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November 21, 2003

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Request for Additional Information Regarding the July 10, 2003, Fire Protection Regulatory Conference
Arkansas Nuclear One – Units 1 and 2
Docket Nos. 50-313 and 50-368
License Nos. DPR-51 and NPF-6

Dear Sir or Madam:

On July 10, 2003, a Regulatory Conference was held in the NRC's Region IV office in Arlington, Texas involving Arkansas Nuclear One management and staff and NRC representatives. This conference was held to discuss a finding which was preliminarily determined by the NRC to have a risk significance of greater than green (greater than very low safety significance).

The NRC staff requested additional information following the conference. Entergy provided a response to the staff's request in a letter dated August 11, 2003. Following review of that response, the staff determined that further clarification was needed. The NRC's request for clarification of the additional information provided in the August 11, 2003, letter was sent to Entergy in a letter dated September 19, 2003. Entergy's responses to the latest NRC questions are included in the attachment. Due to the length of some of the responses they have been written to a compact disc which is enclosed. Should you have questions or comments, please contact Mr. Glenn Ashley at (479) 858-4617.

There are no new commitments contained in this submittal.

Sincerely,

Sherrie R. Cotton

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SRC/rhs

Attachment/enclosure

D2

ANO Response

The table below is an excerpt of Table 32 from the July 3, 2003, submittal and is included for reference.

#	Selected Actions, Requests or Cues	Location	Basis	Operator Response	Crew 1 Clock time from loss of A4	Crew 1 Time from cue to action
1	Loss of A4 bus signal	MCR	Fault simulated	Investigate A4 bus locally	8:39:39	0:02:21
2	Multiple alarms	MCR	Fault simulated	Manual Reactor trip	8:39:49	0:00:12
3	(CV CV2617 EFW Pump Turbine K3 Steam from SG B) 1	Auto	Auto Response to Trip (Low SG level)	Observe start /note overfill	8:42:01	0:10:59
4	C10 CSI-DG2 LOCK OUT, EDG2	MCR	Prevent additional damage to A4	Action in response to A4 breaker fault	8:41:38	0:01:22
5	Investigate A4 bus notes fire	Local	Simulated fire noted	Noted fire - as part of simulation script	8:42:00	0:04:00
6	(BK D1512CV2663 P7A TURB STM ADMISSION VLV POWER) OPEN	Fire	Fire induced breaker failure	Preempted by manual trip and EFW auto start	8:44:40	0:00:00
7	Establish (dispatch) Fire Brigade	MCR	Fire procedure	Setup team and read script	8:46:00	0:03:00
8	(CV CV2800 EFW P-7B Suction from CST) 0	Fire	Simulated failure	Turn off P7B to protect pump	8:49:14	0:08:46
9	C09 HS2805 STOP, EFW PUMP P7B, HS-2805 TRUE	Local	Represents manual control	Introduced into simulation upon local call	8:55:00	0:02:00
10	Local manual control of EFW 7A (throttle 2620 and 2627)	Local	Back off EFW flow to prevent over fill	Adjust SPEED CNTR on EFW P7A, HIC-6601) 0.85	8:53:00	0:16:00
11	Call for site area emergency	MCR	In procedures	Verify location on declaration of Site Area Emergency	9:06:00	0:02:20
12	D1512 - (CV2663 P7A turbine steam admission valve power) OPEN from breaker room	Local	New attachment to prevent spurious closure	Fire damage over by this time		
13	D5241 - (CV2667 P7A turbine steam admission valve power) OPEN from breaker room	Local	New attachment	Fire damage over by this time		
14	Manual start of HPI from A3	Local	Restore injection pump operation	Use local control	9:04:00	0:22:00
15	Go to A3 and be ready to Check equipment	Local	Protect A3 safety bus	At location ready for action	9:32:00	0:02:00
16	Check position of A-306 HPI P-36A	Local	Protect A3 safety bus		9:38:00	0:02:00

This sample timeline is based on the data from Crew 1 which did not have the revised procedure. Therefore, items 12 and 13 are not applicable. The last column provides the time taken to complete the action from the initial cue.

T = 0:00:00 (8:39:39) Control Room indicators indicate a loss of the green train 4160V electrical bus (A4). An auxiliary operator is dispatched to investigate the A4 bus. The operator reaches the scene at T = 0:02:21.

T = 0:00:10 (8:39:49) The loss of A4 causes multiple alarms in the control room. Based on the numerous alarms a manual reactor trip is initiated at T = 0:00:22. Subsequently, all control rods are fully inserted.

T = 0:01:59 (8:41:38) To prevent additional damage to the A4 switchgear, the green train emergency diesel lock-out is initiated. Operating this switch prevents the green diesel from connecting to the A4 switchgear at T = 0:03:21.

T = 0:02:21 (8:42:00) Auxiliary operator reports fire in the A4 switchgear room. (Not realistic??)

T = 0:02:22 (8:42:01) The steam driven EFW pump (P7A) automatically starts due to low steam generator level. Control room operator observes the start of the pump and continues to monitor steam generator level for signs of overfill (see T = 0:13:21). Note: The electric driven EFW pump (P7B) also starts on low steam generator level.

spurious valve closures?

what if auto start does not occur?

T = 0:05:01 (8:44:40) As a result of fire damage, power is lost to CV2663 (steam inlet to P7A). The pre-fire plan notes that CV2663 may require manual operation (if necessary, breaker D1512 would be opened to deenergize the circuit and the handwheel would be utilized to open the valve). Since the low steam generator level caused the EFW system to actuate, CV2663 opens (on EFIC) prior to power being lost to the valve (i.e. at T = 0:02:22). Thus, no local action is required.

T = 0:06:21 (8:46:00) Fire Brigade is notified of fire and dispatched to the A4 switchgear room.

T = 0:09:35 (8:49:14) Due to fire damage, the suction valve (CV2800) for P7B spuriously closes.

30 minutes to A4??

T = 0:13:21 (8:53:00) Control Room operator observes rising steam generator level. An operator is dispatched to manually throttle the P7A discharge valves (CV2620 and CV2627). The valves are throttled per control room direction to maintain steam generator level at T = 0:29:21. At this point, decay heat is being adequately removed from the reactor via the EFW system.

~6 min already gone?

T = 0:15:21 (8:55:00) Control Room operator recognizes that suction to P7B has been impacted and turns pump off in an attempt to prevent pump damage at 0:17:21.

T = 0:24:21 (9:04:00) Control Room operator notes pressurizer level decrease. Red train HPI pump (P36A) does not respond to remote control due to loss of control power to switchgear. An operator is dispatched to start P36A from the A3 switchgear. Including auxiliary lube oil pump alignment, RCS injection is initiated at T = 0:46:21.

T = 0:26:21 (9:06:00) Site area emergency is declared and announced at 0:28:41.

T = 0:52:21 (9:32:00) Operator is dispatched to A3 switchgear to monitor/control operation of P36A. and other A3 breakers.

T = 0:58:21 (9:38:00) Breaker A306 position is verified to ensure that P36A is operating. At this point, decay heat is being removed by the EFW system (P7A) and RCS level is being maintained by the HPI pump (P36A).