PMNorthAnna3COLPEmails Resource

From: Barry Bryant [barry.bryant@dom.com]
Sent: Tuesday, September 20, 2011 11:23 AM
To: Patel, Chandu
Cc: Regina Borsh; Joseph Hegner
Subject: List of Draft RAIs Addressed in Next COLA Submission
Attachments: Draft RAIs Addressed in 2011 S-COLA Submission.pdf

Chandu,

As we discussed during Monday's conference call, I am providing you with a list (attached) of draft RAIs that will be addressed in the next COLA submission, currently scheduled for October 2011. The list includes a comments column that provides a reference to the COLA sections that are being revised. A draft copy of the revised COLA pages is also provided for your information.

Please let me know if you have any questions.

Thank you.

Barry

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Draft RAI Questions Addressed in 2011 NA3 S-COLA Submission

Draft RAI Question	e-RAI	RAI Description	Dominion Comments
D-11.02-***	5955	11.4, was addressed in response to RAI 5449, Question 11.04-5 (ML11167A149), the related NAPS COL 11.2(7) also needs to be addressed and described in FSAR Section 11.2. Please update the relevant FSAR sections such as 1.8, 1.9, 11.2, and 13.5, etc. to satisfy NAPS COL 11.2(7) for identifying the implementation of the epoxy coatings program used in the LWMS, and address the milestones for decontaminable paints and suitable smooth-surface coatings applied to all areas inside the Auxiliary Building including the floor under the pumps of the detergent drain subsystem for compliance with 10 CFR 20.1406 and conformance to RG 1.54 (Rev. 1) or more recent industry standards and BTP 11-6 as proposed in US-APWR DCD (Rev. 3) Section 11.2 and COL 11.2(7) (ML092090556 and ML100770379) (see also RCOLA response to RAI 5374, Question 11.02-14, ML11111A101). Provide a mark-up on the proposed FSAR changes.	COL 11.2(7) was added in DCD Rev. 3 and is being addressed in the next COLA submission. See attached draft FSAR Sections 11.2.4 and 11.2.5.
D-12.02-*** First question	5784	Please explain how the application addresses COL Information Items 12.2(3) and 12.2(4), including any associated departures and alternative approaches.	COL 12.2(3) and COL 12.2(4) were added in DCD Rev. 3 and are being addressed in the next COLA submission. See attached draft FSAR Sections 12.2.3 and 12.5.
D-12.02-*** Second question	5784	The “degasifier feed demineralizer” is also referred to as the “Reactor Coolant Drain Demineralizer”. Please revise and update the NAPS COL FSAR to use a consistent identifier for this component in NAPS COL FSAR sections 9.3, 12.2 and 12.3, or justify an alternative approach.	The term, “degasifier feed demineralizer,” will be used. Inconsistent terms are being addressed in the next COLA submission. See attached draft FSAR Sections 9.3.4.2.6.17 and 12.2.1.1.3.E, and Tables 12.2-1R, 12.2-64R, 12.2-65R, 12.2-73R, 12.2-75R, and 12.3-1R.
D-14.03.03-***	5968	The applicant provided ITAAC items 4.a and 4.b in Table A.1-1 of Part 10 of the COL application. It is not clear to the staff how the proposed AC can be concluded by the stated ITA. The staff requests the applicant to append the phrase “An ASME Code Data Report exists and concludes that” to the beginning of the AC.	Table A.1-1, items 4.a and 4.b are being revised, as requested in draft RAI 5968, question D-14.03.03 and will be included in the next COLA submission. See attached draft Part 10 Table A.1-1.

Replace the first two sentences in the fourth paragraph in DCD Subsection 11.2.3.2 with the following.

Table 11.2-16R shows input parameters for the RATAF code (Ref. 11.2-27) used to determine the source terms for the holdup tank and the waste holdup tank. Tables 2.4-206 and 2.4-206a provide the resulting nuclide concentrations in each tank.

