AUG 1 8 1981

Docket Nos.: STN 50-482
STN 50-483
and STN 50-486

APPLICANTS: Union Electric Company
Kansas Gas and Electric Company

FACILITIES: Callaway Plant, Units 1 and 2
Wolf Creek Generating Station, Unit 1

SUBJECT: SUMMARY OF MEETING HELD ON JULY 21, 1981, WITH CALLAWAY AND WOLF CREEK APPLICANTS REGARDING REACTOR SYSTEMS

A meeting was held on July 21, 1981 at the Bechtel Offices in Gaithersburg, Maryland with representatives of the Union Electric Company, Kansas Gas and Electric Company, SNUPPS organization, Bechtel Power Corporation and Westinghouse Electric Corporation. Prior to the meeting a list of draft questions was provided to the applicants (Enclosure 1). This list included items 1 through 11 related to FSAR section 6.3 (ECCS), items 440.101 through 440.107 related to FSAR section 5.2.2, and items 440.201 through 440.206 related to FSAR section 5.4.7. Additional items identified at the meeting are included in this summary as items 12 through 16 and item 440.207. The list of attendees at the meeting is attached as Enclosure 2. We agreed to schedule another meeting for Wednesday, August 12, 1981, at the same time and place to review chapter 15 of the FSAR and TMI-related issues.

A discussion of the various items of interest follows.

ITEM	STATUS
1	The applicants stated the boric acid tanks and pumps would be available and are capable of supplying enough borated water to meet the cold shutdown requirement. We have no further questions.
2	The applicants stated that redundant safety-grade level transmitters have been added to the VCT. Subject to resolution of this item with ICSB, we feel this is an adequate solution and have no further questions.

ITEM	STATUS
3	The applicants will revise FSAR Table 6.3-6 sheet 2 and page 6.3-7 to reflect only one valve. No further questions.
4	The applicants agreed that tech specs will be required to include power lockout of the accumulator block valves and we will require this in our SER.
5	The applicants indicated they will revise FSAR Fig. 6.3-7 to correct the RWST level signal for RHR switchover to the sump to Lo-Lo-1 instead of Lo, and for containment spray switchover to Lo-Lo-2 instead of Lo-Lo. They indicated they are discussing level measurement uncertainties with the Instrumentation and Controls Branch. We will discuss this item with Instrumentation and Controls Branch and advise the applicants if we have further questions. The applicants will submit to NRC an explanation of how the RWST sizing and switchover setpoints are established.
6	The applicants stated: a) The RHR sump suction elevation is 1994 feet. b) Check valve 8958 (RWST/RHR) is at 1968 feet elevation. They indicated all these valves are below the sump level. We have no further questions.
7	The applicants clarified this item. The temperature is recorded in the figure (on the upstream temperature recorder). No change is required.
8	The applicants stated the pumps are cooled at all times. We have no further questions.
9	The applicants will revise the FSAR to modify Table 6.3-6 (sheet 2) to eliminate the reference to the check valve.
10	The applicants stated this is required by NRC to assure distribution of ECCS flow assumed by LOCA Analyses for a line break in one train simultaneously with a spurious valve closure in the other. We have no further questions.

ITEM	STATUS
11	The applicant stated the function of the solenoid-operated BIT modulating valves was to match safety-grade cold shutdown make-up flow to letdown flow.
12	Question: Is there significant commonality between the intermediate - head safety injection pumps, i.e., are they in the same room? Response: The pumps are in separate rooms. We have no further questions.
13	Question: Regarding postulated limited leaks during long-term cooling after an accident, justify why a value of 7.5 gpm (section 6.3, and discussed in section 9.3.3) is limiting instead of, say, 50 gpm. Response: The applicants stated that a 50 gpm leak is easier to detect. Also the flow trains are separated so that a leak in one train cannot affect the other. Therefore, they indicated they can also accommodate a 50 gpm leak without compromising core cooling capability. We have no further questions.
14	Question: In the LOCA analysis, an upper head temperature equal to the cold leg temperature is assumed. Justify this assumption. Response: The applicants stated that the SNUPPS design has a large bypass flow directly to the upper head area which justifies the assumption. The applicants will advise us of how they will further respond. This item remains open.
15	Question: Regarding the RHR pumps, how do you preclude running out the pumps beyond 4800 gpm? Response: Flow restrictors are provided to achieve this. Besides, preoperational testing will verify this flow value. We have no further questions.

