

**ATTACHMENT M**

**FIGURES**

#### DISCLAIMER

The figures presented in this attachment are illustrations and are for information purposes only.  
These figures are not to scale.

## ATTACHMENT M

### FIGURES

#### LIST OF FIGURES

Figure M-1 Waste Handling Building Unit – TRU Mixed Waste Container Storage and Surge Areas .....	6
Figure M-2 Parking Area Unit – TRU Mixed Waste Container Storage and Surge Areas .....	7
Figure M-3 Standard 55-Gallon Drum (Typical) .....	8
Figure M-4 Standard Waste Box .....	9
Figure M-5 Ten-Drum Overpack .....	10
Figure M-6 85-Gallon Drum .....	11
Figure M-7 100-Gallon Drum .....	12
Figure M-8 Typical Standard Large Box 2 .....	13
Figure M-9 Facility Canister Assembly .....	14
Figure M-10 RH-TRU 72-B Canister Assembly .....	15
Figure M-11 <u>Range of</u> Typical Shielded Container <u>Dimensions</u> .....	<u>1716</u>
Figure M-12 Waste Handling Building Plan (Ground Floor).....	<u>1817</u>
Figure M-13 RH Bay Ground Floor and Waste Transport Routes .....	<u>1918</u>
Figure M-14 RH Hot Cell Storage Area .....	<u>2019</u>
Figure M-15 RH Canister Transfer Cell Storage Area and Waste Transport Route .....	<u>2120</u>
Figure M-16 RH Facility Cask Loading Room and Cask Unloading Storage Area and Waste Transport Route .....	<u>2221</u>
Figure M-17 TRUPACT-II Type B Shipping Container .....	<u>2322</u>
Figure M-18 Typical HalfPACT Type B Shipping Container .....	<u>2423</u>
Figure M-19 Typical TRUPACT-III Type B Shipping Container .....	<u>2524</u>
Figure M-20 Payload Transfer Station .....	<u>2625</u>
Figure M-21 Facility Pallet .....	<u>2726</u>
Figure M-22 Typical Containment Pallet.....	<u>2827</u>
Figure M-23 Facility Transfer Vehicle, Facility Pallet, and Typical Pallet Stand .....	<u>2928</u>
Figure M-24 Typical Yard Transfer Vehicle .....	<u>3029</u>
Figure M-25 RH TRU 72-B Shipping Cask on Trailer .....	<u>3130</u>
Figure M-26 CNS 10-160B Shipping Cask on Trailer .....	<u>3231</u>
Figure M-27 RH-TRU 72-B Type B Shipping Cask.....	<u>3332</u>
Figure M-28 CNS 10-160B Type B Shipping Cask .....	<u>3433</u>

Figure M-29 RH Transuranic Waste Facility Cask and Light Weight Facility Cask.....	<u>3534</u>
Figure M-30 RH Shielded Insert Assembly .....	<u>3635</u>
Figure M-31 CNS 10-160B Drum Carriage .....	<u>3736</u>
Figure M-32 RH-TRU 72-B Cask Transfer Car .....	<u>3837</u>
Figure M-33 CNS 10-160B Cask Transfer Car .....	<u>3938</u>
Figure M-34 RH Facility Cask Transfer Car (Side View).....	<u>4039</u>
Figure M-35 Transfer Cell Shuttle Car .....	<u>4140</u>
Figure M-36 Facility Cask Rotating Device .....	<u>4241</u>
Figure M-37 TRUPACT-II Containers on Trailer .....	<u>4342</u>
Figure M-38 WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram .....	<u>4443</u>
Figure M-39 WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram (Continued) .....	<u>4544</u>
Figure M-40 Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for RH-TRU 72-B Shipping Cask .....	<u>4645</u>
Figure M-41 Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for CNS 10-160B Shipping Cask .....	<u>4746</u>
Figure M-42 Typical Disposal Panel .....	<u>4847</u>
Figure M-43 Repository Horizon and Underground Waste Transport Routes .....	<u>4948</u>
Figure M-44 Spatial View of the Miscellaneous Unit and Waste Handling Facility .....	<u>5049</u>
Figure M-45 Typical MgO Backfill Sacks Emplaced on Drum Stacks and Emplacement Configurations .....	<u>5150</u>
Figure M-46 Waste Transfer Cage to Transporter .....	<u>5251</u>
Figure M-47 Push-Pull Attachment to Forklift to Allow Handling of Waste Containers .....	<u>5352</u>
Figure M-48 Typical RH and CH TRU Mixed Waste Container Disposal Configuration .....	<u>5453</u>
Figure M-49 Underground Ventilation System Airflow .....	<u>5554</u>
Figure M-50 Underground Ventilation System Airflow (with SVS) .....	<u>5655</u>
Figure M-51 Underground Ventilation System Airflow (with S#5) .....	<u>5756</u>
Figure M-52 Typical Room Barricade .....	<u>5857</u>
Figure M-53 Underground Ventilation System Airflow (with Building 416).....	<u>5958</u>
Figure M-54 Typical RH Emplacement Equipment .....	<u>6059</u>
Figure M-55 RH TRU Waste Facility Cask Unloading from Waste Shaft Conveyance.....	<u>6160</u>
Figure M-56 Section of Borehole Showing the RH Shield Plug and Supplemental Shielding Plate(s) .....	<u>6261</u>
Figure M-57 General Location of the WIPP Facility .....	<u>6362</u>
Figure M-58 WIPP Traffic Flow Diagram .....	<u>6463</u>

Figure M-59 Reserved .....	<u>6564</u>
Figure M-60 Typical CH Mixed Waste Transport Routes in Waste Handling Building - Container Storage Unit.....	<u>6665</u>
Figure M-61 WIPP Panel Closure Schedule.....	<u>6766</u>
Figure M-62 WIPP Facility Final Closure 84-Month Schedule.....	<u>6867</u>
Figure M-63 Typical Substantial Barrier and Bulkhead.....	<u>6968</u>
Figure M-64 Typical Shaft Sealing System .....	<u>7069</u>
Figure M-65 Perimeter Fenceline and Roadway .....	<u>7170</u>
Figure M-66 WIPP Facility Boundaries Showing 16-square-Mile Land Withdrawal Boundary .....	<u>7271</u>
Figure M-67 Site Geologic Column .....	<u>7372</u>
Figure M-68 Generalized Stratigraphic Cross Section above the Bell Canyon Formation at the WIPP Site .....	<u>7473</u>
Figure M-69 Culebra Freshwater-Head Potentiometric Surface .....	<u>7574</u>
Figure M-70 Detection Monitoring Well Locations .....	<u>7675</u>
Figure M-71 As-Built Configuration of Well WQSP-1.....	<u>7776</u>
Figure M-72 As-Built Configuration of Well WQSP-2.....	<u>7877</u>
Figure M-73 As-Built Configuration of Well WQSP-3.....	<u>7978</u>
Figure M-74 As-Built Configuration of Well WQSP-4.....	<u>8079</u>
Figure M-75 As-Built Configuration of Well WQSP-5.....	<u>8180</u>
Figure M-76 As-Built Configuration of Well WQSP-6.....	<u>8281</u>
Figure M-77 Groundwater Level Surveillance Wells (inset represents the Groundwater Level Surveillance Wells within the WIPP Land Withdrawal Area) .....	<u>8382</u>
Figure M-78 Repository VOC Monitoring Locations .....	<u>8483</u>
Figure M-79 Typical Disposal Room VOC Monitoring Locations .....	<u>8584</u>
Figure M-80 Typical Disposal Room Sample Head Arrangement .....	<u>8685</u>
Figure M-81 VOC Monitoring System Design .....	<u>8786</u>
Figure M-82 VOC Monitoring System Design (continued).....	<u>8887</u>

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

October 2023June 2024

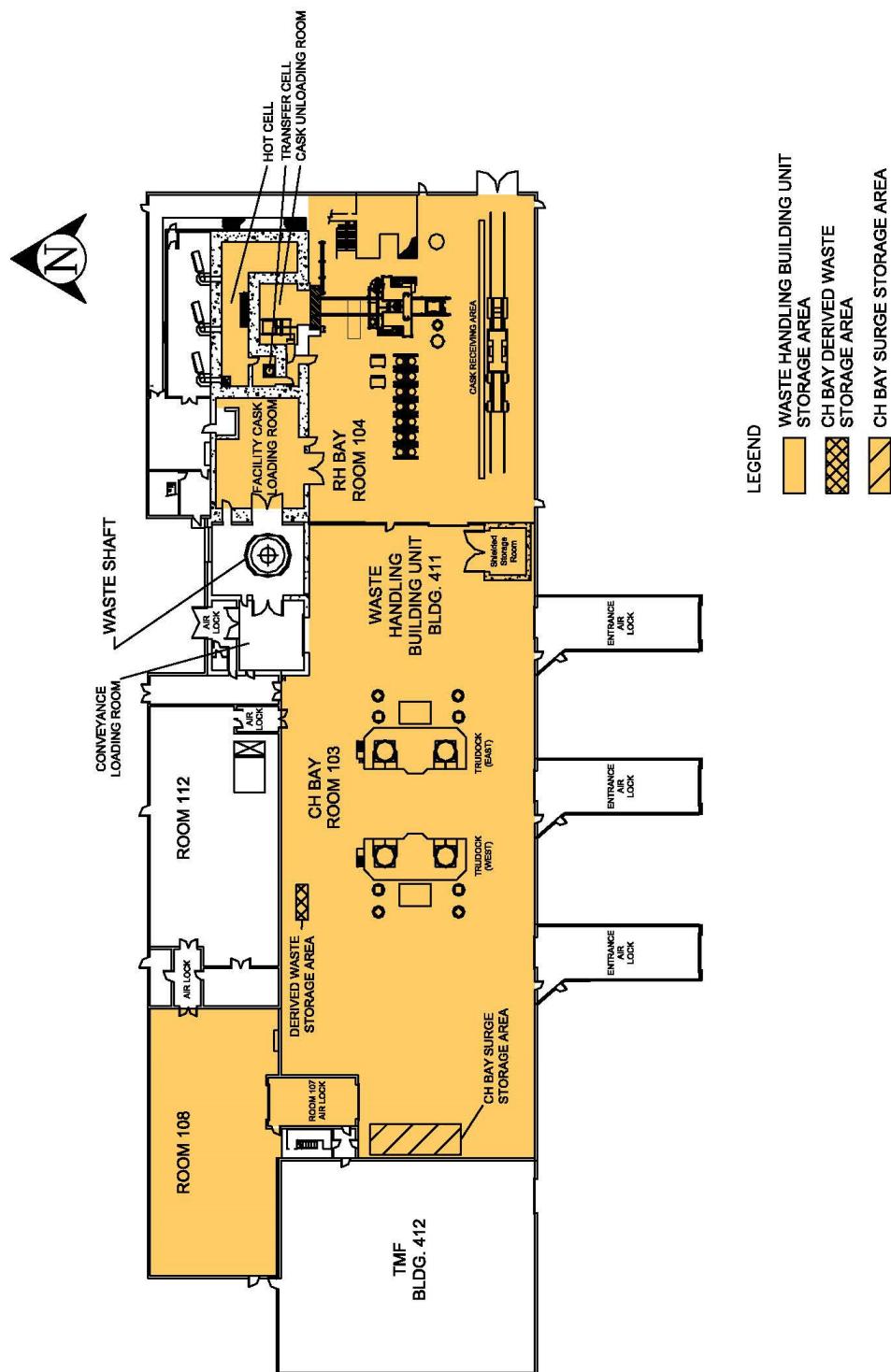
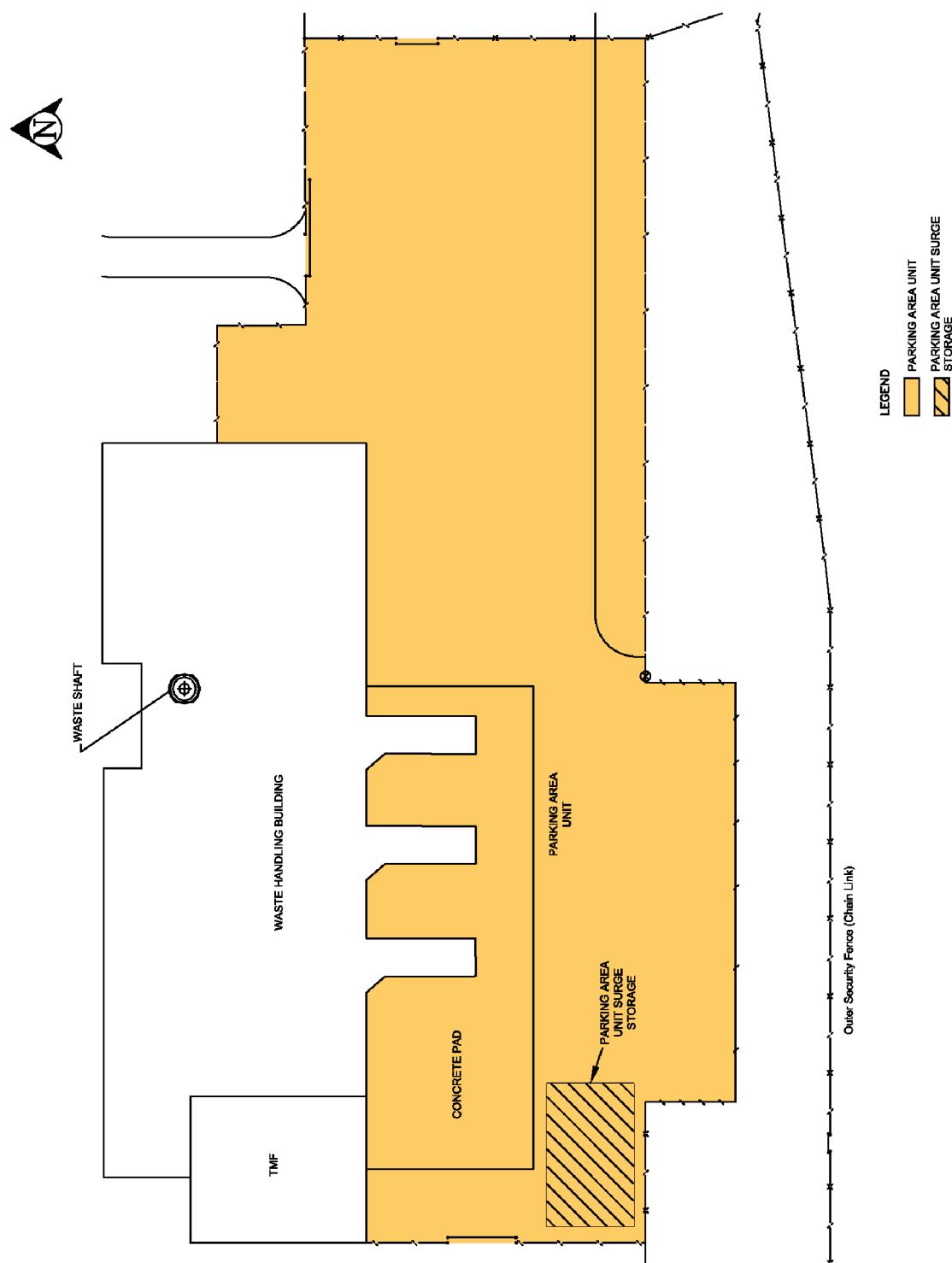


