

AUG 18 1981 -

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

APPLICANTS: Union Electric Company
Kansas Gas and Electric Company

FACILITIES: Callaway Plant, Unit 1
Wolf Creek Generating Station, Unit 1

SUBJECT: SUMMARY OF MEETING HELD ON JULY 27, 1981 WITH CALLAWAY AND
WOLF CREEK APPLICANTS REGARDING INSTRUMENTATION AND CONTROLS

A meeting was held on July 27, 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. The meeting was held as a result of our letter of April 13, 1981 to the applicants requesting that a series of meetings be held related to instrumentation and control systems for the Callaway and Wolf Creek facilities. This meeting was the fourth in a series of meetings held on April 28, 1981, May 18 through May 20, 1981 and June 16 and 17, 1981 regarding this matter (see meeting summaries dated May 5, 1981, June 15, 1981, and June 30, 1981 respectively). A list of 60 items (discussion areas) was provided in the meeting summary dated June 30, 1981. All of those items were discussed at this meeting and their status was updated (Enclosure 1). Also at this meeting some additional items were identified and discussed. These items are numbered in this summary beginning with item 61 through 68 (see Enclosure 2). Prior to the meeting a draft list of 10 positions was provided to the applicants. Their responses to these positions are provided in Enclosure 3; the 10 positions are listed in Enclosure 4. The applicants indicated they would provide written responses for these 10 positions (where their action is indicated) by August 15, 1981 so that we can further discuss them. The list of attendees for each day of the meeting is attached as Enclosure 5.

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Enclosure:
As stated

cc: See next page

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ENCLOSURE 1

Review of Status of Meeting Summary
Items 1-60 from Meeting
Held June 15 and 17, 1981
with ICSB and Callaway/Wolf Creek Applicants

<u>Item</u>	<u>Status</u>
1	Closed.
2, 3, Q420.4	Open. Applicant to submit on 8/1/81.
4	Closed.
5	Closed.
6, 8d	Closed. The staff position #1 now states our position.
7	Closed.
8, 22	Open. Applicant to submit on 8/1/81.
9	Open. Applicant to submit on 8/1/81.
10	Open. Applicant to submit on 8/1/81.
11	Closed. Position #2 now covers this.
12	Open. Applicant will submit on 8/15/81.
13	Open. Applicant will give a status report 8/15/81.
14	Open. Applicant will submit on 8/15/81.
15	Closed. Staff position #4 now states our position.
16	Open. Applicant will submit on 8/15/81.
17	Open. Letter SLNRC 81-54 dated July 1, 1981. A design change was committed. FSAR change required.
18	Closed.
19	Open. Applicant will submit on 8/15/81.
20	Open. Applicant will submit on 8/1/81.
21	Open. Applicant will submit on 8/1/81.
22	See item 8.
23	Closed.
24, 49	Open. Applicant to submit on 8/1/81.
25	Open. Applicant to submit on 8/15/81. The response will include a statement of the testing of reset functions.
26	Closed.
27	Closed.
28	Closed.
29	Closed.
30	Closed.
31	Open. NRC to advise on our position on steam generator safety valve position indication.
32	Closed. Appendix 5.4A now includes the information.
33 & 35	Open. These are replaced by position #6. Applicant action on 8/15/81. However we need a change to the FSAR to document the lists of safety related displays.
34	Open. Applicants working on submittal. We anticipate that this will not be an open SER item since Regulatory Guide 1.97, Rev. 2 provisions are not required to be completed prior to be completed prior to June, 1983.
35	See 33.
36	Open. Applicant to submit on 8/1/81.

37 Closed.
38 Closed. This is now covered by Position #7.
39 Open. Applicant to submit on 8/15/81.
40 Open. Applicant to submit on 8/1/81.
41, 42, 56 Closed. This is now Position #8.
43 Open. Applicant to submit on 8/15/81.
44 Closed.
45 Open. Applicant to submit on 8/15/81.
46 Open. Applicant to submit a letter on 8/15/81/
47 Closed.
48 Open. Applicants to submit on 8/15/81.
49 See item 24.
50 Open. Applicants to submit on 8/15/81.
51 Open. Applicants deciding what to do. They will
notify us.
52 Open. Applicants to submit on 8/15/81/
53 Closed. This is now Position #9.
54 Open. Applicants to submit FSAR modification
no schedule could be provided at this time.
55 Closed.
56 See item 41.
57 Closed.
58 Closed. This is now position #10.
59 Closed.
60, Q420.3 Open. Applicants will perform an analysis.
A submittal is scheduled on 8/15/81.

