RAIO-0218-58544

February 06, 2018

Docket No. 52-048

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: NuScale Power, LLC Response to NRC Request for Additional Information No. 301 (eRAI No. 9236) on the NuScale Design Certification Application

REFERENCE: U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 301 (eRAI No. 9236)," dated December 15, 2017

The purpose of this letter is to provide the NuScale Power, LLC (NuScale) response to the referenced NRC Request for Additional Information (RAI).

The Enclosure to this letter contains NuScale's response to the following RAI Question from NRC eRAI No. 9236:

- 11.05-1

This letter and the enclosed response make no new regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions on this response, please contact Steven Mirsky at 240-833-3001 or at smirsky@nuscalepower.com.

Sincerely,

Zackary W. Rad
Director, Regulatory Affairs
NuScale Power, LLC

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Enclosure 1: NuScale Response to NRC Request for Additional Information eRAI No. 9236

Enclosure 1:

NuScale Response to NRC Request for Additional Information eRAI No. 9236

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Response to Request for Additional Information
Docket No. 52-048

eRAI No.: 9236
Date of RAI Issue: 12/15/2017

NRC Question No.: 11.05-1

11.5 RAI - Determination of RCS coolant leakage of 1.0 gpm within 2 hours

Regulatory Basis: GDC 13, 30, and 64

In review of DCD sections 11.5.2.1.2, 11.5.2.2.7, and 11.5.2.2.8, the staff determined that there is not enough information presented in the DCD to verify the low end nominal ranges provided in DCD Table 11.5-1. 10 CFR Part 50, Appendix A, GDC 13 requires instrumentation to monitor variables and systems over their anticipated ranges for normal operation, for anticipated operational occurrences, and for accident conditions as appropriate to assure adequate safety. GDC 30 requires an applicant to identify sources of leakages. GDC 64, requires monitoring for the reactor containment atmosphere, spaces containing components for recirculation of loss-of-coolant accident fluids, effluent discharge paths, and the plant environs for radioactivity that may be released from normal operations, including anticipated operational occurrences, and from postulated accidents. Regulatory Guide 1.45 describes that all monitoring to detect leakages should be able to respond to a leakage increase of 1.0 gpm in 1 hour.

Key Issue:

The staff is unable to confirm the applicant's ability to detect RCS coolant leakage based on the assumed RCS activities presented in DCD section 11.1.

As discussed in the audit, the staff requests the applicant provide the equations and data used to determine the RCS coolant leakage rates for the Condenser Air Removal System monitors (11.5.2.1.2), the Containment Evacuation System monitors (11.5.2.2.7) and the Main Steam System monitors (11.5.2.2.8). Information such as volumes, leakage rates, and assumed RCS activity concentrations should be clearly stated in the response. The staff also requests the applicant provide a discussion on the applicability of a plate out factor given the containment vessel design.

In addition the staff notes discussions in DCD sections 11.1.1.2 and 11.5.2 that mentions the injection of natural argon gas to maintain a constant level in the RCS coolant for leakage detection purposes. It is not clear to staff what the assumed level of Ar-41 will be in the RCS coolant. Is this value based on the primary coolant realistic source terms presented in DCD Table 11.1-6? Or is some higher level of Argon anticipated? If some level of Argon needs to be

maintained where is the requirement specified?

The staff requests that the necessary methodology and parameters to perform this calculation be contained in DCD section 11.5. The necessary pointers, parameters, and applicable guidance needs to be clearly stated for the staff to make a determination of compliance with 10 CFR Part 50, Appendix A, GDCs 13, 30,and 64.

NuScale Response:

As described in FSAR Section 5.2.5 and Section 9.3.6.3, the primary means to detect and quantify reactor coolant system (RCS) pressure boundary leakage are changes in containment vessel (CNV) pressure and containment evacuation (CES) sample tank level. Radiation monitors in the CES gaseous discharge line and the CES sample tank provide indication of an RCS leak and the source of the leak, but are not primarily used to quantify the leak rate.

Primary to secondary tube leaks are monitored and quantified using main steam system (MSS) line monitors, condenser air removal system (CARS) monitors and secondary water sampling. The MSS line monitors are designed to detect Ar-41, and the CARS monitors are capable of detecting various isotopes, including Ar-41, Cs-137, I-131 and other noble gases.

