



Nuclear Group  
P.O. Box 4  
Shippingport, PA 15017-0004

Telephone (412) 393-6000

May 15, 1991  
ND3MNO:3135

Beaver Valley Power Station, Unit No. 1  
Docket No. 50-334, License No. DPR-66  
LER 91-012-00

United States Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

Gentlemen:

In accordance with Appendix A, Beaver Valley Technical Specifications, the following Licensee Event Report is submitted:

LER 91-012-00, 10 CFR 50.73.a.2.v, "Excessive Maximum Operating Pressure Differential for Selected Solenoid Operated Valves".

Very truly yours,

T. P. Noonan  
General Manager  
Nuclear Operations

JGT/sl

Attachment

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May 15, 1991

ND3MNO:3135

Page two

cc: Mr. T. T. Martin, Regional Administrator  
United States Nuclear Regulatory Commission  
Region 1  
475 Allendale Road  
King of Prussia, PA 19406

C. A. Roteck, Ohio Edison  
76 S. Main Street  
Akron, OH 44308

Mr. A. DeAgazio, BVPS Licensing Project Manager  
United States Nuclear Regulatory Commission  
Washington, DC 20555

J. Beall, Nuclear Regulatory Commission,  
BVPS Senior Resident Inspector

Larry Beck  
Cleveland Electric  
6200 Oak Tree Blvd.  
Independence, Ohio 44101

INPO Records Center  
Suite 1500  
1100 Circle 75 Parkway  
Atlanta, GA 30339

G. E. Muckle,  
Factory Mutual Engineering  
680 Anderson Drive #BLD10  
Pittsburgh, PA 15220-2773

Mr. Richard Janati  
Department of Environmental Resources  
P. O. Box 2063  
16th Floor, Fulton Building  
Harrisburg, PA 17120

Director, Safety Evaluation & Control  
Virginia Electric & Power Co.  
P.O. Box 26666  
One James River Plaza  
Richmond, VA 23261

W. Hartley  
Virginia Power Company  
5000 Dominion Blvd.  
2SW Glenn Allen, VA 23060

J. M. Riddle  
NUS Operating Service Corporation  
Park West II  
Cliff Mine Road  
Pittsburgh, PA 15275

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F400), U.S. NUCLEAR REGULATORY COMMISSION WASHINGTON DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET WASHINGTON DC 20503

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### Excessive Maximum Operating Pressure Differential For Selected Solenoid Operated Valves

OPERATING MODE (8)		OF		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0		20.402(b)		20.405(c)		60.73(a)(2)(iv)		73.75(b)					
		20.405(a)(1)(i)		60.36(a)(1)		X 60.73(a)(2)(v)		73.75(c)					
		20.405(a)(1)(ii)		60.36(a)(2)		60.73(a)(2)(vi)		OTHER (Specify in Abstract below and in Text ABC Form 366A)					
		20.405(a)(1)(iii)		60.73(a)(2)(i)		60.73(a)(2)(vii)(A)							
		20.405(a)(1)(iv)		60.73(a)(2)(ii)		60.73(a)(2)(vii)(B)							
20.405(a)(1)(v)		60.73(a)(2)(iii)		60.73(a)(2)(ix)									

LICENSEE CONTACT FOR THIS LER (12)

