



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

May 11, 1982

Honorable Nunzio J. Palladino  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Dr. Palladino:

SUBJECT: ACRS REPORT ON THE WOLF CREEK GENERATING STATION, UNIT NO. 1

During its 265th meeting, May 6-8, 1982, the Advisory Committee on Reactor Safeguards reviewed the application of Kansas Gas and Electric Company (KG&E), Kansas City Power and Light Co. and Kansas Electric Power Cooperative, Inc. (Applicants) for a license to operate the Wolf Creek Generating Station, Unit No. 1. The Station is to be operated by KG&E. A Subcommittee meeting was held in Emporia, Kansas, on April 21-22, 1982, to consider this project. A tour of the facility was made by members of the Subcommittee on April 21, 1982. During its review, the Committee had the benefit of discussions with representatives and consultants of the Applicants, Westinghouse Electric Corporation, Bechtel Power Corporation, the Nuclear Regulatory Commission (NRC) Staff, and with members of the public. The Committee also had the benefit of the documents listed below. The Committee commented on the construction permit application for this plant in its report dated October 16, 1975.

The Wolf Creek Generating Station is located in Hampdon Township, Coffey County, Kansas. The site is in eastern Kansas approximately 53 miles south of Topeka, and 100 miles east-northeast of Wichita. The nearest population center is Emporia, Kansas, 28 miles west-northwest of the site (estimated 1980 population of 25,019).

The Wolf Creek Generating Station will be the first commercial nuclear power plant in the state of Kansas. It should be assured that state and local agencies are qualified to respond to possible emergency situations associated with the operation of the Wolf Creek Generating Station.

The Station will use a Westinghouse, four-loop, pressurized water, nuclear steam supply system having a rated power level of 3425 Mwt. Unit 1 employs a cylindrical, steel-lined, reinforced, post-tensioned concrete containment structure with a free volume of 2.5 million cubic feet. The Wolf Creek Generating Station uses the Standardized Nuclear Unit Power Plant System (SNUPPS) design. It is one of two plants built to this design. The Committee reported on the operating license application of the other plant (Callaway Plant Unit No. 1) in its November 17, 1981 report to you.

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The Wolf Creek Generating Station is the first nuclear power plant to be operated by KG&E. The Committee reviewed KG&E's management organization, experience, and training programs. We were favorably impressed by the general competence and attitude of KG&E's personnel. Nevertheless, we wish to emphasize the importance of KG&E's building a strong in-house capability for analyzing and understanding the nuclear-thermal-hydraulic behavior and systems performance of this plant.

To strengthen the shift structure during the initial period of operation, KG&E plans to augment each shift with a consultant who is an experienced, previously licensed PWR operator. These consultants will serve for a period of one year after startup. In addition, KG&E has retained the services of a consultant with considerable commercial nuclear experience to act as a technical assistant to the Plant Superintendent through the initial loading of fuel. We believe the technical assistant to the Plant Superintendent and the "experienced operator consultants" should be retained until the operating organization has developed an experience base involving those operational duties of importance to public safety. This experience base should be defined by the NRC Staff in consultation with operational experts and incorporated into the regulatory requirements instead of using arbitrary operating time periods as a basis for measuring skill. We encourage the practice of assigning the Senior Reactor Operator (SRO) candidates to extended tours of service at operating nuclear power plants, and recommend that others in the operations staff participate in such a program to the extent practical.

KG&E has proposed, as an alternative to a Shift Technical Advisor (STA), that at least one SRO on each shift have the training and background required for an STA. This approach appears to us to meet the need which originally led to the requirement of an STA. However, it is not clear that the level of training given to the SROs will correspond to that intended for STAs, and we recommend that the Staff review this matter carefully.

The site-specific portions of the plant, including vital aspects of the ultimate heat sink and associated systems, were designed for a 0.12 g earthquake, and are being reanalyzed for an earthquake represented by site-specific response spectra that are encompassed by Regulatory Guide 1.60 spectra anchored at a zero-period acceleration of 0.15 g. The standard portion of the plant, on the other hand, was designed for a 0.20 g earthquake with the usual margins of safety and thus would be expected to withstand a considerably larger earthquake without failing in such a manner as to cause a severe accident.

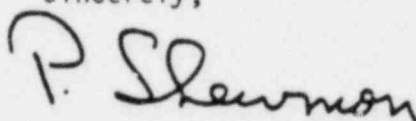
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We do not have confidence that all vital aspects of the ultimate heat sink and associated systems have margins sufficient to provide an appropriate level of resistance to a lower probability, more severe earthquake. We recommend therefore that the seismic margins inherent in the components of the ultimate heat sink and associated systems be investigated further and that any needed modifications be made before the plant resumes operation after the second refueling.

