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August 28, 1979

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attn: A. Schwencer, Chief
Operating Reactors Branch No. 1
Division of Operating Reactors
Washington, DC 20555

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334
Supplemental Information On Response To IE Bulletin 79-01 and 79-01A

Gentlemen:

The purpose of this letter is to provide an integrated, updated response to IE Bulletins 79-01 and 79-01A which concerned qualifications of electrical equipment located within the Beaver Valley Unit No. 1 Containment Structure.

We have determined that certain electrical control wires and terminal blocks, which are presently installed, have either never been qualified by testing or are lacking in sufficient documentation to verify that the installed equipment was manufactured during a time period when the manufactured product was identical to similar equipment which had been qualified.

We later identified that numerous ASCO 125 volt solenoid operated pilot valves which are installed in the same circuits are definitely not qualified for operation in the post LOCA environment.

A complete list of the circuits which contain the nonqualified solenoids and questionable terminal blocks and control wiring is attached. The station On-Site Safety Committee met to discuss these matters and concluded that all solenoid valves would be deenergized upon receipt of an accident signal. The deenergization of these pilot solenoids would cause these three way valves to remove the air supply from the diaphragms of the valves which they actuate and vent the air from the diaphragms. This action would permit the valves to spring closed to their required post accident positions. In addition, each of the involved valves which serves a containment isolation function inside the containment is in a line that has an installed automatic isolation valve outside the containment. The pilot valves for the valves outside the containment are installed in such locations that they are qualified for the post accident environment to which they could be subjected.

A review was performed to determine which of the valves which are located within the containment might have cause to be operated during the post accident recovery period. The wiring to these solenoid valves was replaced with a qualified wire with sufficient documentation to provide traceability of the newly installed wire.

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The solenoid pilot valves located in the containment which the station staff determined might have cause to be operated subsequent to the accident were changed out "in kind." This action provided valves for these applications with a maximum amount of remaining service life.

We have further been informed by ASCO that many of our solenoids are categorized as Type HP, which is a heavy duty type of solenoid operator. Should we choose to replace these with the NP type which is presently recommended for nuclear applications we shall have to reduce the orifice size in the pilot valve from that which is presently installed. Such an action will increase the amount of time required to vent the valve upon deenergization and will affect the tripping time of the associated diaphragm operated valve. Since the allowable tripping time of each of the containment isolation valves is identified in the technical specifications, we must first verify that an increase in the present operating time will not result in an unacceptable operating time. Our Engineering Department is presently studying this problem. We plan to replace all unqualified solenoid valves within the containment during our fall refueling outage.

We have arranged to perform qualification tests on Meter Device Corporation terminal blocks similar to those which are located within the containment. These terminal blocks will be tested at the Forest Hills Laboratories of the Westinghouse Electric Corporation. We anticipate that the testing will be completed by the end of August. A report of the results of these tests will be forwarded to you as soon as the report is available.

We have revised our emergency procedures to include steps to remove electric power from these solenoid circuits and to shut down the containment air compressors which provide the air supply to these valves in the event of accidents that could cause an increase in containment temperature and humidity. We believe that these actions in combination with the redundant containment isolation valves which are located outside the continment provide adequate assurance that continued operation of the station until these matters are resolved will not constitute a threat to the health and safety of the public.

We have verified that the existing breaker coordination scheme on the DC Battery Buses will assure that the failure of any of the distribution breakers in the cabinets supplying the solenoid valves will not result in the loss of other essential loads supplied from the station battery.

We have also determined that four steam generator level instrument transmitters are located at an elevation within the containment such that these four instruments will be submerged during the recirculation phase of post LOCA operation.

All three of the narrow range level transmitters on the 'B' Steam Generator and one of the narrow range level transmitters on the 'C' Steam Generator have the potential to become submerged.

The station On-Site Safety Committee determined that this condition was acceptable for continued operation until the fall refueling at which time these level transmitters will be relocated to a higher elevation.

