



Entergy Operations, Inc.
Entergy Nuclear Operations, Inc.
1340 Echelon Parkway
Jackson, MS 39213

Mandy Halter
Director, Nuclear Licensing

CNRO-2017-00025

December 20, 2017

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

Subject: Anchor Darling Double Disc Gate Valve Information and Status

Arkansas Nuclear One, Units 1 & 2
Docket Nos. 50-313 & 50-368
License Nos. DPR-51 & NPF-6

Indian Point Energy Center, Units 2 & 3
Docket Nos. 50-247 & 50-286
License Nos. DPR-26 & DPR-64

Grand Gulf Nuclear Station, Unit 1
Docket No. 50-416
License No. NPF-29

Palisades Nuclear Plant
Docket 50-255
License No. DPR-20

River Bend Station, Unit 1
Docket No. 50-458
License No. NPF-47

Pilgrim Nuclear Power Station
Docket No. 50-293
License No. DPR-35

Waterford 3 Steam Electric Station
Docket No. 50-382
License No. NPF-38

- References:
- 1) Letter from Greg Krueger (NEI) to John Lubinski (U.S. Nuclear Regulatory Commission), Anchor Darling Double Disc Gate Valve Industry Resolution Plan Update (Project 689), dated August 4, 2017
 - 2) Letter from Joe Pollock (NEI) to Brian Holian (U.S. Nuclear Regulatory Commission), NSIAC Concurrence on Anchor Darling Double Disc Gate Valve Industry Response Actions (Project 689), dated October 26, 2017
 - 3) BWROG Topical Report TP-16-1-112, Revision 4, Recommendations to Resolve Flowserve 10CFR Part21 Notification Affecting Anchor Darling Double Disc Gate Valve Wedge Pin Failure

Dear Sir or Madam:

In Reference 1, the Nuclear Energy Institute (NEI) provided the NRC a resolution plan for the U.S. Nuclear Industry to address the known Anchor Darling Double Disk Gate Valve (ADDDGV) issues. Reference 2 indicated each utility will provide a listing of their Anchor Darling valve population with active safety functions along with relevant valve information, including the results of susceptibility evaluations, repair status, and a repair schedule for each susceptible valve not yet repaired. This letter serves to provide this information for Entergy Operation, Inc. and Entergy Nuclear Operations, Inc.

ADD1
NRR

The Attachment 1 to this letter contains the following information for each ADDDGV.

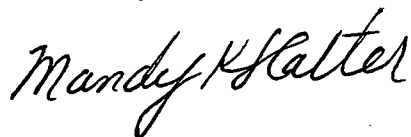
- Plant Name, Unit, and Valve ID.
- System.
- Valve Functional Description.
- Valve Size.
- Active Safety Function (open, close, both).
- Are multiple design basis post-accident strokes required? (yes/no).
- Expert Panel Risk Ranking (high, medium, low).
- Result of susceptibility evaluation (susceptible or not susceptible).
- Is the susceptibility evaluation in general conformance with TP16-1-112R4 (Reference 3)?
- Does the susceptibility evaluation rely on thread friction? If yes, was the coefficient of friction greater than 0.10? For cases where thread-friction was relied upon, information is provided whether the coefficient of friction was above or below 0.1.
- Was an initial stem-rotation check performed? If yes, include rotation criteria (i.e. ≤ 10 degrees or ≤ 5 degrees).
- Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4 (Reference 3)?
- The valve's repair status (i.e. repaired or not repaired).
- A repair schedule for each susceptible valve.

The Attachment 2 to this letter contains footnotes associated with each valve and commitments for repair of the applicable valves.

This letter also serves to confirm that Palisades Nuclear Plant does not use ADDDGVs to support any active safety function.

Should you have any questions or require additional information, please contact Mr. John Giddens, Senior Manager, Regulatory Assurance, at (601) 368-5756.