ITEM	STATUS
16	Question: Identify any single manual valves in the ECCS system which, if mispositioned, would degrade the function of redundant flow trains. Describe how the valve is assured to be in the correct position, (i.e., method of locking in position, or other) and whether the valve position is indicated in the control room. Response: The applicants will provide a submittal covering the above request. They indicated there were two such valves between the RWST and the RHR pumps. There may be others.

ITEM	STATUS
440.101 (5.2.2)	The applicants stated they will provide a written response which justifies applicability of WCAP 7769 to the SNUPPS design. This item remains open.
440.102 (5.2.2)	The applicants stated they will meet the intent of Reg. Guide 1.68 for pressurizer safety valves. They stated the valves will be bench-tested prior to installation. No further questions.
440.103	The applicants stated that they recently submitted chapter 18 to the FSAR documenting their commitment to performance test the relief and safety valves. They reaffirmed this commitment. If there are any further questions on this topic they will be resolved in the Chapter 18 review. We consider Q.440.103 resolved.
440.104, 440.105 (5.2.2)	The applicant will revise the FSAR to provide current analyses. However, the applicants indicated these analyses will be revised late in 1981. They committed to provide them when they are available. We indicated we would have to review the plant-specific analyses prior to operation of the plant. We indicated that we will confirm the plant-specific analysis provided later to take account of any deviations from the analyses already reviewed. The applicants stated they expect little or no deviation from these current analyses.

ITEM	STATUS
440.106 (5.2.2)	The applicants stated that given a single DC bus failure, they would still have one train of safety-grade letdown for pressure relief. They also indicated their procedures preclude solid-water operations unless the RHR system is in use and the RHR relief valves are available. During low-temperature operations, a steam bubble is present in the pressurizer allowing time (about 24 minutes) for the operator to turn off charging pumps. Also, the initiating event would isolate normal let-down, which would cause the automatic control of charging pumps to decrease flow, i.e., the transient would not be severe and provides time for operator actions. Furthermore, if the DC bus failure occurs in one of 2 other channels, the insturment air will be shut off to charging line valves, isolating the charging pumps and precluding a pressurization transient. We indicated there appears to be a reasonable basis for concluding the design is adequate. However, we require a comprehensive written justification to be provided by the applicants which includes the basis for operator action time available. The applicants will provide such a submittal. This item remains open pending review of the submittal.
440.107 (5.2.2) (7.6.6)	We agreed that this item will be resolved with ICSB, and RSB will be advised of the resolution details by the applicant. No further question.
440.201 (5.4.7)	The applicants stated that loss of one train of power could not result in the inoperability of 2 steamline dump valves. We have no further questions.
440.202 (5.4A)	The applicant verified the transfer valves are safety grade. No further questions.
440.203 (5.4.7)	The applicants verified that the RHR suction valves are safety grade. We have no further questions.
440.204 (5.4.7)	We agreed that the Reactor Systems Branch will review this matter further with the Power Systems Branch and, if there are further questions, we will advise the applicants. We have no further questions at this time.
440.205 (5.4(A))	The applicants described why the Diablo Canyon tests are applicable to the SNUPPS design. We indicated the basis sounds like it is acceptable. They will revise the FSAR to justify the applicablity of the Diablo Canyon test. We have no further questions pending review of the FSAR submittal.

ITEM	STATUS
440.206	The applicants stated this question would be covered by their tech specs. We have no further questions.
440.207	Question: Confirm that the two RHR suction isolation valves in series and the 40 foot section of pipe between them has adequate integrity without a pressure relief mechanism to withstand expected heatup and expansion of the contained water. Consider possible jamming of valves. Response: The applicants will advise us of their evaluation of the design.

