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9902240072 - Part 2

**ATTACHMENT**

**BINDER/VOLUME #:**

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**DRAFT**

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

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CRWMS (Pg: 1)

MGDS Element (Pg: 1)

Site Characterization (Pg: 1)

Field Data Collection (Pg: 1)

ESF Testing Facility and Data Collection (Pg: 3)

In Situ Testing (Pg: 3)

Upper Tiva Canyon Alcove (Alcove #1) (Pg: 3)

Radial Bore Hole (Pg: 3)

Hydrochemistry (Pg: 3)

Bow Ridge Fault Alcove (Alcove #2) (Pg: 3)

Hydrologic Properties of Major Faults (Pg: 3)

Hydrochemistry (Pg: 3)

Upper Paintbrush Tuff (Non-welded) Contact Alcove (Alcove #3) (Pg: 3)

Radial Borehole (Pg: 3)

Hydrochemistry (Pg: 3)

Lower Paintbrush Tuff (Non-welded) Contact Alcove (Alcove #4) (Pg: 3)

Radial Borehole (Pg: 3)

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Thermal Test Facility Alcove (Alcove #5) (Pg: 3)

Sequential Drift Mining Effects (Mechanical Effects of Excavation) (Pg: 3)

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Coupled Process (Pg: 3)

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Plate Loading Niche (Rock Mass Modulus) (Pg: 3)

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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)

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 NRSF-TP-23 (Pg: 9)  
 UE-25 NRSF-TP-24 (Pg: 9)  
 UE-25 NRSF-TP-25 (Pg: 9)  
 UE-25 NRSF-TP-26 (Pg: 9)  
 UE-25 NRSF-TP-27 (Pg: 9)  
 UE-25 NRSF-TP-27a (Pg: 9)  
 UE-25 NRSF-TP-28 (Pg: 9)  
 UE-25 NRSF-TP-29 (Pg: 9)  
 UE-25 NRSF-TP-30 (Pg: 9)  
 UE-25 NRSF-TP-31 (Pg: 9)  
 UE-25 NRSF-TP-32 (Pg: 9)

Geologic Soil and Rock Properties (Pg: 9)

UE-25 GSF-TP-1 (Pg: 9)  
 UE-25 GSF-TP-2 (Pg: 9)  
 UE-25 GSF-TP-3 (Pg: 9)  
 UE-25 GSF-TP-4 (Pg: 9)  
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 UE-25 GSF-TP-12 (Pg: 9)  
 UE-25 GSF-TP-13 (Pg: 9)  
 UE-25 GSF-TP-14 (Pg: 9)  
 UE-25 GSF-TP-15 (Pg: 9)  
 UE-25 GSF-TP-16 (Pg: 9)  
 UE-25 GSF-TP-17 (Pg: 9)  
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 UE-25 GSF-TP-22 (Pg: 9)  
 UE-25 GSF-TP-23 (Pg: 9)  
 UE-25 GSF-TP-25 (Pg: 9)  
 UE-25 GSF-TP-26 (Pg: 9)  
 UE-25 GSF-TP-27 (Pg: 9)  
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 UE-25 GSF-TP-29 (Pg: 9)  
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 UE-25 GSF-TP-32 (Pg: 9)  
 UE-25 GSF-TP-33 (Pg: 9)  
 UE-25 GSF-TP-34 (Pg: 9)  
 UE-25 GSF-TP-35 (Pg: 9)  
 UE-25 GSF-TP-36 (Pg: 9)  
 UE-25 GSF-TP-37 (Pg: 9)  
 UE-25 GSF-TP-38 (Pg: 9)  
 UE-25 GSF-TP-39 (Pg: 9)

Surface Facility (Pg: 9)

UE-25 SFS-3 (Pg: 9)  
 UE-25 SFS-4 (Pg: 9)  
 UE-25 SFS-5 (Pg: 9)  
 UE-25 SFS-7 (Pg: 9)

Faulting Within 100km (Pg: 9)

Volcanic Studies (Pg: 9)

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Pavements (Pg: 9)

Quaternary Faulting (Pg: 9)

UE-25 BBW-E1 (Pg: 9)

UE-25 BBW-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 CRS4 (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)

UE-25 TC4 (Pg: 9)

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 S0 (Pg: 9)
UE-15 S1 (Pg: 9)
UE-17 H1 (Pg: 9)
UE-17 H2 (Pg: 9)
UE-25 412 (Pg: 9)
UE-25 A#1 (Pg: 9)
UE-25 STOP 9 (Pg: 9)
UE-27 30 (Pg: 9)
UE-27 31 (Pg: 9)
UE-27 32 (Pg: 9)
UE-27 40 (Pg: 9)
UE-27 45 (Pg: 9)
UE-27 46 (Pg: 9)
UE-27 47 (Pg: 9)
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)
Corn 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)

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)  
 Owl Canyon (Pg: 10)  
 Owl Canyon 1 (Pg: 10)  
 Owl Canyon 2 (Pg: 10)  
 Owl Canyon 3 (Pg: 10)  
 Pahrnagat Range 1 (Pg: 10)  
 Pahrnagat Range 2 (Pg: 10)  
 Pahrnagat 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)

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 Infiltrometer (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)
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USW UZ-N64 (Pg: 10)  
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UE-25 UZN#91 (Pg: 10)  
UE-25 UZN#92 (Pg: 10)