Respectfully,



Mandy Halter
Director, Nuclear Licensing

MH/jjn/gpn

Attachments: 1) Entergy Response to Anchor Darling Double Disk Gate Valve Part 21
2) Licensing Commitments and Notes

cc: C. Bakken (ECH)
J. Elnitsky (ECH)

J. Ventosa (ECH)
C. Costanzo (ECH)
L. Coyle (ECH)
D. Jacobs (ECH)
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R. Anderson (ANO)
E. Larson (GGNS)
W. Maguire (RBS)
J. Dinelli (WF3)
T. Vitale (IPEC)
B. Sullivan (PIL)
C. Arnone (PAL)
J. Boyle (VY)
B. Ford (ECH)
J. Giddens (ECH)
All above w/o attachments

NRC Region I Administrator
NRC Region III Administrator
NRC Region IV Administrator
NRC Project Manager (ANO)
NRC Project Manager (GGNS)
NRC Project Manager (RBS)
NRC Project Manager (WF3)
NRC Project Manager (IPEC)
NRC Project Manager (PIL)
NRC Project Manager (PAL)
NRC Senior Resident Inspector (ANO)
NRC Senior Resident Inspector (GGNS)
NRC Senior Resident Inspector (RBS)
NRC Senior Resident Inspector (WF3)
NRC Senior Resident Inspector (IPEC)
NRC Senior Resident Inspector (PIL)
NRC Senior Resident Inspector (PAL)
Ms. Margaret O'Banion, Project Manager, NRC/NRR/DORL

