General Information or Other (PAR) Event # 43679

Rep Org: FIRSTENERGY NUCLEAR OPERATING CO.		**Notification Date / Time:** 10/01/2007 16:34 (EDT)	
Supplier: FIRSTENERGY NUCLEAR OPERATING CO.		**Event Date / Time:** 08/02/2007 (EDT)	
		Last Modification: 10/01/2007	
Region: 1		**Docket #:**	
City: SHIPPINGPORT		**Agreement State:** No	
County:		**License #:**	
State: PA			
NRC Notified by: PETER SENA III		**Notifications:** RAY POWELL	R1
HQ Ops Officer: JOHN KNOKE		JERRY DOZIER	NRR
Emergency Class: NON EMERGENCY		PART 21 GROUP EMAIL	
10 CFR Section:			
21.21 UNSPECIFIED PARAGRAPH			

PART 21 REPORT - POPPET NUT AND STEM ASSEMBLY DEGRADATION ON MSIV

"In accordance with 10 CFR 21.21(d)(3)(ii), FirstEnergy Nuclear Operating Company (FENOC) is providing the required written notification of a concern regarding the potential for vibration inducted wear on the pilot poppet nut and stem assemblies provided for use in the Beaver Valley Power Station Unit No. 2 (BVPS-2) Main Steam System Isolation Valves [MSIV] that if uncorrected could potentially create a significant safety hazard. FENOC evaluated the concern via a Prompt Operability Determination and concluded that there is reasonable assurance that currently installed valve components at BVPS-2 are operable and plans to replace the affected components during the next BVPS-2 refueling outage."

Valve manufacturer of defective valve components is Weir Valves and Controls USA Inc. in Salem, MA.

The licensee notified the NRC Resident Inspector.

****

IE19

NRR

FENOC

FirstEnergy Nuclear Operating Company

Peter P. Sena III
Site Vice President

724-682-5234
Fax: 724-643-8069

October 1, 2007
L-07-135

ATTN: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Beaver Valley Power Station, Unit No. 2
BV-2 Docket No. 50-412, License No. NPF-73
10 CFR Part 21 Notification

In accordance with 10 CFR 21.21(d)(3)(ii), FirstEnergy Nuclear Operating Company (FENOC) is providing the required written notification of a concern regarding the potential for vibration inducted wear on the pilot poppet nut and stem assemblies provided for use in the Beaver Valley Power Station Unit No. 2 (BVPS-2) Main Steam System Isolation Valves that if uncorrected could potentially create a significant safety hazard. Attachment 1 provides the details of the notification. FENOC evaluated the concern via a Prompt Operability Determination and concluded that there is reasonable assurance that currently installed valve components at BVPS-2 are operable and plans to replace the affected components during the next BVPS-2 refueling outage.

No new regulatory commitments are contained in this submittal. If there are questions, or additional information is required, please contact Mr. Colin P. Keller Manager, Regulatory Compliance, at (724) 682-4284.

Sincerely,

Peter P. Sena III

Attachment 1 – 10 CFR Part 21 Notification
Enclosure 1 – 8/2/07 WVC USA Letter
Enclosure 2 – 8/14/07 WVC USA Letter

c: Ms. N. S. Morgan, NRR Project Manager
Mr. D. L. Werkheiser, NRC Senior Resident Inspector
Mr. S. J. Collins, NRC Region I Administrator

ATTACHMENT 1
10 CFR Part 21 Notification
Beaver Valley Power Station Unit No. 2

This notification follows the format of and addresses the considerations of 10CFR 21.21(d)(4)(i)-(viii):

(i) Name and address of the individual or individuals informing the Commission.

Mr. Peter P. Sena, III
Site Vice President
Beaver Valley Power Station
FirstEnergy Corp Nuclear Operating Company (FENOC)
PO Box 4
Shippingport, PA 15077

(ii) Identification of the facility, the activity, or the basic component supplied for such facility or such activity within the United States which fails to comply or contains a defect.

Facility:
Beaver Valley Power Station, Unit No. 2 (BVPS-2)
Docket No: 50-412, License No: NPF-73

Component:
Vendor Designation:
Weir Valves and Controls USA Inc. (formerly Atwood & Morrill Co.)
28" Y Type Globe Valve Model No. 15579-03
Pilot poppet nut and stem assembly

BVPS-2 Designation:
Main Steam System Isolation Valves
2MSS-AOV101A and 2MSS-AOV101C

(iii) Identification of the firm constructing the facility or supplying the basic component which fails to comply or contains a defect.

