Barkhamer, John W.

From: Nealon, William J.
Sent: Friday, October 29, 2004 8:26 AM
To: Baban, Tiffany A.
Cc: McCollum, Douglas J.; Johnson, Donald J.; Horner, Jeremy D.; Johnson, Craig H.; Barkhamer, John W.; DuBouchet, Andres V.
Subject: H1BC -1-BC-V183 Yoke Sleeve Nut

Tiffany,

The yoke sleeve nut was found broken and separated on H1BC -1BC-V183 (limit switch H1BC -1BCZS-F060A) last night. Refer to Notification 20208920 and Work Order 60049009. Disassembly of the gear operator identified that the yoke sleeve nut was broken. Pictures identify the yoke sleeve nut off of the yoke sleeve threads with the yoke sleeve nut capscrew still installed. This nut is used to contain and hold the gears to the sleeve around the valve stem. Working on this piece and reinstalling a new nut would not affect the packing of the valve. Potential for any leakage from the valve packing due to work on the manual operator is extremely minimal.

The manual operator can be worked with a new nut installed or the old one temporary held in place to close the valve.

The as-found stem position should be marked before any movement of the stem. We need to verify if the stem is close to or hard up against the backseat of the valve bonnet. This will tell if a thermal growth phenomenon occurred. It will also provide the as-found position of the valve wedge and stem, identifying if the valve was open or had drifted closed. This is needed to aid in identifying what caused the problem.

Once the valve wedge is seated and the valve closed, further investigation into any other damage to the manual gear operator can be pursued.

Additional inspection of the yoke sleeve and the damaged nut will be pursued to determine if the damage may have been caused or aided by the system vibration affecting the manual gear operator.

If the valve is as-found partially closed, it is possible that the wedge could be moving on the stem and causing the noise which has been heard in the pipe chases outside the drywell. This is why, finding the as-found position is important for this valve.

The sister valve, H1BC -1BC-V074 (limit switch H1BC -1BCZS-F060B) is scheduled to be worked this outage for limit switch stiffening. The as-found position of the wedge and stem, i.e. distance from full closed needs to be identified.

H1BC -1-BC-V183 is a 12 inch Anchor/Darling flex wedge gate valve. Refer to VTD PP302Q-368 (valve outline drawing) and VTD PP301302Q-0186, page 79 in DCRMS (manual operator detail)

We had a broken yoke sleeve nut on H1BC -1-BC-V078 (H1BCZS-F077) during the last outage (4/03). This is the manual suction isolation valve for the RHR Shutdown cooling lines. This is a 20 inch manual valve with a gear operator. The size and style of gear operator is different from the one installed on H1BC -1-BC-V183, but they are both from the same manufacturer and on Anchor/Darling valves. The last failure had the nut split partially around the circumference of the nut, starting at a setscrew hole. Refer to NUCR 70031101, WO 60036361, Notifications 20141040 and 20141176.

William J. Nealon
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PSEG Nuclear LLC
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Pager: 877-469-5707
E-mail: william.nealon@pseg.com

1. DO WE HAVE COPIES OF THESE 4 WRITE-UPS

2. DO WE HAVE DETAILS OF THE GEAR BOX ASSEMBLY

V183 V078
F060A F077

3. HAS THIS E-MAIL BEEN ISSUED AS A FORMAL NOTIFICATION

R. OLSON
x2040
11/08/04

PSEG

Notification Overview

Notification *20208920*
Notification type N1
Description *HANDWHEEL OP SPINS FREELY [70042298]*
Nuc. Maint. Request
Reporter *HINKLEJ7595* 21:07:32
Notification date 10/28/2004
Start date *10/28/2004* *End date* 11/28/2004
Start time *21:07:32* *End time* 21:07:32
Priority *4* *Outage* *Sig. Level* *2* *Main WorkCtr.* *H-M*
Funct. location *H1BC -1-BC-V183*
RHR LOOP A RET TO RECIR LOOP A
Equipment
Assembly
Order *60049009*
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

1) DESCRIBE THE ACTUAL CONDITION? (Do not use individual's name(s); you may use computer ID's or badge numbers)
BC-V183 handwheel does not operate bevel gear to reposition valve. Handwheel spins freely.

2) HOW DOES THIS ISSUE IMPACT PLANT OR PERSONNEL SAFETY? *
Unable to isolate "A" RHR SDC return to recirc for system isolation to start refuel outage activities

3) PSEG NUCLEAR OR REGULATORY REQUIREMENT NOT MET? *
NA

4) WHAT CAUSED THE CONDITION? *
Unknown; potential vibration issue, mechanical indication is also broken

5) WHAT ACTIONS, IF ANY, HAVE BEEN TAKEN TO CORRECT THE CONDITION? *
RF12 action item created. Operators made several attempts to get valve to operate

6) RECOMMENDED ACTION/CORRECTIVE ACTION AND WORK CENTER RESPONSIBLE FOR CORRECTING CONDITION.
(Use Title/Position, not name)
Investigate and repair operator

7) ANY OTHER RELEVANT INFORMATION INCLUDING ANY CRITICAL DATES FOR COMPLETING THE ACTIONS.

(I.E. ROOM NUMBER, BUILDING ELEVATION, COLUMN NUMBER, DISTANCE FROM FLOOR, WHO, WHY, REFERENCES, ESTIMATED COST, WMIS TAG,ECT).

LOCATION OF THE COMPONENT:

RHR LOOP "A" RETURN TO RECIRC LOOP "A" DRYWELL 108' ELEV 270 DEGREE AZIMUTH6' FROM INNER WALL - AT THE 260 DEGREE BC LINE, CLIMB UP AND TO INNER WALL, THEN CCWISE.

8) DESCRIBE HOW THE ISSUE WAS IDENTIFIED?

DURING OUTAGE TAGGING OF BCANSS FOR LEAK RATE TESTING BOUNDARIES.

* = NA FOR SIGNIFICANCE LEVEL X NOTIFICATIONS

Updated: JAMES HINKLE 10.28.2004 21:07:51

10/29/2004 05:37:51 RITA BRADDICK (NURKB)
Notification reviewed for quarentining per WMAP-0000, Attachment 3 and determined that quarantining is required. T. Brennen designated as lead for implementing quarantining actions and area around valve with be taped with barrier tape and signs posted. OCC (OOM and SOM) notified of requirement for quarantining.
10/29/2004 11:00:13 MARC CHASTAIN (NUM3C)
ROLLED TO ORDER BY WIN TEAM - CM

11/02/2004 13:27:14 LA RUE GERRELLS (NU48Q)
CRRC NOTE: N2 CREATED PER ISC MTG OF 11-01-04 SIG LVL DOWNGRADED TO LVL "3"

3	Inoperable	TSCO
REQ	Review Required	TSOS
CM	Corrective Maintenance	TSCO

End of report

Notification: 20141040 | N1 | BC-V078 SDC Manual isolation (70031101)

Status: ATCO NOCO NOPT ORAS | APRD

Order: 60036361

Notification | System Availability | Malfunction, Breakdown | Location data | Item | Tasks

Responsibilities

Planner group: 099 / NNUC | Nuclear Default

Main WorkCtr: H-NM / NNUC | HOPE CREEK MAINTENANCE MECHANICAL

Person Responsi:

Reported by: REED 3842 | Notif.date: 04/22/2003 | 21:38:42

WEC Data

Sig. Level: 2 | Respond, cause, correct/trend

Mfude code: NFF | NOT FUNCTIONAL FAILURE (FOR NOTF SCREENING)

Reference object

FunctLocation: H1BC-1-BC-V078 | RECIRC LOOP B TO RHR SUP MAN V

Equipment:

Assembly:

Basic dates

Req.start: 04/22/2003 | 21:38:42 | Priority: 4 Outage

Required End: 05/23/2003 | 21:38:42 | Breakdown

Item

04/22/2003 21:40:28 MICHAEL REED (NUMFR)
What is the actual condition?

