the availability of MCREC and the AHUs.

Accordingly, the Station Blackout procedure references the abnormal operating procedure for the loss of control building ventilation and, again depending on power availability, the abnormal procedure includes actions for the recovery of the available MCREC systems and individual AHUs. However, should additional actions become necessary, the abnormal procedure also includes contingencies for opening control room back panel doors and blocking open control building doors if necessary.

RAI #4

Please provide a summary of the operational history of the Control Room AC system.

SNC Response to RAI #4

A three year summary of the operational history for each of the three subsystems is listed below:

1Z41B003A

Date	Outage Duration	Planned/Unplanned
11/28/2011	39.97 Hours	Planned (System Outage)
1/30/2012	47.08 Hours	Planned (PSW valve replacement)
2/1/2012	0.30 Hours	Planned (PSW supply swap)
2/11/2012	32.33 Hours	Unplanned (Tagout to investigate electrical issues)
3/11/2012	4.83 Hours	Unplanned (Loss of 600VAC Bus 1D)
4/2/2012	0.27 Hours	Planned (Adjustment of Water Regulating Valves)
6/5/2012	23.5 hours	Unplanned- (Clogged PSW strainers)
6/18/2012	70.78 Hours	Planned (system outage)
10/19/2012	0.42 Hours	Unplanned (Tripped during deadleg flush)
1/21/2013	9.25 Hours	Planned (PSW valve inspection)
2/14/2013	25.90 Hours	Unplanned (Clogged PSW strainers)
10/5/2013	0.43 Hours	Unplanned (inadvertant isolation of cooling water)
10/10/2013	25.75 Hours	Unplanned (high discharge pressure)
11/4/2013	204.33 Hours	Planned (repair refrigerant leak)
12/4/2013	237.27 Hours	Planned (system outage)
2/4/2014	1.6 Hours	Planned (PSW temp mod installation)
2/27/2014	5.53 Hours	Planned (PSW temp mod removal)
3/1/2014	7.25 Hours	Planned (LSFT)
3/26/2014	43 Hours	Planned (system outage)

1Z41B003B

Date	Outage Duration	Planned/Unplanned
5/13/2011	59.78 Hours	Planned (repair drain line)
2/11/2012	37.27 Hours	Planned
2/17/2012	0.7 Hours	Planned (PSW Supply Swap)
4/23/2012	41.55 Hours	Planned (System Outage)
7/17/2012	185 Hours	Unplanned (Motor starter issues)
3/8/2013	0.12 Hours	Planned(PSW Supply Swap)
4/20/2013	63.40 Hours	Planned (System Outage)
9/15/2013	9.9 Hours	Unplanned (PSW strainer clogged)
11/25/2013	90.05 Hours	Planned (PSW valve replacement)
2/3/2014	14.95 Hours	Planned (PSW temp mod installation)
2/25/2014	28.25 Hours	Planned (PSW temp mod removal)

1Z41B003C

Date	Outage Duration	Planned/Unplanned
2/2/2012	31.45 hours	Planned (PSW valve replacement)
4/9/2012	46.17 hours	Planned (System Outage)
6/21/2012	4.25 hours	Unplanned
9/20/2012	0.13 hours	Planned (Power Supply Lineup)
12/10/2012	80.38 hours	Planned (System Outage)
1/18/2013	0.15 hours	Planned (Power Supply Lineup)
3/8/2013	111.93 hours	Planned (PSW pipe replacement)
3/28/2013	0.18 hours	Planned (Power Supply Lineup)
6/28/2013	41.02 hours	Unplanned (Low Flow Alarm)
9/15/2013	9.9 hours	Unplanned (PSW strainer clogged)
12/4/2013	2.78 hours	Unplanned (High Head Pressure Trip)
12/10/2013	6.72 hours	Unplanned (Low Flow Alarm)
1/16/2014	119.83 hours	Planned (System Outage)
1/28/2014	48.27 hours	Unplanned (Burning smell when started)
2/1/2014	27.35 hours	Planned (PSW temp mod installation)
2/19/2014	25.25 hours	Planned (PSW temp mod removal)

RAI #5

Please indicate how movements of loads over irradiated fuel assemblies are controlled. Please discuss against the definition of Core Alterations used in the TS.

SNC Response to RAI #5

A Core Alteration is defined as, " ...the movement of any fuel, sources, or reactivity components within the reactor vessel with the vessel head removed and fuel in the vessel".

A Senior Reactor Operator (SRO) will be on the Refueling Bridge during all core alterations, and other fuel movements as directed by the Operations Director. The SRO's responsibilities will be as follows:

- The SRO will not allow any fuel movement unless the Refuel crew is able to devote 100% attention to the task. The crew, as a minimum, will consist of an SRO, a bridge operator, and a second verifier. The SRO must ensure that each member is fully qualified and capable of performing their task, and that each is aware of their responsibilities.

