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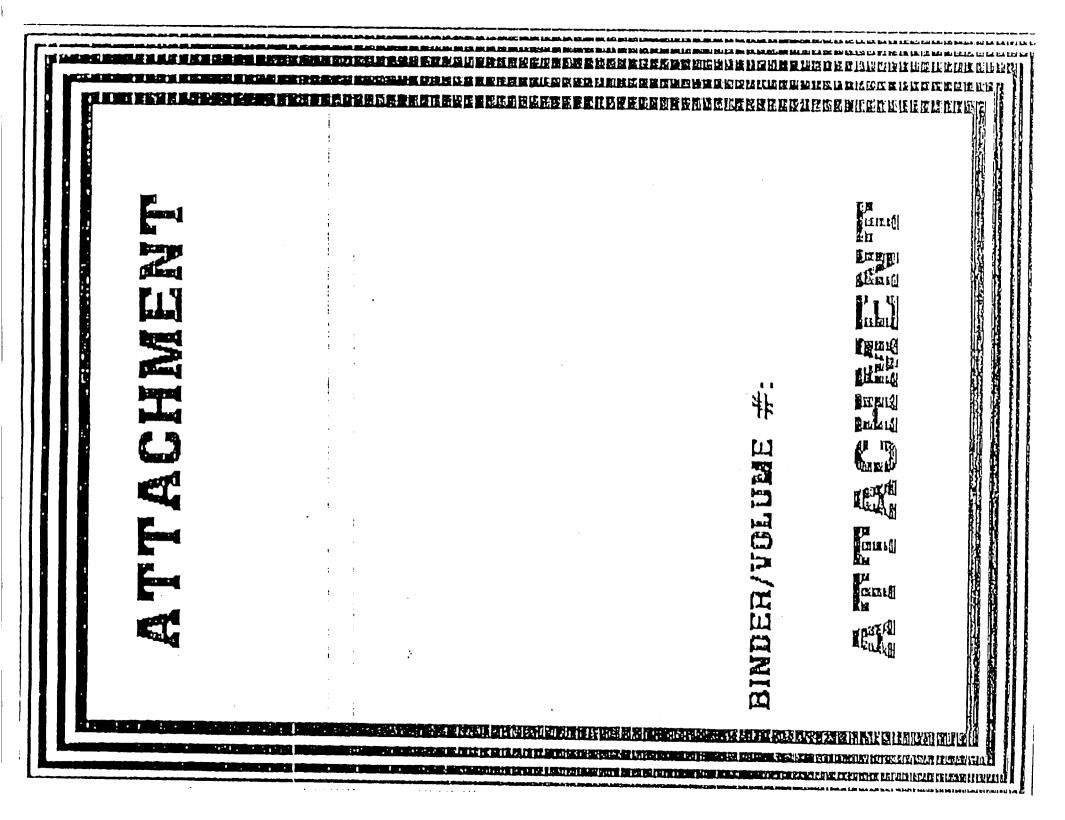
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9902240072 - Pat2



#### **DRAFT** MGDS Architecture Ver 00B Indenture Report w/SDDs

SDD 1 2 3 4 5 6 7 8 9 10 11

CRWMS (Pg: 1)		_
MGDS Element	(Pg: 1)	
Site Chara	cterization (Pg: 1)	
	Data Collection (Pg: 1)	E
	ESF Testing Facility and Data Collection (Pg: 3)	80000060-01717-0200-00134 P === 00
	In Situ Testing (Pg: 3)	à
		11
	Upper Tiva Canyon Alcove (Alcove #1) (Pg: 3) Rediat Reso Male (Act at	5
	Radial Bore Hole (Pg: 3)	
	Hydrochemistry (Pg: 3)	Ş
	Bow Ridge Fault Alcove (Alcove #2) (Pg: 3)	5
	Hydrologic Properties of Major Faults (Pg: 3)	
	Hydrochemistry (Pg: 3)	2
	Upper Paintbrush Tuff (Non-welded) Contact Alcove (Alcove #3) (Pg: 3)	è
	Radial Borehole (Pg: 3)	Ş
	Hydrochemistry (Pg: 3)	2
	Lower Paintbrush Tuff (Non-welded) Contact Alcove (Alcove #4) (Pg: 3)	2
	Radial Borehole (Pg: 3)	ē
	Hydrochemistry (Pg: 3)	
	Thermal Test Facility Alcove (Alcove #5) (Pg: 3)	
	Sequential Drift Mining Effects (Mechanical Effects of Excavation) (Pg: 3)	
	Single Heater Test (Pg; 3)	
	Pre-Closure Thermo-Mechanical (Pg: 3)	
	Coupled Process (Pg: 3)	
	Thermal (Pg: 3)	
	Mechanical (Pg: 3)	
	Hydrologic (Pg: 3)	
	Chemical (Pg: 3)	
	DCS (Pg: 3)	
	Drift Scale Test (Pg: 3)	
	Plate Loading Niche (Rock Mass Modulus) (Pg: 3)	
	Pre-Closure Stability of Openings/Ground Support (Pg: 3)	
	Post-Closure Coupled Processes (Pg: 3)	
	Thermal (Pg: 3)	
	Mechanical (Pg: 3)	
	Hydrologic (Pg: 3)	
	Chemical (Pg: 3)	
	Northern Ghost Dance Fault Alcove (Alcove #6) (Pg: 4)	
	Hydrologic Properties of Major Faults (Pg: 4)	
	Hydrochemistry (Pg: 4)	
	Southern Ghost Dance Fault Alcove (Alcove #7) (Pg: 4)	
	Hydrologic Properties of Major Faults (Pg: 4)	
	Hydrochemistry (Pg: 4)	
	Deferred Testing (Pg: 4)	
	Drill hole Wash Fault (DWFA) (Pg: 4)	
	Four Alcoves in Main Drift (Pg: 4)	
	Nine Alcoves in the North (Pg: 4)	
	Thirdeen Alexine in the North (Pg: 4)	
	Thirteen Alcoves in the South (Pg: 4)	
	Radionuclide Migration Alcove (Pg: 4)	
	Facility Testing (Pg: 4)	
	Geologic Mapping (Pg: 4)	
	Portal Mapping (Pg: 4)	
	North Portal (Pg: 4)	
	South Portal (Pg: 4)	
	Stereophotography (Pg: 4)	
	Detailed Line Survey (Pg: 4)	

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Full Periphery Geologic Mapping (Pg: 4)
Consolidated Sampling (Pg: 5)
Characterization of Percolation in the Unsaturated Zone (Pg: 5)
History of Minerologic & Geochemical Alteration of Yucca Mountain (Pg: 5)
Minerology, Petrology, & Chemistry of Transport Pathways (Pg: 5)
Water Movement (Pg: 5) Paleoelimete (Pg: 5)
Paleoclimate (Pg: 5) Biologia Service & Turner to the state
Biologic Sorption & Transport (Pg: 5)
Thermal Properties (Pg: 5) Mechanical Properties (Pg: 5)
Intact Rock (Pg: 5)
Fractures (Pg: 5)
Perched Water (Pg: 5)
Moisture Studies (Pg: 5)
Design Verification (Pg: 5)
Rock Mass Quality (Pg: 5)
Rock Quality Full Peripheral Mapping (Pg: 5)
Rock Quality Scan Line (Pg: 5)
Construction Monitoring (Pg: 5)
Excavation Investigations (Pg: 5)
In Situ Stress (Pg: 5)
Rock Mass Properties (Pg: 5)
Deferred Testing (Pg: 5)
Diffusion Tests in the ESF (Pg: 5)
Sealing (Pg: 5)
Mechanical Attributes of The Waste Package Environment (Pg: 5)
External Support to Site Characerization (Pg: 6)
Fran Ridge (Pg: 6)
Intermediate Block Tests (Pg: 6)
Large Block Test (Pg: 6) G Tunnel (Pg: 6)
Surface Based Testing Facility and Data Collection (Pg: 6)
Boreholes (Pg: 6)
Boreholes for Hydrologic Data Collection (Pg: 6)
Unsaturated Zone (Pg: 6)
Borehole Construction & Description (Pg: 6)
UZ Boreholes (Pg: 6)
UE-25 UZ#16 (Pg: 6)
USW UZ-13 (Pg: 6)
USW UZ-14 (Pg: 6)
USW UZ-6 (Pg: 6)
UE-25 UZ#5 (Pg: 6)
UE-25 UZ#4 (Pg: 6)
USW GU-3 (Pg: 6)
USW UZ-6s (Pg: 5)
USW UZ-7 (Pg: 6)
USW UZ-1 (Pg: 6)
Neutron/Infiltration Monitoring (UZN) Boreholes (Pg: 6) UE-25 UZN#3 (Pg: 6)
USW UZ-N53 (Pg: 6)
USW UZ-N33 (Pg. 6)
UE-25 UZN#63 (Pg: 6)
USW UZ-N33 (Pg: 6)
USW UZ-N79 (Pg: 6)
USW UZ-N37 (Pg: 6)
USW UZ-N64 (Pg: 6)

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UE-25 UZN#6 (Pg: 6)
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UE-25 UZN#4 (Pg: 6)
USW UZ-N57 (Pg: 6)
USW UZ-N16 (Pg: 6)
USW UZ-N15 (Pg: 6)
UE-25 UZN#39 (Pg: 6)
UE-25 UZN#56 (Pg: 6)
UE-25 UZN#60 (Pg: 6)
02-23 0214400 (Fg. 6)
USW UZ-N38 (Pg: 6)
USW UZ-N65 (Pg: 6)
USW UZ-N81 (Pg: 6)
USW UZ-N84 (Pg: 6)
UE-25 UZN#5 (Pg: 6)
02-23 02143 (Fg. 0)
UE-25 UZN#18 (Pg: 6)
UE-25 UZN#2 (Pg: 6)
UE-25 UZN#8 (Pg: 6)
UE-25 UZN#1 (Pg: 6)
UE-25 UZN#10 (Pg: 6)
02-20 02/14/10 (Fg. 8)
UE-25 UZN#29 (Pg: 6)
UE-25 UZN#28 (Pg: 6)
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UE-25 UZN#23 (Pg: 6)
UE-25 UZN#22 (Pg: 6)
UE-25 UZN#21 (Pg: 6)
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0344 02-1455 (Pg: 6)
UE-25 UZN#12 (Pg: 6)
UE-25 UZN#13 (Pg: 6)
UE-25 UZN#7 (Pg: 6)
USW UZ-N35 (Pg: 6)
USW UZ-N62 (Pg: 6)
USW UZ-N61 (Pg: 6)
USW UZ-N59 (Pg: 6)
USW UZ-N58 (Pg: 6)
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USW UZ-N44 (Pg: 6)
USW UZ-N45 (Pg: 6)
USW UZ-N46 (Pg: 6)
USW UZ-N47 (Pg: 6)
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USW UZ-N48 (Pg: 6)
USW UZ-N49 (Pg: 6)
USW UZ-N50 (Pg: 6)
USW UZ-N51 (Pg: 6)
USW UZ-N52 (Pg: 6)
UE-25 UZN#9 (Pg: 6)
USW UZ-N66 (Pg: 6)
USW UZ-N26 (Pg: 6)
USW UZ-N68 (Pg: 6)
USW UZ-N69 (Pg: 6)
USW UZ-N70 (Pg: 6)
1011 02-11/0 (Pg: 0)
USW UZ-N71 (Pg: 6)
USW UZ-N72 (Pg: 6)

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											USW UZ-N73 (Pg: 6)
											USW UZ-N74 (Pg: 6)
											USW UZ-N75 (Pg: 6)
											USW UZ-N36 (Pg: 6)
											USW UZ-N77 (Pg: 6)
											UE-25 UZN#14 (Pg: 6)
											USW UZ-N78 (Pg: 6)
											UE-25 UZN#91 (Pg: 6)
											USW UZ-N89 (Pg: 6)
											USW UZ-N40 (Pg: 6)
											UE-25 UZNC#2 (Pg: 6)
											UE-25 UZNC#1 (Pg: 6)
											USW UZ-N98 (Pg: 6)
											USW UZ-N96 (Pg: 6)
											USW UZ-N95 (Pg: 6)
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											USW UZ-N17 (Pg: 6)
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											USW UZ-N31 (Pg: 6)
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											USW UZ-N11 (Pg: 6)
											UE-25 UZN#97 (Pg: 6)
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											nstruction & Description (Pg: 7)
									W	ater '	Table Boreholes (Pg: 7)
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											JSW WT-2 (Pg: 7)
											JE-25 WT#13 (Pg: 7)
											JE-25 WT#14 (Pg: 7)
											JSW WT-10 (Pg: 7)
											/E-25 WT#12 (Pg: 7)
										U	ISW WT-11 (Pg: 7)
											ISW WT-7 (Pg: 7)
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	USW WT-1 (Pg: 7)
	UE-25 WT#18 (Pg: 7)
	UE-25 WT#16 (Pg: 7)
	UE-25 WT#15 (Pg: 7)
	UE-25 WT#6 (Pg: 7)
	UE-25 WT#4 (Pg: 7)
	UE-25 WT#17 (Pg: 7)
	UE-25 WT#3 (Pg: 7)
	Hydrologic Testing Boreholes (Pg: 7)
	UE-25 c#1 (Pg: 7)
	UE-29 a#1 (Pg: 7)
	UE-25 c#2 (Pg: 7)
	UE-29 a#2 (Pg: 7)
	USW H-4 (Pg: 7)
	UE-25 c#3 (Pg: 7)
	UE-25 b#1 (Pg: 7)
	USW H-5 (Pg: 7)
	USW H-3 (Pg: 7)
	USW H-2 (Pg: 7)
	USW H-1 (Pg: 7)
	USW H-6 (Pg: 7)
	Water Supply (J) Wells (Pg: 7)
	UE-25 J#11 Prime (Pg: 7)
	UE-25 J#13 (Pg: 7)
	UE-25 J#12 (Pg: 7)
	UE-25 J#11 (Pg: 7)
	Nye County Oversight (ONC) Wells (Pg: 7)
	UE-25 ONC#1 (Pg: 7)
	Forty Mile Wash Recharge Boreholes (Pg: 7)
	Second Tracer Complex (STC) Boreholes (Pg: 7)
	Testing data (Pg: 7)
	Water Level Monitoring (Pg: 7)
	TBD (Pg: 7)
	Boreholes for Geologic Data Collection (Pg: 7)
	Geology (G) Boreholes (Pg: 7)
	USW G-1 (Pg: 7)
	USW G-2 (Pg: 7)
	USW G-3 (Pg: 7)
	USW G-4 (Pg: 7)
	USW GA-1 (Pg: 7)
	UE-25 a#4 (Pg: 7)
	UE-25 a#5 (Pg: 7)
	UE-25 a#6 (Pg: 7)
	UE-25 a#7 (Pg: 7)
	Volcanic (V) Boreholes (Pg: 7)
	USW VH-1 (Pg: 7)
	USW VH-2 (Pg: 7)
	Sustematic Deltas (CD) a sustained a
	Systematic Drilling (SD) Boreholes (Pg: 7)
	USW SD-6 (Pg: 7)
	USW SD-7 (Pg: 7)
	USW SD-9 (Pg: 7)
	USW SD-12 (Pg: 7)
	Paleozoic (P) Borehole (Pg: 7)
	UE-25 p#1 (Pg: 7)
	Boreholes for Geotechnical Data Collection (Pg: 7)
	Boreholes for Geotechnical Data Collection (Pg: 7) Soil and Rock Boreholes (Pg: 7)

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SDD	1	2	3	4	5	6	7	8	9	10	11									
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									UE-2	5 NRG	#2b	(Pg: 7)								
									UE-2	5 NRG	#2c	(Pg: 7)								
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			U-2	5 Seisn	mic#24 (Pg: 1	7)				
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			USV	V SRS1	11 (Pg: 7)					
			USV	V SRS2	201 (Pg: 7)					
			USV	V SRS2	203 (Pg: 7)					
			USV	V SRG2	205 (Pg: 7) 205a (Pg: 7)					
			USV	V SRS2	205b (Pg: 7)					
			USV	V SRS2	207 (Pg: 7)	• •			 •	
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		Tren	nches (Pg:	8)						
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			Fault	ing nea	r Surface Fa	cilities (Pg: 8)				
				UE-25	MWVT5A (P	'g: 8)				
				UE-25	MWVT6 (Pg	: 8)				
			<b>F</b> a. 4	UE-25	MWVT7 (Pg	: 8)				
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Stagecoach Road Fault (Pg: 8) SCR-T1 (Pg: 8) SCR-T3 (Pg: 8) Paintbrush Canyon Fault (Pg: 8) - T-A1 (Pg: 8) T-A2 (Pg: 8) T-A3 (Pa: 8) T-16 (Pg: 8) T-168 (Pg: 8) T-17 (MW4-T4) (Pg: 8) Bow Ridge Fault (Pg: 8) T-14 (Pg: 8) T-14a (Pg: 8) T-14b (Pg: 8) T-14c (Pg: 8) T-14d (Pg: 8) T-A/BR-3 (Pg: 8) Ghost Dance Fault (Pg: 8) T-1 (Pg: 8) T-2 (Pg: 8) T-4 (Pg: 8) T-4a (GDF-T3) (Pg: 8) T-5 (Pg: 8) T-6 (Pg: 8) T-9 (GDF-T1) (Pg: 8) Solitario Canyon Fault (Pg: 8) SCF-T1 (Pg: 8) SCF-T2 (Pg: 8) SCF-T3 (Pg: 8) SCF-T4 (Pg: 8) SCF-T8 (Pg: 8) SCF-T8a (Pg: 8) SCF-T10a (Pg: 8) SCF-T10B (Pg: 8) SCF-T13 (Pg: 8) Ammo Ridge Trench (Pg: 8) TGA-1a (Pg: 8) TGA-1b (Pg: 8) SCF-E1 (Pg: 8) Drill hole Wash Fault (Pg: 8) Teacup Wash Trench (Pg: 8) Pagany Wash Fault (Pg: 8) T-12 (Pg: 8) Fatigue Wash Fault (Pg: 8) CF-1 (Pg: 8) Windy Wash Fault (Pg: 8) CF-2 (Pg: 8) CF-2.5 (Pg: 8) CF-3 (Pg: 8) Crater Flat Fault (Pg: 8) CFFT-1 (Pg: 8) CFFT-1A (Pg: 8) CFFT-2 (Pg: 8) CFFT-2a (Pg: 8) Faulting Within 100 Km of Site (Pg: 8) Bare Mountain Fault (Pg: 8) BMT-1 (Pg: 8)

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BMT-2 (Pg: 8) BMT-3 (Pg: 8) Beatty Scarp (Pg: 8) BF-1 (Pg: 8) BF-2 (Pg: 8) Northeast-Trending Faults (Pg: 8) Rock Valley Fault Zone (Pg: 8) RV1 (Pg: 8) RV2 (Pg: 8) RV-3 (Pg: 8) RV-3a (Pg: 8) RV-4 (Pg: 8) RV-4 TP2 (Pg: 8) North Ramp Trench (Pg: 8) NRT-1 (Pg: 8) Paleoflood Trench (Pg: 8) USW NCW-T1 (Pg: 8) USW NCW-T2 (Pg: 8) Soil Trenches (Pg: 8) Kyle Canyon Soil Trenches (Pg: 8) KC85-1 (Pg: 8) KC85-2 (Pg: 8) KC85-3 (Pg: 8) KC85-4 (Pg: 8) KC85-5 (Pg: 8) KC85-6 (Pg: 8) KC85-7 (Pg: 8) KC85-8 (Pg: 8) KC85-9 (Pg: 8) KC85-10 (Pg: 8) Other Soil Trenches (Pg: 8) USW TRENCH A-B-C-D (Pg: 8) UE-25 SPFW-3 (Pg: 8) UE-25 SPFW-4 (Pg: 8) UE-25 SPFW-5 (Pg: 8) UE-25 SPFW-7 (Pg: 8) UE-25 SPFW-17 (Pg: 8) UE-25 SPFW-18 (Pg: 8) UE-25 SPFW-19 (Pg: 8) UE-25 SPYW-1 (Pg: 8) UE-25 SPYW-2 (Pg: 8) UE-25 SPYW-6 (Pg: 8) UE-25 SPYW-8 (Pg: 8) UE-25 SPYW-9 (Pg: 8) UE-25 SPYW-11 (Pg: 8) UE-25 SPYW-12 (Pg: 8) UE-25 SPYW-13 (Pg: 8) USW SPYW-14 (Pg: 8) USW SPYW-15 (Pg: 8) USW SPYW-16 (Pg: 6) USW SPYW-20 (Pg: 8) UE-25 SYW-22 (Pg: 8) Volcanic Studies Trenches (Pg: 8) Lathrop Wells (LW) Trenches (Pg: 8) USW LW-T1 (Pg: 8) USW LW-T2 (Pg: 8) USW LW-T3 (Pg: 8)

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USW LW-T4 (Pg: 8) USW LW-T5 (Pg: 8) Test Pits (Pg: 9) Faulting near Surface Facilities (Midway Valley) (Pg: 9) UE-25 MWV-P1 (Pg: 9) UE-25 MWV-P2 (Pg: 9) UE-25 MWV-P3 (Pg: 9) UE-25 MWV-P4 (Pg: 9) UE-25 MWV-P5 (Pg: 9) UE-25 MWV-P6 (Pg: 9) UE-25 MWV-P7 (Pg: 9) UE-25 MWV-P8 (Pg: 9) UE-25 MWV-P9 (Pg: 9) UE-25 MWV-P10 (Pg: 9) UE-25 MWV-P12 (Pg: 9) UE-25 MWV-P13 (Pg: 9) UE-25 MWV-P14 (Pg: 9) UE-25 MWV-P15 (Pg: 9) UE-25 MWV-P16 (Pg: 9) UE-25 MWV-P17 (Pg: 9) UE-25 MWV-P19 (Pg: 9) UE-25 MWV-P20 (Pg: 9) UE-25 MWV-P21 (Pg: 9) UE-25 MWV-P22 (Pg: 9) UE-25 MWV-P23 (Pg: 9) UE-25 MWV-P24 (Pg: 9) UE-25 MWV-P25 (Pg: 9) UE-25 MWV-P26 (Pg: 9) UE-25 MWV-P28 (Pg: 9) UE-25 MWV-P29 (Pg: 9) UE-25 MWV-P30 (Pg: 9) UE-25 MWV-P31 (Pg: 9) UE-25 MWV-P32 (Pg: 9) UE-25 MWV-P32a (Pg: 9) Soil and Rock Properties, North Portal Area (Pg: 9) UE-25 NRSF-TP-1 (Pg: 9) UE-25 NRSF-TP-2 (Pg: 9) UE-25 NRSF-TP-3 (Pg: 9) UE-25 NRSF-TP-4 (Pg: 9) UE-25 NRSF-TP-5 (Pg: 9) UE-25 NRSF-TP-6 (Pg: 9) UE-25 NRSF-TP-7 (Pg: 9) UE-25 NRSF-TP-8 (Pg: 9) UE-25 NRSF-TP-9 (Pg: 9) UE-25 NRSF-TP-10 (Pg: 9) UE-25 NRSF-TP-11 (Pg: 9) UE-25 NRSF-TP-12 (Pg: 9) UE-25 NRSF-TP-13 (Pg: 9) UE-25 NRSF-TP-14 (Pg: 9) UE-25 NRSF-TP-15 (Pg: 9) UE-25 NRSF-TP-16 (Pg: 9) UE-25 NRSF-TP-17 (Pg: 9) UE-25 NRSF-TP-18 (Pg: 9)

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UE-25 NRSF-TP-19 (Pg: 9) UE-25 NRSF-TP-20 (Pg: 9) UE-25 NRSF-TP-21 (Pg: 9) UE-25 NRSF-TP-22 (Pg: 9)

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			UE-	25 N	RSF-T	°P-23	(Pg: 9)	
			UE-	25 N	RSF-T	P-24	(Pg: 9)	
			UE-	25 N	RSF-T	P-25	(Pg: 9)	
			UE-	25 NI	RSF-T	P-26	(Pg: 9)	
			UE-	25 NF	RSF-T	P-27	(Pg: 9)	
			UE-	25 NF	RSF-T	P-27	a (Pg: 9)	
			UE	25 NF	RSF-T	P-28	(Pg: 9)	
			UE-2	25 NF	RSF-T	P-29	(Pg: 9)	
			UE-2	25 NF	RSF-T	P-30	(Pg: 9)	•
			UE-2	25 NR	RSF-T	P-31 (	(Pg: 9)	
		Geo	UE-2	25 NR	ISF-T	P-32	(Pg: 9)	
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		ι	JE-25	5 GSI	F-TP-1	1 (Pg	1: 9)	
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		L	JE-25	5 GSF	-TP-1	3 (Pg	): 9)	
			JE-25	GSF	-TP-1	4 (Pg	i: 9)	
			1E-25	GSF	-TP-1	S (Pg	: 9)	
		L 1	15-23	GSF	TP-1	6 (Pg	: 9)	
			E-23	CSE	TP-1	/ (Pg	:9)	
		ŭ	E-25	GSE	-TP-1	8 (Pg	:9)	
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		U	E-25	GSF-	TP-27	(Pg:	9)	
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			-25 (	SSF.	TP-34	(Pg: :	9)	
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		UE	-25 S	FS-4	(Pg: 9	)		
		UE	25 S	FS-5	(Pg: 9	)		
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Pavements (Pg: 9) Quaternary Faulting (Pg: 9) UE-25 88W-E1 (Pg: 9) UE-25 B8W-E2 (Pg: 9) UE-25 BBW-E3 (Pg: 9) UE-25 BBW-E4 (Pg: 9) Surface Facility (Pg: 9) USW P100 (Pg: 9) USW P200 (Pg: 9) USW P300 (Pg: 9) UE-25 P400 (Pg: 9) UE-25 P500 (Pg: 9) USW P600 (Pg; 9) UE-25 P1000 (Pg: 9) UE-25 P2001 (Pg: 9) UE-25 PNRG1 (Pg: 9) USW ARP1 (Pg: 9) USW UZ-7a (Pg: 9) Outcrop Sample Locations (Pg: 9) Geologic Samples (Pg: 9) USW CC1 (Pg: 9) USW CCR1 (Pg: 9) USW CCR2 (Pg: 9) USW CCR3 (Pg: 9) USW CH1 (Pg: 9) USW CH2 (Pg: 9) UE-25 CH3 (Pg: 9) USW CH4 (Pg: 9) USW CH5 (Pg: 9) USW CH6 (Pg: 9) USW CH7 (Pg: 9) UE-25 CH8 (Pg: 9) UE-25 CH9 (Pg: 9) USW CKS1 (Pg: 9) UE-25 CKS2 (Pg: 9) UE-25 CKS3 (Pg: 9) UE-25 CKS4 (Pg: 9) UE-25 CLL1 (Pg: 9) UE-25 CR\$4 (Pg: 9) UE-25 CRS5 (Pg; 9) UE-25 CRS6 (Pg: 9) USW CRS7 (Pg: 9) USW CUC1 (Pg: 9) USW CUC2 (Pg: 9) UE-25 CUL1 (Pg: 9) UE-25 CUL2 (Pg: 9) UE-25 CUL3 (Pg: 9) UE-25 CUL4 (Pg: 9) UE-25 CUL5 (Pg: 9) UE-25 CUL6 (Pg: 9) UE-25 CUL7 (Pg: 9) USW CUL8 (Pg: 9) UE-25 CUL9 (Pg: 9) UE-25 TC1 (Pg: 9) UE-25 TC2 (Pg: 9) UE-25 TC3 (Pg: 9)

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UE-25 TOB1 (Pg: 9)	
UE-25 TOB2 (Pg: 9)	
UE-25 TR1 (Pg: 9)	
USW TV1 (Pg: 9)	
Uranium-Series Dating Samples (Pg: 9)	
UE-15 50 (Pg: 9)	e 9
UE-15 51 (Pg: 9)	12 0
UE-17 H1 (Pg: 9)	LI Re
UE-17 H2 (Pg: 9)	7 5
UE-25 412 (Pg: 9)	-001.34 Rev (1) 11-93 of 11-126
UE-25 A#1 (Pg: 9)	9 1
UE-25 STOP 9 (Pg: 9)	-0200 Page
UE-27 30 (Pg: 9)	0-34
UE-27 31 (Pg: 9)	L L
UE-27 32 (Pg: 9)	. I 0
UE-27 40 (Pg: 9)	-0(- D0-
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UE-27 46 (Pg: 9)	B0000000-01717-0200-00134 Rev 00 Attachment II Page [1-93 of 11-126
UE-27 47 (Pg: 9)	At 00
UE-27 48 (Pg: 9)	
UE-27 82 (Pg: 9)	
UE-27 97 (Pg: 9)	
USW 59 (Pg: 9)	
USW 60 (Pg: 9)	
USW 106 (Pg: 9)	
USW 112 (Pg: 9)	
USW 115 (Pg: 9)	
USW 199 (Pg: 9)	
USW 154 (Pg: 9)	
USW 155 (Pg: 9)	
USW 368 (Pg: 9)	
USW 386 (Pg: 9)	
USW 387 (Pg: 9)	
USW 395 (Pg: 9)	
Age Dating Samples (Pg: 9)	
C-14 Dating Samples (Pg: 9)	
TL Dating Samples (Pg: 9)	
Erosion Surface Samples (Pg: 9)	
Geologic Mapping/Studies (Pg: 9) Measured Sections (Pg: 9)	
Geologic Mapping (Pg: 9)	
Support of Volcanic Studies (Pg: 9)	
Central Block (Pg: 9)	
Site Area (Pg: 9)	
Other (Pg: 9)	
Funeral Mountains (Pg: 9)	
Calico Hills (Pg: 9)	
Bare Mountains (Pg: 9)	
Paleoclimate/Paleodischarge Data Collection (Pg: 10)	
Core from Lakes, Playas, Marshes (Pg: 10)	
Corn Creek Dunes 1b (Pg: 10)	
Com Creek Dunes 1a (Pg: 10)	
Pahrump Playa 1a (Pg: 10)	
Pahrump Playa 1b (Pg: 10)	
Pahrump Playa 2 (Pg: 10)	
Pahrump Playa 3 (Pg: 10)	
Stewart Playa 1a (Pg: 10)	

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Stewart Playa 1b (Pg: 10) Stewart Playa 2 (Pg: 10) Fossil Woodrat Middens (Pg: 10) Crankshaft Junction, CA (Pg: 10) Eleana Range 2 (Pg: 10) Eleana Range 3 (Pg: 10) Fortymile Canyon 1 (Pg: 10) Fortymile Canyon 2 (Pg: 10) Fortymile Canyon 3 (Pg: 10) Fortymile Canyon 4 (Pg: 10) Fortymile Canyon 5 (Pg: 10) Fortymile Canyon 6 (Pg: 10) Fortymile Canyon 7 (Pg: 10) Fortymile Canyon 8 (Pg: 10) Fortymile Canyon 9 (Pg: 10) Fortymile Canyon 10 (Pg: 10) Fortymile Canyon 11 (Pg: 10) Fortymile Canyon 12 (Pg: 10) Hancock Summit (Pg: 10) Last Chance Range (Pg: 10) Last Chance Range 1 (Pg: 10) Little Skull Mountain (Pg: 10) Owi Canyon (Pg: 10) Owl Canyon 1 (Pg: 10) Owl Canyon 2 (Pg: 10) Owl Canyon 3 (Pg: 10) Pahranagat Range 1 (Pg: 10) Pahranagat Range 2 (Pg: 10) Pahranagat Wash (Pg: 10) Point of Rocks 1 (Pg: 10) Point of Rocks 2 (Pg: 10) Point of Rocks 3 (Pg: 10) Specter Range 1 (Pg: 10) Specter Range 2 (Pg: 10) Specter Range 3 (Pg: 10) Yucca Wash 1 (Pg: 10) Yucca Wash 2 (Pg: 10) Yucca Wash 3 (Pg: 10) Yucca Wash 4 (Pg: 10) Yucca Wash 5 (Pg: 10) Spring Deposits (Pg: 10) Cold Water Spring (Pg: 10) Cane Spring (Pg: 10) Crystal Pool Spring (Pg: 10) Grapevine Spring (Pg: 10) King Spring (Pg: 10) Nevares Spring (Pg: 10) Topopah Spring (Pg: 10) Hydrothermal Spring (Pg: 10) Brady's Hot Springs (Pg: 10) Hick's Hot Springs (Pg: 10) Hyder Hot Springs (Pg: 10) McCoy Hot Springs (Pg: 10) Sou Hot Springs (Pg: 10) Steamboat Hot Springs (Pg: 10) Analog Recharge Sites (Pg: 10) Stewart Base (Pg: 10)

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Veg Spring (Pg: 10) Upper Kawich (Pg: 10) Three Springs Base (Pg: 10) Gypsum Mound (Pg: 10) Wahmonie (Pg: 10) Hydrologic Monitoring/Data Collection (Pg: 10) Spring Discharge Monitoring Sites (Pg: 10) USW SP1 (Pg: 10) USW SP2 (Pg: 10) USW SP3 (Pg: 10) USW SP4 (Pg: 10) USW SP5 (Pg: 10) Artificial Recharge Sites (Pg: 10) Ring Infitrometer (Pg: 10) N7 (Pg: 10) N85 (Pg: 10) Large Plot/Small Plot (Pg: 10) Meteorological Stations Supporting Infiltration Studies (Pg: 10) Precipitation Gauges (Pg: 10) USW SANDY (Pg: 10) UE-25 NFCW (Pg: 10) USW G-2 (Pg: 10) USW G-3 (Pg: 10) USW GA-1 (Pg: 10) USW H-3 (Pg: 10) USW H-5 (Pg: 10) UE-25 WT#4 (Pg: 10) UE-25 WT#18 (Pg: 10) USW UZ-13 (Pg: 10) USW UZ-Ntt (Pg: 10) USW UZ-N15 (Pg: 10) USW UZ-N16 (Pg: 10) USW UZ-N17 (Pg: 10) USW UZ-N24 (Pg: 10) USW UZ-N25 (Pg: 10) USW UZ-N26 (Pg: 10) USW UZ-N27 (Pg: 10) USW UZ-N35 (Pg: 10) USW UZ-N36 (Pg: 10) USW UZ-N37 (Pg: 10) USW UZ-N40 (Pg: 10) USW UZ-N41 (Pg: 10) USW UZ-N42 (Pg: 10) USW UZ-N43 (Pg: 10) USW UZ-N44 (Pg: 10) USW UZ-N45 (Pg: 10) USW UZ-N46 (Pg: 10) USW UZ-N47 (Pg: 10) USW UZ-N48 (Pg: 10) USW UZ-N49 (Pg: 10) USW UZ-N50 (Pg: 10) USW UZ-N51 (Pg: 10) USW UZ-N52 (Pg: 10) USW UZ-N53 (Pg: 10) USW UZ-N54 (Pg: 10) USW UZ-N55 (Pg: 10) USW UZ-N57 (Pg: 10)

