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

Edwin I. Hatch Nuclear Plant
GL 89-10 Motor Operated Valves Active Safety Function Review

Gentlemen:

As a cost-saving initiative, Georgia Power Company (GPC) performed a comprehensive review of Plant Hatch's Generic Letter (GL) 89-10 program to ensure the program thoroughly addresses all GL 89-10 requirements, while limiting the number of valves to be tested to only those required by GL 89-10. Limiting the cost is important to GPC, since setting up one valve for initial testing costs approximately $15,000, with subsequent testing costing approximately $12,000 per valve. Reducing the number of tests that must be repeated over a 5-year interval will result in an estimated savings of more than $1,000,000 every 5 years, assuming credit is taken for this re-evaluation.

The methodology used in the review consisted of reviewing/evaluating all design basis events (DBEs)[a], as defined in GL 89-10, footnote 2, and ensuring all valves required to perform active safety functions are included in the program. The review concluded that approximately 100 valves were determined to have only an open or close safety function, or no safety function, as opposed to an open and/or close safety function. Enclosure 1 provides a list of all the valves in Plant Hatch's current GL 89-10 program, including specific active safety functions. Enclosure 2 includes a list of each reclassified valve, the previous and revised safety function(s), and a discussion justifying each change. Enclosure 3 contains the evaluation criteria applicable to the GL 89-10 program.

a. DBEs are defined by the Nuclear Safety Operational Analysis (NSOA) report contained in Unit 1 Final Safety Analysis Report (FSAR) Appendix G and Unit 2 FSAR Supplement 15C.

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Based on the results of the GL 89-10 review discussed above, GPC have determined that several valves should be removed from the GL 89-10 testing scope for the upcoming Plant Hatch Unit 2 outage scheduled to begin on March 16, 1994. Therefore, GPC requests a meeting with the appropriate NRR staff as soon as possible to discuss the re-analysis. GPC realizes this request does not allow a significant amount of time for review; however, your timely response will be appreciated.

If you have questions or concerns regarding this issue, please contact this office.

Sincerely,

J. T. Beckham, Jr.

OCV/cr

Enclosures:
1) GL 89-10 Motor Operated Valves Active Safety Functions
2) Discussion of GL 89-10 Motor Operated Valves Active Safety Functions
3) Criteria Applied to GL 89-10 Program Reevaluation

cc: *Georgia Power Company*
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Enclosure 1

GL 89-10 Motor Operated Valves Active Safety Functions

(C = Close, O = Open, B = Both, N = None)

The following valves are applicable to both units:*

B21-F016	C
B21-F019	C
B31-F023A,B	N
B31-F031A,B	C
E11-F003A,B	**N**
E11-F004A-D	**O**
E11-F006A-D	C
E11-F007A,B	**C**
E11-F008	C
E11-F009	C
E11-F010	N
E11-F011A,B	N
E11-F015A,B	B
E11-F016A,B	**N**
E11-F017A,B	**N**
E11-F021A,B	**N**
E11-F022	N
E11-F023	N
E11-F024A,B	**O**
E11-F026A,B	N
E11-F027A,B	**N**
E11-F028A,B	B
E11-F040	N
E11-F047A,B	**N**
E11-F048A,B	B
E11-F049	N
E11-F068A,B	B
E11-F073A,B	N
E11-F075A,B	N
E11-F091A,B	N
E11-F103A,B	**N**
E11-F104A,B	N
E11-F119A,B	N
E11-F140A,B	N
E21-F001A,B	**N**
E21-F004A,B	N
E21-F005A,B	B
E21-F015A,B	N
E21-F031A,B	**C**
E41-F001	O
E41-F002	C
E41-F003	C
E41-F004	C
E41-F006	**O**
E41-F007	N
E41-F008	N
E41-F011	N
E41-F012	B
E41-F041	**O**
E41-F042	**O**
E41-F059	O
E41-F104	C
E41-F111	C
E51-F007	C
E51-F008	C
E51-F010	C
E51-F012	N
E51-F013	**O**
E51-F019	B
E51-F022	N
E51-F029	O
E51-F031	B
E51-F045	O
E51-F046	O
E51-F104	C
E51-F105	C
E51-F119	N
E51-F524	**N**
G31-F001	C
G31-F004	C
P42-F051	C
P42-F052	C