The logic used to arrive at this determination was as follows:

1. All three steam generators are equipped with a wide range level transmitter which can be utilized to verify the water level of the steam generators.

2. A single steam generator provides an adequate heat sink subsequent to a reactor trip and prior to the start up of the residual heat removal system to provide core cooling.

3. One steam generator has all three narrow range level transmitters and one other steam generator has two narrow range level transmitters located above the maximum containment post accident water level. This fact assures that redundant level transmitters are available on two out of three of the steam generators even in the event that the maximum post accident water level is achieved.

4. The protection functions that are associated with the narrow range steam generator level transmitters are performed within the first minutes of the accident at which time the transmitters of concern will not be submerged.

We have been informed by the Westinghouse Electric Corporation that all steam generator level transmitters on Beaver Valley Unit No. 1 have been qualified in accordance with IEEE-323-1971 as described in WCAP 7794 and in Appendix B to WCAP 7410-L.

The level transmitters installed at Beaver Valley are Barton Model No. 386. This model is described in the Barton Calalog as suitable for high temperature service. Another Barton model is described as being suitable for explosion proof applications. These facts have caused us to conclude that the existing level transmitters at Beaver Valley would probably not be suitable for submerged service since they are not equipped with the vapor tight enclosures that are normally provided for explosion proof applications. We therefore will relocate the four narrow range steam generator level transmitters to a higher elevation during the fall refueling outage.

If you have any further questions concerning this supplemental information, please contact my office.

Very truly yours,

C. N. Dunn
Vice President, Operations

Attachment

cc: D. Beckman
Region I
King of Prussia, Pa.

DUQUESNE LIGHT COMPANY
Beaver Valley Power Station



TERMINALS STRIPS
MD - Meter Device Location
Mount-V-Vertical C-Center of Box
H-Horizontal TC-Top Center of

