



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

*Vollmer*

NOV 7 1984

Docket No. 50-412

MEMORANDUM FOR: Thomas Novak, Assistant Director  
for Licensing  
Division of Licensing

FROM: William V. Johnston, Assistant Director  
Materials, Chemical & Environmental Technology  
Division of Engineering

SUBJECT: FIRE PROTECTION SAFETY EVALUATION REPORT - BEAVER VALLEY  
POWER STATION UNIT NO. 2

Plant Name: Beaver Valley Power Station Unit No. 2  
Docket No.: 50-412  
Licensing Stage: OL  
Responsible Branch: LB #3  
Project Manager: M. Ley  
Chemical Engineering Branch Reviewer: R. Eberly  
Requested Completion Date: July 27, 1984  
Review Status: 3 Open Items

Enclosed is the fire protection safety evaluation report. The Chemical Engineering Branch reviewed the Fire Protection Program through Amendment 3 and letter dated May 23, 1984, for conformance with the Standard Review Plan (NUREG-0800) Section 9.5.1, dated July 1981. This document includes BTP ASB 9.5-1 and Appendix R to 10 CFR 50. Because the licensee has compared his program to the latter guidelines, our report also references these guidelines.

The fire protection open items are:

- |                         |                              |
|-------------------------|------------------------------|
| 1. Safe Shutdown        | BTP CMEB 9.5-1 Section C.5.b |
| 2. Alternate Shutdown   | BTP CMEB 9.5-1 Section C.5.c |
| 3. Cable Spreading Room | BTP CMEB 9.5-1 Section C.7.c |

We have not yet made a fire protection review site visit because the construction of the plant has not progressed to the level when such a visit would be meaningful. We expect to have our site visit in 1985.

This report does not include input from ASB for the evaluation of Safe Shutdown Capability (V.B) and Alternative Shutdown Capability (V.C.).

Contact: R. Eberly  
X24302

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Thomas Novak

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Several areas of the fire protection program are being reviewed by other branches and will be reported in other sections of the SER, as follows:

<u>Branch</u>	<u>Item</u>	<u>Section</u>
EPLB	Offsite Emergency Planning	13.3
LQB	Fire Brigade Training Program	13.2.2
LQB	Fire Protection Organization	13.1
LQB	Fire Protection Plan Procedures	13.5
LQB	Technical Specifications	16.0
QAB	Fire Protection QA Program	17.0

Our SALP input is attached.

William V. Johnston, Assistant Director  
Materials, Chemical & Environmental  
Technology  
Division of Engineering

Enclosures:  
As stated

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Chemical Engineering Branch/Fire Protection Section  
Safety Evaluation Report  
Beaver Valley Power Station Unit 2  
Docket No. 50-412

9.5.1 Fire Protection

We have reviewed the fire protection program for conformance with SRP 9.5.1 (NUREG-0800) which contains, in BTP CMEB 9.5-1, the technical requirements of Appendix A to BTP ASB 9.5-1 and Appendix R to 10 CFR 50. Because the applicant has compared his program to the latter guidelines, this report also references these guidelines.

In response to our request for an evaluation of the fire protection program against the guidelines of Appendix A to BTP ASB 9.5-1, the applicant, by Amendment 3, transmitted his fire protection evaluation report. At the same time, the applicant also provided an evaluation against the requirements of Appendix R to 10 CFR 50 and BTP CMEB 9.5-1 (NUREG-0800, July 1981). By letter dated May 23, 1984, the applicant provided additional information.

As part of this review, we will visit the plant site to examine the relationship of safety-related components, systems, and structures in specific plant areas to both combustible materials and to associated fire detection and suppression systems. The site visit has not yet been conducted because the construction has not progressed to a level where such a visit would be meaningful.

Our review included an evaluation of the automatic and manually operated water and gas suppression systems, the fire detection systems, fire barriers, fire doors and dampers, fire protection administrative controls, and the fire brigade size. The objective of the review is to ensure that in the event of a fire, personnel and plant equipment would be adequate to safely shut down the reactor, to maintain the plant in a safe shutdown condition, and to minimize the release of radioactive material to the environment.

Our consultant, Rolf Jensen and Associates, Inc., participated in the review of the fire protection program.

We will require that the fire protection program be operational before initial fuel loading.

