

FROM:

Northern States Power Company  
Minneapolis, Minn. 55401  
L.O. Mayer

TO:

Dr. Peter A. Morris

CLASSIF:

POST OFFICE

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REG. NO:

DESCRIPTION: (Must Be Unclassified)  
Ltr re their 9-15-71 ltr...furnishing  
addl info on the HPCI steam isolation  
valve failure w/attch Planned Modifications  
to HPCI System Steam Line Flow Sensing  
Device.....

ENCLOSURES:

REMARKS:

1 CY LOCAL PDR MINNEAPOLIS, MINN.  
HOLDING 16 CYS FOR ACRS

DATE OF DOCUMENT:

Mar. 2, 1972

DATE RECEIVED

Mar. 6, 1972

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75

LTR.

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REPORT:

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ACTION NECESSARY NO ACTION NECESSARY CONCURRENCE COMMENT DATE ANSWERED: BY: 

FILE CODE:

50-263

REFERRED TO

DATE

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DATE

Butler 3-7-72  
w/9 cys for ACTION

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**NORTHERN STATES POWER COMPANY**

MINNEAPOLIS, MINNESOTA 55401

March 2, 1972

Dr. Peter A Morris, Director  
Division of Reactor Licensing  
United States Atomic Energy Commission  
Washington, D C 20545

Dear Dr. Morris:

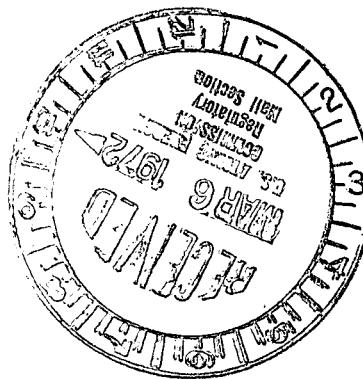
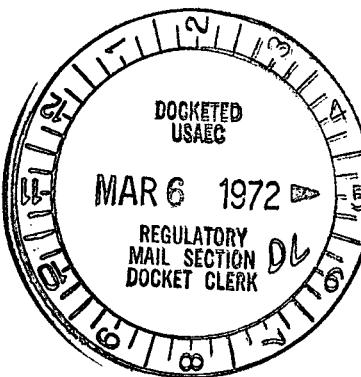
**MONTICELLO NUCLEAR GENERATING PLANT**

Docket No. 50-263 License No. DPR-22  
Planned Modifications to the High Pressure  
Coolant Injection System Steam Line Flow Sensing Device

As reported in our letter of September 15, 1971, during an operability test of the High Pressure Coolant Injection (HPCI) system, the HPCI steam line isolation valves tripped closed from a false high steam flow signal. Backflushing of the flow elbow sensing lines appeared to correct the observed increase in the differential pressure measurements from the HPCI steam line elbow taps; however, frequency of testing of the HPCI system was increased to once per week, after its return to service, with additional recording of elbow tap pressures to determine that the observed change in flow elbow differential pressure was not a recurring problem.

On the first weekly test on September 18, 1971, following the return to service of the HPCI system, and while operating at 90% power, it was found that the flow elbow differential pressure had again increased, causing the HPCI steam line to isolate. A review of HPCI tests previous to these two showed that all successful testing had been completed under low main steam flow conditions and that the unsuccessful tests were conducted with approximately 90% of rated steam flow.

Based upon this new information, it was demonstrated that the differential pressure at the HPCI steam line flow elbow, which is directly connected to a saddle on the HPCI steam line, will be affected by the flow in the main steam line. These effects become so pronounced above 50% of rated flow in the main steam lines, that when testing the HPCI system it automatically isolates after 45 seconds because the differential pressure indications remain higher than the reset values of the 150,000 lb per hour flow sensors. This effect on the flow elbow differential pressure prevents full completion of the HPCI system flow rate tests under conditions of high reactor power; however, the conditions under which the HPCI is required to function (low-low reactor water level and high drywell pressure) also result in a reactor scram and a main steam line isolation. Thus,



NORTHERN STATES POWER COMPANY

Dr. P A Morris

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for an automatic HPCI initiation, the main steam flow will drop to zero within 5 seconds and allow the 150,000 lb per hour flow sensors to reset well before the end of the 45 second time delay.

Pending further review of means for development of a practicable method for resolving the flow disturbance effects on the HPCI system steam line elbow taps, quarterly flow rate testing of the HPCI system was planned to be conducted with the "B" steam line isolated for the short period of time required to complete this test. If conditions develop requiring HPCI initiation during the period of testing, proper functioning of the HPCI system will occur as required.