Weir Valves and Controls USA Inc. (WVC USA)
285 Canal St.
Salem, MA 01970-4595

(iv) Nature of the defect or failure to comply and the safety hazard which is created or could be created by such defect or failure to comply.

Nature of defect:

WVC USA has provided information to FENOC that based on vibration induced wear observed on the pilot poppet nut and stem assembly supplied for use in the Main Steam Isolation Valves (MSIV) at BVPS-2, a potential exists that may result in a condition that could impact the ability of the affected MSIVs to achieve full closure under design basis accident in the reverse flow direction. The information received from WVC USA is provided as Enclosures 1 and 2.

Safety hazard which could be created:

The analysis for a postulated main steam system line break accident at BVPS-2 assumes that only the affected steam generator will blowdown. The concern identified by WVC USA indicates that the reverse flow isolation function of an MSIV may be adversely affected if the vibration induced wear on the pilot poppet nut and stem assembly causes the assembly to lock together. If this were to occur in conjunction with an assumed random single failure, a blowdown of more than one steam generator could occur during a postulated main steam leak break accident and the resultant steam flow would exceed the accident analysis assumptions, thus creating a potential significant safety hazard.

FENOC has evaluated the identified condition, using guidance provided in RIS 2005-20, and in conjunction with the vendor (WVC USA) has concluded that the identified condition is age related and does not impact current plant operation.

(v) The date on which the information of such defect or failure to comply was obtained.

FENOC received the initial letter from WVC USA on August 2, 2007 and the follow-up letter on August 14, 2007.

(vi) In the case of a basic component which contains a defect or fails to comply, the number and location of these components in use at, supplied for, being supplied for, or may be supplied for, manufactured, or being manufactured for one or more facilities or activities subject to the regulations in this part.

The components potentially affected at BVPS-2 are the MSIVs on the 'A' and 'C' main steam system lines. The presently installed pilot poppet nut and stem assemblies are replacement components that were supplied by WVC USA. FENOC has also received a replacement pilot poppet nut and stem assembly for the 'B' MSIV, however, these parts have not been installed. The replacement pilot poppet nut and stem assembly design is subject to the concerns identified by WVC USA. The August 2, 2007 WVC USA letter also identifies that South Texas Project Unit Nos. 1 and 2 were notified by WVC USA as having a similar potential condition. The Beaver Valley Power Station Unit 1 MSIVs are a different design and are unaffected by the WVU USA notification. FENOC has no other information regarding applicability to other components or facilities.

(vii) The corrective action which has been, is being, or will be taken; the name of the individual or organization responsible for the action; and the length of time that has been or will be taken to complete the action.

After receipt of the information from WVC USA, FENOC entered the concern into the corrective action program. FENOC evaluated the concern via a Prompt Operability Determination, per the guidance in Regulatory Issue Summary 2005-20, and concluded that there is reasonable assurance that currently installed valve components at BVPS-2 in the 'A' and 'C' MSIVs will function as designed. FENOC plans to replace the affected components with a different design that WVC USA developed to reduce vibration inducted wear during the next refueling outage at BVPS-2. These actions will be tracked under the corrective action program. The point of contact for additional information is Mr. Colin P. Keller, Manager, Regulatory Compliance, at 724-682-4284.

(viii) Any advice related to the defect or failure to comply about the facility, activity, or basic component that has been, is being, or will be given to purchasers or licensees.

FENOC believes that WVC USA has notified other affected purchasers or licensees of the identified concern, and has no other advice other than what was provided to FENOC in the WVC USA letters provided as enclosures.

Enclosure 1

Weir Valves & Controls USA Inc.

285 Canal St
Salem, MA 01970-4595
USA

Tel: 978 744 5690
Fax: 978 741 3626
www.weirvalve.com

Excellent Engineering Solutions

WEIR VALVES & CONTROLS

August 2, 2007

Beaver Valley Power Station
P.O. Box 4
Shippingport, PA 15077

Attn: Manager, Site Regulatory Compliance

Subject: Main Steam Isolation Valves (MSIV) Beaver Valley Power Station Unit 2

Gentlemen:

Weir Valves & Controls USA, Inc. (WVC) has completed an evaluation (requested by BVPS) of wear and vibration damage to a pilot poppet nut and stem for one of the subject valves.

WVC has concluded that the vibration and wear evident on the above mentioned parts may result in a condition that could impact the ability of the MSIV to achieve full closure under design basis accident in the reverse flow direction.

