Duquesne Light

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October 7, 1993
ND3MNO:3491

United States Nuclear Regulatory Commission
Attn: Director, Office of Nuclear Reactor Regulation
Document Control Desk
Washington, DC 20555

Subject: Beaver Valley Power Station, Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
Potential 10 CFR 21 Condition, Valve
Alignment Charging Pump Operation

Duquesne Light Company hereby submits the attached report in accordance with the requirements of 10 CFR Part 21. This issue involves the potential for unacceptable high head safety injection pump runout conditions during a post large break loss-of-coolant-accident (LOCA) scenario.

A summary of this 10 CFR Part 21 information was reported verbally to the NRC Operations Center on September 10, 1993.

Should you have any further questions regarding this matter, we will be pleased to discuss them with you.

L. R. Freeland
General Manager
Nuclear Operations

JJM/klf

Attachment

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cc: Mr. T. T. Martin, Regional Administrator
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10 CFR Part 21
BVPS Unit Nos. 1 and 2 - Valve Alignment/Charging Pump Operation

(i) Name and Address of Individual Making Notification:

L. R. Freeland, General Manager, Nuclear Operations
Duquesne Light Company
Beaver Valley Power Station
P. O. Box 4
Shippingport, PA 15077

(ii) Basic Component Affected:

High Head Safety Injection (HHSI) / Charging Pumps utilized for long term core cooling capability during a post large break loss-of-coolant-accident (LOCA) scenario.

(iii) Firms Supplying Components:

Supplier: Westinghouse Electric Corp.
Energy Systems Business Unit
Box 355
Pittsburgh, PA 15230-0355
(Nuclear Safety Advisory Letter:NSAL-93-012)

(iv) Nature of Defect:

Westinghouse issued notification of a potential 10 CFR 21 issue concerning unacceptable HHSI charging pump runout conditions. For post-large-break LOCA conditions, where the loss of Train A is proposed as the single active failure, the combination of one charging pump left running, and an attempt to align to the Reactor Coolant System (RCS) hot leg recirculation through the charging system, could result in multiple flow paths being made available to the remaining charging pump. This could result in a potential charging pump runout condition.

Based on our review of existing procedures for BVPS Units 1 and 2, we have determined that this issue is applicable to our facility. The potential for a charging pump to exceed runout flow conditions could exist for a large break LOCA event during the safety injection recirculation phase of the accident. However, the probability of this occurring in conjunction with a single failure of an emergency train of equipment at the time of switchover from RCS cold leg to RCS hot leg recirculation phase would be very low.

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BVPS Unit Nos. 1 and 2 - Valve Alignment/Charging Pump Operation
(Continued)

The potential LOCA scenario is described below (refer to the attached schematics of the Unit 1 and 2 HHSI/Charging System flow paths):

Per the Unit 1 Emergency Operating Procedure (EOP) ES-1.4, the Safety Injection System (SIS) transfer from RCS cold-leg to hot-leg recirculation is performed 14 hours after a LOCA event. After opening the HHSI-to-the-RCS-hot-leg isolation valve (MOV-SI-869B for BV-1; 2SIS*MOV-869B for BV-2), and while attempting to close the cold-leg inlet isolation valves (MOV-SI-867A&B for BV-1, and 2SIS*MOV-867A&B for BV-2), the postulated Train "A" failure is assumed to occur. The Train "A" power failure would prevent closure of the 867A (Train "A") valve. Operation of the "B" charging pump in this condition (i.e., multiple flow paths to both the RCS hot and cold legs) could cause a pump runout condition. Manual operator actions to locally open or close the affected valves would be impeded due to high radiation levels from prior cold leg recirculation operations.

The Unit 2 EOPs presently direct have the operators to shut down the HHSI pumps during the SIS re-alignment operations, and an additional flow path isolation valve is available from an opposite-train-powered, series valve (2SIS*MOV-841). Therefore, it is expected the failure of the "A" Train would be recognized and the charging pump would not be restarted until after valve power restoration, or until acceptable flow paths were established.

(v) Date on Which Defect Identified:

The Westinghouse Nuclear Advisory Letter (NSAL-93-012) was received by Duquesne Light Company (DLC) on July 14, 1993. An engineering evaluation was performed by DLC on the potential 10 CFR Part 21 concern. The evaluation and resulting report was presented to our Onsite Safety Committee on September 9, 1993.