Replace the first two sentences in the last paragraph in DCD Subsection 11.2.3.2 with the following.

The evaluation of potential radioactive effluent releases to groundwater due to failure of the holdup tank is provided in Section 2.4.13. Releases from this tank result in concentrations at the nearest unrestricted potable water supply that are within the limits of 10 CFR 20, Appendix B (Ref 11.2-8).

11.2.4 Testing and Inspection Requirements

NAPS COL 11.2(4)

Add the following paragraphs at the end of DCD Section 11.2.4.

A coatings program that facilitates the ALARA objective of promoting decontamination in radiologically controlled areas outside containment will be implemented prior to initial plant startup.

The program will conform to the guidance in RG 1.54, recognizing that more recent standards may be used if referenced in Section 11.2 or as specified in Table 1.9-202. The program controls refurbishment, repair, and replacement of coating in accordance with the manufacturer's product data sheets and good painting practices in accordance with applicable industry standards.

11.2.5 Combined License Information

Replace the content of DCD Subsection 11.2.5 with the following.

STD COL 11.2(1)

11.2(1) ***The mobile and temporary liquid radwaste processing equipment***

This combined license (COL) item is addressed in Subsection 11.2.1.6.

NAPS COL 11.2(2)

11.2(2) ***Site-specific information of the LWMS***

This COL item is addressed in Subsections 11.2.2 and 11.2.3.1.

NAPS COL 11.2(3) *11.2(3)* ***The liquid containing tank failure***

This COL item is addressed in Subsection 11.2.3.2.

NAPS COL 11.2(4) *11.2(4)* ***The site-specific dose calculation***

This COL item is addressed in Subsection 11.2.3.1, Table 11.2-9R, Table 11.2-10R, Table 11.2-11R, Table 11.2-12R, Table 11.2-13R, Table 11.2-14R, Table 11.2-15R, and Table 11.2-201.

NAPS COL 11.2(5) *11.2(5)* ***Site-specific cost benefit analysis***

This COL item is addressed in Subsection 11.2.1.5.

NAPS COL 11.2(6) *11.2(6)* ***Piping and instrumentation diagrams***

This COL item is addressed in Subsection 11.2.2 and Figure 11.2-201.

NAPS COL 11.2(7) *11.2(7)* ***The implementation milestones for the coatings program used as the LWMS***

This COL item is addressed in Subsection 11.2.4.

STD COL 11.2(8) *11.2(8)* ***The mobile/portable LWMS connections***

This COL item is addressed in Subsection 11.2.1.6.

11.2.6 References

Add the following references after the last reference in DCD subsection 11.2.6.

11.2-201 North Anna Power Station, Units 1 and 2, Updated Final Safety Analysis Report, Revision 45.

11.2-202 OMB Circular A-94, “Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs,” October 29, 1992, Office of Management and Budget.

NAPS COL 12.2(3)

12.2(3) ***Radiation Protection Program provisions for limiting the radiation levels of the RWSAT and PMWTs.***

This COL item is addressed in Section 12.5.

NAPS COL 12.2(4)

12.2(4) ***Ensuring the radioactivity concentration in the RWSAT and PMWT remain under the levels described in the DCD.***

This COL item is addressed in Section 12.5.

12.5 Operational Radiation Protection Program

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

NAPS COL 12.1(5)
NAPS COL 12.3(1)

Replace the content of DCD Section 12.5 with the following.

NEI 07-03A, "Generic FSAR Template Guidance for Radiation Protection Program Description," (Reference 12.1-25), is incorporated by reference with the following changes.

Delete the third paragraph of Section 12.5.2.4.

Delete the first two paragraphs of Section 12.5.3.1.

Add the following after the first paragraph in Section 12.5.3.2.

The selection and calibration of this instrumentation and equipment is based on relevant industry standards such as ANSI N42.17A-1989, as it relates to the accuracy and overall performance of portable survey instrumentation, and ANSI N323A-1997, as it relates to the calibration and maintenance of portable radiation survey instruments.

