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 RECIP. NAME: RECIPIENT AFFILIATION  
 Atomic Safety and Licensing Board Panel

SUBJECT: Statement of matl facts supporting motion for summary disposition of Contention 7D, to which there is no genuine issue to be heard. Further ATWS mod need not be implemented pending outcome of rulemaking proceeding.

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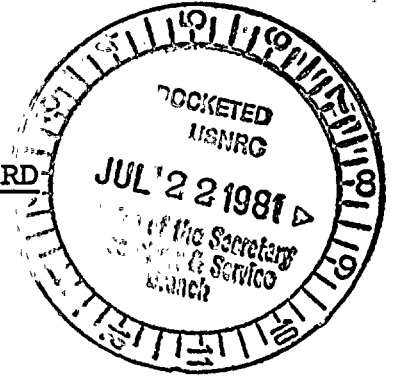
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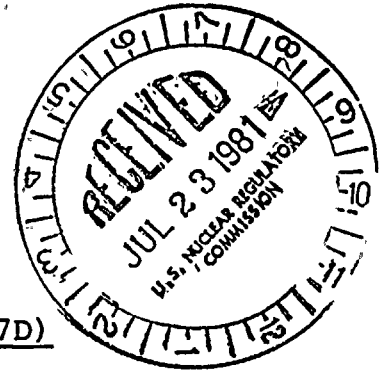
UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD



In the Matter of )  
 )  
PENNSYLVANIA POWER & LIGHT COMPANY )  
 )  
and )  
 )  
ALLEGHENY ELECTRIC COOPERATIVE, INC. )  
 )  
(Susquehanna Steam Electric Station, )  
Units 1 and 2) )

Docket Nos. 50-387  
50-388



APPLICANTS' STATEMENT OF MATERIAL  
FACTS AS TO WHICH THERE IS NO  
GENUINE ISSUE TO BE HEARD (CONTENTION 7D)

Pursuant to 10 C.F.R. § 2.749(a) Applicants state, in support of their Motion for Summary Disposition of Contention 7D in this proceeding, that there is no genuine issue to be heard with respect to the following material facts:

1. An "anticipated transient" in a nuclear power reactor is a deviation from normal operating conditions which is expected to occur during the life of the reactor and which triggers the automatic mechanism for rapidly inserting the control rods into the reactor core. Such rapid insertion shuts down the reactor and is called a "scram". An Anticipated Transient Without Scram ("ATWS") would occur if the scram mechanism failed following an anticipated transient. Affidavit of William L. Fiock in Support of Summary Disposition of Contention 7D ("Fiock Aff."), para. 3.

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2. General Electric Company ("GE") has performed a comprehensive study of the reliability of the scram system of boiling water reactors ("BWR's") such as those to be utilized in the Susquehanna Steam Electric Station ("Susquehanna"). This study was based on the scram system design used at Susquehanna, which utilizes relay type electrical systems and the control rod drive mechanical systems. The study consumed eight man-years of effort, analyzed all the related scram systems; reactor protection relay logic, mechanical components, hydraulic control units, scram air headers and scram discharge volume. A large number of failure modes and effects analyses were developed through this study. A number of potential common cause failures were examined and a number of reported individual component abnormalities were factored into the study. The study concluded that the scram system is highly reliable. Flock Aff., para. 8.

3. Pennsylvania Power and Light Co. ("PP&L") is implementing certain additional steps to improve the prevention and mitigation of ATWS events at Susquehanna. For improved mitigation, PP&L is installing a Recirculation Pump Trip ("RPT") and is establishing operator procedures and training addressed specifically to ATWS events. For improved prevention, PP&L is improving the Scram Discharge Volume System ("SDV") instrumentation. Id., para. 9.

4. The RPT is initiated automatically through system signals (either high reactor vessel pressure or low reactor vessel

water level), indicating a possible ATWS. This action is initiated through logic completely independent of the scram system. Trip of the recirculation pump has two beneficial effects. First, it minimizes the pressure rise in the vessel in the first few seconds of the event so that the reactor coolant system pressure is maintained within acceptable limits by the relief valves. Second, RPT reduces the reactor thermal power. For ATWS events in which the main condenser is unavailable, the reduced thermal power reduces the steam flow to the suppression pool, which in turn minimizes the peak suppression pool temperature and containment pressure. Core cooling capability is provided by automatic initiation of the high pressure coolant injection system. Id., para. 10.

5. For certain ATWS events, RPT provides the operator time to initiate action which can bring the reactor to cold shutdown either by insertion of the control rods or actuation of the Standby Liquid Control System ("SLCS"). SLCS injects sodium pentaborate solution into the primary coolant inserting sufficient negative reactivity to bring the plant subcritical even where no control rod insertion has occurred. Id., para. 10.

6. SDV system instrumentation modifications at Susquehanna will improve the reliability of the level sensing and scram functions. Additional diverse and redundant sensors will be added to each scram discharge instrument volume ("SDIV") to initiate a scram through the logic system upon high SDIV level. The instrument pipe routing will also be modified to minimize transient hydrodynamic effects on the level instruments. Water level

alarm and control rod withdraw block level instruments currently only on the north SDIV will be added to the south SDIV. Id., para. 12.

7. The Susquehanna operators are trained to recognize an ATWS condition and to take appropriate correction and mitigating actions. Emergency Procedure E0-00-014 provides specific guidance to the operators. The procedure identifies the symptoms of an ATWS event and contains step by step instructions so that the operator will (1) quickly recognize the condition, (2) verify that the automatic actions have occurred, (3) take positive actions to shut down the reactor and maintain it in shut down condition, (4) limit RPV pressures, (5) maintain core water levels, (6) limit suppression pool temperatures, and (7) establish long term cool down. Id., para. 11.

8. The high reliability of current scram systems combined with the additional ATWS mitigation and prevention measures described above and being implemented at Susquehanna enhance the capability of the Susquehanna units to withstand ATWS events with acceptably low risk to the public. Id., para. 13. This conclusion is shared by the Commission Staff ("Staff"), who believes that the likelihood of severe consequences arising from an ATWS event is acceptably small based on (a) the favorable experience with the operating reactors, (b) the limited number of operating nuclear power reactors, (c) the capability of reactors to partially or fully mitigate the consequences of ATWS events, (d) partial ATWS mitigative capability of the recirculation pump trip feature which has been implemented on General Electric BWRs such as Susquehanna

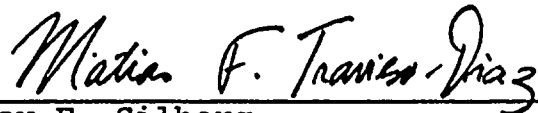
and (e) the steps taken to develop procedures and train operators to further reduce the risk from some ATWS events. Id., para. 7.

9. Based upon recent analyses by the Staff of the risk from ATWS events in the light of information on such events developed over the past 12 years, the Commission plans to publish for comment proposed rules which will require modification in the design and operation of reactors to reduce the likelihood of failure of the automatic protection system to rapidly shut down the reactor in the event an anticipated transient occurs and to mitigate the consequences of ATWS events. Id., para. 6. However, on the basis of the small likelihood of severe consequences of an ATWS event, the Staff has determined that further ATWS modification need not be implemented pending the outcome of the rulemaking proceeding. Id., para. 7.

Dated: July 17, 1981.

Respectfully submitted,

SHAW, PITTMAN, POTTS & TROWBRIDGE



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