ENCLOSURE 2
ADDITIONAL QUESTIONS

Item Question: After the isolation valve has been closed via load sequencing contact (reference drawing E-03EF02(Q)), can it be reopened by manual action?
61

Response: The details and conditions for reset of the initiating signal and subsequent manual control were discussed. We have no further questions.

62 Question: Discuss drawings E-03EG01A and E-03EG01B regarding component cooling water pumps A, B, C, and D. We are interested in discussing (a) circuits which automatically start the second pump in a CCW train on low pressure in the pump discharge, and (b) circuits which automatically start a pump in the non-operating train on a safety injection signal. Include subsequent operator control of the pumps.

Response: The applicants indicated they normally run only 1 pump in one train. The backup pump starts on a low-pressure signal from the other pump. Circuit details were discussed. We have no further questions.

63 Question: Discuss drawings E-U3EF02A(Q), E-U3EF02B(Q), E-U3EF02 c (Q), and E-U3EF02D(Q) regarding the ultimate heat sink cooling tower fans. Discuss the design criteria for the temperature detector used to detect hi - hi cooling tower inlet temperature i.e. indication available, testability, automatic switching of fan speed. Also discuss the interface with the bypass and inoperable status panel. Discuss differences between Callaway and Wolf Creek.

Callaway Response: The applicant discussed the designations for relays on the drawings. Regarding temperature detectors they indicated 3 temperature setpoints corresponding to: spray, lo speed fans, and high speed fans. They will include the temperature-measuring control functions in their response to NRC Position #8 (see enclosure for statement of positions).

Wolf Creek Response: The question does not apply because Wolf Creek has no cooling tower.

We have no further questions.

64 Question: Discuss the ESW pumps, drawing E-U3EF01(Q). Discuss capability for manual control subsequent to automatic initiation and the location of control switches.

Callaway Response: The applicant indicated that control switches were located on a panel in the pump house as well as in the main control room. The pump can also be controlled from the switch gear. The details of manual control subsequent to automatic initiation were discussed.

Wolf Creek Response: We reviewed the drawings. Same as Callaway except drawing number is E-K3EF01(Q). Schematic is the same except nomenclature (designator numbers) is slightly different.

We have no further questions.

65 Question: Discuss the transfer of controls and indicators to the auxiliary shutdown panel.

Response: The applicants discussed the indicator lights and control switches for equipment on the panel. They indicated the lights are independent of transfer switches and are always active.

We have no further questions.

66 Question: Discuss the method of redundantly tripping the turbine following receipt of reactor protection signals requiring turbine trip.

Response: See response to Position #2.

We have no further questions.

67 Question: Why do pairs of AFW pump control valves share the same bypass and inoperable status window, ALHV 5&7, 6&8, etc.?

Response: Each of these valves now has its own window. The question is no longer applicable.

We have no further questions.

68 Question: Can the diverse features of the undervoltage and shunt trips of the reactor trip breakers be tested independently?

Response: The applicants indicated they will submit a response. This item remains open.

ENCLOSURE 3

Applicants Responses to 10 Positions

Position #1

The applicant discussed the possibility of using an amber light on the bypass and inoperable status panel as a resolution. We indicated that automatic removal of the block might be put on the P-7 or P-10 interlock. The applicants are considering further and will advise us of their intent. This item remains open.

Position #2

The applicants stated that trains A and B are redundant and separate down to the turbine, although they do not meet Class IE separation criteria. They will consider this further and advise us of their intent. This item remains open.

Position #3

The applicants stated they disagree with the need for this reporting and intend to take no further action. They will comply if NRC imposes it as a licensing condition. We indicated we will require some kind of confirmatory information on the adequacy of the testing, and will specify any requirements later. This is not an open item.

Position #4

This requirement will be incorporated into the tech specs. The item is closed.

Position #5

We clarified our position to mean "reliable" access, not necessarily "redundant" access. The meeting was closed to the public during this brief discussion. The applicants discussed their design, and we have no further questions.

Position #6

The applicants are considering further and will advise us of their intent. This item remains open.

