UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD

Before Administrative Judges
Sheldon J. Wolfe, Chairman
Dr. Paul W. Purdom
Frederick J. Shon

In the Matter of	)	
	)	
PUBLIC SERVICE COMPANY OF	)	
OKLAHOMA, ASSOCIATED	)	Docket Nos. STN 50-556CP
ELECTRIC COOPERATIVE, INC.	)	STN 50-557CP
and	)	
WESTERN FARMERS ELECTRIC	)	
COOPERATIVE,	)	
	)	
(Black Fox Station,	)	
Units 1 and 2)	)	

INTERVENORS' PROPOSED CONTENTIONS
FOR THE CONTINUED RADIOLOGICAL AND SAFETY HEARINGS

Pursuant to the Board's Order of October 14, 1981, Intervenors respectfully propose the following contentions in light of the Applicant's Amendments Nos. 16 and 17 to the Black Fox Station (BFS) Preliminary Safety Analysis Report (PSAR).

Intervenors submit that the following contentions[1] should

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1. Intervenors have requested by separate Motion until November 21, 1981, within which to identify additional contentions based upon Applicatns' Amendment No. 18 to the PSAR (Hydrogen Control Issues) because this Amendment was not served on the parties until October 21, 1981.

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be the subject of evidentiary hearings in view of the Applicant's Amendments in response to NRC licensing requirements arising out of, inter alia, the TMI-2 accident. Intervenors also understand that the NRC may impose additional TMI-related requirements (as identified in NUREG-0660) on NTCP applicants in the near future and this list of contentions is without prejudice to Intervenor's right to challenge the sufficiency of applicant's response to any such additional requirements.[2/]

1. ENVIRONMENTAL QUALIFICATION

The Applicant has not demonstrated that it will be in compliance with NUREG-0588[3/] and Generic Technical Activity A-24 for existing safety related equipment and equipment added as a result of post-TIM requirements.

2. POST ACCIDENT MONITORING

The Applicant has not demonstrated that it will meet the requirements of 10 CFR 50.34(e)(2)(xii) and (xix) and Reg.

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2. It should be noted, however, that there are some elements in the TMI Action Plan (NUREG-0660), not included in NUREG-0718, that have not yet been acted upon by the Commission. These are items that the Commission has directed be subject to further study before taking approval action. It is possible, therefore, that some of these items will be approved for implementation prior to completion of the licensing review of the pending construction permits or manufacturing license. In that event, such items might be added to this rule.

3. NUREG-0588 Interim Staff Position on Environmental Qualifications of Safety-Related Electrical Equipment, U.S.N.R.C., December 1979.

Guide 1.97 Rev.2 in the following areas:

a. The Applicant has not provided sufficient preliminary design information to show that it can provide an on-line monitor capable of continuous sampling of halogens and provide a timely indication of actual releases of radioactive halogens and particulate from all potential accident release points.

b. The Applicant has failed to provide sufficient preliminary design information with respect to instrumentation for monitoring accident conditions. They have not provided conceptual design information or justifications for alternatives to items in Reg. Guide 1.97, Rev.2 as required by 10 CFR 50.34(e)(2)(xvii) and (x).

c. The Appliant has not provided sufficient preliminary design information to show how it will meet the environmental qualifications requirements described in Reg. Guide 1.97, Rev. 2, for post-accident monitoring instruments.

3. ECCS MODELS

The Applicant has not adequately demonstrated compliance with 10 CFR 50.34(e)(1)(iii), (v), (viii) and (xi) because it has not fully resolved deficiencies in its computer models for ECCS and Fuel performance as identified in NUREG-0630.

4. CONTROL ROOM/HUMAN FACTORS

The Applicant has not performed an independent human factors review of the control room design concepts utilized in the proposed Black Fox control room, nor has it applied the evaluation criteria in NUREG-0700.[4/]

5. PLANT SHIELDING

The Applicant has failed to perform adequate radiation and shielding design reviews to assess the need for shielding as required by 10 CFR 50.34(e)(2)(vii). Nor have they demonstrated that the possible design changes are technically feasible and that there exists reasonable assurance that the requirements will be properly implemented.

6. DEGRADED CORE-RELIABILITY ANALYSIS

The Applicant has failed to submit a program plan that demonstrates how it will conduct an adequate site/plant-specific probabilistic risk assessment as required by 10 CFR 50(e)(1)(i), because they have failed to include accidents more severe than those listed in PSAR Chapter 15; because they have not included an extended Liquid Pathway Study including the effects of the underclay layer on the Liquid Pathway; and because they have not established acceptance criteria for judging the acceptability of the results.

