



## Duquesne Light

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June 28, 1985

Mr. Harold R. Denton  
Office of Nuclear Reactor Regulation  
United States Nuclear Regulatory Commission  
Washington, DC 20555

ATTENTION: Mr. George W. Knighton, Chief  
Licensing Branch 3  
Office of Nuclear Reactor Regulation

SUBJECT: Beaver Valley Power Station - Unit No. 2  
Docket No. 50-412  
Regulatory Guide 1.97 Implementation Report

REFERENCES: 1) NRC Letter, George W. Knighton (NRC) to John J. Carey (DLC),  
"Beaver Valley Unit 2, Requests for Additional Information -  
Conformance to Regulatory Guide 1.97," dated April 13, 1985  
2) Duquesne Light Company Letter (2NRC-3-072), E. J. Woolever to  
H. R. Denton, NRC, "Regulatory Guide 1.97 Implementation  
Report," dated September 12, 1983

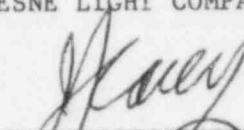
Gentlemen:

Reference 1 above, received on May 2, 1985, provided Duquesne Light Company (DLC) with the NRC interim report on the Beaver Valley Power Station Unit 2 (BVPS-2) Regulatory Guide 1.97 Implementation Report (Reference 2). Attachments 1, 2, and 3 of this letter provide the DLC responses to comments contained in the NRC interim report in accordance with the NRC requested submittal schedule. These responses were discussed with the NRC at a June 18, 1985, informal meeting held at the DLC Bethesda Project Office. The information provided in the attachments will be utilized to update Section 7.5 of the Final Safety Analysis Report.

If there are any questions in this regard, please contact Mr. Curtis L. Hill, Senior Project Engineer, Regulatory Affairs Department, at (412) 787-5141, extension 145.

DUQUESNE LIGHT COMPANY

By

  
J. J. Carey  
Vice President

KEW/wjs  
Attachments

cc: Mr. B. K. Singh, Project Manager (w/a)  
Mr. G. Walton, NRC Resident Inspector (w/a)  
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## ATTACHMENT 1

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## ATTACHMENT 2

### NOTES

1. PLANT VENT RADIATION LEVEL - FSAR Section 6.5.3.2.3 discusses how the ventilation system diverts into the elevated release stack located on top of the Containment Building. Equipment provided on the elevated release collects and detects particulates, collects iodine, and detects noble gases in accordance with Regulatory Guide 1.97 criteria.
2. SITE ENVIRONMENTAL RADIATION LEVEL - Reference is made to FSAR Table 1.9-2 for BVPS-2 differences from SRP No. 12.3-12.4, "Radiation Protection Design Features." This table contains the BVPS-2 position regarding use of portable radiation monitors. Attachment 3 lists the type and range of portable and laboratory radiation monitors to be used at BVPS-2. The range of this instrumentation meets the guidance criteria in Reg. Guide 1.97. In addition, FSAR Table 12.3-10 lists the permanently installed area radiation monitors along with their location and range. This instrumentation meets Category 3 recommendations of Reg. Guide 1.97.
3. ACCUMULATOR TANK LEVEL AND PRESSURE - Regarding accumulator tank level, accumulator isolation valve position (2SIS\*MOV865 A, B, and C) and RCS pressure (WR) provide the operator adequate information to monitor the operating status of the accumulator during potential discharge situations. The accumulator isolation valve status is included in the emergency core cooling system item listed in Table 7.5-1 (sheet 5 of 11) in the FSAR. Regarding accumulator tank pressure, RCS pressure (WR) and accumulator isolation valve status provides adequate information to the plant operators for determining if the accumulator should be isolated or vented when proceeding to a cold shutdown condition and determining if the accumulator has discharged.
4. ACCUMULATOR ISOLATION VALVE POSITION - Accumulator isolation valve status is included in the emergency core cooling valve status (one pair of lights per valve) item listed in Table 7.5-1 (sheet 5 of 11) in the BVPS-2 FSAR.
5. PRESSURIZER HEATER STATUS - Four pressurizer heater banks are permanently connected to the Class IE Emergency Buses. The plant computer displays total bank heater power for indication of energization of all heater banks. In addition, total bus current is available at the SPDS with 0-3000 ampere range. Each bank of heaters draws either 450 amps or 562 amps depending on the bank which is discernable to the operator to verify bank energization. The above information together with pressurizer heater breaker position status indication (see Table 7.5-1) are adequate to determine proper heater energization.
6. QUENCH TANK TEMPERATURE - The operating staff only utilizes quench tank conditions to discern if abnormal conditions exist (see BVPS-2 Emergency Operating Procedure E-0, step 31). The operator is not required to determine an exact indication of the temperature conditions in the quench tank. A range of 350°F is adequate to determine if abnormal conditions exist. In addition, the quench tank is provided with two tank rupture disks with an activation pressure of 100 psi. This prevents the temperature from exceeding the upper temperature range provided.
7. STEAM GENERATOR LEVEL - BVPS-2 has installed Model 51 steam generators. The narrow range span on the Model 51 steam generator is 144 inches with the lower tap at 443 inches above the top of the tubesheet. The wide range span on the Model 51 steam generator is approximately 576 inches with the lower tap approximately 12 inches above the top of the tubesheet. The distance from the top of the tubesheet to the top of the swirl vane cylinders is 539 inches.