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UE-25 UZN#97 (Pg: 10)  
Tipping Bucket Stations (Pg: 10)  
Fran Ridge (Pg: 10)  
Plug Hill (Pg: 10)  
Evapotranspiration Sites (Pg: 10)  
UZ-N15 (Pg: 10)  
Split Wash (Pg: 10)  
Meteorological and Streamflow Monitoring Sites Supporting SZ Studies (Pg: 10)  
USW 10247890 (Pg: 10)  
USW 10247860 (Pg: 10)  
USW 10248490 (Pg: 10)  
USW 10248970 (Pg: 10)  
USW 10249050 (Pg: 10)  
USW 10249135 (Pg: 10)  
USW 10249180 (Pg: 10)  
USW 10249680 (Pg: 10)  
USW 10249850 (Pg: 10)  
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USW 10251271 (Pg: 10)  
USW 10251272 (Pg: 10)  
USW 10251300 (Pg: 10)  
USW SR15 (Pg: 10)  
USW SR16 (Pg: 10)  
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UE-25 10251255 (Pg: 10)  
UE-25 10251256 (Pg: 10)  
USW 102512532 (Pg: 10)  
UE-25 102512533 (Pg: 10)  
UE-25 102512535 (Pg: 10)  
UE-25 102512536 (Pg: 10)  
UE-25 102512537 (Pg: 10)  
UE-25 NTS10 Alice Hill (Pg: 10)  
USW Carolyn (Pg: 10)  
USW NTS10 Coyote Wash (Pg: 10)  
USW Dianne (Pg: 10)  
USW Marge (Pg: 10)  
USW NFCW (Pg: 10)  
UE-25 NTS60 Repository (Pg: 10)  
UE-25 PR1 (Pg: 10)  
USW PS44 (Pg: 10)  
USW PS45 (Pg: 10)  
UE-25 Robin (Pg: 10)  
USW Sandy (Pg: 10)  
USW Y3 (Pg: 10)  
USW Y6 (Pg: 10)  
USW Y7 (Pg: 10)  
UE-25 Y8 (Pg: 10)  
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UE-25 10251265 (Pg: 10)  
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USW 10251270 (Pg: 10)  
UE-25 PR3 (Pg: 10)  
UE-25 PR4 (Pg: 10)  
UE-18 SF3 (Pg: 10)  
UE-18 SF4 (Pg: 10)  
UE-18 SF7 (Pg: 10)  
PTn Mapping (Pg: 10)  
Sample Collection Transects (Pg: 10)  
LIDAR Survey (Pg: 10)  
Water Geochemistry Data Collection (Pg: 10)  
Ground-Water Geochemistry Stations (Pg: 10)  
UE-18 nts101 (Pg: 10)  
USW sts103 (Pg: 10)  
USW sts104 (Pg: 10)  
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USW yes601 (Pg: 10)

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USW yes613 (Pg: 10)  
 USW yes617 (Pg: 10)  
 UE-25 yuc001 (Pg: 10)  
 UE-25 yuc002 (Pg: 10)  
 USW yuc003 (Pg: 10)  
 USW yuc004 (Pg: 10)  
 USW yuc005 (Pg: 10)  
 USW yuc006 (Pg: 10)  
 USW yuc007 (Pg: 10)  
 USW yuc008 (Pg: 10)  
 UE-25 yuc009 (Pg: 10)  
 UE-25 yuc010 (Pg: 10)  
 Geophysical Data Collection (Pg: 11)  
 Schlumberger Resistivity Soundings (Pg: 11)  
 Near Field Study Area (Pg: 11)  
 UE-25 24 (Pg: 11)  
 UE-25 25 (Pg: 11)  
 UE-25 26 (Pg: 11)  
 UE-25 27 (Pg: 11)  
 UE-25 29 (Pg: 11)  
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SS24	Subsurface Emplacement Transportation System (Pg: 49)
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	Ventilation Level System (Pg: 50)
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SS21	Waste Retrieval System (Pg: 51)
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	Fire Alarm Communications System (Pg: 54)
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SU24	Radiological Waste Treatment Facility Ventilation System (Pg: 54)
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SU37	Site-Generated Radiological Waste Handling System (Pg: 54)
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	Thermomechanical Monitoring (Pg: 58)
	Emplaced Materials Monitoring (Pg: 58)
	Geochemical/Geomechanical Monitoring (Pg: 58)
	Backfill Testing (Pg: 58)
	Seal Testing (Pg: 58)
	General Surface Performance Confirmation System (Pg: 58)

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SS02  
WP01

- Engineered Barrier System (Pg: 59)
  - Uncanistered SNF Disposal Container (Pg: 59)
    - 21 PWR Disposal Container, No Absorber Plates (Pg: 59)
      - Inner Barrier (Pg: 59)
      - Outer Barrier (Pg: 59)
      - Basket (Pg: 59)
      - Associated Filler and Criticality Control Materials (if needed) (Pg: 59)
    - 21 PWR Disposal Container, with Absorber Plates (Pg: 59)
      - Inner Barrier (Pg: 59)
      - Outer Barrier (Pg: 59)
      - Basket (Pg: 59)
      - Associated Filler and Criticality Control Materials (if needed) (Pg: 59)
    - 12 PWR Disposal Container, no Absorber Plates (Pg: 59)
      - Inner Barrier (Pg: 59)
      - Outer Barrier (Pg: 59)
      - Basket (Pg: 59)
      - Associated Filler and Criticality Control Materials (if needed) (Pg: 59)
    - 12 PWR Disposal Container, with Absorber Plates South Texas Fuel (Pg: 60)
      - Inner Barrier (Pg: 60)
      - Outer Barrier (Pg: 60)
      - Basket (Pg: 60)
      - Associated Filler and Criticality Control Materials (if needed) (Pg: 60)
    - 44 BWR Disposal Container, no Absorber Plates (Pg: 60)
      - Inner Barrier (Pg: 60)
      - Outer Barrier (Pg: 60)
      - Basket (Pg: 60)
      - Associated Filler and Criticality Control Materials (if needed) (Pg: 60)
    - 44 BWR Disposal Container, with Absorber Plates (Pg: 60)
      - Inner Barrier (Pg: 60)
      - Outer Barrier (Pg: 60)
      - Basket (Pg: 60)
      - Associated Filler and Criticality Control Materials (if needed) (Pg: 60)
    - 24 BWR Disposal Container, with Thick Absorber Plates (Pg: 61)
      - Inner Barrier (Pg: 61)
      - Outer Barrier (Pg: 61)
      - Basket (Pg: 61)
      - Associated Filler and Criticality Control Materials (if needed) (Pg: 61)

WP02

- Canistered SNF Disposal Container (Pg: 61)
  - Boiling Water Reactor Disposal Container (Pg: 61)
    - Inner Barrier (Pg: 61)
    - Outer Barrier (Pg: 61)
    - Associated Filler and Criticality Control Materials (if needed) (Pg: 61)
- Waste Package/EBS Materials Testing & Modeling (Pg: 61)
  - Waste Forms (Pg: 61)
    - Commercial SNF (Pg: 61)
    - HLW Glass (Pg: 61)
    - DOE SNF (Pg: 61)
    - Model Development (Pg: 61)
  - Container Materials (Pg: 61)
    - Short Term Tests (Pg: 61)
    - Long Term Tests (Pg: 61)
    - Model Development (Pg: 61)
  - Basket Materials (Pg: 62)
    - Short Term Tests (Pg: 62)
    - Long Term Tests (Pg: 62)
    - Model Development (Pg: 62)
  - EBS Materials (Pg: 62)