BC-V078 Manual RHR SDC isolation valve

During restoration of the P3 window the RHR SDC piping was vented via the BCV302 and V303. Once venting was completed, the manual isolation valve was to be opened. While opening the valve it was noted that that the manual actuator was failing. The EO reported that the actuator had three broken cap screws and the stem appeared to be bending. The valve was reported to be about 10% open. Manipulation of the valve was stopped and Maintenance was contacted for visual inspection.

What should be done to fix the condition?

Maintenance to suggest a corrective action prior to moving the valve.

Is there anyone who should be responsible for correcting the issue?

Outage organization.

Is a follow up assessment required?

no

Has a post Maintenance test or Operability retest failed?

no

Is a deficiency report required?

no

Any other relevant information?

Team replacing the F077 limit switches reported that the limit actuator arms were damaged beyond what they expected to see but no other noticeable damage was evident.

EMIS tag Number?

no

04/23/2003 02:43:46 ROBERT LUZHAK (NUREL)

04/23/2003 03:45:57 WILLIAM NEALON (NUWJN)
Inspection and repair results identified a collar for the internal gear and stem sleeve assembly was loosened and separated. Maintenance troubleshooting and inspection identified the valve would stroke fully open with the collar in place. The collar was removed for replacement and repair. The remainder of the gear train was left in place. With the spur gear and bevel gears in place, the valve stem would generally stay in place. The collar was removed for replacement. In this configuration, the valve stem will stay in place using the yoke nut and the gearing. The valve can perform its design function to stay open in this configuration. The valve will not stroke using the handwheel until the

collar is in place.
Therefore, the valve can be conssidered fully operable to maintain its position in its current configuration.
However, manipulation of the valve (to go closed) will require installation of the collar.
04/23/2003 13:27:48 MARGARET THOMAS (NUMAT)
CRRC NOTE: UPGRADED TO SL-2 AT THE SM MEETING ON 04/23/03.
04/25/2003 07:33:07 WILLIAM SCHMICK (NUWAS)

PSEG

Notification Overview

Notification *20141176*
Notification type N2
Description *BC-V078 SDC Manual isol N1 20141040*
Nuc. Activity Report
Reporter *REED 3842* 13:26:21
Notification date 04/23/2003
Start date *04/23/2003* *End date*
Start time *13:26:21* *End time* 00:00:00
Priority *Sig. Level* *2* *Main WorkCtr.* *E-PGVE00*
Funct. location *H1BC -1-BC-V078*
RECIRC LOOP B TO RHR SUP MAN V
Equipment
Assembly
Order *70031101*
PM planner grp *600* *Engineering*

04/23/2003 13:27:26 MARGARET THOMAS (NUMAT)

04/22/2003 21:40:28 MICHAEL REED (NUMFR)
What is the actual condition?

BC-V078 Manual RHR SDC isolation valve

During restoration of the P3 window the RHR SDC piping was vented via the BCV302 and V303. Once venting was completed, the manual isolation valve was to be opened. While opening the valve it was noted that that the manual actuator was failing. The EO reported that the actuator had three broken cap screws and the stem appeared to be bending. The valve was reported to be about 10% open. Manipulation of the valve was stopped and Maintenance was contacted for visual inspection.

What should be done to fix the condition?

Maintenance to suggest a corrective action prior to moving the valve.

Is there anyone who should be responsible for correcting the issue?

Outage organization.

Is a follow up assessment required?

no

Has a post Maintenance test or Operability retest failed?

no

Is a deficiency report required?

no

Any other relevant information?

Team replacing the F077 limit switches reported that the limit actuator arms were damaged beyond what they expected to see but no other noticeable damage was evident.

EMIS tag Number?

no

04/23/2003 02:43:46 ROBERT LUZHAK (NUREL)

04/23/2003 03:45:57 WILLIAM NEALON (NUWJN)
Inspection and repair results identified a collar for the internal gear and stem sleeve assembly was loosened and separated. Maintenance troubleshooting and inspection identified the valve would stroke fully open with the collar in place. The collar was removed for replacement and repair. The remainder of the gear train was left in place. With the spur gear and bevel gears in place, the valve stem would generally stay in place. The collar was removed for replacement. In this configuration, the valve stem will stay in place using the yoke nut and the gearing. The valve can perform its design function to stay open in this configuration. The valve will not stroke using the handwheel until the collar is in place.
Therefore, the valve can be conssidered fully operable to maintain its position in its current configuration. However, manipulation of the valve (to go closed) will require installation of the collar.
04/23/2003 13:27:48 MARGARET THOMAS (NUMAT)
CRRC NOTE: UPGRADED TO SL-2 AT THE SM MEETING ON 04/23/03.
04/23/2003 13:32:12 MARGARET THOMAS (NUMAT)

Detail Position 0001

Text		
Object part	9999	Other (Describe In Item Text)
Damage	9999	Other (Describe In Item Text)
Assembly		
Error class		

End of report

Work Order Shop Papers
11/08/2004

70031101

Order:	70031101	BC-V078 SDC Manual isol N1 20141040
Order Type	NUCR	
Status	REL PCNF PRT MANC NMAT PRC SETC	
Notification	20141176	
Unit	H1	
Functional Location	H1BC -1-BC-V078	RECIRC LOOP B TO RHR SUP MAN V
Equipment		
Assembly		
Location	041024334H	
Room	RXB_16	
System	BC	
Priority	4	Outage
Main Work Center	E-PGVE00	Mc COLLUM, DOUGLAS
Status	REL PCNF PRT MANC NMAT PRC SETC	
Basic Dates:	Start: 11/15/2004 Finish: 12/08/2004	Overdue:
Sfty Rltd/QA Reqd		
Sfty Class		
Mrule Code	SFF	
SEISMIC		
EQ		
Permission to Begin Work		**Date:** **Time:** 00:00:00

Description of Work

BC-V078 SDC Manual isol N1 20141040
04/22/2003 21:40:28 MICHAEL REED (NUMFR)
What is the actual condition?

