



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

November 17, 1981

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

SUBJECT: REPORT ON THE CALLAWAY PLANT UNIT NO. 1

Dear Dr. Palladino:

During its 259th meeting, November 12-14, 1981, the Advisory Committee on Reactor Safeguards reviewed the application of the Union Electric Company (the Applicant) for a license to operate the Callaway Plant Unit No. 1. A tour of the facility was made by members of the Subcommittee on November 4, 1981, and a Subcommittee meeting was held in Columbia, Missouri on November 4 and 5, 1981. During its review, the Committee had the benefit of discussions with representatives of the Nuclear Regulatory Commission (NRC) Staff and with representatives and consultants of the Applicant, Westinghouse Electric Corporation, and Bechtel Power Corporation. 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 September 17, 1975 to NRC Chairman William A. Anders.

The Callaway Plant application was one of four submitted in response to the Commission's standardization policy as described in Appendix N to Part 50 of Title 10 of the Code of Federal Regulations. This option allows for a simultaneous review of the safety-related parameters of a limited number of duplicate plants which may be constructed within a limited time span at a multiplicity of sites. The five utilities that originally joined together designated their common design the "Standardized Nuclear Unit Power Plant System" (SNUPPS). At the present time, in addition to the Callaway Plant Unit No. 1, only the Wolf Creek Generating Station remains an active SNUPPS project.

The Callaway Plant is located in a rural section of Missouri about 80 miles west of St. Louis. The site is approximately 5 miles north of, and about 325 feet above the flood plain of, the Missouri River. The nearest population center is Jefferson City (estimated 1980 population about 34,000), which is 25 miles west-southwest of the Plant.

The Plant will use a Westinghouse, four-loop, pressurized water reactor, nuclear steam supply system having a rated power level of 3425 Mwt. The Plant employs a cylindrical, steel-lined, reinforced, post-tensioned concrete containment structure with a free volume of 2.5 million cubic feet. The containment design pressure is 60 psig.

Approval of the Callaway Nuclear Plant is the first project approval of the SNUPPS standard plant design at the OL stage.

The Callaway Plant will be the first commercial nuclear power plant in the state of Missouri, and is the first nuclear power plant to be operated by the Union Electric Company. The Committee reviewed the Applicant's management organization, experience, and training program. We were favorably impressed by the general competence and attitude of the Applicant's personnel, but we believe their commercial nuclear experience is less than desirable. The NRC Staff is requiring the utility to augment its own organization with on-shift personnel having experience with large commercial PWR operations until suitable experience has been developed by the operating staff. We endorse the NRC Staff requirement but recommend that attainment of 100% rated power should not be the only consideration in demonstrating operational proficiency. We also recommend that a highly competent, senior individual with considerable professional experience on commercial PWRs be assigned to assist the Plant Superintendent as an advisor through at least the first year of full power operation.

The Committee recommends that the operating organization establish a list of technological matters which may have to be faced in future operation of the nuclear plant and identify sources of skilled personnel and expertise that ought to be available to address these matters when needed. The Committee wishes to be kept informed.

The Onsite Review Committee, Nuclear Safety Review Board, and Independent Safety Engineering Group should include personnel from outside the operating organization who are experienced in the operational management of large PWRs and related technology as well as other independent advisors with mature judgment about public safety matters.

During our review, it was noted that Shift Technical Advisor training in the areas of Plant Systems and especially Transient/Accident Analysis appears marginal. It is recommended that the NRC Staff evaluate this matter and apply the results to those nuclear plants where they are generically applicable.

Discussion with the Applicant indicated that emergency operating procedures for dealing with off-normal plant behavior are incomplete. However, the Applicant is endeavoring to develop such procedures utilizing new and promising approaches, and we encourage such efforts. The Committee wishes to be kept informed.

Other issues have been identified as Outstanding Issues, License Conditions, and Confirmatory Issues in the NRC Staff's Safety Evaluation Report dated October 1981; these include some TMI Action Plan requirements. We believe these issues can be resolved in a manner satisfactory to the NRC Staff and recommend that this be done.

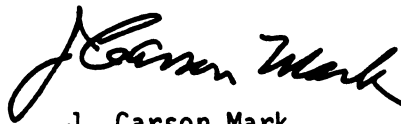
The Committee believes that, if due consideration is given to the recommendations above, and subject to satisfactory completion of construction, staffing, and preoperational testing, there is reasonable assurance that the Callaway

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Plant Unit No. 1 can be operated at power levels up to 3425 MWt without undue risk to the health and safety of the public.

Additional comments by Dr. M. W. Carbon, ACRS Member, are presented below.

Sincerely,



J. Carson Mark
Chairman

Additional Comments by Dr. M. W. Carbon, ACRS Member

It is my belief that the NRC Staff's requirement for experienced, on-shift personnel during the early operation of the plant is inadequate. I therefore recommend that a licensed Senior Reactor Operator (SRO), who has been previously licensed as an SRO on another Westinghouse PWR, be available on each shift in an advisory capacity through the first year of full-power operation. I also believe that the advisor to the Plant Superintendent should have an educational background at least equal to a Bachelor of Science degree in engineering or a related discipline.

References:

1. "Final Safety Analysis Report for Standardized Nuclear Unit Power Plant System," including Revisions 1 through 7.
2. "Final Safety Analysis Report for Standardized Nuclear Unit Power Plant System, Callaway Plant Units No. 1 and 2 Addendum," including Revisions 1 through 4.
3. U.S. Nuclear Regulatory Commission, "Safety Evaluation Report Related to the Operation of Callaway Plant, Unit No. 1," NUREG-0830, dated October 1981.