VUL - Vulkene
CONT - Continental
ROCK - Rockbestos

SIS WIRE

RM - 11700 - XXX
E - Energized
DE - De-energized

O - Open
S - Shut
N/A - Not Applicable

Q - Qualified
Non-Q - Non-qualified

| VALVE # | TITLE | NORM POS. | ACC POS | FAIL SAFE POS. | SOV | NORM POS. | ACC POS | F.S. POS. | RM DWG | SOV MANUF. | SOV MODEL # / S/N | MANU. SIS WIRE | Q OR NON Q | T/B NUM. | TERM STRIP TYPE, SIZE, MOUNT, LOC. | ISOLATION VALVE # | RE DWG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1. TV-CC-103B1 | "B" RCP Inlet Isolation | O | S | S | SOV-CC-103B1 | E | DE | DE | 157D | ASCO | HPX8320A26 S/N 92252A | Vulkene | Q | 662 | MD, 12 V, C | TV-CC-103B | RE-3BX |
| 2. TV-CC-103C1 | "C" RCP Cool Inlet Iso | O | S | S | SOV-CC-103C1 | E | DE | DE | 157D | ASCO | HPX8320A26 S/N 92252A | Cont | Non-Q | 702 | MD, 12 V, C | TV-CC-103C | RE-3BP |
| 3. TV-CC-105A | "A" RCP Cool Inlet Header | O | S | S | SOV-CC-105A | E | DE | DE | 157D | ASCO | HPX8320A26 S/N 20379A | Rock | | 653 | MD, 6 V, C | TV-CC-105E2 | RE-3BM |
| 4. TV-CC-105B | "B" RCP Cool Inlet Hdr. | O | S | S | SOV-CC-105B | E | DE | DE | 157D | ASCO | HPX9320A26 S/N 20379A | Rock | | 664 | MD, 12 V, C | TV-CC-105D2 | RE-3BN |
| 5. TV-CC-105C | "C" RCP Cool Inlet Hdr | O | S | S | SOV-CC-105C | E | DE | DE | 157D | ASCO | HPX8320A26 S/N 45235A | Cont | Non-Q | 704 | MD, 12 V, C | TV-CC-105D2 | RE-3BN |
| 6. TV-CC-105D1 | RCP Cool Outlet | O | S | S | SOV-CC-105D | E | DE | DE | 157D | NO | Name Tag | Vul | Q | 703 | MD, 12 V, C | TV-CC-105D2 | RE-3BP |
| 7. TV-CC-105E1 | RCP Cool. Wat. Disch | O | S | S | SOV-CC-105E1 | E | DE | DE | 157D | ASCO | HPX8320A26 S/N 78152A | Rock | | 649 | MD, 12 V, C | TV-CC-105E2 | RE-3BM |
| 8. TV-CC-107A | RCP Therm Barr Disch | O | S | S | SOV-CC-107A | E | DE | DE | 157D | No | Name Tag | Conc | Non-Q | 652 | MD, 8 V, C | TV-CC-105D2 | RE-3BM |
| 9. TV-CC-107B | RCP Therm Barr. Disch | O | S | S | SOV-CC-107B | E | DE | DE | 157D | ASCO | HPX9320A26 S/N 92252A | Rock | | 665 | MD, 12 H, C | TV-CC-107D2 | RE-3BN |
| 10. TV-CC-107C | RCP Therm Barr Disch | O | S | S | SOV-CC-107C | E | DE | DE | 157D | ASCO | HPX 9320A26 S/N 55087A | Cont | Non-Q | 705 | MD, 6 V, C | TV-CC-107D2 | RE-3BN |
| 11. TV-CC-107D1 | RCP Therm Barr Disch | O | S | S | SOV-CC-107C1 | E | DE | DE | 157D | ASCO | HPX8320A26 S/N 88277A | Cont | Non-Q | 663 | | TV-CC-107D2 | RE-3BN |
| 12. TV-CC-107E1 | RCP Therm Barr Disch | O | S | S | SOV-CC-107E1 | E | DE | DE | 157D | ASCO | HPX8320A26 S/N 67534A | Cont | Non-Q | 650 | | TV-CC-107E2 | RE-3BM |
| 13. TV-CC-110A | Cont. Recirc AirCool Inlet | O | S | S | SOV-CC-110A | E | DE | DE | 22C | No | Name Tag | Vul | Q | 699 | MD, 6 H, C | TV-CC-110E2 | RE-3BX |
| 14. TV-CC-110B | Cont Recirc AirCool Inlet | S | S | S | SOV-CC-110B | DE | DE | DE | 22C | ASCO | HPX9320A26 S/N 88277A | Vul | Q | 700 | MD, 6 H, C | TV-CC-110E2 | RE-3BX |
| 15. TV-CC-110C | Cont Recirc AirCool Inlet | S | S | S | SOV-CC-110C | DE | DE | DE | 22C | ASCO | HPX8320A26 S/N 88277A | Vul | Q | 701 | MD, 6 H, C | TV-CC-110E2 | RE-3BX |
| 16. TV-CC-110D | Cont. Recirc AirCool Disch | O | S | S | SOV-CC-110D | E | DE | DE | 22C | ASCO | HPX8320A26 S/N 92252A | Vul | Q | 677 | | TV-CC-110F1 TV-CC-110F2 | RE-3BN |
| 17. TV-CC-110E3 | Cont Recird Clrs, N. Iso | O | S | S | SOV-CC-110E3 | E | DE | DE | 22C | ASCO | HPX9320A26 S/N 92252A | Vul | Q | 676 | MD, 12 V, C | TV-CC-110E2 ISO 285 | RE-3BN |
| 18. TV-CC-111A2 | CRDM Shroud CLR. Supply | O | S | S | SOV-CC-111A2 | E | DE | DE | 157C | ASCO | HPX8320A26 S/N 92252A | Vul | Q | 680 | MD, 12 V, C | TV-CC-111A1 | RE-3BS |
| 19. TV-CC-111D1 | C. ROD Shroud CLR Disc. | O | S | S | SOV-CC-111D1 | E | DE | DE | RM-157- | ASCO | HPX8320A26 593508 | Vul | Q | TB-681 | | TV-CC-111D2 | RE-3BS |

