



**Commonwealth Edison**  
Byron Nuclear Station  
4450 North German Church Road  
Byron, Illinois 61010

50-454

September 23, 1983

LTR: BYRON 83-945  
FILE: 2.1.301

Mr. Fred Anderson  
U. S. Nuclear Regulatory Commission  
Bethesda, Maryland 20014

Subject: Proposed Technical Specifications - Byron Unit 1

Dear Mr. Anderson:

Enclosed here in are additional proposed Technical Specifications which are ready for technical review. The specific contents of this transmittal are itemized below.

Please address any further questions to Paul Dandrea, extension 205 or myself.

Sincerely,

William J. Dean  
(815) 234-5441, extension 763

Approved: \_\_\_\_\_

*R. E. Querio*  
for R. E. Querio  
Station Superintendent  
Byron Nuclear Power Station

WJD/PHD/bs

Enclosure: Section 3/4.3.3.7 Fire Detection Instrumentation and Basis  
Section 3/4.4.3.3.7.1 Fire Detection Instrumentation Table 3.3-11  
Section 3/4.9.4 Containment Building Penetrations

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REVIEW COVER SHEET

SPECIFICATION NO. Basel 3/4.3.3.7 PAGE NO. B 3/4 3-5

SPECIFICATION TITLE Fire Detection Instrumentation

CONTAINED NUMERICAL PARAMETERS

REFERENCE SOURCE OF ORIGIN

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MODIFICATIONS APPLIED Defined location of zone designations  
in Table 3.3.11

JUSTIFICATION Allow for reference documents  
identification

LEAD REVIEWER \_\_\_\_\_ SUPPORT REVIEWER Warren J. Walter OSR DATE \_\_\_\_\_

## INSTRUMENTATION

### BASES

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#### 3/4.3.3.7 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the detection instrumentation ensures that both adequate warning capability is available for the prompt detection of fires and that Fire Suppression Systems, that are actuated by fire detectors, will discharge extinguishing agent in a timely manner. Prompt detection and suppression of fires will reduce the potential for damage to safety-related equipment and is an integral element in the overall facility fire protection program.

Fire detectors that are used to actuate fire suppression systems represent a more critically important component of a plant's fire protection program than detectors that are installed solely for early fire warning and notification. Consequently, the minimum number of operable fire detectors must be greater.

The loss of detection capability for Fire Suppression Systems, actuated by fire detectors represents a significant degradation of fire protection for any area. As a result, the establishment of a fire watch patrol must be initiated at an earlier stage than would be warranted for the loss of detectors that provide only early fire warning. The establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is restored to OPERABILITY.

*Zone designations in table 3.3-11 are from electrical Schematic diagrams.*

#### 3/4.3.3.8 LOOSE-PART DETECTION INSTRUMENTATION

The OPERABILITY of the loose-part detection instrumentation ensures that sufficient capability is available to detect loose metallic parts in the Reactor System and avoid or mitigate damage to Reactor System components. The allowable out-of-service times and Surveillance Requirements are consistent with the recommendations of Regulatory Guide 1.133, "Loose-Part Detection Program for the Primary System of Light-Water-Cooled Reactors," May 1981.

#### 3/4.3.3.9 RADIOACTIVE LIQUID EFFLUENT MONITORING INSTRUMENTATION

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases of liquid effluents. The Alarm/Trip Setpoints for these instruments shall be calculated and adjusted in accordance with the methodology and parameters in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria 60, 63 and 64 of Appendix A to 10 CFR Part 50. The purpose of tank level indicating devices is to assure the detection and control of leaks that if not controlled could potentially result in the transport of radioactive materials to UNRESTRICTED AREAS.

REVIEW COVER SHEET

SPECIFICATION NO. 3.3.3.7 PAGE NO. 3/4 3-66

SPECIFICATION TITLE Fire Detection Instrumentation

CONTAINED NUMERICAL PARAMETERS

REFERENCE SOURCE OF ORIGIN

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MODIFICATIONS APPLIED Function A and Function B were Deleted. In 3.3.3.7 (b) Detection was replaced with suppression

JUSTIFICATION Byron Fire Protection Instruments are designated as suppression or detection.