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									US	N UZ	N67	(Pg: 10)		
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									USW	UZ-N	184 (F	2: 10)	, <b>8</b>	
									USW	UZ-N	186 (F	g: 10)		
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								1	usw	UZ-N	88 (F	g: 10)		
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									JSW	UZ-N	90 (P	g: 10)		
								(	JSW	UZ-N	93 (P	g: 10)		
									JSW	UZ-N	94 (P	g: 10)		
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									JSW	UZ-NS	96 (P	g: 10)		
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USW 10247860 (Pg: 10)
USW 10248490 (Pg: 10)
USW 10248970 (Pg: 10)
USW 10249050 (Pg: 10)
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UE-25 Robin (Pg: 10)
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Analysis of Single- and Multiple-well Hydraulic-stress Tests (Pg: 18)	
Multiple-well Interference Testing (Pg: 18)	
Hydraulic Flow Tests Using Conservative Tracers (Pg: 18)	
C-Well Complex (Pg: 18)	
a-b Wells (Pg: 18)	
Hydraulic Flow Tests Using Reactive Tracers (Pg: 18)	
C-Weil Complex (Pg: 18)	
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SZ Hydrochemistry (Pg: 18) Surface Hydrology (Pg: 18) Transport of Debris by Severe Runoff (Pg: 18) Long-term Streamflow Monitoring Studies (Pg: 18) Geochemical Data Analyses (Pg: 19) Synthesis Reports (Pg: 19) EQ 3/6 (Pg: 19) GEMBOCHS (Pg: 19) Paleoclimate Data Analyses (Pg: 19) Natural Resource Assessment (Pg: 19) Hydrocarbon Resources (Pg: 19) Metallic and Miscellaneous Resources (Pg: 19) Water Resources (Pg: 19) Geothermal Resources (Pg: 19) Construction Material Resources (Pg: 19) Near-Field Environments (Pg: 19) Models (Pg: 20) Geologic Framework Model (Pg: 20) Rock Properties Model (Pg: 20) Mineralogical Model (Pg: 20) Process Models (Pg: 20) UZ Flow Model (Pg: 20) Infiltration Model (Pg: 20) SZ Flow Model (Pg: 20) UZ Flow and Transport Model (Pg: 20) SZ Flow and Transport Model (Pg: 20) Near-Field Environment Models (Pg: 20) Thermal Hydrologic (Pg: 20) Thermal Chemical (Pg: 20) Thermal Mechanical (Pg: 20) Thermal, Hydrologic, Mechanical, Chemical (Pg: 20) Future Climate Model (Pg: 20) Environmental Investigation Facilities (Pg: 1) ES&H Assessments (Pg: 21) Emergency Management Planning (Pg: 21) Biosphere Modeling (Pg: 21) Environmental impact Statement (Pg: 21) Safety & Health (Pg: 21) Environmental Compliance (Pg: 21) Solid/Hazardous Waste Management (Pg: 21) Scientific Investigations (Pg: 22) Aesthetics (Pg: 22) Air Quality/Meteorology (Pg: 22) Archaeology (Pg: 22) Noise (Pg: 22) Radiological (Pg: 22) Soils (Pg: 22) Native American Interactions (Pg: 22) Ecosystems (Pg: 22) Water Resources (Pg: 22) Land Access (Pg: 22) Socioeconomic Studies (Pg: 22) ESF Engineering and Construction (Pg: 1) Subsurface (Pg: 23) Main Access Openings (Pg: 23) Topopah Spring Level North Ramp (Station 0+00.0 to 28+19.323) (Pg: 23) Tunnel Segment 1, 000 to 200 Meters, A, Start: 01-12-95 (Pg: 23)

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Tunnel Segment 2, 200 to 400 Meters, B, Start: 02-06-95 (Pg: 23)
runnel Segment 3, 400 to 600 Meters, C. Start: 03-10-95 (Prr. 23)
Furnel Segment 4, 600 to 800 Meters, D. Start: 04-27-95 (Por 23)
(unnel Segment 5, 800 to 1000 Meters, E, Start; 05-24-95 (Pg; 23)
Tunnel Segment 6, 1000 to 1200 Meters, F, Start: 06-13-95 (Pg: 23)
Tunnel Segment 7, 1200 to 1400 Meters, G, Start: 08-08-95 (Pg: 23)
Tunnel Segment 8, 1400 to 1600 Meters, H, Start: 09-01-95 (Pg: 23)
Tunnel Segment 9, 1600 to 1800 Meters, I, Start: 09-12-95 (Pg: 23)
Tunnel Segment 10, 1800 to 2000 Meters, J, Start: 09-21-95 (Pg: 23)
Tunnel Segment 11, 2000 to 2200 Meters, K, Start: 09-30-95 (Pg: 23)
Tunnel Segment 12, 2200 to 2400 Meters, L, Start: 10-12-95 (Pg: 23)
Tunnel Segment 13, 2400 to 2600 Meters, M, Start: 10-25-95 (Pg: 23) Tunnel Segment 14, 2800 to 2800 Meters, M, Start: 10-25-95 (Pg: 23)
Tunnel Segment 14, 2600 to 2800 Meters, N, Start: 11-03-95 (Pg: 23) Topopah Spring Level Main Drift Construction (Charles Charles Char
Topopah Spring Level Main Drift Construction (Station 28+19.323 to 56+54.323) (Pg: 24) Tunnel Segment 15, 2800 to 3000 Meters, O, Start: 11-16-95 (Pg: 24)
Tunnel Segment 16, 3000 to 3200 Meters, P, Start: 11-16-95 (Pg: 24)
Tunnel Segment 17, 3200 to 3400 Meters, Q, Start: 11-29-95 (Pg: 24) Tunnel Segment 17, 3200 to 3400 Meters, Q, Start: 12-13-95 (Pg: 24)
Tunnel Segment 18, 3400 to 3600 Meters, R, Start: 12-13-95 (Pg: 24)
Tunnel Segment 19, 3600 to 3800 Meters, S, Start: 01-04-96 (Pg: 24)
Tunnel Segment 20, 3800 to 4000 Meters, T, Start: 01-12-96 (Pg: 24)
Tunnel Segment 21, 4000 to 4200 Meters, U, Start:01-30-96 (Pg: 24)
unnel Segment 22, 4200 to 4400 Meters, V. Start: 02-14-96 (Pn: 24)
Tunnel Segment 23, 4400 to 4600 Meters, W. Start: 03-05-96 (Pg: 24)
Tunnel Segment 24, 4600 to 4800 Meters, X, Start: 03-21-96 (Por 24)
Tunnel Segment 25, 4800 to 5000 Meters, Y. Start: 04-08-96 (Pri: 24)
Furnel Segment 26, 5000 to 5200 Meters, Z. Start: 04-30-96 (Pro: 24)
Tunnel Segment 27, 5200 to 5400 Meters, AA, Start: 05-08-96 (Po: 24)
Tunnel Segment 28, 5400 to 5600 Meters, BB. Start: 05-21-96 (Por: 24)
ropopan Spring Level South Ramp (Station 56+54.323 to 78+77.037) (Por 24)
Tunnel Segment 29, 5600 to 5800 Meters, CC, Start; 06-05-96 (Pg: 24)
Turnel Segment 30, 5800 to 6000 Meters, DD, Start: 06-24-96 (Pn: 24)
Tunnel Segment 31, 6000 to 6200 Meters, EE, Start: 07-16-96 (Pg: 24)
Tunnel Segment 32, 6200 to 6400 Meters, FF, Start: 08-13-96 (Pg: 24)
Tunnel Segment 33, 6400 to 6600 Meters, GG, Start: 09-23-96 (Pg: 24)
Tunnel Segment 34, 6600 to 6800 Meters, HH, Start: 10-11-96 (Pg: 25) Tunnel Segment 35, 6800 to 7000 Meters, HH, Start: 10-11-96 (Pg: 25)
Tunnel Segment 35, 6800 to 7000 Meters, II, Start: 11-01-96 (Pg: 25) Tunnel Segment 36, 7000 to 7200 Meters, JJ, Start: 11-21-96 (Pg: 25)
Tunnel Segment 37, 7200 to 7400 Meters, KK, Start: 01-21-96 (Pg: 25)
Tunnel Segment 38, 7400 to 7600 Meters, LL, Start: 02-05-97 (Pg: 25)
Turinel Segment 39, 7600 to 7800 Meters, MM_Start: 03-06-97 (Po: 25)
Former Segment 40, / 800 to 8080 Meters NN Start: 04-08-07 (Dec 26)
Giodina Support Systems (Pg: 25)
Steel Sets (Pg: 25)
Rock Bolts (Pg: 25)
Shotcrete (Pg: 25)
Inverts (Pg: 25)
Portals (Pg: 25)
North Portal (Pg: 25) South Portal (Pg: 25)
Operational Seals (Pg: 25)
Ramps (Pg: 25)
Shafts (Pg: 25)
Boreholes (Pg: 25)
Utility Systems (Pg: 26)
Water (Pg: 26)
Power (Pg: 26)
HVAC (Pg: 25)

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Comm (Pg: 26) Wastewater (Pg: 26) Surface (Pg: 26) Duct Bank (Pg: 26) High Voltage (Pg: 26) Low Voltage (Pg: 26) Communication Instrumentation Control (Pg: 26) Main Holes (Pg: 26) Switchgear Building (Pg: 26) Trenches (Pg: 26) Switchgear (Pg: 26) Grounding (Pg: 26) Utilities (Pg: 26) Electrical (Pg: 26) HVAC (Pg: 26) Plumbing (Pg: 26) Fire Protection (Pg: 26) Substation (Pg: 26) Change House (Pg: 27) Building (Pg: 27) Communications Channel (Pg: 27) Grounding (Pg: 27) Medical (Pg: 27) Utilities (Pg: 27) Electrical (Pg: 27) HVAC (Pg: 27) Plumbing (Pg: 27) Fire Protection (Pg: 27) Booster Pump Station (Pg: 28) Tanks (Pg: 28) Pumps (Pg; 28) Piping (Pg: 28) Booster Pump Station Building (Pg: 28) J13 Pump Station (Pg: 28) Pumps (Pg: 28) Piping (Pg: 28) Pump Station Building (Pg: 28) Water Line to Booster Pump Station (Pg: 28) Pad Water Utilities (Pg: 28) Potable System (Pg: 28) Piping (Pg: 28) Fire System Non-Potable (Pg: 28) Water Tanks (Exile Hill) (Pg: 28) Potable (Pg: 28) Non-Potable (Pg: 28) Chlorination System (Pg: 28) Piping (Pg: 28) Grounding (Pg: 28) Piping to Booster Pump Station (Pg: 28) Piping from Tanks to Pad (Pg: 28) Pad Sewer System (Pg: 29) Piping and Manholes (Pg: 29) Off Pad Sewer System (Pg: 29) Sewage System (Pg: 29) Piping from Pad to Septic System and Manholes (Pg: 29) Storm Drainage (Pg: 29) Underground Piping (Pg: 29)

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Channel (Pg. 29) Manhotes (Pg. 20) Storm Water Drainage (Pg. 29) North Portal Pad (Pg. 29) Top SoliRock Storage Area (Pg. 29) Wats: Water Pond (Pg. 29) Access Roads (Pg. 29) Tr Road (Pg. 29) North Pad (Pg. 29) South Pad (Pg. 29) South Pad (Pg. 29) North Pad (Pg. 29) South Pad (Pg. 29) Muck Storage and Access Road (Pg. 30) Designed (Pg. 30) Constructed (Pg. 30) Watsr Tank Road (Pg. 30) Designed (Pg. 30) Watsr Storage and Access Road (Pg. 30) Designed (Pg. 30) South Pad (Pg. 20) Muck Storage and Access Road (Pg. 30) Designed (Pg. 30) South Pad (Pg. 20) South Pad (Pg. 20) South Pad (Pg. 30) Constructed (Pg. 30) Constructed (Pg. 30) Store Fad (Pg. 30) Carrier Staging Shed (Pg. 31) Carrier Staging Shed (Pg. 31) Lighting System (Pg. 31) Carrier Staging Shed (Pg. 31) Store Fad (Pg. 31) Carrier Staging Shed (Pg. 31) Startey System (Pg. 31) Carrier Staging Shed (Pg. 31) Startey System (Pg. 31) Radiopical Monitories System (Pg. 31) Pad Utility System (Pg. 32) Pad Utility System (Pg. 32) Pad Utility System (Pg. 32) Startey System	300	1	4			2	0		8	9	10		11
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Operations Office (Pg: 43)
Vent Fan Control House (Pg: 43)
Miscellaneous Use Structures (Pg: 43)
Roads & Surfacing (Pg: 43)
Utility Interface Structures (Pg: 43)
Yard Facilities (Pg: 43)

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SDD 1

**SS06** 

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#### SDD 1 2 3 4 5 6 7 8 9 10 11

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**SS26** 

Operations Electrical Distribution (Pg: 44) Waste Transportation Distribution System (Pg: 44) Waste Emplacement System (Pg: 44) Support Systems Distribution (Pg: 44) Emergency Response System (Pg: 44) Pumping Distribution (Pg: 44) Ventilation System (Pg: 44) **SS07** Subsurface Lighting System (Pg: 44) **SS20** Subsurface Water Collection/Removal System (Pg: 45) Development Water Removal (Pg: 45) Primary Sump and Pumping Station (Pg: 45) Secondary Collection Sumps/Pumping (Pg: 45) Temporary Piping and Routing (Pg: 45) Primary Piping and Routing (Pg: 45) Operations Water Removal (Pg: 45) Primary Sump and Pumping Station (Pg: 45) Secondary Collection Sumps/Pumping (Pg: 45) Piping and Routing (Pg: 45) Subsurface Water Distribution System (Pg: 45) Development Water Distribution (Pg: 45) Primary Piping, Valving and Controls (Pg: 45) Excavation Takeoff System (Pg: 45) TBM Supply System (Pg: 45) Raise Bore Supply System (Pg: 45) Miscellaneous Excavation System (Pg: 45) Muck Removal Dust Control System (Pg: 45) Warehouse/Shop Distribution System (Pg: 45) Fire Suppression System (Pg: 45) Operations Water Distribution (Pg: 45) Waste Transportation Distribution System (Pg: 45) Support Area Distribution System (Pg: 45) Fire Suppression (Pg: 45) Subsurface Fire Suppression System (Pg: 46) Development Fire Suppression (Pg: 46) Access Fire Suppression System (Pg: 46) Excavation Systems Fire Suppression (Pg: 46) TBM Systems (Pg: 46) Mechanical Excavation Systems (Pg: 46) Raise Bore Systems (Pg: 46) Warehouse/Shop Fire Suppression (Pg: 46) Support Openings Fire Suppression (Pg: 46) Muck Removal Fire Suppression (Pg: 46) Mobile Equipment Fire Suppression (Pg: 46) Ventilation Equipment Fire Suppression (Pg: 46) Fire Detection Systems (Pg: 46) Operations Fire Suppression (Pg: 46) Access Fire Suppression System (Pg: 46) Underground Facility Fire Suppression (Pg: 46) Waste Package Handling Equipment Fire Suppression (Pg: 46) Ventilation Equipment Fire Suppression (Pg: 46) Fire Detection Systems (Pg: 46) SS08 Subsurface Compressed Air System (Pg: 47) Development Compressed Air System (Pg: 47) Primary Distribution System (Pg: 47) SDD 1 2 3 4 5 6 7 8 9 10

Hoisting Circuit (Pg: 44) Ventilation System (Pg: 44) Lighting System (Pa: 44)

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SS10

**SS03** 

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											& Hardware (Pg: 49)	
											stem (Pg: 49)	
							Em				Access (Pg: 49)	
											System (Pg: 49)	
								Acc	ess C	ontr	and Package (Pg: 49)	
							_				ol System (Pg: 49)	
							Em	placer	nent i	Main	mance System (Pg: 49)	
											ent System (Pg: 49)	
								Drift	rgeno	CY R	covery Equipment System (Pg: 49)	
SS24						Su	heurf	onit Sce Ei	nspe	ectio	Maintenance System (Pg: 49)	
						Şu	Acc	ace D	npiac al év	eme stor	t Transportation System (Pg: 49) (Pg: 49)	
											(Fg. 49) (g: 49)	
											g. 49) & Hardware (Pg: 49)	
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							Ran		cess !	Svsti	n (Pg: 49)	
											6 Control (Pg: 49)	
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						Dev	/elopn	nent V	/entila	ition	ystem (Pg: 50)	
							Shop	p/ware	hous	e An	system (Pg: 50)	
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							_		(Pg:			
							Emp		ent D	rift S	stem (Pg: 50)	
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											(Pg: 50)	
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								Shaft (	-			
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	Security System (Pg: 54)
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	Phone System (Pg: 54)
	Office & Data System (Pg: 54)
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					ni –	ner Ba	mer (P	'g: 59		
					0	uter Ba	arrier (F	°g: 5		
							Pg: 59)			0
					A	sociat	ed Fille	er and	Criticality Control Materials (if needed) (Pg: 59)	B00000000-01717-0200-00134 Rev 00
					21 PW	R Dis	posal C	Conta	ner, with Absorber Plates (Pg: 59)	7-0200-00134 Kev 00
					Ini	her Ba	rrier (P	g: 59		
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					Ba	isket (l	Pg: 59)			- Ģ
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					12 PW	R Disp	oosal C	ontai	ner, no Absorber Plates (Pg: 59)	Ģ
					inr	er Bar	rier (Pg	g: 59)		17.
							rrier (P			
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					12 PW	R Disp	osal C	ontail	er, with Absorber Plates South Texas Fuel (Pg: 60)	<u> </u>
					inn	er Ban	rier (Pg	r: 60)		õ :
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						sket (P				
					Ass	iociate	d Filler	and	Criticality Control Materials (if needed) (Pg: 60)	
					44 BWF	R Disp	osal Co	ontair	er, no Absorber Plates (Pg: 60)	
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						ket (P		,		
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Cable Tray (Pg: 75) Breakers (Pg: 75) Mechanical (Pg: 76) Piping & Fittings (Pg: 76) Valves (Pg: 76) Maintenance Tools (Pg: 76) Rail/Switches/Ties and Accessories (Pg: 76) Hoses and Fittings (Pg: 76) Wire Rope (Pg: 76) Lubricants & Fuel (Pg: 76) Process Gases (Pg: 76) Repair Kits (Pg: 76) Tires (Pg: 76) Replacement Parts (Pg: 76) Plumbing (Pg: 77) Piping & Fittings (Pg: 77) Sinks (Pg: 77) Toilets (Pg: 77) Caulking & Sealants (Pg: 77) Safety Systems (Pg: 77) Personnel Safety Equipment (Pg: 77) Fire Extinguishers (Pg: 77) First Aid Stations (Pg: 77) HVAC (Pg: 77) Ducting & Accessories (Pg: 77) Duct Insulation (Pg: 77) Piping & Fittings (Pg: 77) Pipe Insulation (Pg: 77) Fan Accessories (Pg: 77) Control Systems (Pg: 78) Analyzers (Pg: 78) Transmitters (Pg: 78) Cable & Connectors (Pg: 78) Boxes & Miscellaneous Enclosures (Pg: 78) Architectural (Pg: 78) Wall and Ceiling Finishes (Pg: 78) Ceiling Systems (Pg: 78) Floor Finishes (Pg: 78) Casements (Pg: 78) Office Equipment (Pg: 78) Roofing Systems (Pg: 78) Caulking & Sealants (Pg: 78) Structural (Pg: 79) Structural Steel & Fasteners (Pg: 79) Concrete (Pg: 79) Reinforcing Steel (Pg: 79) Masonry (Pg: 79) Fencing (Pg: 79) Ground Support (Pg: 79) Shotcrete (Pg: 79) Welded Wire Fabric (Pg: 79) Rock Bolts (Pg: 79) Structural Steel & Fasteners (Pg: 79) Regulatory (Pg: 2) Licensing (Pg: 2) Licensing Support System (Pg: 2) Decommissioning (Pg: 2)

Friday, May 30, 1997

The numbers refer to the sheet number of Ver 00B of the Mined Geologic Disposal System Architecture drawing.

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Waste Acceptance & Transportation Element (Pg: 1) Interim Storage Facility Element (Pg: 1)

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# SDD 1 2 3 4 5 6 7 8 9 10 11

Friday, May 30. 1997

The numbers refer to the sheet number of Ver 00B of the Mined Geologic Disposal System Architecture drawing.

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				2-Lis	t Qu	lesti	ons	Ī		
SI	DD:									
SS	SC:						Level 4	4:		
Le	vel 3:						Level	5:		
		QA-1 ()	QA-2	QA-3 	0A-4 188	QA-5	0A-6 18	QA-7 ❀	Non-Q	
QA	-1 - importa	nt to Radiologi	ical Safety	:						
1.1	Is the SSC retrieved wi	required to prov thout exceeding	ide reasona the federal	able assura	ance that I	high-level v	vaste can	be receive	d, handled, packaged, stored, emplaced, a	and
	🕸 Yes?	Rationale		-						
							· · ·			
1.2	Is the SSC release abo	required to funct ve the federal lin	tion to prev nits?	ent, miliga	te, or mon	itor a credi	ble Desigr	) Basis Ev	ent which would otherwise result in a radio	active
	🖹 Yes?	Rationale								
						_				-
1.3	Will the dire	ct failure of the S	SSC result	in a credib	le Design	Basis Eve	nt which w	rould lead (	o a radioactive release above the federal l	: imits?
	🕷 Yes?	Rationale:								
								•• ••••••••••		
QA-:		t to Waste Isoli								
2.1		C perform a wa:	ste isolatior	function t	by forming	part of the	natural or	engineere	d barriers?	
	🔉 Yes?	Rationale:								
2.2	Can direct fa									
<b></b>	chgineered b	arriers which ma	ay prevent t	hem from	e hydrolog performing	ical, geoch g lheir was	emical, or te isolation	geomecha function?	nical characteristics of the natural or	
	😻 Yes?	Rationale:	· · · · · · · · · · · · · · · · · · ·					··· ••••••		•••••••
						•				
		<u> </u>								

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SDD:		
SSC:	Level 4:	
_evel 3:	Level 5:	
2A-3 - Impoi	rtant to Radioactive Waste Control:	
3.1 Is the fu	nction of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?	
🔉 Yes?		
		•••••
QA-4 - Impor	rtant to Fire Protection:	
.1 Does the	e SSC protect QA-1 or QA-2 SSCs from the effects of fire?	
🖉 Yes		
_ res		
QA-5 - Impor	rtant to Potential Interaction:	
.1 As a resi	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing thei	
.1 As a resi	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing the cal safety or waste isolation function?	
.1 As a resu radiologic	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing the cal safety or waste isolation function?	
.1 As a resu radiologic	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing the cal safety or waste isolation function?	
.1 As a resu radiologic	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing the cal safety or waste isolation function?	
.1 As a resu radiologic 	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing the cal safety or waste isolation function? Rationale:	
.1 As a resu radiologic 	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing the cal safety or waste isolation function?	
.1 As a resu radiologic 	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing the cal safety or waste isolation function? Rationale:	<u> </u>
As a resu radiologic <u>*</u> Yes XA-6 - Impor	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing theical safety or waste isolation function? Rationale: Tant to Physical Protection of Facility and Materials: SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted	
.1 As a resuradiologic with with with with with with with with	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing theical safety or waste isolation function? Rationale: Tant to Physical Protection of Facility and Materials: SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted	
.1 As a resuradiologic water water	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing theical safety or waste isolation function? Rationale: Tant to Physical Protection of Facility and Materials: SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted	
.1 As a resuradiologic	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing theical safety or waste isolation function? Rationale: tant to Physical Protection of Facility and Materials: SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricte Rationale:	
A-6 - Impor Does the E Yes1	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing theical safety or waste isolation function? Rationale: tant to Physical Protection of Facility and Materials: SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricte Rationale: CS function required for special nuclear material accountability?	
A-6 - Impor .1 Does the .2 Is the SS	rtant to Potential Interaction: ult of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing theical safety or waste isolation function? Rationale: tant to Physical Protection of Facility and Materials: SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricte Rationale: CS function required for special nuclear material accountability?	

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# B0000000-01717-0200-00134 Rev 00 Attachment III

SDD:	
SC:	Level 4:
evel 3:	Level 5:
IA-7 - Importa	ant to Occupational Radiological Exposure:
.1 Does the S areas by its	SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiations own radioactive source term?
😻 Yes?	Rationale
	-
.2 Is the SSC	
.2 Is the SSC Yes?	
	a permanently installed radiation monitor which monitors areas for personnel radiation protection?
	a permanently installed radiation monitor which monitors areas for personnel radiation protection?
æ Yes?	a permanently installed radiation monitor which monitors areas for personnel radiation protection?          Rationale:
æ Yes?	a permanently installed radiation monitor which monitors areas for personnel radiation protection?          Rationale:
Yes? revious QA Cla	a permanently installed radiation monitor which monitors areas for personnel radiation protection?          Rationale:
	a permanently installed radiation monitor which monitors areas for personnel radiation protection?          Rationale:
Image: Second state         Previous QA Class         This question is f         3.0       Are there o	a permanently installed radiation monitor which monitors areas for personnel radiation protection?          Rationale:         assification:         for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List         ther factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion to

### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS01 - S	Subsurface	Facility	System		-			
SSC:	Developm	ent System					Level 4	Ramp	
Level	3: Develor	pment Acces	ses				Level 5	: Internal	Ramps
		<b>QA</b> -1	0A-2 ☑	<b>QA-3</b>	<b>QA-4</b>	<b>QA-5</b>	<b>0A-6</b>	<b>QA-7</b>	Non-Q

QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The development internal ramps may become operations ramps and, as such, will provide reasonable assurance that highlevel waste can be received, stored, emplaced and retrieved without exceeding the federal limits. However, preserving the integrity of development ramps is allocated to the Ground Control Systems.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

C Yes? Rationale:

The development internal ramps are not required maintain their integrity to function to prevent and/or mitigate a releases due to DBEs However, preserving the integrity of development ramps is allocated to the Ground Control Systems.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

**Yes?** Rationale:

Direct failure of the development internal ramps would not result in a credible DBE that would lead to a radioactive release However, preserving the integrity of development ramps is allocated to the Ground Control Systems.

QA-2 - Important to Waste Isolation:

2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?

✓ Yes? Rationale:

The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the development internal ramps could significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

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# B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Accesses

Level 4: Ramp

Level 5. Development Accesses

Level 5: Internal Ramps

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

- Yes? Rationale:
  - This SSC performs no fire protection functions.

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### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development internal ramps could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function. However, preserving the integrity of development ramps is allocated to the Ground Control Systems.

### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:
    - This SSC does not perform a physical protection function.
- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

This SSC does not perform a special nuclear material accountability function.

# B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Accesses

Level 4: Ramp

t Accesses

Level 5: Internal Ramps

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

C Yes?	Rationale
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This SSC is not a radiation monitor.

**Previous QA Classification:** 

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

✓ Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1. ESF Main Access Openings were also included on the Q-List by analysis, M&O Classification Analysis of Main Access Openings, BABEAD000-01717-2200-00002, Rev 02.

# B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Develo	pment System					Level 4	l: Ramp		
Le	vel 3: Deve	opment Acces	sses				Level 5	5: Main F	Ramp	
		<b>QA</b> -1	0A-2 2	QA-3	QA-4	QA-5	<b>QA-6</b>	0A-7	Non-Q	
QA-	1 - Importa	nt to Radiologic	al Safety:	:						
1.1	Is the SSC retrieved wi	required to provid thout exceeding t	de reasona he federal	able assura l limits?	ance lhat h	igh-level v	/aste can l	be receive	d, handled, pack	aged, stored, emplaced, a
	Yes?	Rationale:								
		The developm waste can be i integrity of dev	received, s	stored, emp	placed and	retrieved	without exc	ceeding th	provide reasonat e federal limits.	ve assurance that high-lev However, preserving the
1.2	Is the SSC release abo	required to functi ve the federal lim	ion to previ its?	ent, mitiga	te, or moni	itor a credi	ble Desigr	1 Basis Ev	ent which would	otherwise result in a radio
	Ves?	Rationale:								
		The developm DBEs. Howev	ent main ra rer, presen	amps are r ving the in	not require tegrity of d	d maintain evelopmen	their integ t ramps is	rity to func allocated	ction to prevent a to the Ground C	nd/or mitigate a releases ( ontrol Systems,
1.3	Will the dire	ect failure of the S	SC result	in a credit	de Design	Basis Eve	nt which w	vouid lead	to a radioactive r	elease above the federal li
	🗋 Yes?	Rationale:								
		Direct failure o However, pres	f the devel erving the	lopment m integrity of	ain ramps 'developm	would not ent ramps	result in a is allocate	credible D d to the G	BE that would le round Control Sy	ad to a radioactive release /sterns.
QA-:	2 - Importar	nt to Waste Isola	ition:							
2.1	Does the St	SC perform a was	ste isolatio	n function	by forming	) part of the	e natural oj	r engineer	ed barriers?	
	🗹 Yes?	Rationale:								
		The subsurfac phase as well a	e facility sy as the long	ystem phy: I term wasi	sical location te isolation	on and ger objectives	eral arrang of the rep	gement he ository.	ips support the c	peration and emplacement
2.2	Can direct fi engineered	ailure of the SSC barriers which ma	significan ay prevent	tly affect th them from	ne hydrolog Performin	jical, geocl g their was	nemical, or ite isolatior	r geomech n function1	anical characteri ?	stics of the natural or
	🗹 Yes?	Rationale:								

### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 4: Ramp

Level 3: Development Accesses

Level 5: Main Ramp

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

**Yes?** Rationale:

This SSC performs no fire protection functions.

### QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale:

Failure of development main ramps could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function. However, preserving the integrity of development ramps is allocated to the Ground Control Systems.

# QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

This SSC does not perform a special nuclear material accountability function.

B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Accesses

Level 4: Ramp

Level 5: Main Ramp

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

- 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?
  - 🛄 Yes? Rationale:

This SSC is not a radiation monitor.

**Previous QA Classification:** 

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1. ESF Main Access Openings were also included on the Q-List by analysis, M&O Classification Analysis of Main Access Openings, BABEAD000-01717-2200-00002, Rev 02.

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B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System SSC: Development System Level 4: Ramp Level 3: Development Accesses Level 5: Portal OA-1 QA-2 QA-3 QA-5 QA-6 QA-7 Non-Q  $\square$  $\mathbf{\nabla}$  $\square$ Π QA-1 - Important to Radiological Safety; Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and 1.1 retrieved without exceeding the federal limits? Yes? Rationale The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository. However, preserving the integrity of development ramps is allocated to the Ground Control Systems. 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits? Yes? Rationale Development Portals do notfunction to prevent a release and mitigate the consequences of a release of radiological materials 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits? \_ Yes? Rationale Direct failure of development portals would not result in a release of radiological materials and that release could exceed federal limits. QA-2 - Important to Waste Isolation: 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? Yes? Rationale: The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - **∠** Yes? Rationale

Direct failure of portals could affect the characteristics of the natural or engineered barriers and prevent them from performing their waste isolation function.

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SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Accesses

Level 5: Portal

Level 4: Ramp

QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

Portals do not contain site-generated radioactive waste.

QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

Portals are not associated with fire protection

QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

\_ Yes? Rationale:

Failure of portals could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function. However, preserving the integrity of development ramps is allocated to the Ground Control Systems.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

Portals are not associated with the detection or unauthorized intrusion or the presence of explosive materials.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

Portals are not associated with special nuclear material accountability.

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SDD: SS01	<ul> <li>Subsurface</li> </ul>	Facility System	
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SSC: Development System	Level 4: Ramp
Level 3: Development Accesses	Level 5: Portal

- QA-7 Important to Occupational Radiological Exposure:
- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - \_\_\_\_Yes? Rationale:

- - --

Portals have no associated radioactive source term.

- 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?
  - [ Yes? Rationale

This SSC is not a radiation monitor.

### **Previous QA Classification:**

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1. ESF Portals were also included on the Q-List by analysis, M&O Classification Analysis of the Starter Tunnel and South Headwall, BABEAA000-01717-2200-00098, Rev 01.