Engineering studies have been completed on various methods to eliminate the flow disturbance effects on the HPCI system steam line elbow taps and the preferred alternate has been determined. We have initiated detailed engineering and procurement of materials to install a Universal Venturi Tube piping section to replace the piece of piping between the existing HPCI steam line flow elbow and HPCI isolation valve MO-203<sup>4</sup> as shown on the attached sketch. The new flow device will utilize the existing control logic and where compatible, the existing equipment. The BIF Universal Venturi Tube primary flow metering device will provide sufficient accuracy and reliability, as a replacement for the elbow flow measuring device, to permit flow rate testing of the HPCI system without the need for "B" steam line isolation.

The delivery time for the Universal Venturi Tube is about 16 to 20 weeks. We plan to make this modification at the first scheduled outage at Monticello for refueling (or poison curtain removal), or at an earlier unscheduled outage which might be expected to persist for a time period long enough to allow the new flow measuring device to be installed. In the meantime, quarterly flow rate testing of the HPCI system will be performed with the "B" steam line isolated.

Yours very truly,

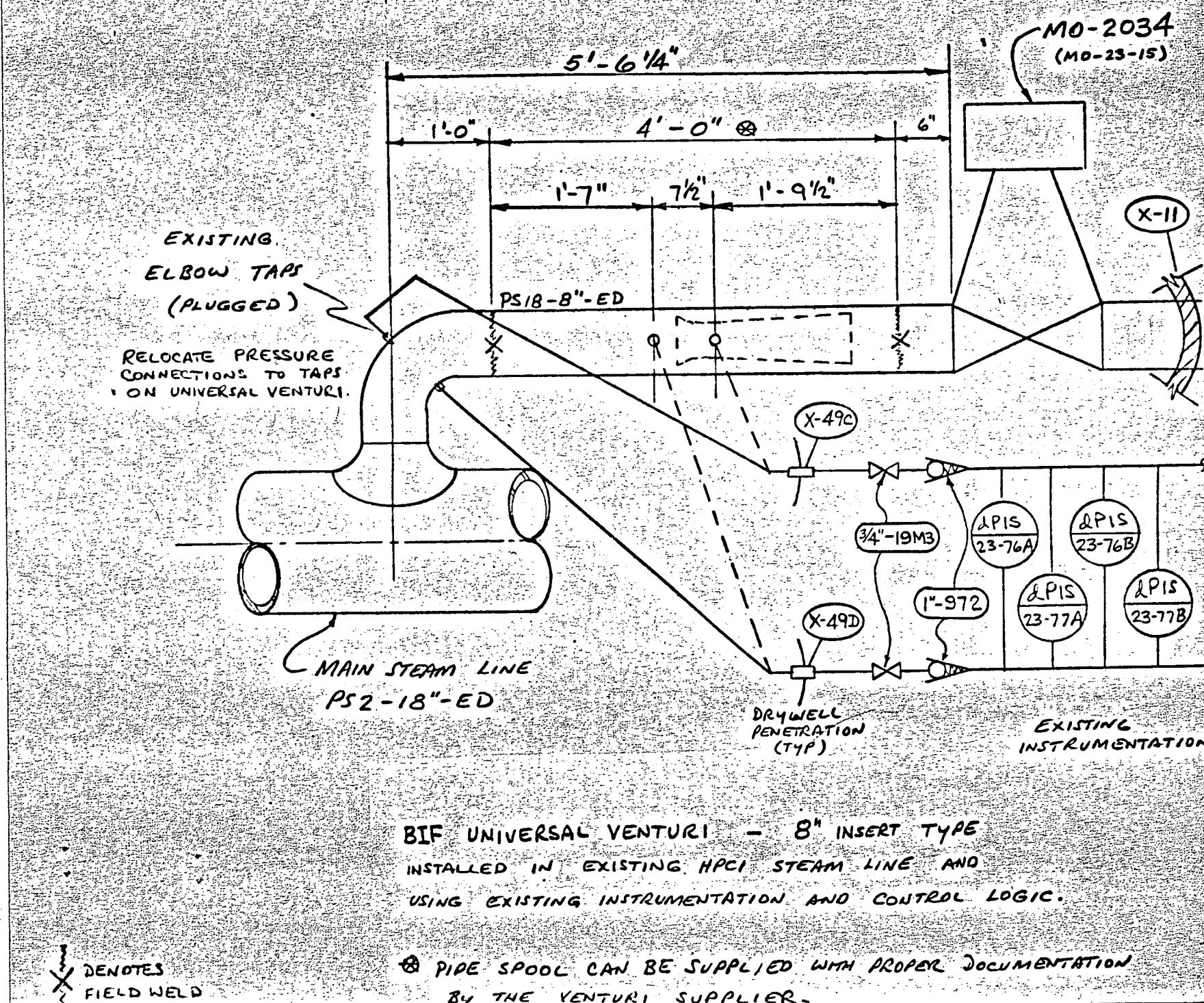


L O Mayer, P.E.  
Director-Nuclear Support Services

LOM/br

cc: B H Grier

Attachment



Received w/ drawing 3-2-72

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