FAQ 25-01
Reporting PI for Dose Rate Alarm

Plant: Florida Power and Light – Turkey Point
Date of Event: 9/16/2023
Submittal Date: March 26, 2025
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Performance Indicator: OR01, Occupational Safety Effectiveness Indicator
Site-Specific FAQ: Yes
FAQ requested to become effective: 1Q2025 PI data

Question Section

NEI 99-02 Guidance needing interpretation (include page and line citation):
Revision 7, page 64: (Note: Guidance in effect when event was originally reviewed)
16 Technical Specification High Radiation Area (>1 rem per hour) Occurrence - A
17 nonconformance (or concurrent nonconformances) with technical specifications or
18 comparable requirements in 10 CFR 20 applicable to technical specification high radiation
19 areas (>1 rem per hour) that results in the loss of radiological control over access or work
20 activities within the respective high-radiation area (>1 rem per hour).

Event or circumstances requiring guidance interpretation:
On 9/16/2023 at approximately 03:45, while performing the lineup in the Unit-4 Demin Valve Room (a Radiation Area) to rinse in a new resin bed in the 4E Demineralizer, the Operator received an unanticipated dose rate alarm due to changing radiological conditions upon opening a combined inlet valve, 4-245. The most probable cause for the increase in dose rate was an air void remaining in the demineralizer following the initial resin loading and fill with primary water. When the operator opened the combined demineralizer inlet valve, a different bed used for purification experienced backpressure from letdown, which moved resin up from that bed into the inlet line as the void in the 4E demineralizer collapsed. The Operator's dosimeter recorded a dose rate of 1,090 mRem/hour versus an alarm setpoint of 350 mRem/hour. The operator immediately left the area and contacted Radiation Protection (RP) for further guidance. The shift RP technician performed a survey of the immediate work area and reported dose rates of 2,690 mRem/hour on contact and 900 mRem/hour at 30cm. The RP technician ensured there were no other personnel in the area and then guarded the door while Supervision was notified, and additional RP resources were made available to lock and post the area as a LHRA. The dose to the operator for the entry was 4.0 mRem. A complete survey was conducted in the room on 9/16/2023 at 08:37 and noted dose rates of 10,000 mRem/hour at contact and 2,500 mRem/hour at 30cm.

Turkey Point reviewed this event against NRC Inspection Procedure (IP) 71151 "Performance Indicator Verification," section 03.09, "OR01: Occupational Exposure Control Effectiveness," technical specifications, and NEI 99-02 Rev. 7 "Regulatory Assessment Performance Indicator Guideline," "Occupational Exposure Control Effectiveness" section.

NEI 99-02 Rev. 7

Examples of occurrences that would be counted against this indicator include:

• *Failure to post an area as required by technical specifications,*

Conclusion: Does not apply. The area was posted as a Radiation Area, based on the most recent survey information when access was made. As soon as higher than anticipated dose rates were encountered the room was controlled and posted accordingly, as a LHRA.

• *Failure to secure an area against unauthorized access,*

Conclusion: Does not apply. As stated, Area was controlled as a Radiation area for access.

• *Failure to provide a means of personnel dose monitoring or control required by technical specifications,*

Conclusion: Does not apply. Individual had a dose monitoring device with an alarm function and was aware of the dose rates associated with the work area he was entering. The alarm function operated properly to warn the worker of higher than anticipated dose rates.

• *Failure to maintain administrative control over a key to a barrier lock as required by technical specifications,*

Conclusion: Does not apply. Area entered was controlled as a Radiation Area.

• *An occurrence involving unauthorized or unmonitored entry into an area, or*

• *Nonconformance with a requirement of an RWP (as specified in the licensee's technical specifications) that results in a loss of control of access to or work within a technical specification high radiation area.*

Conclusion: Does not apply. Access was authorized and properly monitored. The alarm function of the electronic dosimeter worked as expected to warn the worker of higher than anticipated dose rates when they occurred. The worker took appropriate steps to immediately exit the area minimizing his dose and called Radiation Protection to control the area, as stipulated in the Radiation Work Permit.

Examples of occurrences that are not counted include the following:

• *Occurrence associated with isolated equipment failures. This might include, for example, discovery of a burnt-out light, where flashing lights are used as a technical specification control for access, or a failure of a lock, hinge, or mounting bolts, when a barrier is checked or involving unauthorized or unmonitored entry into an area, or tested.*

Conclusion: Turkey Point has never encountered an excursion while rinsing-in a new Demin Bed over it's 50 years of two-unit operation. Therefore, the change in dose rates was not preemptively identified or expected during pre-job planning, and should be considered an isolated occurrence.

The guideline reviews and counts against three items:

1. Technical Specifications (TS) for High Radiation Areas (commonly referred to as Locked (HRAs)

2. Very High Radiation Areas (VHRAs)
3. Unintended Exposure Occurrences

TS for HRAs addresses two specific components: Limiting/Controlling access to areas in which radiation levels from radiation sources external to the body are in excess of 1 rem per hour at 30 centimeters from any surface the radiation penetrates. Secondly, it also governs events that result in the loss of radiological control over work activities in the respective area.

Access for this event was properly controlled under Radiation Area controls. There were no dose rates meeting the definition of a HRA upon access. This is based on the most recent surveys completed for the area prior to access and no increase in dose rates were expected based on the history of this work activity.

Regarding a loss of radiological control over work activities: The individual received an alarm from his electronic dosimeter and immediately exited the area and contacted RP as per the guidance in the Radiation Work Permit for his work. The area was physically controlled by RP until it was surveyed and reposted as a LHRA. There was no loss of radiological control associated with this event.

TS for VHRAs or unintended exposure do not apply to this event. The event does not meet the guideline for an unintended exposure occurrence. The dose for the Operator and RP Technician (4.0 mRem) did not meet the threshold of NEI 99-02 Table 3.

This position is consistent with NEI 99-02 FAQ 98 which describes radiation levels in an area increasing after workers entered the area.

If licensee and NRC resident/region do not agree on the facts and circumstances, explain:

The NRC Inspectors contest that the failure to implement adequate procedures for CVCS, including letdown purification, as required under Improved Technical Specification (ITS) 5.4, “Procedures” and ITS 5.5, “Programs and Manuals,” was a performance deficiency (PD) and was reasonably within the licensee’s ability to foresee and correct. The probable cause of the collapse of an air void in the 4E demineralizer did not constitute an equipment failure. In addition, the NRC evaluates radiation monitoring equipment alarms (e.g. electronic dosimeter alarms) to determine if their actuation is the result of a PD. The NRC determined that there was a PD with the issuance of Green NCV 05000251/2023004-06. Refer to Unresolved Item (URI) 05000251/2024004-02 for further information.

The NRC Inspectors further contest that (ITS) 5.7 guidelines for High Radiation Area access control were violated, in that any area, accessible to individuals, in which radiation levels from radiation sources external to the body are in excess of 1.0 rem (10 mSv) per 1 hour at 30 centimeters from the radiation source were not properly posted when occupied by personnel. They also cite non-conformance applicable to ITS 5.7 for HRA’s that result in a loss of radiological control over work activities in the respective area.

Potentially relevant existing FAQ numbers
NEI 99-02 FAQ 98, which describes radiation levels in an area increasing after workers entered the area.

Response Section

Proposed Resolution of FAQ:

Based on these facts, Turkey Point does not believe that this event should be counted against the OR01 Occupational Safety Effectiveness Performance Indicator as a Technical Specification High Radiation Area Occurrence.

PRA Update required to implement the FAQ?

No

MSPI Basis Document update required to implement this FAQ?

No