C.1 Fire Protection Program Requirements

a. Fire Protection Program

The applicant's fire protection program is described in the Final Safety Analysis Report, Section 9.5.1 and the Fire Protection Evaluation Report. Based on our review, we conclude that the applicant's program conforms to the technical requirements in BTP CMEB 9.5-1, Section C.1, and is, therefore, acceptable.

b. Fire Hazards Analysis

The applicant's fire hazard analysis specified the combustible materials present in fire areas, identified safety-related equipment, determined the consequences of a fire on safe shutdown capability, and summarized available fire protection in accordance with BTP CMEB 9.5-1, Section C.1.b. Our evaluation of the identified fire hazards is in the paragraphs below. Alternative shutdown capability has been provided for the control room and cable spreading room.

GDC 3, Appendix A to 10 CFR Part 50 requires that "Fire fighting systems shall be designed to assure that rupture or inadvertent operation does not significantly impair the safety capability of those structures, systems and components." To satisfy this requirement, the applicant has several means of protection.

The applicant has designed components required for hot shutdown so that rupture or inadvertent operation of fire suppression systems will not adversely affect the operability of these components.

The applicant, by letter dated May 23, 1984, committed to protect redundant components from flooding. For each area containing safe shutdown or engineered safety feature components, the applicant will evaluate the need for flooding protection by determining the location and height above the floor of the affected equipment with respect to flood elevation, and the piping in the area with regard to size, operating conditions, and frequency of operation. Hydraulic boundaries will be determined to define the extent of flooding. In determining flood levels, consideration will be given to the ability of the drainage systems to pass flow and to the effect on areas cross connected by drainage piping. The height above the floor of the lowest safe shutdown or engineered safety features component will be determined and compared with the worst flood level. The length of time until this component could be affected by the worst flood if the failure is not isolated will be also calculated. Then, based upon the results of the flooding analysis, modifications to prevent flooding will be implemented as necessary. Equipment identified as being within a spray area of cracks in the fire protection lines is protected from that spray.

Additionally, the interactions analysis of the CO<sub>2</sub> systems revealed two areas where the potential existed for interaction of the CO<sub>2</sub> with redundant safety related trains. In the diesel generator rooms, a signal from the CO<sub>2</sub> systems caused shutdown of the ventilation systems. This was alleviated by disconnecting the system from the CO<sub>2</sub> system and installing heat detectors to control the shutdown of the fans in a fire emergency. Thereby eliminating any interaction with the CO<sub>2</sub> system.

Based on our review, we conclude the fire hazards analysis with the above commitment will meet our guidelines in Section C.1.b of BTP CMEB 9.5-1 and is, therefore, acceptable.

## C.2 Administrative Controls

The administrative controls for fire protection consist of the fire protection program and organization, the fire brigade training, the controls over combustibles and ignition sources, the prefire plans and procedures for fighting fires, and quality assurance. The applicant's administrative controls conform to the guidelines in Section C.2 of BTP CMEB 9.5-1. Based on our review, we conclude that the administrative controls will meet the guidelines in BTP CMEB 9.5-1, Item C.2, and are, therefore, acceptable.

## C.3 Fire Brigade and Fire Brigade Training

By letter dated May 23, 1984, the applicant committed to comply with our guidelines concerning the quantity of self-contained breathing apparatus and spare cylinders. At least ten self-contained breathing apparatus will be provided for fire brigade personnel, with at least two extra air bottles for each self-contained breathing unit. Five sets of breathing apparatus are located in the brigade room with five additional units at a strategic location within the plant. An air compressor dedicated to supplying breathable air for replenishing exhausted air bottles is located in the turbine building. The air compressor satisfies the requirement for an onsite 6-hour supply of reserve air.

The applicant proposes to give physical examinations to the fire brigade members every three years instead of annually as specified in our guidelines. The fire brigade member's medical records will be reviewed annually to determine their fitness for strenuous fire fighting activity. This procedure was approved for the Unit 1 fire brigade in 1976 and has successfully operated since then. The Unit 2 site shares a common fire brigade with Unit 1. Based on our evaluation and previous approval, we conclude this to be an acceptable deviation from our guidelines in Section C.3 of BTP CMEB 9.5-1 and is, therefore, acceptable.

Fire Brigade training is evaluated in Section 13.2.2 of this report.