BC-V078 Manual RHR SDC isolation valve

During restoration of the P3 window the RHR SDC piping was vented via the BCV302 and V303. Once venting was completed, the manual isolation valve was to be opened. While opening the valve it was noted that that the manual actuator was failing. The EO reported that the actuator had three broken cap screws and the stem appeared to be bending. The valve was reported to be about 10% open. Manipulation of the valve was stopped and Maintenance was contacted for visual inspection.

What should be done to fix the condition?

Maintenance to suggest a corrective action prior to moving the valve.

Is there anyone who should be responsible for correcting the issue?

Outage organization.

Is a follow up assessment required?

no

Has a post Maintenance test or Operability retest failed?

no

Is a deficiency report required?

no

Any other relevant information?

Team replacing the F077 limit switches reported that the limit actuator arms were damaged beyond what they expected to see but no other noticeable damage was evident.

EMIS tag Number?

no

04/23/2003 02:43:46 ROBERT LUZHAK (NUREL)

04/23/2003 03:45:57 WILLIAM NEALON (NUWJN)
Inspection and repair results identified a collar for the internal gear and stem sleeve assembly was loosened and separated. Maintenance troubleshooting and inspection identified the valve would stroke fully open with the collar in place. The collar was removed for replacement and repair. The remainder of the gear train was left in place. With the spur gear and bevel gears in place, the valve stem would generally stay in place. The collar was removed for replacement. In this configuration, the valve stem will stay in place using the yoke nut and the gearing. The valve can perform its design function to stay open in this configuration. The valve will not stroke using the handwheel until the collar is in place.
Therefore, the valve can be conssidered fully operable to maintain its position in its current configuration.
However, manipulation of the valve (to go closed) will require installation of the collar.
04/23/2003 13:27:48 MARGARET THOMAS (NUMAT)
CRRC NOTE: UPGRADED TO SL-2 AT THE SM MEETING ON 04/23/03.

Order: NUCM 60036361 RP/BC-V078/ SDC Manual isolation

Sys.status: CLSD CNF PRT CSER GIPS MACM PRC SE FVIP NFBK TRDY

HeaderData | Operations | Components | Costs | Partner | Objects | Add.data | Location | Planning | Control | UserFields

Person responsible

PlannerGrp: 099 / NNUC Nuclear Default

Mn.wk.ctr: S-MI112 / NNUC VALVES

Notifctn: 20141040

Costs: 0.00 USD

PMActType: CII Corrective Maintena

SystCond.:

Address:

Dates

Bas. start: 04/28/2003 07:30

Basic fin.: 05/02/2003 08:33

Priority: 4 Other

FERC Ind.: 0

Reference object

FunctLoc.: H1BC -1-BC-V078 RECIRC LOOP B TO RHR SUP MAN V

Equipment:

Assembly:

First operation

Operation: COMMENTS:ADDED TO RF11 PER OMAP RF11-429

CcKey: 2 Calculate work

WkCt/Plnt: S-MI112 / NNUC Ctrl key: PM01 Acty type: M1350 FRT

Work durtn: 1.0 H Number: 1 Dptn dur.: 1.0 H Comp.

Person. no: 0

Order NUCH 60036361 RP/BC-V078/ SDC Manual isolation

Sys.status CLSD CNF PRT CSER GMPS MACH PRC SE FWIP NFBK TRDY

HeaderData | Operations | Components | Costs | Partner | Objects | Add. data | Location | Planning | Control | UserFields

OpAc	SOp	Work ctr	Plant	Contrl	StTextKy	Sy	Short text	LT	Work	Un	Num	Durat	Un	CcKey
0001		S-MM12	NNUC	PM01	NCOMMNT		COMMENTS:ADDED TO RF11 PER OMAP RF11-429		1.0	H	1	1.0	H	2 Calculate
0010		H-0	NNUC	PM01	NTAGINS		1-BC-V078: ISOL EQUIP/HANG TAGS		4.0	H	2	2.0	H	2 Calculate
0010	0010	H-0	NNUC	PM01	NTAGPRP		1-BC-V078: PREPARE TAGS AS REQ'D		1.0	H	1	1.0	H	2 Calculate
0020		S-MC09	NNUC	PM01	NOPDPG		1-BC-V078:RMV LIMIT SWITCHES		4.0	H	2	2.0	H	2 Calculate
0030		S-MM12	NNUC	PM01	NOPDPG		BC-V078 SDC Manual isolation		16.0	H	2	8.0	H	2 Calculate
0030	0005	C-WCHP28	NNUC	PM01	NWINPLN		WIN TEAM STANDARD TEXT TEMPLATE		4.0	H	1	4.0	H	2 Calculate
0040		S-MC09	NNUC	PM01	NOPDPG		1-BC-V078: REINSTALL LIMIT SWITCHES		4.0	H	2	2.0	H	2 Calculate
0050		H-0	NNUC	PM01	NTAGREL		1-BC-V078: RMV TAGS/RESTORE SYST		4.0	H	2	2.0	H	2 Calculate
0060		S-MM12	NNUC	PM01	NPMT		PMT: PERFORM REQ TESTING IAW NA AP 50		1.0	H	1	1.0	H	2 Calculate
0070		H-0	NNUC	PM01	NRTSTD		RT-PROPER I/S OPERATION & INDICATION		1.0	H	1	1.0	H	2 Calculate

General | Internal | External | Dates | Act. data | Enhancement | Permit

Notification Object list MeasDocuments Administr.

Order	60036361	RP/BC-V078/ SDC Manual isolation			
Operation	0030	BC-V078 SDC Manual isolation			
System status	CNF ORSP SCNF TECO				

Confirmation data

Confirmation	2659526 / 1				
Work center	S-HH12	NNUC VALVES			
Personnel no.	7542	DONALD C MC GRATH	Wage type		
Actual work	0.00 H	Activity type	N1350	Posting date	04/28/2003
Final confirmat	☑	No rem.work	☑	AcctIndicator	
Clear open res.	☑	Remaining work	0.00 H		
Work start	04/28/2003 02:22:55	Actual duration	0.0 H		
Work end	04/28/2003 02:22:55	Forecast end	24:00:00		
Reason					
Confirm. text	See long text				

Total confirmation data

Cum.actual work	0.000 H	ActualDuration	24.0 H
Forecast work	16.0 H	PlannedDuration	24.0 H
Actual start	04/23/2003 04:26:29	Actual finish	04/28/2003 02:22:55

Parag.formats *Paragraph, left-aligned Char.formats

See long text

Found valve with broken dust cover screws and a broken yolk nut inside of the cover. We inspected the operator and replaced the yolk nut and set screw. We replaced the dust cover screws. The position indicators need to be reinstalled and set.