# B0000000-01717-0200-00134 Rev 00 Attachment IV

SC	D: SS01	- Subsurface	Facility	System	I					
SS	C: Develo	oment System					Level 4	: Shaft		
Le	vel 3: Deve	lopment Acces	ses				Level 5	: Emerg	ency Hoist Sys	stem
		<b>QA</b> -1	0A-2	<b>QA-3</b>	<b>0A-4</b>	<b>QA-5</b>	QA-6	<b>QA</b> .7 □	Non-Q	
QA	-1 - Importa	nt to Radiologic	al Safety:							
1.1	ls the SSC retrieved wi	required to provid thout exceeding t	le reasona ne federal	ble assura limits?	ince that h	igh-level w	rasle can b	e received	l, handled, packa	ged, stored, emplaced, and
	C Yes?	Rationale	ent emerge	ency hoist	systems a urance that	re not ass the federa	ociated wit al limits wil	h storage, I not be ex	emplacement, o ceeded.	r retrieval of high level wast
1.2	Is the SSC release abo	required to function ve the federal limit	on to preve ts?	≥nt, mitigal	te, or moni	tor a credil	ble Design	Basis Eve	ent which would c	therwise result in a radioa
	🗌 Yes?	Rationale: The developme release of radio	ent emerge bactive ma	ency hoist terial.	system is i	not require	d to prever	nt/mitigate/	/monitor a credib	le DBE which would result
1.3	Will the dire	ct failure of the S	SC result	in a credib	le Design	Basis Eve	nt which w	ould lead t	o a radioactive re	lease above the federal lim
	Yes?	Rationale:								
		Direct failure of release.	the devel	opment en	nergency h	oist syster	n would no	ot result in	a credib <del>l</del> e DBE ti	hat would lead to a radioac
QA-	2 - Importan	it to Waste Isola	tion:							
2.1	Does the SS	SC perform a was	te isolatior	n function	by forming	part of the	natural or	engineere	d barriers?	
	Ves?	Rationale:								
		The subsurface	e facility sy e repositor	vstern phys	ical locatio	n and gen	eral arrang	ement hei iem howe	ps support the lo	ng term waste isolation
		barriers associa	ated with v	vaste isola	tion.	emergend	y 110101 0y3		ver, is not part of	the natural/engineered
2.2	Can direct fa	barriers associa	ated with v significant	vaste isola Iy affect th	tion. ie hydrolog	ical, geoch	nemical, or	geomecha	anical characteris	f the natural/engineered
2.2	Can direct fa engineered I	barriers associa	ated with v significant	vaste isola Iy affect th	tion. ie hydrolog	ical, geoch	nemical, or	geomecha	anical characteris	f the natural/engineered

 $\sim$ 

 $\checkmark$ 

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Accesses

Level 4: Shaft

Level 5: Emergency Hoist System

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale:

Failure of the development emergency hoist system is not expected to impair the capability of QA-1 or QA-s SSCs from performing their radiological safety/waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

This SSC does not perform a special nuclear material accountability function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Accesses

Level 4: Shaft

Level 5: Emergency Hoist System

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that 8.0 this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale

> This Hoist Subsystems are contained in Appendix B, Page B-2-5, of the Q-List, "Items excluded from the Q-List by exemption."

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		opment System						<b>.</b>			
Le	vel 3 <sup>.</sup> Dev						Level 4	: Shaft			
		elopment Acces	Level 5: Hoist System								
		QA-1	0A-2	<b>QA-3</b>	<b>0A-4</b>	<b>QA-5</b>	<b>0-A0</b>	<b>0A-7</b>	Non-Q V		
Q	-1 - Import	ant to Radiologic	al Safety:								
1.1	is the SS( retrieved v	C required to provid vithout exceeding t	le reasonal he federal l	ble assura imits?	ince that h	igh-level v	vaste can b	e received	d, handled, packa	aged, stored, emplaced	i, and
	C Yes?	Rationale:	ent hoisting	svslems	are not as the federal	sociated v limits will	vith storage not be exce	, emplace eded.	ement, or retrieva	l of high level waste an	d do not
1.2	ls the SSC release ab	C required to function ove the federal limi	on to preve ts?	nt, mitigati	e, or monit	or a credil	ble Design I	Basis Eve	ent which would c	otherwise result in a rac	dioactive
	🗌 Yes?	Rationale: The developme of radioactive m	ent hoisting naterial.	system is	not requir	ed to prev	ent/mitigate	/monitor :	a credible DBE w	which would result in a	release
1.3	Will the dir	ect failure of the S	SC result ir	a credibl	e Design E	Basis Ever	nt which wo	uld lead t	o a radioactive re	lease above the federa	I limits?
	Yes?	Rationale									
		Direct failure of	the develop	pment hoi:	sting syste	m would r	not result in	a credible	e DBE that would	l lead to a radioactive re	elease.
QA-	2 - Importa	nt to Waste Isolat	ion:								
<b>2</b> .1	Does the S	SC perform a wast	e isolation	function by	y forming p	part of the	natural or e	ngineere	d barriers?		
	Yes?	Rationale:									
		The subsurface objectives of the associated with	терозногу.	THE GEV	cal location elopment h	and gene loisting sy	eral arrange stem, howe	ment help ver, is no	os support the lor t part of the natur	ng term waste isolation ral/engineered barriers	
2.2	Can direct fi	ailure of the SSC s barriers which may	ignificantly prevent th	affect the em from p	hydrologic erforming	al, geoch their wast	emical, or g e isolation fi	eomecha unction?	nical characteris	tics of the natural or	
				•							
	Yes?	Rationale:									

 $\checkmark$ 

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Accesses

Level 4: Shaft

Lever J. Development Accesses

Level 5: Hoist System

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

### QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale

Failure of the development hoisting system is not expected to impair the capability of QA-1 or QA-s SSCs from performing their radiological safety/waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - \_ rest traininale.
    - This SSC does not perform a physical protection function
- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

This SSC does not perform a special nuclear material accountability function.

B0000000-01717-0200-00134 Rev 00 -List Questions Attachment IV SDD: SS01 - Subsurface Facility System SSC: Development System Level 4: Shaft Level 3: Development Accesses Level 5: Hoist System QA-7 - Important to Occupational Radiological Exposure: 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates In radioactive areas, or require personnel access into radiation areas by its own radioactive source term? Yes? Rationale: This SSC function does not include personnel radiation shielding to minimize radiological exposure. 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection? Yes? Rationale: This SSC is not a radiation monitor. Previous QA Classification: This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)? Yes? Rationale: This Hoist Subsystems are contained in Appendix B, Page B-2-5, of the Q-List, "Items excluded from the Q-List by exemption."

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# B0000000-01717-0200-00134 Rev 00 Attachment IV

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	C: Develo	pment System					Level 4	: Shaft			
Le	vel 3: Deve	lopment Acces	sses				Level 5	: Shaft S	Structure		
		QA-1	0A-2 2	QA-3	0A-4	0A-5 2	QA-6	QA-7	Non-Q		
QA	-1 - Importa	nt to Radiologic	al Safety:	:							
1.1	ls the SSC retrieved wi	required to provid thout exceeding t	de reasona lhe federal	ible assura limits?	ince that h	igh-level v	waste can b	e received	í, handled,	packaged, stored, er	nplaced, a
	Yes?	Rationale:									
		The developm stored, emplac	ent shaft s ced and re	tructure is trieved with	not requir nout excee	ed to prov ding the f	i <b>de rea</b> sona ederal limits	able assur 5.	ance that h	igh-level waste can b	e received
1.2	is the SSC release abo	required to functi ve the federal lim	ion to prev its?	ent, mitigal	e, or moni	tor a credi	ible Design	Basis Eve	ent which w	vould otherwise result	t in a radioa
	🗌 Yes?	Rationale: The developme	ent shaft s	tructures a	ire not req	uired mair	ntain their in	itearity to f	unction to		
		due to DBEs.						<b></b>		prévent and/or mitiga	te a releas
1.3	Will the dire									prevent and/or mitiga tive release above th	
1.3	Will the dire									-	
1.3	_	ct failure of the S Rationale:	SC result	in a credib	le D <del>e</del> sign	Basis Eve	ent which w	ould lead t	o a radioac	-	e federal lii
	🗌 Yes?	ct failure of the S Rationale:	SC result	in a credib	le D <del>e</del> sign	Basis Eve	ent which w	ould lead t	o a radioac	tive release above th	e federal lii
QA-:	Yes?	ect failure of the S Rationale: Direct failure o	SC result f the devel ition;	in a credib opment sh	le Design aft structu	Basis Eve res would	ent which w not result i	ould lead t n a credibl	o a radioac e DBE thai	tive release above th	e federal lii
QA-:	Yes?	ect failure of the S Rationale: Direct failure o It to Waste Isola	SC result f the devel ition;	in a credib opment sh	le Design aft structu	Basis Eve res would	ent which w not result i	ould lead t n a credibl	o a radioac e DBE thai	tive release above th	e federal lii
QA-:	Yes? 2 - Importan Does the SS	act failure of the S Rationale: Direct failure o at to Waste Isola SC perform a was Rationale:	SSC result f the devel ation: ste isolation	in a credib opment sh n function I ystem phys	le Design aft structu by forming sical locati	Basis Eve res would part of the on and ge	ent which w not result i e natural or	ould lead t n a credibl engineere	o a radioac e DBE that d barri <del>ers</del> ?	tive release above th	e federal lir Dactive rele
QA.: 2.1	<ul> <li>Yes?</li> <li>2 - Importan</li> <li>Does the SS</li> <li>✓ Yes?</li> <li>Can direct fa</li> </ul>	act failure of the S Rationale: Direct failure o at to Waste Isola SC perform a was Rationale: The subsurfac phase as well a	SC result f the devel ation: ste isolation se facility s as the long significant	in a credib opment sh n function I ystem physiterm wast	le Design aft structu by forming sical locati e isolation e hydrolog	Basis Eve res would part of the on and ge objectives ical, geoc	ent which w not result in e natural or meral arrang s of the repo hemical, or	ould lead t n a credibl engineere gement he ository. geomecha	o a radioac e DBE that d barriers? lps suppor	tive release above th	e federal lin Dactive rele mplacemer
	<ul> <li>Yes?</li> <li>2 - Importan</li> <li>Does the SS</li> <li>✓ Yes?</li> <li>Can direct fa</li> </ul>	ect failure of the S Rationale: Direct failure o at to Waste Isola SC perform a was Rationale: The subsurfac phase as well a ailure of the SSC	SC result f the devel ation: ste isolation se facility s as the long significant	in a credib opment sh n function I ystem physiterm wast	le Design aft structu by forming sical locati e isolation e hydrolog	Basis Eve res would part of the on and ge objectives ical, geoc	ent which w not result in e natural or meral arrang s of the repo hemical, or	ould lead t n a credibl engineere gement he ository. geomecha	o a radioac e DBE that d barriers? lps suppor	tive release above th t would lead to a radio	e federal lin Dactive rele mplacemer

### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Shaft

Level 3: Development Accesses

Level 5: Shaft Structure

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Tes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale:

Failure of development shaft structures could impact airflow balance within the emplacement area and impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

This SSC does not perform a special nuclear material accountability function.

		<u>Q</u> -	List Questions	B00000000-01717-0200-00134 Rev 00 Attachment IV
$\smile$	SDD: SS	01 - Subsurface Facility S	System	
	SSC: Dev	elopment System	Level 4:	Shaft
	Level 3: D	evelopment Accesses	Level 5:	Shaft Structure
	QA-7 - Impo	prtant to Occupational Radiolog	gical Exposure:	
	7.1 Does th areas b	e SSC provide personnel radiatio y its own radioactive source term?	on shielding, reduce dose rates in radioacti ?	ve areas, or require personnel access into radiation
	C Yes			
		This SSC function does no	ot include personnel radiation shielding to r	minimize radiological exposure
	7.2 Is the S	SC a permanently installed radial	ion monitor which monitors areas for perso	onnel radiation protection?
	C Yes			
		This SSC is not a radiation	n monitor.	
	Previous QA	Classification:		
	This question	is for historical and traceability pu	urposes only. A "yes" answer to this ques	tion does not provide inclusion to the Q-List
	8.0 Are ther this SS(	e other factors, such as previous C is Important to radiological safet	analyses, a body of consensus, or by dire ty (QA-1) or waste isolation (QA-2)?	ct inclusion, that led to the previous conclusion that
	🗹 Yes	? Rationale:		
		This SSC is contained on the	he Q-List by direct inclusion for the Men &	Materials Shaft, 3.3.2.1, as QA-1.

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# B0000000-01717-0200-00134 Rev 00 Attachment IV

			GUINERLIV										
SD	D: SS01 -	- Subsurface Facility System											
SSC	: Develop	pment System Level 4: Shaft											
Lev	el 3: Devel	elopment Accesses Level 5: Shaft Yard Facilities											
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q											
QA-	l - Importan	nt to Radiological Safety:											
1.1	Is the SSC r retrieved with	required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, empla ithout exceeding the federal limits?	ced, and										
	Yes?	Rationale:											
		The development shaft yard facilities do not provide reasonable assurance that high-level waste can be received, emplaced and retrieved without exceeding the federal limits.	, stored,										
1.2	Is the SSC release abov	required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a we the federal limits?	radioactive										
	Yes?	Rationale											
		The development shaft yard facilities are not required maintain their integrity to function to prevent and/or mitigate due to DBEs.	e a releases										
1.3	Will the direc	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the feo	leral limits?										
	Yes?	Rationale:											
		Direct failure of the development shaft yard facilities would not result in a credible DBE that would lead to a radioa release.	ictiv <del>e</del>										
QA-2	- Important	nt to Waste Isolation:											
2.1	Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?												
	Yes?	Rationale											
		Development shaft yard facilities are not part of the natural or engineered barriers											
2.2	Can direct fai engineered bi	ailure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural o barriers which may prevent them from performing their waste isolation function?	r										
	Yes?	Rationale:											
		Direct failure of the Development shaft yard facilities will not significantly affect the natureal or engineered barriers performing their waste isolation function.	from										

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# ist Questions

# B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Shaft

Level 3: Development Accesses

Level 5: Shaft Yard Facilities

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development shaft yard facilities wound not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area? Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale

This SSC does not perform a special nuclear material accountability function.

B0000000-01717-0200-00134 Rev 00 List Questions Attachment IV SDD: SS01 - Subsurface Facility System SSC: Development System Level 4: Shaft Level 3: Development Accesses Level 5: Shaft Yard Facilities QA-7 - Important to Occupational Radiological Exposure: 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term? Yes? Rationale: This SSC function does not include personnel radiation shielding to minimize radiological exposure 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection? [Yes? Rationale: This SSC is not a radiation monitor. **Previous QA Classification:** This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is Important to radiological safety (QA-1) or waste isolation (QA-2)? Yes? Rationale This shaft yard facilities are contained in Appendix B, Page B-2-4, of the Q-List, "Items excluded from the Q-List by exemption.

		Q-List Questic	B00000000-01717-0200-00134 Rev ONS Attachment
SD	D: SS01	- Subsurface Facility System	
sso	C: Develo	pment System	Level 4: Personnel & Materials Transport
Lev	el 3: Deve	elopment Support System	Level 5: Muck Handling System
		QA-1 QA-2 QA-3 QA-4 QA-5	QA-6 QA-7 Non-Q
QA-	1 - Importa	nt to Radiological Safety:	
1.1	ls the SSC retrieved wi	required to provide reasonable assurance that high-level w ithout exceeding the federal limits?	waste can be received, handled, packaged, stored, emplaced, and
	C Yes?	Rationale:	
		The development muck handling systems do not provide stored, emplaced and retrieved without exceeding the fe	le reasonable assurance that high-level waste can be received, ederal limits.
		· · · · · · · · · · · · · · · · · · ·	
1.2	is the SSC release abo	required to function to prevent, mitigate, or monitor a credit we the federal limits?	ible Design Basis Event which would otherwise result in a radioactiv
	_ Yes?	Rationale:	
		The subsurface muck handling equipment are not requir releases due to DBEs.	ired maintain their integrity to function to prevent and/or mitigate a
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Ever	ent which would lead to a radioactive release above the federal limits
	Yes?	Rationale:	
		Direct failure of the development muck handling system release.	would not result in a credible DBE that would lead to a radioactive
QA-2	- Importar	nt to Wa <del>ste</del> Isol <del>at</del> ion:	
2.1	Does the SS	SC perform a waste isolation function by forming part of the	e natural or engineered barriers?
	Yes?	Rationale	
		Development muck handling systems are not part of the r	natural or engineered barriers
2.2	Can direct fa	ailure of the SSC significantly affect the hydrological, geoch barriers which may prevent them from performing their wast	hemical, or geomechanical characteristics of the natural or ste isolation function?
		Rationale:	
	🗌 Yes?		

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Personnel & Materials Transport

Level 5: Muck Handling System

## QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

- Yes? Rationale:
  - This SSC performs no fire protection functions.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development muck handling systems would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

This SSC does not perform a special nuclear material accountability function.

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

			_ ·.
SDD: SS01	<ul> <li>Subsurface</li> </ul>	: Facility	System

- SSC: Development System
- Level 3: Development Support System

Level 4: Personnel & Materials Transport

Level 5: Muck Handling System

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

🗋 Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This Muck Handling System are contained in Appendix B, Page B-2-8, of the Q-List, "Items excluded from the Q-List by exemption."

			0	-List	Qu	estic	ons	B0	000000-0	1717-020	0-00134 Rev 00 Attachment IV
SD	D: SS01	- Subsurface I	Facility	System							
SSC	C: Develo	pment System					Level 4:	Personi	nel & Materia	als Transp	ort
Lev	el 3: Deve	lopment Suppo	ort Syster	n			Level 5:	Service	Equipment		
		QA-1	0A-2	0A-3	<b>0</b> A-4	<b>QA-5</b>	0A-6	<b>QA-7</b>	Non-Q V		
QA-	1 - Importa	nt to Radiologica	ıl Safety:								
1.1	Is the SSC retrieved wi	required to provide thout exceeding th	e reasonat le federal li	ole assurai imits?	nce that h	igh-level v	vaste can be	e received,	handled, pack	aged, stored	l, emplaced, and
	Yes?	Rationale:									
		The developme emplaced and r	nt service etrieved w	equipmeni ithout exce	t do not p eding the	rovide rea federal li	sonable ass nits.	urance tha	it high-level wa	ste can be r	eceived, stored,
					·						
1.2	is the SSC release abo	required to functio ve the federal limit	in to preve is?	nt, mitigate	e, or moni	tor a credi	ble Design I	Basis Ever	nt which would	otherwise re	sult in a radioactive
	C Yes?	Rationale:									
		The subsurface mitigate a releas	e developm ses due to	ent servic DBEs.	e equipmo	ent are no	required m	aintain the	ir integrity to fu	inction to pre	event and/or
1.3	Will the dire	ct failure of the SS	SC result in	n a credibl	e Desian	Basis Fve	nt which we	ukt leart to	a radioactive i	alesse shov	e the federal limits?
					<b>3</b>						
	Yes?	Rationale: Direct failure of	the develo	pment ser	vice equir	oment wou	ld not result	l in a credi	ble DBE that w	rould lead to	a radioactive
		release.			• •						
QA-2	2 - Importar	nt to Waste Isolat	ion:								
2.1	Does the SS	SC perform a wast	e isolation	function b	y forming	part of th	e natural or (	engineered	barriers?		
	Yes?	Rationale:									
		Development se	rvice equij	pment are	not part o	f the natu	al or engine	ered barrie	rs		
2.2	Can direct fa	ailure of the SSC s barriers which may	significantly y prevent ti	y affect the hem from (	≥ hydrolog performing	ical, geoc g their was	hemical, or g	geomecha function?	nical character	istics of the	natural or
	Yes?	Rationale:									
		Direct failure of t waste isolation f	the develoj junctions.	pment sen	/ice equip	ment will i	not significa	ntly affect i	the natural/eng	ineered barr	iers that perform

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Personnel & Materials Transport

Level 5: Service Equipment

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:
    - Failure of development service equipment would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

### 6.2 Is the SSCs function required for special nuclear material accountability?

**Yes?** Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Support System

Level 4: Personnel & Materials Transport

Level 5: Service Equipment

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

C Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Services and Utilities System, 3.5.1 Transportation System, as QA-1.

				0	-List	t Qu	estic	ons	В	0000000	0-01717-02	200-00134 Attachr	
$\bigcirc$	S	DD: SS01	- Subsurface	Facility	System								
	S	SC: Develo	opment System					Level 4	: Perso	nnel & Mai	erials Trans	sport	
	Le	evel 3: Deve	elopment Suppo	ort Systei	n			Level 5	: Specia	alty Equipr	nent		
			QA-1	QA-2	од.3 П	<b>0A-4</b>	<b>QA-5</b>	<b>QA-6</b>	<b>QA-7</b>	Non-Q V			_
	QA	-1 - Importa	int to Radiologica	al Safety:									
	1.1	Is the SSC retrieved w	required to provide ithout exceeding th	e reasonal le federal i	ole assura imits?	nce that h	igh-level v	vaste can b	e received	d, handled, p	ackaged, sto	red, emplaced,	and
		Yes?	Rationale:										
			The developme emplaced and r	etrieved w	ithout exci	eeding the	e federal lir	asonable as nits.	ssurance	that high-lev	e waste can i	be received, sto	ored,
	1.2	Is the SSC release abo	required to functio ove the federal limit	n to preve s?	nt, mitigate	e, or monit	or a credi	ble Design	Basis Eve	ent which wo	uld otherwise	result in a radi	oactive
		C Yes?	Rationale:										
			The subsurface mitigate a releas	developm ses due to	ent specia DBEs.	ilty equipri	nent are n	ot required	maintain f	heir integrity	to function to	prevent and/o	r
$\smile$													
	1.3	Will the dire	ect failure of the SS	SC result in	n a credible	e Design I	Basis Eve	nt which wo	ould lead t	o a radioacti	ve release ab	ove the federal	limits?
		C Yes?	Rationale										
			Direct failure of t release.	the develo	pment spe	icialty equi	ipment wo	uld not resi	ult in a cre	edible DBE t	hat would lead	d to a radioactiv	e
	QA	2 - Importar	nt to Waste Isolati	ion:									
	2.1	Does the SS	SC perform a waste	e isolation	function by	y forming	part of the	natural or o	engineere	d barriers?			
		🗌 Yes?	Rationale:										
			Development spo	ecialty equ	ipment are	e not part i	of the natu	ral or engin	eered bai	rriers			
	2.2	Can direct fa	ailure of the SSC si barriers which may	ignificantly prevent th	r affect the iem from p	hydrologi Derforming	cal, geoch their was	emical, or g le isolation	jeomecha function?	inical charac	leristics of th	e natural or	
		🗌 Yes?	Rationale:										
			Direct failure of the perform waste is a second sec	he develop olation fun	oment spec ctions.	cialty equip	oment will	not signific	antly affec	ct the natura	Vengineered t	parriers that	

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

### Level 4: Personnel & Materials Transport

Level 5: Specialty Equipment

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:
    - This SSC performs no fire protection functions.

## QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of development specialty equipment would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

## QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - This SSC does not perform a physical protection function
- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System
- Level 3: Development Support System

Level 4: Personnel & Materials Transport

Level 5: Specialty Equipment

QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale

This SSC is contained on the Q-List by direct inclusion for the Underground Services & Utilities System, 3.5.1 Transportation System, as QA-1.

		Q-List Questions B0000000-01717-0200-00134 Rev 0 Attachment IV
SD	D: SS01	- Subsurface Facility System
SSC	C: Develop	Doment System Level 4: Personnel & Materials Transport
Lev	el 3: Devel	lopment Support System Level 5: Trackless Equipment
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-	1 - Importar	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and thout exceeding the federal limits?
	Yes?	Rationale:
		The development trackless equipment do not provide reasonable assurance that high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.
1.2	Is the SSC is release above	required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive ve the federal limits?
	☐ Yes?	Rationale: The development subsurface trackless equipment are not required maintain their integrity to function to prevent and/or mitigate a releases due to DBEs.
1.3	Will the dire	ct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
	🗌 Yes?	Rationale:
		Direct failure of the development trackless equipment would not result in a credible DBE that would lead to a radioactive release.
QA-2	2 - Importan	nt to Waste Isolation:
2.1	Does the SS	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		Development trackless equipment are not part of the natural or engineered barriers
2.2	Can direct fa engineered l	ailure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	Yes?	Rationale:
		Direct failure of the development tracless equipment will not significantly affect the natural/engineered barriers that perform

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Personnel & Materials Transport

Level 5: Trackless Equipment

QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale
    - Failure of development trackless equipment would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:
    - This SSC does not perform a physical protection function.
- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

		Q-List	Questions	B00000000-01717-0200-00134 Rev 00 Attachment IV
SD	D: SS01	- Subsurface Facility System		
SS	C: Develop	oment System	Level 4:	Personnel & Materials Transport
Lev	vel 3: Deve	lopment Support System	Level 5:	Trackless Equipment
QA	7 - Importai	nt to Occupational Radiological Expo	osure:	_
7.1		SC provide personnel radiation shielding own radioactive source term?	), reduce dose rates in radioac	tive areas, or require personnel access into radiation
	Tes?	Rationale: This SSC function does not include p	omonal adjustice chiefding to	
		This SSC function does not include p	ersonnei radiation shielding to	minimize radiological exposure
7.2	is the SSC	a permanently installed radiation monito	r which monitors areas for pers	sonnel radiation protection?
	C Yes?	Rationale <sup>.</sup> This SSC is not a radiation monitor.		
Pre	vious QA Cla	stification		
			ly. A "yes" answer to this que	stion does not provide inclusion to the Q-List
8.0	Are there of this SSC is	her factors, such as previous analyses, i important to radiological safety (QA-1) o	a body of consensus, or by dir r waste isolation (QA-2)?	ect inclusion, that led to the previous conclusion that
	Yes?	Rationale:		
		This SSC is contained on the Q-List b Transportation System, as QA-1.	by direct inclusion for the Unde	rground Services & Utilities System, 3.5.1

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			[ <u></u> C	2-List	t Qu	esti	ons	B	00000000-0171	7-0200-00134 Rev 00 Attachment IV
SD	D: SS01	- Subsurface	Facility	System						
SSC	: Develor	oment System					Level 4	: Subsu	rface Excavation	System
Lev	el 3: Deve	opment Supp	ort Syste	m			Level 5	: Empla	cement Areas	
		QA-1	<b>QA-2</b>	QA-3	<b>0A-4</b>	QA-5	0A-6	<b>0A-7</b>	Non-Q V	
QA-	1 - Importai	nt to Radiologic	al Safety:							
1.1	Is the SSC	required to provid	de reasona	ble assura	nce that h	igh-level v	vaste can b	e received	l, handled, package	d, stored, emplaced, and
	retrieved wit	hout exceeding t	he federal	limits?						
	🗌 Yes?	Rationale:	ont cubcu	fann avan	mtion aunt	and for the			d	asonable assurance that
		high-level was	te can be r	eceived, s	lored, emp	placed and	retrieved w	vithout exc	ceeding the federal li	mits.
1.2	Is the SSC is release about	required to functi /e the federal lim	ion to preve ite?	ent, mitigat	e, or moni	tor a cred	ible Design	Basis Eve	ent which would othe	rwise result in a radioactive
	Yes?	Rationale:								
	_ lesr		ent subsur	face excau	ation evel	em for the	emplacem	opt areas	in not required to me	aintain their integrity to
		function to pre-	vent and/o	r miligate a	releases	due to DE	Es.	en areas	is not required to the	andan men megny to
1.3	Will the dire	ct failure of the S	SC result	in a credib	le Design	Rasis Eve	nt which w	nuld lead t	to a radioactive relea	se above the federal limits?
					ie e eeigit	DUDIO ETC				
	Yes?	Rationale:								
		Direct failure of DBE that would	f the devel d lead to a	opment sul radioactive	bsurface e release.	excavation	system for	the empla	acement areas does	not result in a credible
QA-2	- Importan	t to Waste Isola	ition:							
2.1	Does the SS	C perform a was	ste isolation	n function t	by forming	part of th	e natural or	engineere	ed barriers?	
	Yes?	Rationale								
		The subsurface phase as well a barriers	e subsurfa is the long	ce excavat term wast	ion systen e isolation	n for the e objectives	mplacements of the repo	t areas he sitory but	elps support the oper do not form part of t	ation and emplacement the natural or engineered
2.2	Can direct fa engineered t	ilure of the SSC parriers which ma	significant ay prevent 1	ly affect th them from	e hydrolog performing	jical, geoc g their was	hemical, or ste isolation	geomecha function?	anical characteristic:	s of the natural or
	Yes?	Rationale:								

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- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Emplacement Areas

QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

**Yes?** Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale

Failure of development subsurface excavation system for the emplacement areas would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Emplacement Areas

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Ves? Rationale:

The development subsurface excavation system for the emplacement areas are contained in Appendix B, Page B-2-8, Borehole Drilling and Lining Equipment, of the Q-List, "Items excluded from the Q-List by exemption."

SDD: SS01 - Subsurface Facility System         SSC: Development System       Level 4: Subsurface Excevation System         Level 3: Development Support System       Level 5: Miscellaneous Cutouts					0	-List	t Qu	estic	ons	B	0000000	0-01717-0200-	-00134 Rev 00 Attachment IV
Level 3: Development Support System       Level 5: Miscellaneous Cutouts         QA-1       QA-2       QA-3       QA-4       QA-5       QA-6       QA-7       Non-Q         QA-1       Important to Radiological Safety:       Important to Radiological Safety:       Important to Radiological Safety:       Important to Radiological Safety:         1.1       Is the SSC required to provide reasonable assumance that high-level waste can be received, handled, packaged, stored, emplaced, retrieved without exceeding the federal limits?       Important to Radiological Safety:         1.2       Is the SSC required to provide reasonable assumance that high-level waste can be received, handled, packaged, stored, emplaced, high-level waste can be received, stored, emplaced and retrieved without exceeding the federal sinits?         1.2       Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rad release above the federal limits?         1.3       Vers?       Rationale:         1.3       Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal minits?         1.3       Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal minits?         1.3       Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal minits?         1.3       Well the d	$\sim$	SD	D: SS01	- Subsurface F	Facility	System							
QA-1       QA-2       QA-3       QA-4       QA-5       QA-7       Non-Q         QA-1       - important to Radiological Safety:		SS	C: Develo	opment System					Level 4	: Subsu	Inface Exc	avation System	
<ul> <li>CA-1 - Important to Radiological Safety:</li> <li>1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, retreeved without exceeding the federal limits?</li> <li>Ves? Rationale: The development subsurface excavation system for the miscellaneous cutouts do not provide reasonable assurance high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the miscellaneous cutouts do not provide reasonable assurance high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rad release above the federal limits? The development subsurface excavation system for the miscellaneous cutouts are not required maintain their integrite function to prevent and/or mitigate a releases due to DBEs</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits? Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a credible Design Basis Event which would lead to a radioactive release above the federal Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a credible Design Basis Event which would lead to a radioactive release above the federal in a credible Design Basis Event which would lead to a radioactive release above the federal Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a credible Direct failure of the development subsurface excavation system for the natural or engineered barriers?</li> <li>Ves? Rationale: The subsurface subsurface excavation system for the miscellaneous</li></ul>		Lev	vel 3: Devo	elopment Suppo	rt Syster	m			Level 5	: Misce	llaneous C	cutouts	
<ul> <li>1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, retrieved without exceeding the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the miscellaneous cutouts do not provide reasonable assurance high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rad release above the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the miscellaneous cutouts are not required maintain their integrith function to prevent and/or mitigate a releases due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal im a credible Design Basis Event which would lead to a radioactive release above the federal in a credible Design Basis Event which would lead to a radioactive release above the federal in a credible Design Basis Event which would lead to a radioactive release above the federal in a credible Design Basis Event which would lead to a radioactive release above the federal in a credible Design Basis Event which would lead to a radioactive release above the federal Direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a credible Design Basis Event which would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barri</li></ul>				QA-1	_	_		QA-5	<b>QA-6</b>	_			_
<ul> <li>Interved without exceeding the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the miscellaneous cutouts do not provide reasonable assurance high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rad release above the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the miscellaneous cutouts are not required maintain their integrith function to prevent and/or mitigate a releases due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal [] Yes? Rationale: Direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal [] Yes? Rationale: Direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal [] Yes? Rationale: Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a cre DBE that would lead to a radioactive release.</li> <li>OA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological geochemical, or geomechanical characteristics of the natural or engineered barriers.</li> <li>2.4 Can direct failure of the SSC significantly affect the hydrological geochemical, or geomechanical characteristics of the natural or engineered barriers.</li> <li>2.4 Can direct failure of the SSC significantly affect the hydrological geochemical, or geomech</li></ul>		QA	-1 - Importa	int to Radiologica	l Safety:								
<ul> <li>Rationale: The development subsurface excavation system for the miscellaneous cutouts do not provide reasonable assurance high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rad release above the federal limits?         <ul> <li>Yes? Rationale: The development subsurface excavation system for the miscellaneous cutouts are not required maintain their integrith function to prevent and/or mitigate a releases due to DBEs</li> </ul> </li> <li>Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal [] Yes? Rationale: Direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal [] Yes? Rationale: Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a credible Design Basis Event which would lead to a radioactive release above the federal [] Yes? Rationale: Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a credible Design Basis Event which would lead to a radioactive release.</li> <li>OA-2 - Important to Waste Isolation: 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? <ul> <li>Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.</li> <li>Yes? Rationale:</li></ul></li></ul>		1.1	is the SSC retrieved w	required to provide	e reasonal e federal l	ble assura limits?	nce that h	igh-level v	vaste can b	e receive	d, handled, j	packaged, stored,	emplaced, and
<ul> <li>release above the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the miscellaneous cutouts are not required maintain their integrity function to prevent and/or mitigate a releases due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal Yes? Rationale: Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a cre DBE that would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers.</li> <li>2.3 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers.</li> <li>2.4 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers.</li> </ul>				Rationale: The developmer	nt subsuri	face excav	ration syst lored, emp	em for the blaced and	miscellane retrieved v	eous cuto without ex	uts do not p ceeding the	roviđe reasonable a federal limits.	assurance that
The development subsurface excavation system for the miscellaneous cutouts are not required maintain their integrith function to prevent and/or mitigate a releases due to DBEs.         1.3       Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal		1.2	release abo	ove the federal limits	n to preve s?	nt, mitigati	e, or moni	tor a credi	ble Design	Basis Ev	ent which w	ould otherwise res	ult in a radioactive
<ul> <li>Yes? Rationale: Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a cm DBE that would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> <li>Yes? Rationale:</li> <li>Yes? Rationale:</li> </ul>			-	The development	nt subsurf ent and/or	ace excav mitigate a	ation syste releases	em for the due to DB	miscellane Es	eous cutor	its are not ri	equired maintain th	eir integrity to
<ul> <li>Yes? Rationale: Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not result in a cm DBE that would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> <li>Yes? Rationale:</li> <li>Yes? Rationale:</li> </ul>													
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DBE that would lead to a radioactive release. QA-2 - Important to Waste Isolation: 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers. 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function? Yes? Rationale: Yes? Rationale:			C Yes?	Rationale:									
<ul> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?         <ul> <li>Yes? Rationale:</li> <li>The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.</li> </ul> </li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?             <ul> <li>Yes? Rationale:</li> </ul> </li> </ul>				Direct failure of t DBE that would t	ihe develo lead to a i	pment sul radioactive	bsurface e release.	excavation	system for	the misc	ellaneous cu	touts would not rea	sult in a credible
<ul> <li>Yes? Rationale: The subsurface subsurface excavation system for the miscellaneous cutouts are not part of the natural or engineered barriers.     </li> <li>Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?     </li> <li>Yes? Rationale:     </li> </ul>		QA-;	2 - Importa	nt to Waste Isolati	on:								
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<ul> <li>Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> <li>Yes? Rationale:</li> </ul>			Yes?	Rationale:									
engineered barriers which may prevent them from performing their waste isolation function?  Yes? Rationale:				The subsurface barriers.	subsurfac	æ excavati	ion systen	n for the m	iscellaneou	us cutouts	are not par	t of the natural or e	ngineered
—		2.2	Can direct I engineered	ailure of the SSC si barriers which may	ignificanth prevent ti	y affect the hem from	e hydrolog performing	ical, geocl g their was	nemical, or te isolation	geomech function?	anical chara	cteristics of the na	tural or
Diseast failure of the device			Ves?	Rationale:									
Direct failure of the development subsurface excavation system for the miscellaneous cutouts would not significantly a the natural or engineered barriers which may prevent them from performing their waste isolation function.				Direct failure of the the natural or eng	he develoj gineered k	pment sub xarriers wh	surface e aich may p	xcavation : prevent the	system for m from per	the misce forming th	ilaneous cul neir waste is	outs would not sig olation function.	nificantly affect

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Miscellaneous Cutouts

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale

Failure of development subsurface excavation system for the miscellaneous cutouts would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System
- Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Miscellaneous Cutouts

QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - **Yes?** Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

**Yes?** Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1.

		Q-List Question	ons	B00000000-0171	17-0200-00134 Rev 00 Attachment IV
SD	D: SS01	- Subsurface Facility System			
SS	C: Develo	oment System	Level 4:	Subsurface Excavation	System
Lev	el 3: Deve	lopment Support System	Level 5:	Ramps	•
		QA-1 QA-2 QA-3 QA-4 QA-5	<b>0A-6</b>	QA-7 Non-Q	
QA-	1 - Importa	nt to Radiological Safety:			
1.1	ls the SSC retrieved wi	required to provide reasonable assurance that high-level v thout exceeding the federal limits?	vaste can b	e received, handled, package	d, stored, emplaced, and
	Yes?	Rationale:			
		The development subsurface excavation system for the can be received, stored, emplaced and retrieved withou	e ramps doe It exceeding	s not provide reasonable assi the federal limits.	urance that high-level waste
1.2	Is the SSC release abo	required to function to prevent, mitigate, or monitor a credi ve the federal limits?	ible Design	Basis Event which would othe	erwise result in a radioactive
	Yes?	Rationale:			
		The development subsurface excavation system for the and/or mitigate a releases due to DBEs.	ramps are a	not required maintain their int	egrity to function to prevent
1.3	Will th <del>e</del> dire	ct failure of the SSC result in a credible Design Basis Eve	nt which we	ould lead to a radioactive relea	ise above the federal limits?
	Yes?	Rationale			
		Direct failure of the development subsurface excavation lead to a radioactive release.	system for	the ramps would not result in	a credible DBE that would
QA-2	? - Importar	t to Waste Isolation:			·
2.1	Does the SS	C perform a waste isolation function by forming part of the	e natural or	engineered barriers?	
	🗌 Yes?	Rationale			
		The subsurface subsurface excavation system for the r	amps are no	ot part of the natural or engine	ered barriers.
2.2	Can direct fa engineered l	ilure of the SSC significantly affect the hydrological, geoc arriers which may prevent them from performing their was	hemical, or ; ste isolation	geomechanical characteristic: function?	s of the natural or
	🗌 Yes?	Rationale:			
		Direct failure of the development subsurface excavation significantly affect the natural or engineered barriers whi	syslem for t ch may prev	he ramps would be mitigated ent them from performing the	and would not Ir waste isolation function.