## C.5 General Plant Guidelines

### a. Building Design

Fire areas are defined by walls and floor/ceiling assemblies. Walls that separate buildings and walls between rooms containing safe shut-down systems are 3-hour-fire-rated assemblies. In cases where the fire rating is less than 3 hours, we have evaluated each individual area with respect to its fuel load, fire suppression and detection systems, and proximity to safe shutdown equipment to determine if the fire-rated assemblies provided are adequate for the areas affected and meet the guidelines in Section C.5.a of BTP CMEB 9.5-1. Based on this evaluation, we find that the protection provided meets our guidelines.

The applicant will provide penetration seals for all penetrations of fire rated walls or floor/ceiling assemblies. The penetration seals have been subjected to qualification tests using the time-temperature curve specified by ASTM Standard E-119, "Fire Test of Building Construction and Materials." The applicant did not specify the test acceptance criteria. Our guidelines recommend that a maximum temperature of 325°F be used as the acceptable level. By letter dated May 23, 1984, the applicant committed to provide penetration seals that do not exceed the acceptance criteria of 325°F as recommended by BTP CMEB 9.5-1, Section C.5.a.3. We find this acceptable.

The applicant will provide masonry 2-hour rated fire barriers for the plant enclosed stairwells. This complies with Section C.5.c of BTP CMEB 9.5-1 and is, therefore, acceptable.

With the exception of two rolling steel doors, the door openings in fire-rated barriers are provided with Underwriters Laboratory (UL)-labeled fire door assemblies that have rating commensurate with the fire ratings of the walls in which they are installed. The two rolling steel doors, which have one removable jamb to provide for equipment access, have been tested and approved by Underwriters Laboratories. The doors were tested with the standard jamb detail consisting of door guide angles attached to a channel frame instead of a removable jamb. The doors serve as fire barriers between the general building area and the exit stairways. Because the combustible loading in the area is negligible, we find the minor differences between the door with the removable jamb and the tested door assembly acceptable. Based on our review, we conclude that the fire doors, with the acceptable deviation, meet our guidelines in Section C.5.a of BTP CMEB 9.5-1 and are, therefore, acceptable.

Ventilation ducts that penetrate fire barriers are provided with fire dampers. The fire dampers will be UL labeled and installed according to the manufacturer's directions. Three-hour-fire dampers will be provided in all 3-hour-fire-rated barriers. We conclude that the fire dampers will be provided in accordance with the guidelines of BTP CMEB 9.5-1, Section C.5.a and are, therefore, acceptable.

Thermal insulating materials are noncombustible. They have flame-spread and smoke-developed ratings of 25 and 50, respectively, as tested by UL. Interior walls and structural components, radiation shielding materials, and sound-proofing and interior finishes are noncombustible or listed by a nationally recognized testing laboratory, such as Factory Mutual or UL, for flame spread, smoke, and fuel contribution of 25 or less. We find this is in accordance with the guidelines of BTP CMEB 9.5-1, Section C.5.a and is, therefore, acceptable.

Metal roof deck construction is FM listed Class 1. We conclude this meets our guidelines in Section C.5.a(10) of BTP CMEB 9.5-1 and is, therefore, acceptable.

Transformers installed inside buildings are either air cooled, of the dry type or are insulated and cooled with a noncombustible liquid. The main and plant services transformers are located greater than 50 feet from any buildings or are separated by 3-hour fire walls. However, the station service transformers are located within 50 ft. of the turbine and fuel handling building exterior walls. No safety-related equipment is located within these buildings. The turbine building exterior walls are not rated. The station service transformers are protected by an automatic water deluge system. We find the station service transformers protection is an acceptable deviation from the guidelines of BTP CMEB 9.5-1, Section C5.a, because no safety-related equipment is located in the turbine building.

We conclude that the installation of the transformers, with the approved deviation, meets the guidelines of BTP CMEB 9.5-1, Sections C.5.a(12) and (13) and is, therefore, acceptable.

Floor drains are provided to remove fire protection water from all safety-related areas. Floor curbs are provided in some of the cable tray areas to minimize the spread of water.

Where gas suppression systems are used, floor drains are provided with adequate seals or the gas suppression system is sized to compensate for the loss of suppressant through the drains.

Drains in areas of combustible liquids have provisions for preventing backflow of combustible liquids to safety-related areas through inter-connecting drain piping.