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4. NUREG-0700, "Guidelines for Control Room Design Reviews", September, 1981.

7. SAFETY/RELIEF VALVE TESTING

Applicant has failed to comply with 10 CFR 50.34 (e)(2)(xi) because it has not committed to demonstrate the applicability of the generic valve tests described in the PSAR to the plant-specific valve and piping design of Black Fox or to modify their design on the basis of plant-specific testing. Also, the tests have not been conducted over ATWS conditions and thus are not adequate to assure safety.

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9. WATER LEVEL MEASUREMENT

The Applicant has not demonstrated compliance with 10 CFR 50.34(e)(2)(xviii) and the requirement for an unambiguous indication of inadequate core cooling because it relies mainly on several vessel water level measurements which may be misleading because they do not have a common reference level. The Applicant

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10. DOCUMENTATION OF DEVIATIONS

The Applicant has failed to include in the BFS PSAR an adequate resolution of the following safety issue identified as a result of the TMI-2 accident.

> The accident at TMI-2 demonstrated the need for "documentation of deviations" from current regulatory practices. A major contributing factor to the TMI-2 accident was that the plant had not been required by the NRC Staff to be in compliance with the then current regulatory practices. The Kemeny Commission,[5/] the NRC Special Inquiry Group,[6/] Congress,[7/] and the Commission in a proposed rulemaking[8/] have all recognized the need for such documentation of deviations. Documentation of deviation procedures for new plants and plants under construction were recognized as a Staff need by Benjamin C. Rusche,

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5. Kemeny Report, pp.20, 53, 65-66.
6. Special Inquiry Report, Vol. II, p. 21.
7. The Bingham Amendment, P.L. 96-295, Section 110.
8. 45 Fed. Reg. 67099 (Oct. 9, 1980).

then Director of the Division of Nuclear Reactor Regulation, in a letter dated September 20, 1976.[9/]

Intervenors contend that the NRC Staff has failed to require the Applicants to document in the PSAR where the BFS design, structures, and components do not conform with current regulatory practices (i.e., regulations, standards, Regulatory Guides, Standard Review Plans and regulatory practices) and the bases for and acceptability of those deviations. The Staff has further failed to identify the standards against which BFS may be reviewed and the bases for any deviations which may be approved by the Staff from conformance with current regulatory practices. Absent such indications, there is no basis for a Board finding that a level of safety equivalent to that provided by current regulatory practices is assured in the case of BFS, as required

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9. The Black Fox facility, due to the long licensing hiatus caused by the TMI-2 accident is basically of the mid-1970's design and, in many instances, was reviewed by the Staff against regulatory practices which are no longer current. Indeed, the Standard Review Plan, NUREG-75/087, was first published in 1975 and has been revised substantially since then. Neither the Applicants in the PSAR nor the Staff in the SER have systematically described the standards against which Black Fox has been reviewed and the basis for and acceptability of any deviations from current regulatory practices.

by 10 CFR 50.45 and the regulations cited therein and by 10 CFR Part 50, Appendix A.

11. GENERIC SAFETY ISSUES

Contrary to the principles of the River Bend decision (ALAB-444), the Applicant has failed to include in its PSAR an adequate action plan for BFS with respect to the following unresolved safety issues which the Staff identified as a result of investigations of the TMI-2 accident:[10/]

1. Shutdown Decay Heat removal Requirements, Taxk A-45.

2. Safety Implications of Control Systems, Task A-47.

3. Hydrogen Control Measures and Effects of Hydroge. Burns on Safety Equipment, Task A-48.

12. CONTAINMENT DESIGN CHANGE

The Applicant has made a substantial structural change to the containment design by adding a concrete wall as backing for the steel containment shell in the area of the annulus surrounding

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10. See, NUREG-0705: "Identification of New Unresolved Safety Issues Relating to Nuclear Power Plants," March, 1981.

the suppression pool. This change is mentioned in Amendment 17 (pages 1.2-15, 3.8-2, through 3.8-26, and also in Figures 3.8-1a and 3.8-1b). The Applicant has not provided sufficient preliminary design information to show how it will impact the following design factors:

(a) Thermal transients in the suppression pool and lines during blow-down and LOCA events.