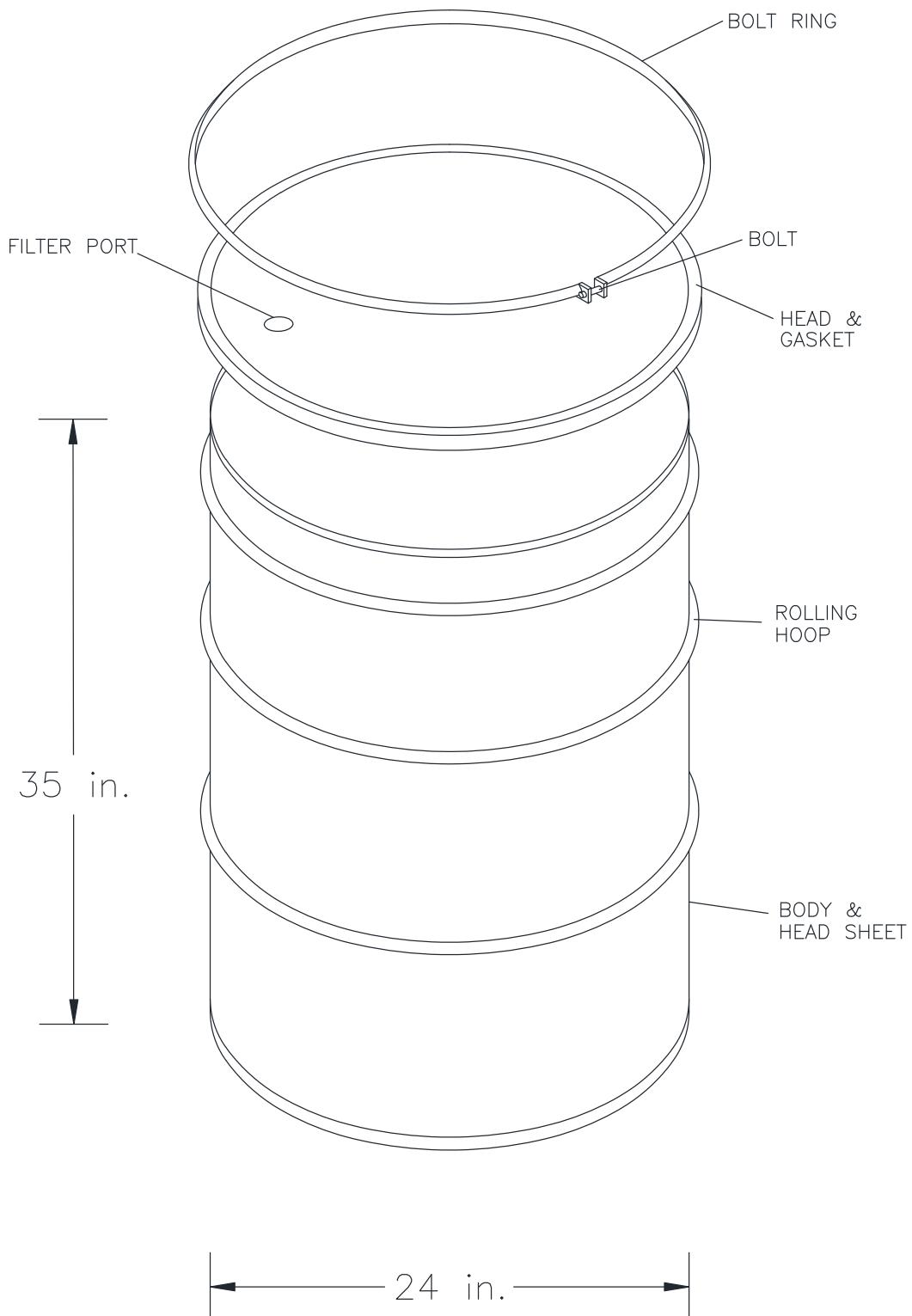
Figure M-1  
Waste Handling Building Unit – TRU Mixed Waste Container Storage and Surge Areas

