

Northern States Power Company

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NRC IE Bulletin 79-14

July 21, 1988

Mr A Bert Davis, Administrator Region III U S Nuclear Regulatory Commission 799 Roosevelt Road Glen Ellyn, Illinois 60137

PRAIRIE ISLAND NUCLEAR GENERATING PLANT DOCKET NOS. 50-282 LICENSE NOS. DPR-42 50-306 DPR-60

Additional Response to IE Bulletin 79-14 Seismic Analysis for As-Built Safety-Related Piping Systems

Reference: (a) NRC Region III Inspection Report 50-282/306/88009(DRS) dated June 30, 1988

The purpose of this letter is to provide additional information related to analyses required by NRC IE Bulletin 79-14, "Seismic Analysis for As-Built Safety-Related Piping Systems." This information is related to the recent discovery of errors in the weight and center of gravity specified for small bore Copes-Vulcan valves installed at the Prairie Island Nuclear Generating Plant. Background information related to this issue is contained in Reference (a).

During a review of work originally performed to meet the requirements of NRC IE Bulletin 79-14, discrepancies were found in the weights and centers of gravity specified in drawing revisions issued by Copes-Vulcan for three valve models supplied to the Prairie Island plant. Later revisions of the detailed drawings ("L" drawings) for these valves specified increased weights and centers of gravity than those specified on the outline ("S" drawings) used in the original calculations.

The "S" drawings have typically shown both the valve weight and center of gravity, while the "L" drawings have typically shown just the valve weight. These valves were supplied to Prairie Island by the Westinghouse Electric Corporation. See the attached table for a complete listing of Copes-Vulcan valves used at the plant.

In investigating this matter with Westinghouse and Copes-Vulcan, we have learned that the revised "L" drawings contain accurate information, even though this information conflicts with the original "S" drawing data.

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Because the original piping analysis was based on the lower weights and centers of gravity for these valves, Northern States Power Company has requested the Prairie Island architect-engineer (Fluor Daniel) to perform an evaluation of all small bore Copes Vulcan valves used in safety related applications in the plant. Evaluations completed at this time by Fluor Daniel include the three worst cases and provide justification for continued plant operation until all analyses can be completed. The Fluor Daniel analyses envelope all analytical cases for Copes-Vulcan valves using conservative valve weights and centers of gravity.

Of the 15 models of Copes-Vulcan small bore valves in use at Prairie Island, and potentially affected by this problem, only one type is in use at other Westinghouse designed plants. This valve model (ID No. 1IA56RE) was supplied to both the Prairie Island and Surry plants. Westinghouse reports that Virginia Power Corporation requested them to recalculate the center of gravity and weight for this valve, therefore the correct values are being used at Surry for this valve model.

An additional valve model (ID No. 3IA58RGP), is within the Westinghouse piping analysis scope. Westinghouse has determined that an appropriate valve weight and center of gravity was used in piping analyses that included this valve model.

Based on this information, it appears that incorrect valve weights and centers of gravity for these particular valve models is currently a problem only at Prairie Island.

Correct valve weights and centers of gravity have now been confirmed by Westinghouse (Attachment 1). Fluor Daniel is now completing analyses of the remaining potentially affected piping systems. We anticipate completion of these analyses prior to the Unit No. 1 outage later this summer. During the outage, any modifications required to restore original conservative design margins will be completed in Unit 1. Similar modifications, if required, will be completed in Unit 2 during the next refueling outage early next year.

Please contact us if you have any questions related to this issue or if you require/additional information.

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C E Larson Vice President Nuclear Generation

c: J A Gavula, NRC Region III Sr Resident Inspector, NRC NRR Sr Project Manager, NRC G Charnoff

Attachments

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Westinghouse Valve ID	Size	L Print	<u>Rev. #</u>	<u>S Print</u>	Rev. # See Note 1	∉ of NSP
3/4-IA58-RE ²	3/4	L-137857*	2	S-129989	6	2
3/4-IA58-RE ³	3/4	L-140209*	2	S-129989	6	8
1-RA42-DD	1	L-137820	2	S-133149	6	2
1-RA36-RDS	1	L-137914	3	S • 133149	6	2
1-IA38-RES	1	L-138930	3	S-133150	9	2
1-1456-RE4	1	L-137918*	2	S-133150	9	4
1-IA56-RES	1	L-137919	2	S-133150	9	4
1-RA58-RD	1	L-140975	2	S-133149	6	2
1-1458-RE	1	L-137968	2	8-133150	9	6
2-IA58-DG	2	L-143864	0	S-130032	9	4
2-1456-RE	2	L-138023	2	S-133269	3	2
2-IA58-RG	2	L-144157	0	S-130032	9	6
2-1458-RE	2	L-138049	7	S-133269	3	4
2-2RA42-RD	2	L-141003	Α	S-133151	7	3
3-1458-RGP5	2	L-143844	1	S-131642	5	4

"These "L" drawings have since been revised to indicate a change in center of gravity and/or weight. The associated "S" drawing does not reflect any change in center of gravity or weight.