(b) Heat transfer from the suppression pool.

(c) Stress levels in the welds and joints of the lining and connected piping.

(d) Connections with the base mat and shield wall.

(e) Vibratory motion transmitted to other structural components.

(f) Ability to perform in-service inspection and leak rate analysis of the suppression pool lines.

Without the foregoing analyses there is no assurance the present suppression pool and containment design is adequate to protect containment integrity during accidents and LOCA conditions.

13. EMERGENCY RESPONSE PLAN

The Applicants and Staff have failed to account properly for local emergency response needs and cababilities in establishing boundaries for the plume exposure pathway and ingestion pathway Emergency Planning Zones for BFS, as required by 10 CFR 50.34(a)

and 10 CFR Part 50, Appendix E. Specifically, Applicants and Staff have failed to consider adequately or to account properly for the effect of the following factors specific to BFS on local emergency response needs and capabilities, and, hence, on the appropriate size and configuration of the BFS EPZ's:

(a) The proximity of the proposed plant site to the Ve:rgigris River and the groundwater conditions and soil composition including the underclay layers on said site, with their resulting implications for travel of radionuclides through a liquid pathway in the event of a reactor meltdown accident at BFS;[11/]

(b) The number, location, and capacity of local sheltering facilities and the degree of protection from radionuclides afforded thereby;

(c) The heightened sensitivity to radiation (over that of the average healthy adult male) of children and pregnant women.

(d) Local meteorological conditions, including the distribution of wind directions and speeds and the frequency of tornados;

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11. See, NUREG/CR-1596, "The Consequences from Liquid Pathways on a Reactor Meltdown Accident," June, 1981.

(e) Radionuclides which will be significant contributors to dominant exposure modes for prompt and latent effects in the event of a BWR-1, -2 and -3 accidental release as described in the NRC's Reactor Safety Study (WASH-1400), or its equivalent, at BFS.[12/]

(f) The consequences of a BWR-1 -2 and -3 accidental release at BFS, or its equivalent, at harvest time.

14.

The Applicants' PSAR fails to comply with the requirement of 10 CFR Part 50, Appendix E, and 10 CFR 50.34(a) that it "contain sufficient information to ensure the compatibility of proposed emergency plans for both onsite areas and the EPZ's, with facility design features, site layout, and site location . . ." because there is therein insufficinet evidence of the

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12. NUREG-0396 and NUREG-0654, arriving at their generic guidance on the size of EPZ's, rely on the potential consequences of a spectrum of accidents, such as the BWR-1, -2 and -3 accidents described in WASH-1400. See NUREG-0396, pp.4-6; NUREG-0654, pp.5-7. The BFS fission product inventory, however, exceeds the inventory of the 3200-megawatt thermal reactor used as the model for WASH-1400's estimates of accident consequences. And the BFS average fuel burn-up will likely exceed the 17,600 megawatt-days (thermal) per metric ton assumed in WASH-1400. Thus, the generic guidance of NUREG-0396 and NUREG-0654 is based on estimates of accident consequences which fail to account for radionuclides which will be significant contributors to dominant exposure modes for prompt and latent effects in the event of a BWR-1 & -2 & -3 release at BFS.

the feasibility of protective action in the event of a BWR-1, -2 and -3 accidental release, or its equivalent, at BFS. This is true for the following reasons:

(a) The PSAR contains no evidence of plant-specific probabilities of BWR-1, -2 or -3 releases.

(b) The PSAR contains no evidence of site-specific consequences in the event of BWR-1, -2 or -3 releases.

(c) WASH-1400's estimates of accident probabilities and consequences are not sufficient evidence of the probabilities and consequences in the case of BFS because:

1. WASH-1400 provides insufficient evidence of accident consequences where evacuation is restricted, as may be the case under the current emergency plans for BFS, to a ten-mile radius.

2. WASH-1400 provides insufficient evidence of the consequences resulting from releases through liquid pathways in the event of a reactor meltdown accident, which omission is particularly critical in the case of BFS given the proximity of the proposed plant site to Verdigris River and the groundwater conditions and soil composition on the site.

3. The PSAR contains insufficient evidence that WASH-1400's assumptions regarding medical treatment are applicable to BFS.

4. There is a large degree of uncertainty associated with WASH-1400's estimates of accident probabilities.

5. The assumptions upon which WASH-1400's estimates of accident probabilities and consequences are based are not conservative for BFS and are inconsistent with the following factors specific to BFS:

(i) BFS fission product inventory;

(ii) BFS fuel burn-up;

(iii) The heightened sensitivity to radiation (over that of the average healthy adult male) of children and pregnant women.