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

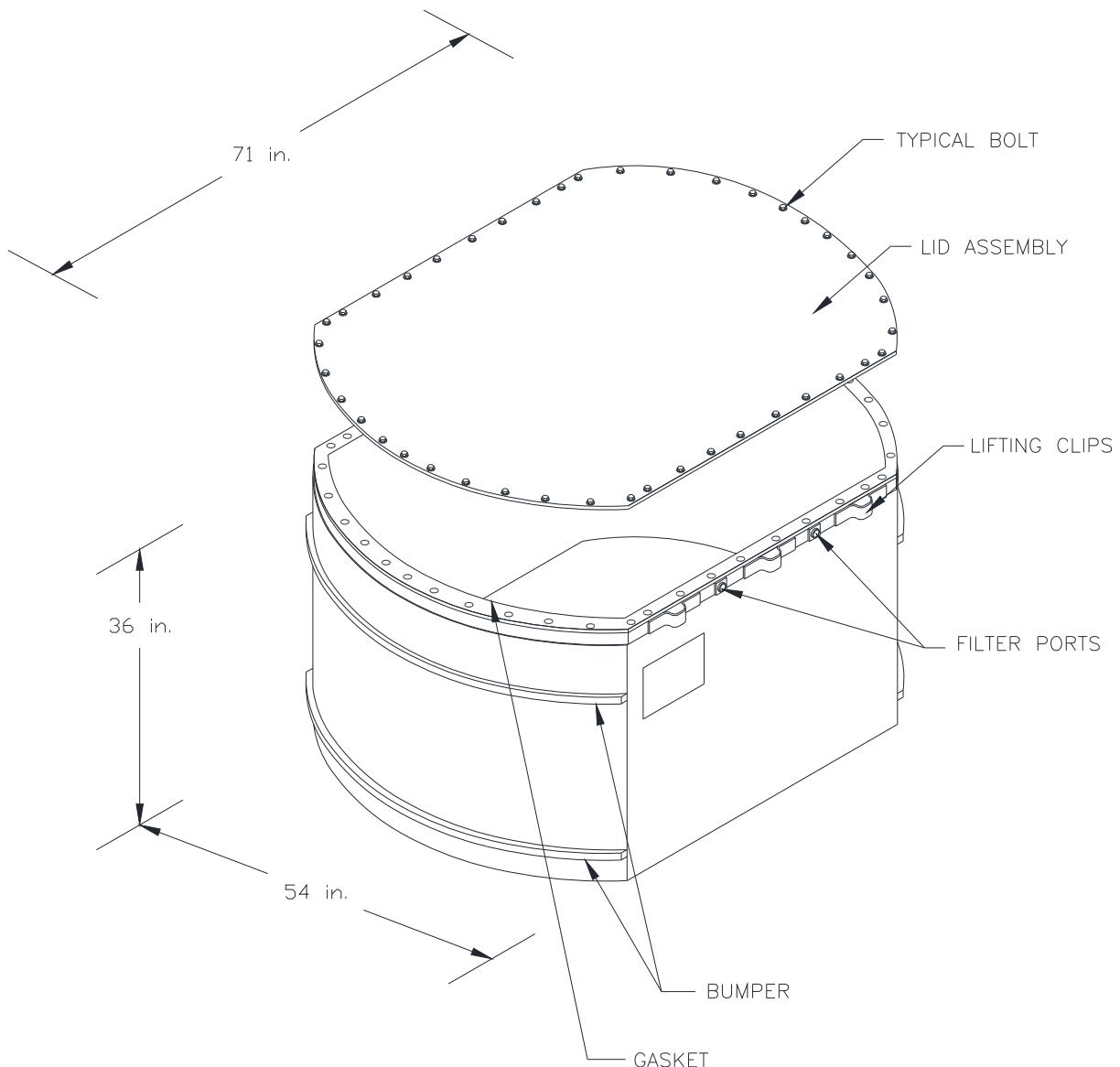
October 2023June 2024



**Figure M-2**  
**Parking Area Unit – TRU Mixed Waste Container Storage and Surge Areas**

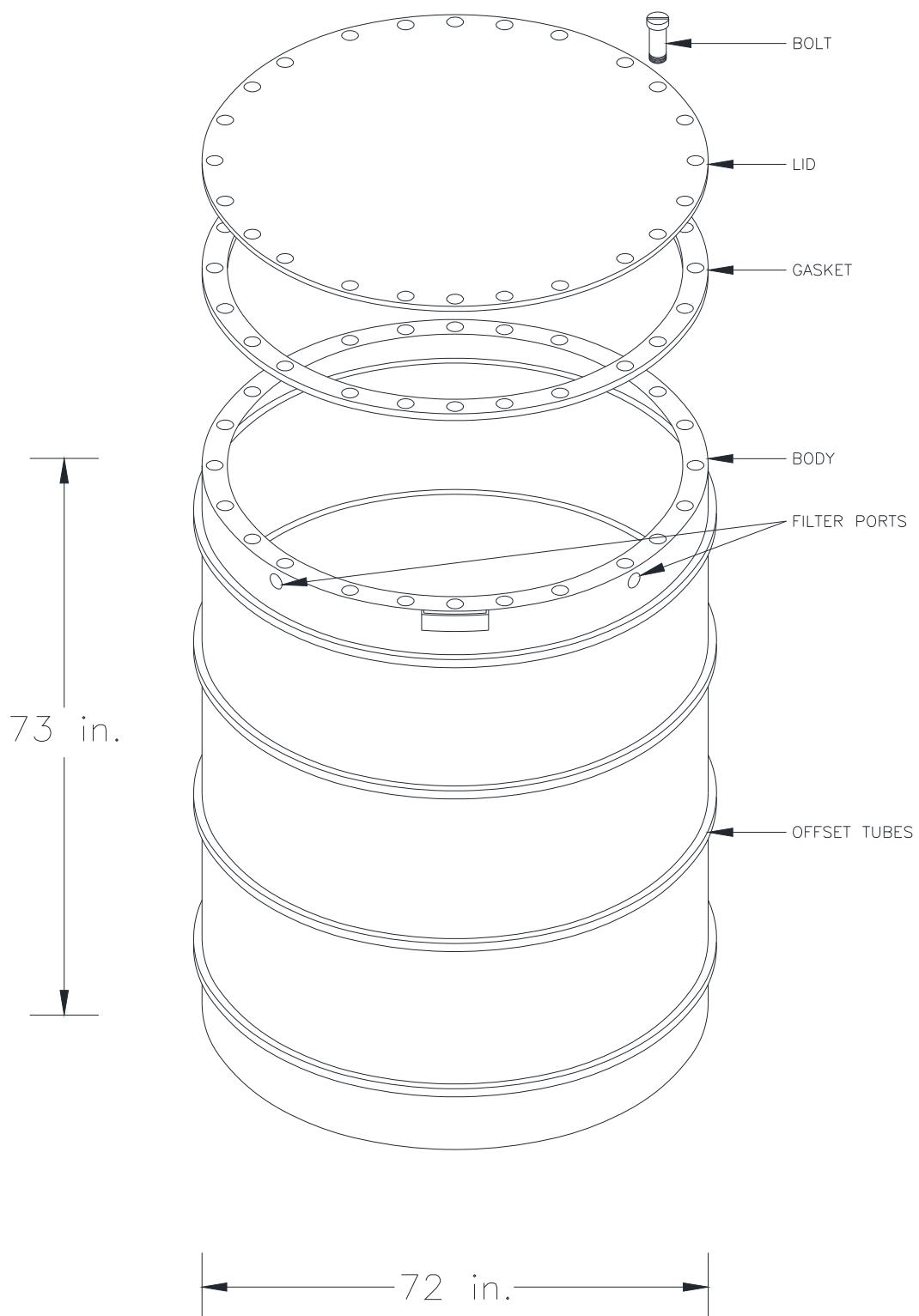


**Figure M-3**  
**Standard 55-Gallon Drum (Typical)**

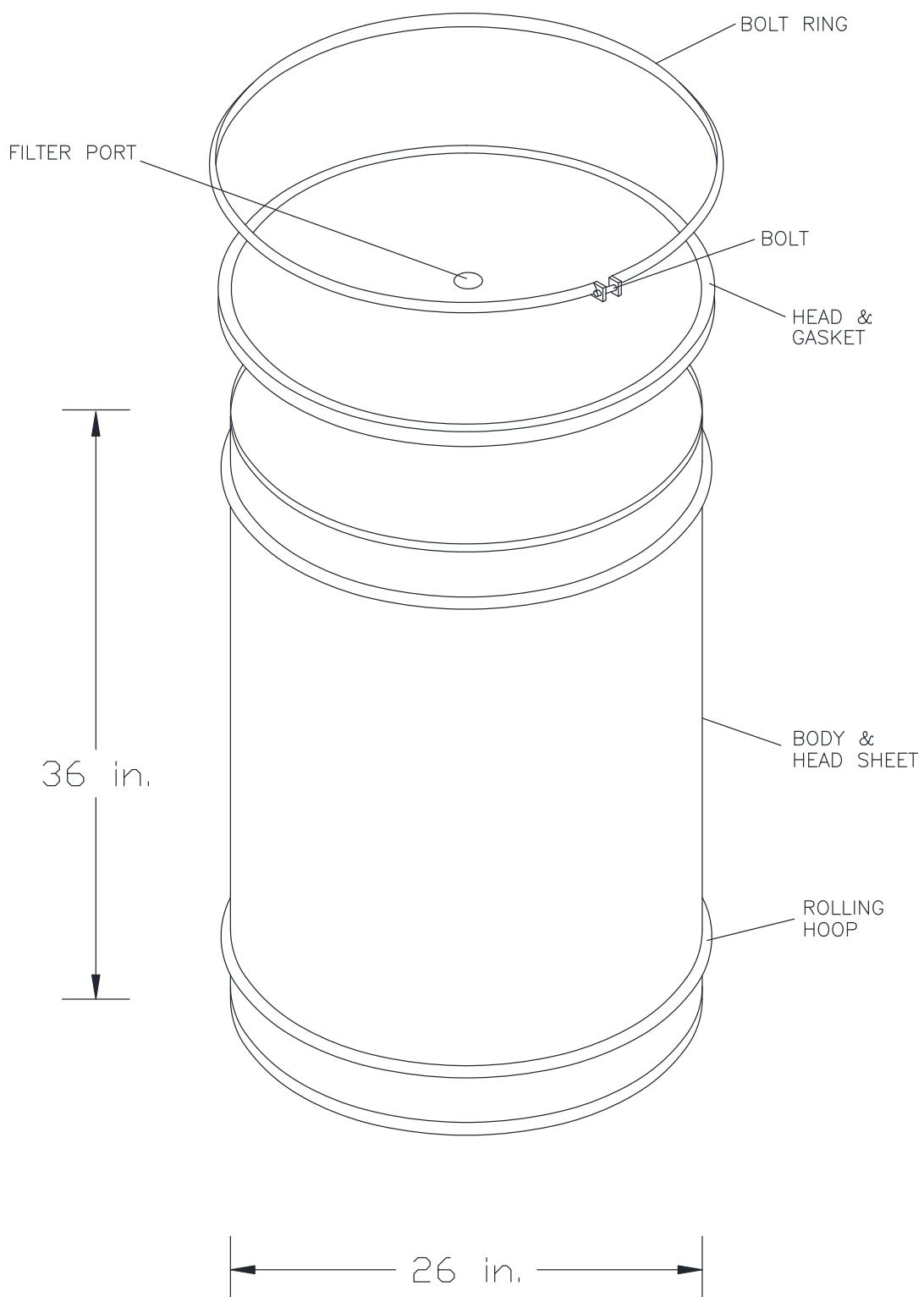


**Figure M-4**  
**Standard Waste Box**

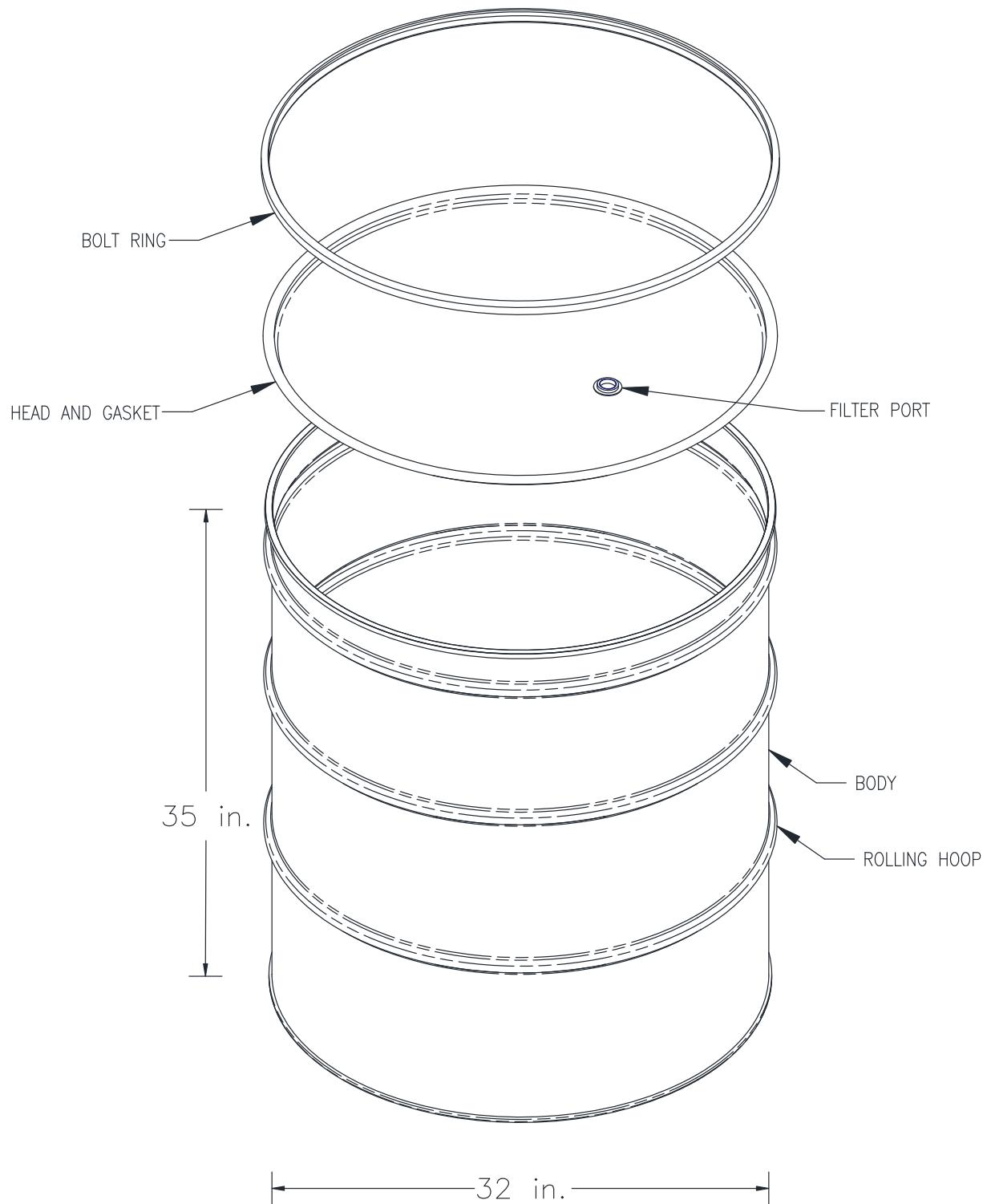
~~October 2023~~ June 2024



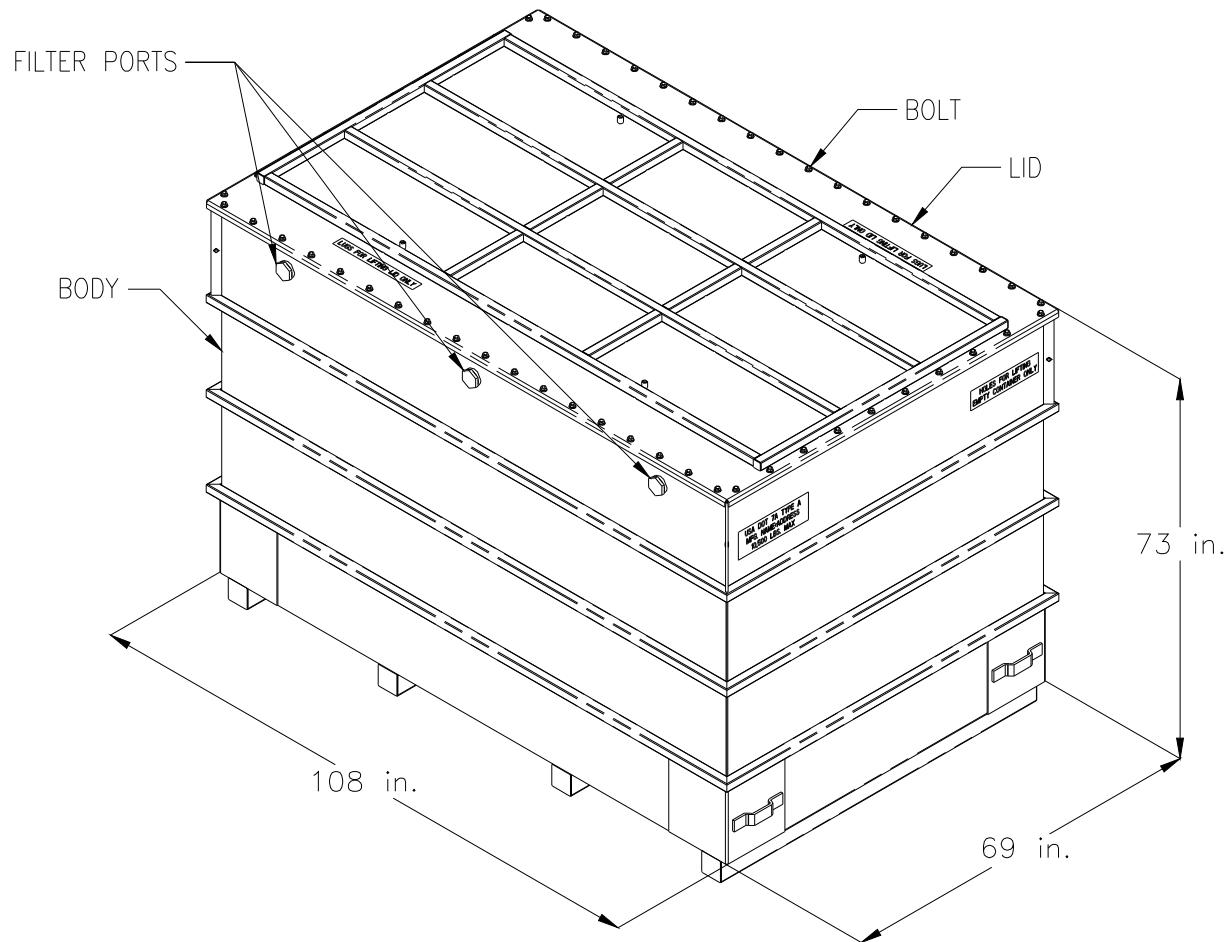
**Figure M-5**  
**Ten-Drum Overpack**



**Figure M-6**  
**85-Gallon Drum**



**Figure M-7**  
**100-Gallon Drum**

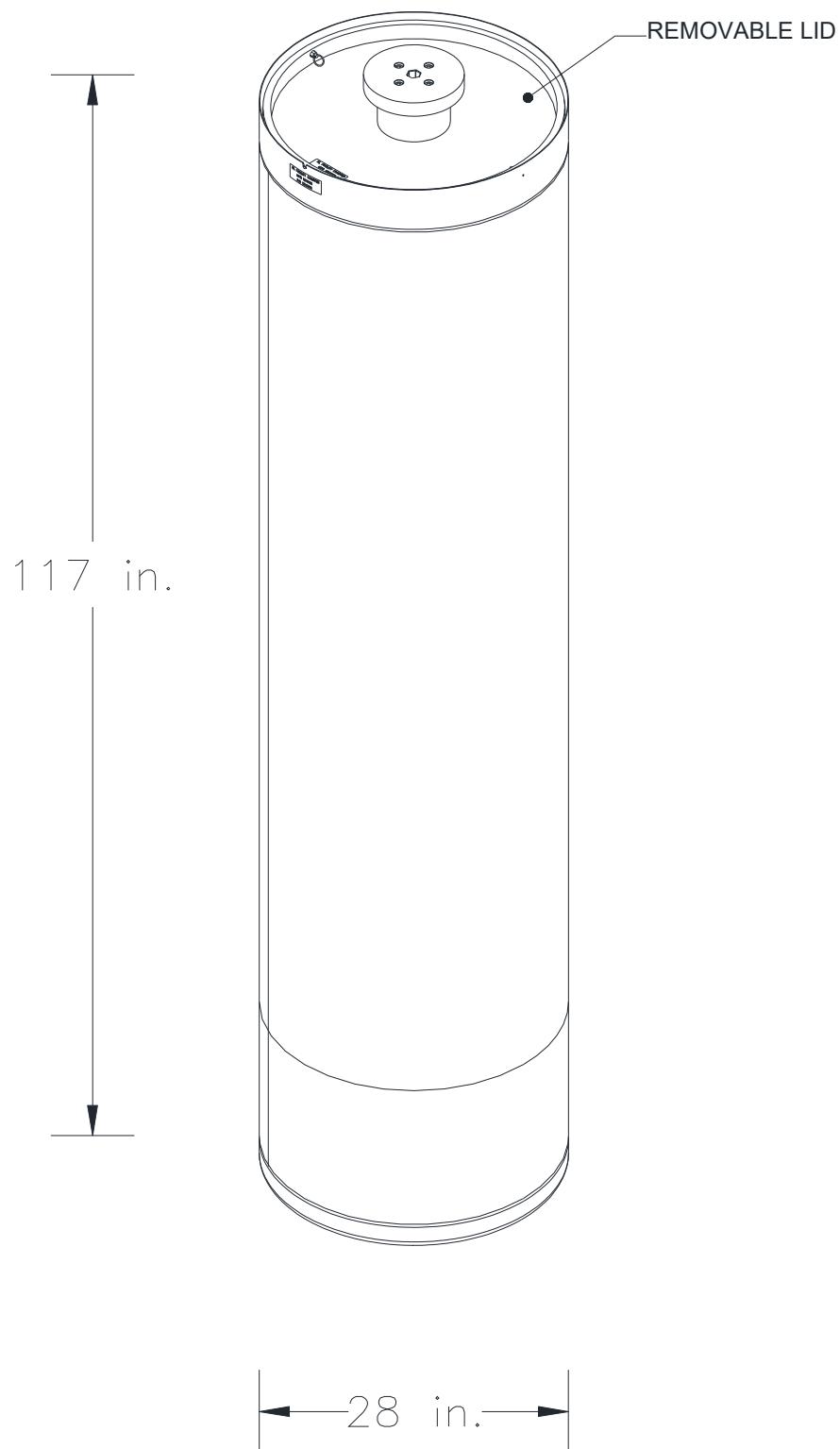


**Figure M-8**  
**Typical Standard Large Box 2**

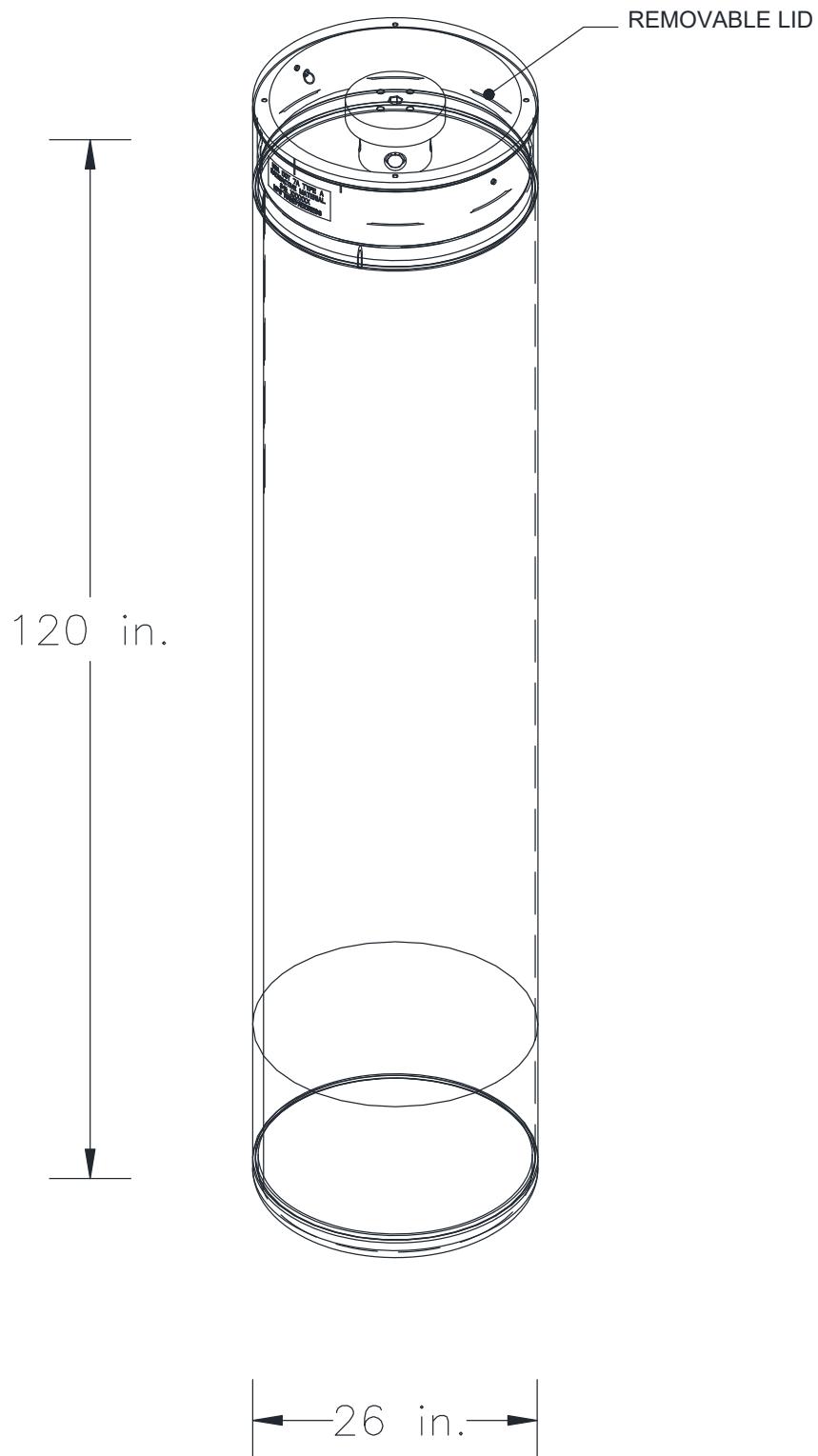
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit

Attachment M

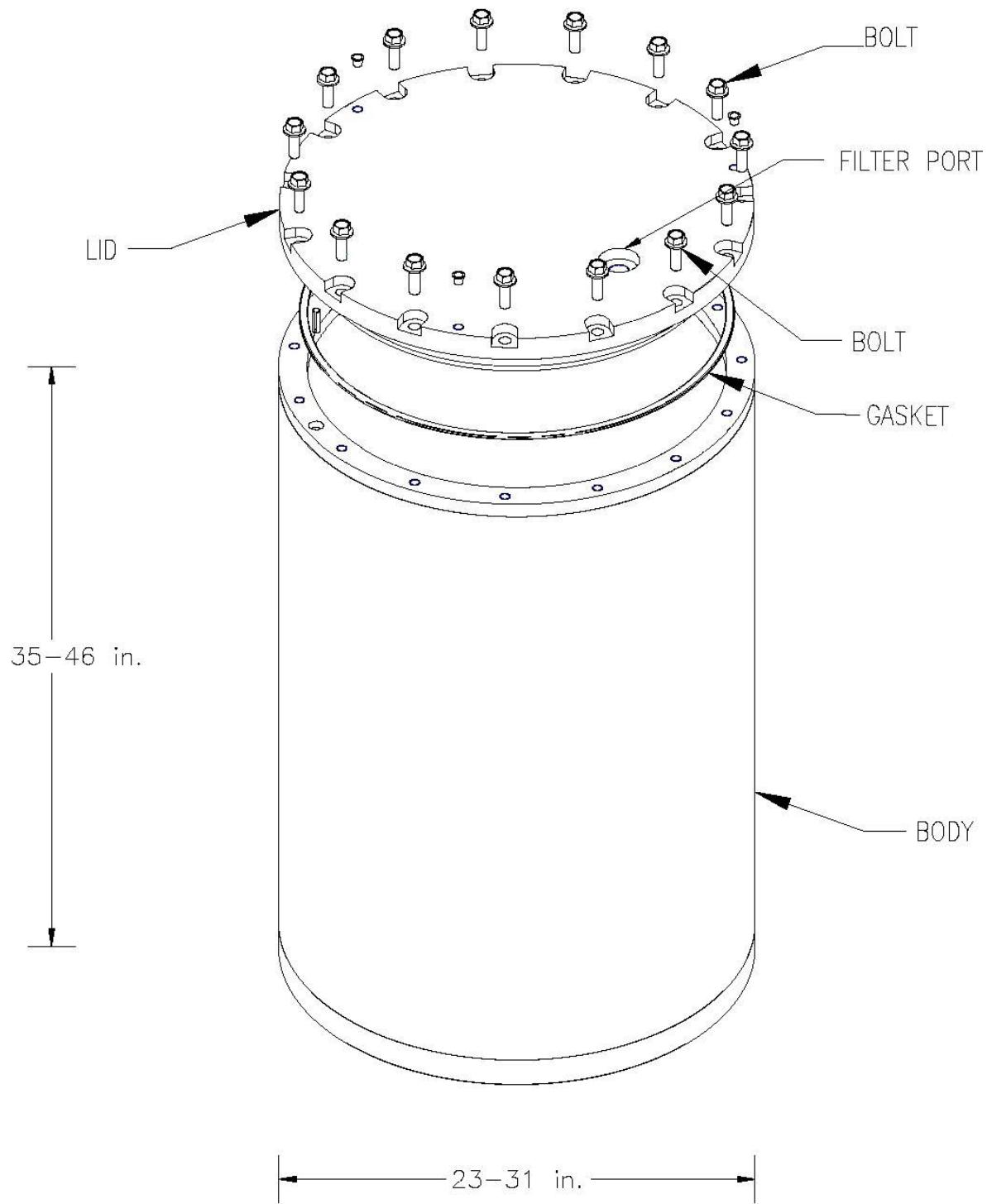
~~October 2023~~ June 2024

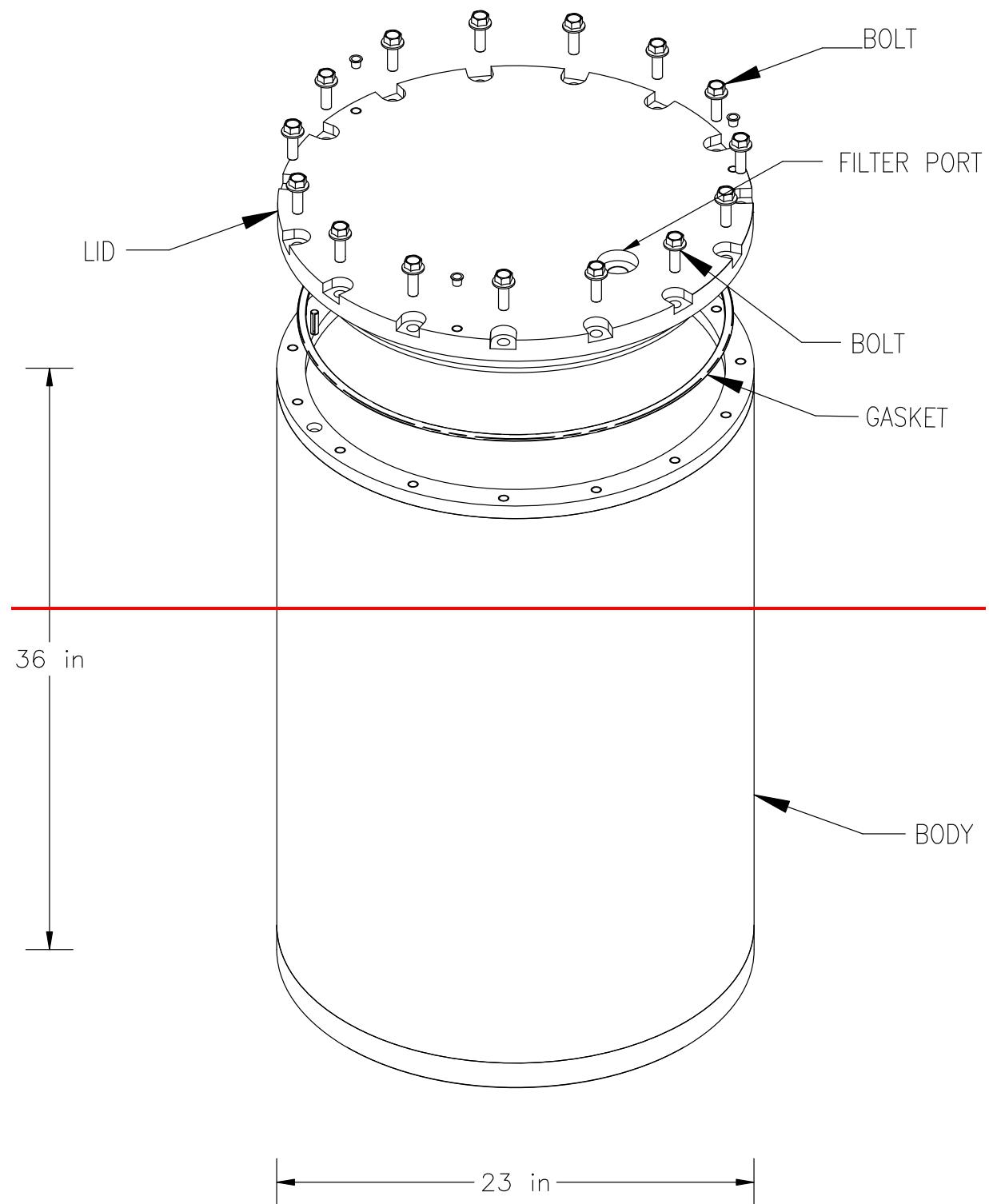


**Figure M-9**  
**Facility Canister Assembly**



**Figure M-10**  
**RH-TRU 72-B Canister Assembly**

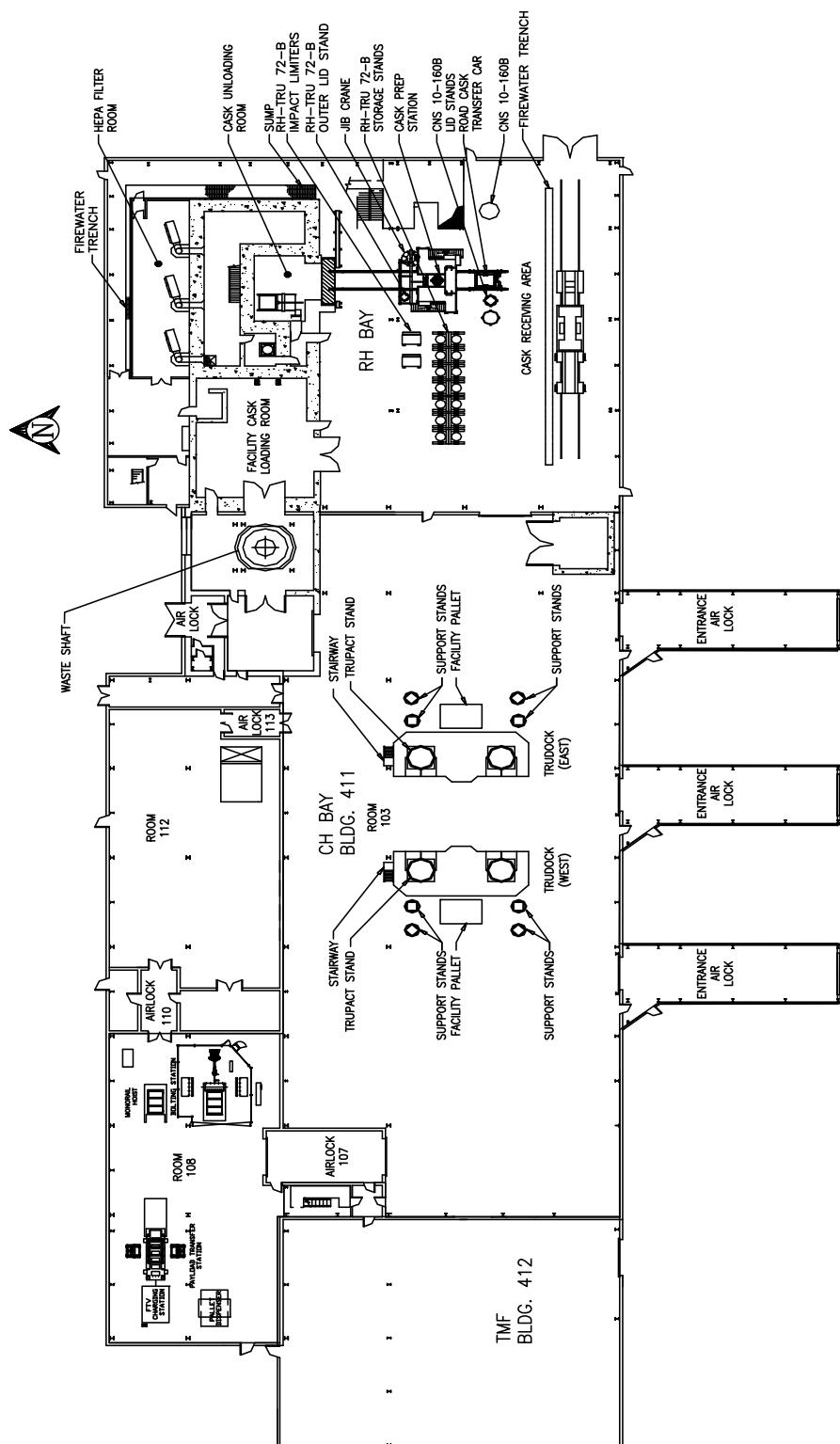




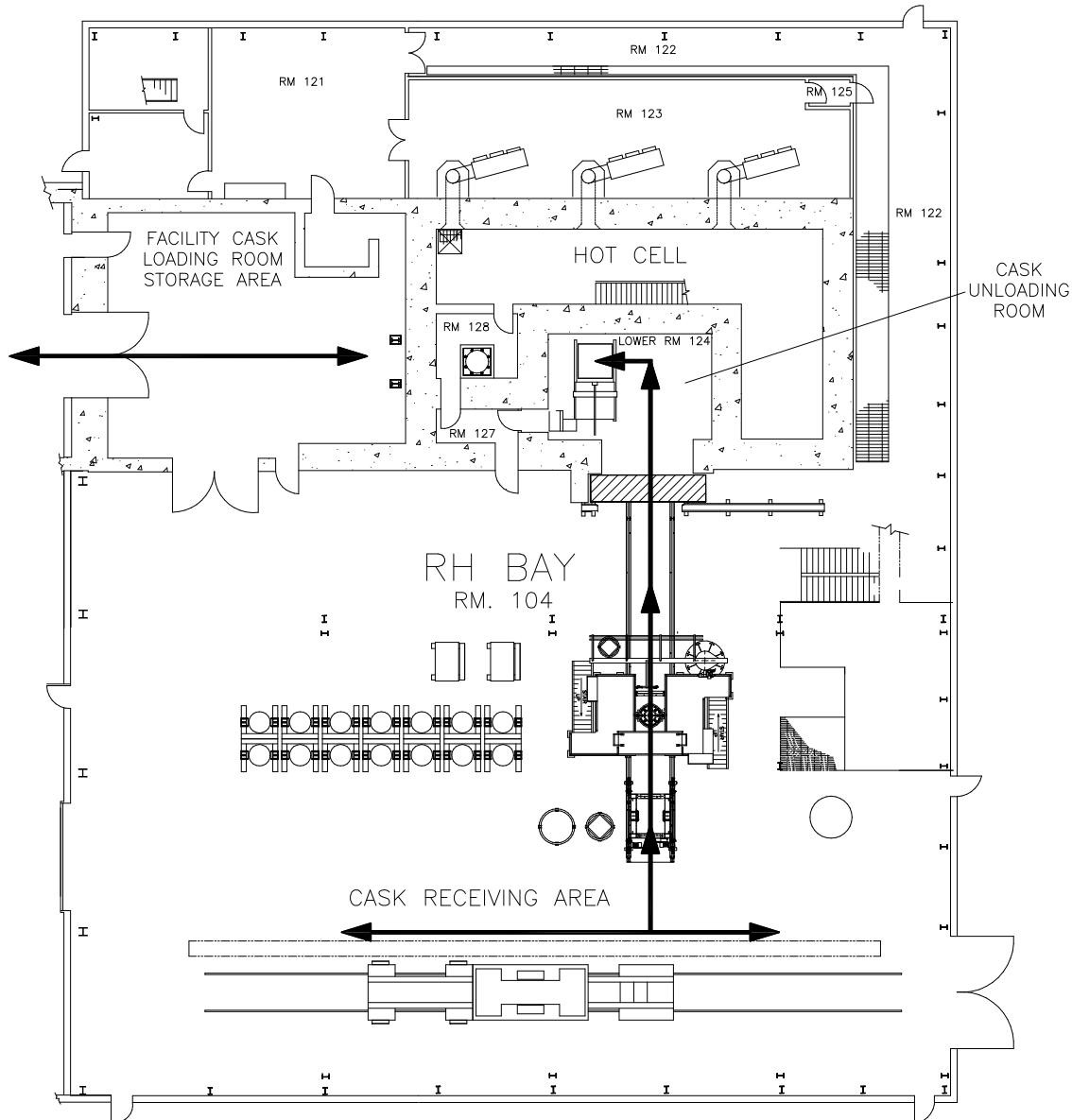
**Figure M-11**  
Range of Typical Shielded Container Dimensions

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

October 2023/June 2024



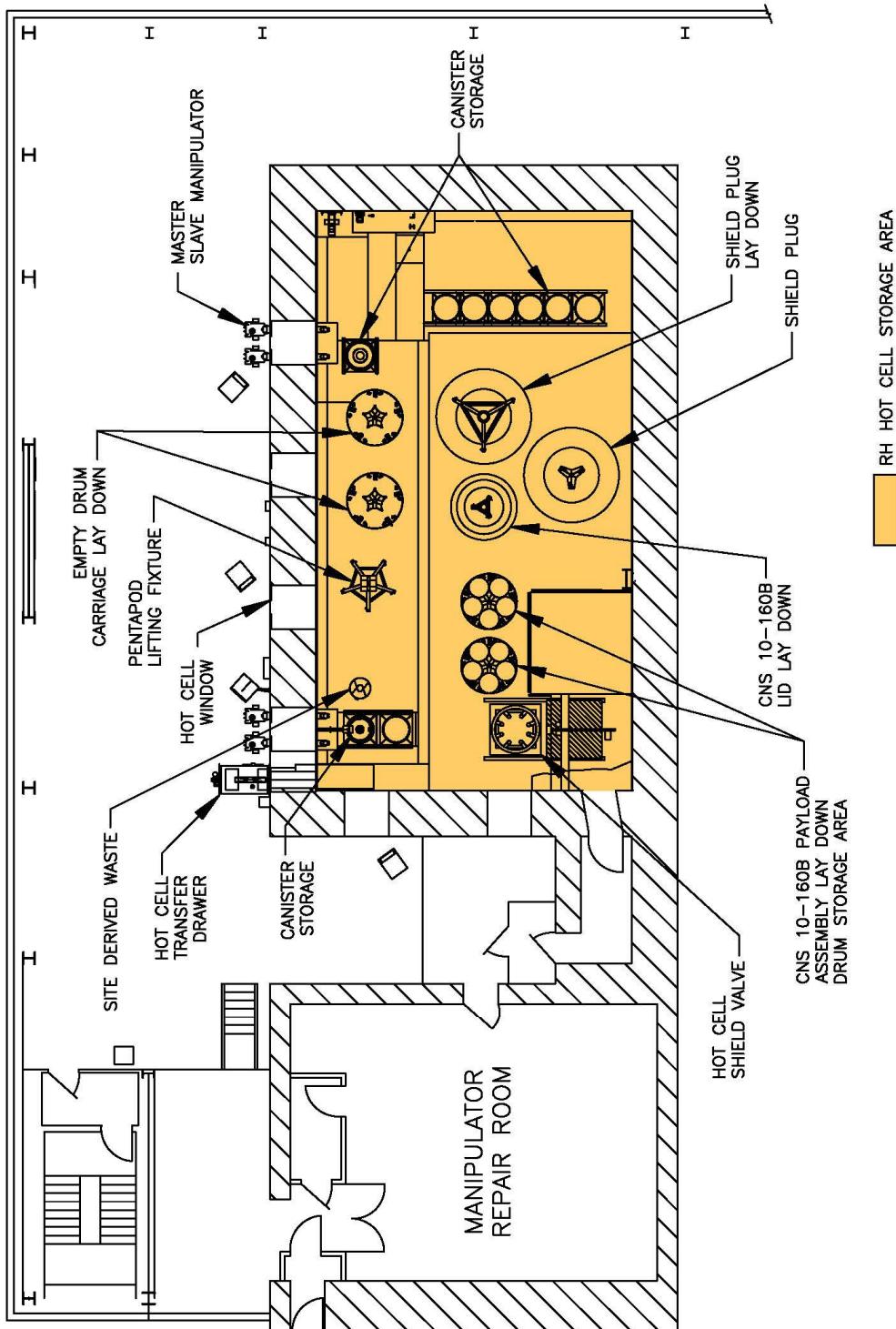
**Figure M-12**  
**Waste Handling Building Plan (Ground Floor)**