ATTACHMENT 1

CNRO-2017-00025

ENTERGY ANCHOR DARLING DOUBLE DISK GATE VALVE LISTING

ENERGY ANCHOR DARLING DOUBLE DISK GATE VALVE LISTING

Plant Name	Unit #	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (O/C/Both/None)	Are multiple design basis post-accident strokes required? (yes/no).	Expert Panel Risk Ranking (high, medium, low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112 R4? (Yes/No) Notes ⁽¹⁾ , ⁽²⁾ or ⁽³⁾	Does the susceptibility evaluation rely on thread friction? (Yes/No)	If yes, was the COF greater than 0.10 (Yes/No)	For cases where thread-friction was relied upon, information is provided whether the coefficient of friction was above or below 0.1 (Yes/No)	Was an initial stem-rotation check performed (Yes/No)	If yes, include rotation criteria (i.e. ≤10 degrees or ≤5 degrees)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4 (Yes/No)	The valve's repair status (i.e. repaired or not repaired)	A repair schedule for each susceptible valve
ANO	1	CV-2827	FW	FW Crossover Isol.	14	None	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	N/A - Note ⁽¹²⁾	Not Repaired	Spring 2018
ANO	1	CV-1009	RCS	Pressurizer Spray Isolation	2.5	None	No	Low	In-Progress Note ⁽¹⁰⁾	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Not Repaired	Note ⁽¹⁰⁾
ANO	1	CV-1213	RCS	LD Ht Ex Inlet	2.5	None	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Repaired	N/A
ANO	1	CV-1214	MU	LD Ht Ex Inlet Isol.	2.5	C	No	Low	In-Progress Note ⁽¹⁰⁾	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Not Repaired	Note ⁽¹⁰⁾
ANO	1	CV-1215	RCS	LD Ht Ex Inlet	2.5	None	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Repaired	N/A
ANO	1	CV-1216	MU	LD Ht Ex Inlet Isol.	2.5	C	No	Low	In-Progress Note ⁽¹⁰⁾	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Not Repaired	Note ⁽¹⁰⁾
ANO	1	CV-1221	MU	RCS LD RB Isol.	2.5	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Repaired	N/A
ANO	1	CV-1233	MU	RCS Makeup Block	2.5	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Repaired	N/A
ANO	1	CV-1234	MU	RCS Makeup Block	2.5	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Repaired	N/A
ANO	1	CV-2215	ICW	ICW to LD & RB Coolers	8	C	No	Low	Not Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Not Required	N/A
ANO	1	CV-2220	ICW	ICW to LD & CRD Coolers	8	C	No	Low	Not Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Not Required	N/A
ANO	1	CV-2221	ICW	ICW to CRD Cooler Supply	8	C	No	Low	Not Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Not Required	N/A
ANO	1	CV-2235	ICW	ICW to LD & CRD Coolers	3	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Repaired	N/A
ANO	1	CV-2625	FW	MFW Block	18	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Not Repaired	Spring 2018
ANO	1	CV-2630	FW	MFW Isol.	18	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Not Repaired	Spring 2018