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Ramps

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development subsurface excavation system for the ramps would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS01	- Sub	surface	Facility	System
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SSC: Development System

Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Ramps

QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - **Yes?** Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

**Yes?** Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**Yes?** Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1.

		Q-List Questions	B00000000-01717-0200-00134 Ro Attachme
SD	D: SS01	- Subsurface Facility System	
SS	C: Develo	pment System Leve	14: Subsurface Excavation System
Lev	vel 3: Deve	elopment Support System Leve	I 5: Shafts
	. <u>.</u>	QA-1 QA-2 QA-3 QA-4 QA-5 QA- [ [ ] [] [] [] [] []	6 QA-7 Non-Q
QA-	•1 • Importa	nt to Radiological Safety:	
1.1	Is the SSC retrieved wi	required to provide reasonable assurance that high-level waste ca ithout exceeding the federal limits?	an be received, handled, packaged, stored, emplaced, ar
	_ Yes?	Rationale:	
		The development subsurface excavation system for the shafts can be received, stored, emplaced and retrieved without exceed	does not provide reasonable assurance that high-level w ding the federal limits.
1.2	Is the SSC release abo	required to function to prevent, mitigate, or monitor a credible Des we the federal limits? Rationale: The development subsurface excavation system for the shafts and/or mitigate a releases due to DBEs.	
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which	h would lead to a radioactive release above the federal lin
	Yes?	Rationale:	
		Direct failure of the development subsurface excavation system lead to a radioactive release.	for the shafts would not result in a credible DBE that wo
QA-:	2 - Importar	nt to Waste Isolation:	
2.1	Does the SS	SC perform a waste isolation function by forming part of the natura	l or engineered barriers?
	Yes?	Rationale:	
		The subsurface excavation system for the shafts does not form	part of the natural or engineered barriers.
2.2	Can direct fa	ailure of the SSC significantly affect the hydrological, geochemical barriers which may prevent them from performing their waste isola	, or geomechanical characteristics of the natural or tion function?
	Yes?	Rationale:	

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Shafts

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development subsurface excavation system for the shafts would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System
- Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Shafts

QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.3.2 & 3.3.7 Shafts System, as QA-1.

SDD: SS01 - Subsurface Facility System         SSC: Development System       Level 4: Subsurface Excavation System         Level 3: Development Support System       Level 5: Ventilation Raises	
Level 3: Development Support System       Level 5: Ventilation Raises         QA1       QA2       QA3       QA4       QA4       QA5       QA4       QA7       Nen-Q         QA1       Important to Ratiological Safety:       Important to Ratiological Safety:       Important to Ratiological Safety:         1.1       Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced retrieved without exceeding the federal limits?       Yes?       Rationale         1.2       Is the SSC required to function to prevent, miligate, or monitor a credible Design Basis Event which would otherwise result in a ratificate assorable assurance that level waste can be received, stored, emplaced and retrieved without exceeding the federal limits?         1.2       Is the SSC required to function to prevent, miligate, or monitor a credible Design Basis Event which would otherwise result in a ratificate assorable assurance that level waste can be received, stored, emplaced and retrieved without exceeding the federal limits?         Yes?       Rationale:       The development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a releases due to DBEs.         1.3       Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal imits?         QA-2 - Important to Waste Isolation:       Zince this would lead to a radioactive release         QA-2 - Important to Waste Isolation functi	SDD: SS
QA-1       QA-3       QA-3       QA-4       QA-5       QA-7       Non-Q         QA-1       - important to Radiological Safety:         1.1       is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced influeed without exceeding the federal limits?       Yes7       Rationale         The development subsurface excavation system for the ventilation raises do not provide reasonable assurance that level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.         1.2       is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rar release above the federal limits?         Yes7       Rationale:         The development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a releases due to DBEs.         1.3       Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal Direct failure of the development subsurface excavation system for the ventilation raises would not result in a credible that would lead to a radioactive release above the federal         QA-2       Important to Waste Isolation:         2.1       Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?         Yes7       Rationale:         The subsurface excavation system for the Ventilation Raises is not part of the natural	SSC: Dev
<ul> <li>CA-1 - Important to Radiological Safety:</li> <li>1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced retrieved without exceeding the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the ventilation raises do not provide reasonable assurance that level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a ratretease above the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a releases due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?</li> <li>Yes? Rationale: Direct failure of the development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a releases due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits or prevent and/or mitigate a release.</li> <li>CA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a vaste isolation function by forming part of the natural or engineered barriers?</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> <li>Z can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	Level 3: D
<ul> <li>1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced retrieved without exceeding the federal limits?</li> <li>Yes? Rationale. The development subsurface excavation system for the ventilation raises do not provide reasonable assurance that level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rat release above the federal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a release due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?</li> <li>Yes? Rationale: Direct failure of the development subsurface excavation system for the ventilation raises would not result in a credible that would lead to a radioactive release above the federal in a credible that would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	
<ul> <li>Periveved without exceeding the tederal limits?</li> <li>Yes? Rationale: The development subsurface excavation system for the ventilation raises do not provide reasonable assurance that level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rai release above the federal limits? Yes? Rationale: The development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a releases due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal imits are releases.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal Direct failure of the development subsurface excavation system for the ventilation raises would not result in a credible that would lead to a radioactive release above the federal Direct failure of the development subsurface excavation system for the ventilation raises would not result in a credible that would lead to a radioactive release.</li> <li>CA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	2A-1 - Imp
<ul> <li>The development subsurface excavation system for the ventilation raises do not provide reasonable assurance that level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.</li> <li>1.2 is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a rai release above the federal limits? <ul> <li>Yes? Rationale:</li> <li>The development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a releases due to DBEs.</li> </ul> </li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal imits are release.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal Direct failure of the development subsurface excavation system for the ventilation raises would not result in a credible that would lead to a radioactive release above the federal in a credible that would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? <ul> <li>Yes? Rationale:</li> <li>The subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> <li>Yes? Rationale:</li> <li>The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> </ul> </li> </ul>	I.1 Is the S retrieve
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<ul> <li>The development subsurface excavation system for the ventilation raises are not required maintain their integrity to f to prevent and/or mitigate a releases due to DBEs.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federa Yes? Rationale: Direct failure of the development subsurface excavation system for the ventilation raises would not result in a credible that would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers? Yes? Rationale: The subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	.2 Is the S release
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<ul> <li>Yes? Rationale: Direct failure of the development subsurface excavation system for the ventilation raises would not result in a credible that would lead to a radioactive release.</li> <li>QA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	
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<ul> <li>CA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?</li> <li>Yes? Rationale: The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers?</li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	🗌 Yes
<ul> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?         <ul> <li>Yes? Rationale:</li> <li>The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barriers</li> </ul> </li> <li>2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	
<ul> <li>Yes? Rationale: The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barries.</li> <li>Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?</li> </ul>	1 <b>A-2 - Imp</b> o
The subsurface subsurface excavation system for the Ventilation Raises is not part of the natural or engineered barri 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?	.1 Does th
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engineered barriers which may prevent them from performing their waste isolation function?	
Yes? Rationale:	2 Can dire enginee
	🗌 Yesî
Direct failure of the development subsurface excavation system for the ventilation raises would not significantly affect natural or engineered barriers which may prevent them from performing their waste isolation function.	

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

#### SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 3: Development Support System

Level 4: Subsurface Excavation System

Level 5: Ventilation Raises

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

**Yes?** Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

**Yes?** Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development subsurface excavation system for the ventilation raises would be mitigated and would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

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3: Develor Importan	own radioactive source term? Rationale:	Level 4: Subsurface Excavation System Level 5: Ventilation Raises ure: reduce dose rates in radioactive areas, or require personnel access into radi sonnel radiation shielding to minimize radiological exposure.
Importan loes the SS reas by its i	t to Occupational Radiological Exposi C provide personnel radiation shielding, r own radioactive source term? Rationale:	ure: reduce dose rates in radioactive areas, or require personnel access into radi
oes the SS reas by its (	C provide personnel radiation shielding, r own radioactive source term? Rationale:	reduce dose rates in radioactive areas, or require personnel access into radi
oes the SS reas by its (	C provide personnel radiation shielding, r own radioactive source term? Rationale:	reduce dose rates in radioactive areas, or require personnel access into radi
] Yes?		sonnel radiation shielding to minimize radiological exposure
	This SSC function does not include per	sonnel radiation shielding to minimize radiological exposure
		which monitors areas for personnel radiation protection?
	This SSC is not a radiation monitor.	
is QA Clas	ssification:	
estion is fo	r historical and traceability purposes only.	A "yes" answer to this question does not provide inclusion to the Q-List
re there oth is SSC is i	ner factors, such as previous analyses, a t mportant to radiological safety (QA-1) or v	body of consensus, or by direct inclusion, that led to the previous conclusion waste isolation (QA-2)?
Z Yes?	Rationale	
	This SSC is contained on the Q-List by System, as QA-1.	direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry
	Yes? s QA Classification is for the there off s SSC is i	Yes? Rationale: This SSC is not a radiation monitor. s QA Classification: stion is for historical and traceability purposes only. e there other factors, such as previous analyses, a list or solved and traceability (QA-1) or violation of the second se

			B	B00000000-01717-0200-00134 Rev 0 Attachment I							
SDD: SS01 - S	ubsurfaçe	Facility	System								
SSC: Developm	ent System					Level 4	: Suppo	rt Openings			
Level 3: Develop	ment Supp	ort Syste	m			Level 5	i: Cutoul	ts			
	QA-1	0A-2	<b>QA-3</b>	<b>QA-4</b>	QA-5	<b>QA-6</b>	<b>QA-7</b>	Non-Q			
QA-1 - important to	o Radiologic	al Safety:	:								

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Tes? Rationale:

The development cutouts do not provide reasonable assurance that high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

**Yes?** Rationale:

The development cutouts are not required maintain their integrity to function to prevent and/or mitigate a releases due to DBEs.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

Yes? Rationale

Direct failure of the development cutouts would not result in a credible DBE that would lead to a radioactive release.

#### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The subsurface Cutouts is not part of the natural or engineered barriers.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Ves? Rationale:

Direct failure of the development cutouts would not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System
- Level 3: Development Support System

Level 4: Support Openings

Level 5: Cutouts

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale:

Failure of development subsurface excavation system for the cutouts could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Ves? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

				Q-List C	Questio	ns	B00000000-01717-0200-00134 Rev 00 Attachment IV
/	SD	D: SS01	- Subsurface F	acility System			
	SS	C: Develop	pment System			Level 4: Su	ipport Openings
	Lev	vel 3: Deve	lopment Support	System		Level 5: Cu	utouts
	QA	7 - importai	nt to Occupational	Radiological Exposu	ure:		
	7.1		SC provide personn own radioactive sou		educe dose rates	s in radioactive	areas, or require personnel access into radiation
		C Yes?	Rationale.				
			This SSC functio	n does not include pers	sonnel radiation s	shielding to mi	nimize radiological exposure.
	7.2	Is the SSC	a permanently insta	lled radiation monitor w	rhich monitors are	eas for person	nel radiation protection?
		🗌 Yes?	Rationale:				
			This SSC is not a	a radiation monitor.			
	Pre	vious QA Cla	ssification:				
/	This	question is fo	or historical and trac	eability purposes only.	A "yes" answer	to this question	n does not provide inclusion to the Q-List
	8.0	Are there of this SSC is	her factors, such as important to radiolog	; previous analyses, a b gical safety (QA-1) or w	oody of consensu vaste isolation (Q	s, or by direct A-2)?	inclusion, that led to the previous conclusion that
		☑ Yes?	Rationale:				
			This SSC is conta System, as QA-1	ained on the Q-List by c	direct inclusion fo	or the Undergro	ound Excavations, 3.4.1 Main Drift and Entry
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## B00000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Develop	oment System					Level 4:	Suppo	rt Openings	
Lev	el 3: Deve	lopment Suppo	ort Syste	m			Level 5:	Equipr	nent Storage	
		0A-1	QA-2	<b>QA-3</b>	0A-4	0A-5 2	<b>0A-6</b>	<b>0A-7</b>	Non-Q	
QA-	1 - Importa	nt to Radiologic	al Safety:							
1.1		required to provid thout exceeding t			nce that h	nigh-level v	waste can b	e received	t, handled, paci	kaged, stored, emplaced, an
	Yes?	Rationale:								
		The developme emplaced and						assurance	e that high-level	waste can be received, stor
1.2		required to functi ve the federal lim		ent, mitigat	e, or mon	itor a cred	lible Design	Basis Evo	ent which would	l otherwise result in a radioa
	_ Yes?	Rationale:								
		The subsurfac and/or mitigate				orage area	is are not re	quired ma	intain their integ	grity to function to prevent
1.3	Will the dire	ect failure of the S	SC result	in a credib	le D <del>e</del> sign	Basis Ev	ent which w	ouid lead i	to a radioactive	release above the federal lin
	C Yes?	Rationale								
		Direct failure o release.	f the devel	lopment eq	ulpment s	torage wo	uld not resu	It in a cre	dible DBE that w	would lead to a radioactive
QA-:	2 - Importar	nt to Waste Isola	ition:							
2.1	Does the SS	SC perform a was	ste isolatio	n function	by forming	g part of th	ne natural or	engineeri	ed barriers?	
	Yes?	Rationale:								
		Development e	quipment	storage is a	not part of	the natur	al or enginee	ered barri	ers	
2.2		ailure of the SSC barriers which ma								ristics of the natural or
	Yes?	Rationale:								
		Direct failure of								

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 4: Support Openings

Level 3: Development Support System

Level 5: Equipment Storage

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development equipment storage may impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

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SDD: S	SS01	- Subsurface	Facility	System
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- SSC: Development System
- Level 3: Development Support System

Level 4: Support Openings

Level 5. Development Support System

Level 5: Equipment Storage

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

C Yes? Rationale:

This SSC is not a radiation monitor.

**Previous QA Classification:** 

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

The development system subsurface equipment storage are contained in Appendix B, Page B-2-8, shops warehouse & service facilities (part of Underground Excavation), of the Q-List, "Items excluded from the Q-List by exemption."

			<u> </u>	2-Lis	του	esti	ons			01717-0200-00134 Attachn
S	DD: SS01	- Subsurface	Facility	Syster	า					
SS	SC: Develo	opment System					Level 4	l: Suppo	ort Openings	
Le	evel 3: Deve	elopment Supp	ort Syste	im			Level 5	i: Subsu	urface ShopsA	Warehouse
		QA-1	0A-2	<b>QA-3</b>	QA-4	0A-5 2	QA-6	0A-7	Non-Q	
QA	l-1 - importa	ant to Radiologic	al Safety:	:						
1.1	Is the SSC retrieved w	required to provid ithout exceeding t	de reasona he federal	ible assuri limits?	ance that h	igh-level v	waste can t	e received	d, handled, pack	kaged, stored, emplaced,
	Yes?	Rationale								
			ent subsu ed, emplac	rface shop ed and ret	s/waehous rieved with	se does no out excee	at provide ri ding the fea	easonable deral limits	e assurance that S.	high-level waste can be
1.2	Is the SSC release abo	required to functi ove the federal lim Rationale:	on to previ its?	ent, mitiga	te, or moni	tor a cred	ible Design	Basis Evo	ent which would	l otherwise result in a radi
		The subsurfac due to DBEs.	e shops/w	arehouse	are not req	uired mail	ntain their i	ntegrity to	function to prev	ent and/or mitigate a relea
1.3	Will the dire	que to DBES.								release above the federal
1.3	Will the dire	que to DBES.								
1.3	_	ect failure of the S Rationale:	SC result	in a credib	xle Design	Basis Eve	Int which w	rould lead t	to a radioactive r	
	U Yes?	ect failure of the S Rationale: Direct failure of	SC result f the develo ase.	in a credib	xle Design	Basis Eve	Int which w	rould lead t	to a radioactive r	release above the federal
	☐ Yes? -2 - Importai	ect failure of the S Rationale: Direct failure of radioactive rele	SC result f the develo ase. tion:	in a credib opment su	ole Design Ibsurface s	Basis Eve shops/ward	ent which wi	ould lead t uld not res	to a radioactive r sult in a credible	release above the federal
QA-	☐ Yes? -2 - Importai	ect failure of the S Rationale: Direct failure of radioactive rele	SC result f the develo ase. tion:	in a credib opment su	ole Design Ibsurface s	Basis Eve shops/ward	ent which wi	ould lead t uld not res	to a radioactive r sult in a credible	release above the federal
QA-	Yes? -2 - Importan Does the St	ect failure of the S Rationale: Direct failure of radioactive rele nt to Waste Isola SC perform a was	SC result f the develor ase. tion: te isolatior	in a credit opment su n function l	de Design Ibsurface s by forming	Basis Eve shops/ward part of the	ent which w ehouse woo e natural or	ould lead t uld not res engineere	to a radioactive r sult in a credible ed barriers?	release above the federal
QA-	Yes? Yes? Does the St Yes? Can direct fi	ect failure of the S Rationale: Direct failure of radioactive rele nt to Waste Isola SC perform a was Rationale: Development se ailure of the SSC :	SC result f the develor ase. tion: te isolation ubsurface significant	in a credib opment su n function I shops/war	de Design Ibsurface s by forming rehouse ard	Basis Eve shops/ward part of the e not part ical, geocl	ent which w ehouse woo e natural or of the natur hemical. or	ould lead t uld not res engineere ral or engir	to a radioactive r sult in a credible ed barriers? neered barriers anical characteri	release above the federal
QA- 2.1	Yes? Yes? Does the St Yes? Can direct fi	ect failure of the S Rationale: Direct failure of radioactive rele nt to Waste Isola SC perform a was Rationale: Development si	SC result f the develor ase. tion: te isolation ubsurface significant	in a credib opment su n function I shops/war	de Design Ibsurface s by forming rehouse ard	Basis Eve shops/ward part of the e not part ical, geocl	ent which w ehouse woo e natural or of the natur hemical. or	ould lead t uld not res engineere ral or engir	to a radioactive r sult in a credible ed barriers? neered barriers anical characteri	release above the federal DBE that would lead to a

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Development System

Level 3: Development Support System

Level 4: Support Openings

Level 5: Subsurface Shops/Warehouse

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of development subsurface shops/warehouse may impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale

This SSC does not perform a special nuclear material accountability function.

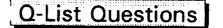
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		Q-List (	B0000000-01717-0200-00134 Rev Attachmen	
SD	D: SS01	- Subsurface Facility System		
sso	C: Develop	oment System	Level 4: Support Openings	
Lev	el 3: Deve	opment Support System	Level 5: Subsurface Shops/Warehouse	
QA-7	7 - Importar	nt to Occupational Radiological Expos	e:	
7.1	Does the S areas by its	SC provide personnel radiation shielding, i own radioactive source term?	duce dose rates in radioactive areas, or require personnel access into radiation	
	Yes?	Rationale		
		This SSC function does not include per	onnel radiation shielding to minimize radiological exposure.	
7.2	Is the SSC i	a permanently installed radiation monitor v	ich monitors areas for personnel radiation protection?	
	Yes?	Rationale:		
		This SSC is not a radiation monitor.		
Prev	ious QA Cla	ssification:		
This	question is fo	r historical and traceability purposes only.	A "yes" answer to this question does not provide inclusion to the Q-List	
8.0	Are there ot this SSC is	ner factors, such as previous analyses, a l important to radiological safety (QA-1) or v	dy of consensus, or by direct inclusion, that led to the previous conclusion that iste isolation (QA-2)?	
	_ Yes?	Rationale:		
		The development system subsurface eq service facilities (part of Underground E	ipment storage are contained in Appendix B, Page B-2-8, shops warehouse & avation), of the Q-List, "Items excluded from the Q-List by exemption."	

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS01 - Subsurface Facility System

SSC: Operatio	ns System					Level 4	l: Opera	tions Ram	ps
Level 3: Operat	tions Access	es				Level 5	i: Interna	al Ramps	
· · · · · · · · · · · · · · · · · · ·	QA-1	0A-2	<b>QA-3</b>	0A-4	0A-5	<b>0A-6</b>	QA-7	Non-Q	

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

#### Yes? Rationale

The Operations Internal Ramps provide reasonable assurance that high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits. However, preserving the integrity of operation internal ramps are allocated to the Ground Control Systems.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

#### Yes? Rationale:

The internal ramps may be required to maintain their integrity to function to prevent and/or mitigate a releases due to DBEs. However, preserving the integrity of operation internal ramps are allocated to the Ground Control Systems.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

#### Yes? Rationale:

Direct failure of the operations internal ramps could result in a credible DBE that would lead to a radioactive release above the federal limits. However, preserving the integrity of operation internal ramps are allocated to the Ground Control Systems

### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - **Yes?** Rationale:

Direct failure of the Operations Internal Ramps will significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Operations Accesses

#### Level 4: Operations Ramps

Level 5: Internal Ramps

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of operations internal ramps could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function. However, preserving the integrity of operation internal ramps are allocated to the Ground Control Systems.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

## 6.2 Is the SSCs function required for special nuclear material accountability?

Yes? Rationale:

		Q-L	ist Questions	B00000000-01717-0200-00134 Rev 00 Attachment IV
	SDD: SS01	I - Subsurface Facility Sys	stem	
	SSC: Opera	ations System	Level 4:	Operations Ramps
	Level 3: Op	erations Accesses	Level 5:	Internal Ramps
	QA-7 - Impor	tant to Occupational Radiologica	al Exposure:	
	7.1 Does the areas by	SSC provide personnel radiation sl its own radioactive source term?	hielding, reduce dose rates in radioact	ive areas, or require personnel access into radiation
	Yes?	Rationale:		
		This SSC function does not in	clude personnel radiation shielding to	minimize radiological exposure.
	7.2 is the SS	C a permanently installed radiation	monitor which monitors areas for pers	onnel radiation protection?
	🗌 Yes?	Rationale:		
		This SSC is not a radiation mo	ontor.	
	Previous QA C	lassification:		
$\sim$	This question is	for historical and traceability purpo	ises only. A "yes" answer to this ques	stion does not provide inclusion to the Q-List
	8.0 Are there this SSC i	other factors, such as previous ana is important to radiological safety (C	ilyses, a body of consensus, or by dire JA-1) or waste isolation (QA-2)?	ct inclusion, that led to the previous conclusion that
	🗹 Yes?	Rationale:		
		System, as QA-1. ESF Main A	Q-List by direct inclusion for the Under Access Openings were also included o BEAD000-01717-2200-00002, Rev 02	ground Excavations, 3.4.1 Main Drift and Entry n the Q-List by analysis, M&O Classification Analysis

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			0	-List	t Qu	esti	ons	В	00000000-0	1717-020	0-00134 R Attachm	
		- Subsurface ons System	Facility	System			Level 4:	Opera	tions Ramps		·	
	·	ations Accesse	s				Level 5:	•	·			
	····	QA-1	0A-2	0A-3	<b>0А-4</b> □	QA-5	0A-6	QA-7	Non-Q			
QA- 1.1	is the SSC	nt to Radiologica required to provid	e reasonal		nce that h	igh-level v	vaste can be	e received	d, handled, pack	aged, stored	l, emplaced, a	ind
	' Yes?	Rationale: The Operations	: Main Rar It exceedir	nps provio ng the fede	de reasona eral limits.	able assur However	ance that hi , preserving	gh-level v the integ	vaste can be rec rity of operation	eived, store ramps is all	d, emplaced a ocated to the	nd
1.2	Is the SSC release abo	required to function we the federal limit	n to preve s?	nt, mitigat	e, or moni	tor a cred	ible Design I	Basis Evo	ent which would	otherwise re	esult in a radio	active
	Yes?								prevent and/or i ne Ground Cont		eases due to	
1.3	Will the dire	ct failure of the S	SC result i	n a cr <b>edib</b>	le Design	Basis Eve	ent which wo	uld lead i	lo a radioactive i	elease abov	e the federal li	imits?
	Yes?	Rationale: Direct failure of federal limits.	the operat łowever, p	ions main reserving	ramps ma the integri	ay result ir ty of opera	n a credible l ation ramps	DBE that is allocate	would lead to a ed to the Ground	radioactive r d Control Sy	elease above stems.	the
QA-2	2 - Importan	t to Waste Isolal	ion:									
2.1	Does the SS	C perform a was	e isolation	function t	by forming	part of th	e natural or (	engineere	ed barriers?			
	🖌 Yes?	Rationale: The subsurface	facility sy	stern phys	ical locatio	on and ger	veral arrange	ement he	ips support the r	operation an	d emplacemer	nt
		phase as well a	s the long i	term wasti	e isolation	objectives	of the repo	sitory.				
2.2	Can direct fa engineered t	illure of the SSC so parriers which ma	significanti y prevent ti	y affect th hem from	e hydrolog performini	jical, geoc g their wa:	hemical, or g ste isolation	<b>jeome</b> ch function?	anical character	istics of the	natural or	
	✔ Yes?	Rationale: Direct failure of them from perfo	the Operai rming thei	tions main rwaste isc	ramps wi Nation fund	Il significa ction.	ntly affect th	e natural	or engineered b	arriers whic	h may prevent	

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Ramps

Level 5: Main Ramp

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - **Yes?** Rationale

Main Ramps are part of an engineered barrier that provide for waste confinement; they are not associated with fire protection.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - [ Yes? Rationale:

Failure of operations main ramps could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function. However, preserving the integrity of operation ramps is allocated to the Ground Control Systems.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
- 6.2 Is the SSCs function required for special nuclear material accountability?
  - C Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Ramps

Level 5: Main Ramp

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

**Yes?** Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**Yes?** Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1. ESF Main Access Openings were also included on the Q-List by analysis, M&O Classification Analysis of Main Access Openings, BABEAD000-01717-2200-00002, Rev 02.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

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SS	C: Operat	tions System Level 4: Operations Ramps
Lev	vel 3: Oper	erations Accesses Level 5: Portal
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA	-1 - Importa	ant to Radiological Safety:
1.1	Is the SSC retrieved w	C required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced vithout exceeding the federal limits?
	Yes?	Rationale:
		The subsurface facility system Portals provide ground and utility support and overhead protection for ingress of was transporters. However, preserving the integrity of operation portals is allocated to the Ground Control Systems.
1.2	is the SSC release abo	C required to function to prevent, miligate, or monitor a credible Design Basis Event which would otherwise result in a rac ove the federal limits?
	Yes?	Rationale:
		Portals (part of an engineered barrier that provide for waste confinement) serve to prevent a release and mitigate the consequences of a release of radiological materials. However, preserving the integrity of operation portals is allocate Ground Control Systems.
1.3	Will the dire	rect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federa
	Yes?	Rationale:
		Direct failure of portals could result in a release of radiological materials and that release could exceed federal limits However, preserving the integrity of operation portals is allocated to the Ground Control Systems.
QA-	2 - Importa	ant to Waste Isolation:
2.1	Does the S	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Ves?	Rationale:
		The subsurface facility system portals physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository.
2.2	Can direct f	failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or I barriers which may prevent them from performing their waste isolation function?
	Yes?	Rationale:
		Direct failure of portals could affect the characteristics of the natural or engineered barriers and prevent them from performing their waste isolation function.

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SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Ramps

ever e. operations Accesses

Level 5: Portal

QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

Portals do not contain site-generated radioactive waste.

QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

Portals are part of an engineered barrier that provide for waste confinement; they are not associated with fire protection.

QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale

Failure of portals could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function. However, preserving the integrity of operation portals is allocated to the Ground Control Systems.

## QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Portals are not associated with the detection or unauthorized intrusion or the presence of explosive materials.

6.2 Is the SSCs function required for special nuclear material accountability?

Yes? Rationale:

Portals are not associated with special nuclear material accountability.