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

	Short Term Tests (Pg: 62)
	Long Term Tests (Pg: 62)
	Model Development (Pg: 62)
	Ceramic Materials (Pg: 62)
	Short Term Tests (Pg: 62)
	Long Term Tests (Pg: 62)
	Model Development (Pg: 62)
WP03	High Level Waste Disposal Container (Pg: 62)
	5 DHLW Co-Disposal Disposal Container (Pg: 62)
	Inner Barrier (Pg: 62)
	Outer Barrier (Pg: 62)
	Canister Support (Pg: 62)
	Center Canister (Pg: 62)
	5 DHLW Co-Disposal Hanford Disposal Container (Pg: 63)
	Inner Barrier (Pg: 63)
	Outer Barrier (Pg: 63)
	Canister Support (Pg: 63)
	Center Canister (Pg: 63)
WP04	DOE Waste Forms Disposal Container (Pg: 63)
	Intact Oxide Disposal Container (Pg: 63)
	Disrupted Fuel Disposal Container (Pg: 63)
	Zirconium Hydride Disposal Container (Pg: 63)
	Uranium Oxide Disposal Container (Pg: 63)
	Uranium Metal and Alloy Disposal Container (Pg: 63)
	Thorium Oxide Disposal Container (Pg: 63)
	Aluminum Based Disposal Container (Pg: 63)
	Uranium Carbide Disposal Container (Pg: 63)
WPxx	Navy Fuel Disposal Container (Pg: 63)
	Inner Barrier (Pg: 63)
	Outer Barrier (Pg: 63)
	Canister Support (if needed) (Pg: 63)
WPxx	Pu Disposal Container (Pg: 64)
	Inner Barrier (Pg: 64)
	Outer Barrier (Pg: 64)
	Canister Support (Pg: 64)
WPxx	Non-Fuel Components Disposal Container (Pg: 64)
	Inner Barrier (Pg: 64)
	Outer Barrier (Pg: 64)
	Canister Support (Pg: 64)
WPxx	Container Closure System Development (Pg: 64)
	Welds & Welding Components (Pg: 64)
	NDE & NDE Components (Pg: 64)
	Coatings (Pg: 64)
WPxx	Ex-Container Systems (Pg: 64)
	Waste Package Supports (Pg: 64)
	Inverts (Pg: 64)
	Drip Shields (if required) (Pg: 64)
	Backfill/Packing (if required) (Pg: 64)
	Post-Closure Performance Assessment (Pg: 65)
	Total System Performance Assessment (Pg: 65)
	Thermal-Hydrological Abstractions (Pg: 65)
	Near-Field Environment Abstractions (Pg: 65)
	Waste Package Degradation Abstractions (Pg: 65)
	Waste Form Degradation and Mobilization Abstractions (Pg: 65)
	Unsaturated Zone Flow Abstractions (Pg: 65)
	Unsaturated Zone Radionuclide Transport Abstractions (Pg: 65)
	Saturated Zone Flow Abstractions (Pg: 65)

	Saturated Zone Radionuclide Transport Abstractions (Pg: 65)
	Biosphere Radionuclide Transport and Radiation Dose Abstractions (Pg: 65)
	Viability Assessment (Pg: 65)
	Site Suitability Assessment (Pg: 65)
	Operational Support Systems (Pg: 1)
	Utility Systems (Pg: 66)
SU42	Site Communications System (Pg: 66)
	General Site Communications Systems (Pg: 66)
	Phone System (Pg: 66)
	Office & Data System (Pg: 66)
	Security Communications System (Pg: 66)
	Fire & Emergency Response Communication (Pg: 66)
	Public Address/Central Alarm System (Pg: 66)
	Microwave Systems (Pg: 66)
	Earth Station System (Pg: 66)
	Portable/Mobile System (Pg: 66)
SU43	Site Water System (Pg: 66)
	Utility Building System (Pg: 66)
	Site Water Systems (Pg: 66)
	Well Water System (Pg: 66)
	Potable Water System (Pg: 66)
	Fire Water Distribution System (Pg: 66)
	Cooling Water System (Pg: 66)
	Chilled Water System (Pg: 66)
	Flood Control System (Pg: 66)
SU44	Site Electrical Power System (Pg: 67)
	Switchgear Building (Pg: 67)
	Substation (Pg: 67)
	Utility Power Distribution System (Pg: 67)
	Standby Power Systems (Pg: 67)
	Standby Power Generator System (Pg: 67)
	Generator Fuel Supply System (Pg: 67)
	Standby Power Distribution System (Pg: 67)
	Site Lighting Systems (Pg: 67)
	General Lighting System (Pg: 67)
	Safety/Security System (Pg: 67)
SU45	Site Compressed Air System (Pg: 67)
	Air Compression System (Pg: 67)
	Industrial Air Distribution System (Pg: 67)
	Instrument Air Distribution System (Pg: 67)
SU53	Off-Site Utilities System (Pg: 67)
SU40	Safety and Security Systems (Pg: 68)
	Emergency Response System (Pg: 68)
	Fire Station (Pg: 68)
	Medical Facility (Pg: 68)
	Emergency Response System (Pg: 68)
SU41	Health Safety System (Pg: 68)
	Instrumentation & Data System (Pg: 68)
	Health Physics Laboratory System (Pg: 68)
	Health Monitoring & Records System (Pg: 68)
	Occupational Safety & Health (Pg: 68)
SU48	Security and Safeguards System (Pg: 68)
	Security Facilities (Pg: 68)
	Station 1 (Pg: 68)
	Station 2 (Pg: 68)
	Station 3 (Pg: 68)
	Security Badging & Records System (Pg: 68)