Order	70031101	BC-V078 SDC Manual isol N1 20141040			
Operation	0010	M4P: BC-V078 SDC Manual isolation			
System status	CNF REL				

Confirmation data

Confirmation	2660967 / 3			
Work center	E-ESF11	NNUC / PUHER, M.		
Personnel no.	9723	DOUGLAS J MC COLLUM	Wage type	
Actual work	0.00 H	Activity type	N3040	Posting date 05/20/2003
Final confirmat		No rem.work		Acctindicator
Clear open res.		Remaining work	0.00 H	
Work start	05/15/2003 00:00:00	Actual duration	0.0 H	
Work end	05/20/2003 14:26:56	Forecast end		24:00:00
Reason				
Confirm. text	Displn by M4P entered by DJM			

Total confirmation data

Cum.actual work	16.000 H	ActualDuration	24.0 H
Forecast work	16.0 H	PlannedDuration	24.0 H
Actual start	05/13/2003 00:00:00	Actual finish	05/20/2003 16:49:53

Disptn by M4P entered by DJM

70031101Op10/(H1BC -1-BC-V078)
CONDITION OR EVENT DESCRIPTION
When and where did the event happened or was condition discovered?
On April 22, 2003, during restoration of the P3 window, the RHR SDC manual isolation valve operator failed while being manipulated to an open position. Equipment operator reported the bevel gear operator had three broken cover cap screws. Performance of the system restoration was terminated with the valve reported to be in a 10% open position.

.
What was the performance gap/issue/learning?
The H1BC -1-BC-V078 valve is an Anchor Darling. 20", 900#, flex wedge gate valve having a 16.7:1 bevel gear operator equipped with limit switches. Valve is safety related, seismic category 1, and is included in the maintenance rule scoping for this system.

The H1BC -1-BC-V078 gate valve failed to open as noted.

.
Who was involved? (use position titles. Do not use names.)
Operations, Valve Engineering and Mechanical Maintenance.

.
What were the consequences and/or potential consequences?
Failure of the gate valve to fully open results in the P3 shutdown cooling common suction penetration from being returned to service. There is a technical specification surveillance requirement 4.4.9.1 to maintain an alternate decay heat removal flow path inservice, which had been established prior to the removal of the P3 penetration for testing. The return of the P3 penetration impacts work in the refuel outage schedule dependant on channelized system windows. The gate valve has a function in the open position to provide common suction to shutdown cooling for decay heat removal.

.
If the problem statement is substantially different from the notification, explain why.
Problem statement is not different than notification.

.
Significance (include applicable nuclear, industrial, radiological and environmental safety impact.)
Failure of gate valve to open did not result in an operability issue as maintenance troubleshooting determined the valve could be repositioned once damaged yoke sleeve nut found in the valve stem sleeve assembly was removed permitting freedom for stem travel. There were no nuclear, radiological, environmental or industrial consequences as a result of this issue.

.
Was the condition/event isolated or were there other similar conditions/events (i.e., extent of condition)?
This condition was limited to the H1BC 1-BC-V078 gate valve. There are no other similar installations of the gate valve at Hope Creek Unit 1. The valve does provide a common suction source to other alternate heat decay heat removal equipment.

.

What could have occurred under similar circumstances (i.e., generic implication)? Consider other equipment, work groups, processes and programs.
Currently, there is not a potential for generic implication identified with this gate valve bevel gear operator failure. The implication is with respect to internal operator and stem travel. No other internal damage noted aside from yoke sleeve nut and the operator cap screws. Pressure locking was not determined to be an issue as the gate valve did travel to a 10% open position where its stem essentially jammed into the interfering loose yoke sleeve nut. Actions taken followed by entry into tech spec would remain the same as the unit was in refueling mode.
.
Could redundant safety system functions be impacted by the conditions/events described (i.e., common mode failure)?
Common mode failure
The restoration of the common shutdown cooling line via the P3 penetration supports operability of the redundant A, B, C, & D residual heat removal trains and serves as an alternate decay heat removal source flow path. Shutdown cooling is also served by fuel pool cooling. P3 penetration restoration following scheduled surveillance test impacted outage from a schedule standpoint.
..
What was the potential and/or actual regulatory impact?
No known regulatory impact exists.
.
Is a significance level 2 evaluation appropriate based on the safety significance? If no, contact your manager for an upgrade or downgrade.
Failure of gate valve to open resulted in the inability to restore the outage P3 residual heat removal shutdown cooling penetration. The failure is also considered an M-Rule failure and warrants a significance level 2. Because of the safety significance of this system, the significance level is warranted.
.
Evaluation (repeat text below for each inappropriate action/omission)
Human performance (repeat text below for each inappropriate action/omission)
What factors affected inappropriate action/omission? (list below.)
-- procedure/administrative control: n/a
-- training: no formal training is provided to maintenance personnel on this specific valve design.
-- job standards: n/a
-- pre-job briefs: performed by the job supervisor.
-- communications (logs, turnover, verbal, etc.): n/a.
-- supervisor oversight: n/a.
-- worker experience (skill and knowledge. Were error prevention methods used such as star, peer checks, self-checks and independent checks?): n/a
-- human performance factors (e.g., resources, fatigue, work load, lighting, stress, distractions, schedule, etc.): n/a
.

Equipment (repeat questions below for each failure.)
What component failed?
The H1BC -1-BC-V078 valve is an Anchor Darling. 20", 900#, flex wedge gate valve having a 16.7:1 bevel gear operator equipped with limit switches.

What was the failure mechanism?
Manual operator yoke sleeve nut failed resulting in jam with stress applied to housing cover cap screws (mm: Y404349). Weak link analysis indicates that the maximum deflection of the assembly was found to occur at the operator. (Ref.: VTD PP302Q-0397)

Apparent cause, contributing cause and corrective actions (repeat text for each cause)
Apparent causes:
1.) Apparent cause: Due to the loose component operator part (broken yoke sleeve nut) wedging in the housing gate valve bevel gear operator failed in a partial open position and three operator cap screw heads sheared.
Basis (facts that support apparent cause): visual observation. Gate valve was reported by equipment operator to be in open 10 % position with damaged cap screws.
Immediate corrective actions taken: Walk down and troubleshoot valve. Corrective maintenance order 60036361 replaced cap screws and broken yoke sleeve nut.
Type/status: retested sat/complete.

Long Term Corrective Actions:
Corrective Action: Review application for operator usage or vibration that could have caused bolting to loosen.
Corrective Action Owner: NUM4P
Corrective Action Department: E-REV
Due Date: 10/2/03

Long Term Corrective Actions:
Corrective Action: Inspect valve during RF12 to check valve condition.
Corrective Action Owner: NUM4P
Corrective Action Department: E-REV
Due Date: 10/15/04..