ANO	1	CV-2675	FW	MFW Block	18	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes - Note ⁽¹¹⁾	<20°	Yes	Not Repaired	Spring 2018
ANO	1	CV-2680	FW	MFW Isol.	18	C	No	Low	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	<20°	Yes	Not Repaired	Spring 2018
ANO	2	2CV-4653	RCS	Pressurizer Spray Isolation	3	None Note ⁽¹³⁾	No	Low Note ⁽¹³⁾	Susceptible	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
ANO	2	2CV-4654	RCS	Pressurizer Spray Isolation	3	None Note ⁽¹³⁾	No	Low Note ⁽¹³⁾	Susceptible	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
ANO	2	2CV-4655	RCS	Pressurizer Spray Isolation	3	None Note ⁽¹³⁾	No	N/A Note ⁽¹³⁾	Susceptible	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
ANO	2	2CV-4656	RCS	Pressurizer Spray Isolation	3	None Note ⁽¹³⁾	No	N/A Note ⁽¹³⁾	Susceptible	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
GGN	1	1B33F023A	RECIRC	RECIRC PMP A SUCT VLV	24	None Note ⁽⁵⁾	N/A	N/A	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	≤5°	N/A - Note ⁽¹²⁾	N/A	N/A
GGN	1	1B33F023B	RECIRC	RECIRC PMP B SUCT VLV	24	None Note ⁽⁵⁾	N/A	N/A	Susceptible	Yes - Note ⁽⁹⁾	No	N/A	N/A	Yes	≤5°	N/A - Note ⁽¹²⁾	N/A	N/A
GGN	1	1B33F067A	RECIRC	RECIRC PMP A DISCH VLV	24	None	N/A	N/A	Not Susceptible	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	Repaired 2004	N/A
GGN	1	1B33F067B	RECIRC	RECIRC PMP B DISCH VLV	24	None	N/A	N/A	Not Susceptible	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	Repaired 2004	N/A
IPC	2	744	RHR	RHR PUMPS DISCH TO RESIDUAL HXS ISOLATION	10	Close	No	Low	Not susceptible	Yes - Note ⁽⁹⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	746	RHR	RHR HX-22 OUTLET ISOLATION STOP	8	Both	Yes	High	Not susceptible	Yes - Note ⁽⁹⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	747	RHR	RHR HX-21 OUTLET ISOLATION STOP	8	Both	Yes	High	Not susceptible	Yes - Note ⁽⁹⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	769	CCW	RCPSRV SUPPORT CCW INLET ISOLATION	6	C	No	Low	Not susceptible	Yes - Note ⁽⁹⁾	Yes	No	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	784	CCW	RCPS BEARING WTR RETURN ISOLATION	6	C	No	Low	Not susceptible	Yes - Note ⁽⁹⁾	Yes	No	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	797	CCW	RCPS-RV SUPPORT CCW INLET ISOLATION	6	C	No	Low	Not susceptible	Yes - Note ⁽⁹⁾	Yes	No	Yes	No	N/A	Yes	Not repaired	N/A
IPC	2	882	SI	RHR PUMPS SUCTION FROM RWST	10	Close	NO	Med	Not susceptible	Yes - Note ⁽⁹⁾	Yes	No	Yes	No	N/A	Yes	Not repaired	N/A
IPC	2	1802A	SI	21 RECIRCULATION PUMP DISCHARGE STOP	10	Both	Yes	Med	Not susceptible	Yes - Note ⁽⁹⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	1802B	SI	22 RECIRCULATION PUMP DISCHARGE STOP	10	Both	Yes	Med	Not susceptible	Yes - Note ⁽⁹⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	850A	SI	21 SAFETY INJECTION PUMP DISCHARGE STOP	4	Close	No	Low	Not susceptible	Yes - Note ⁽⁹⁾	No	No	Yes	No	N/A	Yes	Not repaired	N/A