We conclude that the plant floor drain system meets our guidelines in Section C.5.a(14) of BTP CMEB 9.5-1 and is, therefore, acceptable.

Based on our evaluation, we conclude that the building design, with the approved deviation, meets our guidelines in Section C.5.a of BTP CMEB 9.5-1 and is, therefore, acceptable.

b. Safe Shutdown Capability

Our review of safe shutdown capability is ongoing and will be addressed in a supplement to this SER.

c. Alternate or Dedicated Shutdown Capability

Our review of alternate or dedicated shutdown capability is ongoing and will be addressed in a supplement to this SER.

d. Control of Combustibles

By letter dated May 23, 1984, the applicant committed to provide hydrogen piping which is seismically designed and supported to withstand the safe shutdown earthquake (SSE). This design will ensure that the piping will remain intact during a seismic event.

Safety-related systems have been isolated or separated from combustible materials as much as possible. The storage of flammable liquids complies with NFPA 30. Compressed gases are stored either outdoors or in nonsafety-related structures whenever possible. Hydrogen piping, however, passes through safety related areas.

Based on our evaluation, we conclude that the hydrogen piping will meet our guidelines in Section C.5.d of BTP CMEB 9.5-1 and is, therefore, acceptable.

e. Electrical Cable Construction, Cable Trays, and Cable Penetrations

Cable trays are of all metal construction. Electrical cable construction passes the IEE-383-1974 flame test. The cables are designed to allow wetting down with fire suppression water without electrical faulting.

Safety-related cable trays outside the cable spreading room are separated from potential fire exposure hazards by either 3-hour-rated fire barriers, one-hour-rated fire barriers with automatic suppression or twenty feet of separation without intervening combustibles with automatic suppression.

Except for the following three areas, all areas containing cable trays are provided with early warning smoke detectors:

- (1) Containment (Fire Area RC-1)
- (2) Auxiliary Building (Fire Area PA-3)
- (3) Auxiliary Building (Fire Area PA-4)

All areas containing concentrated cable trays are provided with automatic total flooding carbon dioxide systems. The three areas listed above have eight or less cable trays, spread out over a large area. The cable tray configuration permits a hose stream to be effectively applied. Based on our evaluation, we conclude that the fire protection safety of these configurations would not be greatly enhanced by the addition of automatic suppression.

Based on our evaluation, we conclude that the protection provided for the cable trays, with the approved deviation, meets our guidelines in Section C.5.c of BTP CMEB 9.5-1 and is, therefore, acceptable.

f. Ventilation

There are no ventilation systems in the plant designed specifically to exhaust smoke or other products of combustion. Normal plant ventilation systems will be utilized for this purpose. Portable smoke ejectors will be provided to assist in removal of the products of combustion should the normal ventilation systems be unavailable because of damper closures or other failures. Because the normal ventilation system is capable of being realigned to 100% exhaust, we find this acceptable.

The power supply and controls for the redundant ventilation systems provided for the control room are located in the equipment room without separation.

The primary smoke removal for the control room is provided by one of the two 100-percent capacity fans of the control room air conditioning system. If a single fire renders both fans inoperable, the Unit 1 ventilation system which is completely separated from the Unit 2 system can be used. If additional smoke removal is required, the double doors to the outside can be opened for natural ventilation. If further ventilation is necessary, portable exhaust fans can be utilized. These fans are part of the fire brigade equipment inventory located in the brigade staging area.

Because three diverse methods of cooling the control room are provided, we find this to be an acceptable deviation from our guidelines.

Air intake and exhaust ventilation dampers in areas protected by total flooding gas extinguishing systems are provided with mechanisms that will close them upon actuation of the suppression system. Stairwells are provided with self-closing doors designed to minimize smoke infiltration during a fire. Charcoal filters are protected in accordance with Reg. Guide 1.52. We find this acceptable.

Based on our evaluation, we conclude that the ventilation systems, with the approved deviation, meet our guidelines in Section C.5.f of BTP CMEB 9.5-1 and are, therefore, acceptable.

g. Lighting and Communication

Fixed, self-contained lighting units with individual 8-hour battery power supplies are installed in all areas that will be manned for shutdown and for access and egress routes to and from all fire areas. Portable hand lights are provided for emergency use by the fire brigade and other operations personnel required to achieve shutdown.