Position #7

The applicants indicated they believe they are in compliance with our position. They will submit a response stating this and the basis for it. This item remains open, but is expected to be closed upon NRC review of the response.

Position #8

The applicants indicated they generally comply with parts (c) and (d) of the NRC position. They generally disagree with the need for parts (a) and (b). They will consider further and advise us of their intent. This item remains open.

Position #9

The applicants are considering further and will advise us of their intent. This item remains open.

Position 10#

We indicated this will be a confirmatory item to be done after SER issuance but prior to license issuance. The applicants committed to provide the requested information prior to license issuance.

LICENSING POSITIONS ON INSTRUMENTATION AND
CONTROL SYSTEMS FOR THE SNUPPS PLANTS

1. Concern: The signal which initiates auxiliary feedwater when the main feedwater pumps are tripped is manually blocked on normal shutdown of the main feedwater pumps. The current design is such that the block is not automatically removed when the plant is returned to an operating mode where auxiliary feedwater initiation on loss of main feedwater is needed.

Position: Even though the signal to initiate auxiliary feedwater when the main feedwater pumps are tripped is considered to be an "anticipatory signal" for which no credit is taken in the analyses of FSAR Chapter 15, the staff position is that the block should be automatically removed when the plant is returned to an operating mode where auxiliary feedwater initiation on loss of main feedwater is needed. This position is taken since the signal provides significant diversity for starting the auxiliary feedwater system following loss of main feedwater.

2. Concern: It is not clear from the drawings provided and the description of the turbine trip circuits and mechanisms that the equipment used to trip the turbine following a reactor trip meets the criteria applicable to equipment performing a safety function.

Position: It is the staff position that the circuits and equipment used to trip the turbine following a reactor trip should meet the criteria applicable to a safety function with the exception of the fact that the circuits may be routed through non-seismic qualified structures and the turbine itself is not seismically qualified.

3. Concern: The applicants intend to use an automatic, computer based system using process noise with the plant at power for sensor time response testing. Although staff review during meetings with the applicants indicates that the method is satisfactory, there is only limited experience to date with the method on operating plants.

Position: The applicants should submit a summary of the results from and experience with this method of time response testing within three months following the testing done at the time of initial plant startup. A similar summary should be submitted within three months following the testing done at each of the first three plant refuelings. Each summary should contain conclusions on the adequacy of the test method and the adequacy of the sensor time response values measured. This staff position is taken to obtain confirmatory information on the adequacy of the time response testing method and applies to the first of the SNUPPS units going into operation.

4. Concern: The reactor coolant system hot and cold leg resistance temperature detectors used for reactor protection are located in reactor coolant bypass loops. A bypass loop from upstream of the steam generator to downstream of the steam generator is used for the hot leg resistance temperature detector and a bypass loop from downstream of the reactor coolant pump to upstream of the pumps is used for the cold leg resistance temperature detector. The magnitude of the flow affects the overall time response of the temperature signals provided for reactor protection.

Position: The staff position is that the magnitude of the RTD bypass loop flow should be verified to be within required limits at each refueling period. This requirement will be incorporated into the plant technical specifications.

5. Concern: The plant design currently provides a single locked door for access to the room containing the auxiliary shutdown panels. A key or lock malfunction in this single door could delay or prevent access to the controls required for safe shutdown from outside the control room.

Position: The staff position is that ~~redundant~~^{reliable} access to the auxiliary shutdown panels be provided. This position is taken for consistency with requirements to provide redundant controls for shutdown outside the control room.

6. Concern: Information provided by the applicants indicates that the reactor coolant wide range temperature indicators to be provided on the auxiliary shutdown panel will not meet all the criteria applicable to safety related displays (such as being provided power from separate Class 1E busses).

Position: The staff position is that reactor coolant stem temperature is a required parameter for maintaining the plant in a safe condition. Indicators meeting criteria applicable to safety related displays should be provided for reactor coolant temperature on the auxiliary shutdown panel.

7. Concern: The original design for actuation of the accumulator valve component level window on the bypassed and inoperable status panel was such that the bypass indication was not actuated until the valve reached the fully closed position rather than when the valve left the fully open position. After discussions with the staff, the applicants changed the de-

sign such that the bypass is indicated when the valve is not fully open. There may, however, be other valves where the bypass indication is not actuated when the valve leaves the position required for it to accomplish its safety function.