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												Security Barrier Systems (Pg: 68)
												Site Perimeter System (Pg: 68)
												North Portal Support Area Barrier System (Pg: 68)
												Radiological Control Area Barrier System (Pg: 68)
												Material Access Area Barrier System (as required) (Pg: 68)
												Security Surveillance Systems (Pg: 69)
												Automated Surveillance System (Pg: 69)
												Survey Instrument System (Pg: 69)
												Patrol System (Pg: 69)
												Safeguards (Pg: 69)
												Material Control and Accountability (Pg: 69)
SU49												Surface Environmental Monitoring System (Pg: 69)
												Laboratory Facility System (Pg: 69)
												Sample Collection System (Pg: 69)
												Data Acquisition System (Pg: 69)
												Seismic Monitoring System (Pg: 69)
												Meteorological Monitoring System (Pg: 69)
												Management and Administration Systems (Pg: 69)
SU50												Administration System (Pg: 69)
												Administration System Facilities (Pg: 69)
												Mock-Up Building (Pg: 69)
												Visitors Center (Pg: 69)
												Administration Building (Pg: 69)
SS12												Subsurface Operational Monitoring System (Pg: 69)
												Administration Systems (Pg: 70)
												Operations Management & Planning Computer System (Pg: 70)
												Engineering System (Pg: 70)
												Transportation Dispatch Computer System (Pg: 70)
												Office Services and Records System (Pg: 70)
												Training System (Pg: 70)
SU51												Maintenance & Supply System (Pg: 70)
												Maintenance & Supply System Facilities (Pg: 70)
												Central Shops (Pg: 70)
												DC Receiving Shed (Pg: 70)
												Central Warehouse (Pg: 70)
												Maintenance & Supply Systems (Pg: 70)
												Equipment Storage & Retrieval System (Pg: 70)
												Empty DC Supply System (Pg: 70)
												Inventory Planning & Management System (Pg: 70)
												Repair System (Pg: 70)
												Maintenance Planning & Management System (Pg: 70)
SU52												Central Command & Control Operations System (Pg: 71)
												Central Computer System (Pg: 71)
												Operator Station System (Pg: 71)
SU54												General Site Transportation System (Pg: 71)
												Motor Pool & Facility Service Station (Pg: 71)
												General Site Transportation Systems (Pg: 71)
												General Rail System (Pg: 71)
												General Road System (Pg: 71)
												Vehicle Repair System (Pg: 71)
												Fuel Supply System (Pg: 71)
												Development Transportation System (Pg: 71)
												Non-Radiological Waste Systems (Pg: 71)
SU47												Site-Generated Hazardous & Nonhazardous Waste Disposal System (Pg: 71)
												Hazardous Waste Collection System (Pg: 71)
												Sanitary Solid Waste Collection System (Pg: 71)
												Sanitary Waste Treatment System (Pg: 71)

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

	Subsurface Waste Water Collection System (Pg: 71)
SU17	Transportation Systems (Pg: 72)
	Offsite Rail and Road System (Pg: 72)
	Nevada Rail Subsystem (Pg: 72)
	Nevada Road Subsystem (Pg: 72)
	General Offsite Transportation (Pg: 72)
SS16	Transportation Support Depots and Facilities (Pg: 72)
	Subsurface Development Transportation System (Pg: 72)
	Rail Subsystems for Personnel & Equipment (Pg: 72)
	Rolling Stock (Pg: 72)
	Locomotives (Pg: 72)
	Control Devices (Pg: 72)
	Bulk Equipment (Pg: 2)
	Electrical (Pg: 73)
	Switchgear (Pg: 73)
	Switchboards (Pg: 73)
	Panelboards (Pg: 73)
	Transformers (Pg: 73)
	Motor Control Centers (Pg: 73)
	Communications Systems (Pg: 73)
	Fire Alarm Systems (Pg: 73)
	Underground Distribution Duct Bank System (Pg: 73)
	Mechanical (Pg: 73)
	Pumps (Pg: 73)
	Motors (Pg: 73)
	Valves (Pg: 73)
	In-Cell Lamps (Pg: 73)
	In-Cell CCTV Cameras & Monitors (Pg: 73)
	Idlers (Pg: 73)
	HVAC (Pg: 74)
	Registers (Pg: 74)
	Diffusers (Pg: 74)
	Dampers (Pg: 74)
	Louvers (Pg: 74)
	Filters (Pg: 74)
	Fans (Pg: 74)
	Control Systems (Pg: 74)
	Terminal Cabinets (Pg: 74)
	Marshalling Cabinets (Pg: 74)
	Operator Consoles & Monitors (Pg: 74)
	Architectural (Pg: 74)
	Doors & Hardware (Pg: 74)
	Windows (Pg: 74)
	Cabinets (Pg: 74)
	Bulk Commodities (Pg: 2)
	Electrical (Pg: 75)
	Cable & Connectors (Pg: 75)
	Conduit & Fittings (Pg: 75)
	Boxes and Miscellaneous Enclosures (Pg: 75)
	Receptacles (Pg: 75)
	Lighting Switches (Pg: 75)
	Lighting Fixtures and Lamps (Pg: 75)
	Ground Conductors & Connectors (Pg: 75)
	Grounding Electrodes (Pg: 75)
	Manual Motor Starters (Pg: 75)
	Lightning Arresters (Pg: 75)
	Power Bar (Pg: 75)

	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)

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

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

## Q-List Questions

SDD:

SSC:

Level 4:

Level 3:

Level 5:

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**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:

- 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:

- 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:

**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:

- 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:

## Q-List Questions

SDD:

SSC:

Level 4:

Level 3:

Level 5:

### 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:

### 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:

### 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:

### 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:

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

☒ Yes? Rationale:

**Q-List Questions****SDD:****SSC:****Level 4:****Level 3:****Level 5:****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:

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

☒ **Yes?** Rationale:**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

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Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Ramp

Level 3: Development Accesses

Level 5: Internal Ramps

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 high-level 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?

☐ 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.



## Q-List Questions

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Ramp**

**Level 3: Development Accesses**

**Level 5: Internal Ramps**

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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 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.

## Q-List Questions

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Ramp**

**Level 3: Development 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?

☐ **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.

## Q-List Questions

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Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Ramp

Level 3: Development Accesses

Level 5: Main Ramp

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 main ramps will become operations ramps and, as such, provide reasonable assurance that high-level 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?

☐ Yes? Rationale:

The development main 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 main 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 main ramps could significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Ramp

Level 3: Development Accesses

Level 5: Main Ramp

### QA-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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Ramp

Level 3: Development Accesses

Level 5: Portal

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 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 not function 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Ramp**

**Level 3: Development Accesses**

**Level 5: Portal**

### **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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Ramp**

**Level 3: Development Accesses**

**Level 5: Portal**

### 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, BABEA000-01717-2200-00098, Rev 01.



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Shaft**

**Level 3: Development Accesses**

**Level 5: Emergency Hoist System**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 emergency hoist systems are not associated with storage, emplacement, or retrieval of high level waste and do not provide reasonable assurance that the federal limits will not be exceeded.

