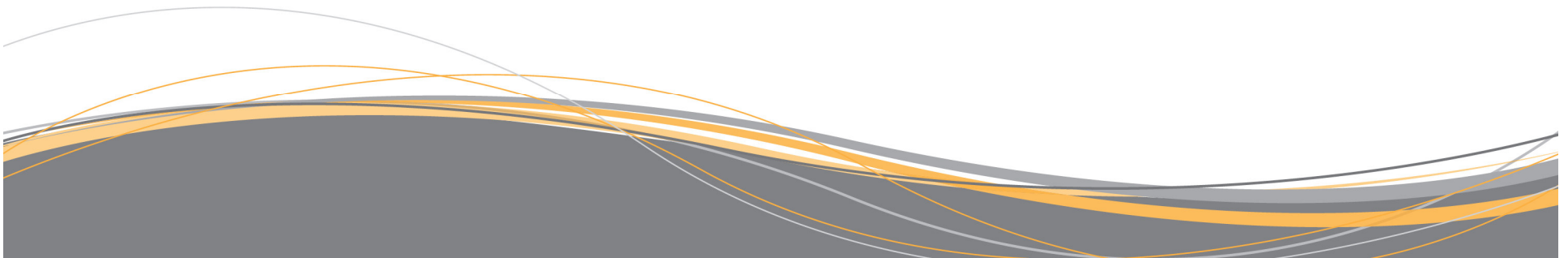




Prairie Island Nuclear Generating Plant

**NRC Region III
Regulatory Conference
February 25, 2013**

**Loss of 1R-50 Shield Building High Range Vent Gas
Radiation Monitor**



Agenda

- **Opening Remarks – Jim Lynch, Site Vice President**
- **Background, Sequence of Events, and Compensatory Measures – Kerrie DeFusco, Emergency Preparedness Manager**
- **Classification – Steve Ingalls, Shift Manager**
- **Corrective Actions – Kevin Davison, Director Site Operations**
- **Regulatory Significance – Jon Anderson, Regulatory Affairs Manager**
- **Conclusion – Jim Lynch, Site Vice President**

Opening Remarks

■ Violation

- ◆ **Response to the loss of 1R-50 Shield Building High Range Vent Gas Radiation Detector failed to restore the capability of the detector to classify emergency action levels, RG1.1, General Emergency, and RS1.1, Site Area Emergency**

- **Agree with the performance deficiency**
- **Disagree with the significance**

Background, Sequence of Events, and Compensatory Measures

Kerrie DeFusco
Emergency Preparedness Manager

Background

■ Applicable Initiating Conditions

- ◆ **RS1** - Offsite Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 100 mRem TEDE or 500 mRem Thyroid CDE for the Actual or Projected Duration of the Release.
- ◆ **RG1** - Offsite Dose Resulting from an Actual or Imminent Release of Gaseous Radioactivity Exceeds 1000 mRem TEDE or 5000 mRem Thyroid CDE for the Actual or Projected Duration of the Release Using Actual Meteorology.

Shield Building Stack Effluent Release Flow Paths

NUE = Notice of Unusual Event

ALERT = Alert

SAE = Site Area Emergency

GE = General Emergency

Unit 1 Containment
(single train range)

U1 Shield Bldg Stack

1R-50
Hi range

Alarm

70 mR/hr

SAE

4,300 mR/hr

GE

43,000 mR/hr

1R-22
Low range

Alarm

800 cpm

NUE

1,600 cpm

ALERT

160,000 cpm

ERO Activated

Sequence of Events

- 7/24/2011, 1R-50 Shield Building High Range Vent Gas Radiation Detector out of service
- 7/24/2011, Compensatory measures implemented
- 2/17/2012, Corrective Action document questioned extended 1R-50 out of service time
- 5/17/2012, Plant management recognized 1R-50 repairs were not timely
- 5/18/2012, 1R-50 returned to service

Compensatory Measures

- Monitor 1R-22
 - ◆ 1R-22 Measures Vent Stack Releases
 - ◆ Serves as an Early Warning
 - ◆ Activates the Emergency Response Organization

Compensatory Measures

- 1R-50 Dose Rate
 - ◆ Obtain Dose Rate of Sample Chamber
 - ◆ Convert Dose Rate to Xenon Concentration
 - ◆ Dose Assessment

- Procedures and Training were Place

Compensatory Measures

Obtaining Dose Rate 1R-50 Sample Chamber



Sequence of Events

■ Missed Opportunities/Learning

- ◆ Timeliness
- ◆ Priority
- ◆ Advocacy



Classification

Steve Ingalls
Shift Manager

Classification

Xe-133 (uCi/cc)	1R-22 (cpm)	1R-50 (mR/h)
1E-4	200	
1E-3	1,100	
	1600 = NUE	
1E-2	8,500	0.32
1E-1	60,000	3.2
	160,000 = ALERT; ERO Activated	
1E0	500,000	32
1E+1		320
1E+2		3,200
		4,300 = SAE
1E+3		32,000
		43,000 = GE

Classification

- **Diverse Methods Available for Classification**
 - ◆ **Compensatory Measures**
 - ◆ **Fission Product Barrier**
 - ◆ **Dose Assessment**



Corrective Action

Kevin Davison
Director Site Operations

Corrective Action

- ◆ Behaviors – Advocacy
- ◆ Process – Work Management Improvements

Corrective Action

- **Emergency Planning Equipment**
 - ◆ **EP Equipment Single Train**
 - ◆ **EP Equipment Redundant Trains**



Regulatory Significance

Jon Anderson
Regulatory Affairs Manager

Regulatory Significance

- **10 CFR 50.47(b)(4), Emergency Classification System**
- **10 CFR 50.47(b)(8), Emergency Facilities and Equipment**

Regulatory Significance

Classification Method	<15 minutes
Fission Product Barrier	Yes
Dose Rate 1R-50 (Compensatory Measure)	Yes (if ERO Activated)
Dose Assessment (Containment Monitors)	Yes (if ERO Activated)

Classification

- **10 CFR 50.47(b)(4), Emergency Classification System**
 - ◆ **Site Area and General Emergency could be classified within 15 minutes therefore the finding should be GREEN.**

Regulatory Significance

Precedence

Issue	Standard	Significance
Effluent Monitor Classification Thresholds	10 CFR 50.47(b)(4)	White
Inaccurate methods for assessing the offsite consequences of a radiological release	10 CFR 50.47(b)(9)	White
Reactor Building High Range Exhaust monitor was unavailable 38 of 149 months and corrective actions were ineffective in restoring the availability and reliability of the monitor	10 CFR 50.47(b)(8)	Green – Licensee Identified

Regulatory Significance

- **10 CFR 50.47(b)(8), Emergency Facilities and Equipment**
 - ◆ **1R-50 Compensatory measures were implemented immediately; therefore the finding should be GREEN.**



Closing Remarks

Jim Lynch
Site Vice President

Closing Remarks

- **EP Equipment Advocacy**
- **Classification**
- **Compensatory Measures**
- **Consistent Enforcement**