LEAD REVIEWER \_\_\_\_\_ SUPPORT REVIEWER Warren J. Walter OSR DATE \_\_\_\_\_

## INSTRUMENTATION

### FIRE DETECTION INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

3.3.3.7 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-11 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

#### ACTION:

With the number of OPERABLE fire detection instrument(s) less than the minimum number OPERABLE requirement of Table 3.3-11:

- a. With any, but not more than one-half the total in any fire zone, ~~Function A~~ fire detection instruments shown in Table 3.3-11 inoperable, restore the inoperable instrument(s) to OPERABLE status within 14 days or within the next 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.5.
- b. With more than one-half of the Function A fire detection instruments in any fire zone shown in Table 3.3-11 inoperable or with any ~~Function A~~ fire detection instruments shown in Table 3.3-11, inoperable, or with any two or more adjacent fire detection instruments shown in Table 3.3-11 inoperable, within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect that containment zone at least once per 8 hours or monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.5.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.3.3.7.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months by performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

## INSTRUMENTATION

### SURVEILLANCE REQUIREMENTS (Continued)

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4.3.3.7.2 The NFPA Standard 720 supervised circuits supervision associated with the detector alarms of each of the above required fire detection instruments shall be demonstrated OPERABLE at least once per 6 months.

4.3.3.7.3 The nonsupervised circuits, associated with detector alarms, between the instrument and the control room shall be demonstrated OPERABLE at least once per 31 days.

# REVIEW COVER SHEET

SPECIFICATION NO. 4.3.3.7.1 PAGE NO. 3/4 3-68  
 SPECIFICATION TITLE Fire Detection Instrumentation Table 33-11

## CONTAINED NUMERICAL PARAMETERS

## REFERENCE SOURCE OF ORIGIN

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MODIFICATIONS APPLIED Table 33-11 was modified to include  
total number of detectors, and location of  
Zones.

JUSTIFICATION The previous table did not include  
the above

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TABLE 3.3-11 (Continued)  
FIRE DETECTION INSTRUMENTS

<u>Instrument Location</u>	<u>Instrument Type *</u>	<u>Total # of Instruments</u>		
		<u>Heat</u>	<u>Flame</u>	<u>Smoke</u>
6. Station Battery Room				
Zone 67 Elev 451	Detection			3
7. Diesel Generator Room				
Zone 37 Elev 401	Suppression	4		
Zone 38 Elev 401	Suppression	4		
8. Diesel Fuel Storage				
Zone 39 Elev 401	Suppression	1		
Zone 40 Elev 401	Suppression	1		
Zone 27 Elev 383	Suppression			3
Zone 28 Elev 383	Suppression			3
9. Safety Related Pumps				
Zone 41 Elev 383	Suppression	2		
Zone 42 Elev 383	Suppression	1		
Zone 16 Elev 364	Detection			2
Zone 18 Elev 364	Detection			3
Zone 19 Elev 364	Detection			3
Zone 20 Elev 346	Detection			3
Zone 21 Elev 346	Detection			3
Zone 52 RSH	Suppression	6		
10. Fuel Storage				
Zone 39 Elev 401	Detection			3
Zone 38 Elev 426	Detection		3	

Notes \* A single detector in a zone marked "DETECTION" will alarm in the Main Control Room.  
A single detector in a zone marked "SUPPRESSION" will initiate suppression and alarm in the Main Control Room.

\*\* These are Containment Ventilation temperature switches. Upon receipt of a Hi-Hi temperature suppression must be manually initiated.

\*\*\* The fire detection instruments located within the containment are not required to be OPERABLE during the performance of TYPE A containment leakage rate tests.