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 emergency hoist system is not required to prevent/mitigate/monitor a credible DBE which would result in a release of radioactive material.

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 emergency hoist system 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 facility system physical location and general arrangement helps support the long term waste isolation objectives of the repository. The development emergency hoist system, however, is not part of the natural/engineered barriers associated with 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 development emergency hoisting system will not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Shaft**

**Level 3: Development Accesses**

**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-2 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Shaft**

**Level 3: Development Accesses**

**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*

- 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."

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Shaft

Level 3: Development Accesses

Level 5: Hoist System

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 hoisting systems are not associated with storage, emplacement, or retrieval of high level waste and do not provide reasonable assurance that the federal limits will not be exceeded.

- 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 hoisting system is not required to prevent/mitigate/monitor a credible DBE which would result in a release of radioactive material.

- 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 hoisting system 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 facility system physical location and general arrangement helps support the long term waste isolation objectives of the repository. The development hoisting system, however, is not part of the natural/engineered barriers associated with 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 development hoisting system will not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Shaft**

**Level 3: 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?**

☐ **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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

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."

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Shaft**

**Level 3: Development Accesses**

**Level 5: Shaft Structure**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 shaft structure is not required to 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 shaft structures 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 shaft structures 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 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 shaft structures could significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Shaft**

**Level 3: Development Accesses**

**Level 5: Shaft Structure**

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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 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.



## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Shaft**

**Level 3: Development Accesses**

**Level 5: Shaft Structure**

### QA-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 Men & Materials Shaft, 3.3.2.1, as QA-1.

## Q-List Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 shaft yard facilities 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 shaft yard facilities 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 shaft yard facilities 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:

Development shaft yard facilities 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:

Direct failure of the Development shaft yard facilities will not significantly affect the natureal or engineered barriers from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 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 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.

## Q-List Questions

B00000000-01717-0200-00134 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-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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Muck Handling System**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 muck handling systems 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 subsurface muck handling equipment 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 muck handling system 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:

Development muck handling systems 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:

Direct failure of the development muck handling system would be mitigated and would not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Muck Handling System**

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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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**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."

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Service Equipment**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 service 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 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 subsurface development service equipment 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 service equipment 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:

Development service equipment 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:

Direct failure of the development service equipment will not significantly affect the natural/engineered barriers that perform waste isolation functions.



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Service Equipment**

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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 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:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**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?

☐ 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Specialty Equipment**

<b>QA-1</b>	<b>QA-2</b>	<b>QA-3</b>	<b>QA-4</b>	<b>QA-5</b>	<b>QA-6</b>	<b>QA-7</b>	<b>Non-Q</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 specialty 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 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 subsurface development specialty equipment 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 specialty equipment 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:

Development specialty equipment 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:

Direct failure of the development specialty equipment will not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Specialty Equipment**

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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 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?**

☐ **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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**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

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Trackless Equipment**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 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 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 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 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 trackless equipment 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:

Development trackless equipment 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:

Direct failure of the development trackless equipment will not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**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:**

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Personnel & Materials Transport**

**Level 3: Development Support System**

**Level 5: Trackless 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

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Subsurface Excavation System

Level 3: Development Support System

Level 5: Emplacement Areas

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 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 subsurface excavation system for the emplacement areas does 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 subsurface excavation system for the emplacement areas is not required to 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 subsurface excavation system for the emplacement areas does 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 subsurface excavation system for the emplacement areas helps support the operation and emplacement phase as well as the long term waste isolation objectives of the repository but do not form 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 subsurface excavation system for the emplacement areas would be mitigated and would not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support 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:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support 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)?

☐ Yes? 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."

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**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
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 subsurface excavation system for the miscellaneous 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 subsurface excavation system for the miscellaneous 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 subsurface excavation system for the miscellaneous 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 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:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support System**

**Level 5: Miscellaneous Cutouts**

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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 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:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support 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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support System**

**Level 5: Ramps**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 subsurface excavation system for the ramps does 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 subsurface excavation system for the ramps 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 subsurface excavation system for the ramps 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 subsurface excavation system for the ramps 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:

Direct failure of the development subsurface excavation system for the ramps would be mitigated and would not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support 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:**

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



## Q-List Questions

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support 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 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support System**

**Level 5: Shafts**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 subsurface excavation system for the shafts does 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 subsurface excavation system for the shafts 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 subsurface excavation system for the shafts 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 excavation system for the shafts does not form 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 subsurface excavation system for the shafts would be mitigated and would not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support 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:**

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Development System

Level 4: Subsurface Excavation System

Level 3: Development Support 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.

## Q-List Questions

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support System**

**Level 5: Ventilation Raises**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 subsurface excavation system for the ventilation raises 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 subsurface excavation system for the ventilation raises 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 subsurface excavation system for the ventilation raises 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 subsurface excavation system for the Ventilation Raises 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?

☐ Yes? Rationale:

Direct failure of the development subsurface excavation system for the ventilation raises would not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support 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:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Subsurface Excavation System**

**Level 3: Development Support System**

**Level 5: Ventilation Raises**

### 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 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Support Openings**

**Level 3: Development Support System**

**Level 5: Cutouts**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 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?

☐ Yes?

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.



## Q-List Questions

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Support Openings**

**Level 3: Development Support System**

**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?

☐ 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Support Openings**

**Level 3: Development Support System**

**Level 5: 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 Questions

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Support Openings**

**Level 3: Development Support System**

**Level 5: Equipment Storage**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 equipment storage does 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 subsurface developmental equipment storage areas 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 equipment storage 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:

Development equipment storage 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?

☐ Yes?

Rationale:

Direct failure of the development equipment storage will not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 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**

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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 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:

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

## Q-List Questions

B00000000-01717-0200-00134 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-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:

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."

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Support Openings**

**Level 3: Development Support System**

**Level 5: Subsurface Shops/Warehouse**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 subsurface shops/waehouse does 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 subsurface shops/warehouse 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 subsurface shops/warehouse 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:

Development subsurface shops/warehouse 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:

Direct failure of the development subsurface shops/warehouses will not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Support Openings**

**Level 3: Development Support System**

**Level 5: 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Development System**

**Level 4: Support Openings**

**Level 3: Development Support System**

**Level 5: Subsurface Shops/Warehouse**

### 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:

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."



