ATTACHMENT A

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 228

The following is a list of the affected pages:

| | |
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TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

DPR-66

| | INSTRUMENT | MINIMUM CHANNELS OPERABLE | APPLICABLE MODES | SETPOINT (3) | MEASUREMENT RANGE | ACTION |
|---|---|---|---|---|---|---|
| 1. | AREA MONITORS | | | | | |
| a. | Fuel Storage Pool Area (RM-207) | 1 | ~~*~~ (1) | ≤ 15 mR/hr | $10^{-1}$ - $10^{4}$mR/hr | 19 |
| b. | Containment | | | | | |
| i. | Purge & Exhaust Isolation (RMVS 104 A & B) | 1 | 6 | ≤ $1.6 \times 10^{3}$cpm | 10 - $10^{6}$cpm | 22 |
| ii. | Area (RM-RM-219 A & B) | 2 | 1,2,3 & 4 | ≤ ~~30~~ $1.5 \times 10^{4}$ R/hr | 1 - $10^{7}$R/hr | 36 |
| c. | Control Room Isolation (RM-RM-218 A & B) | 2 | 1,2,3,4,5~~#~~ (4), 6~~#~~ (4) (in either unit) | ≤.47 mR/hr | $10^{-2}$ - $10^{3}$mR/hr | 41 |
| 2. | PROCESS MONITORS | | | | | |
| a. | Containment | | | | | |
| i. | Gaseous Activity RCS Leakage Detection (RM 215B) | 1 | 1,2,3 & 4 | N/A | 10 - $10^{6}$cpm | 20 |
| ii. | Particulate Activity RCS Leakage Detection (RM 215A) | 1 | 1,2,3 & 4 | N/A | 10 - $10^{6}$cpm | 20 |
| b. | Fuel Storage Building Gross Activity (RMVS-103 A & B) | 1 | ~~**~~ (2) | ≤ $4.0 \times 10^{4}$cpm | 10 - $10^{6}$cpm | 21 |

(1) ~~*~~ With fuel in the storage pool or building.
(2) ~~**~~ With Irradiated fuel in the storage pool.
(3) ~~*~~ Above background.
(4) ~~#~~ During movement of irradiated fuel or movement of heavy loads over spent fuel.



(Proposed Wording)

TABLE 3.3-6 (Continued)

RADIATION MONITORING INSTRUMENTATION

DPR-66

| INSTRUMENT | MINIMUM CHANNELS OPERABLE | APPLICABLE MODES | SETPOINT (3) | MEASUREMENT RANGE | ACTION |
|---|---|---|---|---|---|
| PROCESS MONITORS (Continued) | | | | | |
| 2.c. Noble Gas Effluent Monitors | | | | | |
| i. Supplementary Leak Collection and Release System (RM-VS-110 Ch. 7 & Ch. 9) ~~***~~ (7) | 1 | 1, 2, 3, & 4 | $7.98 \times 10^2$ ~~$\leq 3.5 \times 10^2$~~ cpm | $10^{-2}$-$10^5$ uCi/cc* (5) | 36 |
| ii. Auxiliary Building Ventilation System (RM-VS-109 Ch. 7 & Ch. 9) ~~***~~ (7) | 1 | 1, 2, 3, & 4 | $6.69 \times 10^2$ ~~$\leq 2.75 \times 10^2$~~ cpm | $10^{-2}$-$10^5$ uCi/cc* (5) | 36 |
| iii. Process Vent System (RM-GW-109 Ch. 7 & Ch. 9) ~~***~~ (7) | 1 | 1, 2, 3, & 4 | $1.83 \times 10^5$ ~~$\leq 1.8 \times 10^4$~~ cpm | $10^{-2}$-$10^5$ uCi/cc~~**~~ (6) | 36 |
| iv. Atmospheric Steam Dump Valve and Code Safety Relief Valve Discharge (RM-MS-100 A, B, C) | 1/SG | 1, 2, 3, & 4 | $\leq 5.0 \times 10^1$ cpm | $10^{-1}$-$10^3$ uCi/cc | 36 |
| v. Auxiliary Feedwater Pump Turbine Exhaust (RM-MS-101) | 1 | 1, 2, 3, & 4 | $\leq 6.5 \times 10^2$ cpm | $10^{-1}$-$10^3$ uCi/cc | 36 |

(5) * Nominal range for Ch. 7 and Ch. 9. Alarm set on Ch. 7
(6) ~~**~~ Nominal range for Ch. 7 and Ch. 9. Alarm set on Ch. 9
(7) ~~***~~ Other SPING-4 channels not applicable to this specification
(3) * Above background



(Proposed Wording)

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

ACTION 19 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the applicable ACTION requirements of Specification 3.9.12 and 3.9.13.