For the purposes of establishing radiation monitor range's low end, the primary coolant activity concentration of Ar-41 is provided in FSAR Table 11.1-6, and is reported as 1.3314E-01 µCi/gram. The corresponding secondary coolant activity concentration of Ar-41 is provided in FSAR Table 11.1-7, and is reported as 7.1917E-07 µCi/gram. The activity concentrations in the secondary coolant was developed using the applicable parameters listed in FSAR Table 11.1-2 (Primary-to-secondary leak rate = 3.53 lb/day/unit; Argon injection concentration = 0.10 µCi/cc; Secondary coolant mass = 7.158E+04 lb; Secondary steam leak rate = 80 lb/hr/unit).

For the CARS Ar-41 radiation monitors, the nominal range for the Ar-41 detector has been revised to range from 1.0E-07 µCi/cc to 1.0E-01 µCi/cc. This revised low end of the range is more appropriate for detecting the realistic concentration of Ar-41 in the secondary coolant (FSAR Table 11.1-7), and conforms to ANSI N42.18-2004. Similarly, for the MSS line monitors, the nominal range has been revised to range from 1.0E-07 µCi/cc to 1.0E-01 µCi/cc. The range for the CES Ar-41 radiation monitors are also revised to range from 1.0E-07 µCi/cc to 1.0E-01 µCi/cc, however these monitors are not relied upon for quantifying primary coolant leakage into containment.

The injection of argon is an operational option in the event the primary coolant does not contain sufficient radionuclides to detect primary to secondary tube leaks. As discussed in FSAR Section 11.5.2, natural argon can be injected into the reactor coolant system using the guidance of EPRI 1022832, "Steam Generator Management Program: PWR Primary to Secondary Leak Guidelines," Rev. 4. This guideline contains the methodology and equations for argon injection, and recommends an Ar-41 target concentration of 0.10 µCi/cc, with a high limit of 0.15 µCi/cc. If

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there are sufficient radionuclides in the primary coolant (e.g., due to failed fuel or activated corrosion products), injection of argon may not be required. The operating procedure to implement this methodology will be developed as part of COL item 5.4-1.

Because argon is a noble gas, there is no plate out effect within the containment vessel.

Impact on DCA:

Table 11.5-1 and Table 11.5-4 have been revised as described in the response above and as shown in the markup provided in this response.

RAI 11.05-1, RAI 15.00.03-8

Table 11.5-1: Process and Effluent Radiation Monitoring Instrumentation Characteristics

System	Quantity	Type	Service	Isotopes	Nominal Range	Location/Function	PAM	Safety-related	Media	Instrument type
ABS	2	γ	ABS return flow from MHS	Cs-137	1.0E-7 to 1.0E-2 µCi/ml	ABS return flow from MHS heat exchangers 6A and 6B	No	No	Liquid	Adjacent-to-line
ABS	2	γ	ABS return flow from MHS	Ar-41	~~3E-3 to 1E-1~~1.0E-7 to 1.0E-1 µCi/cc	ABS return flow from MHS heat exchangers 6A and 6B	No	No	Gas	Adjacent-to-line
ABS	1	γ	ABS high pressure condensate tank vent	Ar-41	~~3E-3 to 1E-1~~1.0E-7 to 1.0E-1 µCi/cc	ABS 1100 psi condensate tank vent	No	No	Gas	Adjacent-to-line
ABS	1	γ	ABS high pressure boiler to low pressure boiler cross feed	Ar-41	~~3E-3 to 1E-1~~1.0E-7 to 1.0E-1 µCi/cc	High pressure boiler to low pressure boiler cross feed	No	No	Gas	Adjacent-to-line
ABVS	1	γ	Radioactive waste building ventilation system (particulate)	Cs-137	3.0E-10 to 1.0E-6 µCi/cc	Hot machine shop RWBVS exhaust air	No	No	Gas	Off-line
BPDS	4	γ	BOP drains	Cs-137	1.0E-7 to 1.0E-2 µCi/ml	Monitors condensate regeneration skid effluent and TGB drains.	No	No	Liquid	In-Line
BPDS	1	γ	BOP drains	Cs-137	1.0E-7 to1.0E-2 µCi/ml	Inlet to 6A-BPD-TNK-0001 from ABS blowdown	No	No	Liquid	Adjacent-to-line
CARS	12	γ	Condenser air removal Sys	Ar-41	~~3.E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi/cc	Condenser air removal skid - Ar-41	Yes	No	Gas	Adjacent-to-line
CARS	12	β	Condenser air removal sys (particulate)	Cs-137	3E-10 to 1E-6 µCi / cc	Condenser air removal skid air particulate	Yes	No	Gas	Off-line (PING)
CARS	12	γ	Condenser air removal sys (iodine)	I-131	3E-10 to 5E-8 µCi / cc	Condenser air removal skid supply air iodine	Yes	No	Gas	Off-line (PING)
CARS	12	β	Condenser air removal sys (noble gas)	Kr-85 Xe-133	3E-7 to 1.0E+5 µCi/cc	Condenser air removal skid (NG)	Yes	No	Gas	Off-line (PING)
CVCS	12	γ	CVCS suction from RCS sample line	Cs-137	1E-7 to 1E-2 µCi / ml	RCS discharge sample line	No	No	Liquid	Adjacent- to-line
CES	12	γ	Containment evacuation atmosphere gas	Ar-41	~~3.E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi/cc	CES vacuum pump discharge line	No	No	Gas	Adjacent- to-line
CES	12	β	Containment evacuation atmosphere gas (particulate)	Cs-137	3.E-10 to 1E-6 µCi/cc	CES vacuum pump discharge line particulate	No	No	Gas	Off-line (PING)