参考文献 [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12] [13] [14] [15] [16] [17] [18] [19] [20] [21] [22] [23] [24] [25] [26] [27] [28] [29] [30] [31] [32] [33] [34] [35] [36] [37] [38] [39] [40] [41] [42] [43] [44] [45] [46] [47] [48] [49] [50] [51] [52] [53] [54] [55] [56] [57] [58] [59] [60] [61] [62] [63] [64] [65] [66] [67] [68] [69] [70] [71] [72] [73] [74] [75] [76] [77] [78] [79] [80] [81] [82] [83] [84] [85] [86] [87] [88] [89] [90] [91] [92] [93] [94] [95] [96] [97] [98] [99] [100] [101] [102] [103] [104] [105] [106] [107] [108] [109] [110] [111] [112] [113] [114] [115] [116] [117] [118] [119] [120] [121] [122] [123] [124] [125] [126] [127] [128] [129] [130] [131] [132] [133] [134] [135] [136] [137] [138] [139] [140] [141] [142] [143] [144] [145] [146] [147] [148] [149] [150] [151] [152] [153] [154] [155] [156] [157] [158] [159] [160] [161] [162] [163] [164] [165] [166] [167] [168] [169] [170] [171] [172] [173] [174] [175] [176] [177] [178] [179] [180] [181] [182] [183] [184] [185] [186] [187] [188] [189] [190] [191] [192] [193] [194] [195] [196] [197] [198] [199] [200] [201] [202] [203] [204] [205] [206] [207] [208] [209] [210] [211] [212] [213] [214] [215] [216] [217] [218] [219] [220] [221] [222] [223] [224] [225] [226] [227] [228] [229] [230] [231] [232] [233] [234] [235] [236] [237] [238] [239] [240] [241] [242] [243] [244] [245] [246] [247] [248] [249] [250] [251] [252] [253] [254] [255] [256] [257] [258] [259] [260] [261] [262] [263] [264] [265] [266] [267] [268] [269] [270] [271] [272] [273] [274] [275] [276] [277] [278] [279] [280] [281] [282] [283] [284] [285] [286] [287] [288] [289] [290] [291] [292] [293] [294] [295] [296] [297] [298] [299] [300] [301] [302] [303] [304] [305] [306] [307] [308] [309] [310] [311] [312] [313] [314] [315] [316] [317] [318] [319] [320] [321] [322] [323] [324] [325] [326] [327] [328] [329] [330] [331] [332] [333] [334] [335] [336] [337] [338] [339] [340] [341] [342] [343] [344] [345] [346] [347] [348] [349] [350] [351] [352] [353] [354] [355] [356] [357] [358] [359] [360] [361] [362] [363] [364] [365] [366] [367] [368] [369] [370] [371] [372] [373] [374] [375] [376] [377] [378] [379] [380] [381] [382] [383] [384] [385] [386] [387] [388] [389] [390] [391] [392] [393] [394] [395] [396] [397] [398] [399] [400] [401] [402] [403] [404] [405] [406] [407] [408] [409] [410] [411] [412] [413] [414] [415] [416] [417] [418] [419] [420] [421] [422] [423] [424] [425] [426] [427] [428] [429] [430] [431] [432] [433] [434] [435] [436] [437] [438] [439] [440] [441] [442] [443] [444] [445] [446] [447] [448] [449] [450] [451] [452] [453] [454] [455] [456] [457] [458] [459] [460] [461] [462] [463] [464] [465] [466] [467] [468] [469] [470] [471] [472] [473] [474] [475] [476] [477] [478] [479] [480] [481] [482] [483] [484] [485] [486] [487] [488] [489] [490] [491] [492] [493] [494] [495] [496] [497] [498] [499] [500] [501] [502] [503] [504] [505] [506] [507] [508] [509] [510] [511] [512] [513] [514] [515] [516] [517] [518] [519] [520] [521] [522] [523] [524] [525] [526] [527] [528] [529] [530] [531] [532] [533] [534] [535] [536] [537] [538] [539] [540] [541] [542] [543] [544] [545] [546] [547] [548] [549] [550] [551] [552] [553] [554] [555] [556] [557] [558] [559] [560] [561] [562] [563] [564] [565] [566] [567] [568] [569] [570] [571] [572] [573] [574] [575] [576] [577] [578] [579] [580] [581] [582] [583] [584] [585] [586] [587] [588] [589] [590] [591] [592] [593] [594] [595] [596] [597] [598] [599] [600] [601] [602] [603] [604] [605] [606] [607] [608] [609] [610] [611] [612] [613] [614] [615] [616] [617] [618] [619] [620] [621] [622] [623] [624] [625] [626] [627] [628] [629] [630] [631] [632] [633] [634] [635] [636] [637] [638] [639] [640] [641] [642] [643] [644] [645] [646] [647] [648] [649] [650] [651] [652] [653] [654] [655] [656] [657] [658] [659] [660] [661] [662] [663] [664] [665] [666] [667] [668] [669] [670] [671] [672] [673] [674] [675] [676] [677] [678] [679] [680] [681] [682] [683] [684] [685] [686] [687] [688] [689] [690] [691] [692] [693] [694] [695] [696] [697] [698] [699] [700] [701] [702] [703] [704] [705] [706] [707] [708] [709] [710] [711] [712] [713] [714] [715] [716] [717] [718] [719] [720] [721] [722] [723] [724] [725] [726] [727] [728] [729] [730] [731] [732] [733] [734] [735] [736] [737] [738] [739] [740] [741] [742] [743] [744] [745] [746] [747] [748] [749] [750] [751] [752] [753] [754] [755] [756] [757] [758] [759] [760] [761] [762] [763] [764] [765] [766] [767] [768] [769] [770] [771] [772] [773] [774] [775] [776] [777] [778] [779] [780] [781] [782] [783] [784] [785] [786] [787] [788] [789] [790] [791] [792] [793] [794] [795] [796] [797] [798] [799] [800] [801] [802] [803] [804] [805] [806] [807] [808] [809] [810] [811] [812] [813] [814] [815] [816] [817] [818] [819] [820] [821] [822] [823] [824] [825] [826] [827] [828] [829] [830] [831] [832] [833] [834] [835] [836] [837] [838] [839] [840] [

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SUPPLEMENTAL REPORT EXPECTED (14)