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: Operations Accesses**

**Level 5: Internal Ramps**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: Operations 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.

### 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:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: Operations 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?

☐ **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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: Operations Accesses**

**Level 5: Main Ramp**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Main 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 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:

The main ramps are 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 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 operations main ramps may result in a credible DBE that would lead to a radioactive release above the federal limits. However, preserving the integrity of operation 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 Operations main ramps will significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: Operations 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:**

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?**

☐ **Yes?**      **Rationale:**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: Operations Accesses**

**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.

# Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: Operations Accesses**

**Level 5: Portal**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 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 facility system Portals provide ground and utility support and overhead protection for ingress of waste transporters. However, preserving the integrity of operation portals 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:

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 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 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 - 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 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Ramps**

**Level 3: 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?

☐ **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.



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 4: Operations Ramps

Level 3: Operations 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: Operations Accesses**

**Level 5: Hoist System**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 hoisting systems in the operations shaft are not associated with storage, emplacement, or retrieval of high level waste and do not provide reasonable assurance that the federal limits will not be exceeded.

- 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 hoisting system is not required to prevent/mitigate/monitor a credible DBE which would result in a release of radioactive material.

- 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 hoisting subsystem 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 facility system physical location and general arrangement helps support the long term waste isolation objectives of the repository. The hoisting system, however, is not part of the natural/engineered barriers associated with 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 hoisting subsystem will not significantly affect the natural/engineered barriers that perform waste isolation functions.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: Operations 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 hoisting subsystem could impair the capability of QA-1 or QA-2 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 SSC's function required for special nuclear material accountability?

☐ Yes? Rationale:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD:** SS01 - Subsurface Facility System

**SSC:** Operations System

**Level 4:** Operations Shafts

**Level 3:** Operations 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 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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: Operations Accesses**

**Level 5: Shaft Structure**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 shaft structure 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 shaft structures 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 shaft structures would not 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.

- 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: Operations 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?**

☐ **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:**

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: Operations Accesses**

**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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: Operations Accesses**

**Level 5: Shaft Yard Facilities**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 shaft yard facilities 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 shaft yard facilities 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 operations shaft yard facilities would not 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:

Operations shaft yard facilities 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:

Direct failure of the operations shaft yard facilities will not significantly affect the natural/engineered barriers that perform waste isolation functions.



## Q-List Questions

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: Operations 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Operations Shafts**

**Level 3: 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 4: Emplacement Area

Level 3: Underground Facility

Level 5: Emplacement Drift

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Emplacement Area**

**Level 3: Underground Facility**

**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:**

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Emplacement Area**

**Level 3: Underground Facility**

**Level 5: Emplacement Drift**

### 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 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Emplacement Area**

**Level 3: Underground Facility**

**Level 5: Perimeter Mains**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Perimeter Mains 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 perimeter mains 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Emplacement Area**

**Level 3: Underground Facility**

**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:**

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Emplacement Area**

**Level 3: Underground Facility**

**Level 5: Perimeter Mains**

### 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

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Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**Level 5: Performance Confirmation**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Performance Confirmation areas 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 Performance confirmation areas 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 operations performance confirmation would not 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.

- 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 performance confirmation within the Repository may significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**Level 5: Performance Confirmation**

**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?**

☐ **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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**Level 5: Performance Confirmation**

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### 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 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**Level 5: Support Openings**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Support openings 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 Support openings 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 operations support openings would not 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.

- 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 support openings within the Repository may significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**Level 5: Support Openings**

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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 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:

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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**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?

☐ 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 Rev 00

Attachment IV

SDD: SS01 - Subsurface Facility System

SSC: Operations System

Level 4: Support Areas

Level 3: Underground Facility

Level 5: Ventilation Openings

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Ventilation Openings 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 ventilation openings 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 ventilation openings would not 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.

- 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**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 SSC's function required for special nuclear material accountability?

☐ Yes? Rationale:

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



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS01 - Subsurface Facility System**

**SSC: Operations System**

**Level 4: Support Areas**

**Level 3: Underground Facility**

**Level 5: Ventilation 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?

☐ 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 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 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 mitigate 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.

## Q-List Questions

B00000000-01717-0200-00134 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**

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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 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:**

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

## Q-List Questions

B00000000-01717-0200-00134 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-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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

SDD: SS03 - Ground Control System

SSC: Accesses

Level 4: N/A

Level 3: N/A

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS03 - Ground Control System**

**SSC: Accesses**

**Level 4: N/A**

**Level 3: N/A**

**Level 5: N/A**

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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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS03 - Ground Control System**

**SSC: Accesses**

**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 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.

## Q-List Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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?

☒ Yes?

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.



## Q-List Questions

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Attachment IV

**SDD: SS03 - Ground Control System**

**SSC: Emplacement Area**

**Level 4: N/A**

**Level 3: N/A**

**Level 5: N/A**

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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 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 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?

☐ **Yes?**

**Rationale:**

This SSC does not perform an accountability function.

## Q-List Questions

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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.

## Q-List Questions

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Attachment IV

SDD: SS03 - Ground Control System

SSC: Performance Confirmation Openings

Level 4: N/A

Level 3: N/A

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Performance Confirmation Openings are not required to provide reasonable assurance that high-level waste can be received, handled, packaged, 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 Ground Control System within the Performance Confirmation Openings are not required to function to mitigate a credible Design Basis Event.

- 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 Performance Confirmation Openings will not 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 Performance Confirmation Openings is not 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 Performance Confirmation Openings will not affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS03 - Ground Control System**

**SSC: Performance Confirmation 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 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.

## Q-List Questions

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Attachment IV

**SDD: SS03 - Ground Control System**

**SSC: Performance Confirmation Openings**

**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 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.

## Q-List Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS03 - Ground Control System**

**SSC: Perimeter Mains**

**Level 4: N/A**

**Level 3: N/A**

**Level 5: N/A**

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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 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 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?

☐ **Yes?** Rationale:

This SSC does not perform an accountability function.

## Q-List Questions

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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*

- 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. The Perimeter Mains are also classified as QA-1/QA-2 by Direct Inclusion.