Table 11.5-1: Process and Effluent Radiation Monitoring Instrumentation Characteristics (Continued)

System	Quantity	Type	Service	Isotopes	Nominal Range	Location/Function	PAM	Safety-related	Media	Instrument type
GRW	2	β	GRW decay beds discharge lines	Kr-85 Xe-133	3E-7 to 1E-2 µCi/cc	Downstream of decay beds discharge line to HVAC exhaust	No	No	Gas	Off-line
LRW	2	γ	LRW discharge to environment	Cs-137	1E-7 to 1E-2 µCi/ml	LRW effluent discharge line to environment	No	No	Liquid	Adjacent-to-line
MSS	24	γ	MSS main steam line A	Ar-41	~~3.E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi/cc	Main steam line A	No	No	Gas	Adjacent to-line
MSS	24	γ	MSS main steam line B	Ar-41	~~3.E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi/cc	Main steam line B	No	No	Gas	Adjacent to-line
PSCS	1	β	Pool surge control system	Kr-85 Xe-133	3E-7 to 1E-2 µCi / cc	Pool surge control storage tank vent line	No	No	Gas	Off-line
RBVS	3	β	Spent fuel pool ventilation exhaust (particulate)	Cs-137	3E-10 to 1E-6 µCi / cc	RBVS spent fuel pool and refuel dock exhaust air	No	No	Gas	Off-line (PING)
RBVS	3	γ	Spent fuel pool ventilation exhaust (iodine)	I-131	3E-10 to 5E-8 µCi / cc	RBVS spent fuel pool and refuel dock exhaust air	No	No	Gas	Off-line (PING)
RBVS	3	β	Spent fuel pool ventilation exhaust (noble gas)	Kr-85 Xe-133	3E-7 to 1.0E-2 µCi/cc	RBVS spent fuel pool and refuel dock exhaust air	No	No	Gas	Off-line (PING)
RBVS	1	γ	Reactor Building ventilation system (particulate)	Cs-137	3E-10 to 1E-6 µCi/cc	RBVS general area exhaust air	No	No	Gas	Off-line
RBVS	1	γ	Reactor Building ventilation system (iodine)	I-131	3E-10 to 5E-8 µCi / cc	RBVS general area exhaust air	No	No	Gas	Off-line
RBVS	1	β	Plant vent particulate	Cs-137	1E-7 to 1E-2 µCi/cc	Plant exhaust stack	Yes	No	Gas	Off-line (PING)
RBVS	1	γ	Plant vent iodine	I-131	3E-10 to 1E-6 µCi/cc	Plant exhaust stack	Yes	No	Gas	Off-line (PING)
RBVS	1	β	Plant vent noble gas (normal range)	Kr-85 Xe-133	3E-7 to 1E-2 µCi/cc	Plant exhaust stack	Yes	No	Gas	Off-line (PING)
RBVS	1	β/γ	Plant vent extended range gas (accident mid-range)	Kr-85 Xe-133	3E-7 to 1E+4 µCi/cc	Plant exhaust stack	Yes	No	Gas	Off-line (PING)
RBVS	1	β/γ	Plant vent extended range gas (accident high range)	Kr-85 Xe-133	3E-7 to 1E+4 µCi/cc	Plant exhaust stack	Yes	No	Gas	Off-line (PING)