8. CONTAINMENT ATMOSPHERE TEMPERATURE - Containment atmosphere temperature is not a BVPS-2 key variable and is not used in the BVPS-2 Emergency Operating Procedures for determining containment cooling. The key variables that were chosen for monitoring the accomplishment of containment cooling are containment spray flow (Category 2), containment water level (WR and NR)(Category 1), containment spray system valve status (Category 2), and containment pressure (Category 1). Immediately after containment spray is initiated, the containment atmosphere is saturated steam and the temperature can be determined based upon containment pressure.

Since the BVPS-2 Emergency Operating Procedures do not utilize containment atmosphere temperature to verify containment cooling, containment temperature has been classified as a Type D, Category 3, variable.

9. CONTAINMENT SUMP WATER TEMPERATURE - Containment sump water temperature is not used for emergency core cooling system operation or assurance of net positive suction head (NPSH) because NPSH calculations conservatively assume saturated water is present (see BVPS-2 FSAR Section 6.2.2.3.2).

Containment water level measurements indicate the amount of water in containment and, as described in Item 13 (containment atmosphere temperature), containment cooling is verified by other parameters. In addition, qualified recirculation spray pump suction line temperature instrumentation meeting Reg. Guide 1.97 Category I criteria is provided and displayed in the control room with a range of 0-200°F.

10. RADIOACTIVE GAS HOLDUP TANK PRESSURE - The radioactive gas holdup tank design pressure is 100 psig. The instrumentation provided monitors tank pressure for normal operating conditions. Overpressure protection is provided by one rupture disk per tank set for 100 psig. Since the tank is protected at 100% of the design pressure and since operator action is not predicated on pressures in excess of 100% design pressure, additional range of pressure indication to 150% is not considered necessary.
11. CONDENSER AIR REMOVAL SYSTEM EXHAUST - Condenser air removal system exhaust instrumentation is not required since the air ejector is routed through the BVPS-1 process vent which is a common plant vent. Reg. Guide 1.97 requires that instrumentation with a range of  $10^{-6}$  to  $10^3$  uCi/cc be installed to monitor this common plant vent. BVPS-1 has a monitor with the range of  $10^{-6}$  to  $10^5$  uCi/cc which conforms with the guidance criteria in Reg. Guide 1.97.
12. PARTICULATES AND HALOGENS - BVPS-2 has only one final effluent post-accident release point for plant ventilation systems, which is the elevated release (see plant vent radiation level item). These parameters will be monitored by the elevated release effluent monitor.
13. AIRBORNE RADIOHALOGENS AND PARTICULATES - The range of the instrumentation utilized to measure this parameter is provided in Attachment 3 for the single-channel and multi-channel analyzers. Other information has been provided in FSAR Table 7.5-1 under Site Environmental Radiation Level.

14. PLANT AND ENVIRONS RADIOACTIVITY - The range of the instrumentation utilized to measure this parameter is provided in Attachment 3 for the multi-channel analyzer. The range provided meets the guidance criteria of Reg. Guide 1.97 for this parameter. Other information has been provided in FSAR Table 7.5-1 under Site Environmental Radiation Level.
15. PLANT AND ENVIRONS RADIATION - The range of the portable radiation monitors has been provided in the response to NRC comment No. 4 (INEL Conclusion) in Attachments 1 and 3. The ranges provided meet the guidance criteria of Reg. Guide 1.97 for this parameter. Other information has been provided in FSAR Table 7.5-1 under Site Environmental Radiation Level.

# ATTACHMENT 3

## PORTABLE SURVEY INSTRUMENTS

Type	Meter Range
G-M Pancake (Frisker)	0-50,000 CPM 0-60,000 CPM
G-M Low Range	0-200 mR/hr.
G-M High Range	0-20 R/hr
G-M Combination	Probe: 0-200 mR/hr Internal: 0-2 R/hr
G-M Extendible	0-1000 R/hr
G-M Portable	Low Range: 0-200 mR/hr Mid Range: 0-200 R/hr High Range: 0-10,000 R/hr
Ion Chambers	0-5 R/hr
Ion Chambers	0-50 R/hr
Ion Chamber Extendible	0-1.999 R/hr 0-199.9 R/hr 0-19,990 R/hr
Ion Chamber	0-10,000 R/hr
Alpha Scintillation	Count Rate Mode: 0-10,000 CPM Scaler Mode: 6 digit
Alpha Gas Flow	0-500,000 CPM
Neutron Counter	0.2-20 rem/hr

## LABORATORY INSTRUMENTS

Type	Detection Range	Minimum Detectable Activity
Single-Channel Analyzer	6 digit scaler	$8.7 \times 10^{-10}$ uCi/cc (I-131) for 20 ft <sup>3</sup> sample *
Multi-Channel Analyzer	$1.6 \times 10^7$ CPS	$1.1 \times 10^{-10}$ uCi/cc (Co-60) for 20 ft <sup>3</sup> sample **
Gas Flow Proportional Counter	6 digit scaler	1.5 DPM (Sr-90, Y-90)
NaI (Tl)	6 digit scaler	$7.0 \times 10^{-7}$ uCi/ml (Co-60)
GM	6 digit scaler	48 DPM (Tc-99)
Alpha Scintillation	6 digit scaler	1.35 DPM (Pu-239)

\* For the single-channel analyzer, the upper limit for detectable activity is  $2.2 \times 10^{-5}$  uCi/cc for a 20 ft<sup>3</sup> sample.

\*\* For the multi-channel analyzer, the upper limit for detectable activity is  $1.0 \times 10^{-3}$  uCi/cc for a 20 ft<sup>3</sup> sample.