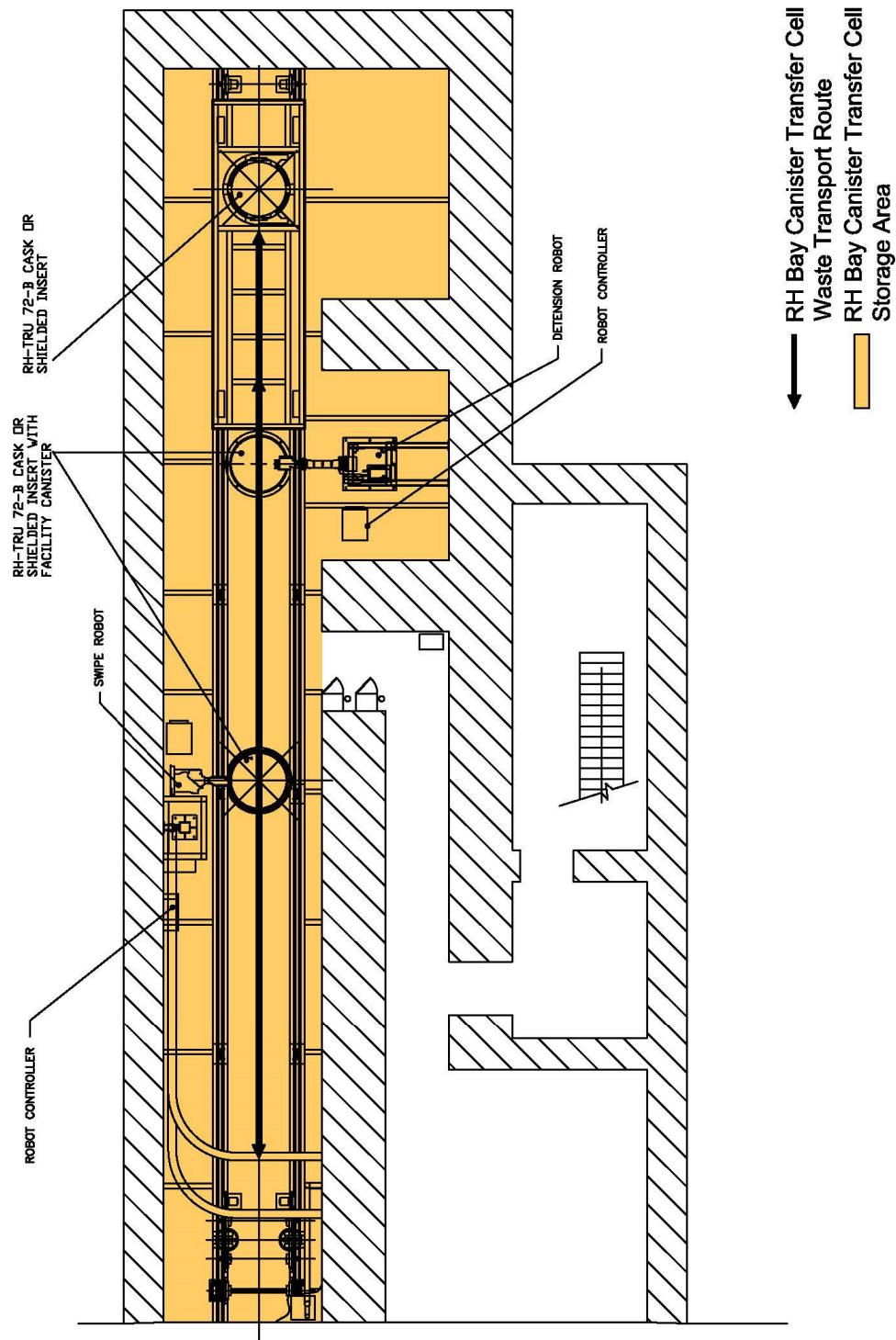
← RH BAY WASTE TRANSPORT ROUTES

NOTE: RH BAY FLOOR, HOT CELL – LOWER FLOOR, AND CASK LOADING ROOM CONSIDERED 0 FOOT ELEVATION

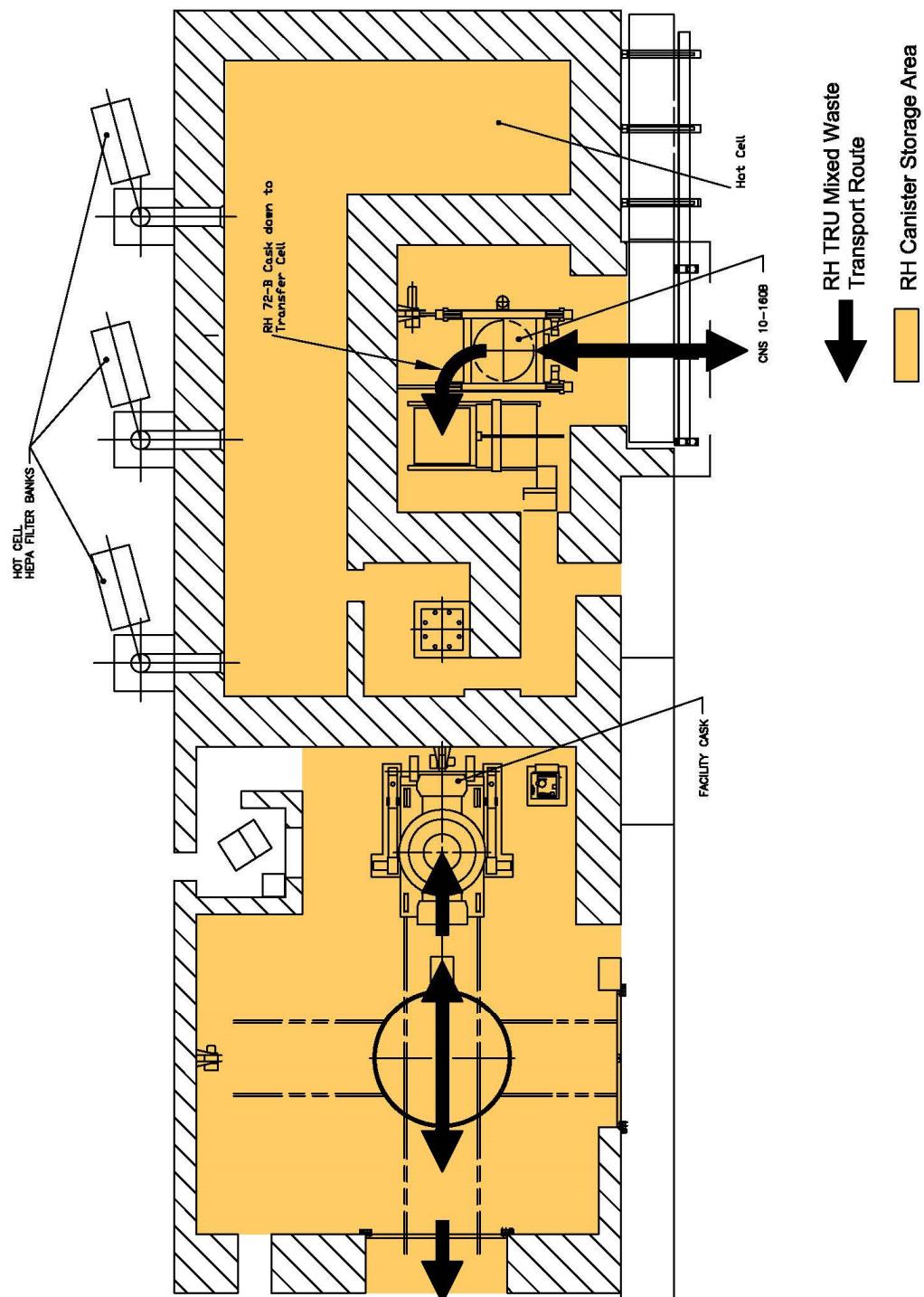
**Figure M-13**  
**RH Bay Ground Floor and Waste Transport Routes**



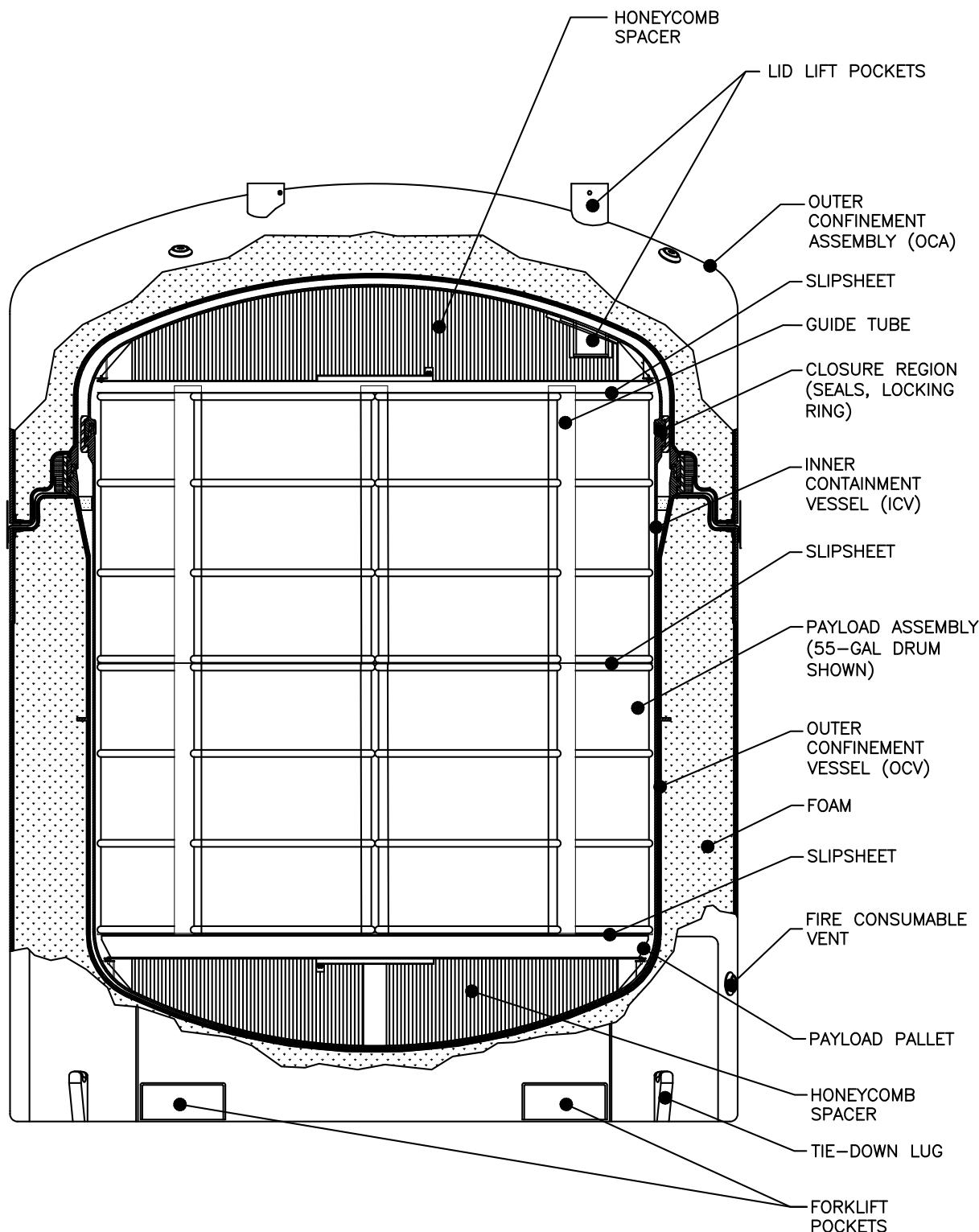
**Figure M-14**  
**RH Hot Cell Storage Area**



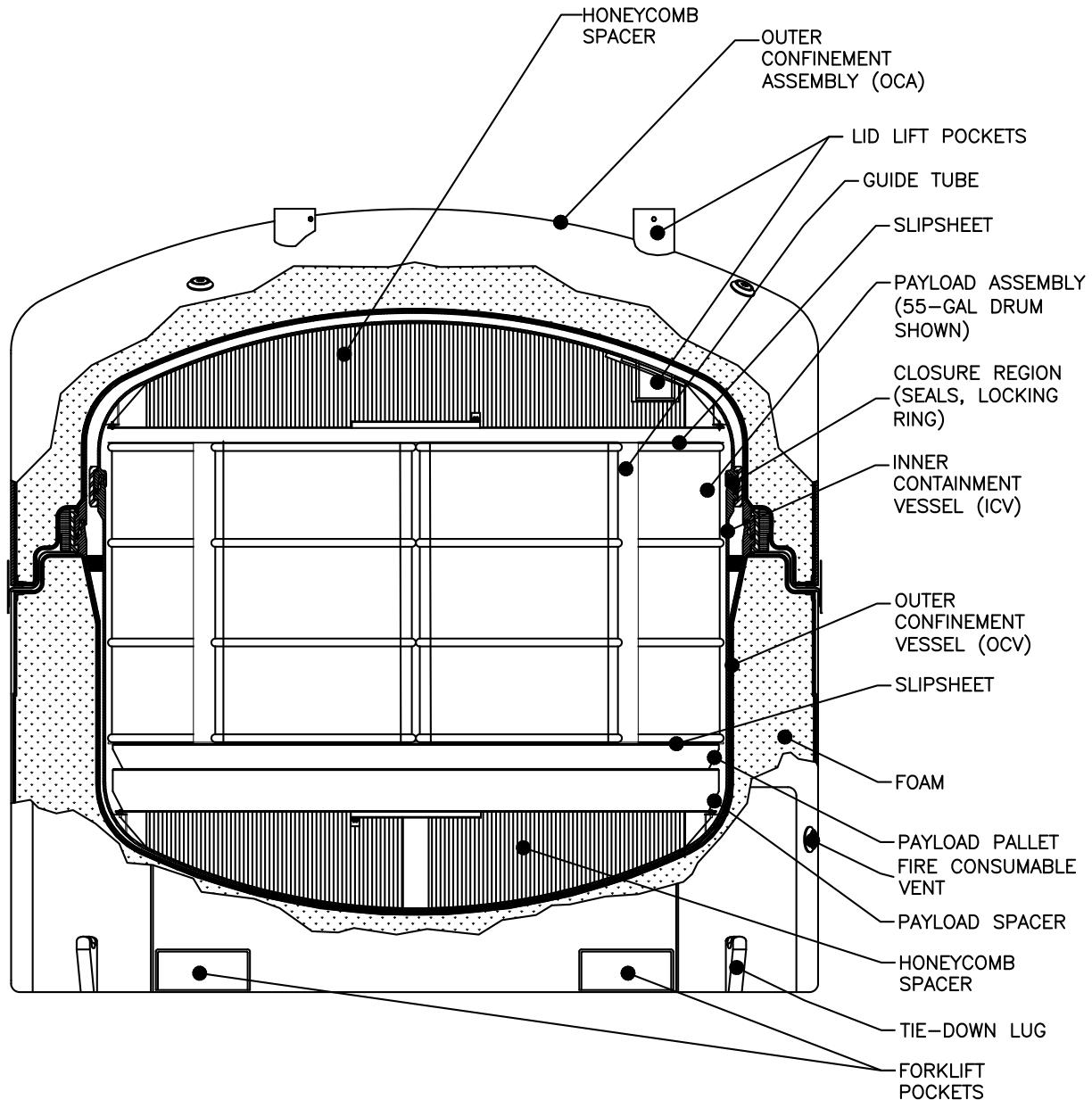
**Figure M-15**  
**RH Canister Transfer Cell Storage Area and Waste Transport Route**