The plant communications system consists of three independent systems. The normal method of communications is by means of a five channel page-party address system. Offsite and onsite communication can be achieved by use of the separate private automatic exchange telephone system. The third method of plant communications is the calibration jack system, a two-channel system that utilizes plug-in jacks and head sets with earphones and microphones.

These three independent plant communications systems will provide a reliable means of emergency communication. During a fire, any one system may be designated for use for emergency communications.

A portable radio communications system is also provided for use by the fire brigade.

Based on our review, we find that the lighting and communications systems meet the guidelines of BTP CMEB 9.5-1, Section C.5.g and are, therefore, acceptable.

#### 9.5.1.5 Fire Detection and Suppression

##### a. Fire Detection

A fire detection system is provided for all areas containing safety-related equipment and for all areas that present a fire exposure to safety-related equipment.

The system complies with NFPA 72D for a Class A system, with detectors installed in accordance with NFPA 72E.

By letter dated May 23, 1984, the applicant committed to provide a reliable power supply for the fire detection system, consisting of the following sources of power:

The primary supply for the fire detection system and suppression systems is the normal offsite power supply system.

The secondary supply for the fire detection systems is a non-safety diesel generator. The switchover capability is an automatic function. The diesel generator supplies the 120-V ac uninterruptible power supply system required for the detection system and the 125-V dc panels for the fire detection and suppression systems.

A battery backup system with a 2-hour rated capability is provided as a backup to the 125-V dc systems.

A battery backup system with a 30-minute capability is provided as a backup to the 120-V ac systems. This is to provide electrical power continuity for the 10 seconds required to start the diesel and achieve rated voltage and frequency. We find this to be an acceptable primary and secondary source of power.

Based on our evaluation, we conclude that the fire detection system will meet our guidelines in Section C.6.b of BTP CHEB 9.5-1 and is, therefore, acceptable.

b. Fire Protection Water Supply System

The water supply system consists of two fire pumps: one pump is electrically driven and the other is diesel engine driven. Each fire pump is separately connected to a buried water main loop around the plant. Each fire pump has a rated capacity of 2500 gpm at 125 psig. The fire pumps and controllers are UL listed. The fire pump installation has been designed and installed and will be tested in accordance with NFPA 20.

The fire pumps are located in the intake structure and are separated by 3-hour-fire-rated barriers. Pressure for the fire protection water system is provided by a jockey pump which maintains the system pressure between 115 and 125 psig.

The source of water for the fire protection system is the Ohio River. Separate suction lines are provided for each pump.

The greatest water demand for the fixed fire suppression system is 2000 gpm. Coupled with 500 gpm for hose streams, this creates a total water demand of 2500 gpm. We find that the water supply system can deliver the required water demand with one pump out of service.

Yard hydrants are provided at intervals of less than 250 ft along the fire protection water supply loop. The lateral to each yard hydrant is provided with a key operated isolation valve to facilitate hydrant maintenance and repairs without shutting down any part of the fire water supply system. Standard hose houses are provided at intervals of approximately 680 ft in accordance with NFPA Std. 24.

Approved post-indicator sectional control valves are provided to isolate portions of the underground main for maintenance or repair without shutting off the supply to primary and backup fire suppression systems that serve areas containing or exposing safety-related systems.

By letter dated May 23, 1984, the applicant committed to supervise all valves in the fire protection water supply system in accordance with NFPA Std. 26.

Based on our evaluation and the above commitment, we conclude the fire protection water supply meets our guidelines in Section C.6.c of BTP CMEB 9.5-1 and is, therefore, acceptable.

c. Sprinkler and Standpipe Systems

The wet pipe sprinkler systems, deluge systems, and pre-action systems meet the provision of NFPA 13 and NFPA 15. The areas equipped with water suppression systems are listed in Table 1 of the applicant's fire protection evaluation report.

Each automatic sprinkler system and interior hose standpipe is supplied through separate connections from the yard main or from the internal cross connections through buildings to ensure that no single failure in the water supply system will impair both the primary and backup fire protection in building areas. Each sprinkler and standpipe system connection to the distribution system is equipped with an indicating gate valve so that groups of sprinkler systems and/or manual hose stations can be isolated without interrupting the supply to other sprinkler systems and manual hose stations connected to the same header.