ENERGY ANCHOR DARLING DOUBLE DISK GATE VALVE LISTING

Plant Name	Unit #	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (O/C/Both/None)	Are multiple design basis post-accident strokes required? (yes/no).	Expert Panel Risk Ranking (high, medium, low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112 R4? (Yes/No) Notes ^{(1), (2) or (3)}	Does the susceptibility evaluation rely on thread friction? (Yes/No)	If yes, was the COF greater than 0.10 (Yes/No)	For cases where thread friction was relied upon, information is provided whether the coefficient of friction was above or below 0.1 (Yes/No)	Was an initial stem-rotation check performed (Yes/No)	If yes, include rotation criteria (i.e. ≤10 degrees or ≤5 degrees)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4 (Yes/No)	The valve's repair status (i.e. repaired or not repaired)	A repair schedule for each susceptible valve
IPC	2	850B	SI	23 SAFETY INJECTION PUMP DISCHARGE STOP	4	Close	No	Low	Not susceptible	Yes - Note ⁽³⁾	No	No	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	851A	SI	22 SI PUMP TIE VALVE TO DISCHARGE OF 21 SI PUMP	4	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Repaired	N/A
IPC	2	851B	SI	22 SI PUMP TIE VALVE TO DISCHARGE OF 23 SI PUMP	4	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	885A	SI	RHR PUMP SUCTION FROM CONTAINMENT SUMP	12	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Repaired	N/A
IPC	2	885B	SI	RHR PUMP SUCTION FROM CONTAINMENT SUMP	12	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Repaired	N/A
IPC	2	888A	SI	SI PUMPS SUCTION FROM RESIDUAL HEAT EXCHANGER 21 & 22	4	Both	Yes	High	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	888B	SI	SI PUMPS SUCTION FOM RESIDUAL HX-21,22	4	Both	Yes	High	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	894A	SI	ACCUMULATOR TANK 21 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	894B	SI	ACCUMULATOR TANK 22 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	894C	SI	ACCUMULATOR TANK 23 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	894D	SI	ACCUMULATOR TANK 24 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	2	FCV-625	CCW	RCP THERMAL BARRIER CCW RTRN HEADER FLOW	3	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Repaired	N/A
IPC	3	AC-MOV-743	RHR	RHR LOOP MINIFLOW TEST LINE STOP	3	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	AC-MOV-744	RHR	RHR PUMPS DISCHARGE ISOLATION	10	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	AC-MOV-745A	RHR	32 RHR HX INLET ISOLATION	6	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	AC-MOV-745B	RHR	32 RHR HX INLET ISOLATION	6	C	No	Low	Susceptible Note ⁽⁹⁾	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes - Note ⁽⁶⁾	Not repaired	Spring 2019
IPC	3	SI-MOV-1802A	SI	RECIRC PUMP DISCHARGE ISOLATION	10	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-1802B	SI	RECIRC PUMP DISCHARGE ISOLATION	10	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-1835A	SI	BIT OUTLET ISOLATION	4	Both	Yes	Low	Susceptible Note ⁽⁹⁾	Yes - Note ⁽³⁾	Yes	No	No	Yes	< 10°	Yes - Note ⁽⁶⁾	Not repaired	Spring 2019
IPC	3	SI-MOV-1835B	SI	BIT OUTLET ISOLATION	4	Both	Yes	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	No	No	No	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-1852A	SI	BORON INJECTION TANK INLET STOP	4	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	No	No	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-1852B	SI	BORON INJECTION TANK INLET STOP	4	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	No	No	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-1869A	SI	32 RHR HX OUTLET TO SI/RHR MINIFLOW ISOLATION	6	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-1869B	SI	31 RHR HX OUTLET TO SI/RHR MINIFLOW ISOLATION	6	C	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-851A	SI	32 SAFETY INJECTION PUMP DISCHARGE ISOLATION	4	Both	Yes	Low	Susceptible Note ⁽⁹⁾	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes - Note ⁽⁶⁾	Not repaired	Spring 2019
IPC	3	SI-MOV-851B	SI	32 SAFETY INJECTION PUMP DISCHARGE ISOLATION	4	Both	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-866A	CONTAINMENT SPRAY	CONTAINMENT SPRAY PUMP #31 DISCHARGE STOP	6	Both	Yes	Low	Susceptible Note ⁽⁹⁾	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes - Note ⁽⁶⁾	Not repaired	Spring 2019
IPC	3	SI-MOV-866B	CONTAINMENT SPRAY	CONTAINMENT SPRAY PUMP #32 DISCHARGE STOP	6	Both	Yes	Low	Susceptible Note ⁽⁹⁾	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes - Note ⁽⁶⁾	Not repaired	Spring 2019
IPC	3	SI-MOV-882	SI	RHR PUMPS RWST SUCTION ISOLATION	10	C	No	Low	Susceptible Note ⁽⁹⁾	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes - Note ⁽⁶⁾	Not repaired	Spring 2019
IPC	3	SI-MOV-883	SI	RHR PUMP RECIRC LINE TO RWST STOP	8	O	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-885A	SI	CONTAINMENT SUMP RHR SUCTION ISOLATION	14	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A