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☐ YES (if ver. complete EXPECTED SUBMISSION DATE)☒ NO

ABSTRACT Limit to 7400 spaces - i.e. approx/mately fifteen single space typewritten lines (16)

On 4/15/91, with the Unit in Cold Shutdown at 150 counts per second, a solenoid valve (SOV) walkdown being performed in response to an information notice, identified a design deficiency with six air operated solenoid valves. The design deficiency involved the use of air operated solenoid valves in applications where the maximum operating differential pressure on the valves was exceeded. The six valves are located in the auxiliary feedwater systems, the primary grade water system and the condenser air ejector system. In each application, the incoming air supply pressure resulted in the maximum operating differential pressure across the air operator being exceeded. The solenoid valves are Automatic Switch Company (ASCO) Models NP8320A189E and FT8320A12. This event was caused by design deficiencies. An equipment modification to replace the solenoid valves with valves rated for operation at higher differential pressures is being performed during the eighth refueling outage. There were no safety implications as a result of this event. Although the valves were identified as being subjected to higher than design differential pressures, there have not been any operational problems associated with these valves.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)

DOCKET NUMBER (2)

LER NUMBER (3)

PAGE (3)

YEAR SEQUENTIAL NUMBER REVISION NUMBER

Beaver Valley Power Station Unit 1

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF EVENT

On 4/15/91, with the Unit in Cold Shutdown (Operating Mode 5) at 150 counts per second, a solenoid valve (SOV) walkdown being performed in response to an NRC Information Notice, identified a design deficiency with six air operated solenoid valves. The design deficiency involved the use of air operated solenoid valves in applications where the maximum operating differential pressure on the valves was exceeded. The six valves are located in the auxiliary feedwater systems (Auxiliary Feedwater Pumps Recirculation Valve Control Solenoids [SOV-FW-102, 103A and 103B]), the primary grade water system (Pressurizer Relief Tank Primary Grade Water Supply Isolation Solenoid [SOV-RC-519]) and the condenser air ejector system (Air Ejector Air Discharge to Containment and Gaseous Waste Control Solenoids [SOV-SV-100A, 100B]). In each application, the incoming air supply pressure resulted in the maximum operating differential pressure across the air operator being exceeded. The solenoid valves are Automatic Switch Company (ASCO) Models NP8320A189E and FT8320A12.

CAUSE OF THE EVENT

The cause for this event was design deficiencies. The original solenoid operated valves chosen and installed were inappropriate for use in applications where greater than 25 pounds (SOV-FW-102, 103A, 103B) and 20 pounds (SOV-RC-519, SOV-SV-100A, 100B) differential pressure across the air operator are developed.

CORRECTIVE ACTIONS

The following corrective actions have been or will be taken as a result of this event:

1. An equipment modification to replace the solenoid valves with valves rated for higher differential operating pressures is being performed during the eighth refueling outage.
2. An analysis has been performed showing that the recirculation valve for the steam driven auxiliary feedwater pump is not required to operate during accident conditions.
3. An analysis is being performed to determine if recirculation valves for the motor driven auxiliary feedwater pumps are not required to operate during accident conditions.

LICENSEE EVENT REPORT (LER)  
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-30), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20546, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)  Beaver Valley Power Station Unit 1	DOCKET NUMBER (2)  0 5 0 0 0 3 3 4	LER NUMBER (6)			PAGE (3)		
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TEXT (If more space is required, use additional NRC Form 366A x) (17)

PREVIOUS OCCURRENCES

There have been no previously reported occurrences of this type at Beaver Valley.

REPORTABILITY

This event was reported to the Nuclear Regulatory Commission, at 1420 hours on 4/15/91, in accordance with 10CFR50.72.b.2.iii.D, as an event or condition with the potential to prevent the fulfillment of the safety function of a system designed to mitigate the consequences of an accident. This written report is being submitted in accordance with 10CFR50.73.a.2.v, as a potential event alone which could have prevented the fulfillment of a safety function of systems needed to mitigate the consequences of an accident (auxiliary feedwater system and condensor air ejector discharge isolation).

SAFETY IMPLICATIONS

There were no safety implications as a result of this event. Although the valves were identified as being subjected to higher than designed differential pressures, there have not been any operational problems associated with these valves. Five of the six valves (SOV-FW-102, 103A, 103B; SOV-RC-519 and SOV-SV-100A) are periodically exercised under various surveillance tests verifying operability. Additionally, an analysis has been performed showing that operation of the recirculation valve for the steam driven auxiliary feedwater pump is not required during accident conditions. An analysis is being performed for the two recirculation valves on the motor driven pumps. This analysis will verify recirculation valve operability with regards to motor driven auxiliary pumps operability. The probability of any of these solenoid operated valves failing to stroke is lessened because the new valves are better suited for their service condition.