Table 11.5-1: Process and Effluent Radiation Monitoring Instrumentation Characteristics (Continued)

System	Quantity	Type	Service	Isotopes	Nominal Range	Location/Function	PAM	Safety-related	Media	Instrument type
RWBVS	1	γ	Radioactive Waste Building ventilation system (particulate)	Cs-137	3E-10 to 1E-6 µCi/cc	RWBVS exhaust air particulate	No	No	Gas	Off-line
RWBVS	1	γ	Radioactive Waste Building ventilation system (iodine)	I-131	3E-10 to 5E-8 µCi / cc	RWBVS exhaust air iodine	No	No	Gas	Off-line
RCCW	12	γ	RCCW return lines from CES condensers	Cs-137	1E-7 to 1E-2 µCi/ml	RCCW return lines from CES condensers	No	No	Liquid	Adjacent-to-line
RCCW	24	γ	RCCW return lines from CVC NRHX and PSS coolers	Cs-137	1E-7 to 1E-2 µCi/ml	RCCW return lines from CVC NRHX and PSS coolers	No	No	Liquid	Adjacent-to-line
RWDS	1	γ	RCCWS water drained from the CVCS non-regenerative and RCCW HX	Cs-137	1E-7 to 1E-2 µCi/ml	RWDS tank-0020	No	No	Liquid	Adjacent-to-line
SCWS	1	γ	Site cooling water	Cs-137	1E-7 to 1E-2 µCi/ml	From cooling tower to UWS discharge basin blowdown line	No	No	Liquid	Off-line with sampling capability
SCWS	1	γ	Site cooling water	Cs-137	1E-7 to 1E-2 µCi/ml	From cooling tower to UWS discharge basin overflow line	No	No	Liquid	Adjacent-to-line
SCWS	3	γ	SCW reactor pool cooling HXs return lines	Cs-137	1E-7 to 1E-2 µCi/ml	SCW reactor pool cooling HXs return lines prior to entering the main header	No	No	Liquid	Off-line
SCWS	2	γ	SCW spent fuel pool cooling HX return lines	Cs-137	1E-7 to 1E-2 µCi/ml	SCW spent fuel pool cooling HX return lines	No	No	Liquid	Off-line
SCWS	4	γ	SCW RCCW return lines	Cs-137	1E-7 to 1E-2 µCi/ml	SCW RCCW return lines	No	No	Liquid	Off-line
TGSS	2	γ	Turbine gland sealing system skid exhaust common vent, Turbine Building	Ar-41	~~3.E-3 to 1E-1~~1.0E-7 to 1.0E-1 µCi/cc	Turbine generator skid common exhaust vent point Ar-41	No	No	Gas	Adjacent-to-line
TGSS	2	γ	Turbine gland sealing system skid exhaust common vent, Turbine Building	I-131	3E-10 to 5E-8 µCi / cc	Turbine generator skid common exhaust vent point Iodine	No	No	Gas	Off-line (PING)