ENERGY ANCHOR DARLING DOUBLE DISK GATE VALVE LISTING

Plant Name	Unit #	Valve ID	System	Valve Functional Description	Valve Size (inches)	Active Safety Function (O/C/Both/None)	Are multiple design basis post-accident strokes required? (yes/no).	Expert Panel Risk Ranking (high, medium, low)	Result of susceptibility evaluation (susceptible or not susceptible)	Is the susceptibility evaluation in general conformance with TP16-1-112 R4? (Yes/No) Notes ^{(1), (2) or (3)}	Does the susceptibility evaluation rely on thread friction? (Yes/No)	If yes, was the COF greater than 0.10 (Yes/No)	For cases where thread-friction was relied upon, information is provided whether the coefficient of friction was above or below 0.1 (Yes/No)	Was an initial stem-rotation check performed (Yes/No)	If yes, include rotation criteria (i.e. ≤10 degrees or ≤5 degrees)	Was the diagnostic test data reviewed for failure precursors described in TP16-1-112R4 (Yes/No)	The valve's repair status (i.e. repaired or not repaired)	A repair schedule for each susceptible valve
IPC	3	SI-MOV-885B	SI	CONTAINMENT SUMP RHR SUCTION ISOLATION	14	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-888A	SI	LOW HEAD TO HIGH HEAD SI RECIRC STOP	4	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-888B	SI	LOW HEAD TO HIGH HEAD SI RECIRC STOP	4	Both	Yes	Med	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-889A	CSS	32 RHR HX OUTLET TO SPRAY HEADER STOP	6	O	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-889B	CSS	31 RHR HX OUTLET TO SPRAY HEADER STOP	6	O	No	Low	Susceptible Note ⁽⁹⁾	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes - Note ⁽⁶⁾	Not repaired	Spring 2019
IPC	3	SI-MOV-894A	SI	ACCUMULATOR TANK 31 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-894B	SI	ACCUMULATOR TANK 32 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-894C	SI	ACCUMULATOR TANK 33 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
IPC	3	SI-MOV-894D	SI	ACCUMULATOR TANK 34 DISCHARGE STOP	8	None	No	Low	Not susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	Yes	< 10°	Yes	Not repaired	N/A
PNP	1	MO-202-4A	RECIRC	REACTOR RECIRC PUMP A SUCTION VALVE	28x24x28	None Note ⁽⁵⁾	No	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
PNP	1	MO-202-4B	RECIRC	REACTOR RECIRC PUMP B SUCTION VALVE	28x24x28	None Note ⁽⁵⁾	No	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
PNP	1	MO-202-5A	RECIRC	REACTOR RECIRC PUMP A DISCHARGE VALVE	28x24x28	C	No	High	Not Susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	No	N/A	Yes	Not Repaired	N/A
PNP	1	MO-202-5B	RECIRC	REACTOR RECIRC PUMP B DISCHARGE VALVE	28x24x28	C	No	High	Not Susceptible	Yes - Note ⁽³⁾	Yes	Yes	Yes	No	N/A	Yes	Not Repaired	N/A
PNP	1	MO-1001-29B	RHR	LPCI LOOP B INJECTION VALVE #2	18	Both	Yes	High	Susceptible Note ⁽⁴⁾	Yes - Note ⁽³⁾	Yes	Yes	Yes	No	N/A	Yes	Not Repaired	F/O 2018
RBS	1	B33-MOVF023A	RECIRC	RX RECIRC PMP A DISCH HEADER LOOP A ISOL VLV OPER	24	None	No	N/A	Susceptible	N/A	No	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
RBS	1	B33-MOVF023B	RECIRC	RX RECIRC PMP B DISCH HEADER LOOP B ISOL VLV OPER	24	None	No	N/A	Susceptible	N/A	No	N/A	N/A	No	N/A	N/A - Note ⁽¹²⁾	N/A	N/A
RBS	1	B33-MOVF067A	RECIRC	RX RECIRC PMP A SUCT HEADER LOOP A ISOL VLV OPER	24	None Note ⁽⁵⁾	No	N/A	Not Susceptible	Yes - Note ⁽³⁾	Yes	No	N/A	No	N/A	N/A - Note ⁽¹²⁾	No	Repaired 2007
RBS	1	B33-MOVF067B	RECIRC	RX RECIRC PMP B SUCT HEADER LOOP B ISOL VLV OPER	24	None Note ⁽⁵⁾	No	N/A	Not Susceptible	Yes - Note ⁽³⁾	Yes	No	N/A	No	N/A	N/A - Note ⁽¹²⁾	No	Repaired 2007
WF3	3	SI MVAAA407 A	SI	RC LOOP 2 SDC SUCTION OUTSIDE CONTAINMENT ISOL	14	O	No	Low	Susceptible Note ⁽⁸⁾	Yes - Note ⁽⁸⁾	No	N/A	N/A	Yes	≤5°	Yes	Not Repaired	Jan/Feb 2019
WF3	3	SI MVAAA407 B	SI	RC LOOP 1 SDC SUCTION OUTSIDE CONTAINMENT ISOL	14	O	No	Low	Susceptible Note ⁽⁸⁾	Yes - Note ⁽⁸⁾	No	N/A	N/A	Yes	≤5°	Yes	Not Repaired	Jan/Feb 2019

Notes are listed in Attachment 2

ATTACHMENT 2

CNRO-2017-00025

LICENSING COMMITMENTS and NOTES

The following table identifies commitments made in this document. (Any other actions discussed in the submittal represent intended or planned actions. They are described to the NRC for the NRC's information and are not regulatory commitments.)