Delete the third paragraph of Section 12.5.3.2.

Replace the second paragraph of Section 12.5.3.3 with the following.

If the National Institute for Occupational Safety and Health/Mine Safety and Health Administration certified equipment is not used, the equipment used complies with 10 CFR 20.1703(b) and 20.1705.

NAPS COL 12.2(3)
NAPS COL 12.2(4)
NAPS COL 12.3(9)

Modify the third paragraph of Section 12.5.4.1.

The frequency and extent of the surveys will depend upon several factors, such as location, actual or potential radiation levels, plant operational status and work in progress, and accessibility/occupancy. The frequency of surveys may be weekly, monthly, quarterly, semiannually, annually, or as directed by the Radiation Protection Manager. Surveys are performed more frequently in accessible areas subject to changes in radiological conditions. For example, periodic routine surveillance activities are required to ensure that the dose rate at 2 meters from the surface of the RWSAT remains below 0.25 mrem/h. Site specific procedures define the survey frequencies and extent.

Add the following information prior to the last paragraph in Section 12.5.4.1.

Calibration of portable and non-portable radiation protection equipment is normally performed onsite by station personnel, although, calibration by a qualified vendor is allowed. Calibration is performed using written procedures and radioactive sources traceable to the National Institute of Standards and Technology (NIST) or using transfer instruments, such as electrometers, which have been calibrated using NIST traceable sources.

Delete the second paragraph of 12.5.4.2.

NAPS COL 12.2(2)

In Section 12.5.4.2, add the following information after the first paragraph of the Radwaste Handling section.

The licensee plans to temporarily store radioactive wastes/materials in an interim radwaste storage facility (Appendix 11AA). Entry into the radiologically controlled areas of this facility is allowed only through the issuance of a Radiation Work Permit. Non-radiologically controlled areas allow for general access.

NAPS COL 12.2(3)
NAPS COL 12.2(4)
NAPS COL 12.3(9)

Add the following information after the last paragraph in the discussion on Normal Operation in Section 12.5.4.2.

If the activity concentration in the RWSAT becomes higher than the levels described in DCD Table 12.2-50, the dose rate at 2 meters from the surface of the tank will exceed 0.25 mrem/h. Therefore, a method of ensuring that the radioactivity concentration in the RWSAT remains under the specified concentration level described in the DCD is to be implemented. Additionally, the radiological surveillance procedures provide for periodic routine surveillances to verify that the dose rate at 2 meters from the surface of the RWSAT remains below 0.25 mrem/h.

Add the following information after the last paragraph in the discussion on Calibration in Section 12.5.4.2.

Source Term Reduction Strategy

The plant source term is described by the level of radiation, or radioactive material, given off or contained in plant systems, structures, or components that results in occupational radiation exposure from routine operation of the plant, including anticipated operational occurrences. The source term includes, but is not limited to, activated components in the

primary coolant, corrosion and wear products activated in the reactor and distributed in plant systems, or sealed sources maintained to support plant operations. The reduction and control of the plant radiation source term is an essential element of meeting the requirements of 10 CFR 20.1101(b). FSAR Subsection 12.1.1.3.2 commits the administrative programs and procedures to comply with RG 8.8, which provides several strategies for reducing personnel exposure, including some options that would limit the overall source term, such as crud control and equipment isolation and decontamination.

Additionally, the following DCD Subsections, which describe design considerations for the reduction of the overall source term, are already incorporated into the FSAR by reference:

- Subsection 12.1.2.1
- Subsection 12.1.2.2.3
- Subsection 12.3.1.1.1.1 Item (E)
- Table 12.3-7

Dominion will identify cobalt and other activated material sources during the detailed design phase of the project. During plant operation, Dominion will utilize industry practice guidance similar to EPRI report TR-103296 to ensure that procurement of components or piping, conducting maintenance, or modifications considers the identified sources of cobalt and other activated materials.