RAI 11.05-1, RAI 15.00.03-8

Table 11.5-4: Effluent and Process Radiation Monitoring System Dynamic Ranges

Radiation Monitor	Dynamic Detection Range	Principal Radionuclides Measured	Basis for Dynamic Range
A. Effluent Radiation Monitors			
RBVS	3E-7 to 1E+4 µCi /cc 1E-9 to 1E+2 µCi /cc 1E-9 to 1E+2 µCi /cc	Noble gas (Kr-85, Xe-133): ß Particulate (Cs-137): γ Iodine (I-131): γ	• Regulatory Guide 1.97, Revision 3, Table 3 • Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
CARS	~~3E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi /cc	Ar-41: γ	• EPRI 1022832 Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines, Revision 4 • NEI 97-06, Steam Generator Program Guidelines, Revision 3. • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
CARS	3E-7 to 1E+5 µCi / cc 1E-9 to 1E+2 µCi / cc 1E-9 to 1E+2 µCi / cc	Noble gas (Kr-85, Xe-133): ß Particulate (Cs-137): γ Iodine (I-131): γ	• Regulatory Guide 1.97, Revision 3, Table 3 • Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
TGSS	~~3E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi /cc	Ar-41: γ	• Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004 • EPRI 1022832 Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines, Revision 4 • NEI 97-06, Steam Generator Program Guidelines, Revision 3
TGSS	3E-7 to 1E-2 µCi / cc 3E-10 to 1E-6 µCi / cc 3E-10 to 5E-8 µCi / cc	Noble gas (Kr-85, Xe-133): ß Particulate (Cs-137): γ Iodine (I-131): γ	• Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
PSCS	3E-7 to 1E-2 µCi / cc	Noble gas (Kr-85, Xe-133): ß	• Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
LRWS	1E-7 to 1E-2 µCi / ml	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation

Table 11.5-4: Effluent and Process Radiation Monitoring System Dynamic Ranges (Continued)

Radiation Monitor	Dynamic Detection Range	Principal Radionuclides Measured	Basis for Dynamic Range
ABVS	3E-10 to 1E-6 µCi / cc	Particulate (Cs-137): γ	• Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
GRWS Common Discharge to HVAC	3E-7 to 1E-2 µCi / cc	Noble gas (Kr-85, Xe-133)	• Normal Effluent Release Source Term Calculation
GRWS Decay Bed Discharge Lines	3E-7 to 1E-2 µCi / cc	Noble gas (Kr-85, Xe-133)	• Normal Effluent Release Source Term Calculation
CES Vacuum Pump Discharge	3E-7 to 1E-2 µCi / cc 3E-10 to 1E-6 µCi / cc 3E-10 to 1E-8 µCi / cc	Noble gas (Kr-85, Xe-133) Particulate (Cs-137) Iodine (I-131)	• Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004.
CES Vacuum Pump Discharge	~~3E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi / cc	Ar-41: γ	• EPRI 1022832 Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines, Revision 4 • NEI 97-06, Steam Generator Program Guidelines, Revision 3
CES Liquid Radiation Monitor	1E-7 to 1E-2 µCi / ml	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
MSS	~~3E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi / cc	Ar-41: γ	• EPRI 1022832 Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines, Revision 4 • NEI 97-06, Steam Generator Program Guidelines, Revision 3
CFDS	3E-7 to 1E-2 µCi / cc	Noble gas (Kr-85, Xe-133): ß	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
CVCS* *Also area radiation monitors described in Section 12.3.4	1E-7 to 1E-2 µCi / ml	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004

Table 11.5-4: Effluent and Process Radiation Monitoring System Dynamic Ranges (Continued)

Radiation Monitor	Dynamic Detection Range	Principal Radionuclides Measured	Basis for Dynamic Range
RCCWS	1E-7 to 1E-2 µCi / ml	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
SCWS Heat Exchanger Outlets	1E-7 to 1E-2 µCi / ml	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
SCWS Cooling Tower Basin Blowdown	1E-7 to 1E-2 µCi / ml	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
SCWS Cooling Tower Basin Overflow	1E-7 to 1E-2 µCi / ml	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
ABS Flash Tank Vent	~~3E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi /cc	Ar-41 γ	• EPRI 1022832 Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines, Revision 4. • NEI 97-06, Steam Generator Program Guidelines, Revision 3
ABS HP to LP cross tie	~~3E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi /cc	Ar-41 γ	• EPRI 1022832 Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines, Revision 4. • NEI 97-06, Steam Generator Program Guidelines, Revision 3
ABS MHS Return	1E-7 to 1E-2 µCi/cc	Cs-137: γ	• Realistic Primary Coolant and Secondary Coolant Activity • Release of Radioactive Materials in Gaseous and Liquid Effluent • Best Estimate Fuel Isotopic Inventory Calculation • Specification and Performance of On-Site Instrumentation for Continuously Monitoring Radioactivity in Effluents, ANSI N42.18-2004
ABS MHS Return	~~3E-3 to 1E+1~~1.0E-7 to 1.0E-1 µCi /cc	Ar-41	• EPRI 1022832 Steam Generator Management Program: PWR Primary-to-Secondary Leak Guidelines, Revision 4. • NEI 97-06, Steam Generator Program Guidelines, Revision 3