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			doodlollo	Allacimentity
$\sim$	SDD: SS01	- Subsurface Facility System		
	SSC: Operation	ons System	Level 4: Operations Ram	nps
	Level 3: Opera	ations Accesses	Level 5: Portal	
	QA-7 - Importar	t to Occupational Radiological Exposu	e:	
	7.1 Does the SS areas by its	SC provide personnel radiation shielding, re- own radioactive source term?	duce dose rates in radioactive areas, or require	e personnel access into radiation
	🗌 Yes?	Rationale		
		Portals have no associated radioactive so	urce term.	
	7.2 Is the SSC a	a permanently installed radiation monitor wh	ich monitors areas for personnel radiation prot	ection?
	Yes?	Rationale		
		This SSC is not a radiation monitor.		
	Previous QA Clas	ssification:		
$\sim$	This question is for	r historical and traceability purposes only.	A "yes" answer to this question does not provi	ide inclusion to the Q-List
	8.0 Are there oth this SSC is i	er factors, such as previous analyses, a bo mportant to radiological safety (QA-1) or wa	dy of consensus, or by direct inclusion, that least isolation (QA-2)?	d to the previous conclusion that

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1. ESF Portals were also included on the Q-List by analysis, M&O Classification Analysis of the Starter Tunnel and South Headwall, BABEAA000-01717-2200-00098, Rev 01.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Operati	ions System					Level 4:	Operat	tions Shafts	
Le	vel 3: Oper	ations Accesse	es				Level 5:	Hoist S	System	
		<b>QA-1</b>	0A-2	0A-3	<b>QA-4</b>	0A-5 2	QA-6	<b>0A-7</b>	Non-Q	
QA	-1 - Importa	nt to Radiologic	al Safety:							
1.1	Is the SSC retrieved wi	required to provic thout exceeding t	de reasona he federal	ble assura limits?	nce that h	igh-level v	vaste can be	e received	i, handled, paci	kaged, stored, emplaced, and
	Yes?	Rationale:								
		The hoisting sy and do not pro	ystems in l vide reaso	the operati nable assu	ons shaft a Irance that	are not as the feder	sociated with al limits will	h storage not be ex	, emplacement, ceeded.	, or retrieval of high level waste
1.2	is the SSC	required to functi ve the federal limi	on to preve its?	ent, miligat	e, or monil	tor a cr <del>e</del> di	ble Design I	Basis Eve	ent which would	l otherwise result in a radioactiv
	TYes?	Rationale								
	<b>_</b>		ystem is no	ot required	to prevent	/mitigate/r	nonitor a cre	edible DB	E which would	result in a release of radioactive
1.3	Will the dire	ct failure of the S	SC result i	in a credib	le Design I	Basis Eve	nt which wo	uid lead t	o a radioactive (	release above the federal limits
	Yes?	Rationale								
			f th <del>e</del> hoisti	ng subsysi	tern would	not result	in a credible	DBE the	at would lead to	a radioactive release.
<b>0</b> 4-	2 . Importar	nt to Waste Isola	tion.							
2.1				. function 1						
<b>6</b> . 1		SC perform a was	NE ISOIA(IOF	i lunction t	y torming	part of the	e natural or e	engineere	d barners?	
	🗌 Yes?	Rationale:	<b>-</b>							
		objectives of the	e facility sy e repositor	stem phys y. The hoi	ical locatio sting syste	n and ger em, howev	ieral arrange /er, is not pa	ement hel rt of the r	ps support the I natural/engineer	long term waste isolation red barriers associated with
		waste isolation.	•							
2.2	Can direct fa	waste isolation.	significant	ly affect th	e hydrologi performing	ical, geocl I their was	hemical, or g ite isolation	eomecha	anical character	istics of the natural or
2.2	Can direct fa engineered I	waste isolation. ailure of the SSC :	significant	ly affect th hem from	e hydrologi performing	ical, geoci I their was	hemical, or g ste isolation :	eomecha function?	anical character	ristics of the natural or

### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Shafts

Level 5: Hoist System

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of the hoisting subsystem could impair the capability of QA-1 or QA-s SSCs from performing their radiological safety/waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

**Yes?** Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:
    - This SSC does not perform a special nuclear material accountability function.

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SSC: Opera	tions System	Level 4: Operations Shafts
Level 3: Ope	rations Accesses	Level 5: Hoist System
QA-7 - Importa	ant to Occupational Radiological Exp	osure:
7.1 Does the S areas by it	SSC provide personnel radiation shieldin s own radioactive source term?	g, reduce dose rates in radioactive areas, or require personnel access into rad
Yes?	Rationale:	
	This SSC function does not include	personnel radiation shielding to minimize radiological exposure.
7.2 Is the SSC	a permanently installed radiation monite	or which monitors areas for personnel radiation protection?
🗌 Yes?	Rationale:	
	This SSC is not a radiation monitor.	

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

☑ Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.3.7.1 Emplacement Area Exhaust Shaft, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Operati	ions System					Level 4:	Opera	tions Shafts	
Lev	el 3: Oper	ations Access	es				Levei 5:	Shaft	Structure	
		0A-1 ☑	QA-2	<b>QA</b> -3 □	0A-4	<b>QA-5</b>	0A-6	<b>QA-7</b>	Non-Q	
<b>A</b> -	1 - Importa	nt to Radiologic	al Safety:							
.1	Is the SSC retrieved wi	required to provid thout exceeding t	de reasonai he federai l	ble assura limits?	ince that h	igh-level v	vaste can be	e receive	1, handled, packag	ed, stored, emplaced, and
	🔽 Yes?	Rationale:								
		The Operation	is shaft stru	cture pro	vide reaso	nable assu	urance that i	high-leve	l waste can be rec	eived, stored, emplaced and
			ut exceedir	ng the fed	eral limits.					
.2	is the SSC	required to functi	ion to preve	•		tor a credi	ble Design I	Basis Ev	ent which would of	herwise result in a radioactiv
.2	release abo	required to functi ve the federal lim	ion to preve	•		tor a credi	ble Design I	Basis Ev	ent which would of	herwise result in a radioactiv
1.2	is the SSC release abo Ƴ Yes?	required to functi ve the federal lim Rationale:	ion to preve its?	nt, mitigal	e, or moni					
.2	release abo	required to functi ve the federal lim Rationale:	ion to preve its?	nt, mitigal	e, or moni					herwise result in a radioactiv releases due to DBEs.
	release abo	required to functi ve the federal lim Rationale: The shaft strue	ion to preve its? ctures are r	nt, mitigal equired m	e, or moni naintain the	air integrity	to function	to prever	nt and/or mitigate a	releases due lo DBEs.
.2	release abo	required to functi ve the federal lim Rationale: The shaft strue	ion to preve its? ctures are r	nt, mitigal equired m	e, or moni naintain the	air integrity	to function	to prever	nt and/or mitigate a	

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the Operations shaft structures will significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Shafts

Level 5: Shaft Structure

- QA-3 Important to Radioactive Waste Control:
- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

By meeting requirements of Question 1.2, failure of operations shaft structures would not impact the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Shafts

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Level 5: Shaft Structure

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates In radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.3.7.1, Emplacement Area Exhaust Shaft, as QA-1.

			Q-	List	t Qu	estic	ons	B	0000000	-01717-0	200-00134 Attachi	Rev 00 ment IV
SD	D: SS01	- Subsurface F	acility S	System								
SS	C: Operat	ions System					Level 4:	Operat	ions Shafts	\$		
Lev	vel 3: Oper	ations Accesses					Level 5:	Shaft Y	ard Faciliti	es		
		QA-1	0A-2	0A-3	<b>QA-4</b>	QA-5 ∑	0A-6	0A-7	Non-Q			_
QA-	1 - Importa	nt to Radiological	Safety:									
1.1	Is the SSC retrieved wi	required to provide ithout exceeding the	reasonabli federal lin	e assura nits?	nce that hi	gh-level w	aste can be	e received	, handled, pa	ckaged, sto	ored, emplaced,	, and
	Ves?	Rationale:										
		The Operations s emplaced and re	shaft yard trieved wit	facilities hout exc	do not pro eeding the	vide reaso federal lir	onable assu nits.	rance that	high-level w	aste can be	received, store	ed,
1.2	Is the SSC release abo	required to function we the federal limits	to prevent ?	t, mitigate	e, or monit	or a credil	ble Design I	Basis Eve	nt which wou	ld otherwise	e result in a rad	lioactive
	Yes?	Rationale:										
1.3	Will the dire	The shaft yard fa										
				a ci cuibi	e Design (	20315 EYEI			aradidacuv	e release at	ove the redera	l limits?
	Yes?	Rationale: Direct failure of th above the federal	ne operatio limits.	ns shaft	yard facilit	ies would	not result ir	n a credibl	e DBE that v	vouid lead to	o a radioactive I	release
QA-2	2 - Importan	nt to Wa <b>ste</b> Isolatio	on:									
2.1	Does the SS	SC perform a waste	isolation fi	unction b	y forming	part of the	natural or e	engineered	barriers?			
	Yes?	Rationale:										
		Operations shaft	yard faciliti	ies are n	ot part of th	ne natural	or engineer	ed barrier	5			
2.2	Can direct fa engineered b	ailure of the SSC sig barriers which may p	prificantly a prevent the	affect the em from j	e hydrologi performing	cal, geoch their was	emical, or g te isolation (	eomecha function?	nical charact	erislics of II	ne natural or	
	Ves?	Rationale:										
		Direct failure of th waste isolation fur	e operation actions.	ns shaft y	yard faciliti	es will not	significanti	y affect th	e natural/eng	ineered bar	riers that perfo	rm

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Shafts

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Level 5: Shaft Yard Facilities

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

QA-4 - Important to Fire Protection:

4.1 Qoes the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC Impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of operations shaft yard facilities may impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

#### 6.2 Is the SSCs function required for special nuclear material accountability?

**Yes?** Rationale:

This SSC does not perform a special nuclear material accountability function.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 3: Operations Accesses

Level 4: Operations Shafts

5: Operations Accesses

Level 5: Shaft Yard Facilities

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Emplacement Area Exhaust Shaft, 3.3.7.1, Hoist House, as QA-1.

		C	2-Lis	t Qu	estic	ons	В	00000000-0171	 4 Rev 00 hment IV
SDD: SS01 -	Subsurface	Facility	System	ı					
SSC: Operatio	ns System					Level 4	I: Empla	icement Area	
Level 3: Under	ground Facili	ty				Level 5	5: Empla	cement Drift	
	0A-1 1	0A-2 2	QA-3	0A-4	<b>QA-5</b>	<b>QA-6</b>	<b>QA-7</b>	Non-Q	

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The Operations Emplacement Drifts provide reasonable assurance that high-level waste can be received, stored, emplaced and retrieved without exceeding the federal limits.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale:

The emplacement drifts are required maintain their integrity to function to prevent and/or mitigate a releases due to DBEs.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale:

Direct failure of the operations emplacement drifts would result in a credible DBE that would lead to a radioactive release above the federal limits.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository. Emplacement Drifts are part of an engineered barrier that provide for waste confinement.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the Operations Emplacement Drifts will significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Underground Facility

Level 4: Emplacement Area

Level 5: Emplacement Drift

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

### QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale:

Failure of operations emplacement drifts would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function other than what was already identified in Question 1.3. and 2.2.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SD	D: SS01	- Subsurface Facility System	I
SS	C: Operati	ons System	Level 4: Emplacement Area
Lev	vel 3: Unde	rground Facility	Level 5: Emplacement Drift
QA	-7 - Importar	nt to Occupational Radiological E	posure:
7.1	Does the St areas by its	SC provide personnel radiation shield own radioactive source term?	ing, reduce dose rates in radioactive areas, or require personnel access into radiation
	Yes?	Rationale:	
		This SSC function does not includ	e personnel radiation shielding to minimize radiological exposure.
7.2	is the SSC a	a permanently installed radiation mon	itor which monitors areas for personnel radiation protection?
	🗌 Yes?	Rationale	
		This SSC is not a radiation monitor	
Prev	vious QA Cia:	ssification:	
This	question is fo	r historical and traceability purposes	only. A "yes" answer to this question does not provide inclusion to the Q-List
8.0	Are there oth this SSC is i	her factors, such as previous analyse important to radiological safety (QA-1	s, a body of consensus, or by direct inclusion, that led to the previous conclusion that ) or waste isolation (QA-2)?
	Z Yes?	Rationale	
	A lest		

## B0000000-01717-0200-00134 Rev 00 Attachment IV

QA-1 - I 1.1 ist retr	3: Underground Fac	QA-2 V Ical Safety: ride reasona		0A-4	QA-5	Levei 5 QA-6	: Perime QA-7 □	eter Mains Non-Q	
1.1 is t retr	Important to Radiolog	Ical Safety:	:		_		_		
1.1 is t retr	the SSC required to pro	/ide reasona							
	Yes? Rationale: The Operati retrieved wit	ons Perimet	l limits? er Mains p	rovide reas	sonable as				eceived, stored, emplace
1.2 is ti	the SSC required to funder	tion to prev				ble Design	Basis Eve	ent which would ot	therwise result in a radio

## 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

#### Yes? Rationale:

Direct failure of the operations perimeter mains would result in a credible DBE that would lead to a radioactive release above the federal limits.

#### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository. Perimeter Mains are part of an engineered barrier that provide for waste confinement.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the Operations perimeter mains within the Repository may significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Underground Facility

Level 4: Emplacement Area

Level 5: Perimeter Mains

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### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale:

Failure of operations perimeter mains would not impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function other than what was already identified in Question 1.3. and 2.2.

### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

This SSC does not perform a physical protection function.

## 6.2 Is the SSCs function required for special nuclear material accountability?

Yes? Rationale:

			Q-List	Questi	ions	B00000000-01717-0200-00134 Rev ( Attachment
SD	D: SS01	- Subsurface Fa	cility System			
sso	C: Operati	ions System			Level 4: E	Emplacement Area
Lev	el 3: Unde	erground Facility			Levei 5: F	Perimeter Mains
QA-	7 - Importa	nt to Occupational	Radiological Exp	osure:		
7.1	Does the S areas by its	SC provide personne own radioactive sou	I radiation shieldin ce term?	g, reduce dose ra	ates in radioactiv	ve areas, or require personnel access into radiation
	Yes?	Rationale:				
		This SSC function	does not include	personnel radiati	on shielding to n	ninimize radiological exposure.
7.2	Is the SSC	a permanently instal	ed radiation monito	or which monitors	areas for perso	onnel radiation protection?
	C Yes?	Rationale:				
		This SSC is not a	radiation monitor			
Prev	ious QA Cla	ssification:				
This	question is fo	or historical and trace	ability purposes of	nly. A "yes" ansi	wer to this quest	tion does not provide inclusion to the Q-List
8.0	Are there ot this SSC is	ther factors, such as important to radiolog	xevious analyses, cal safety (QA-1) (	, a body of conse or waste isolation	nsus, or by direc I (QA-2)?	ct inclusion, that led to the previous conclusion that
	Yes?	Rationale				
		This SSC is conta System, as QA-1.	ned on the Q-List	by direct inclusio	n for the Underg	pround Excavations, 3.4.1 Main Drift and Entry
						· · · ·

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Operati	ions System					Level 4	: Suppo	rt Areas	
Le	vel 3: Unde	erground Facili	ity				Level 5	: Perforr	mance Confirr	nation
		QA-1	QA-2 ☑	0A-3	0A-4	0A-5 ☑	0A-6	<b>0A-7</b>	Non-Q	
QA	-1 - Importa	nt to Radiologic	al Safety:	:						
1.1	ls the SSC retrieved wi	required to provi thout exceeding t	de reason: the federal	able assura   limits?	ince that h	igh-level v	vaste can b	e received	i, handled, packa	iged, stored, emplaced, a
	Yes?	Rationale:								
		The Operatior stored, empla	ns Perform ced and re	ance Conf trieved with	imation and hout excee	eas do nol ding the f	t provide rea ederal limits	<b>isonable a</b> i.	ssurance that hi	gh-level waste can be rec
1.2	is the SSC release abo	required to funct ve the federal lim	ion to prev iits?	ent, mitigal	e, or moni	tor a cred	ibl <del>e</del> Design	Basis Eve	nt which would	otherwise result in a radio
	Yes?	Rationale:								
		The Performan due to DBEs.	nce confiri	mation area	is are not i	required m	naintain thei	r integrity	to function to pre	went and/or mitigate a rele
1.3	Will the dire	ect failure of the S	SSC result	in a credib	le Design	Basis Eve	ent which w	ould lead t	o a radioactive re	lease above the federal li
	Yes?	Rationale:								
		Direct failure o release above	of the operative federa	ations perfo I limits.	ormance c	onfirmatio	n would not	result in a	i credible DBE th	at would lead to a radioac
QA-	2 - Importar	nt to Waste Isok	ation:							
2.1	Does the St	SC perform a was	ste isolatio	n function	by forming	part of th	e natural or	engineere	d barriers?	
	🖌 Yes?	Rationale								
		The subsurfac phase as well :	e facility s as the long	ystem phys j term wast	ical location	on and ger objectives	neral arrang s of the repo	ement hel sitory:	ps support the o	peration and emplacemen
2.2	Can direct fi engineered	ailure of the SSC barriers which ma	significan ay prevent	lly affect th them from	e hydrolog performin	ical, geoc g their wa:	hemical, or ste isolation	geomecha function?	anical characteri:	slics of the natural or
	<b>—</b>	<b>•</b> • •								
	🔽 Yes?	Rationale:								

### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Underground Facility

Level 4: Support Areas

Level 5: Performance Confirmation

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#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of operations performance confirmation could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Tyes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 3: Underground Facility

Level 4: Support Areas

Level 5: Performance Confirmation

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

55	C: Operati	ons System					Level 4:	Suppor	rt Areas	
Le	vel 3: Unde	rground Facili	ty				Level 5:	Suppor	t Openings	
			QA-2	QA-3	<b>QA-4</b>	0A-5 2	0A-6	<b>QA-7</b>	Non-Q	
QA-	1 - Importa	nt to Radiologic	al Safety:							
1.1	Is the SSC retrieved wit	required to provid thout exceeding t	de reasona he federal	ble assura limits?	nce that h	igh-level v	vaste can be	received	, handled, packaged, s	stored, emplaced, and
	Yes?	Rationale:								
		emplaced and	is Support retrieved v	openings of vithout exc	eeding the	vide reaso e federal li	nable assura mits.	ance that	high-level waste can b	e received, stored,
1.2	is the SSC release abo	required to functi ve the federal lim	ion to preve its?	ent, mitigat	e, or moni	tor a credi	ble Design I	Basis Eve	nt which would otherw	rise result in a radioacti
	Yes?	Rationale:								
		The Support o	penings <b>a</b> r	e not requi	red mainta	ain their in	tegrity to fun	ction to p	revent and/or mitigate	a releases due to DBE
1.3	Will the dire	ct failure of the S	SC result	in a credib	le Design	Basis Eve	nt which wo	uld lead to	o a radioactive release	above the federal limits
	Yes?	Rationale:								
		Direct failure o above the fede	f the opera ral limits.	tions supp	ort openin	gs would i	not result in	a credible	DBE that would lead	to a radioactive release
<b>2A</b> -:	2 - Importan	nt to Waste Isola	ition;							·
2.1	Does the SS	SC perform a was	te isolation	function t	by forming	part of the	e natural or e	ngineere	d barriers?	
	Ves?	Rationale:								
		The subsurface phase as well a	e facility sy is the long	istem phys term wasti	ical location	on and ger objectives	eral arrange of the repos	ment hel sitory	ps support the operation	on and emplacement
.2	Can direct fa engineered t	ailure of the SSC barriers which ma	significant ay prevent i	ly affect th Ihem from	e hydrolog performing	ical, geocl g their was	hemical, or g ste isolation f	eomecha iunction?	nical characteristics o	f the natural or
	Yes?	Rationale:								
	<u>.</u>									

### B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Underground Facility

Level 4: Support Areas

Level 5: Support Openings

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of operations support openings could impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Underground Facility

Level 4: Support Areas

Level 5: Support Openings

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

**Yes?** Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Ves? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SC: Operat	tions System					Level 4:	: Suppo	rt Areas
evel 3: Und	erground Facili	ty				Level 5:	: Ventila	ation Openings
	0A-1 1	0A-2 ☑	QA-3	0A-4	QA-5	0A-6	0A-7	Non-Q
A-1 - Importa	int to Radiologic	al Safety:						
1 Is the SSC retrieved w	required to provid ithout exceeding t	le reasona he federal	ble assura limits?	nce that h	iigh-level v	vaste can b	e received	t, handled, packaged, stored, emplaced, and
🗌 Yes?	Rationale:							
	The Operation emplaced and	s Ventilatio retrieved w	on Opening /ithout exc	gs do not p eeding the	provide rea e federal lin	asonable as mits.	surance t	hat high-level waste can be received, stored,
2 Is the SSC release abo	en paced and	on to preve	ninoui exc	eeding the	e federal lin	nits.		hat high-level waste can be received, stored, ent which would otherwise result in a radioactiv
2 Is the SSC release abo ∑ Yes?	required to function we the federal limit	on to preve	nt, mitigat	eeding the	tor a credi	nits. ble Design I	Basis Eve	ent which would otherwise result in a radioactiv
	required to function we the federal limit	on to preve	nt, mitigat	eeding the	tor a credi	nits. ble Design I	Basis Eve	
verease au verease au verea	required to function we the federal limi Rationale: The ventilation	on to preve its? openings a	nt, mitigat nt, mitigat	eeding the e, or monii d maintair	tor a credi	mits. ble Design I grity to func	Basis Eve tion to pre	ent which would otherwise result in a radioactiv
¥Yes?	required to function we the federal limi Rationale: The ventilation	on to preve its? openings a	nt, mitigat nt, mitigat	eeding the e, or monii d maintair	tor a credi	mits. ble Design I grity to func	Basis Eve tion to pre	ent which would otherwise result in a radioactiv event and/or mitigate a releases due to DBEs

Yes? Rationale:

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The subsurface facility system physical location and general arrangement helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the Operations ventilation openings within the Repository may significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS01 Subsurface Facility System
- SSC: Operations System

Level 3: Underground Facility

Level 4: Support Areas

evers: onderground racinty

Level 5: Ventilation Openings

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale

This SSC performs no fire protection functions.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - \_\_\_\_Yes? Rationale:

Failure of operations ventilation openings would not Impair the ability of other QA-1 or QA-2 SSCs, including engineered/natural barriers, from performing their radiological safety or waste isolation function.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

	Q-List Que	stions	B00000000-01717-0200-00134 Rev 00 Attachment IV
SDD: SS01	- Subsurface Facility System		
SSC: Opera	tions System	Level 4: S	Support Areas
Level 3: Und	erground Facility	Level 5: V	entilation Openings
	ant to Occupational Radiological Exposure: SSC provide personnel radiation shielding, reduce do	nn nta in mtiontin	
areas by it	s own radioactive source term?	ose rates in radioactivi	e areas, or require personnel access into radiation
_ Yes?	Rationale:		
	This SSC function does not include personnel ra		
7.2 Is the SSC	a permanently installed radiation monitor which mor	nitors areas for persor	nnel radiation protection?
C Yes?	Rationale:		
	This SSC is not a radiation monitor.		
Previous QA CI	assification:		
This question is	or historical and traceability purposes only. A "yes"	answer to this questi	on does not provide inclusion to the Q-List
8.0 Are there of this SSC is	ther factors, such as previous analyses, a body of co important to radiological safety (QA-1) or waste isol	onsensus, or by direct lation (QA-2)?	t inclusion, that led to the previous conclusion that
Z Yes?	Rationale		

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This SSC is contained on the Q-List by direct inclusion for the Underground Excavations, 3.4.1 Main Drift and Entry System, as QA-1.

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Attachment IV	At	ta	ch	m	en	t I	V
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		0A-1	QA-2 ₩		QA-4	<b>QA-5</b>	<b>QA-6</b>	<b>QA-7</b>	Non-Q		
Level	3: N/A						Level 5	: N/A			
SSC:	Engineered E	Barrier Sy	stem				Level 4	: N/A			
SDD:	SS02 - Eng	gineered	Barrier	System							

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

#### **∀** Yes? Rationale:

The engineered barrier system (EBS) delays the release and transport of nuclides to the natural barrier following waste emplacement. Collectively, the EBS consists of the waste package, waste package support hardware, and performance enhancing barriers. Various important-to-safety functions are performed by this SSC during packaging, storage, emplacement and retrieval.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale

The SSCs associated with the engineered barrier system will help miligate several design basis events including those events which involve collision/crushing of the DOE Waste Form. These SSCs will also mitigate effects of external events including seismic activity.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale

Direct failure of the EBS could result in a DBE that would include a release of radioactive material that exceeds federal limits.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

This SSC is part of the engineered barrier

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the EBS would result in a loss of the waste isolation function of this system.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS02 - Engineered Barrier System

SSC: Engineered Barrier System

Level 4: N/A

Level 3: N/A Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

This SSC performs no site-generated radioactive waste control function.

QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

This SSC performs no fire protection functions

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of this SSC would not, per se, impact or impair a QA-1 or QA-2 SSC from performing its radiological safety or waste isolation function.

## QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area? Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

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SDD:	SS02	•	Engineered	Barrier	System	

SSC:	Engineered Barrier System	Level 4:	N/A
Level	3: N/A	Level 5:	N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC function does not include personnel radiation shielding to minimize radiological exposure.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

**Previous QA Classification:** 

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**∀** Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Waste Package, SSA 2.2 Defense High-Level Waste, as QA-1.

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	QA-1	0A-2	<b>QA-3</b>	<b>QA-4</b>	QA-5	<b>QA-6</b>	<b>0A-7</b>	Non-Q
Level 3: N/A						Level 5	: N/A	
SSC: Accesses						Level 4	: N/A	
SDD: SS03 - Gr	ound Co	ntrol Sys	stem					

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

### **Ves?** Rationale:

The Ground Control System within the Accesses is required to provide reasonable assurance that high-level waste can be transported and retrieved from the emplacement areas without exceeding the federal limits.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

### Yes? Rationale:

The Ground Control System within the Accesses is required to function to prevent a credible Design Basis Event, such as rockfall.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - ✓ Yes? Rationale

The direct failure of the Ground Control System within the Accesses may result in a credible Design Basis Event.

#### QA-2 - important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The Ground Control System within the Accesses does not form part of the natural or engineered barrier.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the Ground Control System within the Accesses will not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

S	DD:	SS03	- G	round	Control	S	ystem
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SSC: Accesses

Level 4: N/A

Level 3:	N/A	Level 5: N	<b>/</b> A

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The Ground Control System within the Accesses does not have a site-generated waste function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The Ground Control System within the Accesses does not have a fire protection function.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:
    - Failure of the Ground Control System within the Accesses could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions, especially if rockfall due to failure of this SSC damages these QA-1/2 SSCs.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

This SSC does not perform an accountability function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS03 - Ground Control System	
SSC: Accesses	Levei 4: N/A
Level 3: N/A	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The Ground Control System within the Accesses are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

#### **Previous QA Classification:**

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

The Ground Control Systems in specific areas have been previously classified as QA-1 and QA-5 by M&O QA Classification Analysis of Ground Support Systems, Document No. BABEE0000-01717-2200-00001 Rev 04.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

		QA-1 ☑	QA-2 ☑	QA-3	0A-4	QA-5	0A-6	0A-7	Non-Q
Level	3: N/A						Level 5	: N/A	
SSC:	Emplaceme	nt Area					Level 4	: N/A	
SDD:	SS03 - Gro	ound Cor	ntrol Sys	stem					

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The Ground Control System within the Emplacement Areas is required to provide reasonable assurance that high-level waste can be emplaced, and retrieved without exceeding the federal limits.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

#### Yes? Rationale:

The Ground Control System within the Emplacement Areas is required to function to mitigate a credible Design Basis Event, such as rockfall.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

Ves? Rationale

The direct failure of the Ground Control System within the Emplacement Areas may result in a credible Design Basis Event.

### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The Ground Control System within the Emplacement Area may not literally form part of the natural or engineered barrier but it will be accounted for in the TSPA for waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the Ground Control System within the Emplacement Areas may significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.



## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS03 - Ground Control System	
SSC: Emplacement Area	Level 4: N/A
Level 3: N/A	Level 5: N/A

## QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Ves? Rationale:

The Ground Control System does not have a site-generated waste function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

**Yes?** Rationale:

The Ground Control System does not have a fire protection function.

## QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Ves? Rationale:

Failure of the Ground Control System would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions beyond what is already covered in Questions 1.3 and 2.2.

## QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Ves? Rationale:

This SSC does not perform an accountability function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS03 - Ground Control System	
SSC: Emplacement Area	Level 4: N/A
Level 3: N/A	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The Ground Control System Emplacement Areas are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

**Yes?** Rationale:

This SSC is not a radiation monitor.

#### **Previous QA Classification:**

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

Other Ground Control Systems have been previously classified as QA-1 and QA-5 by M&O QA Classification Analysis of Ground Support Systems, Document No. BABEE0000-01717-2200-00001 Rev 04. This SSC is currently classified QA-1/QA-2 by Direct Inclusion.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

	C: Perforn	nance Confirm	ation Op	enings			Level 4	: N/A	
Lev	el 3: N/A						Levei 5	: N/A	
		QA-1	0A-2	<b>QA-3</b>	QA-4	0A-5 2	<b>QA-6</b>	0A-7	Non-Q
QA-	1 - Importai	nt to Radiologic	al Safety:						
1.1	Is the SSC retrieved wi	required to provid thout exceeding t	de reasona he federal	ble assura limits?	nce that h	igh-level v	vaste can t	e received	, handled, packaged, stored, emplaced, and
	Yes?	Rationale:							
		The Ground C assurance tha federal limits.	ontroi Sysl t high-level	tem within I waste car	the Perfor be receiv	rmance Co ved, handle	nfirmation ed, packag	Openings ed, stored,	are not required to provide reasonable emplaced, and retrieved without exceeding the
<ul> <li>QA-1 - Important to Radiological Safety:</li> <li>1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?</li> <li>Yes? Rationale: The Ground Control System within the Performance Confirmation Openings are not required to provide reasonable assurance that high-level waste can be received, stored, emplaced, and retrieved without exceeding the federal limits?</li> </ul>									
	Yes?	Rationale:							
		The Ground C credible Design	ontrol Syst n Basis Ev	em within i ent.	the Perfor	mance Co	nfirmation	Openings	are not required to function to miligate a
.3	Will the dire	ct failure of the S	SC resulti	n a credib	le Design	Basis Eve	nt which w	ould lead to	o a radioactive release above the federal limits
	Yes?	Rationale:							
		The direct failu Design Basis E	re of the G Event.	round Cor	ntrol Syste	m within th	ne Perform	ance Confi	irmation Openings will not result in a credible
IA-2	: - Importan	t to Waste Isola	tion:						
.1	Does the SS	C perform a was	te isolation	function t	by forming	part of the	natural or	engineere	d barriers?
	Yes?	Rationale:							
		The Ground Co	ontrol Syste	em within t	he P <b>erf</b> orn	nance Cor	firmation (	Openings i	s not part of the natural or engineered barrier.
<ul> <li>QA-1 - Important to Radiological Safety:</li> <li>1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced retrieved without exceeding the federal limits?</li> <li>Yes? Rationale: The Ground Control System within the Performance Confirmation Openings are not required to provide reasonabl assurance that high-level waste can be received, handled, packaged, and retrieved without exceeding the federal limits.</li> <li>1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a release above the federal limits?</li> <li>Yes? Rationale: The Ground Control System within the Performance Confirmation Openings are not required to function to mitigate credible Design Basis Event which would lead to a radioactive release above the federal limits?</li> <li>Yes? Rationale: The Ground Control System within the Performance Confirmation Openings are not required to function to mitigate credible Design Basis Event.</li> <li>1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?</li> <li>Yes? Rationale: The direct failure of the Ground Control System within the Performance Confirmation Openings will not result in a oredible Design Basis Event.</li> <li>OA-2 - Important to Waste Isolation:</li> <li>2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?</li> <li>Yes? Rationale:</li> </ul>	Can direct fa	ilure of the SSC parriers which ma	significanti Ny prevent t	y affect the	e hydrolog performing	ical, geoci 3 their was	nemical, or te isolation	geomecha function?	nical characteristics of the natural or
2					•				
	Yes?	rationale					•		

B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS03 Ground Control System
- SSC:Performance Confirmation OpeningsLevel 4: N/ALevel 3:N/ALevel 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

**Yes?** Rationale:

The Ground Control System does not have a site-generated waste function

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The Ground Control System does not have a fire protection function.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - **Ves?** Rationale:

Failure of the Ground Control System within the performance confirmation openings could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions, especially if rockfall due to failure of this SSC damages these QA-1/2 SSCs.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

This SSC does not perform an accountability function.

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B0000000-01717-0200-00134 Rev 00 **Q-List Questions** Attachment IV SDD: SS03 - Ground Control System Level 4: N/A SSC: Performance Confirmation Openings Level 3: N/A Level 5: N/A QA-7 - Important to Occupational Radiological Exposure: 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term? Yes? Rationale: This SSC is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas. 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection? Yes? Rationale: This SSC is not a radiation monitor. **Previous QA Classification:** This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List R D Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)? Yes? Rationale: The Ground Control Systems in other areas have been previously classified as QA-1 and QA-5 by M&O QA Classification Analysis of Ground Support Systems, Document No. BABEE0000-01717-2200-00001 Rev 04.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

· -	QA-1 ☑	0A-2 2	0A-3	<b>0A-4</b>	<b>QA-5</b>	<b>0A-6</b>	<b>0A-7</b>	Non-Q	
Level 3: N/A						Level 5	: N/A		
SSC: Perimet	er Mains					Level 4	: N/A		
SDD: SS03 -	Ground Co	ntrol Sys	stem						

### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

### Yes? Rationale:

The Ground Control System within the Perimeter Mains are required to provide reasonable assurance that high-level waste can be transported, and retrieved from the emplacement areas without exceeding the federal limits.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

### Yes? Rationale:

The Ground Control System Perimeters mains are required to function to mitigate a credible Design Basis Event, such as rockfall.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale

The direct failure of the Ground Control System Perimeter Mains may result in a credible Design Basis Event.

#### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The Ground Control System within the Perimeter Mains may not literally form part of the natural or engineered barrier but will be accounted for in the TSPA for waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the Ground Control System Perimeter Mains may significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.