## Q-List Questions

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Attachment IV

SDD: SS03 - Ground Control System

SSC: Support Openings & Cutouts

Level 4: N/A

Level 3: N/A

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Support Openings & Cutouts is not required to provide reasonable assurance that high-level waste can be received, handled, packaged, 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 Ground Control System Support Openings & Cutouts are not required to function to mitigate a credible Design Basis Event.

- 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 Support Openings & Cutouts will not 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 Support Openings & Cutouts 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 Support Openings & Cutouts will not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 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?**

☐ **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.

## Q-List Questions

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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.

## Q-List Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 Ventilation Openings is not required to provide reasonable assurance that high-level waste can be received, handled, packaged, 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 Ground Control System Ventilation openings are not required to function to mitigate a credible Design Basis Event.
- 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 Ventilation Opening will not 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 Ventilation Openings performs 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 Ventilation Openings will not significantly affect the natural or engineered barriers which may prevent them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS03 - Ground Control System**

**SSC: Ventilation Openings**

**Level 4: N/A**

**Level 3: N/A**

**Level 5: N/A**

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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 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.

## Q-List Questions

B00000000-01717-0200-00134 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-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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Ramp**

**Level 3: Access Ventilation System**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 ramp 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 to the public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only the operations portion of the repository. However, once waste packages are introduced into this portion of the repository, this portion of the repository (the ramp ventilation) will be 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 ramp ventilation system on the development portion of the repository is not required to be operable to prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. However, once waste packages are introduced into this portion of the repository, this portion of the repository (the ramp ventilation) will be 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 ramp ventilation system 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 ramp ventilation system on the development 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 ramp ventilation system on the development portion of the repository will not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Ramp**

**Level 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 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?

☐ 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.



## Q-List Questions

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Attachment IV

**SDD:** SS05 - Subsurface Ventilation System

**SSC:** Development 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Shaft**

**Level 3: Access Ventilation System**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 developmental shaft ventilation system provides air to personnel, and provides temperature control for the 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 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 shaft on the development portion of the repository is part of the ventilation system that is not required to be operable to prevent or mitigate the consequences of a DBE that could otherwise result in a radioactive release above federal limits. However, once waste packages are introduced into this portion of the repository, this portion of the repository (the shaft) may be 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 development portion ventilation shaft 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 development portion ventilation shaft 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 development portion ventilation shaft would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Shaft**

**Level 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 4: Drift Excavation

Level 3: Emplacement Drift System

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 drift 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 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 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 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 drift excavation ventilation system 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 drift excavation ventilation system on the development 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 drift excavation ventilation system on the development portion of the repository will not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Drift Excavation**

**Level 3: Emplacement Drift System**

**Level 5: N/A**

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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 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?**

☒ **Yes?**    **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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Drift Excavation**

**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 drift excavation 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 drift excavation 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.

## Q-List Questions

B000000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 4: Raise Excavation

Level 3: Emplacement Drift System

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 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 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 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

- 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 raise excavation ventilation system 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 raise excavation ventilation system on the development 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 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.



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Raise Excavation**

**Level 3: 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 raise 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?

☐ 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 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 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.

## Q-List Questions

B000000000-01717-0200-00134 Rev 00

Attachment IV

**SDD:** SS05 - Subsurface Ventilation System

**SSC:** Development Ventilation System

**Level 4:** Raise Excavation

**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 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)?

☒ 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.

# Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Development Ventilation System

Level 4: Turnout Excavation

Level 3: Emplacement Drift System

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 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 turnout 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 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 turnout 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 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 turnout excavation ventilation system 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 turnout excavation ventilation system on the development 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 turnout 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.

## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Turnout Excavation**

**Level 3: 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 turnout 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?**

☐ **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.

## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Turnout Excavation**

**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 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.

## Q-List Questions

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**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Charging Stations**

**Level 3: Miscellaneous Support Cutout Systems**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 charging stations ventilation system on the development 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. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only 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 charging 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 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 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 - 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 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

## Q-List Questions

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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 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 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.

## Q-List Questions

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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.



## Q-List Questions

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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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 fueling bays ventilation system on the development 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. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only 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 fueling bays 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 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 fueling bays ventilation system 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 fueling bays 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 fueling bays 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.

## Q-List Questions

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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.

## Q-List Questions

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**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Fueling Bays**

**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 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.

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

☐ **Yes?** Rationale:

The fueling bays 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.

## Q-List Questions

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**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Pumping Stations**

**Level 3: Miscellaneous Support Cutout Systems**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 pumping stations ventilation system on the development 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. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only 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 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 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 pumping 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 - 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 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 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 pumping 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

## Q-List Questions

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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 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 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.

## Q-List Questions

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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:

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 Questions

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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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 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 public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only 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 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 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 refuge chambers ventilation system 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 refuge chambers 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 refuge chambers 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.

## Q-List Questions

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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-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.

### 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 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.



## Q-List Questions

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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)?

☒ **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.

## Q-List Questions

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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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 science cutouts ventilation system on the development 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. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only 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 science cutouts 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 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 science cutouts ventilation system 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 science cutouts 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 science cutouts 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.

## Q-List Questions

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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.

## Q-List Questions

B00000000-01717-0200-00134 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:

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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: N/A**

**Level 3: Performance Confirmation System**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 performance confirmation system for the development ventilation system is used during the construction phase and does not 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 does not perform functions to prevent, mitigate or 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 development ventilation system for the performance confirmation system for 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 development ventilation system for the performance confirmation system for 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 development ventilation system for the performance confirmation system for the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

### SDD: SS05 - Subsurface Ventilation System

SSC: Development 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 development ventilation system for the performance confirmation system for 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS05 - Subsurface Ventilation System

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)?

☒ Yes? Rationale:

This SSC (Development Ventilation System) is contained on the Q-List by direct inclusion for the Underground Service and Utility Systems, 3.5.5.2, as QA-1.

# Q-List Questions

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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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 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 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 to the public. Waste is not stored, emplaced, or retrieved from the development portion of the repository; only 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 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 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 shop/warehouse area ventilation system 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 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 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 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.



## Q-List Questions

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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 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 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.

## Q-List Questions

B00000000-01717-0200-00134 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-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:

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 Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 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**

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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 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.

## Q-List Questions

B00000000-01717-0200-00134 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)?

