

**Attachment 1**

**Proposed Technical Specification Change  
North Anna Unit 1**

**Virginia Electric and Power Company**

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TABLE 3.3-14

EXPLOSIVE GAS MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
1. DELETED			
2. WASTE GAS HOLDUP SYSTEM EXPLOSIVE GAS MONITORING SYSTEM (Shared with Unit 2)			
a. Oxygen Monitor	1	* *	32

\* \* During process vent system operation (treatment for primary system offgasses).

ACTION 32 - With this channel inoperable, operation may continue provided grab samples are taken and analyzed: (1) every 4 hours during degassing operations and (2) daily during other operations.



TABLE 4.3-14

EXPLOSIVE GAS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. DELETED					
2. WASTE GAS HOLDUP SYSTEM EXPLOSIVE GAS MONITORING SYSTEM					
a. Oxygen Monitor	D	N.A.	Q(1)	M	**

\* \* During process vent system operation (treatment for primary system offgasses)

(1) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. One volume percent oxygen, balance nitrogen, and
2. Four volume percent oxygen, balance nitrogen.



## RADIOACTIVE STORAGE

### 3/4.11.2 GAS STORAGE

#### EXPLOSIVE GAS MIXTURE

#### LIMITING CONDITIONS FOR OPERATION

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3.11.2.5 The concentration of oxygen in the waste gas decay tanks shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration could exceed 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the affected waste gas decay tank greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.
- b. With the concentration of oxygen in the affected waste gas decay tank greater than 4% volume immediately suspend all additions of waste gases to the affected tank and reduce the concentration of oxygen to less than or equal to 4% by volume without delay, then continue with Action "a" above.
- c. With the requirements of Action "a" not satisfied, suspend all additions of waste gases to the affected tank until the oxygen concentration is restored to less than 2% by volume.
- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.11.2.5 The concentration of oxygen in the waste gas decay tanks shall be determined to be within the above limits by continuously monitoring the waste gases in the inservice waste gas decay tank with the oxygen monitor required OPERABLE by Table 3.3-14 of Specification 3.3.3.11.



## RADIOACTIVE STORAGE

### 3/4.11.2 GAS STORAGE

#### BASES

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#### 3/4.11.2.5 EXPLOSIVE GAS MIXTURE

This Specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below the flammability limits of hydrogen and oxygen. Maintaining oxygen below the concentration that will support combustion at any concentration of hydrogen provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

#### 3/4.11.2.6 GAS STORAGE TANKS

The tanks included in this Specification are those tanks for which the quantity of radioactivity contained is not limited directly or indirectly by another Technical Specification to a quantity that is less than the quantity which provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem in an event of 2 hours.

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem. This is consistent with Branch Technical Position ETSB 11-5 in NUREG-0800, July 1981.

Specifications 3/4.11.3 and 3/4.11.4 have been deleted.



**Attachment 2**

**Proposed Technical Specification Change  
North Anna Unit 2**

**Virginia Electric and Power Company**



TABLE 3.3-13

EXPLOSIVE GAS MONITORING INSTRUMENTATION

<u>INSTRUMENT</u>	<u>MINIMUM CHANNELS OPERABLE</u>	<u>APPLICABILITY</u>	<u>ACTION</u>
1. DELETED			
2. WASTE GAS HOLDUP SYSTEM EXPLOSIVE GAS MONITORING SYSTEM (Shared with Unit 1)			
a. Oxygen Monitor	1	* *	32

\* \* During process vent system operation (treatment for primary system offgasses).

ACTION 32 - With this channel inoperable, operation may continue provided grab samples are taken and analyzed: (1) every 4 hours during degassing operations and (2) daily during other operations.



TABLE 4.3-13

EXPLOSIVE GAS MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

<u>INSTRUMENT</u>	<u>CHANNEL CHECK</u>	<u>SOURCE CHECK</u>	<u>CHANNEL CALIBRATION</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>MODES IN WHICH SURVEILLANCE REQUIRED</u>
1. DELETED					
2. WASTE GAS HOLDUP SYSTEM EXPLOSIVE GAS MONITORING SYSTEM					
a. Oxygen Monitor	D	N.A.	Q(1)	M	**

\* \* During process vent system operation (treatment for primary system offgasses)

(1) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

1. One volume percent oxygen, balance nitrogen, and
2. Four volume percent oxygen, balance nitrogen.



## RADIOACTIVE STORAGE

### 3/4.11.2 GAS STORAGE

#### EXPLOSIVE GAS MIXTURE

#### LIMITING CONDITIONS FOR OPERATION

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3.11.2.5 The concentration of oxygen in the waste gas decay tanks shall be limited to less than or equal to 2% by volume whenever the hydrogen concentration could exceed 4% by volume.

APPLICABILITY: At all times.

ACTION:

- a. With the concentration of oxygen in the affected waste gas decay tank greater than 2% by volume but less than or equal to 4% by volume, reduce the oxygen concentration to the above limits within 48 hours.
- b. With the concentration of oxygen in the affected waste gas decay tank greater than 4% volume immediately suspend all additions of waste gases to the affected tank and reduce the concentration of oxygen to less than or equal to 4% by volume without delay, then continue with Action "a" above.
- c. With the requirements of Action "a" not satisfied, suspend all additions of waste gases to the affected tank until the oxygen concentration is restored to less than 2% by volume.
- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.11.2.5 The concentration of oxygen in the waste gas decay tanks shall be determined to be within the above limits by continuously monitoring the waste gases in the inservice waste gas decay tank with the oxygen monitor required OPERABLE by Table 3.3-14 of Specification 3.3.3.11.