NOTES: 1. Revision numbers listed are the latest revisions at NSP.

- Letter from Copes Vulcan to Barry Dickerson, FD, indicating a possible discrepancy of weight and center of gravity.
- Same valve and operator as L-140209 but on different drawing L-137857.
- Per phone conversation with Copes Vulcan representative verifies that PI print has incorrect center of gravity.
- 5. These valve analyses have correct center of gravity and weight per phone conversation with Westinghouse representative, Lonnie Benson, on 6/24/88. Documented on letter to NSP from Westinghouse on 6/28/88 and again per phone conversation with Lonnie Benson on 7/1/88.

Attachment (2) A Bert Davis July 21, 1988



Westinghouse Electric Corporation Power Systems

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Energy Systems Service Division

Box 355 Pittsburgh Pennsylvania 15230-0355

Mr. J. E. Goldsmith Prairie Island Nuclear Generating Station Northern States Power Company 1717 Wakonade Drive East Welch, MN 55089 NSP-88-176

July 8, 1988

Ref: 1) NSP ltr. TS-88-096, 6/21/88, Goldsmith to Benson 2) W ltr. NSP-80-23, 4/30/80,

> Northern States Power Company Prairie Island Nuclear Generating Station Prairie Island Valve Weights and Centers of Gravity

Dear Mr. Goldsmith:

Westinghouse has contacted Copes-Vulcan and obtained correct weights and centers of gravity for the valves listed in reference 1. Corrected weights and centers of gravity are provided in the attachment to this letter. Please note in most cases the weights and centers of gravity are different from those shown on the "L" and "S" drawings on file at Prairie Island and Westinghouse.

Based on Westinghouse's review, it has been determined that none of the valves identified in your letter were utilized in any Westinghouse piping analyses with the exception of Valve I.D. 3IA58RGP.

On Valve I.D. 3IA58RGP, Westinghouse previously requested a corrected weight and center of gravity from Copes Vulcan, so it could verify its piping analysis per action identified in Reference 2 to the NRC. This was completed and Westinghouse has reverified the correct weight (341 lb.) and C.G. (21.8 in.) was utilized in the Prairie Island analysis. Subsequent to this review, NSP purchased replacement Copes Vulcan valves and the system was again rechecked per NSP request and verified acceptable. In this case, it was reconciled that the new weight (350 lb) and C.G. (22.7 in.) had a negligible effect on the system analysis.

Regarding the "S" and "L" drawings and revision levels, Copes Vulcan has indicated that the "S" drawings are typical for a family of valve ID's, whereas the "L" drawings are specific to each ID. Therefore, the "L" drawing should be used for valve information. Based on this transmittal, it is recommended that NSP update the "L" drawings indicated in the attachment to reflect the corrected weights and centers of gravity.

Mr. J. E. Goldsmith

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Concerning your question on whether this is a 10CFR21 issue, based on Westinghouse piping analysis scope review (Reference 2), it was concluded valve weight and center of gravity changes did not create any safety concerns. It is understood that NSP has Fluor Daniel assisting in review of BOP piping analysis scope in response to IE Bulletin 79-14. Therefore, determination of whether there are any 10CFR21 issues related to BOP piping analysis would be dependent on their evaluation.

Should you have any questions concerning this subject, please let me know.

Very truly yours,

L. R. Benson, Manager Prairie Island Project U.S. Nuclear Projects 4

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cc: E. L. Watzl D. M. Musolf G. T. Goering G. A. Rolfson J. Donatell

COPES-VULCAN VALVE

WEIGHT AND CENTER OF GRAVITY

Valve I.D.	Drawing	Corrected Weight and C. G.			
		Weight (1b.)	C.G. (in.)		
3/4IA58RE (1)(3)	L-137857	240	19-1/4		
3/4IA58RE (1)(3)	L-140209	240	19-1/4		
1RA42DD (1)	L-137820	116	14-13/16		
1RA36RDS (1)	L-137914	120	14-1/8		
11A38RES (1)	L-138930	206	18-13/16		
11A56RE (2)	L-137918	184	20-1/2		
11A56RES (1)	L-137919	184	20-1/2		
1RA58RD (1)	L-140975	141	12-3/4		
11A58RE (1)	L-137968	225	19-3/8		
21A58DG (1)	L-143864	291	20-5/8		
21A56RE (1)	L-138023	228	19.7		
21A58RG (1)	L-144157	334	21-7/8		
21A58RE (1)	L-138049	264	17-7/16		
2RA42RD (1)	L-141003	140	13-9/16		
31A58RGP (4)	L-143844	341	21.83		

- (1) Review indicates valve only supplied to Prairie Island by Westinghouse
- (2) Review indicates valve only supplied to Prairie Island and Surry by Westinghouse
- (3) Different drawing due to C_v of valve
- (4) Valve in Westinghouse piping analysis scope