DUQUESNE LIGHT COMPANY
Beaver Valley Power Station

VUL - Vulkene
CONT - Continental
ROCK - Rockbestos

SIS WIRE

RM - 11700 - XXX
E - Energized
DE - De-energized

O - Open
S - Shut
N/A - Not Applicable

Q - Qualified
Non-Q - Non-qualified

TERMINALS STRIPS
MD - Meter Device
Mount - V-Vertical
H-Horizontal

Location
C-Center of
TC-Top Box cente

| VALVE # | TITLE | NORM POS. | ACC POS | FAIL SAFE POS. | SOV | NORM POS. | ACC POS | F.S. POS. | RM DWG | SOV MANUF. | SOV MODEL#/ S/N | MANU. SIS WIRE | Q OR NON Q | T/B NUM. | TERM STRIP TYPE, SIZE, MOUNT, LOC. | ISOLATION VALVE # | RE DWG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20. TV-CH-200A | Regen Hx Disc | O | S | S | SOV-CH-200A | E | DE | DE | RM-159A | ASCO | HT8320A102 750068 | Cont | Non-Q | TB-566 | MD, 12 | TV-CH-204 | RE-3FB |
| | | | | | SOV-CH-200A1 | E | DE | DE | RM-159A | ASCO | FT831654 . 57192B | Cont | Non-Q | TB-566 | V, C | | RE-3FB |
| 21. TV-CH-200B | Regen Hx Disc | S | S | S | SOV-CH-200B | DE | DE | DE | RM-159A | ASCO | HT8320A102 13806B | Cont | Non-Q | TB-567 | MD, 12 | TV-CH-204 | RE-3FA |
| | | | | | SOV-CH-200B1 | DE | DE | DE | RM-159A | ASCO | FT831654 57192B | Cont | Non-Q | TB-567 | V, C | | RE-3FA |
| 22. TV-CH-200C | Regen Hx Disc | S | S | S | SOV-CH-200C | DE | DE | DE | RM-159A | ASCO | HT8320A102 75006A | Cont | Non-Q | TB-579 | MD, 12 | TV-CH-204 | RE-3FA |
| | | | | | SOV-CH-200C1 | DE | DE | DE | RM-159A | ASCO | 831654 23313A | Cont | Non-Q | TB-579 | V, C | | RE-3FA |
| 23. TV-CV-102-1 | Air Act Mont Outlet | O | S | S | SOV-CV-102-1 | E | DE | DE | RM-168A | ASCO | HPX8320A26 96708A | Rock | | TB-090 | MD, 12 V, C | TV-CV-102 | RE-3BT |
| 24. TV-LM-101A | Cont. Sealed Press Sys. | S | S | S | SOV-LM-101A | DE | DE | DE | RM-168A | ASCO | FT8320A8 66900B | Cont | Non-Q | TB-1008 | | 1CV-35 and TV-LM-100A1 (norm.closed) | RE-3BF |
| 25. TV-LM-101B | Cont. Sealed Press Sys | S | S | S | SOV-LM-101B | DE | DE | DE | RM-168A | ASCO | FT8320A8 66900B | Cont | Non-Q | TB-1009 | | 1CV-36 and TV-LM-100A1 (norm.closed) | RE-3BT |
| 26. TV-SI-101-2 | $N_2$ to SI Accum. | S | S | S | SOV-SI-101-2 | DE | DE | DE | RM-167H | ASCO | HPX8320A26 50608A | Cont | Non-Q | TB-673 | MD, 12 V, C | TV-SI-101-1 | RE-3BP |
| 27. TV-DA-100A | RC Sump Pump Disc | S | S | S | SOV-DA-100A | DE | DE | DE | RM-169A | ASCO | HPX8320A26 96708A | Cont Vul | Non-Q | TB-520 | MD, 12 V, C | TV-DA-100B | RE-3FB |
| 28. TV-DG-108A | Prim DR. Trans Disc. Isol | S | S | S | SOV-DG-108A | DE | DE | DE | RM-169A | ASCO | HPX8320A26 33678 | Rock Cont | Non-Q | TB-631 | MD, 12 V, C | TV-DG-108B | RE-3BM |
| 29. TV-DG-109A2 | Prim Dr Trans Tank Vent | S | S | S | SOV-DG-109A2 | DE | DE | DE | RM-169A | (Name Plate Missing) | | Vul | Q | TB-632 | MD, 12 V, C | TV-DG-109A1 | RE-3BM |
| 30. TV-SS-109A1 | Acc. $H_2O$ Samp | O | S | S | SOV-SS-000A | E | DE | DE | 179A | ASCO | FT8320A12 S/N 72657B1 | Cont | Non-Q | 654 | MD 3 Sets 12 | TV-SS-109A2 | RE-3BR |
| 31. TV-SS-102A1 | Cold Leg Sample | O | S | S | SOV-SS-000A | | | | 179A | | | | | | V, TC | TV-SS-102A2 | |
| 32. TV-SS-105A1 | Hot Leg Sample | O | S | S | SOV-SS-000A | | | | 179A | | | | | | | TV-SS-105A2 | |
| 33. TV-SS-111A1 | PZR Rel Tk. Gas Samp. | O | S | S | SOV-SS-000A | | | | 179A | | | | | | | TV-SS-111A2 | |
| 34. TV-SS-100A1 | PZR Liq. Samp. Lines | O | S | S | SOV-SS-000A | | | | 179A | | | | | | | TV-SS-100A2 | |
| 35. TV-SS-112A1 | PZR Vapor Sample | O | S | S | SOV-SS-000A | | | | 179A | | | | | | | TV-SS-112A2 | |