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SDD: SS03	- Ground	Control	System	
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SSC: Perimeter Mains

Level 4: N/A

Level 3: N/A Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Ves? Rationale:

The Ground Control System does not have a site-generated waste function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Ves? Rationale:

The Ground Control System does not have a fire protection function.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the Ground Control System would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions beyond what is already covered in Questions 1.3 and 2.2.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Ves? Rationale:

This SSC does not perform an accountability function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS03 - Ground Control System	
SSC: Perimeter Mains	Level 4: N/A
Level 3: N/A	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

**Previous QA Classification:** 

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that 8.0 this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

The Ground Control Systems have been previously classified as QA-1 and QA-5 by M&O QA Classification Analysis of Ground Support Systems, Document No. BABEE0000-01717-2200-00001 Rev 04. The Perimeter Mains are also classified as QA-1/QA-2 by Direct Inclusion.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SD	D: SS03	- Ground Co	ntrol Sys	stem						
sso	C: Suppor	t Openings & (	Cutouts				Level 4	: N/A		
Lev	el 3: N/A						Level 5	: N/A		hat high-level nits. in a radioacti Design Basis e federal limit ign Basis rrier. rrier.
		0A-1	0A-2	0A-3	<b>0A-4</b>	0A-5 2	<b>QA-6</b>	0A-7	Non-Q	
QA-1	1 - Importa	nt to Radiologic	al Safety:							
1.1	Is the SSC retrieved wi	required to provio thout exceeding t	de reasona he federal	ible assura limits?	ince that h	igh-level v	vaste can b	e received	l, handled, packaged, stored, emplaced	l, and
	🗌 Yes?	Rationale: The Ground C	ontrol Sys	tem Suppo	ort Openin	gs & Cuto	uts is not n	equired to	provide reasonable assurance that high without exceeding the federal limits.	1-leve
					•		• • •		•	
1.2	Is the SSC release abo	required to functi we the federal lim	ion to previ its?	ent, mitigal	ie, or moni	itor a credi	ible Design	Basis Eve	ent which would otherwise result in a ra	dioac
	Yes?	Rationale								
		The Ground C Event.	ontrol Sys	lem Suppo	at Openin	gs & Cuto	uts are not	required to	o function to mitigate a credible Design	Basis
1.3	Will the dire	ect failure of the S	SC result	in a credib	le Design	Basis Eve	ent which w	ould lead l	o a radioactive release above the federa	al limi
	Yes?	Rationale:								
		The direct fail. Event.	ire of the C	Ground Co	ntrol Syste	ern Suppor	t Openings	& Cutout	s will not result in a credible Design Bas	sis.
QA-2	t - Importar	nt to Waste Isola	ition:							
2.1	Does the St	SC perform a was	ste isolatio	n function	by forming	part of th	e natural or	engineere	d barriers?	
	Yes?	Rationale:								
		The Ground C	ontrol Sysl	em Suppo	rt Opening	js & Cutou	its does no	t form part	of the natural or engineered barrier.	
2.2	Can direct fi	ailure of the SSC barriers which m	significani ay prevent	lly affect th them from	e hydrolog performin	gical, geoc g their wa	hemical, or ste isolation	geomech function?	anical characteristics of the natural or	
	Yes?	Rationale:								
		Direct failure o	the Groun	od Control	System Si		aninar 8 C	الأسر مغرمة	not significantly affect the natural or	

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS03 - Ground Control System

 SSC:
 Support Openings & Cutouts
 Level 4: N/A

 Level 3:
 N/A
 Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The Ground Control System does not have a site-generated waste function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The Ground Control System does not have a fire protection function.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the Ground Control System could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions, especially if rockfall due to failure of this SSC damages these QA-1/2 SSCs.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

tes? Ratio

This SSC does not perform a physical protection function.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

This SSC does not perform an accountability function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS03 - Ground Control System	
SSC: Support Openings & Cutouts	Level 4: N/A
Level 3: N/A	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

The Ground Control Systems have been previously classified as QA-1 and QA-5 by M&O QA Classification Analysis of Ground Support Systems, Document No. BABEE0000-01717-2200-00001 Rev 04.

			0	-List	Qu	estic	ons	BO	0000000-0171	7-0200-00134 Rev 00 Attachment IV	
SDI	D: SS03 -	Ground Cont	rol Sys	tem							
sso	: Ventilatio	on Openings					Level 4	: N/A			
Lev	el 3: N/A						Level 5	: N/A			
		0A-1	0A-2	<b>QA-3</b>	QA-4	0A-5 2	<b>QA-6</b>	<b>0A-7</b>	Non-Q		
QA-	1 - Importani	t to Radiological	l Safety:								
1.1	Is the SSC r	equired to provide	e reasonal		nce that h	igh-level v	vaste can b	e received	l, handled, package	d, stored, emplaced, and	
	Tetrieved with	nout exceeding the Rationale:	e lederal	umas r							
	L les:	The Ground Co	ntrol Sysl	lem Ventila	tion Oper	nings is no	t required t	o provide i	reasonable assuran	ce that high-level waste can	
		be received, har	ndled, pa	ckaged, sto	ored, emp	laced, and	i retrieved v	without exc	eeding the federal l	imits.	
1.2		equired to functio e the federal limit		ent, mitigat	e, or moni	itor a cred	ible Design	Basis Eve	ent which would oth	erwise result in a radioactive	
	Yes?	Rationale:									
		The Ground Co	ntrol Syst	tem Ventila	ition open	ings are n	ot required	to functior	n to milligate a credil	ble Design Basis Event.	
1.3	Will the direct	t failure of the SS	SC result	in a credib	le Design	Basis Ev	ent which w	ould lead i	to a radioactive rele	ase above the federal limits?	
	Yes?	Rationale:									
		The direct failur	e of the C	Ground Co	ntrol Syste	em Ventila	tion Openir	ng will not i	result in a credible l	Design Basis Event.	
			•								
QA-	2 - Importan	t to Waste Isolai	lion:								
2.1	Does the SS	C perform a was	te isolatio	n function	by forming	g part of th	ne natural o	r engineer	ed barriers?		
	Yes?	Rationale:									
		The Ground Co	ntrol Sys	lem within	the Ventil	ation Oper	nings perfo	rms does r	not form part of the	natural or engineered barrier.	
22	Can direct fo	vilure of the SSC .	sinnifican	the affect H	a hydrolo	aical aeo	chemical o	r neomach	nanical characteristi	cs of the natural or	
2.2		parriers which ma									
	Ves?	Rationale:									

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Direct failure of the Ground Control System within the Ventilation Openings will not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS03 - Ground Control System

SSC: Ventilation Openings

Level 4: N/A

Level 3: N/A

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The Ground Control System does not have a site-generated waste function.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The Ground Control System does not have a fire protection function.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the Ground Control System could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions, especially if rockfall due to failure of this SSC damages these QA-1/2 SSCs.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

This SSC does not perform a physical protection function.

6.2 Is the SSCs function required for special nuclear material accountability?

Yes? Rationale:

This SSC does not perform an accountability function.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS	03 - Ground Control System		
SSC: Ver	ntilation Openings	Level 4:	N/A
Level 3: N	I/A	Level 5:	N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

This SSC is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

- 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?
  - **Yes?** Rationale:

This SSC is not a radiation monitor.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

The Ground Control Systems in other areas have been previously classified as QA-1 and QA-5 by M&O QA Classification Analysis of Ground Support Systems, Document No. BABEE0000-01717-2200-00001 Rev 04.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Develo	pment Ventilat	ion Syste	m			Level 4:	: Ramp		
Le	vel 3: Acce	ss Ventilation	System				Level 5:	: N/A		
		QA-1	<b>QA-2</b>	<b>QA-3</b>	<b>QA-4</b>	0A-5 2	<b>QA-6</b>	0A-7	Non-Q	
QA.	1 - Importa	nt to Radiologic	al Safety:							
1.1	Is the SSC retrieved w	required to provid ithout exceeding t	le reasona he federal	ble assura limits?	ince that h	igh-level v	vaste can b	e received	, handled, packagi	ed, stored, emplaced, a
	L`Yes?	that spent fuel stored, emplace	can be ha ed, or retri e waste pa	ndled, stor eved from ckages ar	red, and re the develo e introduc	trieved wi opment po ed into this	thout undue	e risk to the repository;	e health and safety only the operation	ide reasonable assuran to the public. Waste is s portion of the reposito the repository (the ram
1.2	is the SSC release abo	required to functi we the federal lim	on to preve its?	ent, mitigal	te, or moni	tor a cred	ible Design	Basis Eve	nt which would oth	erwise result in a radio
	Yes?	Rationale:								
		the consequent	ces of a D ntroduced	BE that co into this p	ould otherv	vise result	in a radioad	ctive releas	se above federal lir	perable to prevent or mi nits. However, once w p ventilation) will be
1.3	Will the dire	ect failure of the S	SC result i	in a credib	le Design	Basis Eve	int which wo	ould lead to	o a radioactive rele	ase above the federal li
	Yes?	Rationale:								
		Failure of the rite to a radioactive	amp ventila : release.	ition syste	m on the c	levelopme	nt portion of	f the repos	itory will not result	in a DBE which would
QA-	2 - Importai	nt to Waste Isola	tion:							
2.1	Does the S	SC perform a was	te isolatior	function l	by forming	part of th	e natural or	engineere	d barriers?	
	Yes?	Rationale:								
		The ramp venti important to wa	lation syste Iste isolatio	em on the n.	developma	ent portion	of the repo	sitory is no	ot part of the natura	I or engineered barriers
2.2	Can direct f engineered	ailure of the SSC barriers which ma	significant ly prevent f	ly affect th them from	e hydrolog performin	jical, geoc g their was	hemical, or ste isolation	geomecha function?	nical characteristic	cs of the natural or
	Yes?	Rationale:								

## ist Questions

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 3: Access Ventilation System

Level 4: Ramp

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The ramp ventilation system on the development portion of the repository is not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - C Yes? Rationale:

The ramp ventilation system on the development portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

- QA-5 Important to Potential Interaction:
- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - **∀** Yes? Rationale

Failure of the ramp ventilation system on the development portion of the repository could impair the capability of QA-1 or QA-2 SSCs on the operations portion of the repository from performing their waste isolation functions by interfering with operational side subsurface ventilation systems.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The ramp ventilation system on the development portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ramp ventilation system on the development portion of the repository is not associated with nuclear material accountability.

## B00000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC:Development Ventilation SystemLevel 4: RampLevel 3:Access Ventilation SystemLevel 5: N/A

### QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The ramp ventilation system on the development portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

- 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?
  - **Yes?** Rationale:

The ramp ventilation system on the development portion of the repository is not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

This SSC (Development Area Ventilation) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1. This SSC (Development Area Ventilation) is contained on the Q-List by direct inclusion.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

sso	: Develop	oment Ventilation System Level 4: Shaft
Lev	el 3: Acces	ss Ventilation System Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-	1 - Importar	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, a thout exceeding the federal limits?
	C Yes?	Rationale: The subsurface developmental shaft ventilation system provides air to personnel, and provides temperature control for underground openings. The ventilation shaft on the development portion of the repository, however, is not required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health an safety to the public.
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radio we the federal limits?
	Yes?	Rationale:
		The ventilation shaft on the development portion of the repository is part of the ventilation system that is not required to operable to prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above for limits. However, once waste packages are introduced into this portion of the repository, this portion of the repository ( shaft) may be important to radiological safety.
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal l
	Yes?	Rationale:
		Failure of the development portion ventilation shaft will not result in a DBE which would lead to a radioactive release.
QA.	2 - Importai	nt to Waste Isolation:
2.1	Does the S	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		The development portion ventilation shaft is not part of the natural or engineered barriers important to waste isolation.
2.2		failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	🗌 Yes?	Rationale:
		Failure of the development portion ventilation shaft would not affect the function of the natural/engineered barriers, the

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System	Level 4: Shaft
Levet 3: Access Ventilation System	Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The development portion ventilation shaft is not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The development portion ventilation shaft does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the development portion ventilation shaft could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions.

## QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The development portion ventilation shaft is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The development portion ventilation shaft is not associated with nuclear material accountability.

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SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System	Level 4: Shaft
Level 3: Access Ventilation System	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The development portion ventilation shaft is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The development portion ventilation shaft is not part of a radiation monitor or monitoring system.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC (Development Area Ventilation) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SSC	: Develop	ment Ventilation System Level 4: Drift Excavation
Lev	el 3: Empla	acement Drift System Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-	1 - Importar	nt to Radiological Safety:
1.1	is the SSC retrieved wit	required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, a thout exceeding the federal limits?
	Yes?	Rationale:
		The drift excavation ventilation system on the development portion of the repository does not provide reasonable assura that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the repositor
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radio ve the federal limits?
	Yes?	Rationale:
		The drift excavation ventilation system on the development portion of the repository does not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal I
	Yes?	Rationale
		Failure of the drift excavation ventilation system on the development portion of the repository will not result in a DBE w would lead to a radioactive release.
QA.	-2 - Importa	nt to Waste Isolation:
2.1	Does the S	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		The drift excavation ventilation system on the development portion of the repository is not part of the natural or engineer barriers Important to waste isolation.
2.2	Can direct t engineered	failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	Ves?	Rationale:
		Failure of the drift excavation ventilation system on the development portion of the repository will not affect the function the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

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## B00000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 3: Emplacement Drift System

Level 4: Drift Excavation

nt Drift System Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The drift excavation on the development portion of the repository is not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

[ Yes? Rationale:

The drift excavation on the development portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - **Ves?** Rationale:

Failure of the drift excavation on the development portion of the repository could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The drift excavation on the development portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The drift excavation on the development portion of the repository is not associated with nuclear material accountability.

## B00000000-01717-0200-00134 Rev 00 Attachment IV

	4: Drift Excavation 5: N/A
Level 3: Emplacement Drift System Level	5: N/A
QA-7 - Important to Occupational Radiological Exposure:	
7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in rad areas by its own radioactive source term?	ioactive areas, or require personnel access into radiation
Yes? Rationale:	
The drift excavation on the development portion of the repositor reduction of dose rates in radioactive areas.	y is not associated with personnel radiation shielding or the
7.2 Is the SSC a permanently installed radiation monitor which monitors areas for	personnel radiation protection?
Yes? Rationale:	
The drift excavation on the development portion of the repositor	y is not part of a radiation monitor or monitoring system.
Previous QA Classification:	
This question is for historical and traceability purposes only. A "yes" answer to this	s question does not provide inclusion to the Q-List
	y direct inclusion, that led to the previous conclusion that

Yes? Rationale:

This SSC (Development Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

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Developi 3: Empla Important s the SSC ro etrieved with ] Yes?	Subsurface Ventilation System       Level 4: Raise Excavation         ment Ventilation System       Level 5: N/A         cement Drift System       Level 5: N/A         QA-1       QA-2       QA-3       QA-4       QA-5       QA-6       QA-7       Non-Q         Image:
3: Empla Important is the SSC ro etrieved with Yes?	cement Drift System       Level 5: N/A         QA-1       QA-2       QA-3       QA-4       QA-5       QA-6       QA-7       Non-Q         Image: It to Radiological Safety:       Image: Ima
Important is the SSC ru etrieved with ] Yes?	QA-1       QA-2       QA-3       QA-4       QA-5       QA-6       QA-7       Non-Q         Image: It to Radiological Safety:       Image: I
s the SSC re etrieved with	equired to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and out exceeding the federal limits? Rationale: The raise excavation ventilation system on the development portion of the repository does not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the
s the SSC re etrieved with	equired to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and out exceeding the federal limits? Rationale: The raise excavation ventilation system on the development portion of the repository does not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the
etrieved with	out exceeding the federal limits? Rationale: The raise excavation ventilation system on the development portion of the repository does not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the
_	The raise excavation ventilation system on the development portion of the repository does not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the
	assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the
	equired to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive e the federal limits?
Yes?	Rationale:
	The raise excavation ventilation system on the development portion of the repository does not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits
Vill the direc	t failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
] Yes?	Rationale:
	Failure of the raise excavation ventilation system on the development portion of the repository will not result in a DBE which would lead to a radioactive release.
Importan	to Waste Isolation:
oes the SS	C perform a waste isolation function by forming part of the natural or engineered barriers?
Yes?	Rationale:
	The raise excavation ventilation system on the development portion of the repository is not part of the natural or engineered barriers important to waste isolation.
	ilure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or arriers which may prevent them from performing their waste isolation function?
] Yes?	Rationale:
	Failure of the raise excavation ventilation system on the development portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.
	Vill the direct Yes? Vill the direct Yes? The poet of the set of the set of t

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System
- Level 3: Emplacement Drift System

Level 4: Raise Excavation

5. Emplacement Drift System

### Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The ralse excavation ventilation system on the development portion of the repository is not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - C Yes? Rationale:

The raise excavation ventilation system on the development portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

- QA-5 Important to Potential Interaction:
- 5.1 As a result of a Design Basis Event, could failure of the SSC Impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the raise excavation vertilation system on the development portion of the repository could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale

The raise excavation ventilation system on the development portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

The raise excavation ventilation system on the development portion of the repository is not associated with nuclear material accountability.

### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 3: Emplacement Drift System

Level 4: Raise Excavation

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The raise excavation ventilation system on the development portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

**Yes?** Rationale:

The raise excavation ventilation system on the development portion of the repository is not part of a radiation monitor or monitoring system.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**Ves?** Rationale:

This SSC (Development Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

	Q-List Qu	B00000000-01717-02	Attachmer
SDD: SS05 ·	Subsurface Ventilation System		
SSC: Develop	ment Ventilation System	Level 4: Turnout Excavation	
Level 3: Empla	acement Drift System	Level 5: N/A	
	QA-1 QA-2 QA-3 QA-4	QA-5 QA-6 QA-7 Non-Q	
QA-1 - Importa	nt to Radiological Safety:		
1.1 Is the SSC	required to provide reasonable assurance that t thout exceeding the federal limits?	high-level waste can be received, handled, packaged, stor	red, emplaced, an
Yes?	Rationale:		
	The turnout excavation ventilation system on assurance that spent fuel can be handled, st	I the development portion of the repository does not provid tored, and retrieved without undue risk to the health and s from the development portion of the repository; only the op	arety to the public
release abo	we the federal limits?	nitor a credible Design Basis Event which would otherwise	e result in a radioa
Yes?	Rationale: The turnout excavation ventilation system or consequences of a DBE that could otherwis	n the development portion of the repository does not preve e result in a radioactive release above federal limits.	ent or mitigate the
<b>1.3</b> Will the dire	ect failure of the SSC result in a credible Desig	n Basis Event which would lead to a radioactive release al	bove the federal li
	Rationale:		
Yes?			ot result in a DBE
C Yes?	Hallure of the turnout excavation ventilation s which would lead to a radioactive release.	system on the development portion of the repository will no	
	Failure of the furnout excavation ventilation s which would lead to a radioactive release. Int to Waste Isolation:	system on the development portion of the repository will he	
QA-2 - Importa	which would lead to a radioactive release.		
QA-2 - Importa	which would lead to a radioactive release. Int to Waste Isolation: ISC perform a waste isolation function by formin Rationale:	ng part of the natural or engineered barriers?	
QA-2 - Importa 2.1 Does the S	which would lead to a radioactive release. Int to Waste Isolation: ISC perform a waste isolation function by formin Rationale:	ng part of the natural or engineered barriers? In the development portion of the repository is not part of th	he natural or
QA-2 - Importa 2.1 Does the S Yes? 2.2 Can direct	which would lead to a radioactive release. Int to Waste Isolation: ISC perform a waste isolation function by formin Rationale: The turnout excavation ventilation system of engineered barriers important to waste isolar	ng part of the natural or engineered barriers? In the development portion of the repository is not part of the tion. logical, geochemical, or geomechanical characteristics of	
QA-2 - Importa 2.1 Does the S Yes? 2.2 Can direct	which would lead to a radioactive release. Int to Waste Isolation: SC perform a waste isolation function by formin Rationale: The turnout excavation ventilation system of engineered barriers important to waste isolar failure of the SSC significantly affect the hydrol barriers which may prevent them from perform Rationale:	ng part of the natural or engineered barriers? In the development portion of the repository is not part of the tion. logical, geochemical, or geomechanical characteristics of	the natural or

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

### SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 3: Emplacement Drift System

Level 4: Turnout Excavation

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## QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The turnout excavation ventilation system on the development portion of the repository is not associated with site-generated radioactive waste.

Level 5: N/A

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The turnout excavation ventilation system on the development portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the turnout excavation ventilation system on the development portion of the repository could impair the capability of QA-1 or QA-2 SSCs from performing their waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale

The turnout excavation ventilation system on the development portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The turnout excavation ventilation system on the development portion of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 3: Emplacement Drift System

Level 4: Turnout Excavation

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The turnout excavation ventilation system on the development portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The turnout excavation ventilation system on the development portion of the repository is not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC (Development Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

SDI	D: SS05 -	Subsurface	Ventilat	ion Sys	tem						
SSC	C: Development Ventilation System vel 3: Miscellaneous Support Cutout Systems						Level 4: Charging Stations				
Lev											
		0A-1	<b>QA-2</b>	QA-3	<b>0</b> А-4 □	<b>QA-5</b>	<b>0A-6</b>	0A-7	Non-Q Z		
QA-	1 - importar	nt to Radiologic	al Safety:								
1.1	Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?										
	Yes?	Yes? Rationale: The charging stations ventilation system on the development portion of the repository do not provide reasonable assurance									
		that spent fuel	can be ha	ndled, sto	red, and ri	strieved wi	ithout undue	risk to th	e health and safety to	le reasonable assurance the public. Waste is n portion of the repository	
1.2	Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioact release above the federal limits?										
	Yes?	Rationale: The charging stations ventilation system on the development portion of the repository do not prevent or mitigate the									
		·							above federal limits		
1.3	Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limit										
	Yes?	Rationale:									
		Failure of the charging stations ventilation system on the development portion of the repository will not result in a DBE which would lead to a radioactive release.									
QA-:	2 - Importar	nt to Waste Isola	ation:								
2.1	Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?										
	Yes?	Rationale:									
		The charging stations ventilation system on the development portion of the repository are not part of the natural or engineered barriers important to waste isolation.									
2.2	Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?										
	Yes?	Rationale									
		Failure of the charging stations ventilation system on the development portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.									

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 4: Charging Stations

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The charging stations ventilation system on the development portion of the repository are not associated with sitegenerated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The charging stations ventilation system on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the charging stations ventilation system on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The charging stations ventilation system on the development portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

The charging stations ventilation system on the development portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

### SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 4: Charging Stations

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

#### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The charging stations ventilation system on the development portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

[ Yes? Rationale:

The charging stations ventilation system on the development portion of the repository are not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

This SSC (Development Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Develop	pment Ventilat	ion Syste	m			Level 4	: Fueling	g Bays	
Lev	vel 3: Misco	ellaneous Sup	port Cuto	ut Systei	'ns		Level 5	: N/A		
		<b>QA-1</b>	QA-2	<b>QA-3</b>	<b>QA-4</b>	<b>QA-6</b>	<b>QA-6</b>	QA-7	Non-Q V	
QA-	1 - Importa	nt to Radiologic	al Safety:							
1.1		required to provi thout exceeding (			ince that h	igh-level v	vaste can b	e received	d, handled, packa	ged, stored, emplaced, a
	Yes?	Rationale:								
		spent fuel can	i be handle	d, stored,	and retriev	ed withou	t undue risl	c to the he	alth and safety to	de reasonable assurance the public. Waste is no ons portion of the reposi
1.2		required to funct we the federal lim		ent, mitiga	te, or moni	tor a cred	ible Design	Basis Ev	ent which would o	therwise result in a radio
	🗋 Yes?								tory do not prever above federal limi	
1.3	Will the dire	ect failure of the S	SSC result	in a credit	de Design	Basis Eve	ent which w	ould lead	to a radioactive re	lease above the federal
	C Yes?	Rationale:								
		Failure of the would lead to a			on system	on the de	/elopment j	portion of t	he repository will	not result in a DBE whic
QA-	2 - Importai	nt to Waste Isol	ation:							
2.1	Does the S	SC perform a wa	ste isolatio	n function	by forming	part of th	e natural o	engineer	ed barriers?	
	Yes?	Rationale:								
		The fueling barriers import				velopmen	t portion of	the reposi	tory are not part o	of the natural or engineer
2.2		ailure of the SSC barriers which m								stics of the natural or
	Ves?	Rationale:								
		Failure of the	fueling bay	s ventilatio	on system	on the dev	elopment p	ortion of t	he repository wou ir waste isolation	Id not affect the function

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 4: Fueling Bays

Level 3: Miscellaneous Support Cutout Systems

## Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - **Yes?** Rationale:

The fueling bays ventilation system on the development portion of the repository are not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The fueling bays ventilation system on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:
    - Failure of the fueling bays ventilation system on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The fueling bays ventilation system on the development portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The fueling bays ventilation system on the development portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SD	D: SS05 -	Subsurface Ventilation System					
SS	C: Develop	ment Ventilation System	Level 4: Fueling Bays				
Lev	el 3: Misce	Ilaneous Support Cutout Systems	Level 5: N/A				
QA-	7 - Importan	t to Occupational Radiological Exposure:					
7.1		SC provide personnel radiation shielding, reduc own radioactive source term?	dose rates in radioactive areas, or require personnel access into radiation				
	Yes?	Rationale:					
	The fueling bays ventilation system on the development portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.						
7. <b>2</b>	Is the SSC a	a permanently installed radiation monitor which	nonitors areas for personnel radiation protection?				
	Yes?	Rationale:					
		The fueling bays ventilation system on the de monitoring system.	relopment portion of the repository are not part of a radiation monitor or				
Prev	vious QA Cla	ssification:					
This	question is fo	r historical and traceability purposes only. A ";	es" answer to this question does not provide inclusion to the Q-List				
8.0	3.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?						
	☑ Yes?	Rationale:					
		This SSC (Development Ventilation System) Utility Systems, 3.5.5.1, as QA-1.	s contained on the Q-List by direct inclusion for the Underground Service and				

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

667	• Develop	Dement Ventilation System Level 4: Pumping Stations
330	. Develop	
Lev	el 3: Misce	elianeous Support Cutout Systems Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-	1 - Importar	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, a thout exceeding the federal limits?
	Yes?	Rationale:
		The pumping stations ventilation system on the development portion of the repository do not provide reasonable assur that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste i stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the reposit
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radio we the federal limits?
	Yes?	Rationale:
		The pumping stations ventilation system on the development portion of the repository do not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal
	Yes?	Rationale
		Failure of the pumping stations ventilation system on the development portion of the repository will not result in a DBE would lead to a radioactive release.
QA-:	2 - Importar	nt to Waste Isolation:
2.1	Does the S	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		The pumping stations ventilation system on the development portion of the repository are not part of the natural or engineered barriers important to waste isolation.
2.2		failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
2.2		

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 4: Pumping Stations

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The pumping stations ventilation system on the development portion of the repository are not associated with sitegenerated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - **Yes?** Rationale:

The pumping stations ventilation system on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of the pumping stations ventilation system on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The pumping stations ventilation system on the development portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The pumping stations ventilation system on the development portion of the repository are not associated with nuclear material accountability.

## B00000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 4: Pumping Stations

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The pumping stations ventilation system on the development portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The pumping stations ventilation system on the development portion of the repository are not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

✓ Yes? Rationale

		B0000000-01717-0200-00134 Q-List Questions Attacht	Rev 00 ment IV
SDI	D: SS05 -	- Subsurface Ventilation System	
ssc	: Develop	pment Ventilation System Level 4: Refuge Chambers	
Leve	el 3: Miscel	ellaneous Support Cutout Systems Level 5: N/A	
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q	
QA-1	I - Importan	nt to Radiological Safety:	
1.1	is the SSC r retrieved wit	required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced ithout exceeding the federal limits?	d, and
	C Yes?	Rationale: The refuge chambers ventilation system on the development portion of the repository does not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the pu Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations porti repository.	ublic. lion of the
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a ra ove the federal limits?	adioactive
	Yes?	Rationale:	
		The refuge chambers ventilation system on the development portion of the repository do not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.	
1.3	Will the dire	rect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the feder	ral limits?
	Yes?	Rationale:	
		Failure of the refuge chambers ventilation system on the development portion of the repository will not result in a D which would lead to a radioactive release.	BE
QA-	2 - Importar	ant to Waste Isolation:	
2.1	Does the S	SSC perform a waste isolation function by forming part of the natural or engineered barriers?	
	Yes?	Rationale:	
		The refuge chambers ventilation system on the development portion of the repository are not part of the natural or engineered barriers important to waste isolation.	
	Can direct f engineered	failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or d barriers which may prevent them from performing their waste isolation function?	r
2.2			
2.2	Yes?	Rationale: Failure of the refuge chambers ventilation system on the development portion of the repository would not affect the	

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 4: Refuge Chambers

Level 3: Miscellaneous Support Cutout Systems

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The refuge chambers ventilation system on the development portion of the repository are not associated with site-generated radioactive waste.

Level 5: N/A

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - C Yes? Rationale:

The refuge chambers ventilation system on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the refuge chambers ventilation system on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

## QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale

The refuge chambers ventilation system on the development portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The refuge chambers ventilation system on the development portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 4: Refuge Chambers

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The refuge chambers ventilation system on the development portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The refuge chambers ventilation system on the development portion of the repository are not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Ves? Rationale:

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

	C: Develo	pment Ventilation System Level 4: Science Cutouts
Le	vel 3: Misco	ellaneous Support Cutout Systems Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-	1 - Importa	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplac thout exceeding the federal limits?
	Yes?	Rationale
		The science cutouts ventilation system on the development portion of the repository do not provide reasonable as that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. We stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the re
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a we the federal limits?
	🗌 Yes?	Rationale
		consequences of a DBE that could otherwise result in a radioactive release above federal limits.
13	Will the dire	ent failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the fed
1.3		ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the fed
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the fed Rationale: Failure of the science cutouts ventilation system on the development portion of the repository will not result in a Di would lead to a radioactive release.
	_ Yes?	Rationale: Failure of the science cutouts ventilation system on the development portion of the repository will not result in a D
QA-	Yes? 2 - Importa	Rationale: Failure of the science cutouts ventilation system on the development portion of the repository will not result in a Di would lead to a radioactive release.
1.3 QA- 2.1	Yes? 2 - Importa	Rationale: Failure of the science cutouts ventilation system on the development portion of the repository will not result in a Di would lead to a radioactive release. nt to Waste Isolation:
QA-	<ul> <li>Yes?</li> <li>2 - Importation</li> <li>Does the S</li> </ul>	Rationale: Failure of the science cutouts ventilation system on the development portion of the repository will not result in a Di would lead to a radioactive release. Int to Waste Isolation: SC perform a waste isolation function by forming part of the natural or engineered barriers?
QA- 2.1	<ul> <li>Yes?</li> <li>2 - Importal Does the S</li> <li>Yes?</li> <li>Can direct 1</li> </ul>	Rationale: Failure of the science cutouts ventilation system on the development portion of the repository will not result in a D would lead to a radioactive release. In to Waste Isolation: SC perform a waste isolation function by forming part of the natural or engineered barriers? Rationale: The science cutouts ventilation system on the development portion of the repository are not part of the natural or engineeries important to waste isolation.
QA- 2.1	<ul> <li>Yes?</li> <li>2 - Importal Does the S</li> <li>Yes?</li> <li>Can direct 1</li> </ul>	Rationale: Failure of the science cutouts ventilation system on the development portion of the repository will not result in a Di would lead to a radioactive release. Int to Waste Isolation: SC perform a waste isolation function by forming part of the natural or engineered barriers? Rationale: The science cutouts ventilation system on the development portion of the repository are not part of the natural or e barriers important to waste isolation.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 4: Science Cutouts

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - **Yes?** Rationale:

The science cutouts ventilation system on the development portion of the repository are not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The science cutouts ventilation system on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of the science cutouts ventilation system on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The science cutouts ventilation system on the development portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

The science cutouts ventilation system on the development portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 4: Science Cutouts

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

#### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The science cutouts ventilation system on the development portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The science cutouts ventilation system on the development portion of the repository are not part of a radiation monitor or monitoring system.