(iv) Meteorological conditions specific to BFS site, including the distribution of wind directions and speeds and the frequency of tornados.

6. The PSAR contains insufficinet information to assure that the assumptions upon which WASH-1400's estimates of accident probabilities and consequences are based are consistent with the following factors specific to BFS.

(i) The degree of protection afforded by the protective action of sheltering in the event of an accident at BFS.

(ii) The latent consequences of a BWR-1, -2, and -3 accidental release at BFS, or its equivalent, at harvest time.

(iii) The difficulty in restricting livestock feeding on contaminated feed, confiscating contaminated cattle and confiscating and destroying contaminated milk and crops.

(d) Because of the large degree of uncertainty associated with WASH-1400's estimates of accident probabilities, the probabilities of exposures exceeding Protective Action Guides (PAG's) set forth in NUREG-0396 may be seriously understated for BFS.

(e) The evacuation time estimates contained in the PSAR have been limited to a geographical area determined

without reference to local emergency response needs and capabilities. (See Section 13 above.)

(f) The evacuation time estimates contained in the PSAR have not been properly calculated so as to estimate accurately the time required to evacuate the population within the plume exposure pathways EPZ proposed by the Applicants. Specifically, those evacuation time estimates fail to:

1. Account for the full public transportation-dependent population'

2. Account properly for notification, preparation and mobilization time;

3. Account fully and properly for the effect on evacuation times of adverse weather conditions, including tornados;

4. Account for the possibility that multiple-car families will evacuate in more than one car;

5. Use realistic assumptions with respect to the information available to evacuees when choosing evacutaion routes.

(g) The evacuation time estimates contained in the PSAR Amendment 16 underestimate actual evacuation times because they fail to adequately account for any of the following possibilities:

1. vehicles breaking down or running out of fuel;

2. traffic accidents;

3. abandoned vehicles;

4. disregard of traffic control devices; and

5. evacuees using inbound traffic lanes for outbound travel.

(h) The evacuation time estimates contained in the PSAR and those calculated by Oklahoma State University for PSO are sufficiently high to warrant the conduct of a full plant-specific accident probabilities and site-specific accident consequences analysis and consideration of design modifications and other preventive and mitigative measures. This has not been done for BFS.

(i) The PSAR contains insufficient evidence of the availability and adequacy of local sheltering facilities to assure the feasibility of sheltering as a protective action in the event of a BWR-1, -2 and -3 release at BFS.

(j) The PSA contains insufficient assurance of prompt protective action decision-making and notification. The PSAR contains no letters of agreement providing for prompt (15 minute) protective action decision-making on a 24-hour basis by off-site agencies.

(k) There are no established quantitative or qualitative standards by which one can assess the feasibility of protective action in the event of a BWR-1, -2 or -3 release at BFS.

15. TSC AND EOF INADEQUACIES

a. The TSC Location does not meet the requirements for rapid access from the control room (i.e., 2 minutes as required in NUREG 0696), nor is it designed to withstand tornado force winds.

b. The EOF is not designed to withstand tornado force winds and the backup EOF is beyond the 20 mile siting requirement of NUREG 0696.

Respectfully submitted,

FELDMAN, HALL, FRANDEN & WOODARD

By Joseph R. Farris
Joseph R. Farris

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ATTORNEYS FOR INTERVENORS

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(a) The proximity of the proposed plant site to the Vergigris River and the groundwater conditions and soil composition including the underclay layers on said site, with their resulting implications for travel of radionuclides through a liquid pathway in the event of a reactor meltdown accident at BFS;[11/]

(b) The number, location, and capacity of local sheltering facilities and the degree of protection from radionuclides afforded thereby;

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(d) Local meteorological conditions, including the distribution of wind directions and speeds and the frequency of tornados;

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(e) Radionuclides which will be significant contributors to dominant exposure modes for prompt and latent effects in the event of a BWR-1, -2 and -3 accidental release as described in the NRC's Reactor Safety Study (WASH-1400), or its equivalent, at BFS.[12/]

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the feasibility of protective action in the event of a BWR-1, -2 and -3 accidental release, or its equivalent, at BFS. This is true for the following reasons:

(a) The PSAR contains no evidence of plant-specific probabilities of BWR-1, -2 or -3 releases.