Replace the third paragraph in Section 12.5.4.4 with the following information.

The locations and radiological controls of the radiation zones on plant layout drawings are located in DCD Subsection 12.3.1.2. Administrative controls for restricting access to Very High Radiation Areas are incorporated into plant procedures which require approval by the Plant Manager (or designee) for each entry. Entry will be controlled through the Radiation Work Permit (RWP) process. Physical access controls for Very High Radiation Areas are provided by physical barriers such as lockable gates or doors which prevent unauthorized access. It's not necessary to enter these areas periodically. DCD Subsection 12.3.1.2 includes detailed drawings of the very high radiation areas and indicates the physical access controls. Table 12.5-201 summarizes the plant areas

with the potential to become very high radiation areas. Radiation monitor locations for each area are indicated in DCD Subsection 12.3.4.

Add the following information after the sixth paragraph in Section 12.5.4.4.

NAPS COL 12.3(5)

The gates provide access control of the fuel transfer tube inspection (Very High Radiation Area) and the area near the seismic gap below the transfer tube. Access control for these areas is controlled by the gates and entry to these areas is allowed only by the issuance of a Radiation Work Permit.

Add the following information at the end of Section 12.5.4.8.

In addition, NEI Template 08-08A, "Generic FSAR Template Guidance for Life-Cycle Minimization of Contamination" (Reference 12.5-201), is fully adopted. Also, the guidance provided in NEI 08-08A will be used at North Anna Unit 3 to minimize contamination during construction, operation and decommissioning. This will include the use of photographs and video records during construction to facilitate updating the conceptual site model for groundwater movement and aid in revising the groundwater monitoring plan post-construction. Final layout drawings, photographs, global positioning survey information and video records will be used in assessing the proper location for groundwater monitoring wells, foundations, pipes, conduits and other below grade structures.

Replace the first paragraph of Section 12.5.4.9 with the following.

Respiratory protection procedures assure compliance with 10 CFR 20, Subpart H, and are consistent with the guidance in Regulatory Guide 8.15 to assure protection against radiological hazards and the relevant portions of 29 CFR 1910.134 to assure protection against nonradiological hazards, such as fumes, dust, smoke, or oxygen deficiency.

Replace the first and second paragraph in Section 12.5.4.12 with the following.

The radiation protection program and procedures are established, implemented, maintained and reviewed consistent with the

10 CFR 20.1101 and the quality assurance program referenced in Chapter 17.

Site specific information in the radiation protection program will be implemented in accordance with the milestones listed in Table 13.4-201 by utilizing NEI 07-03A and NEI 07-08A, “Generic FSAR Template Guidance for Ensuring that Occupational Radiation Exposures are as Low as is Reasonably Achievable (ALARA)” (Reference 12.1-201), in combination with existing or modified site program Information.

12.5.5 **References**

12.5-201 NEI Technical Report 08-08A, “Generic FSAR Template Guidance for Life Cycle Minimization of Contamination,” Revision 0, October 2009.

flashed into the degasifier column above the packing. The degasifier heater uses auxiliary steam to provide indirect heating to minimize the generation of liquid effluent. The degasifier effluent is sent to the waste holdup tanks in the LWMS for further treatment and is released as treated effluent. The degasifier vent/off gas is cooled to condense and separate the moisture, and is transferred to the gas surge tanks in the GWMS for further treatment and release.]

NAPS DEP 9.2(1)

Replace the title and the first paragraph in DCD Subsection 9.3.4.2.6.3 with the following.

9.3.4.2.6.3 **Holdup Tank Pumps**

Two centrifugal holdup tank pumps are provided. The pumps transfer the liquid in the holdup tanks to the degasifier subsystem by first passing through the degasifier feed demineralizer.

9.3.4.2.6.10 **Holdup Tanks**

NAPS DEP 9.2(1)

Replace the second paragraph in DCD Subsection 9.3.4.2.6.10 with the following.