REFERENCES (optional)
NOTIFICATION: 20141176
CM: 60036361
P&ID: M-51-1, SH 1
VTD: PP302Q-0318
VTD: PP302Q-0397
VTD: PP301/302Q-0186, SH 72

PSEG

Notification Overview

Notification *20209339*
Notification type N1
Description *INEFFECTIVE CORRECTIVE ACTION*
Nuc. Maint. Request
Reporter *WEIGLER2501* 01:19:55
Notification date 11/01/2004
Start date *11/01/2004* *End date* 12/02/2004
Start time *01:19:55* *End time* 01:19:55
Priority *1 Immediate* *Sig. Level* *1* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1-BC-V183*
RHR LOOP A RET TO RECIR LOOP A
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

1) DESCRIBE THE ACTUAL CONDITION? (Do not use individual's name(s); you may use computer ID's or badge numbers)

During the current shutdown the hefty manual operator on the H1BC-V183 was found to be broken again. This valve is the manual isolation for the shutdown cooling return isolation to the reactor recirc pump. This operator was found broken in the spring outage. The cause for this damage was determined to be "acceptable vibrations" of the recirc and shutdown cooling lines in the drywell. This was based on an engineering evaluation and vibration readings taken in about June of 2004. Other problems experienced on this line are loss of limit switch indication in the control room for the F060A/v183. A similar loss of indication problem exits also on the B side, similar piping on the B loop.

Many notifications have been written to address symptoms of the vibration problem:

20181920
20194778
20208920
20209100
20182397
20183780
20208119
20182398
20183582
20183448
20183626
20183892
20183773
20183907
20189624
20189454
20192399
20205208
20208116

2) HOW DOES THIS ISSUE IMPACT PLANT OR PERSONNEL SAFETY? *

The shutdown cooling return line is a 12" line. It connects to the discharge of the A Reactor Recirc Pump, 28" line. If this line were to fatigue load to the point of failing, the results would be catastrophic.

3) PSEG NUCLEAR OR REGULATORY REQUIREMENT NOT MET? *
Concern for the health and safety of the general public.

4) WHAT CAUSED THE CONDITION? *

Years ago a snubber reduction plan was implemented and many snubbers in the vacinity of the shutdown cooling return lines were removed. Many "red rings" are visible in the snubber pins near this line.

Generic vibrations of BWR's

5) WHAT ACTIONS, IF ANY, HAVE BEEN TAKEN TO CORRECT THE CONDITION? *
Notification written

6) RECOMMENDED ACTION/CORRECTIVE ACTION AND WORK CENTER RESPONSIBLE FOR CORRECTING CONDITION.
(Use Title/Position, not name)

Make this issue a startup restraint.

Replace all snubbers removed from the A and B shutdown cooling lines and the recirc discharge lines in the vacinity of the shutdown cooling return lines.

NDT all welds on these lines.

Evaluate the fatigue loading on the welds and piping.

Evaluate the manual isolation valves on the SDC return lines for internal damage.
Replace as necessary.

Test the F050A and F050B for leakby, repair as necessary.

Test the F122A and F122B for leakby, repair as necessary.

QA, SCWE involvement.

7) ANY OTHER RELEVANT INFORMATION INCLUDING ANY CRITICAL DATES FOR COMPLETING THE ACTIONS.

(I.E. ROOM NUMBER, BUILDING ELEVATION, COLUMN NUMBER, DISTANCE FROM FLOOR, WHO, WHY, REFERENCES, ESTIMATED COST, WMIS TAG,ECT).
P&ID M-51 Sheet 2

LOCATION OF THE COMPONENT:
Drywell 102', about 270 degrees, 4-6 feet from the inner wall

8) DESCRIBE HOW THE ISSUE WAS IDENTIFIED?

Notification *20209339*
Notification type N1
Description *INEFFECTIVE CORRECTIVE ACTION*
Nuc. Maint. Request
Reporter *WEIGLER2501* 01:19:55
Notification date 11/01/2004
Start date *11/01/2004* *End date* 12/02/2004
Start time *01:19:55* *End time* 01:19:55
Priority *1 Immediate* *Sig. Level* *1* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1-BC-V183*
RHR LOOP A RET TO RECIR LOOP A
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

1) DESCRIBE THE ACTUAL CONDITION? (Do not use individual's name(s); you may use computer ID's or badge numbers)

During the current shutdown the hefty manual operator on the H1BC-V183 was found to be broken again. This valve is the manual isolation for the shutdown cooling return isolation to the reactor recirc pump. This operator was found broken in the spring outage. The cause for this damage was determined to be "acceptable vibrations" of the recirc and shutdown cooling lines in the drywell. This was based on an engineering evaluation and vibration readings taken in about June of 2004. Other problems experienced on this line are loss of limit switch indication in the control room for the F060A/v183. A similar loss of indication problem exits also on the B side, similar piping on the B loop.

Many notifications have been written to address symptoms of the vibration problem:

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20182398
20183582
20183448
20183626
20183892
20183773
20183907
20189624
20189454
20192399
20205208
20208116

2) HOW DOES THIS ISSUE IMPACT PLANT OR PERSONNEL SAFETY? *

The shutdown cooling return line is a 12" line. It connects to the discharge of the A Reactor Recirc Pump, 28" line. If this line were to fatigue load to the point of failing, the results would be catastrophic.

3) PSEG NUCLEAR OR REGULATORY REQUIREMENT NOT MET? *
Concern for the health and safety of the general public.

4) WHAT CAUSED THE CONDITION? *

Years ago a snubber reduction plan was implemented and many snubbers in the vacinity of the shutdown cooling return lines were removed. Many "red rings" are visible in the snubber pins near this line.

Generic vibrations of BWR's

5) WHAT ACTIONS, IF ANY, HAVE BEEN TAKEN TO CORRECT THE CONDITION? *
Notification written

6) RECOMMENDED ACTION/CORRECTIVE ACTION AND WORK CENTER RESPONSIBLE FOR CORRECTING CONDITION.
(Use Title/Position, not name)

Make this issue a startup restraint.

Replace all snubbers removed from the A and B shutdown cooling lines and the recirc discharge lines in the vacinity of the shutdown cooling return lines.

NDT all welds on these lines.

Evaluate the fatigue loading on the welds and piping.

Evaluate the manual isolation valves on the SDC return lines for internal damage.
Replace as necessary.

Test the F050A and F050B for leakby, repair as necessary.

Test the F122A and F122B for leakby, repair as necessary.

QA, SCWE involvement.

7) ANY OTHER RELEVANT INFORMATION INCLUDING ANY CRITICAL DATES FOR COMPLETING THE ACTIONS.