The following valves are applicable only to Unit 1:*

P41-F049	C
P41-F050	C
P41-F310A-D	C
P41-F312	**N**
P41-F313A-D	N
P41-F317A,B	N
P41-F380A,B	N
P41-F401A,B	N
P41-F402A,B	N
P41-F403A,B	N
P41-F420A,B	N
P41-F421A,B	N
P41-F422A,B	N
T48-F013A,B	N

The following valves are applicable only to Unit 2:*

All 2E32 valves	**N**
P41-F115,A,B	**O**
P41-F303A,B	N
P41-F310	**N**
P41-F312A,B	N
P41-F315A,B	N
P41-F316A-D	C
P64-F045	C
P64-F047	C
T48-F026	N
T48-F027	N
T48-F028	N
T48-F029	N
All 2T49 valves	**N**

* Valves with changed safety functions are listed in bold type.

Enclosure 2

Discussion of GL 89-10 Motor Operated Valves
Active Safety Functions

E11-F003A,B: (Residual Heat Removal [RHR] heat exchanger outlet valves) These valves formerly were defined as having active safety functions to open and close. They have been changed to have no safety function. These are the RHR heat exchanger outlet valves. They are normally open and remain open during events where low pressure coolant injection (LPCI) is needed. They do not receive auto close signals with a LPCI injection, neither are they required to be closed by the RHR operating procedure or the emergency operating procedure for events where LPCI is needed. For design basis events requiring containment cooling, these valves are open and remain open. Therefore, per criteria #2, the valves have no active safety function. Although these valves are opened and closed while placing shutdown cooling in service, this is a part of normal operation and falls under criteria #1.

E11-F004A-D: (RHR torus suction valves) These valves were formerly defined as having a safety function to both open and close. GPC has re-defined these valves as only having an active safety function to open. The valve is not required to close because the RHR system is considered a part of the containment for design basis events, and a passive failure in these lines is not considered as a credible failure, per criteria #8. The valves are required to open to support a loss of shutdown cooling event, which is considered in the nuclear safety operational assessment (NSOA) report. During shutdown cooling operation, these valves would be closed. Upon a loss of shutdown cooling, the F004 valves would have to be opened to support alternate shutdown cooling. (Raise water level to the main steam lines, open an SRV, place suppression pool cooling in service, and place one loop of core spray in service.)

E11-F007A,B: (RHR minimum flow valves) These valves previously had active safety functions to open and close. Following the review, they were determined to only have an active safety function to close. These valves are normally open and must close during an event requiring LPCI to assure adequate flow to the reactor pressure vessel (RPV). Likewise, they must close to assure adequate cooling for containment cooling events. Since the valve is normally open, it does not have to open to provide pump protection. Shifting modes, for example from LPCI to suppression pool cooling, is a manual operation wherein the operator insures flow through the test line while the LPCI injection valve is closing, thus pump protection is assured.

E11-F016A,B: (RHR containment spray outboard isolation valves) These valves formerly had active safety functions to open and close. They have been re-defined as having no active safety function. These valves are normally closed and are opened to provide drywell sprays. However, FSAR analysis shows that containment sprays, torus or drywell, are not required to keep containment below it's design temperature and pressure,

hence no active safety function to open (criteria #9). Concerning containment isolation, the F016 valves do not have an active safety function to close because they are normally closed anyhow (criteria #2). Furthermore, for design basis events, the RHR system becomes a part of containment and valve closure is thus not required.

E11-F017A,B: (LPCI outboard injection valve) These valves formerly had an active safety function to close. They now have no active safety function. These valves are normally open and are interlocked open on a LPCI initiation signal for several minutes (ten minutes on Unit 1 and five minutes on Unit 2). It was originally thought that the close active safety function was necessary to assure adequate containment cooling flow if it was necessary to divert flow to the LPCI mode. However, if it becomes necessary to do this, and the F017 valve does not close, the F015 may be closed. The EOP procedure which permits the termination and prevention of flow to the vessel under certain conditions prescribed by the Emergency Procedure Guidelines (EPGs), will have to be revised to permit this. Furthermore, once flow has been diverted to the containment during design basis events, it will be possible to re-direct flow back to the RPV via the other LPCI loop, or either of the other Core Spray loops, in the unlikely event that F017 will not re-open.