Based on our evaluation, we find that sprinkler and standpipe systems have been provided in accordance with Section C.6.c of BTP CMEB 9.5-1 and are, therefore, acceptable.

Manual hose stations are located throughout the plant in accordance with NFPA 14. Standpipe system piping for hose stations protecting safe shutdown equipment has been analyzed for SSE loading and is provided with seismic supports. We conclude that the design of the standpipe system piping meets our guidelines in Section C.6.c of BTP CMEB 9.5-1 and is, therefore, acceptable.

d. Halon Suppression Systems

A Halon 1301 system is provided for the computer room and west communications room. The system has been designed and installed in conformance with NFPA Std. 12A.

Based on our review, we conclude the Halon systems meet Section C.6.d of BTP CMEB 9.5-1 and are, therefore, acceptable.

e. Carbon Dioxide Suppression Systems

Total flooding CO<sub>2</sub> systems are provided for the electrical equipment areas of the Auxiliary Building listed in Table 1 of the applicant's Fire Protection Evaluation Report.

The CO<sub>2</sub> systems comply with the requirements of NFPA Std. 12.

Based on our review, we conclude that the carbon dioxide extinguishing systems meet the guidelines of BTP CMEB 9.5-1 Section C.6.e and are, therefore, acceptable.

g. Portable Extinguishers

Portable fire extinguishers are provided to conform with the guidelines of NFPA 10. We find this acceptable. Based on our review, we conclude that these extinguishers meet the guidelines of BTP CMEB 9.5-1, Section C.6.f and are, therefore, acceptable.

#### 9.5.1.6 Fire Protection of Specific Plant Areas

##### a. Containment

The reactor coolant pumps will be equipped with an oil collection system. The oil collection system will be designed and installed so that failure will not lead to fire during normal or design basis accident conditions and so that there will be reasonable assurance that the system will withstand the safe shutdown earthquake.

The collection systems will be capable of collecting lube oil from all potential pressurized and unpressurized leakage sites in the reactor coolant pump lube oil systems.

By letter dated May 23, 1984, the applicant committed to provide a drain tank for each pump that is sized to collect the entire lube inventory from the pump in accordance with our guidelines in Section C.7.a of BTP CMEB 9.5-1.

Manually operated sprinklers are provided for the protection of the cable penetration area and the charcoal filters.

By letter dated May 23, 1984, the applicant committed to separate redundant safe-shutdown cables by 20 feet or provide radiant energy shields.

Based on our evaluation and the above commitment, we conclude that the protection provided for the containment area meets our guidelines in Section C.7.a of BTP CMEB 9.5-1 and is, therefore, acceptable.

##### b. Control Room

The control room complex is separated from all other areas of the plant by 3-hour-rated assemblies.

By letter dated May 23, 1984, the applicant clarified that the only peripheral room in the control room complex is the shift supervisor's office. Due to the low fire risk associated with the supervisor's office, we find the existing protection acceptable.

All structural materials, interior finishes, and miscellaneous architectural items used in construction are noncombustible. All cabinets and furniture within the shift supervisor's office are of all-metal construction. Portable fire extinguishers are located throughout the control room complex and hose racks are located in stairwells outside the control room entrances. Portable fire extinguishers are rated according to the hazard protected including Class A extinguishers for the shift supervisor's office.

All cables entering the control room terminate there. No cables are routed through the control room from one area to another. There is a section of raised floor between the main control board and the benchboard. All cables in the underfloor are in conduits. We find this acceptable because cables completely enclosed in metal conduits do not add to the combustible loading in the area.

Ionization smoke detectors have been installed in the control room as well as inside the individual cabinets and consoles within the control room.

The applicant has provided an alternate shutdown system for the control room. The alternate shutdown system is reviewed in Section 9.5.c of this report.

The outside air intakes for the control room ventilation system are equipped with smoke detectors that alarm in the control room. In the event of a fire, the smoke venting system can be manually initiated to purge smoke from the control room, or isolated to preclude smoke from entering the control room.

*Johnston*

c. Cable Spreading Room

The cable spreading room is separated from the balance of the plant by 3-hour-fire-rated walls and floor/ceiling assemblies. All penetrations through fire-rated barriers are fitted with 3-hour-fire-rated dampers and/or 3-hour-fire-rated penetration seals.