Other issues have been identified as Outstanding Issues, License Conditions, and Confirmatory Issues in the Staff's Safety Evaluation Report dated April 1982; these include some TMI Action Plan requirements. Except as noted above, we believe these issues can be resolved in a manner satisfactory to the NRC Staff and recommend that this be done.

We believe that, if due consideration is given to the recommendations above, and subject to satisfactory completion of construction, staffing, training, and preoperational testing, there is reasonable assurance that the Wolf Creek Generating Station, Unit No. 1 can be operated at power levels up to 3425 MWt without undue risk to the health and safety of the public.

Sincerely,



P. Shewmon  
Chairman

References:

1. "Final Safety Analysis Report for Standardized Nuclear Unit Power Plant System," with Revisions 1-8.
2. "Final Safety Analysis Report, Wolf Creek Generating Station Unit No. 1," with Revisions 1-8.
3. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the Operation of Wolf Creek Generating Station, Unit No. 1," NUREG-0881, dated April 1982.
4. Written statement by John M. Simpson, Attorney for Intervenors, Re: Emergency Planning Procedures and Plans - Wolf Creek Plant, dated April 22, 1982.



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Honorable Munzio J. Palladino  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Dr. Palladino:

SUBJECT: ACRS REPORT ON THE SYSTEMATIC EVALUATION PROGRAM, PHASE II,  
AND ITS APPLICATION TO THE PALISADES PLANT

During its 265th meeting, May 6-8, 1982, the ACRS reviewed the results of the Systematic Evaluation Program, Phase II, as it has been applied to the Palisades Plant. These matters were discussed also at a subcommittee meeting in Washington, D.C. on April 15, 1982. During our review we had the benefit of discussions with representatives of the Consumers Power Company (Licensee) and the NRC Staff. We also had the benefit of the documents listed below.

The Systematic Evaluation Program (SEP) was initiated in 1977 to review the designs of older operating nuclear power plants in order to provide:

- a. an assessment of the significance of differences between current technical positions on safety issues and those that existed when a particular plant was licensed,
- b. a basis for deciding how these differences should be resolved in an integrated plant review, and
- c. a documented evaluation of plant safety.

The original SEP objectives were:

1. The program should establish documentation that shows how the criteria for each operating plant reviewed compare with current criteria on significant safety issues, and should provide a rationale for acceptable departures from these criteria.
2. The program should provide the capability to make integrated and balanced decisions with respect to any required backfitting.
3. The program should be structured for early identification and resolution of any significant deficiencies.
4. The program should assess the safety adequacy of the design and operation of currently licensed nuclear power plants.
5. The program should efficiently use available resources and minimize requirements for additional resources by NRC or industry.

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The program objectives were later interpreted to ensure that the SEP also provide safety assessments adequate for conversion of provisional operating licenses (POLs) to full-term operating licenses (FTOLs).

Ten plants are now included in Phase II of the SEP. The Palisades Plant is the first for which the safety reviews and the Integrated Plant Safety Assessment have been completed.

We believe that the program itself, its scope, and its methodology have been appropriate for providing the information listed in Items a. through c., above, and in meeting the objectives listed as Items 1. through 3., above. As is discussed below, the SEP can only meet objective 4. in part. With regard to objective 5., there has been a learning period. It is our understanding that the interaction between the NRC Staff and licensees is becoming more efficient.

Of the 137 topics to be addressed by the SEP, 23 were not applicable to the Palisades Plant. Twenty-four topics were found to be identical with one or more matters being reviewed by the NRC Staff in connection with the resolution of Unresolved Safety Issues (USI) or TMI Action Plan requirements. The evaluation and resolution of these topics are not included as a part of the SEP for the Palisades Plant. We believe that this was appropriate from a procedural standpoint; any other approach would have required duplication of effort within the NRC Staff or would have extended considerably the completion of Phase II of the SEP. It must be recognized, however, that because of this separation of topics, all of the SEP objectives, as listed above, have not been achieved completely at this stage of the program. For example, the documentation of objective 1 is not yet complete, the integrated and balanced decisions on backfitting did not involve all of the omitted topics (objective 2), and the assessment of safety adequacy (objective 4) is not complete.

Of the 90 topics addressed in the SEP for the Palisades Plant, 57 were found to meet current criteria or were found to be acceptable on other defined bases. In addition, as a result of modifications made by the Licensee during the review, two additional topics and parts of three others were found to meet current criteria. We have reviewed the assessments and conclusions of the NRC Staff in relation to these topics and have found them appropriate.