Normally, one tank receives the reactor coolant, the second tank is utilized for processing through the degasifier and sampling, and a third tank is kept on standby.

NAPS DEP 9.2(1)

Replace the title and first paragraph in DCD Subsection 9.3.4.2.6.17 with the following.

9.3.4.2.6.17 **Degasifier Feed Demineralizer**

One degasifier feed demineralizer~~, which is also known as the Reactor Coolant Drain Demineralizer,~~ is utilized to remove lithium and ionic impurities in the reactor coolant feed to the degasifier.

NAPS DEP 9.2(1)

Replace the title and content of DCD Subsection 9.3.4.2.6.24 with the following.

9.3.4.2.6.24 **Degasifier**

A degasifier is provided to separate and remove hydrogen and residual gaseous fission products from the reactor coolant letdown and drains. The degasifier column is the primary component in the degasifier subsystem. The degasifier column is a stainless steel column (pressure

12.2 Radiation Sources

This section of the referenced DCD is incorporated by reference with the following departures and/or supplements.

12.2.1.1.3 Chemical and Volume Control System

B. CVCS demineralizer

NAPS DEP 9.2(1) Replace the second paragraph with the following.

The degasifier feed demineralizer is a mixed-bed style demineralizer and is provided to remove ionic impurities from the reactor coolant.

C. CVCS filters

NAPS DEP 9.2(1) Replace the second sentence of the second paragraph with the following.

The source strength for the remaining filters corresponds to a dose rate of 100 rem/h at contact.

NAPS DEP 9.2(1) Replace Section E with the following.

E. Degasifier

The degasifier is used to remove the dissolved noble gases (xenon and krypton) and other gases (hydrogen, iodine, oxygen, and nitrogen) from the primary coolant in order to meet the discharge limits for radionuclide concentrations in liquid effluents. Effluent from the holdup tanks is processed by the degasifier feed demineralizer and then sent to the degasifier, where dissolved gasses in the coolant are separated from the liquid phase to the gaseous phase. After degasification, the coolant is sent to the LWMS. The separated gases are sent to the degasifier vent condenser to remove the steam, and then transferred to the GWMS. The source terms for the degasifier and degasifier vent condenser are tabulated in Tables 12.2-201 through 12.2-206.

NAPS DEP 9.2(1) Delete DCD Section F.

NAPS DEP 9.2(1) Delete DCD Table 12.2-51.

NAPS DEP 9.2(1) Delete DCD Tables 12.2-66 through 12.2-69.

NAPS DEP 9.2(1) Delete DCD Table 12.2-77.

Table 12.2-1R Radiation Source Parameters (Sheet 3 of 6)

		Assumed Shielding Sources						
		Source Approximate Geometry as Cylinder Volume		Source Characteristics				
	Components	Radius (in.)	Length (in.)	Type	Material	Density (lb/ft^3)	Equipment Self-Shielding (in.)	Quantity
	Auxiliary Building							
	Mix bed demineralizer*	23.7	68.9	Homogeneous	Water	62.4	ignored	2
	Cation-bed demineralizer*	15.9	65.6	Homogeneous	Water	62.4	ignored	1
	Deborating demineralizer*	23.7	68.9	Homogenous	Water	62.4	ignored	2
	Holdup tank Liquid Phase Vapor Phase	147.6	410.0 229.7 180.3	 Homogenous Homogenous	 Water Air	 62.4 7.6E-02	ignored	3
NAPS DEP 9.2(1)	~~B.A. evaporator feed~~ Degasifier feed demineralizer*	23.7	68.9	Homogeneous	Water	62.4	ignored	1
	Spent fuel pit demineralizer*	23.7	68.9	Homogeneous	Water	62.4	ignored	2
	Steam generator blowdown demineralizer*	44.3	63.4	Homogeneous	Water	62.4	ignored	4
	Waste holdup tank	128.0	138.6	Homogeneous	Water	62.4	ignored	4
	Waste demineralizer*	23.7	68.9	Homogeneous	Water	62.4	ignored	4
	Charcoal bed Charcoal Phase Vapor Phase	23.7	126.0 68.8 57.2	 Homogenous Homogenous	 Charcoal Air	 34.4 7.6E-02	ignored	4
	Waste gas surge tank	74.8	167.0	Homogeneous	Air	7.6E-02	1.0	4
	Spent resin storage tank	59.1	131.2	Homogeneous	Water	62.4	ignored	2

