

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	§	
	§	
HOUSTON LIGHTING & POWER COMPANY	§	Docket No. 50-466
	§	
(Allens Creek Nuclear Generating	§	
Station, Unit 1)	§	

JOHN F. DOHERTY'S CONTENTION #46

John F. Doherty, Intervenor in the above Construction License proceeding files this Contention #46 and supporting statement on timeliness.

This Intervenor contends control rods capable of causing a five second period on being withdrawn one notch, if uncoupled from their drives and stuck in the core could, by falling several notches moments later cause a significantly shorter period leading to fuel damage. The core conditions necessary for fuel damaging short periods such as these are three:

- 1- when there is high xenon concentration in the reactor core (High xenon concentration magnifies the worth of certain central control rods until burned-off),
- 2- moderator temperatures are high (200°F - 480°F), and
- 3- the percentage of voids in the coolant was greatly reduced.

The ACRS in NUREG-0572 "Review of Licensee Event Reports (1976-8)," pg D-4 has called for a study of fuel damage caused by a dropped rod of high notch worth caused by high xenon core conditions. This group also suggests the withdrawal of a prescribed rod whose worth has been multiplied by core xenon concentrations as high as 0.5%  $\Delta K/K_{AS}$  at Monticello, on 2/23/79 according to I.E. Circular 77-07, may be more probable than a rod withdrawal error under normal start-up conditions. Hence, ACRS questions that the rod withdrawal error is a more serious accident than the rod drop accident under high core xenon.

This same ACRS report indicates there have been 13 rod separation events since January of 1976, but none of these have occurred with a high notch worth rod under high xenon conditions.

This good fortune is not due to design

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however.

Moreover, xenon spatial stability decreases with increased reactor size. (See: APED-5640 "Xenon Consideration in Design of Large BWRs", R. L. Crowther, June, 1968)\*. ACNGS with its 238 inch core diameter is larger than all plants that have experienced the five second or less reactor periods when a high notch worth rod was moved a single notch.

This Intervenor contends that a transient caused by a control rod drop under high xenon conditions constitutes a hazard to his health and safety because the loads placed on the reactor system are unknown at this time.

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Supporting Statement on Filing Timeliness

This Intervenor maintains he has not delayed in filing this contention 46. Although the problem was noticed as early as 1977, I. E. Circular 77-07, offered a solution to the problem. Only recently has it become clear to the Division of I. and E. that the solution was unsuccessful. However, only the ACRS study published in NUREG-0572, has considered the accident implications of Rod Drop under these special core conditions. Their study was not available until October 25, 1979, to this Intervenor, too late for inclusion in the pre-hearing conference.

This Intervenor knows of no other means to bring this accident possibility to the attention of the NRC, where he will be able to argue for its consideration in a licensing where his health and safety interests are concerned.

This Intervenor has raised several accepted safety contentions and is researching collateral items to this. He may be reasonably expected to produce a witness or other evidence on this issue, because of his collateral issue's activity.

No other party has raised this issue.

This issue will broaden the scope of the proceedings because it is new, significant particularly to a large core BWR such as ACNGS, and attention to the issue in these proceedings will provide useful information to the several licensings for BWRs of smaller core size.

This Intervenor urges that based on a balancing of the five factors of 10 CFR 2.714 this contention should not be barred on lack of timeliness.

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Copies of "JOHN F. DOHERTY'S CONTENTION #46" have been served on the following parties by First Class U. S. Postal Service, this 8<sup>th</sup> January, 1980.

Respectfully Submitted,

*John F. Doherty*  
John F. Doherty

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