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SEP 06 1984

MEMORANDUM FOR: R. E. Ireland, Acting Chief, Special Projects and Engineering Section, RPBi

FROM: P. C. Wagner, Senior Project Manager

SUBJECT: MINUTES OF MEETING WITH PUBLIC SERVICE COMPANY OF COLORADO ON AUGUST 23, 1984

A meeting was held on August 23, 1984, to discuss the Fort St. Vrain (FSV) Technical Specification LCO 4.1.9, "Core Region temperature Rise." The attendees, which are listed in Attachment 1, included NRC Region IV, our consultant from the Oak Ridge National Laboratory (ORNL), the licensee (PSC), and their consultants from GA Technologies. The major points which were discussed during the meeting are outlined in Attachment 2, and Attachment 3 contains an initial response by ORNL to PSC's submittal dated August 14, 1984.

Following introductory remarks, PSC personnel explained that, during the reevaluation of LCO 4.1.9 in 1983 to resolve implementation problems, numerous nonconservative assumptions and inputs were discovered which led to the submittal of what should be conservative operating limits. PSC also explained that the interaction of three LCOs: 4.1.3, "Rod Sequence"; 4.1.7, "Core Inlet Orifice Valves"; and 4.1.9 provide for integrated core protection and that LCO 4.1.9 is based on preventing flow stagnation or reversal in order to provide region outlet temperature indications. It was noted that possible fuel damage can occur if a single coolant channel experiences flow stagnation.

The primary helium coolant flow is controlled by adjusting the orifice valves at the inlet to each refueling region in combination with controlling the circulator(s) speed. In order to maintain the required region outlet temperatures, numerous orifice valve adjustments are necessary because only one orifice is adjusted at a time and the interactions between the various core regions and the balancing of steam generators must be considered with each adjustment. PSC agreed to evaluate automating the orifice valve adjustments. PSC also agreed to provide a new submittal which will:

1. Ensure that all circulators are not intentially made inoperable during periods when all are shutdown for maintenance.

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2. Clarify the sources of the core flow and core power level indications available to the operator in ensuring compliance with the requirements.

3. Address the situation of a limited number of mispositioned orifice valves during the transition from equal flow to equal temperatures.

4. Correct the additional nonconservatism recently discovered in the earlier analysis.

After a caucus of the NRC and ORNL personnel, it was decided that the PSC approach to this problem still appears to be confusing and may not provide the protection which is required. This position was stated to the licensee along with the following specific recommendations:

1. While we recognize the complexity of the problem, we would like the reactor operator to be able to use the operational instrumentation to ensure proper flow and temperature control for safe plant operation.

2. The existing LCO's 4.1.3, 4.1.7, and 4.1.9 should be reevaluated with consideration given to an integration of the requirements into a single limitation.

3. An evaluation of the various circulator helium flow capabilities using various motive forces, and combinations thereof, should be provided together with possible means of increasing flow at low-power levels.

The licensee agreed to provide this additional information in a new submittal.

Original Signed By
Philip C. Wagner

Philip C. Wagner
Senior Project Manager

Attachments:
As stated

cc:
J. W. Gahm, Nuclear Production
Manager
Fort St. Vrain Nuclear Station
P.O. Box 368
Platteville, Colorado 80651

L. Singleton, Quality Assurance Manager
(same address)

bcc:
RPB1 Resident Inspector
Section Chief (SP&ES)
P. Wagner, RPB1
RIV File
NRC participants
COLORADO STATE DEPT. HEALTH
OELD
E. Jordan, IE
ACRS (10)
NSIC
J. Taylor, IE
D. Eisenhut, D/DL
G. Lainas, DL
J. Miller, ORB3
T. Colburn, ORB3
ORAB
J. Collins, RA
P. S. Check, DRA
R. Denise, DRS&P

Attachment 1

LIST OF ATTENDEES

August 23, 1984 Meeting on LCO 4.1.9

Name	Organization
P. C. Wagner	NRC/RIV PM
H. L. Brey	PSC
R. E. Ireland	NRC/RIV
Syd Ball	ORNL
F. J. Novachek	PSC
C. H. Fuller	PSC
R. J. Kapernick	GA Technologies
E. H. Johnson	NRC/RIV
D. Alberstein	GA Technologies

POINTS FOR DISCUSSION

PSC-NRC MEETING ON LCO 4.1.9

AUGUST 23, 1984

I. PROPOSED LCO 4.1.9

- Intent of LCO 4.1.9
- Are there any non-conservatisms
- Zero power operation
- Core flow derivation
- Modification to permit a few open orifices

II. LCO 4.1.9 CLARIFICATION

III. POTENTIAL IMPROVEMENTS TO LCO 4.1.9

- Reduction of conservatisms
- ORNL suggested approach

IV. ORNL ANALYSIS - ORECA