



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

2-16

SEP 30 1980

Docket No.: 50-298

MEMORANDUM FOR: T. M. Novak, Assistant Director for Operating Reactors, DL  
FROM: L. S. Rubenstein, Assistant Director for Core and Containment Systems, DSI  
SUBJECT: DSI QUESTIONS ON G.E. COOPER NUCLEAR STATION SINGLE-LOOP OPERATION

Plant Name: Cooper Nuclear Station  
Docket Number: 50-298  
Licensing Stage: OR  
Responsible Branch: ORB-2  
and Project Manager: V. Rooney  
Description of Review: First Round Questions  
Requested Completion Date: September 30, 1980  
Review Status: Request for Additional Information

Enclosed are questions from the Thermal-Hydraulics Section of the Core Performance Branch on the General Electric Single-Loop Operation Report NEDO-24258.

L. S. Rubenstein, Assistant Director  
for Core and Containment Systems  
Division of Systems Integration

Enclosure:  
As stated

cc: D. Ross  
D. Eisenhut  
P. Check  
T. Speis  
T. Ippolito  
W. Johnston  
L. Phillips  
V. Rooney  
S. Diab  
T. Huang  
S. Gupta

Contact: <sup>with</sup> S. Gupta  
X-27091

8010230484 XA

- 492.0 CORE PERFORMANCE BRANCH, THERMAL-HYDRAULICS SECTION
- 492.1 Specify expected minimum and maximum operating core power/flow condition as percentage of Rated Core Power/Flow for Single-Loop Operation.
- 492.2 At the specified minimum and maximum operating Core Power/Flow Condition for Single-Loop Operation, provide the following:
- (1) Safety Limit MCPR values,
  - (2) Fuel Loading Error MCPR analysis results,
  - (3) Local Rod Withdrawal Error (with limiting instrument failure) Transient Summary, and
  - (4) Core Wide Transients Analysis and Operating Limit MCPR results for all the fuel types in the core for the following transients per NEDE-24011-P-A-1: Flow decrease, Cold Water Injection, and Pressurization.
- 492.3 Section 2.0, a 6% Core Flow Measurement Uncertainty has been established for single-loop operation (compared to 2.5% for two-loop operation).
- The total core flow uncertainty value of 2.5% corresponds to 11.2% standard deviation in each individual jet pump for two-loop operation. What is the corresponding standard deviation for each individual jet pump for single-loop operation.
- 492.4 How long will the reactor operate under the single-loop operation.

B. Siegel  
2-17

MAY 19 1981

MEMORANDUM FOR: T. Ippolito, Chief, ORB#2, DL  
FROM: T. P. Speis, Chief, Reactor Systems Branch, DSI  
SUBJECT: REQUEST FOR A MEETING WITH BWR LICENSEES ON  
SINGLE LOOP OPERATION (SLO)

The Reactor Systems Branch is currently reviewing, by request from the Division of Licensing, several BWR licensee (Duane Arnold, Cooper and Peach Bottom) requests for modifications to their plant technical specifications that will permit single loop operation (SLO). In order to make a decision whether SLO is still a safe means of reactor operation, the Reactor Systems Branch and Core Performance Branch requests a meeting to discuss the September 26, 1979 Browns Ferry single loop operation (SLO) "experience". This experience involved unexplained core vibrations which occurred at 59% power during the single loop mode of operation.

The meeting agenda should cover the following subjects:

- 17L  
259  
264  
277  
278
1. Discuss in detail the Browns Ferry SLO experience (this discussion will include their evaluation of the causes of the oscillations); and,
  2. Provide generic justification for power operation of BWRs (licensees maximum desired power) in the single loop mode in the wake of this experience.

296  
298  
33L

The possible reoccurrence of a BF-1 SLO type of experience has raised the NRC's concern that safety limits could be violated and/or the exhibited instabilities lead to further complications. The presentation would be structured to address:

1. core stability;
2. core flow symmetry;
3. pump cavitations;
4. jet pumps and other vessel internals; and,
5. safety limits.

It is expected that the information presented at this meeting will allow the staff to decide if single loop operation in BWRs is a safe and prudent means of reactor operation.

CONTACT: Tom Loomis  
X29403

2pp.

~~8106080218~~

MAY 19 1981

-2-

We greatly appreciate your assistance in this matter. If any questions arise, or if additional information is needed, please contact To Loomis (29403) of my staff is coordinating this issue.



Themis P. Speis, Chief  
Reactor Systems Branch  
Division of Systems Integration

cc: R. Mattson  
T. Novak  
P. Check  
S. Sun  
D. Clark  
B. Siegel  
M. Fairtile  
K. Eccleston  
L. Phillips