- The SRO must ensure compliance with all applicable procedures at all times, and must ensure that procedural & equipment problems are properly documented.

Procedure problems, or conditions which preclude compliance, must be corrected before proceeding.

- The SRO will not allow any Refuel crew member to conduct a turnover OR be relieved during normal bridge or grapple movement, OR when the grapple is loaded.
  If there is a malfunction in bridge or grapple operation with the grapple loaded AND the move cannot be completed, then with the Shift Manager's approval, relief of the Refuel Crew can be performed following proper turnover.

- The SRO must ensure that the control room is aware of conditions on the refueling floor. Constant communications will be maintained with a licensed individual in the control room when core alterations are in progress.

- The SRO will ensure that the crew has all the material necessary (i.e., procedures, core maps, movement sheets, etc.) to conduct fuel movement promptly and correctly.
  One required item will be a core map with the cell removal sequence for upcoming cells already marked and verified (not required for fuel shuffle). Laptop computer displays of the core may be used instead of paper copies of core maps.

- The SRO will ensure that the work pace is comfortable to all members, and that no one feels any urgency in completing the task.

Loads weighing over 1250 pounds are prohibited from traveling over fuel assemblies in the spent fuel storage pool racks, except as noted below. This weight limit corresponds to the dry weight of a single spent fuel assembly and corresponding handling tool, which is the heavy load limit as described in NUREG-0612. This weight limit is an initial assumption in the accident analysis for the fuel handling accident. Therefore, dropping of a load weighing ≤ 1250 pounds remains bounded by the fuel handling accident. The only permitted exceptions for loads > 1250 pounds are single-failure-proof lifts which comply with the following requirements, in addition to existing requirements regarding procedural controls for heavy lifts, training of crane operators, and crane design, inspection, and maintenance.

- The Unit 1 single-failure-proof crane shall be used.
- In order to meet the intent of NUREG-0612, movement over irradiated fuel should be minimized to the extent possible and should comply with the approved safe load path.
- All nonstructural equipment > 1250 pounds shall be removed from the load prior to movement.
- Lift shall have an engineering evaluation to ensure structural adequacy of the load relative to the defined lift points.
- Lifting devices shall be ANSI B30.9-1971 compliant and be constructed of metallic material, or shall be special lifting devices that satisfy ANSI N14.6-1978.

The use of a single-failure-proof crane in conjunction with the specified lifting devices described above meets the requirements of NUREG-0612 as clarified by the NRC's current position regarding use of synthetic slings stated in Regulatory Issue Summary 2005-025, Supplement 1.

RAI #6

Please indicate the administrative procedures that would be put in place in order for operators to keep track of the MCR inside air temperature.

SNC Response to RAI #6

The MCR area temperature is currently verified every shift per procedure. Prior to implementation of this TS change, the HNP Abnormal Operating Procedure (AOP) that directs operator action in the event of loss of control room HVAC units will be revised to be consistent with the new Actions.

RAI #7

Please discuss any compensatory measures considered in case the MCR area temperature approximates the equipment temperature limit of 105 °F (i.e. supplementary cooling).

SNC Response to RAI #7

In the event of a loss of all three MCR AC subsystems, operators are currently directed to open doors on the back of various Control Room Panels within 30 minutes. Additionally, in this event, if the control room temperature exceeds outside air temperature,the operators are directed to place the MCR environmental control in purge mode. For purging, the air-conditioning systems have the capability of meeting 50% supply and 100% exhaust air requirements of the MCR. The flowrate is approximately 14,000 ft^3/min for supply and approximately 11,500 ft^3/min for exhaust during purging.

The Bases for this proposed Technical Specification change to LCO 3.7.5 state that alternate methods of maintaining control room temperature, such as non-safety grade air conditioning systems or fans, can also be used to maintain control room temperature. SNC currently has portable AC units on site that could be tied into the existing MCREC ventilation duct. SNC is evaluating alternate cooling methods that can be implemented expeditiously in order to reduce the required installation time. However, should the MCR area temperature exceed 90°F (with or without alternate cooling in place), the plant will be required to be in Mode 3 within 12 hours and in Mode 4 within 36 hours.

Finally, if the Shift Supervisor determines that continued operation of the unit from the MCR is not conducive to safe plant operation, the plant can be brought to a shutdown condition from a steady state normal operating condition by manipulating plant controls outside of the MCR. Prior to evacuating the MCR, the plant operator is directed to scram the reactor. Unit 1 LCO 3.3.3.2 and Unit 2 LCO 3.3.3.2 states that the Remote Shutdown System Functions shall be

OPERABLE and contains Actions and Surveillance Requirements for the Remote Shutdown System Operability.