Refer to the attached Sketches 1, 2 & 3. Specifically, the valve design relies on a sliding axial fit between the valve stem (pc1), pilot poppet nut (pc2) and pilot poppet (pc 6) so that during reverse flow closure, sufficient steam flow is provided to the top side of the main poppet (pc3) through the pilot seat to allow full closure of the main poppet and subsequent seating of the skirt seal (pc4). This function is designed to be accomplished by the reverse steam flow forcing the pilot poppet towards the open position throughout the main valve stroke. As designed, the spring (pc5) is intended to generally bias the pilot poppet towards the closed position, but the spring force is insufficient to provide complete closure and tight shut off of the pilot poppet.

Because of the wear and vibration damage, a condition may exist where the stem and pilot poppet nut become locked together thus not allowing a sliding axial fit (see Sketch 3). Upon closure of the MSIV in this condition, the stem, pilot poppet nut and pilot poppet (pc6) will move axially as one piece and seat the pilot poppet against the main poppet thus preventing flow of steam into the top of the main poppet as described above. Without sufficient steam flow into the top side of the main poppet, the required pressure balance is not achieved and the valve actuator closure force may be insufficient to fully close the main poppet and seat the skirt seal. When the skirt seal is properly seated, a net pressure load exists acting in the direction to seat the main poppet.

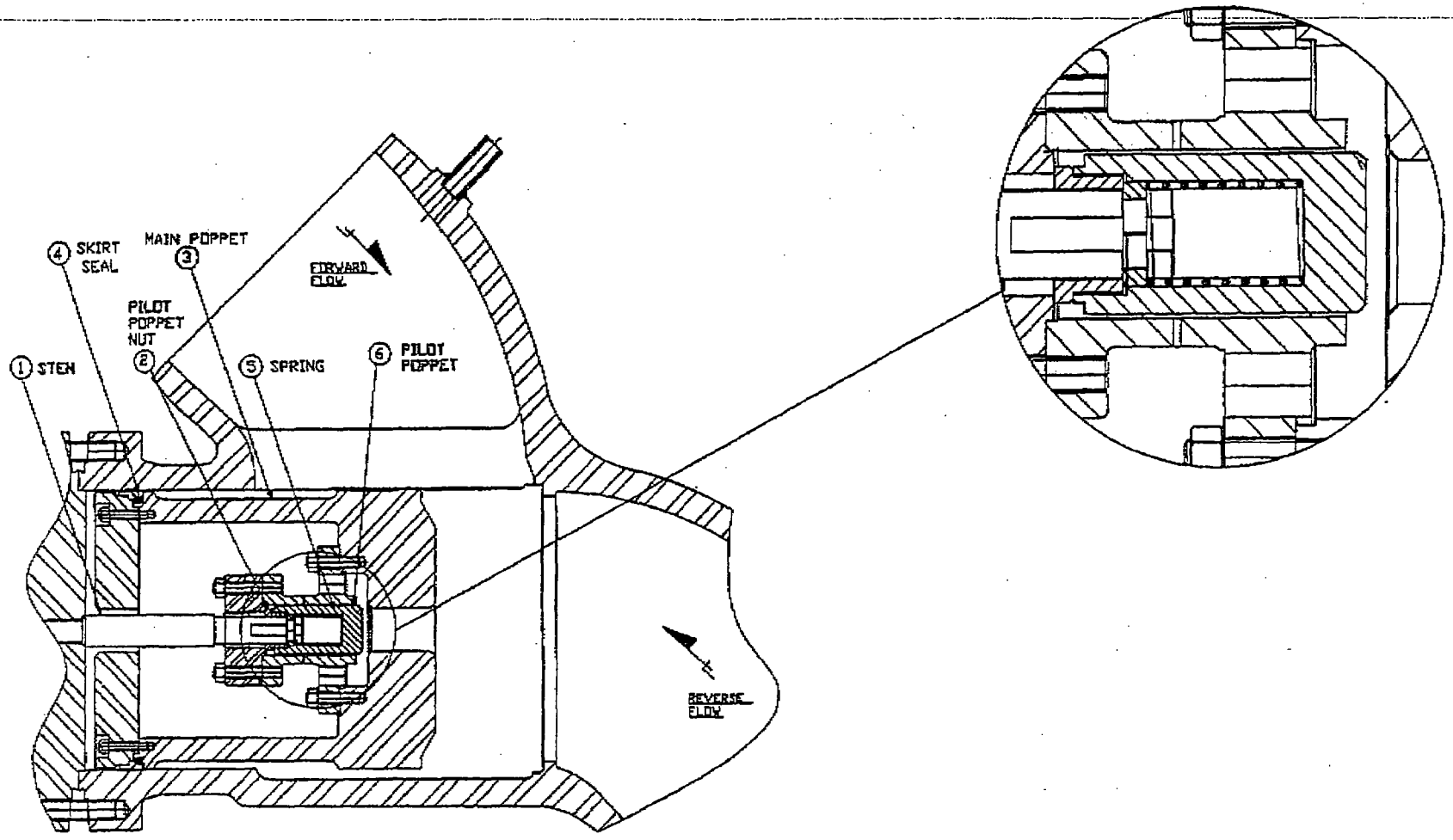
WVC believes the damage described is a result of fluid born vibrations transmitted from unstable steam flow. WVC is providing this notification to BVPS for evaluation regarding further notifications that may be required by regulatory requirements. A similar notification is being sent to STP Nuclear Operating Company as such notification applies to STP Units 1 & 2.