### **Previous QA Classification:**

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

			0	2-Lis	t Qu	estic	ons			Attachm
SDI	D: SS05 -	Subsurface	Ventilat	lion Sys	tem					
sso	: Develop	ment Ventilati	ion Syste	em			Level 4	: N/A		
Lev	el 3: Perfo	rmance Confir	mation S	System			Level 5	: N/A		
		QA-1	0A-2	QA-3	<b>QA-4</b>	QA-5	0A-6	<b>QA-7</b>	Non-Q.	
QA-	1 - Importar	t to Radiologic	al Safety:	:						
1.1	Is the SSC i retrieved wit	required to provid hout exceeding t	de reasona he federal	able assur 1 limits?	ance that I	nigh- <b>level</b> v	vaste can l	be received	d, handled, packag	ed, stored, emplaced,
	Yes?	Rationale								
		The ventilation contruction ph without exceed	iase and d	loes not er	ormance o Isure that	onfirmatio high-level	n system fe waste can l	or the deve be handled	elopment ventilation 1, packaged, stored	) system is used during 1, emplaced, or retrieve
1.2	Is the SSC release above	required to functi ve the federal lim	ion to prev iits?	ent, miliga	ite, or mor	nitor a cred	ible Design	n Basis Ev	ent which would ot	herwise result in a radi
	_ Yes?	Rationale								
		The ventilation credible DBEs	n system fi s which ma	or the Peri ay exceed	federal lim	Confirmation its in the e	on Systems vent of a ra	s does not adioactive	release.	to prevent, mitigate or
1.3	Will the dire	ct failure of the S	SSC result	t in a credi	ble Desigi	n Basis Ev				ease above the federa
1.3	Will the dire	ct failure of the S Rationale:	SSC result	t in a credi	ble Desigi	n Basis Ev				ease above the federal
1.3		Rationale:	developme	ent ventilat	ion systen	n for the pe	ent which v	would lead	to a radioactive rel	ease above the federal repository will not resul
	🗌 Yes?	Rationale: Failure of the	developme ould lead t	ent ventilat	ion systen	n for the pe	ent which v	would lead	to a radioactive rel	
QA-	☐ Yes? 2 - Importai	Rationale: Failure of the DBE which we	developme ould lead t lation:	ent ventilat o a radioad	ion systen ctive relea:	n for the pa se.	ent which v rformance	vould lead confirmati	to a radioactive rel	
QA-	☐ Yes? 2 - Importai	Rationale: Failure of the DBE which we nt to Waste Isol SC perform a wa Rationale:	developme ould lead t lation: iste isolatio	ent ventilat o a radioad on functior	ion systen ctive relea: n by formir	n for the pe se. ng part of t	ent which v erformance ne natural o	vould lead confirmati or engineel	to a radioactive rel ion system for the red barriers?	repository will not resul
QA-	Yes? Yes? Importai	Rationale: Failure of the DBE which we nt to Waste Isol SC perform a wa Rationale:	developme ould lead t lation: iste isolatio nent ventila	ent ventilat o a radioad on functior ation syste	ion systen ctive releas n by formir m for the p	n for the pe se. ng part of t performanc	ent which v erformance ne natural o	vould lead confirmati or engineel	to a radioactive rel ion system for the red barriers?	
QA- 2.1	Yes?  I mportai Does the S: Yes?  Can direct f	Rationale: Failure of the o DBE which we nt to Waste Isol SC perform a wa Rationale: The developm engineered ba	developme ould lead t lation: iste isolatio ment ventila irriers imp C significa	ent ventilat o a radioad on functior ation syste ortant to w ntly affect	ion systen ctive releas n by formir m for the p raste isolat the hydrol	n for the pe se. Ig part of t performanc ion. ogical, geo	ent which v erformance ne natural o e confirma chemical, o	vould lead confirmati or engineer tion syster	to a radioactive rel ion system for the red barriers? n for the repository hanical characteris	repository will not resul
QA- 2.1	Yes?  I mportai Does the S: Yes?  Can direct f	Rationale: Failure of the o DBE which we nt to Waste Isol SC perform a wa Rationale: The developm engineered ba	developme ould lead t lation: iste isolatio ment ventila irriers imp C significa	ent ventilat o a radioad on functior ation syste ortant to w ntly affect	ion systen ctive releas n by formir m for the p raste isolat the hydrol	n for the pe se. Ig part of t performanc ion. ogical, geo	ent which v erformance ne natural o e confirma chemical, o	vould lead confirmati or engineer tion syster	to a radioactive rel ion system for the red barriers? n for the repository hanical characteris	repository will not resul is not part of the natu

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## B00000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC:Development Ventilation SystemLevel 4: N/ALevel 3:Performance Confirmation SystemLevel 5: N/A

## QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - **Yes?** Rationale:

The development ventilation system for the performance confirmation system for the repository is not associated with sitegenerated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The development ventilation system for the performance confirmation system for the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the development ventilation system for the performance confirmation system for the repository should not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The development ventilation system for the performance confirmation system for the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The development ventilation system for the performance confirmation system for the repository is not associated with nuclear material accountability.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS05	-	Subsurface	٧	entilation	System	
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SSC: Development Ventilation System	Level 4: N/A
Level 3: Performance Confirmation System	Level 5: N/A

### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The development ventilation system for the performance confirmation system on the development portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

### Yes? Rationale:

The ventilation system for the performance confirmation system for the repository is not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**Ves?** Rationale:

		Q-List Questions Attachme
SD	D: SS05	- Subsurface Ventilation System
SS	C: Develop	oment Ventilation System Level 4: N/A
Lev	vel 3: Shop	Warehouse Area System Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-	1 - Importai	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, ar thout exceeding the federal limits?
	Yes?	Rationale:
		The shop/warehouse area ventilation system on the development portion of the repository is not required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety t public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the repository.
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioa ve the federal limits?
	🗌 Yes?	Rationale:
		The shop/warehouse area ventilation system on the development portion of the repository does not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal lin
	Yes?	Rationale:
		Failure of the shop/warehouse area ventilation system on the development portion of the repository will not result in a DE which would lead to a radioactive release.
QA-	2 - Importar	nt to Waste Isolation:
2.1	Does the St	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	🗌 Yes?	Rationale:
		The shop/warehouse area ventilation system on the development portion of the repository is not part of the natural or engineered barriers important to waste isolation.
2.2		ailure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	Yes?	Rationale:
		Failure of the shop/warehouse area ventilation system on the development portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System	Level 4: N/A
Level 3: Shop/Warehouse Area System	Level 5: N/A

QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - **Yes?** Rationale:

The shop/warehouse area ventilation system on the development portion of the repository is not associated with sitegenerated radioactive waste.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The shop/warehouse area ventilation system on the development portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

- QA-5 Important to Potential Interaction:
- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of the shop/warehouse area ventilation system on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The shop/warehouse area ventilation system on the development portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

The shop/warehouse area ventilation system on the development portion of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System	SDD:	SS05	- Subsurface	Ventilation	System
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SSC: Development Ventilation System	Level 4: N/A
Level 3: Shop/Warehouse Area System	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The shop/warehouse area ventilation system on the development portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The shop/warehouse area ventilation system on the development portion of the repository is not part of a radiation monitor or monitoring system.

## Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS05 - Subsurface Ventilation System

SSC: Developm	nent Ventilat		Level 4	: Air Mo	vers				
Level 3: Ventilat	tion Commo	dities		Level 5	: N/A				
·	0A-1 √	QA-2	<b>0A-3</b>	<b>0</b> А-4	<b>QA-5</b>	<b>0A-6</b>	<b>0A-7</b>	Non-Q	

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

#### Yes? Rationale:

The air movers on the development portion of the repository provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. The air movers on the development portion of the repository are required to be operable to maintain the proper air balance in the repository and thus provide for radiological safety in the event of a breach of a waste package or other such event that leads to a release of radioactivity on the operations portion of the repository.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

### Yes? Rationale:

The air movers on the development portion of the repository are required to be operable to mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. These air movers maintain the air balance between the development portion and the operations portion of the repository such that leakage between these systems will flow from the development system to the emplacement system.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale

Failure of the air movers on the development portion of the repository will not result in a DBE which would lead to a radioactive release.

### QA-2 - Important to Waste isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The air movers on the development portion of the repository are not part of the natural or engineered barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the air movers on the development portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 3: Ventilation Commodities

Level 4: Air Movers

Level 5: N/A

## QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

**Yes?** Rationale:

The air movers on the development portion of the repository are not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The air movers on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

### QA-5 - important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the air movers on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The air movers on the development portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The air movers on the development portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

### SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System	Level 4: Air Movers
Level 3: Ventilation Commodities	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The air movers on the development portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

**Yes?** Rationale:

The air movers on the development portion of the repository are not part of a radiation monitor or monitoring system.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**Ves?** Rationale:

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS05	- Subsurface	Ventilation	System
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SSC: Developmer	em		Level 4: Control Devices								
Level 3: Ventilation		Level 5: N/A									
	0A-1	0A-2	<b>0A-3</b>	<b>0</b> 4-4	<b>QA-5</b>	<b>0A-6</b>	<b>0</b> ∧-7	Non-Q			-

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

**Yes?** Rationale:

The control devices for the development ventilation system provide assurance that high-level waste can be handled, stored, and retrieved without undue risk to the health and safety to the public. These devices control the flow of air to ensure a balanced air flow distribution such that air leakage always flows from the development portion of the repository to the operations portion of the repository.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale:

The control devices for the development ventilation system are required to be operable to mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. This system ensures that the air balance between the development portion and the operations portion of the repository is such that leakage between these systems will flow from the development system to the emplacement system.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale:

Failure of the control devices for the development ventilation system will not necessarily result in a DBE which would lead to a radioactive release.

#### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The control devices for the development ventilation system are not part of the natural or engineered barriers Important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the control devices for the development ventilation system would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 3: Ventilation Commodities

Level 4: Control Devices

Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The control devices for the development ventilation system are not associated with site-generated radioactive waste.

## QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

> The control devices for the development ventilation system do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - [Yes? Rationale:

Failure of the control devices for the development ventilation system would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

> The control devices for the development ventilation system are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale

The control devices for the development ventilation system are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 3: Ventilation Commodities

Level 4: Control Devices

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

**Yes?** Rationale:

The control devices for the development ventilation system are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The control devices for the development ventilation system are not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**∀** Yes? Rationale

		Q-List Questions Attac	hment
SDI	D: SS05 -	- Subsurface Ventilation System	
sso	: Develop	oment Ventilation System Level 4: Dust/Fume Control	
Lev	el 3: Ventil	ation Commodities Level 5: N/A	
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q	
QA-	1 - Importan	nt to Radiological Safety:	
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplac thout exceeding the federal limits?	ed, and
	Yes?	Rationale:	
		The dust/fume control equipment on the development portion of the repository does not provide reasonable assur spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the re This equipment is not important to radiological safety.	is not
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a ve the federal limits?	radioac
	Yes?	Rationale:	
		The dust/fume control equipment on the development portion of the repository does not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. This equipment important to radiological safety.	is not
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the fed	leral limi
	Yes?	Rationale:	
		Failure of the dust/fume control equipment on the development portion of the repository will not result in a DBE will lead to a radioactive release.	hich <del>w</del> oi
QA-	2 - Importar	nt to Waste Isolation:	
2.1	Does the SS	SC perform a waste isolation function by forming part of the natural or engineered barriers?	
	Yes?	Rationale	
		The dust/fume control equipment on the development portion of the repository is not part of the natural or enginee barriers important to waste isolation.	red'
2.2		failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural o barriers which may prevent them from performing their waste isolation function?	or
	Yes?	Rationale:	
		Failure of the dust/fume control equipment on the development portion of the repository would not affect the function natural/engineered barriers, thereby preventing them from performing their waste isolation function.	ion of th

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System
- Level 3: Ventilation Commodities

Level 4: Dust/Fume Control

Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The dust/fume control equipment on the development portion of the repository are not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The dust/fume control equipment on the development portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the dust/fume control equipment on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The air movers on the development portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The dust/fume control equipment on the development portion of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	C: Develo	pment Ventilation System	Level 4: Dust/Fume Control
Le	vel 3: Venti	lation Commodities	Level 5: N/A
QA	-7 - Importa	nt to Occupational Radiological Exposur	e:
7.1		SC provide personnel radiation shielding, re- own radioactive source term?	luce dose rates in radioactive areas, or require personnel access into radiation
	Yes?	Rationale:	
		The dust/fume control equipment on the on shielding or the reduction of dose rates in	levelopment portion of the repository is not associated with personnel radiation radioactive areas.
7.2	is the SSC	a permanently installed radiation monitor wh	ch monitors areas for personnel radiation protection?
	Yes?	Rationale:	
		The dust/fume control equipment on the o monitoring system.	evelopment portion of the repository is not part of a radiation monitor or
Pre	vious QA Cla	ssification:	
This	s question is fo	or historical and traceability purposes only.	A "yes" answer to this question does not provide inclusion to the Q-List
8.0	Are there ot this SSC is	ther factors, such as previous analyses, a bo important to radiological safety (QA-1) or wa	dy of consensus, or by direct inclusion, that led to the previous conclusion th ste isolation (QA-2)?
	∑ Yes?	Rationale:	
		This SSC (Development Ventilation Syste Utility Systems, 3.5.5.1, as QA-1.	m) is contained on the Q-List by direct inclusion for the Underground Service

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

33	C: Develo	pment Ventilat	ion Syste	em			Level 4:	: Heatin	g/Cooling
Lev	<b>vel 3</b> : Venti	ilation Commo	dities				Level 5:	: <b>N/A</b>	
		QA-1	QA-2	<b>QA-3</b>	<b>0A-4</b>	<b>QA-5</b>	<b>QA-6</b>	0A-7	Non-Q V
QA-	1 - Importa	nt to Radiologic	al Safety:						
1.1	is the SSC retrieved wi	required to provi ithout exceeding t	de reasona the federal	ible assura limits?	ince that h	igh-level v	vaste can b	e received	l, handled, packaged, stored, emplaced
	Yes?	Rationale:							
		assurance tha Waste packag	t spent fue Jes are not	I can be h stored on	andled, sto the develo	pred, and i prnent poi	etrieved wit tion of the r	hout undu repository	n of the repository does not provide reas le risk to the health and safety to the pu even when waste packages are eventu de this assurance.
1.2	Is the SSC release abo	required to functions the federal limit	ion to previ iits?	ent, mitigal	te, or moni	tor a credi	ble Design	Basis Eve	ent which would otherwise result in a rac
	🗌 Yes?	Rationale:							
		The heating/co the consequer	ooling venti Ices of a D	lation syst BE that co	em equipn ould otherv	nent on the vise result	e developmi in a radioad	ent portior ctive relea	a of the repository does not prevent or m se above federal limits.
1.3	Will the dire	ect failure of the S	SC result	in a credib	vle Design	Basis Eve	nt which wo	ould lead t	o a radioactive release above the federa
1.3	Will the dire	ect failure of the S Rationale:	SSC result	in a credib	ve Design	Basis Eve	nt which wo	ould lead t	o a radioactive release above the federa
1.3		Rationale:	veating/coo	oling ventila	ation syste	m equipm			o a radioactive release above the federa nt portion of the repository will not resul
	CYes?	Rationale: Failure of the I	neating/coo wild lead to	oling ventila	ation syste	m equipm			
	Yes?	Rationale: Failure of the h DBE which wo	neating/coo nuld lead to ation:	bling ventila a radioact	ation syste ive release	m equipm e.	ent on the d	evelopme	nt portion of the repository will not result
	Yes?	Rationale: Failure of the h DBE which wo nt to Waste Isola	neating/coo nuld lead to ation:	bling ventila a radioact	ation syste ive release	m equipm e.	ent on the d	evelopme	nt portion of the repository will not result
	Yes? 2 - Importan Does the Sa	Rationale: Failure of the h DBE which wo nt to Waste Isola SC perform a was Rationale:	neating/coo nuld lead to ation: ste isolation soling ventil	bling ventila a radioact n function l lation syste	ation syste ive release by forming em equiprr	m equipme	ent on the d e natural or	evelopme engineere	nt portion of the repository will not result
QA- 2.1	<ul> <li>Yes?</li> <li>2 - Importan</li> <li>Does the S:</li> <li>Yes?</li> <li>Can direct f</li> </ul>	Rationale: Failure of the h DBE which wo nt to Waste Isola SC perform a was Rationale: The heating/co engineered bai	neating/coo nuld lead to ation: ste isolation ste isolation rriers impor	bling ventila a radioact n function lation syste rtant to wa	ation syste ive release by forming em equiprr ste isolatio	m equipme e. part of the ment on the n. jical, geoc	ent on the d e natural or developme hemical, or	engineere int portion geomech:	nt portion of the repository will not result of barriers? of the repository is not part of the natura
	<ul> <li>Yes?</li> <li>2 - Importan</li> <li>Does the S:</li> <li>Yes?</li> <li>Can direct f</li> </ul>	Rationale: Failure of the h DBE which wo nt to Waste Isola SC perform a was Rationale: The heating/co engineered bar	neating/coo nuld lead to ation: ste isolation ste isolation rriers impor	bling ventila a radioact n function lation syste rtant to wa	ation syste ive release by forming em equiprr ste isolatio	m equipme e. part of the ment on the n. jical, geoc	ent on the d e natural or developme hemical, or	engineere int portion geomech:	nt portion of the repository will not result of barriers? of the repository is not part of the natura

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 3: Ventilation Commodities

Level 4: Heating/Cooling

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The heating/cooling ventilation system equipment on the development portion of the repository is not associated with sitegenerated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - [Yes? Rationale:

The heating/cooling ventilation system equipment on the development portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire

- QA-5 Important to Potential Interaction:
- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the heating/cooling ventilation system equipment on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The heating/cooling ventilation system equipment on the development portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The heating/cooling ventilation system equipment on the development portion of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System
- Level 3: Ventilation Commodities

Level 4: Heating/Cooling

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The heating/cooling ventilation system equipment on the development portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The heating/cooling ventilation system equipment on the development portion of the repository is not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

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SS	C: Develop	pment Ventilation System Level 4: Silencers
Lev	vel 3: Venti	lation Commodities Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA.	1 - importa	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, ithout exceeding the federal limits?
	C Yes?	Rationale: The ventilation silencers on the development portion of the repository do not provide reasonable assurance that spent can be handled, stored, and retrieved without undue risk to the health and safety to the public.
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radi we the federal limits?
	Yes?	Rationale:
		The ventilation silencers on the development portion of the repository do not prevent or mitigate the consequences of that could otherwise result in a radioactive release above federal limits.
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal
	Yes?	Rationale:
		Failure of the ventilation silencers on the development portion of the repository will not result in a DBE which would lea radioactive release.
QA-	2 - Importai	nt to Waste Isolation:
2.1	Does the S	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		The ventilation silencers on the development portion of the repository are not part of the natural or engineered barriers important to waste isolation.
2.2		failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	Yes?	Rationale:
		Failure of the ventilation silencers on the development portion of the repository would not affect the function of the

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Development Ventilation System

Level 3: Ventilation Commodities

Level 4: Silencers

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale

The ventilation silencers on the development portion of the repository are not associated with site-generated radioactive waste

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The ventilation silencers on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:
    - Failure of the ventilation silencers on the development portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale

The ventilation silencers on the development portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ventilation silencers on the development portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS05	-	Subsurface	Ventilation	S	vstem
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 SSC:
 Development Ventilation System
 Level 4: Silencers

 Level 3:
 Ventilation Commodities
 Level 5: N/A

- QA-7 Important to Occupational Radiological Exposure:
- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The ventilation silencers on the development portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

ZYes? Rationale:

The ventilation silencers on the development portion of the repository are not part of a radiation monitor or monitoring system.

## Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

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## SDD: SS05 - Subsurface Ventilation System

	0A-1	<b>QA-2</b>	QA-3 □	0A-4	<b>QA-5</b>	QA-6	QA-7	Non-Q
Level	3: Ventilation Level Sy	vstern				Level 5	: N/A	
SSC:	Development Ventilat	Level 4: N/A						

### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The level system on the development portion of the repository ventilation system ensures a balanced air flow distribution using reasonable ventilation control measures on the development portion of the repository. This SSC is required to provide assurance that high-level waste can be received, handled, emplaced and stored on the operations portion of the repository without exceeding federal limits.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

#### **Yes?** Rationale:

The level system on the development portion of the repository ventilation system is required to be operable to mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. This system ensures that the air balance between the development portion and the operations portion of the repository is such that leakage between these systems will flow from the development system to the emplacement system.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale

Failure of the level system on the development portion of the repository ventilation system will not result in a DBE which would lead to a radioactive release. Failure of this system does not necessarily mean waste packages will release their contents or result in a DBE which would lead to such a release.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale

The level system on the development portion of the repository ventilation system is not part of the natural or engineered barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the level system on the development portion of the repository ventilation system would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC:
   Development Ventilation System
   Level 4: N/A

   Level 3:
   Ventilation Level System
   Level 5: N/A
- QA-3 Important to Radioactive Waste Control:
- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - **Yes?** Rationale:

The level system on the development portion of the repository ventilation system is not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - **Yes?** Rationale:

The level system on the development portion of the repository ventilation system does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

- QA-5 Important to Potential Interaction:
- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the level system on the development portion of the repository ventilation system would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The level system on the development portion of the repository ventilation system is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The level system on the development portion of the repository ventilation system is not associated with nuclear material accountability.



## B00000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS05	- Subsurface	Ventilation	System
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SSC: Development Ventilation System	Level 4: N/A
Level 3: Ventilation Level System	Level 5: N/A

## QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The level system on the development portion of the repository ventilation system is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The level system on the development portion of the repository ventilation system is not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

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SDD:	SS05	- Subsurface	Ventilation S	ystem
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•	erations Ventilation	Level 4: Ramp						
Level 3: /	Access Ventilation	System				Levers	; IN <i>IA</i>	
	0A-1 ☑	0A-2	<b>0</b> A-3 □	0A-4	0A-5	0A-6	0A-7	Non-Q

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Ves? Rationale:

The ramp access ventilation system on the operations portion of the repository is required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. This part of the ventilation system is required to function as designed to maintain the proper air flow through the operational portion of the repository, thus ensuring that federal limits are not exceeded if there is a breach of a waste package in the operational portion of the repository.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale

The ramp access ventilation system on the operations portion of the repository is required to be operable and function as designed to maintain the proper air flow through the operational portion of the repository. This will prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale:

Failure of the access ventilation system ramp on the operations portion of the repository will not result in a DBE which would lead to a radioactive release (assuming that failure of the ramp does damage the waste packages).

#### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale.

The ramp access ventilation system on the operations portion of the repository is not part of the natural barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the ramp access ventilation system on the operations portion of the repository will not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## ist Questions

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 3: Access Ventilation System

Level 4: Ramp

Level 5: N/A

## QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale

> The ramp ventilation system on the operations portion of the repository is not associated with site-generated radioactive waste

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

\_\_\_Yes? Rationale:

> The ramp ventilation system on the operations portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of the ramp ventilation system on the operations portion of the repository will not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - C Yes? Rationale:

The ramp ventilation system on the operations portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ramp ventilation system on the operations portion of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05	- Subsurface	Ventilation	System
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SSC:	Operations Ventilation System	Level 4: Ramp
Level	3: Access Ventilation System	Level 5: N/A

## QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The ramp ventilation system on the operations portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

#### Yes? Rationale:

The ramp ventilation system on the operations portion of the repository is not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC (Emplacement Area Ventilation) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.2, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilatio	1 System
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SSC: Operations Ventilation System							Level 4: Shaft				
Level	3: Access Ve	s Ventilation System				Level 5: N/A					
		QA-1	<b>0A-2</b>	<b>GA-3</b>	<b>0</b> ∧-4	QA-5	0A-6	0A-7	Non-Q		

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The subsurface ventilation system on the operations portion of the repository provides air to personnel, provides radiological confinement, and provides temperature control for the underground openings. The ventilation system for the ventilation shaft on the operations portion of the repository (part of the ventilation system that controls the release of radioactive particulates and gases from the subsurface facility) is required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale:

The ventilation system for the ventilation shaft on the operations portion of the repository is part of the ventilation system; this system controls the release of radioactive particulates and gases from the subsurface facility. The shaft is required to be operable and to function as designed to maintain the proper air flow through the operational portion of the repository to mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - C Yes? Rationale:

Failure of the ventilation system for the ventilation shaft on the operational portion of the repository will not result in a DBE which would lead to a radioactive release.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The ventilation system for the ventilation shaft on the operational portion of the repository is not part of the natural or engineered barriers important to waste Isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Ves? Rationale:

Failure of the ventilation system for the ventilation shaft on the operational portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation SystemLevel 4: ShaftLevel 3: Access Ventilation SystemLevel 5: N/A
- QA-3 Important to Radioactive Waste Control:
- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The ventilation system for the ventilation shaft on the operational portion of the repository is not associated with sitegenerated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - **Yes?** Rationale:

The ventilation system for the ventilation shaft on the operational portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale

Failure of the ventilation system for the ventilation shaft on the operational portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The ventilation system for the ventilation shaft on the operational portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ventilation system for the ventilation shaft on the operational portion of the repository is not associated with nuclear material accountability

## B0000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System	Level 4:	Shaft
Level 3: Access Ventilation System	Levei 5:	N/A

## QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The ventilation system for the ventilation shaft on the operational portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

**Yes?** Rationale:

The ventilation system for the ventilation shaft on the operational portion of the repository is not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - **Ves?** Rationale:

This SSC (Emplacement Area Ventilation) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.2, as QA-1.

## B00000000-01717-0200-00134 Rev 00 Attachment IV

		QA-1	0A-2	<b>QA-3</b>	 	0A-5	0A-6	0A-7	Non-Q
Level	3: Emplac	ement Drift	System				Level 5	: N/A	
SSC:	Operation	ns Ventilatio	n System				Level 4	: Drift	
SDD:	SS05 - S	Subsurface	Ventilat	ion Sys	tem				

### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The emplacement drift ventilation system on the operations portion of the repository is required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. This part of the ventilation system is required to function as designed to maintain the proper air flow through the operational portion of the repository, thus ensuring that federal limits are not exceeded if there is a breach of a waste package in the operational portion of the repository.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale:

The emplacement drift ventilation system on the operations portion of the repository is required to be operable and function as designed to maintain the proper air flow through the operational portion of the repository. This will prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - C Yes? Rationale

Failure of the emplacement drift ventilation on the operations portion of the repository would not result in a DBE which could lead to a radioactive release.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The emplacement drift ventilation on the operations portion of the repository is not part of the natural barrier important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale

Failure of the emplacement drift ventilation on the operations portion of the repository would not affect the function of the natural barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 3: Emplacement Drift System

Level 5: N/A

Level 4: Drift

## QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The emplacement drift ventilation system on the operations portion of the repository is not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The emplacement drift ventilation system on the operations portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the emplacement drift ventilation system on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale

The emplacement drift ventilation system on the operations portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The emplacement drift ventilation system on the operations portion of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SSC:	Operations Ventilation System	Level 4: Drift
Level	3: Emplacement Drift System	Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The emplacement drift ventilation system on the operations portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

## Yes? Rationale:

The emplacement drift ventilation system on the operations portion of the repository is not part of a radiation monitor or monitoring system.

## Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - **∑** Yes? Rationale:

This SSC (Emplacement Area Ventilation) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.2, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05	- Subsurface	Ventilation System
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SSC: Operations	Ventilation	n System			Level 4: Ventilation Raise				
Level 3: Emplacen	Level 5: N/A								
· <u></u>	0A-1	0A-2	0A-3	• • •	QA-5	<b>0A-6</b>	<b>0A-7</b>	Non-Q	

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

## **Yes?** Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository is required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. This part of the ventilation system is required to function as designed to maintain the proper air flow through the operational portion of the repository, thus ensuring that federal limits are not exceeded if there is a breach of a waste package in the operational portion of the repository.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

## Yes? Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository is required to be operable and function as designed to maintain the proper air flow through the operational portion of the repository. This will prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

### Yes? Rationale

Failure of the ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository will not result in a DBE which would lead to a radioactive release.

### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository does not form part of the natural barrier important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System
- Level 3: Emplacement Drift System

Level 4: Ventilation Raise

acement Drift System Level 5: N/A

## QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository is not associated with site-generated radioactive waste

## QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the emplacement drift system ventilation raise on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository is not associated with nuclear material accountability.



## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 3: Emplacement Drift System

Level 4: Ventilation Raise

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

**Yes?** Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The ventilation system for the emplacement drift system ventilation raise on the operations portion of the repository is not part of a radiation monitor or monitoring system.

### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - **Ves?** Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.2, as QA-1.

		Q-List Questions B0000000-01717-0200-00134 Rev
SDI	D: SS05 ·	Subsurface Ventilation System
sso	: Operatio	ons Ventilation System Level 4: Charging Stations
Lev	el 3: Misce	Ilaneous Support Cutout Systems Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-1	1 - Importar	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and hout exceeding the federal limits?
	Yes?	Rationale The ventilation system for the charging stations on the operations portion of the repository do not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public.
1.2	release abo	required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive the federal limits?
	Yes?	Rationale: The ventilation system for the charging stations on the operations portion of the repository do not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.
1.3	Will the dire	ect failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limit:
	Yes?	Rationale:
	_	Failure of the ventilation system for the charging stations on the operations portion of the repository will not result in a DBE which would lead to a radioactive release.
QA-:	2 - Importai	nt to Waste Isolation:
2.1	Does the S	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		The ventilation system for the charging stations on the operations portion of the repository are not part of the natural or engineered barriers important to waste isolation.
2.2		ailure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	Yes?	Rationale:
		Failure of the ventilation system for the charging stations on the operations portion of the repository would not affect the

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 4: Charging Stations

Level 3: Miscellaneous Support Cutout Systems

## Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The ventilation system for the charging stations on the operations portion of the repository are not associated with sitegenerated radioactive waste.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The ventilation system for the charging stations on the operations portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the charging stations on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The ventilation system for the charging stations on the operations portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ventilation system for the charging stations on the operations portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 4: Charging Stations

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

#### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The ventilation system for the charging stations on the operations portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The ventilation system for the charging stations on the operations portion of the repository are not part of a radiation monitor or monitoring system.

### **Previous QA Classification:**

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

		<b>QA</b> -1	<b>QA-2</b>	QA-3	<b>0</b> А-4 □	<b>QA-5</b>	QA-6	<b>QA-7</b>	Non-Q V	
Level	3: Miscellane	ous Supp	ort Cuto	ut Syster	ns		Level 5	: N/A		
SSC:	Operations V	entilation	System				Level 4	: Pumpi	ng Stations	
ອມມະ	5505 - Sub	sunace	ventilat	ion Syst	em					

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository is not required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository do not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

Yes? Rationale:

Failure of the ventilation system for the pumping stations on the operations portion of the repository will not result in a DBE which would lead to a radioactive release.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository are not part of the natural or engineered barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the pumping stations on the operations portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 4: Pumping Stations

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository are not associated with sitegenerated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - **Yes?** Rationale

The ventilation system for the pumping stations on the operations portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the pumping stations on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

## QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository are not associated with nuclear material accountability.

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## B00000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 4: Pumping Stations

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Ves? Rationale:

The ventilation system for the pumping stations on the operations portion of the repository are not part of a radiation monitor or monitoring system.

## Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

### **Ves?** Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

		B00000000-01717-0200-00134 Rev 00 Q-List Questions Attachment IV
SDI	D: SS05 -	Subsurface Ventilation System
ssc	: Operatio	ons Ventilation System Level 4: Refuge Chambers
Lev	el 3: Misce	Ianeous Support Cutout Systems Level 5: N/A
		QA-1     QA-2     QA-3     QA-4     QA-5     QA-6     QA-7     Non-Q       I     I     I     I     I     I     I
<b>QA-</b> 1	- Importar	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and hout exceeding the federal limits?
	Yes?	Rationale:
		The ventilation system for the refuge chambers on the operations portion of the repository are not required to provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public.
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive ve the federal limits?
	Yes?	Rationale:
		The ventilation system for the refuge chambers on the operations portion of the repository do not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits.
1.3	Will the dire	ct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
	Yes?	Rationale:
		Failure of the ventilation system for the refuge chambers on the operations portion of the repository will not result in a DBE which would lead to a radioactive release.
QA-2	t - Importar	t to Waste Isolation:
2.1	Does the SS	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		The ventilation system for the refuge chambers on the operations portion of the repository are not part of the natural or engineered barriers important to waste isolation.
2.2		ailure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	Ves?	Rationale:
		Failure of the ventilation system for the refuge chambers on the operations portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.
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## B00000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 4: Refuge Chambers

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

## QA-3 - important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The ventilation system for the refuge chambers on the operations portion of the repository are not associated with sitegenerated radioactive waste.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The ventilation system for the refuge chambers on the operations portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the refuge chambers on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The ventilation system for the refuge chambers on the operations portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - **Yes?** Rationale:

The ventilation system for the refuge chambers on the operations portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 4: Refuge Chambers

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

### QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The ventilation system for the refuge chambers on the operations portion of the repository provide for the reduction of dose rates in radioactive areas by providing air filters or fresh air to the occupants.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The ventilation system for the refuge chambers on the operations portion of the repository are not part of a radiation monitor or monitoring system.

## Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SS	SC: Operat	tions Ventilation	n System				Level 4:	: Scienc	e Cutouts
Le	evel 3: Misc	ellaneous Supp	port Cutou	ut Systei	ms		Level 5:	: N/A	
		QA-1	QA-2	0A-3	<b>0A-4</b>	QA-5	<b>QA-6</b>	0A-7	Non-Q V
QA	l-1 - Importa	nt to Radiologic	al Safety:						
1.1	Is the SSC retrieved w	required to provid ithout exceeding t	ie reasonat he federal li	de assura imils?	ince that h	iigh-level v	vaste can b	e received	l, handled, packaged, stored, emplaced, a
	C Yes?	Rationale: The ventilation assurance that	system for t spent fuel	the scier can be ha	nce cutout andled, sto	s on the op pred, and r	perational po etrieved wit	ortion of th hout undu	ne repository do not provide reasonable ue risk to the health and safety to the publi
1.2	is the SSC release abo	required to function ove the federal limit	on to preve its?	nt, mitigat	ie, or moni	tor a credi	ble Design i	Basis Eve	nt which would otherwise result in a radio
	Yes?	Rationale							
	_	The ventilation consequences	system for of a DBE ti	the scien hat could	ce cutouts otherwise	s on the op result in a	erational po radioactive	ortion of th release a	e repository do not prevent or mitigate the bove federal limits.
1.3	Will the dire	consequences	of a DBE ti	hat could	otherwise	result in a	radioactive	release a	ie repository do not prevent or mitigate the bove federal limits. o a radioactive release above the federal li
1.3	Will the dire	consequences	of a DBE ti	hat could	otherwise	result in a	radioactive	release a	bove federal limits.
1.3		consequences ect failure of the S Rationale:	of a DBE ti SC result ir entilation sy	hat could h a credib rstem for t	otherwise le Design the science	result in a Basis Eve	radioactive nt which wo	release a nukl lead t	bove federal limits.
	🗌 Yes?	consequences ect failure of the S Rationale: Failure of the vi	of a DBE ti SC result ir entilation sy ad to a radio	hat could h a credib rstem for t	otherwise le Design the science	result in a Basis Eve	radioactive nt which wo	release a nukl lead t	bove federal limits. o a radioactive release above the federal li
	☐ Yes? -2 - Importa	consequences ect failure of the S Rationale: Failure of the vi which would lea	of a DBE ti SC result ir entilation sy ad to a radik tion:	hat could n a credib rstem for f pactive rel	otherwise le Design the scienc lease.	result in a Basis Eve e cutouts	radioactive nt which wo	release a xuld lead t ational po	bove federal limits. o a radioactive release above the federal li rtion of the repository will not result in a DE
QA	☐ Yes? -2 - Importa	consequences ect failure of the S Rationale: Failure of the vi which would lea nt to Waste Isolar	of a DBE ti SC result ir entilation sy ad to a radik tion:	hat could n a credib rstem for f pactive rel	otherwise le Design the scienc lease.	result in a Basis Eve e cutouts	radioactive nt which wo	release a xuld lead t ational po	bove federal limits. o a radioactive release above the federal li rtion of the repository will not result in a DE
QA.	Yes? -2 - Importal Does the S	consequences ect failure of the S Rationale: Failure of the vi which would lea nt to Waste Isola SC perform a was Rationale:	of a DBE ti SC result in entilation sy ad to a radio tion: te isolation system for f	hat could n a credib rstem for t pactive re function t the science	otherwise le Design the scienc lease. by forming ce cutouts	result in a Basis Eve e cutouts part of the on the ope	radioactive nt which wo on the opera e natural or o	release a ruld lead t ational poi	bove federal limits. o a radioactive release above the federal li rtion of the repository will not result in a DE
QA- 2.1	☐ Yes? -2 - Importan Does the S: ☐ Yes? Can direct f	consequences ect failure of the S Rationale: Failure of the vi which would lea nt to Waste Isola SC perform a was Rationale: The ventilation s engineered barr	of a DBE ti SC result ir entilation sy ad to a radid tion: te isolation system for t riers import	hat could n a credib rstem for t pactive rel function t the science ant to was y affect the	otherwise le Design the scienc lease. by forming ce cutouts ste isolatio e hydroloo	result in a Basis Eve e cutouts part of the on the open. ical. geocl	radioactive nt which wo on the opera enatural or o erational por	release a ruld lead t ational poi engineere tion of the	bove federal limits. o a radioactive release above the federal li rtion of the repository will not result in a DE d barriers? e repository are not part of the natural or
QA	☐ Yes? -2 - Importan Does the S: ☐ Yes? Can direct f	consequences ect failure of the S Rationale: Failure of the vi which would lea nt to Waste Isola SC perform a was Rationale: The ventilation s engineered barr	of a DBE ti SC result ir entilation sy ad to a radid tion: te isolation system for t riers import	hat could n a credib rstem for t pactive rel function t the science ant to was y affect the	otherwise le Design the scienc lease. by forming ce cutouts ste isolatio e hydroloo	result in a Basis Eve e cutouts part of the on the open. ical. geocl	radioactive nt which wo on the opera enatural or o erational por	release a ruld lead t ational poi engineere tion of the	bove federal limits. o a radioactive release above the federal li rtion of the repository will not result in a Df d barriers? e repository are not part of the natural or

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 4: Science Cutouts

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - **Yes?** Rationale:

The ventilation system for the science cutouts on the operational portion of the repository are not associated with sitegenerated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale

The ventilation system for the science cutouts on the operational portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the science cutouts on the operational portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

## QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale

The ventilation system for the science cutouts on the operational portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ventilation system for the science cutouts on the operational portion of the repository are not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 4: Science Cutouts

Level 3: Miscellaneous Support Cutout Systems

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The ventilation system for the science cutouts on the operational portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The ventilation system for the science cutouts on the operational portion of the repository are not part of a radiation monitor or monitoring system.

## Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:
    - This SSC (Operational Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

		QA-1	<b>QA-2</b>	<b>QA-3</b>		<b>QA-5</b>	0A-6	QA-7	Non-Q
Level	3: Performan	ice Confir	mation S	system			Level 5	: N/A	
SSC:	Operations \	/entilatior	n System				Level 4	: N/A	
SDD:	SS05 - Sut	osurface	Ventilat	ion Syst	em				

#### QA-1 - Important to Radiological Safety:

Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and 1.1 retrieved without exceeding the federal limits?

☐ Yes? Rationale:

> The ventilation system for the performance confirmation system is not required to ensure that high-level waste can be handled, packaged, stored, emplaced, or retrieved without exceeding federal limits.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale

The ventilation system for the Performance Confirmation Systems is not required to function to monitor credible DBEs which may exceed federal limits in the event of a radioactive release.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale:

Failure of the ventilation system for the performance confirmation system of the repository will not result in a DBE which would lead to a radioactive release.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The ventilation system for the performance confirmation system of the repository is not part of the natural or engineered barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the performance confirmation system of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System	Level 4: N/A
Level 3: Performance Confirmation System	Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The ventilation system for the performance confirmation system of the repository is not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The ventilation system for the performance confirmation system of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

- QA-5 Important to Potential Interaction:
- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system for the performance confirmation system of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

The ventilation system for the performance confirmation system of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The ventilation system for the performance confirmation system of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS05	- Subsurface	Ventilation	System
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- SSC: Operations Ventilation System Level 4: N/A
- Level 3: Performance Confirmation System

Level 5: N/A

### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The ventilation system for the performance confirmation system on the operations portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The ventilation system for the performance confirmation system of the repository is not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.2, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

## SDD: SS05 - Subsurface Ventilation System

SSC: Operation	ns Ventilatio	n System	Level 4: Air Movers						
Level 3: Ventilat	tion Commo	dities				Level 5	: N/A		
	0A-1	0A-2	GA-3	<b>0A-4</b>	<b>QA-5</b>	0A-6	<b>0A-7</b>	Non-Q	

## QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

#### **√** Yes? Rationale:

The air movers on the operations portion of the repository provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is stored, emplaced, and retrieved in this portion of the repository, the air movers must function as designed to provide for radiological safety in the event of a breach of a waste package or other such event that leads to a release of radioactivity.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

#### Yes? Rationale:

The air movers on the operations portion of the repository are required to be operable to mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. These air movers maintain the air balance between the development portion and the operations portion of the repository such that leakage between these systems will flow from the development system to the emplacement system.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

#### C Yes? Rationale

Failure of the air movers on the operations portion of the repository will not result in a DBE which would lead to a radioactive release.

#### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale

The air movers on the operations portion of the repository are not part of the natural or engineered barriers important to waste isolation

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the air movers on the operations portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Air Movers

Level 5: N/A

## QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale

The air movers on the operations portion of the repository are not associated with site-generated radioactive waste.

## QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale

> The air movers on the development portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire

## QA-5 - Important to Potential Interaction:

5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?

Yes? Rationale:

Failure of the air movers on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

## QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

> The air movers on the operations portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The air movers on the operations portion of the repository are not associated with nuclear material accountability

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Air Movers

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

**Yes?** Rationale:

The air movers on the operations portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The air movers on the operations portion of the repository are not part of a radiation monitor or monitoring system.

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

## B00000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS05	- Subsurface	Ventilation	System
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SSC: Operations Ventilation System						Level 4	: Contro	Devices		
Level 3: Ventilati	ion Commo	dities				Level 5	: N/A			
	0A-1	QA-2	QA-3	<b>0A-4</b>	<b>QA-5</b>	<b>0A-6</b>	<b>0A-7</b>	Non-Q		

## QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

## **Yes?** Rationale:

The ventilation system control devices on the operations portion of the repository provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. Waste is stored, emplaced, and retrieved in this portion of the repository; the air movers must function as designed to provide for radiological safety in the event of a breach of a waste package or other such event that leads to a release of radioactivity.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale:

The ventilation system control devices on the operations portion of the repository are required to be operable to mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. These air movers maintain the air balance between the development portion and the operations portion of the repository such that leakage between these systems will flow from the development system to the emplacement system.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale:

Failure of the ventilation system control devices on the operations portion of the repository will not result in a DBE which would lead to a radioactive release.

### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The ventilation system control devices on the operations portion of the repository are not part of the natural or engineered barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system control devices on the operations portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Control Devices

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

> The ventilation system control devices on the operations portion of the repository are not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The ventilation system control devices on the operations portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

## QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the ventilation system control devices on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

## QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale

The ventilation system control devices on the operations portion of the repository are not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The air movers on the operations portion of the repository are not associated with nuclear material accountability

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation	۱S	vstem
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SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Control Devices

Level 5: N/A

### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The ventilation system control devices on the operations portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

**Yes?** Rationale:

The ventilation system control devices on the operations portion of the repository are not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Yes? Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: S	S05 -	Subsurface	Ventilation	System
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SSC: Operations Ventilation System							Level 4: Dust/Fume Control					
Level 3: Ventilation Commodities						Level 5: N/A						
	QA-1	<b>QA-2</b>	QA-3	<b>0A-4</b>	<b>QA-5</b>	<b>0A-6</b> □	<b>0</b> A-7	Non-Q				

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The dust/fume control equipment on the operations portion of the repository does not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public. This equipment is not important to radiological safety.

- 1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?
  - Yes? Rationale:

The dust/fume control equipment on the operations portion of the repository does not prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. This equipment is not important to radiological safety.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

Yes? Rationale:

Failure of the dust/fume control equipment on the operations portion of the repository will not result in a DBE which would lead to a radioactive release.

- QA-2 Important to Waste Isolation:
- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Yes? Rationale:

The dust/fume control equipment on the operations portion of the repository is not part of the natural or engineered barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the dust/fume control equipment on the operations portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

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## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Dust/Fume Control

Level 5: N/A

### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

**Yes?** Rationale:

The dust/fume control equipment on the operations portion of the repository are not associated with site-generated radioactive waste.

### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The dust/fume control equipment on the operations portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire

QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the dust/fume control equipment on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

## QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale

The dust/fume control equipment on the operations portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The dust/fume control equipment on the operations portion of the repository is not associated with nuclear material accountability.

## B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Dust/Fume Control

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

**Yes?** Rationale:

The dust/fume control equipment on the operations portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The dust/fume control equipment on the operations portion of the repository is not part of a radiation monitor or monitoring system.

### **Previous QA Classification:**

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

- 8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?
  - Ves? Rationale

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

			[]	l-Lis	t Qu	estic	ons	B	00000000-01717-	0200-00134 Rev 00 Attachment IV
SD	D: SS05	- Subsurface	Ventilat	lion Sys	tem					
SS	C: Operati	ions Ventilatior	n System				Level 4	: Heatin	g/Cooling	
Lev	<b>vel 3:</b> Venti	ilation Commo	dities				Level 5	: N/A		
		<b>QA-1</b>	0A-2	<b>QA-3</b>	0A-4	0A-5	<b>QA-6</b>	<b>0A-7</b>	Non-Q V	
QA-	1 - Importa	nt to Radiologic	al Safety:							
1.1	is the SSC retrieved wi	required to provid thout exceeding t	le reasona he federal	ble assura limits?	Ince that h	igh-level v	/aste can t	e received	l, handled, packaged, s	stored, emplaced, and
	Yes?	Rationale:								
		assurance that	t spent fue es are sto	I can be h red on the	andled, sto operations	pred, and r s portion of	etrieved wi the repos	ithout undu itory; when	of the repository does r ue risk to the health an uwaste packages are s	ot provide reasonable d safety to the public. stored in these drifts, the
1.2	ls the SSC release abo	required to functi we the federal lim	on to prev its?	ent, mitiga	te, or mon	ilor a credi	ble Design	Basis Eve	ent which would otherw	vise result in a radioactive
	🗌 Yes?	Rationale:								
		The heating/co consequences	oling venti of a DBE	lation syst that could	em equipr otherwise	nent on the result in a	e operation radioactiv	s portion o e release a	f the repository does n bove federal limits.	ot prevent or mitigate the
1.3	Will the dire	ect failure of the S	SC result	in a credit	le D <del>esi</del> gn	Basis Eve	nt which w	rould lead t	o a radioactive release	above the federal limits?
	Yes?	Rationale:								
		Failure of the h which would le	ealing/coo ad to a rac	ling ventil lioactive re	ation syste lease.	<b>m eq</b> uipme	ent on the (	operations	portion of the reposito	ry will not result in a DBE
QA-:	2 - Importar	nt to Waste Isola	tion:							
2.1	Does the St	SC perform a was	te isolatio	n function	by forming	part of the	natural or	engineere	ed barriers?	
	Yes?	Rationale:								
		The healing/co engineered bar	oling venti riers impo	lation syste rtant to wa	em equipr ste isolatio	nent on the In.	operations	s portion of	f the repository is not p	art of the natural or
2.2	Can direct fi	ailure of the SSC barriers which ma	significani iy prevent	ily affect th th <del>e</del> m from	e hydrolog performin	gical, geocl g their was	nemical, or ite isolatior	geomecha	anical characteristics o	of the natural or
	Yes?	Rationale:								
		Failure of the h function of the	eating/coo natural/enj	ling ventila jineered b	tion syster arriers, the	n equipme reby preve	nt on the o Inting them	perations   from perf	portion of the repositor orming their waste isol	y would not affect the ation function

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### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Heating/Cooling

Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale

> The heating/cooling ventilation system equipment on the operations portion of the repository is not associated with sitegenerated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - \_ Yes? Rationale:

The heating/cooling ventilation system equipment on the operations portion of the repository does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale
    - Failure of the heating/cooling ventilation system equipment on the operations portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

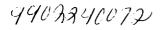
6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale<sup>.</sup>

> The heating/cooling ventilation system equipment on the operations portion of the repository is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - TYes? Rationale

The heating/cooling ventilation system equipment on the operations portion of the repository is not associated with nuclear material accountability.



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SDD:	SS05	- Subsurface	Ventilation S	System
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SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Heating/Cooling

Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The heating/cooling ventilation system equipment on the operations portion of the repository is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The heating/cooling ventilation system equipment on the operations portion of the repository is not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems; 3.5.5.1, as QA-1.

		Q-List Questions B0000000-01717-0200-00134 Rev 0 Attachment I
SD	D: SS05	- Subsurface Ventilation System
sso	C: Operati	ons Ventilation System Level 4: Silencers
Lev	vel 3: Venti	lation Commodities Level 5: N/A
		QA-1 QA-2 QA-3 QA-4 QA-5 QA-6 QA-7 Non-Q
QA-	1 - Importa	nt to Radiological Safety:
1.1		required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and thout exceeding the federal limits?
	C Yes?	Rationale: The silencers on the operational portion of the repository do not provide reasonable assurance that spent fuel can be handled, stored, and retrieved without undue risk to the health and safety to the public.
1.2		required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive ve the federal limits?
	_ Yes?	Rationale: The silencers on the operational portion of the repository do not prevent or mitigate the consequences of a DBE that could
		otherwise result in a radioactive release above federal limits.
1.3	Will the dire	ct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
	Yes?	Rationale
		Failure of the silencers on the operational portion of the repository will not result in a DBE which would lead to a radioactive release.
QA-:	2 - Importai	nt to Waste Isolation:
2.1	Does the S	SC perform a waste isolation function by forming part of the natural or engineered barriers?
	Yes?	Rationale:
		The silencers on the operational portion of the repository are not part of the natural or engineered barriers important to waste Isolation.
2.2	Can direct f engineered	ailure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or barriers which may prevent them from performing their waste isolation function?
	Yes?	Rationale:
	L_ IGSI	Failure of the silencers on the operational portion of the repository would not affect the function of the natural/engineered

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- SDD: SS05 Subsurface Ventilation System
- SSC: Operations Ventilation System

Level 3: Ventilation Commodities

Level 4: Silencers

Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?

Yes? Rationale:

The silencers on the operational portion of the repository are not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale

> The silencers on the operational portion of the repository do not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the silencers on the operational portion of the repository would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale

> The silencers on the operational portion of the repository are not associated with detection/alarm of intruders or presence of explosive material

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale

The air movers on the development portion of the repository are not associated with nuclear material accountability.

### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS05	-	Subsurface	Ventilation	S	/stem
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 SSC:
 Operations Ventilation System
 Level 4: Silencers

 Level 3:
 Ventilation Commodities
 Level 5: N/A

QA-7 - Important to Occupational Radiological Exposure:

7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?

Yes? Rationale:

The silencers on the operational portion of the repository are not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The silencers on the operational portion of the repository are not part of a radiation monitor or monitoring system.

#### **Previous QA Classification:**

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**V** Yes? Rationale:

This SSC (Development Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

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#### SDD: SS05 - Subsurface Ventilation System

	QA-1	<b>0</b> A-2	QA-3	QA-4	<b>QA-5</b>	0A-6	0A-7	Non-Q
Level 3: Ventilati	ion Level Sy	/stem				Level 5	: N/A	
SSC: Operations Ventilation System						Level 4	: N/A	

#### QA-1 - Important to Radiological Safety:

1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Yes? Rationale:

The level system on the operations portion of the repository ventilation system ensures a balanced air flow distribution using reasonable ventilation control measures on the operations portion of the repository. This SSC is required to provide assurance that high-level waste can be received, handled, emplaced and stored without exceeding federal limits.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

#### Yes? Rationale

The level system on the operations portion of the repository ventilation system is required to be operable to mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. This system ensures that the air balance between the development portion and the operations portion of the repository is such that leakage between these systems will flow from the development system to the emplacement system.

- 1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?
  - Yes? Rationale:

Failure of the level system on the operations portion of the repository ventilation system will not result in a DBE which would lead to a radioactive release. Failure of this system does not necessarily mean waste packages will release their contents or result in a DBE which would lead to such a release.

#### QA-2 - Important to Waste Isolation:

2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?

Yes? Rationale

The level system on the operations portion of the repository ventilation system is not part of the natural or engineered barriers important to waste isolation.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Failure of the level system on the operations portion of the repository ventilation system would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

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# B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System	Level 4: N/A
Level 3: Ventilation Level System	Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - **Yes?** Rationale:

The level system on operations portion of the repository ventilation system is not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

- 4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?
  - Yes? Rationale:

The level system on the operations portion of the repository ventilation system does not serve as a barrier to protect QA-1 or QA-2 SSCs from the effects of fire.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the level system on the operations portion of the repository ventilation system would not impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation functions.

### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The level system on the operations portion of the repository ventilation system is not associated with detection/alarm of intruders or presence of explosive material.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The level system on the operations portion of the repository ventilation system is not associated with nuclear material accountability.

# B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System	Level 4: N/A
Level 3: Ventilation Level System	Level 5: N/A

- QA-7 Important to Occupational Radiological Exposure:
- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The level system on the operations portion of the repository ventilation system is not associated with personnel radiation shielding or the reduction of dose rates in radioactive areas.

- 7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?
  - Yes? Rationale:

The level system on the operations portion of the repository ventilation system is not part of a radiation monitor or monitoring system.

#### Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

**Ves?** Rationale:

This SSC (Operations Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.1, as QA-1.

### B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: S	S06 - S	Subsurface	Electrical	Distribution	System
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	QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
Level 3: 4160 V Dis		Level 5	: N/A					
SSC: Development Electrical Distribution						Level 4: N/A		

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#### QA-1 - Important to Radiological Safety:

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1.1 Is the SSC required to provide reasonable assurance that high-level waste can be received, handled, packaged, stored, emplaced, and retrieved without exceeding the federal limits?

Tes? Rationale

The subsurface electrical distribution system provides primary and standby power for the development and emplacement operations, including emergency and uninterruptible power for personnel safety and critical operations. However, the development electrical distribution system and its component SSCs (including the 4160 V development distribution system) do not provide assurance that high-level waste can be stored, emplaced and retrieved without exceeding federal limits.

1.2 Is the SSC required to function to prevent, mitigate, or monitor a credible Design Basis Event which would otherwise result in a radioactive release above the federal limits?

#### Yes? Rationale:

No radioactive material is located in the development portion of the repository Loss of the 4160 V system or the development electrical distribution system will not result in a DBE which otherwise would lead to a radioactive release.

1.3 Will the direct failure of the SSC result in a credible Design Basis Event which would lead to a radioactive release above the federal limits?

Yes? Rationale:

Direct failure of the development electrical distribution system (including its component SSCs) would not directly lead to a credible DBE that would produce a radioactive release.

#### QA-2 - Important to Waste Isolation:

- 2.1 Does the SSC perform a waste isolation function by forming part of the natural or engineered barriers?
  - Ves? Rationale:

The development electrical distribution system (and its component SSCs) do not perform waste isolation functions as part of the natural or engineered barriers.

- 2.2 Can direct failure of the SSC significantly affect the hydrological, geochemical, or geomechanical characteristics of the natural or engineered barriers which may prevent them from performing their waste isolation function?
  - Yes? Rationale:

Direct failure of the development electrical distribution system (and its component SSCs) will not significantly affect the waste isolation function of the natural or engineered barriers.

# B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD: SS06 - Subsurface Electrical Distribution System

SSC: Development Electrical Distribution	Level 4: N/A
Level 3: 4160 V Distribution	Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not associated with fire protection.

# QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the development electrical distribution system (and its component SSCs) as a result of a DBE could impact the ability of QA-1 and/or QA-2 SSCs from performing their radiological safety or waste isolation functions (there is no radioactive material in the development portion of the repository).

### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale

The development electrical distribution system (and its component SSCs) do not function to provide detection or alarm of unauthorized intrusion or the presence of unauthorized explosive materials.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not associated with special nuclear material accountability.

# B0000000-01717-0200-00134 Rev 00 Attachment IV

SDD:	SS06	-	Subsurface	Electrical	Distribution	System
------	------	---	------------	------------	--------------	--------

SSC: Development Electrical Distribution	Level 4: N/A
Level 3: 4160 V Distribution	Level 5: N/A

#### QA-7 - Important to Occupational Radiological Exposure:

- 7.1 Does the SSC provide personnel radiation shielding, reduce dose rates in radioactive areas, or require personnel access into radiation areas by its own radioactive source term?
  - Yes? Rationale:

The development electrical distribution system (and its component SSCs) do not have their own radioactive source terms and are not associated with radiation shielding or the reduction of dose rates in radioactive areas.

7.2 Is the SSC a permanently installed radiation monitor which monitors areas for personnel radiation protection?

Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not permanently installed radiation monitors

Previous QA Classification:

This question is for historical and traceability purposes only. A "yes" answer to this question does not provide inclusion to the Q-List

8.0 Are there other factors, such as previous analyses, a body of consensus, or by direct inclusion, that led to the previous conclusion that this SSC is important to radiological safety (QA-1) or waste isolation (QA-2)?

Yes? Rationale:

This SSC is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, SSA 3.5.2 Power Distribution System, as QA-1.

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# B0000000-01717-0200-00134 Rev 00

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SC	D: SS06	- Subsurface	Electric	al Distri	bution S	System			
S	C: Develo	oment Electric	al Distrib	ution			Level 4	: N/A	
e	vel 3: 440 \	/ Distribution					Level 5	: N/A	
		<b>QA</b> -1	0A-2		<b>0A-4</b>	0A-5 2	0A-6	<b>0A-7</b> □	Non-Q
A	1 - Importa	nt to Radiologic	al Safety:			-			
1		required to provid thout exceeding t			ince that h	nigh-level v	vaste can l	oe receive	d, handled, packaged, stored, emptaced, and
	Yes?	Rationale:							
		operations, Inc development e	luding em	ergency ai stribution :	nd uninter system an	ruptible po d its comp	wer for per onent SSC	sonnel sa S (includi	power for the development and emplacement fety and critical operations. However, the ing the 440 V development distribution system) d retrieved without exceeding federal limits.
.2		required to functi ve the federal lim		ent, mitigai	te, or mon	itor a credi	ble Design	ı Basis Ev	rent which would otherwise result in a radioactive
	. 🗋 Yes?	Yes? Rationale:							
									y. Loss of the development 440 V system or the erwise would lead to a radioactive release.
3	Will the dire	ct failure of the S	SSC result	in a credik	vle Design	Basis Eve	nt which w	vould lead	to a radioactive release above the federal limits?
	Yes?	Rationale:							
		Direct failure o credible DBE t					ystem (incl	luding its o	component SSCs) would not directly lead to a
A	2 - importar	nt to Waste Isola	ition:						
1	Does the S	SC perform a was	ste isolatio	n function	by forming	) part of th	e natural o	r engineer	red barriers?
	Yes?	Rationale:							
	_	The developme of the natural o				n (and its c	component	SSCs) do	o not perform waste isolation functions as part
.2	Can direct f engineered	ailure of the SSC barriers which m	significan ay prevent	tly affect th them from	ne hydrolog performin	gical, geoc ng their was	hemical, o ste isolatio	r geomech n function	nanical characteristics of the natural or ?
	Yes?	Rationale:							

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SDD: S	SS06	- Subsurface	Electrical	Distribution	System
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SSC: Development Electrical Distribution	Level 4: N/A
Level 3: 440 V Distribution	Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not associated with fire protection.

#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

Failure of the development electrical distribution system (and its component SSCs) as a result of a DBE would impact the ability of QA-1 and/or QA-2 SSCs from performing their radiological safety or waste isolation functions (there is no radioactive material in the development portion of the repository).

#### QA-6 - Important to Physical Protection of Facility and Materials:

- 6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?
  - Yes? Rationale:

The development electrical distribution system (and its component SSCs) do not function to provide detection or alarm of unauthorized intrusion or the presence of unauthorized explosive materials.

- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not associated with special nuclear material accountability.

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SSC	C: Develop	oment Electrical Distribution	Level 4: N/A
Lev	el 3: 440 V	/ Distribution	Level 5: N/A
QA-3	7 - Importar	nt to Occupational Radiological Exp	osure:
7.1		SC provide personnel radiation shieldin own radioactive source term?	g, reduce dose rates in radioactive areas, or require personnel access into radiatio
	Yes?	Rationale:	
			in system (and its component SSCs) do not have their own radioactive source terr shielding or the reduction of dose rates in radioactive areas.
7.2	is the SSC	a permanently installed radiation monito	r which monitors areas for personnel radiation protection?
	Yes?	Rationale:	
		The development electrical distribution	in system (and its component SSCs) are not permanently installed radiation monit
Prev	rious QA Cia	ssification:	
This	question is fo	or historical and traceability purposes o	nly. A "yes" answer to this question does not provide inclusion to the Q-List
8.0	Are there of this SSC is	her factors, such as previous analyses, important to radiological safety (QA-1)	a body of consensus, or by direct inclusion, that led to the previous conclusion the or waste isolation (QA-2)?
	🔽 Yes?	Rationale	
		This SSC is contained on the Q-List Distribution System, as QA-1.	by direct inclusion for the Underground Service and Utility Systems, SSA 3.5.2 Po

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				<u>[</u>	2-Lis	t Qu	estic	ons	B	0000000-0	01717-02	Attachi	
SD	D: SS	606 -	Subsurface	Electric	al Distri	bution S	System						
SS	C: De	velopr	ment Electric	al Distrib	ution			Levei 4	: N/A				
Lev	vel 3: 1	Blastin	g Circuit					Level 5	: N/A				
			<b>QA-1</b>	QA-2	0A-3	<b>0A-4</b>	QA-5	<b>0A-6</b>	<b>0</b> ▲·7	Non-Q.			
QA	-1 - Imp	ortant	to Radiologi	cal Safety:									
1.1			equired to provi			ince that h	igh-level v	vaste can b	e received	i, handled, pao	ckaged, store	ed, emplaced	, and
	C Ye		Rationale:										
			The subsurfa operations, in development of provide assur	cluding em electrical di	ergency ai stribution :	nd uninterr system and	uptable po d its comp	wer for per onent SSC	rsonnel sa s (includir	ig the develop	al operations ment blastin	However, th gicircuit) do r	ne
1.2	is the releas	SSC re e above	quired to funct the federal lin	ion to previ nits?	ent, mitiga	te, or moni	tor a credi	ble Design	Basis Eve	ent which woul	id otherwise	result in a rac	dioact
	(_ Y	es?	Rationale:										
	[] ¥(		Rationale: No radioactive The developme	e material is ent electrica	located in al distributi	i the devek ion system	opment po will not re	rtion of the sult in a DI	repository BE which (	Loss of the otherwise wou	developmeni Id lead to a r	t blasting circ adioactive rel	uit or ease.
1.3			No radioactive	ent electrica	al distributi	ion system	will not re	sult in a DI	BE which i	otherwise wou	ld lead to a r	adioactive rel	ease
1.3		e direct	No radioactive the developme	ent electrica	al distributi	ion system	will not re	sult in a DI	BE which i	otherwise wou	ld lead to a r	adioactive rel	ease.
1.3	Will th	e direct s?	No radioactive the developme t failure of the s	ent electrica SSC result	al distributi in a credit opment ele	ion system ole D <del>es</del> ign ectrical dis	will not re Basis Eve tribution s	sult in a DI nt which w	BE which i	otherwise wou o a radioactive	id lead to a r e release abc	adioactive rel	ease al limi
	Will th	e direct s?	No radioactive the development failure of the s Rationale: Direct failure of	ent electrica SSC result of the devel that would	al distributi in a credit opment ele	ion system ole D <del>es</del> ign ectrical dis	will not re Basis Eve tribution s	sult in a DI nt which w	BE which i	otherwise wou o a radioactive	id lead to a r e release abc	adioactive rel	ease al limi
QA-	₩ill th [] Ye 2 - Imp	e direct s? ortant	No radioactive the developme failure of the s Rationale: Direct failure of credible DBE	ent electrica SSC result of the devel that would ation:	in a credit opment ele produce a	ion system ole Design ectrical dis radioactive	will not re Basis Eve tribution sy	sult in a Df nt which w ystern (incli	BE which i ould lead t uding its c	otherwise wou o a radioactive omponent SS	id lead to a r e release abc	adioactive rel	ease al limi
QA-	₩ill th [] Ye 2 - Imp	e direct s? ortant he SSC	No radioactive the developme failure of the s Rationale: Direct failure of credible DBE to Waste Isol	ent electrica SSC result of the devel that would ation:	in a credit opment ele produce a	ion system ole Design ectrical dis radioactive	will not re Basis Eve tribution sy	sult in a Df nt which w ystern (incli	BE which i ould lead t uding its c	otherwise wou o a radioactive omponent SS	id lead to a r e release abc	adioactive rel	ease al limi
QA-	Will th Ye 2 - Imp Does t	e direct s? ortant he SSC	No radioactive the developme failure of the s Rationale: Direct failure of credible DBE to Waste Isol	ent electrica SSC result of the devel that would ation: ste isolation ent electric	in a credit opment ele produce a n function al distribut	ion system ectrical dis radioactive by forming	will not re Basis Eve tribution s release.	sult in a Df nt which w ystem (inclu e natural or	BE which i ould lead t uding its c engineere	otherwise wou o a radioactive omponent SS od barriers?	ld lead to a r e release abc Cs) would no	adioactive rel	ease
QA- 2.1	Will th Ye 2 - Imp Does t Ye: Can di	e direct s? ortant he SSC s?	No radioactive the development failure of the s Rationale: Direct failure of credible DBE to Waste Isol C perform a wa Rationale: The developm	ent electrica SSC result of the devel that would ation: ste isolation ent electric or engineer c significant	in a credit opment ele produce a n function al distribut ed barriers	ion system le Design ectrical dis radioactive by forming ion system ion system	will not re Basis Eve tribution si release.	sult in a Df nt which w ystem (incl e natural or component hemical, or	BE which i ould lead t uding its c engineere SSCs) do acomech:	o a radioactive o a radioactive omponent SS od barriers? not perform w anical characti	ld lead to a r e release abc Cs) would no raste isolation	adioactive rel ove the federa of directly lead	ease al limi
QA- 2.1	Will th Ye 2 - Imp Does t Ye: Can di	e direct s? ortant he SSC s? rect fail ered ba	No radioactive the development failure of the s Rationale: Direct failure of credible DBE to Waste Isol C perform a wa Rationale: The developm of the natural of	ent electrica SSC result of the devel that would ation: ste isolation ent electric or engineer c significant	in a credit opment ele produce a n function al distribut ed barriers	ion system le Design ectrical dis radioactive by forming ion system ion system	will not re Basis Eve tribution si release.	sult in a Df nt which w ystem (incl e natural or component hemical, or	BE which i ould lead t uding its c engineere SSCs) do acomech:	o a radioactive o a radioactive omponent SS od barriers? not perform w anical characti	ld lead to a r e release abc Cs) would no raste isolation	adioactive rel ove the federa of directly lead	ease. II limit

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SDD:	SS06	- Subsurface	Electrical	Distribution	System
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SSC: Development Electrical Distribution	Level 4: N/A
Level 3: Blasting Circuit	Level 5: N/A

#### QA-3 - Important to Radioactive Waste Control:

- 3.1 Is the function of the SSC designed for collection, containment, and/or monitoring of site-generated radioactive waste?
  - Yes? Rationale:

The development electrical distribution system (and its component SSCs) are not associated with site-generated radioactive waste.

#### QA-4 - Important to Fire Protection:

4.1 Does the SSC protect QA-1 or QA-2 SSCs from the effects of fire?

Yes? Rationale:

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#### QA-5 - Important to Potential Interaction:

- 5.1 As a result of a Design Basis Event, could failure of the SSC impair the capability of QA-1 or QA-2 SSCs from performing their radiological safety or waste isolation function?
  - Yes? Rationale:

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#### QA-6 - Important to Physical Protection of Facility and Materials:

6.1 Does the SSC's function provide detection or alarm of unauthorized intrusion or unauthorized explosive materials in the restricted area?

Yes? Rationale:

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- 6.2 Is the SSCs function required for special nuclear material accountability?
  - Yes? Rationale:

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SS	C: Develop	oment Electrical Distribution	Level 4: N/A
Le	vel 3: Blast	ing Circuit	Level 5: N/A
QA	-7 - importa	nt to Occupational Radiological Exposure	:
7.1		SC provide personnel radiation shielding, red own radioactive source term?	uce dose rates in radioactive areas, or require personnel access into radial
	Yes?	Rationale:	
			tem (and its component SSCs) do not have their own radioactive source to ling or the reduction of dose rates in radioactive areas.
7.2	Is the SSC	a permanently installed radiation monitor which	th monitors areas for personnel radiation protection?
	Yes?	Rationale:	
		The development electrical distribution sys	tem (and its component SSCs) are not permanently installed radiation mo
Pre	vious QA Cla	ssification:	
This	s question is fo	or historical and traceability purposes only. A	"yes" answer to this question does not provide inclusion to the Q-List
8.0	Are there of this SSC is	her factors, such as previous analyses, a boo important to radiological safety (QA-1) or was	y of consensus, or by direct inclusion, that led to the previous conclusion t te isolation (QA-2)?
0.V			
0.0	☑ Yes?	Rationale:	

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