(I.E. ROOM NUMBER, BUILDING ELEVATION, COLUMN NUMBER, DISTANCE FROM FLOOR, WHO, WHY, REFERENCES, ESTIMATED COST, WMIS TAG,ECT).
P&ID M-51 Sheet 2

LOCATION OF THE COMPONENT:
Drywell 102', about 270 degrees, 4-6 feet from the inner wall

8) DESCRIBE HOW THE ISSUE WAS IDENTIFIED?

self revealing
* = NA FOR SIGNIFICANCE LEVEL X NOTIFICATIONS

Updated: JOHN WEIGLER 11.01.2004 01:19:58

REQD	SSC Operability Screening Required	TSOS
REQ	Review Required	TSOS

End of report

PSE&G

Notification Overview

Notification *20208117*
Notification type N1
Description *LIMIT SWITCH ONBCF060B*
Nuc. Maint. Request
Reporter *BARKHAM1996* 18:24:10
Notification date 10/21/2004
Start date *10/21/2004* *End date* 11/21/2004
Start time *18:24:10* *End time* 18:24:10
Priority *1 Immediate* *Sig. Level* *3* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1BCZS-F060B-E11*
**RHR SD CLG INJ MAN VLV*
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

Description of Condition

During a drywell walk down to determine the condition of the recurring problem of degraded limit switches on the RHR shutdown cooling manual isolation valves the following conditions were discovered on the 1BCZS-F060B.
1)The stem extender / striker has worn into the side of the stem protector.
2)The top limit contact is worm off.
3) A cap screw is missing from the gear box cove plate.
4)The hand wheel is loose.
5) The stem protector cap is missing.

Impact on Plant or Personnel Safety

The above conditions have been previously addressed in order 70037702. The Common Cause evaluation has concluded that the identified degraded conditions result in a loss of position indication and will not decrease the capability of the valve to maintain the integrity of the RCS pressure boundary.

Requirement Not Met

What Caused the Condition

As addressed in 70037702 the cause has been determined to be recirc piping vibration.

Evaluation 70037702 addresses the deficient design condition and recommends corrective actions to prevent reoccurrence.

What Actions Have Been Taken

As a part of the recommended corrective actions in 70037702 DCP 800722673 is currently being prepared to correct the described conditions.

PSE&G

Notification Overview

Notification *20208118*
Notification type N1
Description *GEAR BOXCOVERBCF077*
Nuc. Maint. Request
Reporter *BARKHAM1996* 18:27:24
Notification date 10/21/2004
Start date *10/21/2004* *End date* 11/21/2004
Start time *18:27:24* *End time* 18:27:24
Priority *1 Immediate* *Sig. Level* *3* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1BCZS-F077-E11*
**RHR SD CLG MAN VLV*
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

Description of Condition

During a drywell walk down to determine the condition of the recurring problem of degraded limit switches on the RHR shutdown cooling isolation valves the following condition was discovered on the RHR supply manual isolation valve 1BCZS-F077.
The gear box cover plate has been distorted between the cap screws.

Impact on Plant or Personnel Safety

The above condition has been previously addressed in order 70037702. The Common Cause evaluation has concluded that the identified degraded conditions result in a loss of position indication and will not decrease the capability of the valve to maintain the integrity of the RCS pressure boundary.

Requirement Not Met

What Caused the Condition

As addressed in 70037702 the cause has been determined to be recirc piping vibration.

Evaluation 70037702 addresses the deficient design condition and recommends corrective actions to prevent reoccurrence.

What Actions Have Been Taken

As a part of the recommended corrective actions in 70037702 DCP 800722673 is currently being prepared to correct the described conditions.

Recommended Action

Ensure completion of DCP 80072673.

Notification *20208119*
Notification type N1
Description *PROBLEMS WITH BCF050A*
Nuc. Maint. Request
Reporter *BARKHAM1996* 18:30:55
Notification date 10/21/2004
Start date *10/21/2004* *End date* 11/21/2004
Start time *18:30:55* *End time* 18:30:55
Priority *1 Immediate* *Sig. Level* *3* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -BC-HV-F050A*
OP/V111 RHR HX A DSCH TO RCIRC
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

Description of Condition

During a Drywell walk down associated with the failed actuator housing on the 1BC-HV-F050A during the March 04 forced outage the following conditions were found with the F050A testable check valve:
1)There was a key missing that connects a linkage lever arm to a shaft.
2)The actuator housing exhibited a very slight amount of play between the housing and support bracket.
3)The power supply cable attachment on top of the valve was loose and could be turned by hand.

Impact on Plant or Personnel Safety

The key that is missing could prevent the valve from performing its function of testing the check valve. The other conditions have no impact on the capability of the valve to perform its design function.

What caused the condition

The condition of the failed actuator was previously addressed in order 70037702. The cause of the failed actuator was attributed to a combination of recirc piping vibration and insufficient thread engagement due to an original machining mistake.
It is not known at this time if the key was present when the actuator housing was replaced, or if the power supply cable attachment was loose.

What Actions Have Been Taken to Correct the Condition

Wrote this notification

Recommended Action

Assign to valve Engineering to address the impact of the key missing with assistance from design engineering to address the actuator housing condition and loose power supply attachment.

PSEG

Notification Overview

Notification *20208119*
Notification type N1
Description *PROBLEMS WITH BCF050A*
Nuc. Maint. Request
Reporter *BARKHAM1996* 18:30:55
Notification date 10/21/2004
Start date *10/21/2004* *End date* 11/21/2004
Start time *18:30:55* *End time* 18:30:55
Priority *1 Immediate* *Sig. Level* *3* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -BC-HV-F050A*
OP/V111 RHR HX A DSCH TO RCIRC
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

Description of Condition

During a Drywell walk down associated with the failed actuator housing on the 1BC-HV-F050A during the March 04 forced outage the following conditions were found with the F050A testable check valve:
1)There was a key missing that connects a linkage lever arm to a shaft.
2)The actuator housing exhibited a very slight amount of play between the housing and support bracket.
3)The power supply cable attachment on top of the valve was loose and could be turned by hand.

Impact on Plant or Personnel Safety

The key that is missing could prevent the valve from performing its function of testing the check valve. The other conditions have no impact on the capability of the valve to perform its design function.

What caused the condition

The condition of the failed actuator was previously addressed in order 70037702. The cause of the failed actuator was attributed to a combination of recirc piping vibration and insufficient thread engagement due to an original machining mistake.
It is not known at this time if the key was present when the actuator housing was replaced, or if the power supply cable attachment was loose.

What Actions Have Been Taken to Correct the Condition

Wrote this notification

Recommended Action

Assign to valve Engineering to address the impact of the key missing with assistance from design engineering to address the actuator housing condition and loose power supply attachment.

Barkhamer, John W.

From: Nealon, William J.
Sent: Friday, October 29, 2004 8:26 AM
To: Baban, Tiffany A.
Cc: McCollum, Douglas J.; Johnson, Donald J.; Horner, Jeremy D.; Johnson, Craig H.; Barkhamer, John W.; DuBouchet, Andres V.
Subject: H1BC -1-BC-V183 Yoke Sleeve Nut

Tiffany,

The yoke sleeve nut was found broken and separated on H1BC -1BC-V183 (limit switch H1BC -1BCZS-F060A) last night. Refer to Notification 20208920 and Work Order 60049009. Disassembly of the gear operator identified that the yoke sleeve nut was broken. Pictures identify the yoke sleeve nut off of the yoke sleeve threads with the yoke sleeve nut capscrew still installed. This nut is used to contain and hold the gears to the sleeve around the valve stem. Working on this piece and reinstalling a new nut would not affect the packing of the valve. Potential for any leakage from the valve packing due to work on the manual operator is extremely minimal.