/s/

Gordon E. Edison, Project Manager
Licensing Branch No. 1
Division of Licensing

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DATE	8/13/81	8/ /81					

Enclosure 1

SNUPPS FSAR Section 6.3

1. Since RWST is not tornado missile protected, please discuss the protection afforded the plant against the following scenario. A tornado missile causes a SLB and makes the RWST unavailable. Discuss how will the ECCS get enough borated water to the reactor vessel.

2. Please discuss the effect of VCT level on the two valves LCV-112B, C in light of the W part 21 notification of May 21, 1981.

3. Table 6.3.5 (item #4) and Fig. 9.3.8 (sheet 3) indicate only one miniflow line isolation valve per charging pump. However, Table 6.3.6 (sheet 2) item d(3) indicates two valves in series that are closed automatically. Please clarify the discrepancy.

4. The third paragraph on page 6.3-12 indicates that during plant startup the operating precedures require the operator to energize and open the accumulator block valves when the RCS pressure reaches the safety injection unblock setpoint. We interpret the above to mean that the motive power is locked out of the four block valves while in the closed position. If our interpretation is correct, please concur. We will require the power lockout to be in the technical specifications of the plant unless an inadvertant block valve opening is analyzed for temperature overpressure protection.

   If these block valves are power locked in the open or in the closed position, what is the function of SIS signal with the operation of these valves?

5. For the RWST design:

   a. Correct Fig. 6.3-7 to reflect the switchover signal, i.e., Lo-Lo-1 signal for RHRS switchover instead of Lo signal, and Lo-Lo-2 signal for containment spray instead of Lo-Lo signal.

   b. Discuss the RWST level measurement uncertainties and their effect on the time until switchover.

6. Please provide the elevations for the following points of the ECCS:

   a. RHRS/sump suction

   b. check valve 8958 (RWST/RHRS)

7. Section 6.3.5.1 states that water temperature downstream of the RHRHX is recorded in the control room. However, Fig. 5-4.7 does not show that. Please correct.

8. It is stated that SWS & CCWS cool the ECCS & RHRHX during recirculation mode only. What about pump cooling during injection mode?

9. Please explain or modify item C(2), Table 6.3-6 (sheet 2).

10. RHRS discharge valves HV-8809 A, B have their power locked out in the open position. Explain why do you need this feature?

11. What is the funciton of the BIT suction solonoid operated valves HV-8837 A, B?

SNUPPS FSAR SECTION 5.2.2

440.101 (5.2.2) The SNUPPS FSAR has referenced WCAP-7769 as the basis for sizing of its pressurizer and steamline safety valves. Use of WCAP-7769 as a reference requires justification of its applicability. The SNUPPS design specifies parameters which differ from those of the design analyzed in WCAP-7769 (e.g. greater RCS design flow, greater downcomer-upper head bypass flow, different model steam generators, etc.). Justify by comparison of relevant parameters and by dicussion of the influence of differences, that WCAP-7769 is applicable to SNUPPS.

440.102 (5.2.2) 14 Preoperational tests consistent with the recommendation of Regulatory Guide 1.68 are not included in FSAR Section 5.2.2 or Chapter 14.0 for pressurizer safety valves. Describe how SNUPPS will satisfy the intent of R.G. 1.68 for the pressurizer safety valves.

440.103 NUREG-0737, item II.D.1 requires performance testing of relief and safety valves. Provide a schedule for satisfying this TMI Action Plan requirement consistent with the schedule specified in NUREG-0737.

440.104 (5.2.2) SNUPPS FSAR Section 5.2.2.10.2 states that "an evaluation of low temperature overpressure transients will be provided as soon as it becomes available." Analyses justifying the adequacy of the low temperature overpressure design must be reviewed for accpetance prior to operation of the plant.

440.105 (5.2.2) SNUPPS FSAR, Section 5.2.2.10.3 describes administrative procedures which will be implemented to reduce the likelihood of severity of over-pressure events during low temperature operation. Certain procedures will be provided which preclude certain overpressure events (e.g., multiple charging pump mass addition, etc.) and, thereby, remove requirement for justifying analyses of these events. Provide a list of these events, describe the administrative procedures which will preclude them, and identify technical specifications which will implement these procedures.