Position: The staff position is that bypass indication on the bypassed and inoperable status panel should be actuated when a valve leaves the position required for it to accomplish its safety function.

8. Concern: Instrumentation for process measurements used for safety functions such as reactor trip or emergency core cooling typically are provided with the following:
- a) An indicator in the control room to provide the operator information on the process variable being monitored which can also be used for periodic surveillance checks of the instrument transmitter.
 - b) An alarm to indicate to the operator that a specific safety function has been actuated.
 - c) Indicator lights or other means to inform the operator which specific instrument channel has actuated the safety function.
 - d) Rod positions, pump flows, or valve positions to verify that the actuated safety equipment has taken the action required for the safety function.
 - e) Design features to allow test of the instrument channel and actuated equipment without interfering with normal plant operations.

During review of the applicant's design, it was found that one or more of

the features above was not provided for certain instrumentation used to initiate safety functions. Examples include instrumentation used to isolate essential service water to the air compressors, instrumentation used to isolate the non-safety-related portion of the component cooling water system, and instrumentation used to isolate the spray additive tank on low low level.

Position: The staff position is that instrumentation provided to perform safety functions such as isolating non-seismic portions of systems, closing valves when tank levels reach low level setpoints, and similar functions should be provided with alarms and indicators commensurate with the importance of the safety function and should be testable without interfering with normal plant operations. The applicants should provide the staff with a list of all instrument channels which perform a safety function where one or more of the features listed in a through e of the concern above are not currently provided. For each of these instrument channels, the applicants should indicate which of the features a through e are not currently provided. The staff position on these instrument channels is further that the applicants should:

- a) Provide an alarm to indicate that the safety function has been actuated if such an alarm is not in the current design.
- b) If not in the current design, provide means to inform the operator which specific channel has actuated the safety function.

- c) If not in the current design, provide indication that the actuated safety equipment has taken the action required for the safety function.
- d) If not in the current design, provide the capability for testing each safety function without interfering with normal plant operations and without lifting instrument leads or using jury rigs. The capability for testing should include the transmitter where indicators are not provided to perform operability checks of the transmitters.

The staff will provide requirements in the plant technical specifications for testing these safety functions.

- 9. Concern: On November 7, 1979, Westinghouse notified the Commission of a potential undetectable failure which could exist in the engineered safeguards P-4 interlocks. Test procedures were developed to detect failures which might occur. The procedures require the use of voltage measurements at the terminal blocks of the reactor trip breaker cabinets.
Position: In order to minimize the possibility of accidental shorting or grounding of safety system circuits during testing, suitable test jacks should be provided to facilitate testing of the P-4 interlocks.
- 10. Concern: The staff requested that the applicants review the adequacy of emergency operating procedures to be used by control room operators to obtain safe shutdown upon loss of any Class 1E or non-Class 1E busses supplying power to safety or non-safety-related instruments and controls. This issue was addressed for operating reactors through IE Bulletin 79-27.

The applicants have conducted a review using the guidelines of Bulletin 79-27 and concluded that no design modifications are required. However, since the preparation of plant procedures has not been completed, all actions requested in the Bulletin have not been completed.

Position: Subsequent to completion of plant procedures, the applicants should provide the staff with the following confirmatory information:

- a) Confirm that all a.c. and d.c. instrument buses that could affect the ability to achieve a cold shutdown condition were reviewed. Identify these buses.
- b) Confirm that all instrumentation and controls required by emergency shutdown procedures were considered in the review. Identify these instruments and controls at the system level of detail.
- c) Confirm that clear, simple, unambiguous annunciation of loss of power is provided in the control room for each bus addressed in item ^(a)X above. Identify any exceptions.
- d) Confirm that the effect of loss of power to each load on each bus identified in item ^(a)X above, including ability to reach cold shutdown, was considered in the review.
- e) Confirm that the re-review of IE Circular No. 79-02 which is required by Action Item 3 of Bulletin 79-27 was extended to include both Class 1E and non-class 1E inverter supplied instrument or control buses. Identify these buses or confirm that they are included in the listing required by Item ^(a)X, above.

The above should be provided in time for staff review prior to issuance of the operating license.

ENCLOSURE 5

NRC - SNUPPS MEETING
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July 21, 1981

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