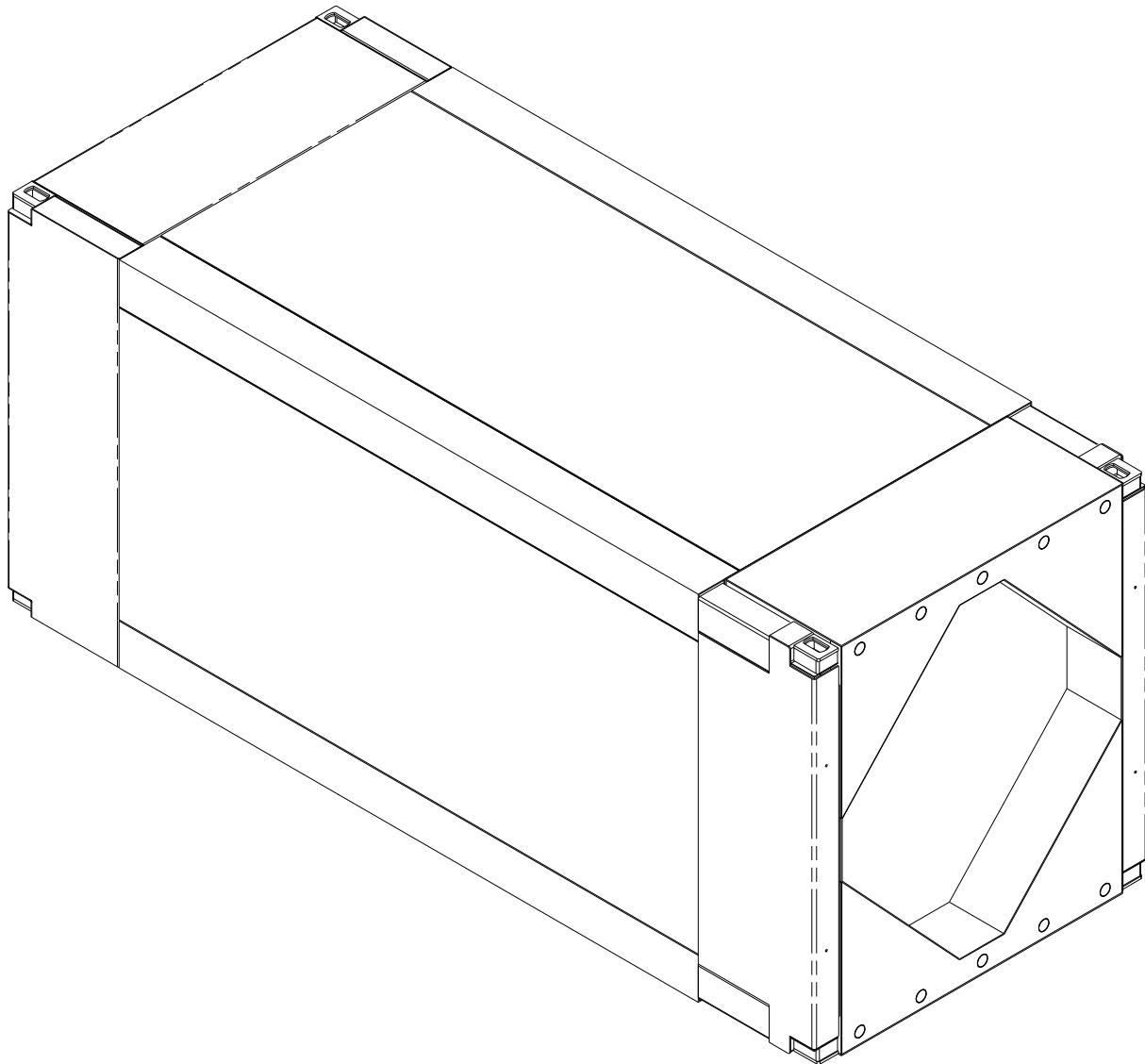
**Figure M-16**  
**RH Facility Cask Loading Room and Cask Unloading Storage Area and Waste Transport Route**



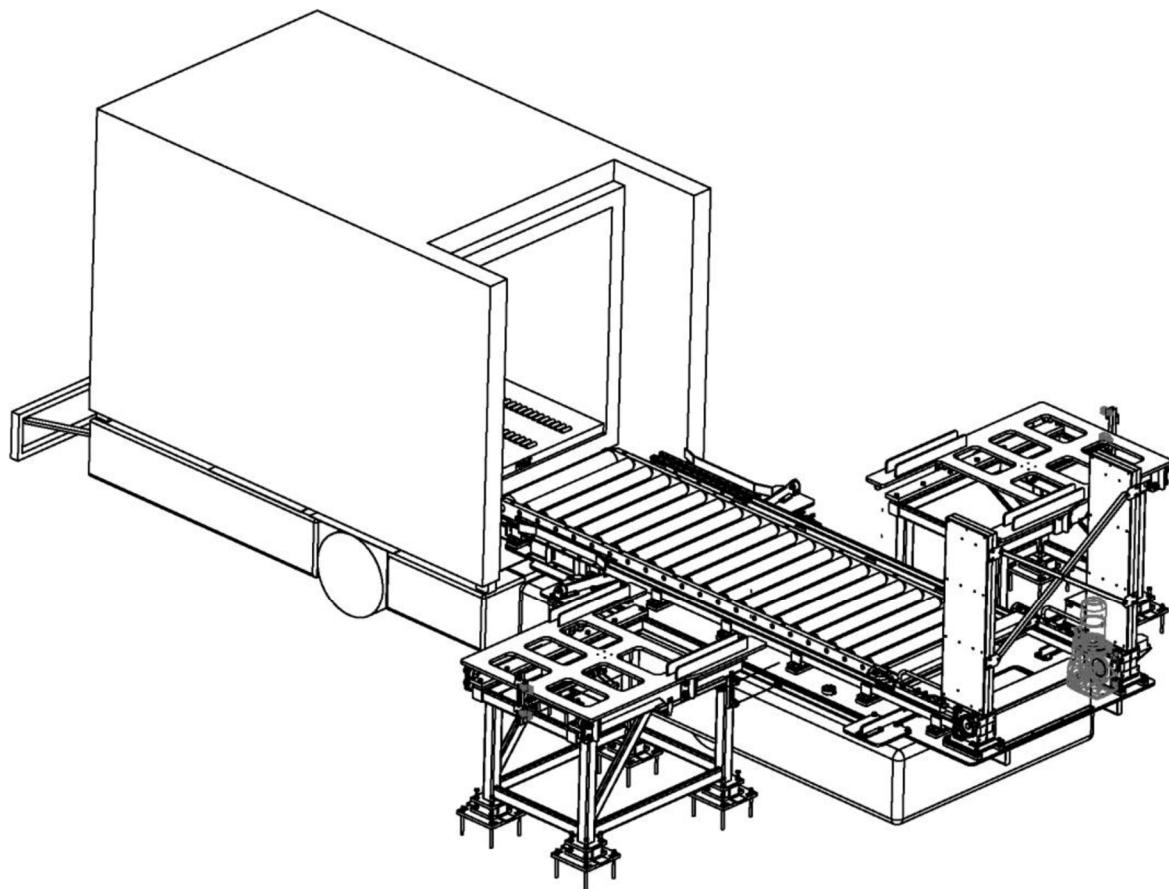
**Figure M-17**  
**TRUPACT-II Type B Shipping Container**



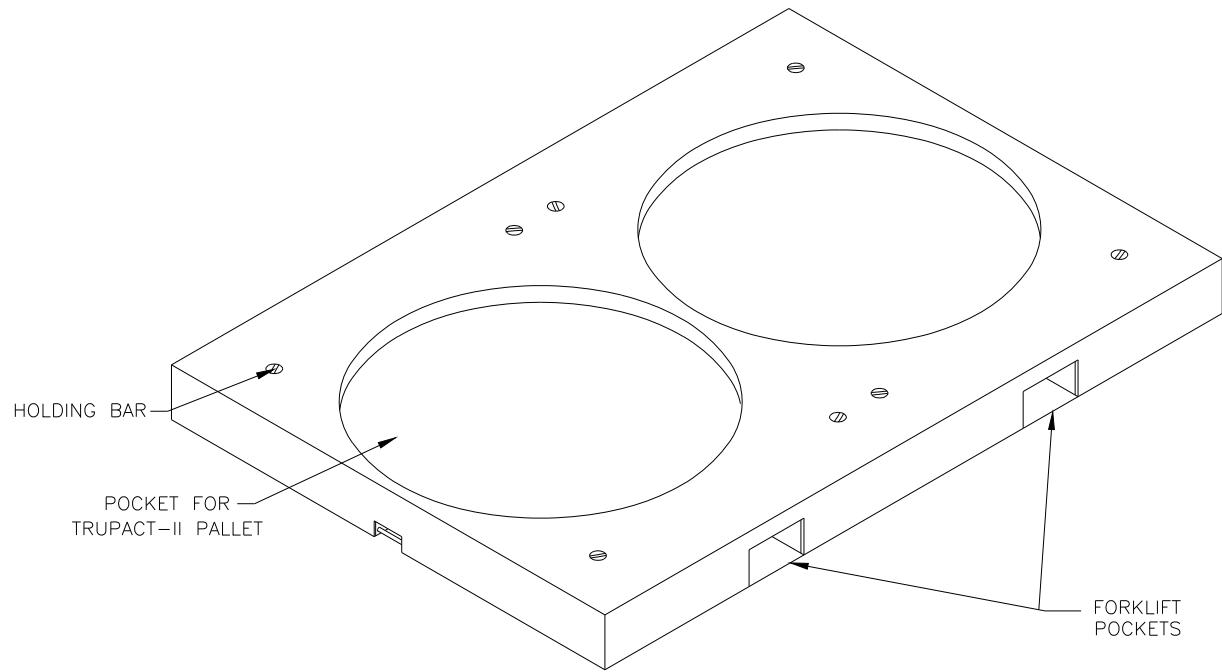
**Figure M-18**  
**Typical HalfPACT Type B Shipping Container**



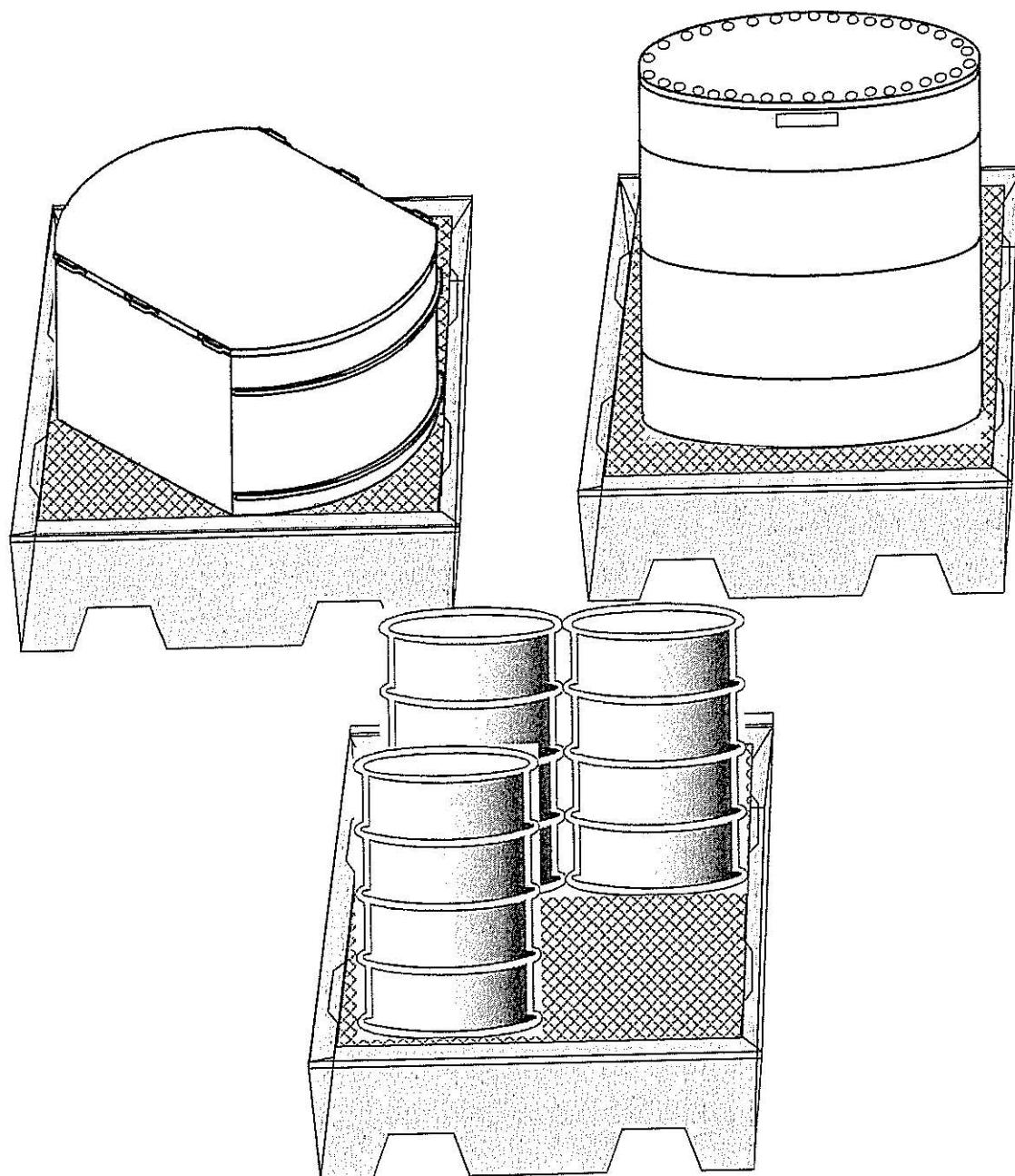
**Figure M-19**  
**Typical TRUPACT-III Type B Shipping Container**



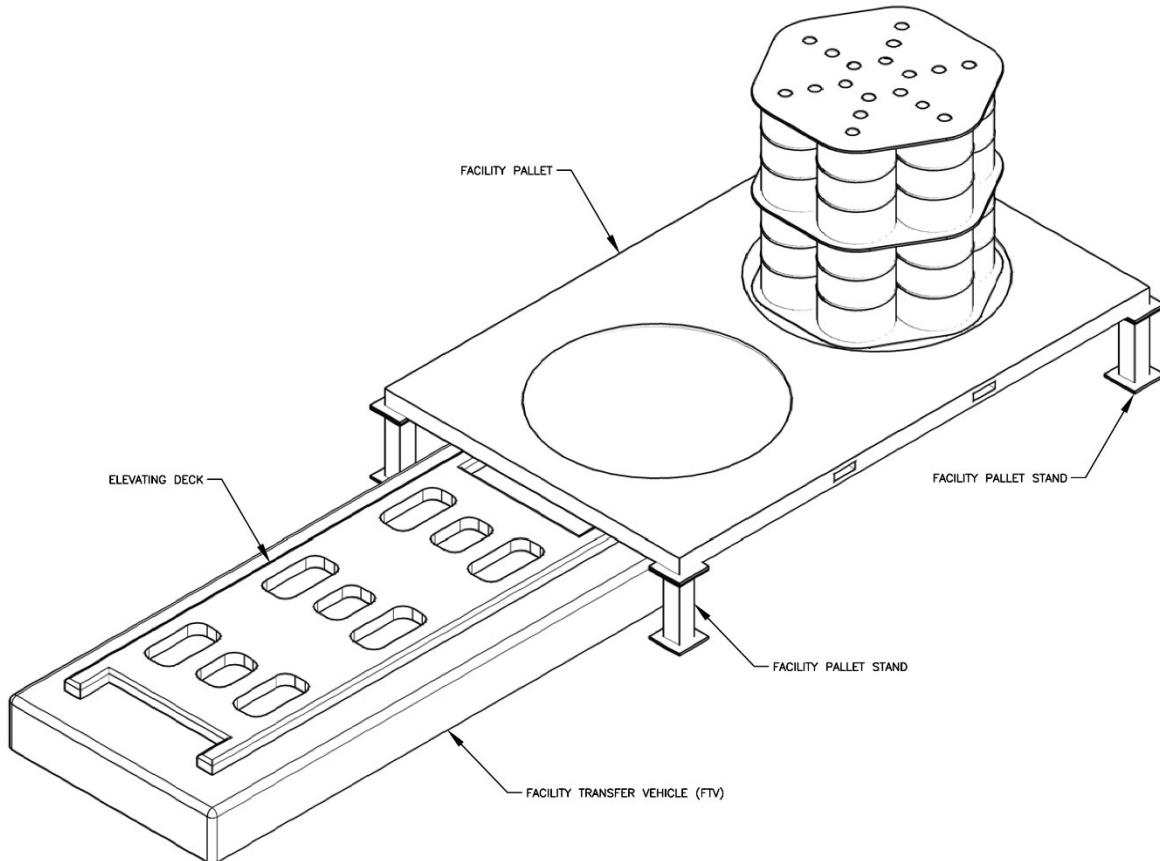
**Figure M-20**  
**Payload Transfer Station**