ENERGY - LICENSING COMMITMENTS and NOTES

Plant Name	Unit #	Valve ID	Note(s)	Regulatory Commitment to Repair Yes/No	Commitment Date or Outage	Commitment Type One-Time Action Yes/No	Commitment Type Programmatic Yes/No
ANO	1	CV-2827	3, 7, 11, 12	Yes - Note ⁽⁷⁾	Spring 2018	Yes	No
ANO	1	CV-1009	3, 10	Note ⁽¹⁰⁾			
ANO	1	CV-1213	3	Repair Complete			
ANO	1	CV-1214	3, 10	Note ⁽¹⁰⁾			
ANO	1	CV-1215	3	Repair Complete			
ANO	1	CV-1216	3, 10	Note ⁽¹⁰⁾			
ANO	1	CV-1221	3, 11	Repair Complete			
ANO	1	CV-1233	3, 11	Repair Complete			
ANO	1	CV-1234	3, 11	Repair Complete			
ANO	1	CV-2215	3, 11	No			
ANO	1	CV-2220	3, 11	No			
ANO	1	CV-2221	3	No			
ANO	1	CV-2235	3	Repair Complete			
ANO	1	CV-2625	3, 7, 11	Yes - Note ⁽⁷⁾	Spring 2018	Yes	No
ANO	1	CV-2630	3, 7, 11	Yes - Note ⁽⁷⁾	Spring 2018	Yes	No
ANO	1	CV-2675	3, 7, 11	Yes - Note ⁽⁷⁾	Spring 2018	Yes	No
ANO	1	CV-2680	3, 7	Yes - Note ⁽⁷⁾	Spring 2018	Yes	No
ANO	2	2CV-4653	13	No			
ANO	2	2CV-4654	13	No			
ANO	2	2CV-4655	13	No			
ANO	2	2CV-4656	13	No			
GGN	1	1B33F023A	5, 12	No			

ENERGY - LICENSING COMMITMENTS and NOTES

Plant Name	Unit #	Valve ID	Note(s)	Regulatory Commitment to Repair Yes/No	Commitment Date or Outage	Commitment Type One-Time Action Yes/No	Commitment Type Programmatic Yes/No
GGN	1	1B33F023B	5, 12	No			
GGN	1	1B33F067A	12	Repair Complete			
GGN	1	1B33F067B	12	Repair Complete			
IPC	2	744	3	No			
IPC	2	746	3	No			
IPC	2	747	3	No			
IPC	2	769	3	No			
IPC	2	784	3	No			
IPC	2	797	3	No			
IPC	2	882	3	No			
IPC	2	1802A	3	No			
IPC	2	1802B	3	No			
IPC	2	850A	3	No			
IPC	2	850B	3	No			
IPC	2	851A	3	No			
IPC	2	851B	3	No			
IPC	2	885A	3	No			
IPC	2	885B	3	No			
IPC	2	888A	3	No			
IPC	2	888B	3	No			
IPC	2	894A	3	No			
IPC	2	894B	3	No			

ENERGY - LICENSING COMMITMENTS and NOTES

Plant Name	Unit #	Valve ID	Note(s)	Regulatory Commitment to Repair Yes/No	Commitment Date or Outage	Commitment Type One-Time Action Yes/No	Commitment Type Programmatic Yes/No
IPC	2	894C	3	No			
IPC	2	894D	3	No			
IPC	2	FCV-625	3	No			
IPC	3	AC-MOV-743	3	No			
IPC	3	AC-MOV-744	3	No			
IPC	3	AC-MOV-745A	3	No			
IPC	3	AC-MOV-745B	3, 6, 7, 9	Yes - Note ⁽⁷⁾	Spring 2019	Yes	No
IPC	3	SI-MOV-1802A	3	No			
IPC	3	SI-MOV-1802B	3	No			
IPC	3	SI-MOV-1835A	3, 6, 7, 9	Yes - Note ⁽⁷⁾	Spring 2019	Yes	No
IPC	3	SI-MOV-1835B	3	No			
IPC	3	SI-MOV-1852A	3	No			
IPC	3	SI-MOV-1852B	3	No			
IPC	3	SI-MOV-1869A	3	No			
IPC	3	SI-MOV-1869B	3	No			
IPC	3	SI-MOV-851A	3, 6, 7, 9	Yes - Note ⁽⁷⁾	Spring 2019	Yes	No
IPC	3	SI-MOV-851B	3	No			
IPC	3	SI-MOV-866A	3, 6, 7, 9	Yes - Note ⁽⁷⁾	Spring 2019	Yes	No
IPC	3	SI-MOV-866B	3, 6, 7, 9	Yes - Note ⁽⁷⁾	Spring 2019	Yes	No
IPC	3	SI-MOV-882	3, 6, 7, 9	Yes - Note ⁽⁷⁾	Spring 2019	Yes	No
IPC	3	SI-MOV-883	3	No			
IPC	3	SI-MOV-885A	3	No			