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

ACTION 36 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable Channel(s) to OPERABLE status within 72 hours, or:

a) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and

b) Return the channel to OPERABLE status within 30 days, or, explain in the next ~~Semi-~~Annual Radioactive Effluent Release Report why the inoperability was not corrected in a timely manner.

ACTION 41 - a) With the number of Unit 1 OPERABLE channels one less than the Minimum Channels OPERABLE requirement:

1. Verify the respective Unit 2 control room radiation monitor train is OPERABLE within 1 hour and at least once per 31 days.

2. With the respective Unit 2 control room radiation monitor train inoperable, suspend all operations involving movement of irradiated fuel within 1 hour and restore the Unit 1 control room radiation monitor to OPERABLE status within 7 days or isolate the control room from the outside atmosphere by closing all series air intake and exhaust isolation dampers, unless the respective Unit 2 control room radiation monitor train is restored to OPERABLE status within 7 days.



(Proposed Wording)

ATTACHMENT A-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 102

The following is a list of the affected pages:

Affected Pages: 3/4 3-42

TABLE 3.3-6 (Continued)

ACTION STATEMENTS

ACTION 19 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per 24 hours.

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.4.6.1.

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the applicable ACTION requirements of Specifications 3.9.12 and 3.9.13.

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, comply with the ACTION requirements of Specification 3.9.9.

ACTION 36 - With the number of OPERABLE channels less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable channel(s) to OPERABLE status within 72 hours, or:

1) Initiate the preplanned alternate method of monitoring the appropriate parameter(s), and

2) Return the channel to OPERABLE status within 30 days, or, explain in the next ~~Semi-~~ Radioactive Annual Effluent Release Report why the inoperability was not corrected in a timely manner.

ACTION 46 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, either restore the inoperable channel to OPERABLE status within 7 days or close the control room series normal air intake and exhaust isolation dampers.

ACTION 47 - With no OPERABLE channels either restore one inoperable channel to OPERABLE status within 1 hour or close the control room series normal air intake and exhaust isolation dampers.



(Proposed wording)

ATTACHMENT B

Beaver Valley Power Station, Unit No. 1 and Unit No. 2
Proposed Technical Specification Change No. 228 and 102
REVISION OF Table 3.3-6
Radiation Monitoring Instrumentation Alarm Setpoints

A. DESCRIPTION OF AMENDMENT REQUEST

The proposed amendment will revise the alarm setpoints for the following Beaver Valley Power Station (BVPS) Unit 1 monitors: RM-VS-110, RM-VS-109, RM-GW-109, (noble gas monitors) and RM-RM-219A and B, (in-containment high range area monitors). The change affects Technical Specification 3.3.3.1, Table 3.3-6, Radiation Monitoring Instrumentation. Each of the revised setpoints will be increased.

The proposed amendment also includes several editorial changes. Action Statement 36 for both BVPS Unit Nos. 1 and 2 was revised to reflect the approval of the technical specification change request (Technical Specification Amendments 188 and 70 for BVPS Units 1 and 2, respectively) which changed the Radioactive Effluent Release Report from a semi-annual submittal to an annual submittal. Symbols used to designate footnotes were changed to numerical values for Unit 1.

B. BACKGROUND

Monitors RM-VS-109, RM-VS-110 and RM-GW-109, each of which contains low, mid, and high range noble gas detectors, sample each of the Beaver Valley Power Station (BVPS) Unit 1 airborne release pathways. These pathways include the ventilation vent (RM-VS-109), the Supplementary Leak Collection and Release System (RM-VS-110) and the process vent (RM-GW-109). The monitors are each known as a SPING (Special Particulate, Iodine and Noble Gas Monitor), and were installed pursuant to the requirements of Section II.F.1 of NUREG-0737. The requirement states that the monitors must have the "capability to detect and measure concentrations of noble gas fission products in plant gaseous effluents during and following an accident. All potential accident release paths shall be monitored." NUREG-0737 also required that technical specifications be submitted.

Monitors RM-RM-219A and B are high range area monitors located in the BVPS Unit 1 reactor containment building. These monitors were installed pursuant to the requirements of Section II.F.1 of NUREG-0737 which indicate that the monitors must have "The capability to detect and measure the radiation level within the reactor containment during and following an accident." Additionally, NUREG-0578 noted that "The radiation level inside containment is a parameter closely related to the potential for release of radioactive materials in plant effluents." NUREG-0737 required that technical specifications be submitted for these monitors also.