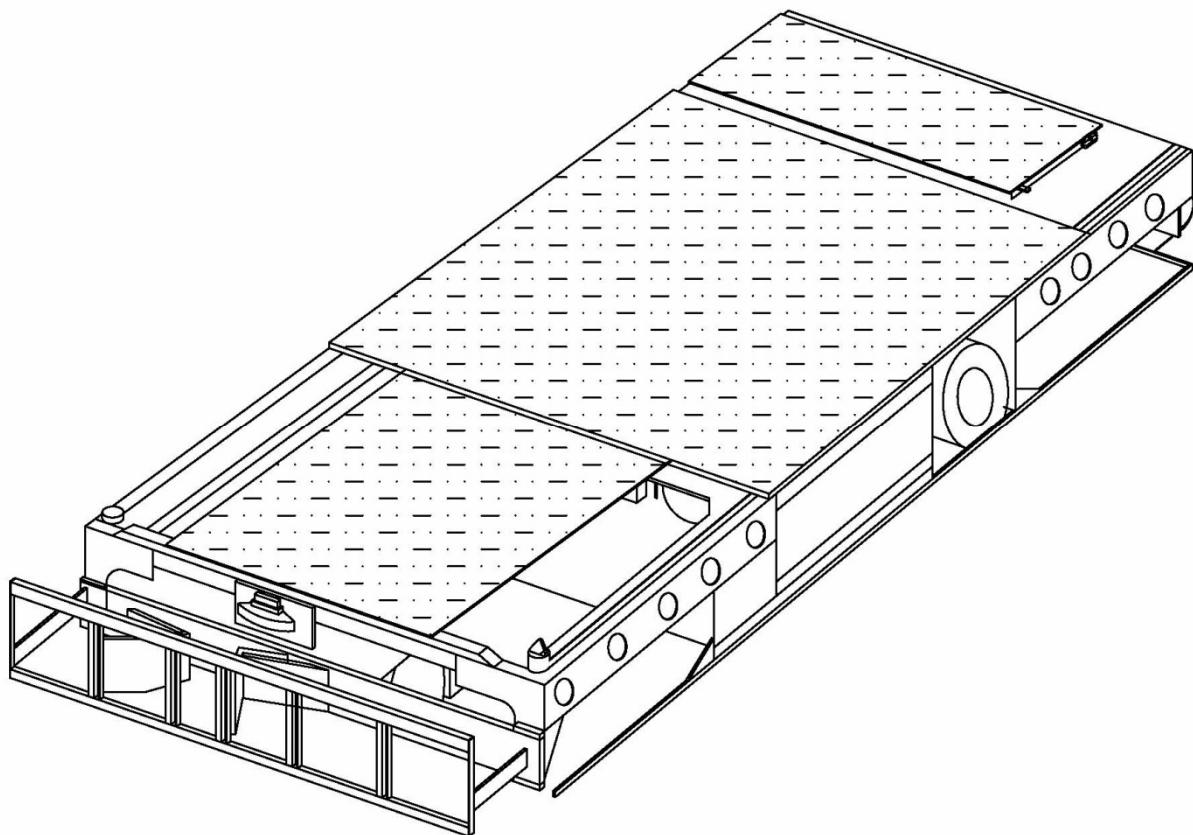
**Figure M-21**  
**Facility Pallet**



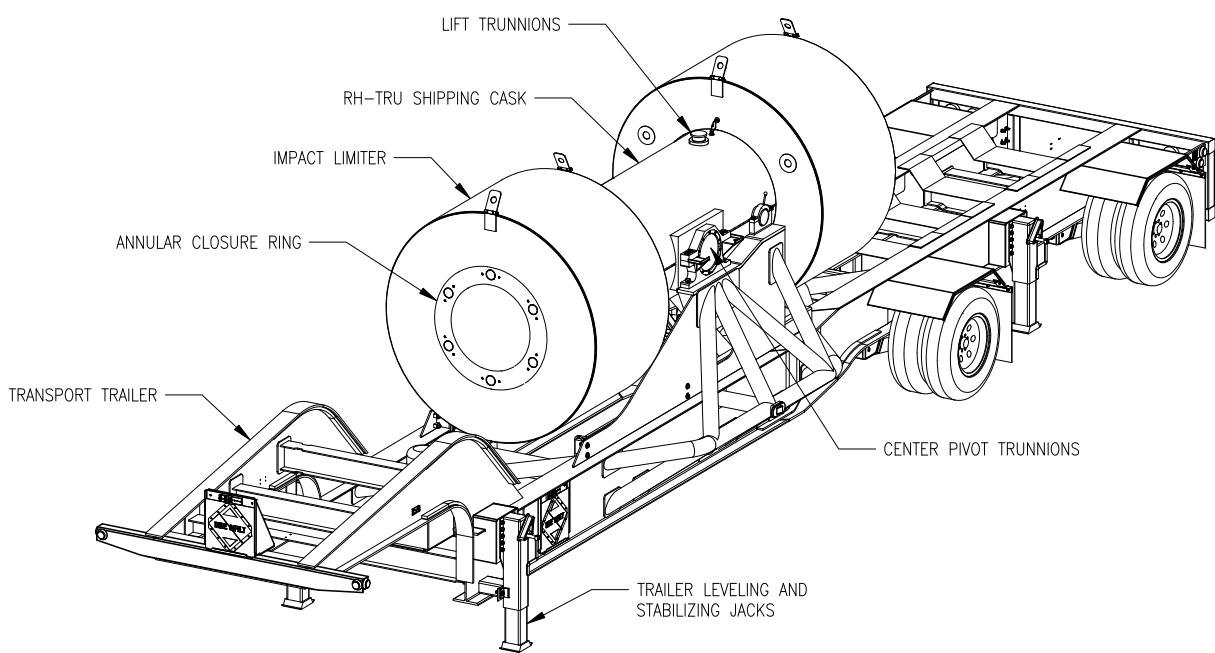
**Figure M-22**  
**Typical Containment Pallet**



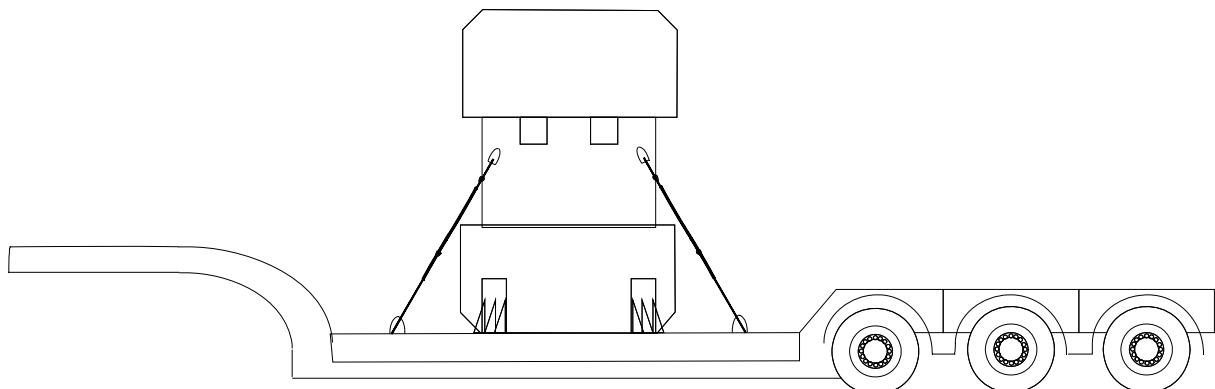
**Figure M-23**  
**Facility Transfer Vehicle, Facility Pallet, and Typical Pallet Stand**



**Figure M-24**  
**Typical Yard Transfer Vehicle**



**Figure M-25**  
**RH TRU 72-B Shipping Cask on Trailer**

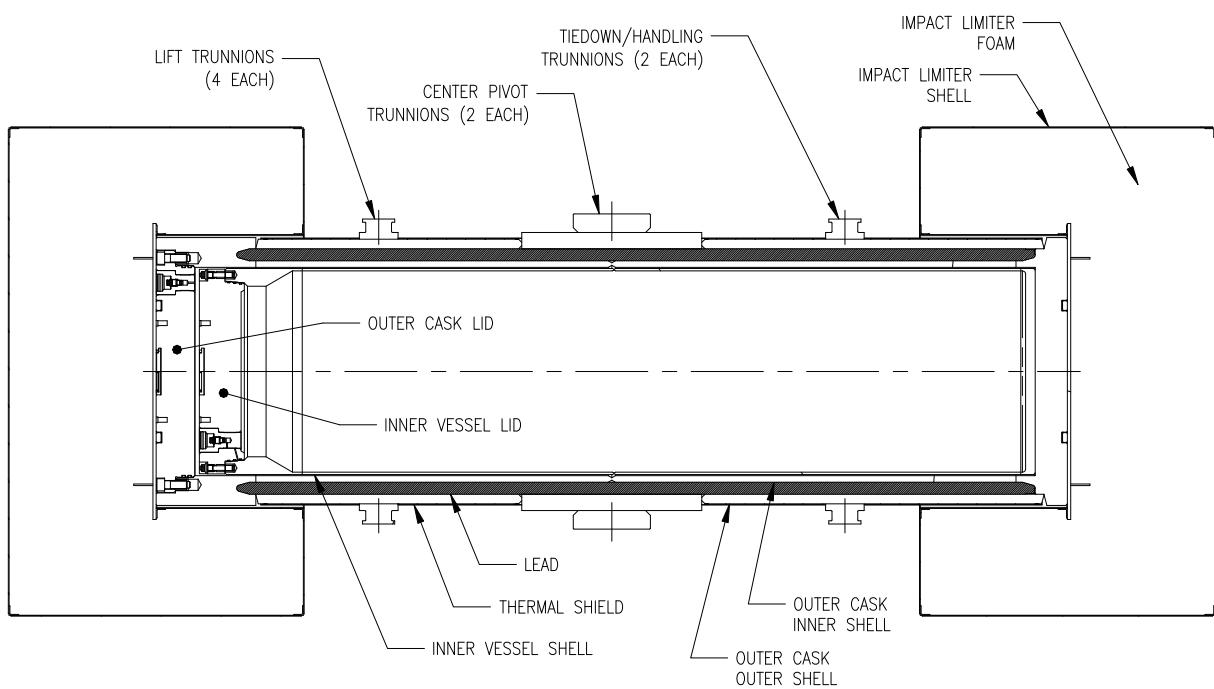


**Figure M-26**  
**CNS 10-160B Shipping Cask on Trailer**

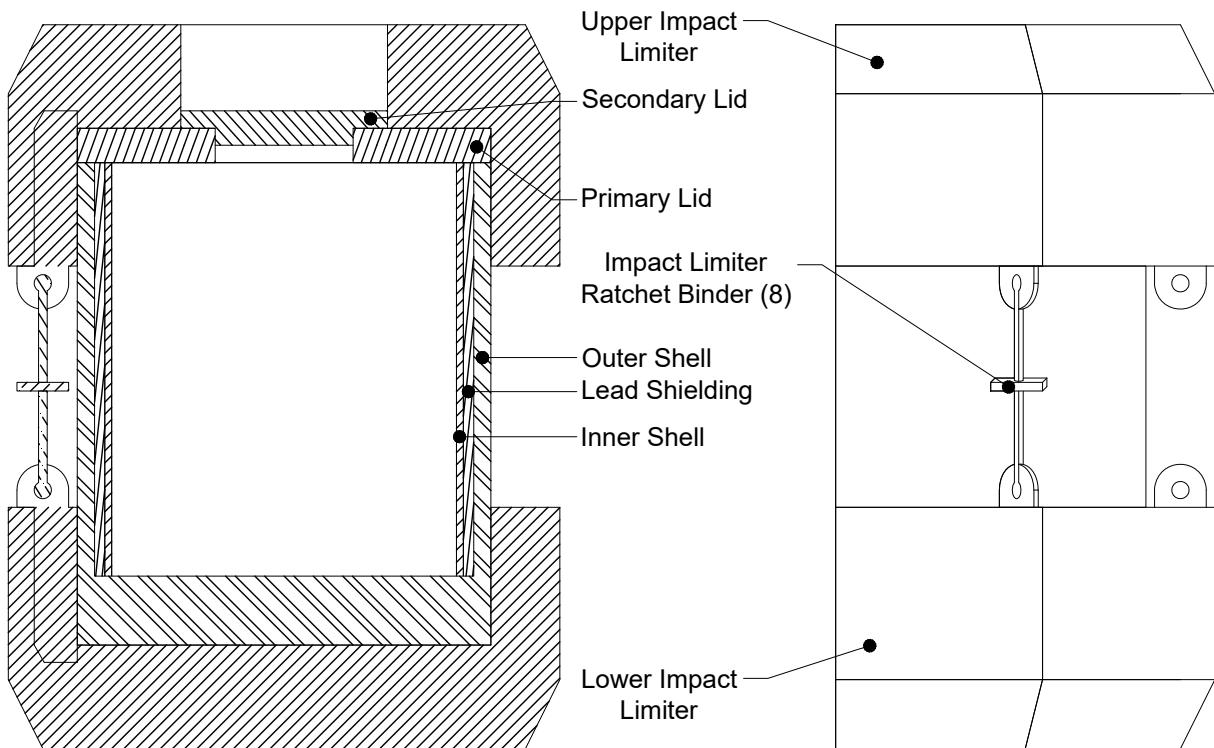
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit

Attachment M

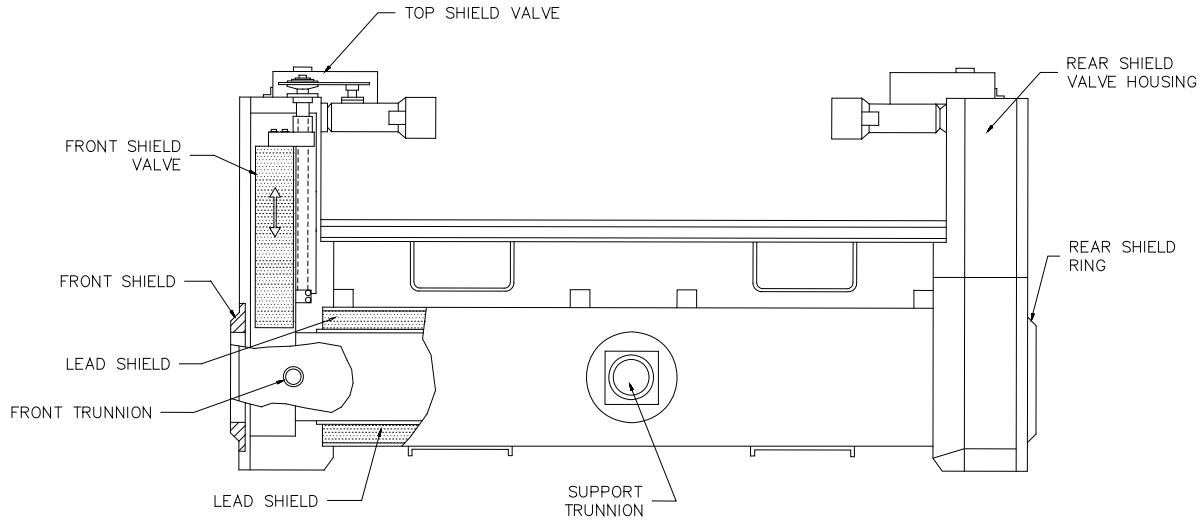
~~October 2023~~ June 2024



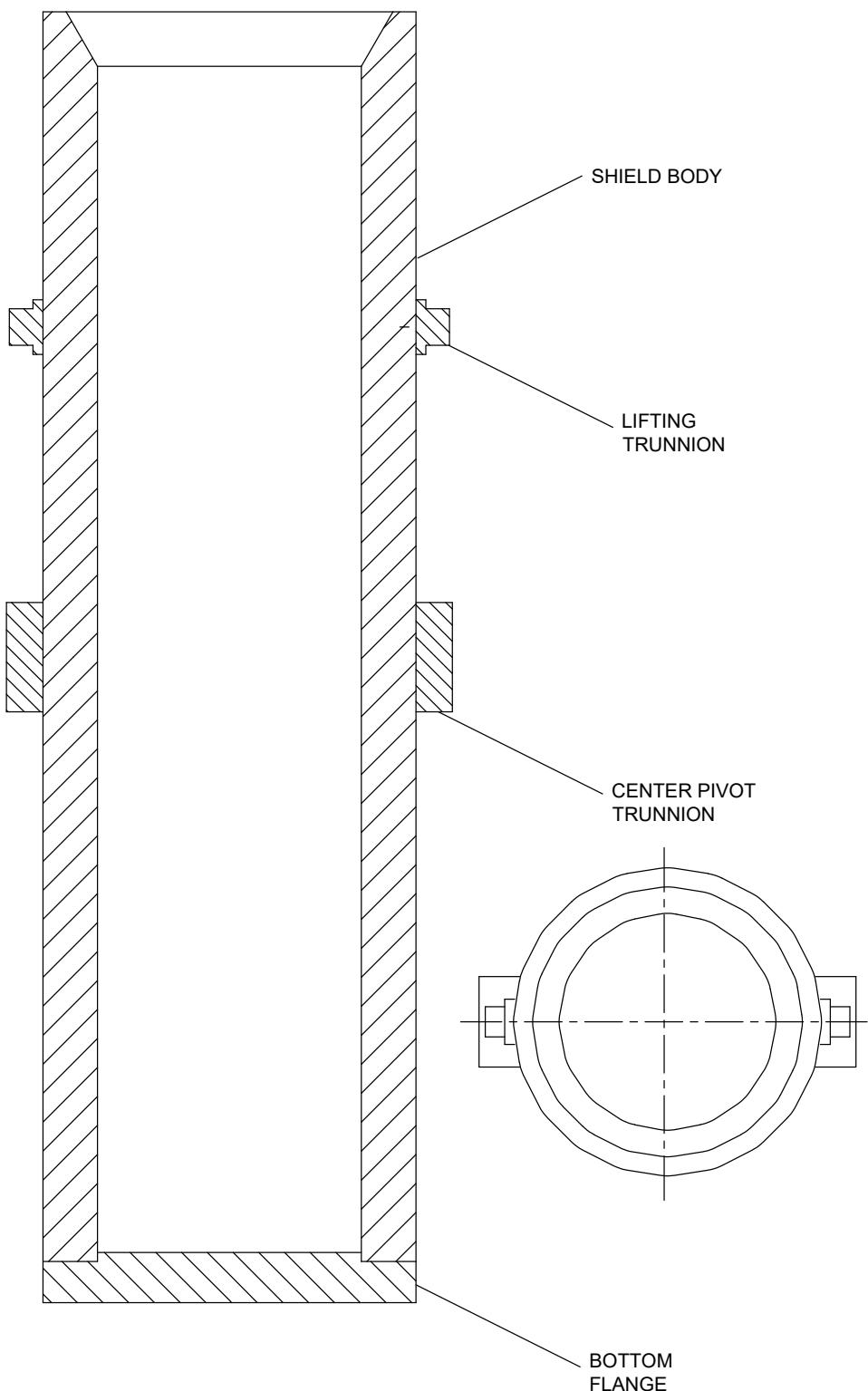
**Figure M-27**  
**RH-TRU 72-B Type B Shipping Cask**