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SIS WIRE

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Mount-V-Vertical
H-Horizontal

Location
C-Center of Box
TC-Top Center of B

| VALVE # | TITLE | NORM POS. | ACC POS | FAIL SAFE POS. | SOV | NORM POS. | ACC POS | F.S. POS. | RM DWG | SOV MANUF. | SOV MODEL#/ SOV S/N | MANU. SIS WIRE | Q OR NON Q | T/B NUM. | TERM STRIP TYPE, SIZE MOUNT, LOC | ISOLATION VALVE # | RE DWG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 36. TV-SS-104A1 | RHR Outlet | O | S | S | SOV-SS-000A | | | | 179A | | | | | | MD 3 Sets 12 | TV-SS-104A2 | |
| 37. TV-SS-103A1 | Res Ht Rem Inlet | O | S | S | SOV-SS-000A | | | | 179A | | | | | | V, TC | TV-SS-103A2 | |
| 38. LCV-CH-460A | Rgn. Hx Inlet | O | S | S | SOV-CH-460A | E | DE | DE | 159A | ASCO | LB831654 S/N 63640T1 | Rock | | 667 | MD, 12 H, TC | TV-CH-204 | RE-3BV |
| 39. LCV-CH-460B | Rgn Hx Inlet | O | S | S | SOV-CH-460B | E | DE | DE | 159A | ASCO | LB831654 S/N 63640T1 | Rock Cont | Non-Q | 669 | MD, 12 H, TC | TV-CH-204 | RE-3BV |
| 40. PCV-RC-455D | PZR Press Relief | S | S | S | SOV-RC-455D1 | DE | DE | DE | 155B | ASCO | LB831654 | Vulk | Q | 714 | MD,12,V,C | N/A | RE-3BV |
| | | | | | SOV-RC-455D2 | DE | DE | DE | | ASCO | S/N 6918 F | Cont | Non-Q | 716 | MD,16,H,C | | |
| 41. PCV-RC-456 | PZR Press Relief | S | S | S | SOV-RC-456-1 | DE | DE | DE | 155B | ASCO | LB-831654 S/N 63640T1 | Cont Cont | Non-Q Non-Q | 1106 | MD, 12 V, C | N/A | RE-3BV |
| | | | | | SOV-RC-451-2 | DE | DE | DE | 155B | ASCO | LB831654 S/N - None | Vul Vul | Q Q | 1106 | | | RE-3BV |
| 42. PCV-RC-455C | PZR Press Relief | O | S | S | SOV-RC-455C1 | E | DE | DE | 155B | ASCO | LB831654 S/N 69180F | Cont Vul | Non-Q Q | 715 | MD, 12 V, C | N/A | RE-3BV |
| | | | | | SOV-RC-455C2 | E | DE | DE | 155B | ASCO | | | | | | | I |
| 43. TV-CC-103A1 | RCP A CLNG In. Iso. | O | S | S | SOV-CC-103A1 | E | DE | DE | 157D | No | Name Plate | Vul | Q | 648 | MD, 12 V, C | TV-CC-103A | RE-3RM |