* Parameters from the US-APWR demineralizers are tabulated in Table 12.2-73.

NAPS DEP 9.2(1)

Table 12.2-64R Chemical and Volume Control System Radiation Sources ~~B.A. Evaporator Feed~~ Degasifier Feed Demineralizer Activity (70 ft^3 of Resin)

Nuclide	Activity ($\mu Ci/cm^3$)	Nuclide	Activity ($\mu Ci/cm^3$)
Br-82	1.2E-02	Te-129m	2.0E-01
Br-83	3.0E-03	Te-129	1.5E-04
Br-84	8.5E-05	Te-131m	3.7E-02
Rb-86	2.9E+00	Te-131	2.1E-05
Rb-88	1.1E+00	Te-132	1.1E+00
Rb-89	1.3E-03	Te-133m	2.0E-04
Sr-89	9.3E-02	Te-134	2.1E-04
Sr-90	5.9E-03	I-130	1.5E+00
Sr-91	7.9E-04	I-131	1.3E+01
Sr-92	6.7E-05	I-132	1.3E+00
Y-90	1.3E-01	I-133	2.2E+00
Y-91m	5.3E-04	I-134	3.8E-03
Y-91	1.3E-02	I-135	3.4E-01
Y-92	2.8E-04	Cs-132	5.5E-01
Y-93	1.6E-04	Cs-134	5.0E+02
Zr-95	1.5E-02	Cs-135m	1.4E-03
Nb-95	4.0E-02	Cs-136	6.3E+01
Mo-99	2.5E+00	Cs-137	2.9E+02
Mo-101	1.7E-05	Cs-138	9.1E-02
Tc-99m	3.5E+00	Ba-137m	2.5E+02
Ru-103	1.1E-02	Ba-140	5.2E-02
Ru-106	5.0E-03	La-140	1.0E-01
Ag-110m	4.5E-05	Ce-141	1.2E-02
Te-125m	1.7E-02	Ce-143	8.0E-04
Te-127m	7.5E-02	Ce-144	1.2E-02
		Pr-144	1.7E-02
		Pm-147	1.4E-03

NAPS DEP 9.2(1)

Table 12.2-65R Chemical and Volume Control System Radiation Sources ~~B.A. Evaporator Feed~~ Degasifier Feed Demineralizer Activity (70 ft^3 of Resin)

Gamma Ray Energy (MeV)	Source Strength ($MeV/cm^3/sec$)
0.015	2.6E+03
0.02	2.7E+02
0.03	3.3E+04
0.04	9.8E+03
0.05	3.0E+02
0.06	1.8E+04
0.08	1.3E+04
0.1	1.1E+03
0.15	6.3E+04
0.2	7.7E+04
0.3	4.3E+05
0.4	1.6E+05
0.5	2.2E+05
0.6	1.9E+07
0.8	1.6E+07
1.0	2.9E+06
1.5	8.9E+05
2.0	2.5E+04
3.0	9.2E+03
4.0	4.3E+01
5.0	3.0E+02