An alternate shutdown system has been provided for the cable spreading room. The alternate shutdown system is reviewed in Section 9.5.c of this report.

The primary fire suppression system in the cable spreading room is an automatic redundant total flooding carbon dioxide system. This does not meet our guidelines. We will require the applicant to provide a water suppression system for the protection of the cable spreading room in accordance with Section C.7.c of BTP CMEB 9.5-1.

*or a justification showing equivalent protection etc etc*

d. Switchgear Rooms

The Division I and Division II switchgear rooms are separated from each other and from other plant areas by 3-hour-fire-rated walls and floor/ceiling assemblies.

Automatic fire detection is provided by ionization smoke detectors. Manual protection is provided by standpipe hose stations and portable extinguishers. Floor drains have been provided in the switchgear rooms. Based on our review, we conclude that the protection provided for the switchgear room is in accordance with our guidelines in Section C.7.e of BTP CMEB 9.5-1 and is, therefore, acceptable.

e. Remote Safety-Related Panels

Redundant safety-related panels remote from the main control room will be separated by barriers having a minimum fire rating of 3 hours. Based

on our review, we conclude that the protection provided for remote safety-related panels meets our guidelines in Section C.7.f of BTP CMEB 9.5-1 and is, therefore, acceptable.

f. Safety-Related Battery Rooms

The battery rooms are separated from each other and from the balance of the plant by 3-hour-fire-rated barriers. Ionization smoke detection systems are provided in each battery room. Hose stations and portable fire extinguishers are available in the areas for manual fire suppression. The ventilation system is designed to maintain the hydrogen levels below 2%. Loss of ventilation alarms have been provided for each battery room. Based on our review, we conclude that the protection provided for the battery rooms meets our guidelines in Section C.7.g of BTP CMEB 9.5-1 and is, therefore, acceptable.

g. Emergency Diesel Generator Rooms

The emergency diesel generators are in individual rooms separated from each other and from other areas of the plant by fire barriers having a fire rating of 3 hours.

The primary fire suppression systems for these cubicles are individual, automatic, fixed flooding CO<sub>2</sub> systems. Early warning smoke detectors and portable CO<sub>2</sub> fire extinguishers are located within each room. Manual fire hose stations are located at the entrance to each room and are provided as a backup to the CO<sub>2</sub> system.

Each diesel generator cubicle has a floor-mounted, 1,100-gallon fuel oil day tank located within a curbed area. An oil sump pit with a drain is provided within the curbed area and is connected to an underground oil separator. The curbed volume is sufficient to contain 1,100 gallons.

Based on our review, we conclude the protection provided for the diesel generator rooms meets our guidelines in Section C.7.i of BTP CMEB 9.5-1 and is, therefore, acceptable.

#### Other Plant Areas

The applicant's fire hazards analysis addressed other plant areas not specifically discussed in this report. We find that the fire protection for these areas is in accordance with the guidelines of BTP CMEB 9.5-1 and is, therefore, acceptable.

#### 9.5.1.8 Summary of Deviations from CMEB 9.5-1

Listed below are the approved deviations from the guidelines of BTP CMEB 9.5-1:

1. Rolling Steel Fire Doors, Section C.5.a.
2. Station Service Transformers, Section C.5.a.
3. Fire brigade physical examination interval, Section C.3
4. Concentrated cable tray protection, Section C.5.c.
5. Control Room ventilation, Section C.5.f.
6. Control Room shift supervisor's office, Section C.7.b.

#### Conclusion

The following are the open fire protection items:

Safe Shutdown	BTP CMEB 9.5-1 Section C.5.b
Alternate Shutdown	BTP CMEB 9.5-1 Section C.5.c
Cable Spreading Room	BTP CMEB 9.5-1 Section C.7.c

Input to the SALP Process - Beaver Valley 2

A. Functional Area: Fire Protection

1. Management involvement in assuring quality: Throughout the review process, the applicant's activities exhibited evidence of prior assignment of priorities to fire protection safety. A qualified fire protection engineer was retained to resolve technical issues.

Rating Category 2

2. Approach to resolution of technical issues: The applicant's submittal shows a clear understanding of the specific fire protection principles involved with the resolution of technical issues. The applicant's additional fire protection commitments reveal a conservative approach toward providing an adequate level of safety. However, the applicant has made little progress towards resolving the open item concerning the protection of the cable spreading room.