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(vi) Number and location of Components:

Affected Components: BVPS Unit 1 Charging Pumps
CH-P-1A, 1B, C

BVPS Unit 2 Charging Pumps
2CHS*P21A, 21B, 21C

Location: BVPS Unit 1 and Unit 2
Primary Auxiliary Buildings

(vii) Corrective Actions To Be Taken:

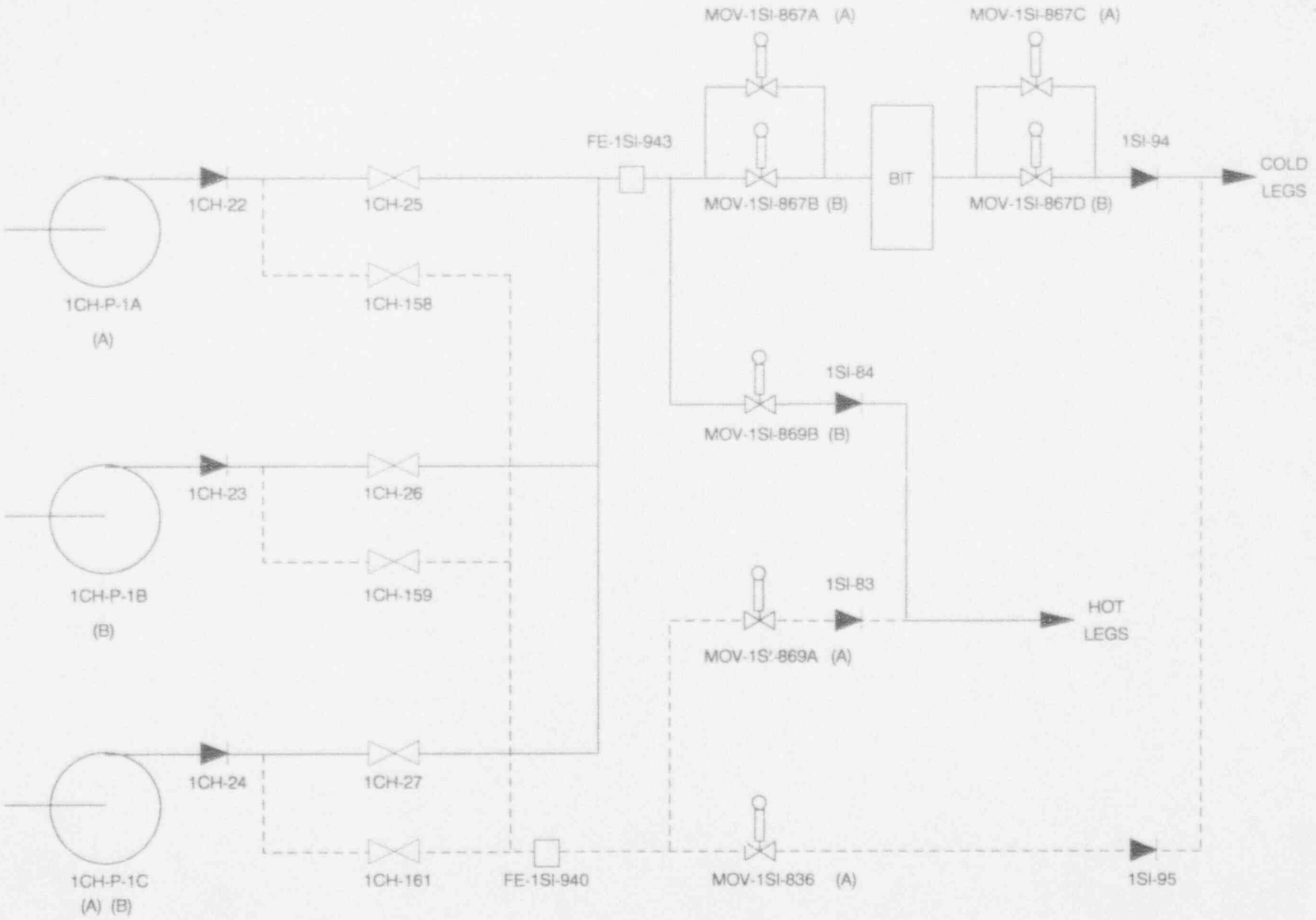
The Unit 2 emergency operating procedure has been revised to preclude the possibility of unacceptable charging pump runout conditions for this particular LOCA scenario, and thereby ensure long term core cooling capability. Permanent changes to the Unit 1 emergency operating procedures require further engineering evaluation and safety review before the changes are incorporated. In the interim, Operations personnel have been apprised of this potential situation and a temporary change to the procedure has been issued to prevent placing the system in a configuration that could potentially allow flow greater than the limiting values for charging pump operation.

(viii) Other Advice Related to Purchasers or Licensees:

None

BVPS Unit 1

RHSI/Charging Pump Flow Path



BVPS Unit 2

HHSI/Charging Pump Flow Path