For all or parts of 31 SEP topics, the Palisades Plant was found not to meet current criteria. These topics were addressed by the Integrated Assessment and have been resolved in various ways: For five topics, addition or modification of equipment was required for resolution; for 12 topics, resolution required only the development or modification of procedures or Technical Specifications; and for five topics, a decision was reached that no backfit was required.

We have reviewed the treatment of these topics, and have found no reason to disagree substantially with the NRC Staff's approach, assessments, and recommended actions for resolution.

There remain nine topics for which the Integrated Assessment has not been completed, chiefly because additional information is to be provided by the Licensee. This information consists of calculations, evaluations, and various other submittals that are required by the NRC Staff as bases for its assessments and decisions. None of these topics is minor in importance to safety and most will not be easier to resolve than topics already considered. The NRC Staff expects to report the resolution of these topics in a supplemental report in the near future. Until this is done, the Integrated Assessment is incomplete by a further increment beyond that resulting from deletion of the USI and TMI topics from the SEP. As a result our endorsement and acceptance of the SEP and its application to the Palisades Plant is limited to what we have learned of the treatment of a representative group of the SEP topics. If the remaining topics are treated in a comparable manner, the objectives of the SEP will have been achieved.

The question of management performance and capability has been considered in relation to the operational history and record of regulatory compliance of the Palisades Plant. This is important because the NRC Staff has recommended changes in procedures as remedial measures for several of the SEP topics. We have noted reports of relatively recent changes in management organization, intentions, and performance. The results are encouraging but not conclusive in view of the limited length of time during which they have been observed. Nevertheless, we are satisfied with those resolutions involving procedural changes, chiefly because we are satisfied that the NRC Staff has exhibited a suitable level of concern about their effective implementation, and we are satisfied that they will continue to monitor management performance at the Palisades Plant.

A plant-specific Probabilistic Risk Assessment (PRA) was not available for the Palisades Plant. The NRC Staff utilized a limited risk assessment in portions of the Integrated Assessment, in a qualitative and subjective manner. We believe that this was done with appropriate caution and with adequate appreciation of the limitations of the analysis and the data as they applied to the Palisades Plant. We note, however, that the draft Calvert Cliffs PRA, which was utilized in the limited risk assessment, has not been available to us for use in connection with our review.

For some plants in Phase II of the SEP, and for additional plants in Phase III, it is expected that more complete plant-specific PRAs will be available. We believe that these will be useful and highly desirable as inputs to the Integrated Assessment portion of the SEP.

The Integrated Plant Safety Assessment portion of the SEP for the Palisades Plant will be documented in NUREG-0820 and its Supplements. However, the safety evaluation reports for each of the 90 topics are included only by

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reference. Since these reports are an essential and important part of the SEP and constitute the only documentation of why 57 topics were found to meet current criteria or were acceptable on other defined bases, we believe that these reports should be published or otherwise made more generally available than simply by putting them in the Public Document Room.

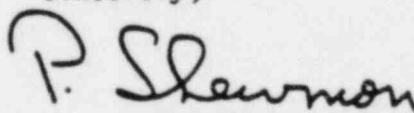
It is expected that the results of the SEP evaluations will be among the bases used in considering the conversion of the provisional operating license for the Palisades Plant to a FTOL. We believe that these results will be very useful for this purpose. However, we defer our review of an FTOL for the Palisades Plant until such time as the remaining SEP topics have been assessed and disposed of and the topics related to the USI and TMI items have been addressed appropriately, at least in a manner similar to that being used for new operating licenses.

Our conclusions can be summarized as follows:

1. The SEP has been carried out in such a manner that the stated objectives have been achieved for the most part for the Palisades Plant and should be achieved for the remaining plants in Phase II of the program.
2. The actions taken thus far by the NRC Staff in its SEP assessment of the Palisades Plant are acceptable.
3. The ACRS will defer its review of the FTOL for the Palisades Plant until the NRC Staff has completed its actions on the remaining SEP topics and the USI and TMI items.

Dr. William Kerr did not participate in consideration of this matter.

Sincerely,



P. Shewmon  
Chairman

References:

1. U.S. NRC Draft Report, "Integrated Plant Safety Assessment, Systematic Evaluation Program" - Palisades Plant, NURFG-0820 dated April 1982.
2. Letter from G. C. Lainas, Division of Licensing, USNRC, to P. G. Shewmon, Chairman, ACRS, dated 4/30/82, Subject: NRC Staff Consultants' Review of Palisades Draft Integrated Plant Safety Assessment Report transmitting Consultant Reports from R. J. Budnitz, S. H. Bush, J. M. Hendrie, H. S. Isbin, and Z. Zudans