Rating Category 2

3. Responsiveness to NRC Initiatives: The applicant provided timely responses to our requests for information.

Rating Category 2

Second Distribution

P-302e

Also to: B. Knighton/B.K. Singh  
McCorle, Niles 1/25/85

Date

ROUTING AND TRANSMITTAL SLIP

TO: (Name, office symbol, room number, building, Agency/Post)	Initials	Date
1. <u>V. Benaroyo</u>		
2. <u>"Addresses" listed on</u>		
3. <u>the attached</u>		
4.		
5.		

Action	File	Note and Return
Approval	For Clearance	Per Conversation
As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

FOIA 84-926, Beaver Valley SEK  
Infects, RAI, etc.

Please respond to the attached request by 01/30/85  
If you expect your "search" time to exceed 2 hours,  
please call ASAP. See the attachment hereto  
for other pertinent instructions.

Contact me immediately if any other office  
should receive this request.

A "check-off" memorandum response to me is enclosed  
for your convenience.

DO NOT use this form as a RECORD of approvals, concurrences, disposals,  
clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)	Room No.—Bldg.
<u>Hazel Smith</u> <i>HS</i>	P-433
	Phone No.
	28972

5041-102

OPTIONAL FORM 41 (Rev. 7-76)  
Prescribed by GSA  
FPMR (41 CFR) 101-11.206

(HS)

When this request was initially received  
there was a communication problem  
between B.K. and me as to who should  
handle the request. This is the reason for this distribution.  
HS

1/25/85:

ADDRESSEES

- R. J. Bosnak
- G. E. Lear
- L. Reiter (Acting) - *MSB*
- R. L. Ballard
- B. D. Liaw
- G. T. Ankrum
- V. Noonan
- V. Benaroya
- W. H. Regan
- O. D. Parr
- F. Rosa
- M. Srinivasan
- B. Sheron
- L. G. Hulman
- W. Gammill
- F. Congel
- W. Butler
- ~~E. Berlinger~~
- V. A. Moore
- H. Booher
- D. L. Ziemann
- K. Kniel
- D. Matthews
- G. McCorkle

*CPB acting chief*

*left message with M.J. Pral, FOIA  
NMS 4/25/85*

Attachment

Requested material does not have to be provided when the documents has a PDR availability accession number. For all such documents list the accession number, docket number (when appropriate), date of correspondence, who it's to and from, and the subject. When this information can not be provided, copies of all written material within the scope of the request are needed.

- When the request involves proprietary information for which the staff has not issued a proprietary determination, the staff must supply the transmittal letter and supporting affidavit. When the proprietary determination has been issued, the licensee/vendor's request for withholding and the determination letter are needed. In either case, copies of the proprietary information which is subject to this request must be provided.
- All material submitted in response to the FOIA should be listed in your written response to me, in either or both of the following categories:
  - a. For release to the public
  - b. Not to be released to the public. (A supportive discussion for each item must be provided).
- PM's should-also consider the need to serve parties to proceeding copies of releasable correspondence or documents provided for an FOIA request. when such material has not been served on the parties.
- Response memoranda or route slip must be signed by Branch Chief. This signature requirement also includes a negative response.
- All time expended on this request should be reported on respective RAMS Sheets.



2536 COUNTRYSIDE BOULEVARD  
CLEARWATER, FLORIDA 33575-2094  
(813) 796-2264

December 14, 1984  
CD-LIS-84-929  
Project 1816

Director  
Division of Rules and Records  
U.S. N.R.C.  
Washington, D.C. 20555

FREEDOM OF INFORMATION  
ACT REQUEST

FOIA-84-926  
Rec'd 12-17-84

Dear Sir:

This is a Freedom of Information Act request for the following document to be placed in the Public Document Room:

All NRC internal memos to Division of Licensing on Beaver Valley Unit 2 from May through November 1984 which provided draft SER, SER sections, and NRC questions/request for additional information for transmittal to Division of Licensing.

*B K Singh*

If clarification is needed, please call me at (813) 796-2264. Thank you for your assistance.

Sincerely,

*Lyle Graber*

Lyle Graber  
Licensing Engineer  
Licensing Information Service

ks

~~8505130317~~ lp.