Please contact the undersigned should you require additional information.

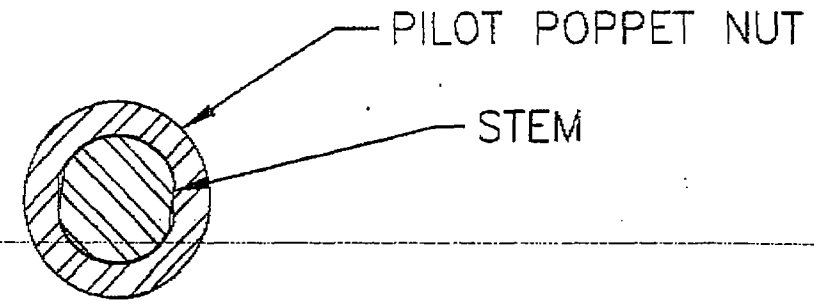
Very truly yours,

Samuel N. Shields

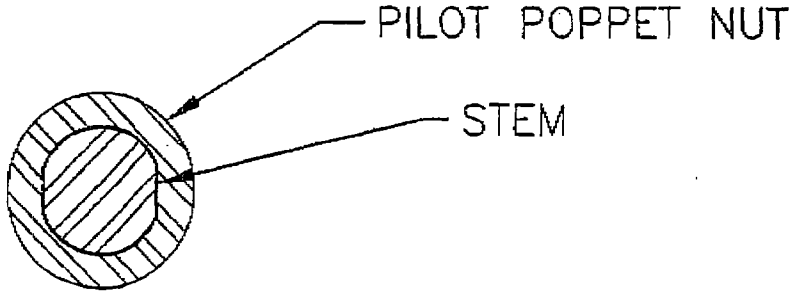
Samuel N. Shields
VP Engineering



SKETCH 1 VALVE BACKSEATED OPEN

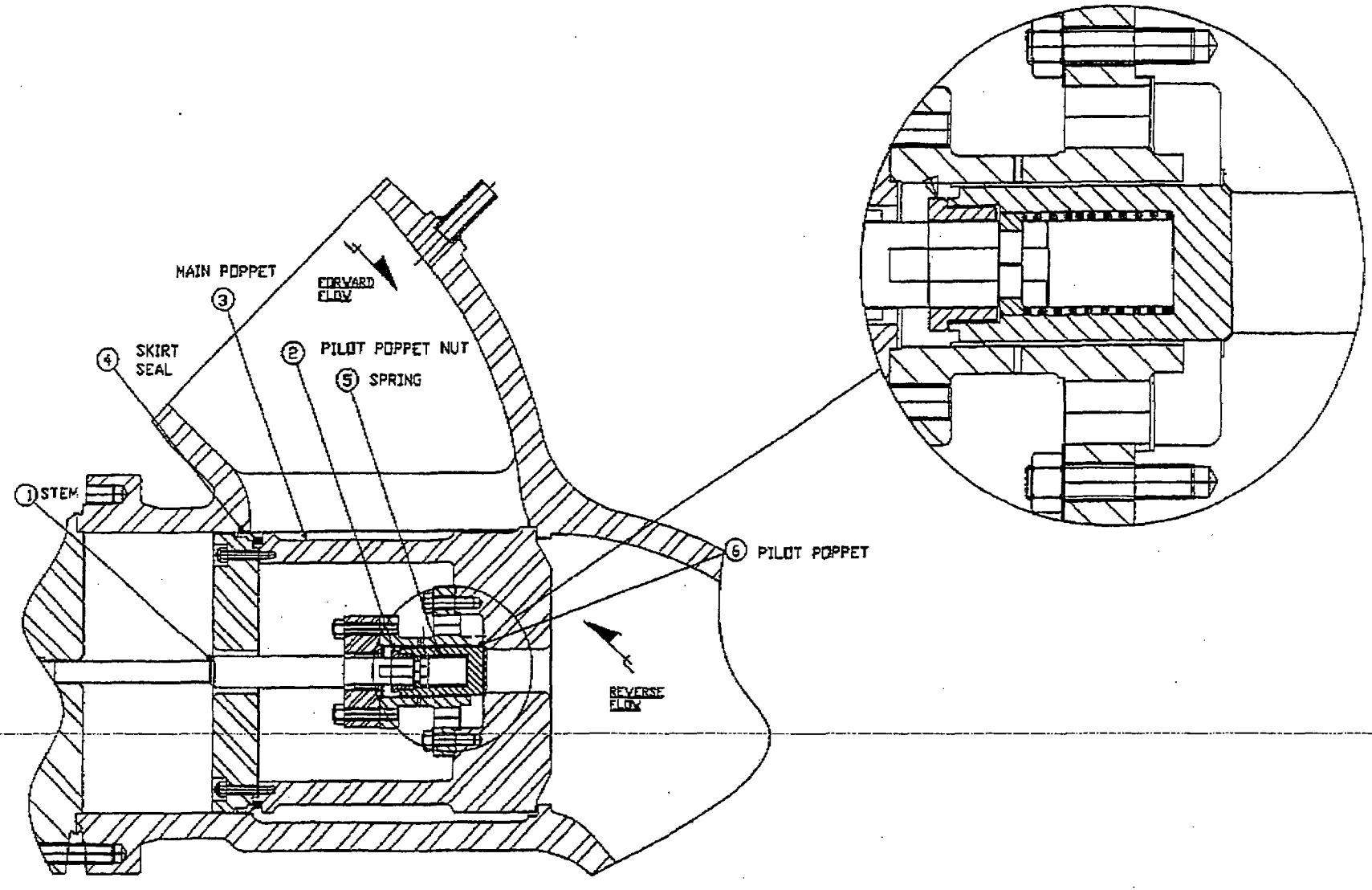


STEM/PILOT POPPET NUT LOCKED
NOT ALLOWING SLIDING AXIAL FIT



STEM/PILOT POPPET NUT UNLOCKED
ALLOWING SLIDING AXIAL FIT

SKETCH 3



SKETCH 2 VALVE CLOSED

Enclosure 2

Weir Valves & Controls USA Inc.

285 Canal St.
Salem, MA 01970-4595
USA

Tel: 978 744 5690
Fax: 978 741 3626
www.weirvalve.com

Excellent
Engineering
Solutions

WEIR
VALVES & CONTROLS

August 14, 2007

Beaver Valley Power Station
PO Box 4
Shippingport, PA 15077

Attn: Manager, Site Regulatory Compliance
Mail Stop BV-A

Ref: WVC USA letter August 2, 2007

Gentlemen:

WVC USA personnel have performed additional evaluation of the condition described in the referenced letter. This letter is intended to provide further information relative to that evaluation.

WVC USA examined and inspected the as-found condition of the following parts removed from the degraded MSIV:

Pilot poppet nut
Pilot poppet
Spring
Stem
Pilot poppet cap

In addition, technical discussions were held to better understand the operation of the valve including fit up and functioning of the valve parts described above.

Based on these additional inspections and evaluations WVC USA believes that, while the potential exists for the pilot poppet nut and stem to lock together as described in the reference letter, there has been no actual known case of this happening.

We believe that there is reasonable assurance that the valve will perform its safety related closure under design basis accident based on the following:

- While there is a possibility that the pilot poppet and stem may lock together it is apparent from examination of the as-found parts that significant relative motion must take place between these two parts to allow for that condition to exist. This is not likely to occur in service.
- The valve was diagnostically stroke tested in the as-found condition prior to the last outage and no anomalies were noted in the resulting data attributable to this condition.

- The condition described appears to be time related and given that the valve ran for two fuel cycles it is likely that the current valve will operate for one fuel cycle without deleterious effects.

Very truly yours,

Samuel N. Shields

Samuel N. Shields, VP Engineering

cc: M.A. Manoleros, Mail Stop BV-IPAB
Carmen V. Mancuso, Mail Stop BV-OEB-3

WVC: K. McManus
M. Milburn
B. Sullivan
M. Macdonald