Table 12.2-73R Parameters for the US-APWR demineralizers

		Parameters				
	Component	**DF**	**Flow rate**	**Term of Service**	**Inlet flow stream activity concentration**	**Note**
	Mixed bed demineralizer	Kr, Xe=1, Br, I=100, Cs, Rb=2, Others=50	180 gpm	731 days	Table 12.2-13	These values in the left columns are listed in Table 11.1-1
	Cation-bed demineralizer	Kr, Xe=1, Br, I=1, Cs, Rb=10, Others=10	18 gpm	731 days	Table 12.2-74	
	Deborating demineralizer	Anion=100, Cs, Rb=1, Others=1	180 gpm	22 hours	Table 12.2-74	
NAPS DEP 9.2(1)	~~B.A. evaporator feed~~ Degasifier feed demineralizer	Anion=10, Cs, Rb=2, Others=10	30 gpm	780 hours	Table 12.2-75	
	Waste demineralizer (Anion-bed)	I=100, Cs, Rb=1, Others=1	90 gpm	280 hours	Table 12.2-37	
	Waste demineralizer (Cation-bed)	I=1, Cs, Rb=10, Others=10	90 gpm	280 hours	Table 12.2-76	
NAPS DEP 9.2(1)	~~Waste demineralizer (Mixed bed) In case of treating HT system~~	~~Kr, Xe=1, I=5, Cs, Rb=1, Others=10~~	~~30 gpm~~	~~780 hours~~	~~Table 12.2-77~~	~~Parameters used when treating distilled water in the boron recycle system~~
NAPS DEP 9.2(1)	Waste demineralizer (Mixed bed) ~~In case of treating WHT system~~	Kr, Xe=1, I=100, Cs, Rb=2, Others=100	90 gpm	280 hours	Table 12.2-78R	~~Parameters used when treating waste liquid in the waste liquid storage tank~~
	Spent fuel pit demineralizer	Kr, Xe=1, Br, I=100, Cs, Rb=2, Others=100	265 gpm	731 days	Table 12.2-34	
	SG Blowdown demineralizer	Br, I=100, Cs, Rb=100, Others=1000	1.554E+05 lb/hr	731 days	Table 11.1-5	

NAPS DEP 9.2(1)

Table 12.2-75R Inlet Flow Steam Activity of ~~B.A. Evaporator Feed~~ Degasifier feed demineralizer

Nuclide	Activity ($\mu Ci/cm^3$)	Nuclide	Activity ($\mu Ci/cm^3$)
Kr-83m	1.6E-01	Te-129m	1.2E-04
Kr-85m	9.7E-01	Te-129	2.8E-05
Kr-85	9.2E+01	Te-131m	2.8E-04
Kr-87	2.4E-01	Te-131	1.1E-05
Kr-88	1.4E+00	Te-132	3.3E-03
Xe-131m	4.1E+00	Te-133m	4.8E-05
Xe-133m	4.0E+00	Te-134	6.6E-05
Xe-133	3.1E+02	I-130	6.2E-04
Xe-135m	3.3E-01	I-131	1.6E-02
Xe-135	8.4E+00	I-132	2.5E-02
Xe-138	2.6E-02	I-133	2.4E-02
		I-134	9.3E-04
Br-82	7.9E-05	I-135	1.2E-02
Br-83	2.8E-04	Cs-132	4.1E-04
Br-84	3.6E-05	Cs-134	3.8E-01
Rb-86	3.7E-03	Cs-135m	6.4E-04
Rb-88	1.4E+00	Cs-136	9.9E-02
Rb-89	2.0E-03	Cs-137	2.2E-01
Sr-89	4.8E-05	Cs-138	6.9E-02
Sr-90	2.4E-06	Ba-137m	8.1E+00
Sr-91	1.9E-05	Ba-140	4.6E-05
Sr-92	5.6E-06	La-140	3.3E-04
Y-90	4.2E-04	Ce-141	7.1E-06
Y-91m	3.4E-05	Ce-143	5.5E-06
Y-91	6.2E-06	Ce-144	5.3E-06
Y-92	1.4E-05	Pr-144	4.8E-03
Y-93	3.6E-06	Pm-147	6.0E-07
Zr-95	7.3E-06	Eu-154	5.6E-08

Table 12.3-1R Thicknesses of Concrete walls that enclose the major components (Sheet 4 of 4)