E11-F021A,B: (Containment Spray inboard isolation valve) These valves formerly had an active safety function to open in order to provide containment spray. They have been changed to have no active safety function. This is because, per criteria #9, plant safety analysis shows that containment sprays are not required to maintain the containment below design temperature and pressure. Suppression pool cooling is all that is required. The valves are not required to close for containment isolation since they are normally closed (criteria #2) and because the system becomes a part of the containment for design basis events.

E11-F024A,B: (RHR full flow test line) These valves formerly had active safety functions to both open and close. They have now been changed to just open. The valves are normally closed and must open to provide suppression pool cooling for design basis events. They do not have an active safety function to close because termination of suppression pool cooling can be attained through the closure of the E11-F028A,B valves.

E11-F027A,B: (Suppression pool inboard spray valve) These valves formerly had active safety functions to both open and close. They now have no active safety function. Per criteria #9, containment sprays are not required to maintain the containment below design temperature and pressure, including suppression pool sprays. They are not required to close to terminate sprays since the E11-F028A and B valve will be used to terminate suppression pool cooling. Neither are they required to close for containment isolation since they are normally closed (criteria #2) and the system becomes a part of the containment for design basis events.

Enclosure 2

Discussion of GL 89-10 Motor Operated Valves
Active Safety Functions

E11-F047A,B: (RHR heat exchanger shell side inlet valve) These valves formerly had active safety functions to open and close. They now have no active safety function. These valves are normally open and remain open for design basis events requiring LPCI injection and containment cooling. Although in certain situations, the valve may be closed prior to going into suppression pool cooling, this will not be the case for design basis situations; if entry into suppression pool cooling is from the EOP, then the valves will not be closed.

E11-F103A,B: (RHR heat exchanger vent isolation valve) These valves formerly had an active safety function to close. They now have no active safety function. They are closed and remain closed for all design basis events.

E21-F001A,B: (Core spray pump suction valves from the suppression pool) These valves formerly had an active safety function to close. They now have no active safety function. The valves are normally open and remain open for all modes of plant operation. They are not required to close for containment isolation because these lines are considered a part of the containment for design basis events. Furthermore, a passive failure in these lines is not considered part of the design basis per criteria #8.

E21-F031A,B: (Core spray minimum flow bypass valve) These valves formerly had an active safety function to both open and close. They now only have an active safety function to close. The valve is normally open and is required to close to insure adequate flow to the RPV during design basis events.

E41-F006 (High pressure coolant injection [HPCI] injection valve) This valve formerly had active safety functions to open and close. It now only has an active safety function to open. This is a normally closed valve; obviously, it must open to insure HPCI flow to the RPV. The valve was previously determined to have a safety function to close because it was thought that it's pressure isolation function would be hindered if the valve failed to close. However, the check valve in the feedwater line downstream of the F006 valve prevents backflow through the HPCI line.

E41-F041,42: (HPCI pump suction valve from the suppression pool) These valves formerly had active safety functions to open and close. They now have only an open active safety function. The valves are normally closed and are required to open to provide suction for the HPCI pump from the suppression pool in the event of low level in the condensate storage tank (CST), or high level in the suppression pool (although the high level function is bypassed in the EOPs). Closure of these valves is not required to isolate the line because a passive failure of these lines is considered beyond the design basis.

Enclosure 2

Discussion of GL 89-10 Motor Operated Valves
Active Safety Functions

E51-F013: (Reactor core isolation cooling [RCIC] injection valve) This valve formerly had active safety functions to open and close. It has been changed to only have an active safety function to open. The valve is normally closed and must open to allow RCIC injection to the RPV. As with the HPCI injection valve, backflow through the system is prevented by the check valve in the discharge line, hence no active safety function to close.

