



OFFICE OF THE
SECRETARY

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

PDR

December 31, 1985

MEMORANDUM FOR: William J. Dircks
Executive Director for Operations
FROM: *for* Samuel J. Chilk, *JCH* Secretary
SUBJECT: SECY-85-163/163A - STATION BLACKOUT,
UNRESOLVED SAFETY ISSUE (USI) A-44

The Commission, by a vote of 5-0, has approved the proposed rule on station blackout, subject to the following constraints. Prior to publication, the staff should provide its backfit analysis for Commission review. The backfit analysis must be made available for public comment when the proposed rule is published.

The Commission (with Chairman Palladino and Commissioners Asselstine and Bernthal agreeing) also requested that public comments be solicited on the need for upgrading to safety grade the plant modification(s) envisioned in the proposed rule.

Commissioners Roberts and Zech request public comments on whether the staff's proposal meets the "substantial increase in overall protection" threshold. Commissioner Zech also has an interest in reviewing the comments received and the staff responses associated with the analysis of cost benefit, value impact, safety improvements, and the station blackout standing on the overall risk (e.g., Is the reduction of risk only a small percentage of the overall risk or is it a major component of an already small risk?).

The Commission has also agreed that all future proposed rules be accompanied by a backfit analysis and that for the next few proposed rules issued for public comments that, in addition to comments on the merits of the proposed rule, public comments should be requested on whether the backfit analyses for these rules adequately implement the backfit rule.

Commissioner Asselstine requested that his comments (attached) be included in the Federal Register Notice.

You should revise the proposed rule as noted, complete the backfit analysis, and forward it to the Commission for review and publication in the Federal Register Notice.
(EDO) (SECY Suspense: 2-3-86)

Attachment:
As stated

cc: Chairman Palladino
Commissioner Roberts
Commissioner Asselstine
Commissioner Bernthal
Commissioner Zech
OPE
OGC

Separate Views of Commissioner Asselstine

I support the proposed rulemaking but believe substantial additional safety improvements beyond those called for in this rulemaking are achievable and practicable. How to prevent and mitigate a station blackout event is one of the most significant unresolved safety issues associated with nuclear power plants. Extended station blackout can result in core meltdown and loss of containment integrity. Since existing mitigation features such as containment spray would be inoperable, a station blackout could result in a large release of radioactive material to the environment.

Countries abroad that have made a serious commitment to nuclear power and to nuclear safety have, or are planning, backfit features which markedly reduce station blackout risks. For example, the new French 1300 MWe nuclear power plants are designed with a goal of coping with a station blackout for at least 20 hours. According to the NRC staff, the design features that provide this capability (listed below) permit the plant to withstand a station blackout for three days.

- ° A steam-driven generator provides power for a small positive displacement pump that supplies cooling for reactor coolant pump (RCP) seals and also provides power for instrumentation and controls and control room lighting necessary to withstand a station blackout. This design feature, which is also being backfitted onto all operating 900 MWe nuclear plants in France, addresses two factors that impact the ability to cope with a station blackout -- RCP seal cooling with AC power unavailable and battery depletion.
- ° Two turbine-driven auxiliary feedwater (AFW) pumps are included in the 1300 MWe French design in addition to two motor-driven AFW pumps. Most U.S. pressurized water reactors have one turbine-driven AFW pump in addition to two motor-driven pumps. Therefore, the French design provides additional redundancy in the AC-independent trains of the AFW system.

- ° Gravity feed back-up water supply from the demineralized water storage tank to the condensate storage tank provides additional water for decay heat removal via the AFW system for long-duration station blackout events, i.e. up to three days.

This three-day station blackout capability would permit sufficient time to connect a mobile gas turbine generator to provide power if AC power could not be restored from other, preferred sources. A mobile gas turbine generator is located at, or in the vicinity of, every nuclear power plant site in France. These improvements in safety are being achieved at not unreasonable costs and are being driven by the French goal of achieving a probability of one in ten million (10^{-7}) per reactor year for a major event such as station blackout. The Commission's rule proposes much less. It proposes an objective of one in ten thousand (10^{-5}) per reactor year for station blackout caused core meltdown and an objective of only about four hours coping capability.

I would appreciate comments on whether the NRC should require substantial improvements in safety with respect to station blackout, like those being accomplished in other countries, which can be achieved at reasonable cost and which go beyond those proposed in this rulemaking.