The original alarm setpoints for all of the above described monitors were calculated in 1982 and relied on the information available at that time. The basis for the setpoints consisted of

parameters such as detector efficiencies, radioactive source terms, atmospheric dispersion, and dose to the receptor. The monitor setpoints determined to date have been referenced to a particular value of post-accident offsite dose used as an emergency action level.

In August 1994, the BVPS Emergency Action Levels (EALs) were approved by the Nuclear Regulatory Commission (NRC). These EALs, documented in EPP/I-1, were based on the guidance of NUMARC/NESP-007. The new BVPS EALs use the noble gas monitors as indications of effluent releases and are based on dose to the public offsite. The new BVPS EALs use the containment area radiation monitors as indication of fission product barrier challenges or failures, rather than as indications of effluent releases.

C. JUSTIFICATION

The original noble gas monitors' alarm setpoints were based on a noble gas dose commitment of 600 mrem per hour child thyroid, general emergency EAL, at the site boundary. The original calculations utilized the data and assumptions currently available at the time for monitor efficiencies, release flow rates, atmospheric dispersion, dose conversions and radioactive source term. These parameters have since been revised to incorporate various improvements and current NRC approved assumptions. Significant parameter and assumption changes for the noble gas monitors' alarm setpoints are discussed below.

The original monitor efficiencies were taken directly from vendor generated factory calibration data. The current efficiencies which were calculated by BVPS personnel, are an improvement over the original vendor supplied efficiencies in that they are nuclide specific and contain various minor corrections.

The ventilation vent release flow rate is based on the system design flow. The SLCRS flow rate was based on observed flow under diversion conditions while the gaseous waste flow was based on commonly observed flow rate. The release flow rates are now based on the Updated Final Safety Analysis Report (UFSAR) and the Offsite Dose Calculation Manual (ODCM). While the actual values of the flow rate may vary from surveillance to surveillance, any difference between the values used and actual values will be within the tolerance of the flow rate instrumentation and/or the radiation monitoring instrumentation.

The atmospheric dispersion for a ground level release was assumed to be 1.58 E-3 sec/$m^3$, the most restrictive location on the site boundary. An elevated release dispersion was assumed to be 1.55E-5 sec/$m^3$, the most restrictive location in the direction of population. Both values are exceeded less than 5% of the time. The new dispersion values are annual averages and were taken from the Unit 1 ODCM. These values were determined using the NUMARC EAL guidance which has been approved by the NRC.

The original containment area high range radiation monitors setpoints were based on a back calculation from a specified offsite dose value. This calculation was performed by dispersing an assumed radionuclide mix throughout the containment and determining the associated offsite dose due to containment leakage. The dispersed nuclide cloud was also used to estimate the monitor response. Since the resulting monitor indication and offsite doses are directly proportional, the results were ratioed to obtain the monitor reading associated with the specified offsite dose. Significant assumptions for the containment high range monitors' setpoints and how these assumptions changed are discussed below.

The radionuclide inventory assumed to be released to containment was the reactor coolant system activity associated with one percent fuel failure as documented in Table 14B-6 of the UFSAR. It was also assumed that 100% of the core inventory noble gases and 50% of core inventory halogens were released. Fifty percent of the released halogens were assumed to plateout. It has now been decided that the containment area high range radiation monitors' process safety limits will be based on the Fission Product Barrier Matrix indicators for the fuel clad and containment barriers. The alarm high high setpoint is based on the amount of activity dispersed in the containment atmosphere that corresponds to 20% clad failure (2% core inventory). This is consistent with EAL 1.3.5, Significant Radioactivity in Containment. Since this EAL is greater than that specified for the Fuel Clad Barrier, the Failure of all three barriers is implicit in this basis. This corresponds to a General Emergency.

The monitor response was originally modeled on the dose rate at a point receptor from a spherical source. The methodology for determining monitor response has changed. Rather than assuming a semi-infinite cloud, the dose rates are now estimated using a point-kernel code.

D. SAFETY ANALYSIS

Currently, the subject alarm setpoints do not match the BVPS EALs which were approved by the NRC in August 1994. The BVPS EALs were based on the guidance contained in NUMARC/NESP-007, Methodology for Development of Emergency Action Levels, Rev. 2, 1/92, and NRC Regulatory Guide 1.101, Emergency Planning and Preparedness for Nuclear Power Reactors, Rev. 3, 8/92. The EALs, to the extent feasible, are based on readily available information such as control room instrumentation readings which, if exceeded, will initiate assessment measures. This information is detailed in the BVPS alarm response procedures, abnormal operating procedures, and emergency operating procedures. Other immediate actions and follow-up actions are identified in the BVPS emergency preparedness plan.