(b) The PSAR contains no evidence of site-specific consequences in the event of BWR-1, -2 or -3 releases.

(c) WASH-1400's estimates of accident probabilities and consequences are not sufficient evidence of the probabilities and consequences in the case of BFS because:

1. WASH-1400 provides insufficient evidence of accident consequences where evacuation is restricted, as may be the case under the current emergency plans for BFS, to a ten-mile radius.

2. WASH-1400 provides insufficient evidence of the consequences resulting from releases through liquid pathways in the event of a reactor meltdown accident, which omission is particularly critical in the case of BFS given the proximity of the proposed plant site to Verdigris River and the groundwater conditions and soil composition on the site.

3. The PSAR contains insufficient evidence that WASH-1400's assumptions regarding medical treatment are applicable to BFS.

4. There is a large degree of uncertainty associated with WASH-1400's estimates of accident probabilities.

5. The assumptions upon which WASH-1400's estimates of accident probabilities and consequences are based are not conservative for BFS and are inconsistent with the following factors specific to BFS:

(i) BFS fission product inventory;

(ii) BFS fuel burn-up;

(iii) The heightened sensitivity to radiation (over that of the average healthy adult male) of children and pregnant women.

(iv) Meteorological conditions specific to BFS site, including the distribution of wind directions and speeds and the frequency of tornados.

6. The PSAR contains insufficinet information to assure that the assumptions upon which WASH-1400's estimates of accident probabilities and consequences are based are consistent with the following factors specific to BFS.

(i) The degree of protection afforded by the protective action of sheltering in the event of an accident at BFS.

(ii) The latent consequences of a BWR-1, -2, and -3 accidental release at BFS, or its equivalent, at harvest time.

(iii) The difficulty in restricting livestock feeding on contaminated feed, confiscating contaminated cattle and confiscating and destroying contaminated milk and crops.

(d) Because of the large degree of uncertainty associated with WASH-1400's estimates of accident probabilities, the probabilities of exposures exceeding Protective Action Guides (PAG's) set forth in NUREG-0396 may be seriously understated for BFS.

(e) The evacuation time estimates contained in the PSAR have been limited to a geographical area determined

without reference to local emergency response needs and capabilities. (See Section 13 above.)

(f) The evacuation time estimates contained in the PSAR have not been properly calculated so as to estimate accurately the time required to evacuate the population within the plume exposure pathways EPZ proposed by the Applicants. Specifically, those evacuation time estimates fail to:

1. Account for the full public transportation-dependent population'

2. Account properly for notification, preparation and mobilization time;

3. Account fully and properly for the effect on evacuation times of adverse weather conditions, including tornados;

4. Account for the possibility that multiple-car families will evacuate in more than one car;

5. Use realistic assumptions with respect to the information available to evacuees when choosing evacutaion routes.

(g) The evacuation time estimates contained in the PSAR Amendment 16 underestimate actual evacuation times because they fail to adequately account for any of the following possibilities:

1. vehicles breaking down or running out of fuel;

2. traffic accidents;

3. abandoned vehicles;

4. disregard of traffic control devices; and

5. evacuees using inbound traffic lanes for outbound travel.

(h) The evacuation time estimates contained in the PSAR and those calculated by Oklahoma State University for PSO are sufficiently high to warrant the conduct of a full plant-specific accident probabilities and site-specific accident consequences analysis and consideration of design modifications and other preventive and mitigative measures. This has not been done for BFS.

(i) The PSAR contains insufficient evidence of the availability and adequacy of local sheltering facilities to assure the feasibility of sheltering as a protective action in the event of a BWR-1, -2 and -3 release at BFS.

(j) The PSA contains insufficient assurance of prompt protective action decision-making and notification. The PSAR contains no letters of agreement providing for prompt (15 minute) protective action decision-making on a 24-hour basis by off-site agencies.

(k) There are no established quantitative or qualitative standards by which one can assess the feasibility of protective action in the event of a BWR-1, -2 or -3 release at BFS.

15. TSC AND EOF INADEQUACIES

a. The TSC Location does not meet the requirements for rapid access from the control room (i.e., 2 minutes as required in NUREG 0696), nor is it designed to withstand tornado force winds.

b. The EOF is not designed to withstand tornado force winds and the backup EOF is beyond the 20 mile siting requirement of NUREG 0696.

Respectfully submitted,

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