☒ 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Control Devices**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Control Devices**

**Level 3: Ventilation Commodities**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Control Devices**

**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 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:

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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Dust/Fume Control**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 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 repository. 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 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 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 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 dust/fume control equipment on the development 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 development portion of the repository would not affect the function of the natural/engineered barriers, thereby preventing them from performing their waste isolation function.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Dust/Fume Control**

**Level 3: Ventilation Commodities**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD:** SS05 - Subsurface Ventilation System

**SSC:** Development Ventilation System

**Level 4:** Dust/Fume Control

**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 dust/fume control 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 dust/fume control 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:

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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Heating/Cooling**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 heating/cooling ventilation system equipment 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 packages are not stored on the development portion of the repository; even when waste packages are eventually stored in these drifts, the heating/cooling system will not be required to provide this assurance.

- 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 heating/cooling ventilation system 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.

- 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 heating/cooling ventilation system equipment 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 heating/cooling ventilation system equipment on the development 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 heating/cooling ventilation system equipment 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Heating/Cooling**

**Level 3: Ventilation Commodities**

**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 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Heating/Cooling**

**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 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:**

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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Silencers**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 silencers on the development 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 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 silencers 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 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 silencers 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 ventilation silencers 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 ventilation silencers 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Development Ventilation System**

**Level 4: Silencers**

**Level 3: Ventilation Commodities**

**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.



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**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?**

☐ **Yes?**      **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:**

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 Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 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.

## Q-List Questions

B00000000-01717-0200-00134 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-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:**

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 Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Ramp**

**Level 3: Access Ventilation System**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Ramp**

**Level 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 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?**

☐ **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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Shaft**

**Level 3: Access Ventilation System**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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?

☐ 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?

☐ Yes? 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.



## Q-List Questions

B000000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Shaft**

**Level 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 ventilation system for the ventilation shaft on the operational 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 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

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD:** SS05 - Subsurface Ventilation System

**SSC:** Operations 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 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)?

☒ **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.

## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Drift**

**Level 3: Emplacement Drift System**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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?

☐ 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Drift**

**Level 3: 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD:** SS05 - Subsurface Ventilation System

**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.

## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Ventilation Raise**

**Level 3: Emplacement Drift System**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Ventilation Raise**

**Level 3: 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 4: Ventilation Raise

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 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)?

☒ 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.



## Q-List Questions

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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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 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 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 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 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 charging 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 charging 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 charging 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.

## Q-List Questions

B00000000-01717-0200-00134 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 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 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.

## Q-List Questions

B00000000-01717-0200-00134 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.

## Q-List Questions

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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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.

## Q-List Questions

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-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 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 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.

## Q-List Questions

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?

☐ **Yes?** 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)?

☒ **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

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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 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 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 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 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 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 refuge chambers 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 refuge chambers 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 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.

## Q-List Questions

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 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 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.



## Q-List Questions

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-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.

## Q-List Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 science cutouts 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 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 science cutouts 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 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 science cutouts 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 science cutouts on the operational 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 science cutouts 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.

## Q-List Questions

B00000000-01717-0200-00134 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 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 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.

## Q-List Questions

B00000000-01717-0200-00134 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.

## Q-List Questions

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 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 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.

## Q-List Questions

B00000000-01717-0200-00134 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.

## Q-List Questions

B00000000-01717-0200-00134 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-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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

SDD: SS05 - Subsurface Ventilation System

SSC: Operations Ventilation System

Level 4: Air Movers

Level 3: Ventilation Commodities

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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?

☐ 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.



## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Air Movers**

**Level 3: Ventilation Commodities**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations 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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Control Devices**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Control Devices**

**Level 3: Ventilation Commodities**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Control Devices**

**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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Dust/Fume Control**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Dust/Fume Control**

**Level 3: Ventilation Commodities**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Dust/Fume Control**

**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 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)?

☒ **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

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Heating/Cooling**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 heating/cooling ventilation system 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. Waste packages are stored on the operations portion of the repository; when waste packages are stored in these drifts, the heating/cooling system will not be required to provide this assurance.

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 heating/cooling ventilation system 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.

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 heating/cooling ventilation system 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 heating/cooling ventilation system 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 heating/cooling ventilation system 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.

## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Heating/Cooling**

**Level 3: Ventilation Commodities**

**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 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 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:

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?

☐ Yes? 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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## Q-List Questions

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Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Heating/Cooling**

**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 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

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Silencers**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 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 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** 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 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 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 silencers 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 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 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 silencers 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**SSC: Operations Ventilation System**

**Level 4: Silencers**

**Level 3: Ventilation Commodities**

**Level 5: N/A**

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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 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

**SDD: SS05 - Subsurface Ventilation System**

**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)?

☒ **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.

## Q-List Questions

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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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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.

## Q-List Questions

B00000000-01717-0200-00134 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.



## Q-List Questions

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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)?

☒ **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

B00000000-01717-0200-00134 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-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 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 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?

☐ Yes?

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.

## Q-List Questions

B00000000-01717-0200-00134 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.

## Q-List Questions

B00000000-01717-0200-00134 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS06 - Subsurface Electrical Distribution System**

**SSC: Development Electrical Distribution**

**Level 4: N/A**

**Level 3: 440 V Distribution**

**Level 5: N/A**

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 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 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 440 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 development 440 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?

☐ Yes?

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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

**SDD: SS06 - Subsurface Electrical Distribution System**

**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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00

Attachment IV

**SDD: SS06 - Subsurface Electrical Distribution System**

**SSC: Development Electrical Distribution**

**Level 4: N/A**

**Level 3: 440 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.

## Q-List Questions

B00000000-01717-0200-00134 Rev 00  
Attachment IV

SDD: SS06 - Subsurface Electrical Distribution System

SSC: Development Electrical Distribution

Level 4: N/A

Level 3: Blasting Circuit

Level 5: N/A

QA-1	QA-2	QA-3	QA-4	QA-5	QA-6	QA-7	Non-Q
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### 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 electrical distribution system provides primary and standby power for the development and emplacement operations, including emergency and uninterruptable power for personnel safety and critical operations. However, the development electrical distribution system and its component SSCs (including the development blasting circuit) 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 development blasting circuit 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?

☐ Yes? 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.



## Q-List Questions

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Attachment IV

**SDD: SS06 - Subsurface Electrical Distribution System**

**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:

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 not 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.

## Q-List Questions

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### 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.