The EALs use the noble gas monitors as indications of effluent releases and are based on dose to the public offsite. These monitors are not safety related and do not interface with any safety related system.

The containment area monitors are used as indication of fission product barrier challenges or failures. The containment area monitors are safety related; however, they do not initiate any safety function, nor do they interface with any other safety related system.

These monitors were designed with the ability for an operator to input radiation level values as alert and high alarm levels, which, upon actuation, create both a visual (lighted icon) and audible alarm in the control room. The proposed change is limited to the high alarm value. Otherwise, the operating and design parameters of these radiation monitors will not change. The referenced monitors do not provide for any automatic actions of other equipment or systems when an alarm condition occurs.

The proposed setpoint changes represent changes in methodology which are based on industry experience. The original setpoints were extremely conservative. For example, the previous atmospheric dispersion was exceeded less than five percent of the time. The current value is based on the annual average. The EAL classification scheme provides for necessary emergency response actions to protect the public. The proposed setpoints are more realistic and would not evacuate the general public unnecessarily.

Another philosophy change affects the containment high range area monitors. The original setpoints for these monitors were based on a back calculation of dose rate at the site boundary. This included the Environmental Protection Agency's Protective Action Guidelines assumptions of the design basis leakage with loss of coolant accident activity in containment. The setpoints are now based on the amount of activity dispersed in containment equivalent to twenty percent fuel failure. This is an indicator of the fission product barrier EALs. It is more appropriate that the alarm setpoint be an indicator of fission product barrier degradation.

The proposed setpoint changes will make the actual alarm setpoints consistent with the setpoints in the current BVPS EALs. The new setpoints are based on new assumptions and methodologies. The nuclear industry experience (NUMARC/NESP-007, Methodology for Development of Emergency Action Levels, endorsed by Revision 3 to Regulatory Guide 1.101) has allowed for more realistic setpoint parameters. All of the proposed setpoint values represent an increase over the old setpoints. This allows relevant protection of the public.

E. NO SIGNIFICANT HAZARDS EVALUATION

The no significant hazard considerations involved with the proposed amendment have been evaluated, focusing on the three standards set forth in 10 CFR 50.92(c) as quoted below:

> The Commission may make a final determination, pursuant to the procedures in paragraph 50.91, that a proposed amendment to an operating license for a facility licensed under paragraph 50.21(b) or paragraph 50.22 or for a testing facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not:
>
> (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
>
> (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
>
> (3) Involve a significant reduction in a margin of safety.

The following evaluation is provided for the no significant hazards consideration standards.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

   The proposed monitor alarm setpoint changes and editorial changes are administrative in nature. Should the radiation alarm fail to annunciate or give a false alarm, there would be no affect on any other plant equipment or systems. The noble gas monitors are not safety related and do not interface with any safety related system. The containment area monitors are safety related; however, they do not initiate any safety function, nor do they interface with any other safety related system.

   The monitors' alarm as a visual (lighted icon) and audible alarm in the control room. The operator is then responsible for taking any corrective actions necessary, based on the alarm and Emergency Action Level (EAL) guidelines. The monitors do not provide for any automatic actions of other equipment or systems when an alarm condition occurs.

   The operating and design parameters of the radiation monitors will not change. The proposed change affects only the radiation level at which an alarm condition is created and does not affect any accident assumptions or radiological consequences of an accident.

Therefore, the proposed change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed radiation monitor alarm revisions cannot initiate a new type of accident. A failure of the monitor itself cannot serve as the initiating event of an accident and has no effect on the operation of a safety system. Operator action is not made solely on a radiation monitor alarm; other plant condition indicators are also evaluated.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the change involve a significant reduction in a margin of safety?

The referenced radiation monitoring channels have no capability to mitigate the consequences of an accident. Also, they do not interface with any safety related system. The containment area monitors are safety related channels which provide indication to the operator of the integrity of the fission product barriers in containment. This indication, combined with other indications of plant conditions may direct an operator to take action to mitigate the consequences of an accident. The alarm setpoint itself does not perform any specific safety related function and the trip value is not referenced in the Updated Final Safety Analysis Report (UFSAR), nor does any site design basis document take credit for this setpoint. Safety limits and limiting safety system settings are not affected by this proposed change. Also, the site will continue to meet the requirements of 10 CFR Part 100 which limits offsite dose following a postulated fission product release.

Therefore, use of the proposed technical specification would not involve a significant reduction in the margin of safety.

F. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Based on the considerations expressed above, it is concluded that the activities associated with this license amendment request satisfies the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards consideration finding is justified.