The manual operator can be worked with a new nut installed or the old one temporary held in place to close the valve.

The as-found stem position should be marked before any movement of the stem. We need to verify if the stem is close to or hard up against the backseat of the valve bonnet. This will tell if a thermal growth phenomenon occurred. It will also provide the as-found position of the valve wedge and stem, identifying if the valve was open or had drifted closed. This is needed to aid in identifying what caused the problem.

Once the valve wedge is seated and the valve closed, further investigation into any other damage to the manual gear operator can be pursued.

Additional inspection of the yoke sleeve and the damaged nut will be pursued to determine if the damage may have been caused or aided by the system vibration affecting the manual gear operator.

If the valve is as-found partially closed, it is possible that the wedge could be moving on the stem and causing the noise which has been heard in the pipe chases outside the drywell. This is why, finding the as-found position is important for this valve.

The sister valve, H1BC -1BC-V074 (limit switch H1BC -1BCZS-F060B) is scheduled to be worked this outage for limit switch stiffening. The as-found position of the wedge and stem, i.e. distance from full closed needs to be identified.

H1BC -1-BC-V183 is a 12 inch Anchor/Darling flex wedge gate valve. Refer to VTD PP302Q-368 (valve outline drawing) and VTD PP301302Q-0186, page 79 in DCRMS (manual operator detail)

We had a broken yoke sleeve nut on H1BC -1-BC-V078 (H1BCZS-F077) during the last outage (4/03). This is the manual suction isolation valve for the RHR Shutdown cooling lines. This is a 20 inch manual valve with a gear operator. The size and style of gear operator is different from the one installed on H1BC -1-BC-V183, but they are both from the same manufacturer and on Anchor/Darling valves. The last failure had the nut split partially around the circumference of the nut, starting at a setscrew hole. Refer to NUCR 70031101, WO 60036361, Notifications 20141040 and 20141176.

William J. Nealon
MOV Program Manager
PSEG Nuclear LLC
Phone: 856-339-2125
Pager: 877-469-5707
E-mail: william.nealon@pseg.com

1. DO WE HAVE COPIES OF THESE 4 WRITE-UPS

2. DO WE HAVE DETAILS OF THE GEAR BOX ASSEMBLY

V183 V078
F060A F077

3. HAS THIS E-MAIL BEEN ISSUED AS A FORMAL NOTIFICATION

R. OLSON
x2040
11/08/04

Barkhamer, John W.

From: Nealon, William J.
Sent: Friday, October 29, 2004 8:26 AM
To: Baban, Tiffany A.
Cc: McCollum, Douglas J.; Johnson, Donald J.; Horner, Jeremy D.; Johnson, Craig H.; Barkhamer, John W.; DuBouchet, Andres V.
Subject: H1BC -1-BC-V183 Yoke Sleeve Nut

Tiffany,

The yoke sleeve nut was found broken and separated on H1BC -1BC-V183 (limit switch H1BC -1BCZS-F060A) last night. Refer to Notification 20208920 and Work Order 60049009. Disassembly of the gear operator identified that the yoke sleeve nut was broken. Pictures identify the yoke sleeve nut off of the yoke sleeve threads with the yoke sleeve nut capscrew still installed. This nut is used to contain and hold the gears to the sleeve around the valve stem. Working on this piece and reinstalling a new nut would not affect the packing of the valve. Potential for any leakage from the valve packing due to work on the manual operator is extremely minimal.

The manual operator can be worked with a new nut installed or the old one temporary held in place to close the valve.

The as-found stem position should be marked before any movement of the stem. We need to verify if the stem is close to or hard up against the backseat of the valve bonnet. This will tell if a thermal growth phenomenon occurred. It will also provide the as-found position of the valve wedge and stem, identifying if the valve was open or had drifted closed. This is needed to aid in identifying what caused the problem.

Once the valve wedge is seated and the valve closed, further investigation into any other damage to the manual gear operator can be pursued.

Additional inspection of the yoke sleeve and the damaged nut will be pursued to determine if the damage may have been caused or aided by the system vibration affecting the manual gear operator.

If the valve is as-found partially closed, it is possible that the wedge could be moving on the stem and causing the noise which has been heard in the pipe chases outside the drywell. This is why, finding the as-found position is important for this valve.

The sister valve, H1BC -1BC-V074 (limit switch H1BC -1BCZS-F060B) is scheduled to be worked this outage for limit switch stiffening. The as-found position of the wedge and stem, i.e. distance from full closed needs to be identified.

H1BC -1-BC-V183 is a 12 inch Anchor/Darling flex wedge gate valve. Refer to VTD PP302Q-368 (valve outline drawing) and VTD PP301302Q-0186, page 79 in DCRMS (manual operator detail)

We had a broken yoke sleeve nut on H1BC -1-BC-V078 (H1BCZS-F077) during the last outage (4/03). This is the manual suction isolation valve for the RHR Shutdown cooling lines. This is a 20 inch manual valve with a gear operator. The size and style of gear operator is different from the one installed on H1BC -1-BC-V183, but they are both from the same manufacturer and on Anchor/Darling valves. The last failure had the nut split partially around the circumference of the nut, starting at a setscrew hole. Refer to NUCR 70031101, WO 60036361, Notifications 20141040 and 20141176.

William J. Nealon
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PSEG Nuclear LLC
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Pager: 877-469-5707
E-mail: william.nealon@pseg.com

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Pager: 877-469-5707
E-mail: william.nealon@pseg.com

PSEG

Notification Overview

Notification *20209339*
Notification type N1
Description *INEFFECTIVE CORRECTIVE ACTION*
Nuc. Maint. Request
Reporter *WEIGLER2501* 01:19:55
Notification date 11/01/2004
Start date *11/01/2004* *End date* 12/02/2004
Start time *01:19:55* *End time* 01:19:55
Priority *1 Immediate* *Sig. Level* *1* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1-BC-V183*
RHR LOOP A RET TO RECIR LOOP A
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

what was broken

1) DESCRIBE THE ACTUAL CONDITION? (Do not use individual's name(s); you may use computer ID's or badge numbers)
During the current shutdown the hefty manual operator on the H1BC-V183 was found to be broken again. This valve is the manual isolation for the shutdown cooling return isolation to the reactor recirc pump. This operator was found broken in the spring outage. The cause for this damage was determined to be "acceptable vibrations" of the recirc and shutdown cooling lines in the drywell. This was based on an engineering evaluation and vibration readings taken in about June of 2004. Other problems experienced on this line are loss of limit switch indication in the control room for the F060A/v183. A similar loss of indication problem exits also on the B side, similar piping on the B loop.
Many notifications have been written to address symptoms of the vibration problem:

20181920
20194778
20208920
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20183780
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20182398
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20183448
20183626
20183892
20183773
20183907
20189624
20189454
20192399
20205208
20208116

2) HOW DOES THIS ISSUE IMPACT PLANT OR PERSONNEL SAFETY? *

The shutdown cooling return line is a 12" line. It connects to the discharge of the A Reactor Recirc Pump, 28" line. If this line were to fatigue load to the point of failing, the results would be catastrophic.