E51-F524: (RCIC turbine trip and throttle valve) This valve formerly had an active safety function to close. It now has no active safety function. The closure of the valve, when tripped, is spring actuated. The motor operator is used only to reset the valve following a turbine trip.

The following valve applies to Hatch 1 only:

P41-F312: (Plant service water dilution line isolation valve) This valve formerly had an active safety function to close. It now has no active safety function. The valve is normally closed and is not required to operate for any design basis event.

The following valves apply to Hatch 2 only:

All 2E32: (Main steam isolation valve [MSIV] leakage control system) The system valves formerly had active safety functions to open and close. They now have no active safety function. The MSIV leakage control system (MLCS) is not required to mitigate the consequences of any design basis accident in the NSOA. The system was installed as part of NRC requirements for an operating license. Furthermore, a submittal to the NRC has been made to remove the requirements for this system from the Tech Specs. Analyses documented in this submittal show that the MLCS is not required to maintain off site doses below 10 CFR 100 limits following a design basis event. Per criteria #4 and #5, therefore, the valves have no active safety function.

P41-F115A,B: (LPCI inverter isolation valve) These valves formerly had active safety functions to both open and close. They now only have an active safety to open. The valves are normally closed and must open to provide cooling to the LPCI inverter room cooler upon an auto start of LPCI room cooler 2Z41-B020A. The valve is not required to close to isolate flow for a downstream line break because a passive failure of the downstream piping is considered beyond the design basis, per criteria #8.

Discussion of GL 89-10 Motor Operated Valves
Active Safety Functions

P41-F310: (Plant service water dilution line isolation valve) This valve formerly had an active safety function to close. It now has no active safety function. The valve is normally closed and is not required to operate for any design basis event.

All 2T49 valves: (Post LOCA hydrogen recombiners) Most of the valves on this system had active safety functions. They now have no active safety functions. This system is not required to function for any design basis event as demonstrated in the NSOA. The system was included as part of NRC requirements for an operating license. Per criteria #4 and #5, therefore, the system valves have no active safety function.

Enclosure 3

Criteria Applied to GL 89-10 Program Reevaluation

1) Motor-operated valve operability during normal operation is established because the plant must be in normal operation prior to design events; i.e., the valve must have functioned properly for the initial conditions assumed as part of the initiating event. This means that the normal operating position of the valve is assured. Otherwise, system operability is controlled by the Technical Specifications. Therefore, requirements associated with demonstrating the operability of motor-operated valves for normal operation, as defined in Generic Letter (GL) 89-10, are satisfied when a normal operating condition is reached. Thus, no specific testing of the valves is required.

2) Valve operability requirements, as defined by GL 89-10, are limited to changing position(s) from normal operating position(s) required to mitigate design basis events.

3) Valve operability, as defined by GL 89-10, is not required during periods of system or component testing. This is consistent with the system reliability assumptions that form the basis for the Unit 1 and Unit 2 Technical Specifications.

4) Design basis events are limited to abnormal operational transients and accidents defined in the Nuclear Safety Operational Analysis (NSOA) report contained in the Unit 1 Final Safety Analysis Report (FSAR), Appendix G and Unit 2 FSAR Supplement 15C.

5) System requirements for design basis events are established by the NSOA.

6) Pipe breaks are not assumed to occur when the system is not under significant stress. The NSOA assumes this level to be less than 20 percent of system design pressure. (Reference Unit 2 FSAR, Supplement 15C, Event 34, Pipe Breaks Inside Containment.)

7) Consideration of valve mispositioning is not required in accordance with Supplement 4 to GL 89-10.

8) Long-term passive failures are not part of the design basis. (Reference 10 CFR 50, Appendix A, Definition of Single Failure, footnote 2.)

9) The analysis results for each design basis event and each system's required capability to satisfy the event acceptance limits are stipulated in the plant's FSARs. For example, based on the plant safety analysis (FSAR Figures 6.2-27 through 29 for Unit 2 and Figure 14.4-11 for Unit 1), adequate containment cooling can be performed by the suppression pool cooling mode of the RHR system, and the containment spray system is not required to function.