440.106 (5.2.2) In reviews of certain other Westinghouse designated plants, a failure of a D.C. power bus was identified which could both initiate an over-pressure event at low temperature (by isolating letdown) and fail closed one of the PORVs. A postulated single failure (closed) of the other PORV would fail mitigating systems for this event. Address this scenario for the SNUPPS design.

440.107 (5.2.2) (7.6.6) Our review of the control logic for the automatic low temperature over-pressure protection design for SNUPPS indicates that a failure in the temperature auctioneer for one PORV (signalling it to remain closed) could also fail the other PORV closed (by denying its permissive to open). Address this concern about a potential common-mode failure in the low temperature overpressure protection system.

SNUPPS FSAR SECTION 5.4.7

440.201 (5.4.7) In addressing the ability to achieve cold shutdown, the FSAR discussion identified that the loss of one train of power could result in the inoperability of two steamline dump valves. Show that for this scenario, and for other scenarios in which heat removal to one or more steam generators is lost due to failure of dump valve(s), limited operator action can restore the operability of the affected dump valve(s).

440.202 (5.4(A)) Verify that valves automatically transferring auxiliary feedwater pump suction from the unqualified condensate storage tank to the essential service water system are safety grade.

440.203 (5.4.7) Verify that RHR suction valves (from the RCS hot legs) are qualified to safety grade requirements.

440.204 (5.4.7) Discuss the design of the SNUPPS RHR suction isolation valves against common mode mechanical failures within the context of RSB 5-1 requirements (e.g., address operator actions to manually operate or repair components in the event of a single failure). Of particular concern are the two "inboard" valves at the RCS/RHR pressure boundary. Also, consider mispositioning phenomena such as fires or post-LOCA flooding which could cause common mode malfunctions in some designs.

440.205 (5.4(A)) The SNUPPS FSAR (section 5.4-A has referenced natural circulation tests to be performed at Diablo Canyon. By a comparison of design parameters and supplemental discussion and/or analysis, show why the Diablo Canyon tests for natural circulation and vessel head cooling should be applicable to SNUPPS. Also make a commitment to provide, in an acceptable time frame, substitute tests should the Diablo Canyon test progress or results not satisfy the test needs for the SNUPPS design.

440.206 SNUPPS FSAR Section 5.4.7.2.E states that all operator actions needed to achieve cold shutdown (using safety grade equipment) may be performed from the control room for a normal shutdown (with no single failure). Clarify whether the "safety-grade" means of achieving and maintaining cold shutdown would normally be used for routine shutdown (e.g., venting accumulators, etc.). If not, address single failures for the routine "non-safety grade" means which would ordinarily be used in shutting down, and instead the isolation valves be closed, address the subsequent spurious opening of the valve considering procedural precautions; technical specifications and if the spurious mispositioning is not precluded, consequences of a mispositioning. In this discussion address all permissible modes of plant and/or RHR operation. Also confirm that there are no operator actions outside the control room (such as restoring power to equipment from local breakers) that are not directly part of shutdown but which must be performed in order to permit shutting down.

ENCLOSURE 2

NRC - SNUPPS MEETING ATTENDEES
July 21, 1981

	NAME	ORGANIZATION
1.	R. L. Wright	SNUPPS Staff
2.	G. E. Edison	NRC/DL
3.	Gerry Mazetis	NRC/RSB
4.	Frank Orr	NRC/RSB
5.	Sammy Diab	NRC/RSB
6.	John Hurd	Bechtel
7.	John Prebula	Bechtel
8.	Patrick A. Ward	Bechtel
9.	Eugenia Furcni	Westinghouse
10.	Greta Harkness	Westinghouse
11.	Edward M. Burns	Westinghouse
12.	W. L. Luce	Westinghouse
13.	F. Schwoerer	SNUPPS Staff
14.	A. C. Passwater	Union Electric
15.	G. P. Rathbun	KG&E
16.	Tony DiPerna	Bechtel
17.	Chuck Herbst	Bechtel

MEETING SUMMARY DISTRIBUTION

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bcc: Applicant & Service List