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Mount - V-Vertical
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Location
C-Center of Box
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| VALVE # | TITLE | NORM POS. | ACC POS | FAIL SAFE POS. | LIMIT SWITCH | NORM POS. | ACC POS | F.S. POS. | RM DWG | SOV MANUF. | SOV MODEL # | SOV S/N | MANU. SIS WIRE | Q OR NON Q | T/B NUM. | TERM STRIP TYPE, SIZE MOUNT, LOC | ISOLATION VALVE # | RE DWG |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 44. MOV-RC-590 | Loop #1, Hot Leg Iso | O | O | O | Limit Switch | DE | DE | DE | RM-155A | N/A | N/A | N/A | Rock | | TB-827 | MD, 12 V, C | N/A | RE-9HS |
| 45. MOV-RC-591 | Loop #1, Cold Leg Iso | O | O | O | Limit Switch | DE | DE | DE | RM-155A | N/A | N/A | N/A | Rock | | TB-828 | MD, 12 V, C | N/A | RE-9HS |
| 46. MOV-RC-585 | Loop #1, Bypass Isol | S | S | S | Limit Switch | DE | DE | DE | RM-155A | N/A | N/A | N/A | Rock | | TB-833 | MD, 12 V, C | N/A | RE-9HR |
| 47. MOV-RC-592 | Loop #2, Hot Leg Iso | O | O | O | Limit Switch | DE | DE | DE | RM-155A | N/A | N/A | N/A | Rock | | TB-829 | MD, 12 V, C | N/A | RE-9HS |
| 48. MOV-RC-593 | Loop #2, Cold Leg Iso | O | O | O | Limit Switch | DE | DE | DE | RM-155A | N/A | N/A | N/A | Rock | | TB-830 | MD, 12 V, C | N/A | RE-9HS |
| 49. MOV-RC-594 | Loop #3, Hot Leg Iso | O | O | O | Limit Switch | DE | DE | DE | RM-155A | N/A | N/A | N/A | Vul | Q | TB-831 | MD, 12 V | N/A | RE-9HS |
| 50. MOV-RC-595 | Loop #3, Cold Leg Iso | O | O | O | Limit Switch | DE | DE | DE | RM-155A | N/A | N/A | N/A | Rock Vul | Q | TB-832 | MD, 12 V, C | N/A | RE-9HS |
| 51. MOV-RC-586 | Loop #2 Bypass Iso | S | S | S | Limit Switch | E | E | E | RM-155A | N/A | N/A | N/A | Rock | | TB-834 | MD, 12 V, C | N/A | RE-9HR |
| 52. MOV-RC-587 | Loop #3 Bypass Iso | S | S | S | Limit Switch | E | E | E | RM-155A | N/A | N/A | N/A | Cont | Non-Q | TB-835 | MD, 12 V, C | N/A | RE-9HR |