ENERGY - LICENSING COMMITMENTS and NOTES

Plant Name	Unit #	Valve ID	Note(s)	Regulatory Commitment to Repair Yes/No	Commitment Date or Outage	Commitment Type One-Time Action Yes/No	Commitment Type Programmatic Yes/No
IPC	3	SI-MOV-885B	3	No			
IPC	3	SI-MOV-888A	3	No			
IPC	3	SI-MOV-888B	3	No			
IPC	3	SI-MOV-889A	3	No			
IPC	3	SI-MOV-889B	3, 6, 7, 9	Yes - Note ⁽⁷⁾	Spring 2019	Yes	No
IPC	3	SI-MOV-894A	3	No			
IPC	3	SI-MOV-894B	3	No			
IPC	3	SI-MOV-894C	3	No			
IPC	3	SI-MOV-894D	3	No			
PNP	1	MO-202-4A	5, 12	No			
PNP	1	MO-202-4B	5, 12	No			
PNP	1	MO-202-5A	3	No			
PNP	1	MO-202-5B	3	No			
PNP	1	MO-1001-29B	3, 4, 7	Yes - Note ⁽⁷⁾	FO 2018	Yes	No
RBS	1	B33-MOVF023A	5, 12	No			
RBS	1	B33-MOVF023B	5, 12	No			
RBS	1	B33-MOVF067A	3, 12	Repair Complete			
RBS	1	B33-MOVF067B	3, 12	Repair Complete			

ENTERGY - LICENSING COMMITMENTS and NOTES

Plant Name	Unit #	Valve ID	Note(s)	Regulatory Commitment to Repair Yes/No	Commitment Date or Outage	Commitment Type One-Time Action Yes/No	Commitment Type Programmatic Yes/No
WF3	3	SI MVAAA407 A	7, 8	Yes - Note ⁽⁷⁾	Jan/Feb 2019	Yes	No
WF3	3	SI MVAAA407 B	7, 8	Yes - Note ⁽⁷⁾	Jan/Feb 2019	Yes	No

NOTE 1	Applied Wedge Pin Torque based on maximum value from diagnostic test data
NOTE 2	Applied Wedge Pin Torque based on maximum actuator output torque (locked rotor)
NOTE 3	Applied Wedge Pin Torque based on the limiting value of the spring pack capability or the valve/actuator weak link torque.
NOTE 4	MO-1001-29B is a priority 1 based on being subject to flow induced vibration in which the disc pack is in a turbulent flow stream.
NOTE 5	Recirculation suction valves are classified as safety related - pressure boundary only.
NOTE 6	Anomaly noted in diagnostic test
NOTE 7	Repair of valve is based on availability of replacement parts
NOTE 8	Wedge pin analysis is based on valve being properly torqued during assembly. Flowserve provided a letter confirming the torque value because their process had changed when valves were purchased in 2002, however no work documents could be provided by Flowserve.
NOTE 9	Susceptible based on review of diagnostic trace. Not susceptible based on pin shear analysis and stem rotation
NOTE 10	Wedge pin shear analysis is in progress. Corrective action will be based on the results of this analysis.
NOTE 11	Stem rotation was greater than 5 degrees
NOTE 12	Non GL96-05 MOV
NOTE 13	Valves are under review to potentially change their safety function and/or risk significance.