3) PSEG NUCLEAR OR REGULATORY REQUIREMENT NOT MET? *
Concern for the health and safety of the general public.

4) WHAT CAUSED THE CONDITION? *

Years ago a snubber reduction plan was implemented and many snubbers in the vacinity of the shutdown cooling return lines were removed. Many "red rings" are visible in the snubber pins near this line.

Generic vibrations of BWR's

5) WHAT ACTIONS, IF ANY, HAVE BEEN TAKEN TO CORRECT THE CONDITION? *
Notification written

6) RECOMMENDED ACTION/CORRECTIVE ACTION AND WORK CENTER RESPONSIBLE FOR CORRECTING CONDITION.
(Use Title/Position, not name)

Make this issue a startup restraint.

Replace all snubbers removed from the A and B shutdown cooling lines and the recirc discharge lines in the vacinity of the shutdown cooling return lines.

NDT all welds on these lines.

Evaluate the fatigue loading on the welds and piping.

Evaluate the manual isolation valves on the SDC return lines for internal damage.
Replace as necessary.

Test the F050A and F050B for leakby, repair as necessary.

Test the F122A and F122B for leakby, repair as necessary.

QA, SCWE involvement.

7) ANY OTHER RELEVANT INFORMATION INCLUDING ANY CRITICAL DATES FOR COMPLETING THE ACTIONS.

(I.E. ROOM NUMBER, BUILDING ELEVATION, COLUMN NUMBER, DISTANCE FROM FLOOR, WHO, WHY, REFERENCES, ESTIMATED COST, WMIS TAG,ECT).
P&ID M-51 Sheet 2

LOCATION OF THE COMPONENT:
Drywell 102', about 270 degrees, 4-6 feet from the inner wall

8) DESCRIBE HOW THE ISSUE WAS IDENTIFIED?

Notification *20208118*
Notification type N1
Description *GEAR BOXCOVERBCF077*
Nuc. Maint. Request
Reporter *BARKHAM1996* 18:27:24
Notification date 10/21/2004
Start date *10/21/2004* *End date* 11/21/2004
Start time *18:27:24* *End time* 18:27:24
Priority *1 Immediate* *Sig. Level* *3* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1BCZS-F077-E11*
**RHR SD CLG MAN VLV*
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

Description of Condition

During a drywell walk down to determine the condition of the recurring problem of degraded limit switches on the RHR shutdown cooling isolation valves the following condition was discovered on the RHR supply manual isolation valve 1BCZS-F077.
The gear box cover plate has been distorted between the cap screws.

Impact on Plant or Personnel Safety

The above condition has been previously addressed in order 70037702. The Common Cause evaluation has concluded that the identified degraded conditions result in a loss of position indication and will not decrease the capability of the valve to maintain the integrity of the RCS pressure boundary.

Requirement Not Met

What Caused the Condition

As addressed in 70037702 the cause has been determined to be recirc piping vibration.

Evaluation 70037702 addresses the deficient design condition and recommends corrective actions to prevent reoccurrence.

What Actions Have Been Taken

As a part of the recommended corrective actions in 70037702 DCP 800722673 is currently being prepared to correct the described conditions.

Recommended Action

Ensure completion of DCP 80072673.

Notification *20208116*
Notification type N1
Description *LIMIT SWITCH ON BCF060A*
Nuc. Maint. Request
Reporter *BARKHAM1996* 18:19:44
Notification date 10/21/2004
Start date *10/21/2004* *End date* 11/21/2004
Start time *18:19:44* *End time* 18:19:44
Priority *1 Immediate* *Sig. Level* *3* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1BCZS-F060A-E11*
**RHR SHTDN CLG INJ MAN VLV FOR MANUA*
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

Description of Condition

During a drywell walk down to determine the condition of the recurring problem of degraded limit switches on the RHR shutdown cooling manual isolation valves the following conditions were discovered on the 1BCZS-F060A.
1)The stem extender / striker is disconnected or broken from the valve stem and jammed into the top limit switch.
2)The top limit switch appears to be out of position.
3)The cables supplying both the top and bottom limit switches are broken or disconnected.
4)The hand wheel is loose.
5) The stem protector cap is missing.

Impact on Plant or Personnel Safety

The above conditions have been previously addressed in order 70037702. The Common Cause evaluation has concluded that the identified degraded conditions result in a loss of position indication and will not decrease the capability of the valve to maintain the integrity of the RCS pressure boundary.

What Caused the Condition

As addressed in 70037702 the cause has been determined to be recirc piping vibration.

Requirement Not Met

Evaluation 70037702 addresses the deficient design condition and recommends corrective actions to prevent reoccurrence.

What Actions Have Been Taken

As a part of the recommended corrective actions in 70037702 DCP 800722673 is currently being

PSEG

Notification Overview

Notification *20208117*
Notification type N1
Description *LIMIT SWITCH ONBCF060B*
Nuc. Maint. Request
Reporter *BARKHAM1996* 18:24:10
Notification date 10/21/2004
Start date *10/21/2004* *End date* 11/21/2004
Start time *18:24:10* *End time* 18:24:10
Priority *1 Immediate* *Sig. Level* *3* *Main WorkCtr.* *X-NUCR*
Funct. location *H1BC -1BCZS-F060B-E11*
**RHR SD CLG INJ MAN VLV*
Equipment
Assembly
Order
PM planner grp *099* *Nuclear Default*

NOTIFICATION SUMMARY [VERIFY CURRENT REQUIREMENTS CONTAINED IN
**********NC.WM-AP.ZZ-0000(Q) "NOTIFICATION PROCESS"*********

Description of Condition

During a drywell walk down to determine the condition of the recurring problem of degraded limit switches on the RHR shutdown cooling manual isolation valves the following conditions were discovered on the 1BCZS-F060B.
1)The stem extender / striker has worn into the side of the stem protector.
2)The top limit contact is worm off.
3) A cap screw is missing from the gear box cove plate.
4)The hand wheel is loose.
5) The stem protector cap is missing.

Impact on Plant or Personnel Safety

The above conditions have been previously addressed in order 70037702. The Common Cause evaluation has concluded that the identified degraded conditions result in a loss of position indication and will not decrease the capability of the valve to maintain the integrity of the RCS pressure boundary.

Requirement Not Met

What Caused the Condition

As addressed in 70037702 the cause has been determined to be recirc piping vibration.

Evaluation 70037702 addresses the deficient design condition and recommends corrective actions to prevent reoccurrence.

What Actions Have Been Taken

As a part of the recommended corrective actions in 70037702 DCP 800722673 is currently being prepared to correct the described conditions.