TABLE 3.3-11  
FIRE DETECTION INSTRUMENTS

<u>Instrument Location</u>	<u>Instrument Type *</u>	<u>Total # of Instruments</u>		
		<u>Heat</u>	<u>Flame</u>	<u>Smoke</u>
1. Containment ***				
Zone 11 Elev 426	Suppression	1 **		
Zone 12 Elev 426	Suppression	1 **		
Zone 2 Elev 401	Detection			2
Zone 3 Elev 401	Detection			2
Zone 4 Elev 401	Detection			2
Zone 5 Elev 401	Detection			2
Zone 6 Elev 426	Detection			6
Zone 76 Elev 426	Detection			9
Zone 7 Elev 414	Detection			6
Zone 24 Elev 414	Detection			10
2. Control Room				
Zone 68 Elev 451	Detection			3
Zone 69 Elev 451	Detection			8
Zone 75 Elev 451	Detection			10
3. Switchgear Rooms				
Zone 77 Elev 426	Detection			9
Zone 78 Elev 426	Detection			9
4. Upper Cable Spreading Room				
Zone 33 Elev 463	Suppression			4
Zone 34 Elev 463	Suppression			8
Zone 35 Elev 463	Suppression			8
Zone 36 Elev 463	Suppression			4
Lower Cable Spreading Room				
Zone 43 Elev 439	Suppression			8
Zone 44 Elev 439	Suppression			10
Zone 45 Elev 439	Suppression			8
Zone 46 Elev 439	Suppression			4
5. Remote Shutdown Panel				
Zone 13 Elev 383	Detection			5

# REVIEW COVER SHEET

SPECIFICATION NO. 3.9.4 PAGE NO. 3/4 9-4

SPECIFICATION TITLE Containment Bldg Penetration

## CONTAINED NUMERICAL PARAMETERS

## REFERENCE SOURCE OF ORIGIN

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MODIFICATIONS APPLIED The requirement for the containment building integrity during fuel movement has been relaxed to allow the personnel hatch (equipment door) to be removed.

JUSTIFICATION Bygon Station is designed such that the containment opens into a fuel building (through the equipment door). The fuel building has a charcoal fan system designed for a fuel drop accident in the fuel building. This system is a Tech Spec requirement (3.9.12) with

LEAD REVIEWER W. J. [Signature] SUPPORT REVIEWER \_\_\_\_\_ OSR DATE \_\_\_\_\_

REVIEW COVER SHEET

SPECIFICATION NO. 3.9.4 PAGE NO. 3/1 9-4

SPECIFICATION TITLE Containment Bldg Penetration

CONTAINED NUMERICAL PARAMETERS

REFERENCE SOURCE OF ORIGIN

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MODIFICATIONS APPLIED \_\_\_\_\_

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cont. JUSTIFICATION irradiated fuel in the spent fuel pool.

In the event of a fuel drop accident in the containment,  
any gasses escaping the containment will be routed  
through the fuel building ventilation system.

LEAD REVIEWER WJ Dea SUPPORT REVIEWER \_\_\_\_\_ OSR DATE \_\_\_\_\_

## REFUELING OPERATIONS

### 3/4.9.4 CONTAINMENT BUILDING PENETRATIONS

#### LIMITING CONDITION FOR OPERATION

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3.9.4 The containment building penetrations shall be in the following status:

- a. ~~The equipment door closed and held in place by a minimum of four bolts,~~  
*personnel hatch may be removed,*
- b. ~~A minimum of one door in each airlock is closed, and~~  
*the personnel emergency exit hatch*
- c. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:
  - 1. Closed by an isolation valve, blind flange, or manual valve, or
  - 2. Be capable of being closed by an OPERABLE automatic containment purge isolation valve.

APPLICABILITY: During CORE ALTERATIONS or movement of irradiated fuel within the containment.

#### ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or movement of irradiated fuel in the containment building.

#### SURVEILLANCE REQUIREMENTS

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4.9.4 Each of the above required containment building penetrations shall be determined to be either in its closed/isolated condition or capable of being closed by an OPERABLE automatic containment purge isolation valve within 100 hours prior to the start of and at least once per 7 days during CORE ALTERATIONS or movement of irradiated fuel in the containment building by:

- a. Verifying the penetrations are in their closed/isolated condition, or
- b. Testing the containment purge isolation valves per the applicable portions of Specification 4.6.3.2.