Elevation	Room Name	North	East	South	West	Floor	Ceiling
Auxiliary Building							
3'-7"	Mixed bed demineralizer Room	3'-4"	3'-4"	3'-4"	4'-8"	3'-2" [1)]	4'-8"
3'-7"	Cation-bed demineralizer Room	3'-4"	2'-10"	2'-10"	4'-0"	2’-10”	4'-8"
3'-7"	Spent fuel pit demineralizer Room	2'-10"	2'-0"	2'-0"	3'-4"	3'-2"	3'-4"
3'-7"	Valve Area [2)]	2'-10"	4'-2"	4'-2" [3)]	3'-4" [4)]	3'-2" [5)]	4'-8"
3'-7"	A-Reactor coolant filter Room	2'-0"	2'-8"	2'-0"	2'-0"	2'-8"	2'-2"
3'-7"	B-Reactor coolant filter Room	2'-0"	2'-8"	2'-0"	2'-0"	2'-8"	2'-2"
3'-7"	A-Spent fuel pit filter Room	1'-6"	2'-2"	2'-0"	2'-0"	2'-8"	2'-2"
3'-7"	B-Spent fuel pit filter Room	1'-6"	2'-2"	1’-6”	2'-0"	2'-8"	2'-2"
3'-7"	A, B-Waste demineralizer Room	2’-6”	2'-5"	2'-5"	3'-9"	3'-3"	3'-9"
3'-7"	C, D-Waste demineralizer Room	3'-4"	3'-9" [3)]	2'-6"	3'-9"	2'-10"	3’-9”
3'-7"	Valve Area [6)]	2'-10"	2'-8"	3'-4"	2'-5" [7)]	2'-8" [3)]	3'-4"
3'-7"	Waste Mobile Systems	2'-8"	— [8)]	2'-8"	3'-4"	4'-1"	4'-0"
3'-7"	~~B.A. evaporator feed~~ Degasifier feed demineralizer Room	2'-0"	2'-0"	3'-4"	3'-4"	3'-2"	3'-4"
15'-9"	Piping Area [9)]	2'-6"	3'-4"	2'-1"	3'-4" [3)]	2'-8"	3'-4"
15'-9"	Hold up Tank Valve Area	3'-4"	2'-8" [3)]	3'-4"	4’-0”	2'-8"	3'-4"
25'-3"	Steam generator blowdown demineralizer Room	3'-4"	2'-8"	2’-6”	2'-3" [3)]	3'-4"	2'-3"

NAPS DEP 9.2(1)

Table A.1-1 Ultimate Heat Sink System (UHSS) and Essential Service Water System (ESWS) (Portions Outside the Scope of the Certified Design) Inspections, Tests, Analyses, and Acceptance Criteria

	Design Commitment		Inspections, Tests, Analyses		Acceptance Criteria
4.a	The ASME Code Section III components, identified in Table A.1-2, retain their pressure boundary integrity at their design pressure.	4.a	A hydrostatic test will be performed on the as-built components, identified in Table A.1-2, required by the ASME Code Section III to be hydrostatically tested.	4.a	ASME Code Data Report(s) exist and conclude that the ASME Code Section III results of the hydrostatic test of the as-built components identified in Table A.1-2 as ASME Code Section III conform to the requirements of the ASME Code Section III.
4.b	The ASME Code Section III piping, of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, retains its pressure boundary integrity at its design pressure.	4.b	A hydrostatic test will be performed on the as-built piping of the UHSS and ESWS (portions outside the scope of the certified design), identified in FSAR Table 3.2-201, required by the ASME Code Section III to be hydrostatically tested.	4.b	ASME Code Data Report(s) exist and conclude that the results of the hydrostatic test of the as-built piping of the UHSS and ESWS (portions outside the scope of the certified design) identified in FSAR Table 3.2-201 as ASME Code Section III conform to the requirements of the ASME Code Section III.