## RADIOACTIVE STORAGE

### 3/4.11.2 GAS STORAGE

#### BASES

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#### 3/4.11.2.5 EXPLOSIVE GAS MIXTURE

This Specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the waste gas holdup system is maintained below the flammability limits of hydrogen and oxygen. Maintaining oxygen below the concentration that will support combustion at any concentration of hydrogen provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

#### 3/4.11.2.6 GAS STORAGE TANKS

The tanks included in this Specification are those tanks for which the quantity of radioactivity contained is not limited directly or indirectly by another Technical Specification to a quantity that is less than the quantity which provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem in an event of 2 hours.

Restricting the quantity of radioactivity contained in each gas storage tank provides assurance that in the event of an uncontrolled release of the tank's contents, the resulting total body exposure to an individual at the nearest exclusion area boundary will not exceed 0.5 rem. This is consistent with Branch Technical Position ETSB 11-5 in NUREG-0800, July 1981.

Specifications 3/4.11.3 and 3/4.11.4 have been deleted.



**Attachment 3**

**Discussion of Proposed Change**

**North Anna Units 1 and 2**

**Virginia Electric and Power Company**



## Discussion of Proposed Changes

The proposed North Anna Technical Specification changes will simplify and clarify the Waste Gas Decay Tank (WGDT) explosive gas monitoring requirements.

The proposed changes to Technical Specification 3.11.2.5 will require the oxygen concentration of the WGDT be maintained less than 2% by volume at all times, whenever the hydrogen concentration could exceed 4% by volume. This change conservatively assumes the worst case hydrogen concentration unless the tank is taken out of service for maintenance and purged with air. Therefore the Unit 1 Table 3.3-14 and Unit 2 Table 3.3-13 Technical Specification requirement to maintain a hydrogen monitor operable and the corresponding surveillance requirements are no longer applicable and are being removed by this proposed change.

In Table 3.3-14 for Unit 1 and Table 3.3-13 for Unit 2, which list the required explosive gas monitoring instrumentation, item 2a, the hydrogen monitor is deleted. Item 2b is changed to 2a. The oxygen monitor by itself will be used to ensure a non-explosive mixture by assuming that hydrogen is always present.

The first sentence of "ACTION 32" in the same tables is deleted. This removes the 14 day requirement and allows continued use of the system, provided grab samples are taken and analyzed. The 14 day requirement in ACTION 32 would be applicable if 2 independent analyzers were installed to monitor WGDT oxygen concentration. The WGDT's have only one monitor and therefore the 14 days of operation and subsequent daily grab samples with less than the required minimum channels operable is not applicable.

In Table 4.3-14, 4.3-13 for Unit 2, which lists the surveillance requirements for explosive gas monitoring instrumentation, item 2a and its associated footnote 3 is deleted. This reflects the removal of the hydrogen monitor. Item 2b is changed to 2a and footnote 4 is changed to 1.

Specification 3/4.11.2.5 is changed to eliminate dependence on the hydrogen monitoring. The phrases "whenever the hydrogen concentration exceeds 4% by volume and is less than 96% by volume" is changed to "whenever the hydrogen concentration could exceed 4% by volume". The phrases "and the hydrogen concentration greater than 2% by volume" and "hydrogen and" are deleted. "Concentrations" and "monitors" are changed to singular. The effect of this change is to assume worst case hydrogen concentration unless the tank is taken out of service for maintenance and purged with air. It therefore enhances safety.

Specification 3/4.11.2.5 is also changed to clarify the requirements. The phrases "waste gas decay tanks" in ACTIONS a and b are changed to affected waste gas decay tank." "System" in ACTION b is changed to "affected tank." "Waste gas decay tanks" in the surveillance requirement is changed to "in service waste gas decay tank." This makes it clear that the requirements only apply to the tank that has the potentially explosive mixture.



The ACTION statements are also changed to provide a graded response. In ACTION b, "2% by volume without delay" is changed to "4% by volume without delay, then continue with ACTION a above." The 2% limit is not needed because it is in ACTION a. ACTION c is changed to d and a new ACTION c is inserted: "With the requirements of ACTION a not satisfied, suspend all additions of waste gasses to the affected tank until the oxygen concentration is restored to less than 2% by volume." The old Specification did not say what to do if the requirements are not met.

The bases for Specification 3/4.11.2.5 is changed to reflect the independence from hydrogen monitoring. The phrase "the concentration of hydrogen and oxygen below their flammability limits" is changed to "oxygen below the concentration that will support combustion at any concentration of hydrogen."



**Attachment 4**

**10 CFR 50.92 Evaluation  
North Anna Units 1 and 2**

**Virginia Electric and Power Company**



### **Basis for No Significant Hazards Determination**

The proposed change to the gaseous waste system explosive gas mixture Technical Specification does not involve a significant hazards consideration per 10 CFR 50.92.

1. Operation of the gaseous waste system in accordance with the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed Technical Specification, like the current specification, limits the concentration of oxygen in the gaseous waste system to prevent an explosive gas mixture. No impact on the existing safety analysis is made by these changes. Furthermore, since the proposed changes provide preventive measures directly applicable to the plant design, no significant increase in the probability of an accident will occur. The proposed change prevents explosive mixtures for hydrogen rich gaseous waste systems consistent with standard technical specifications.
2. The proposed change will not create the possibility of a new or different kind of accident from any accident previously evaluated. The revised specification and the existing specification both address the same issue: prevention of explosive concentrations of hydrogen and oxygen in the gaseous waste system. No accident or event other than a potential gas explosion is relevant to this proposed change.
3. The revised Technical Specification does not involve a significant reduction in a margin of safety. The proposed change continues to ensure that actions are taken to prevent an explosive gas mixture from forming in the gaseous waste system. The proposed change merely provides a specification which is directly applicable to plant specific design characteristics.