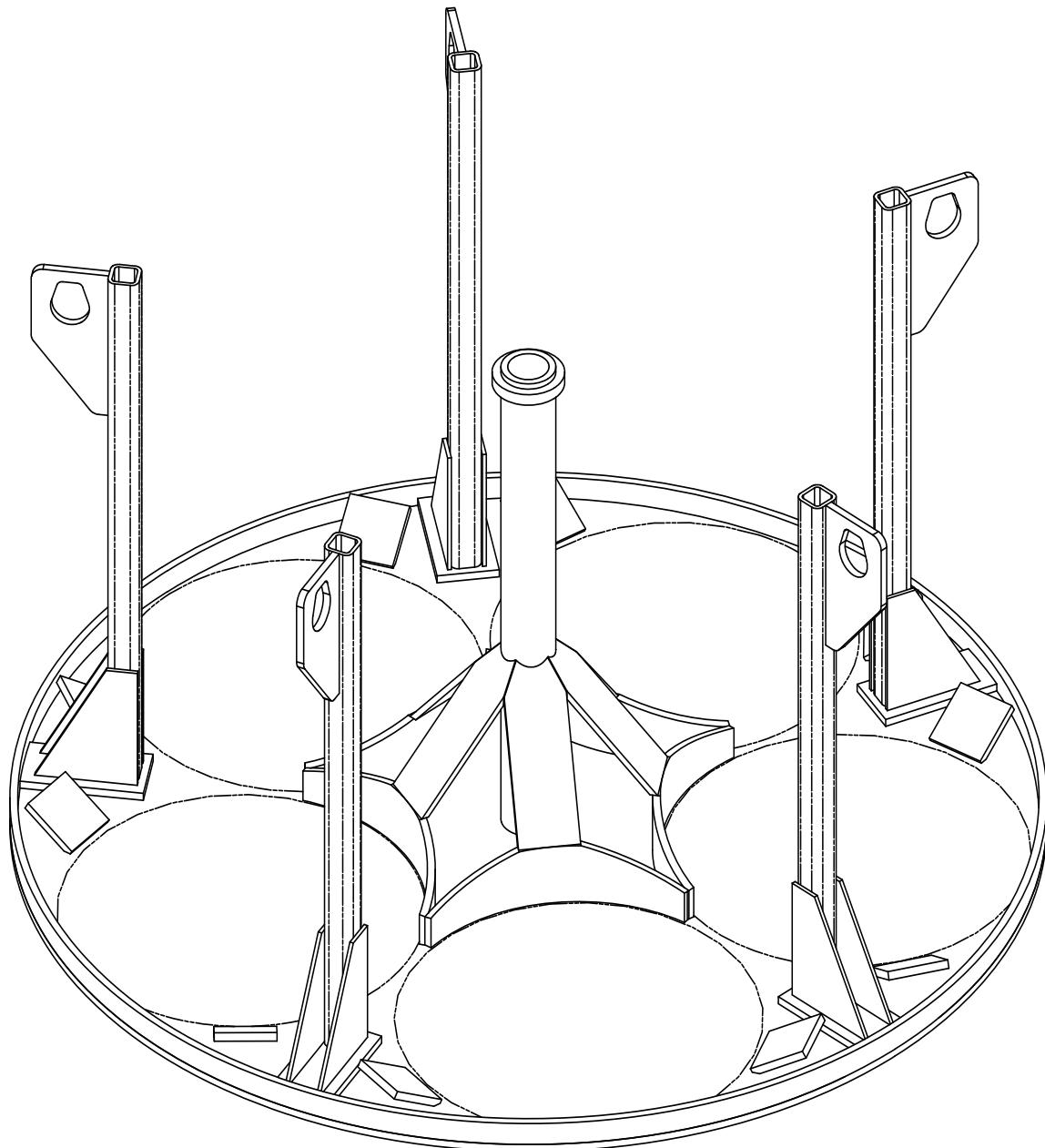
**Figure M-28**  
**CNS 10-160B Type B Shipping Cask**



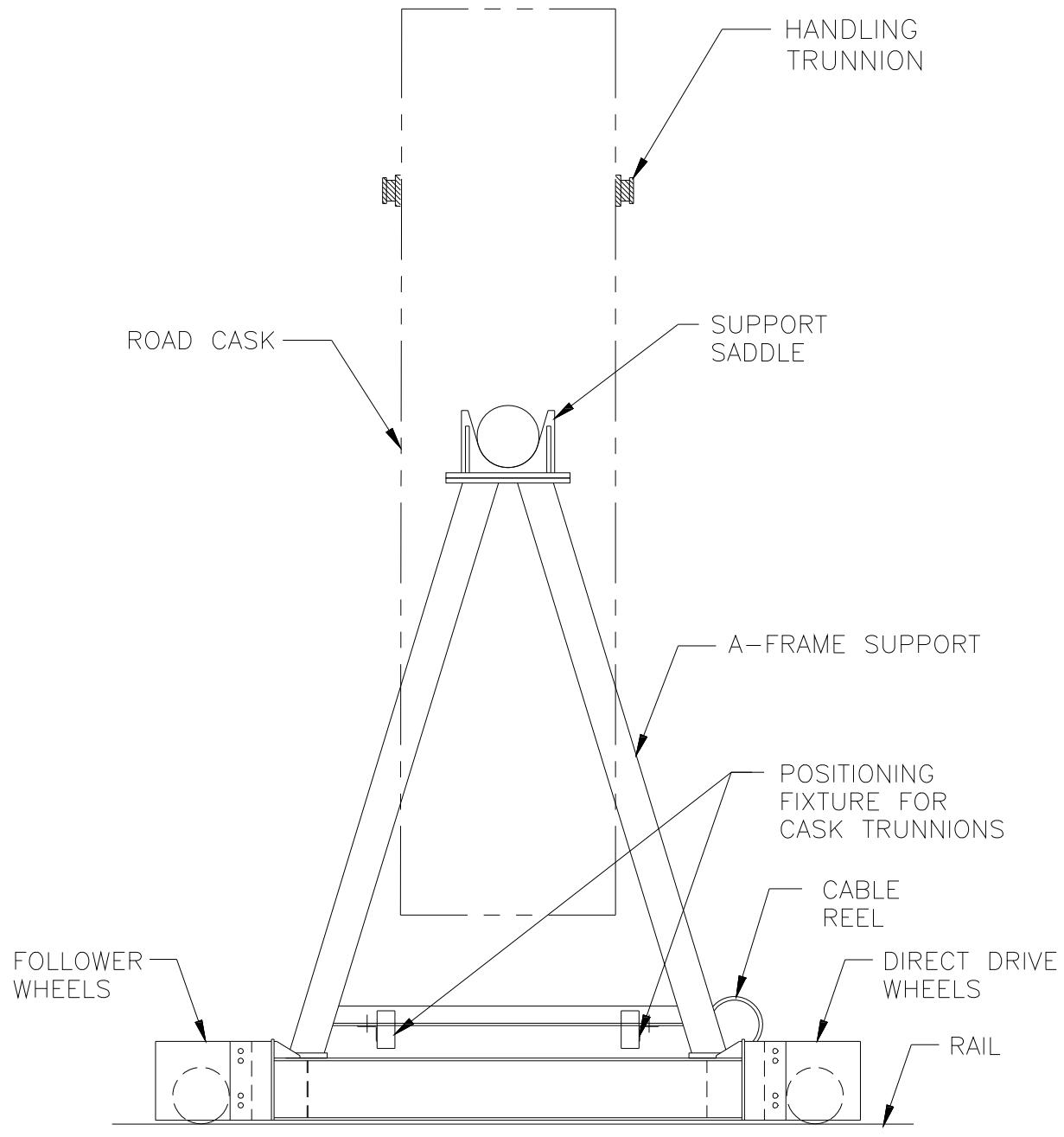
**Figure M-29**  
**RH Transuranic Waste Facility Cask and Light Weight Facility Cask**



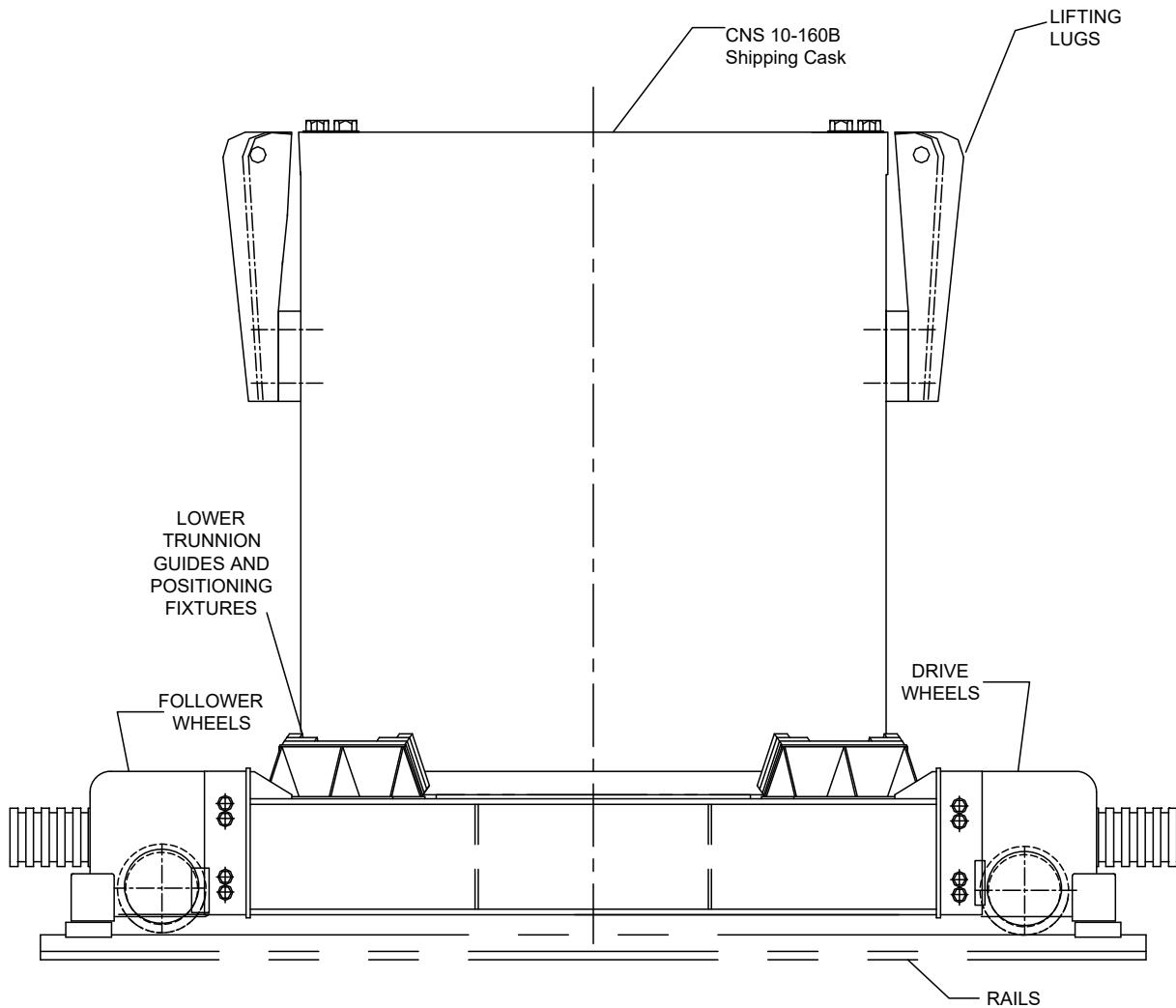
**Figure M-30**  
**RH Shielded Insert Assembly**



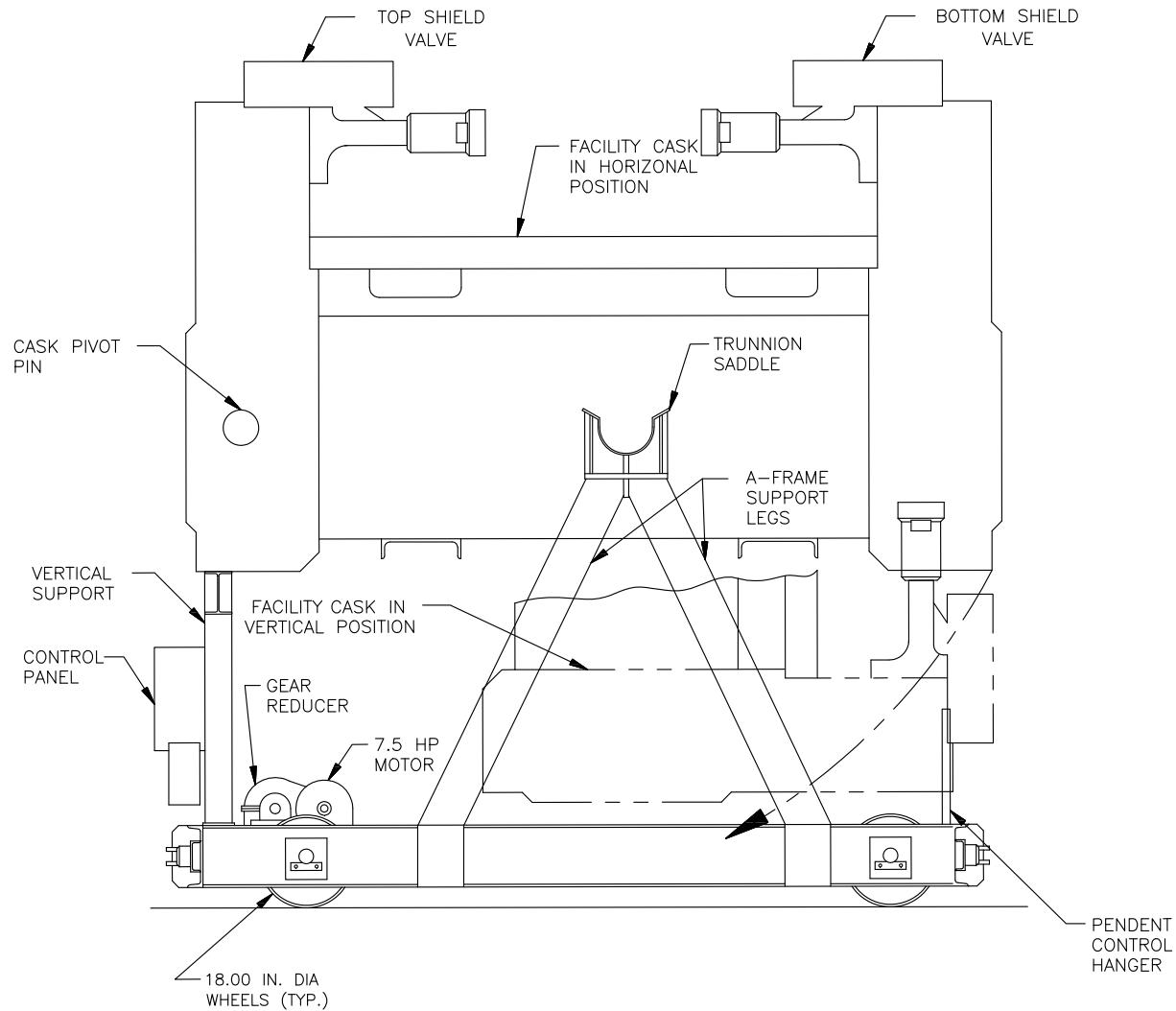
**Figure M-31**  
**CNS 10-160B Drum Carriage**



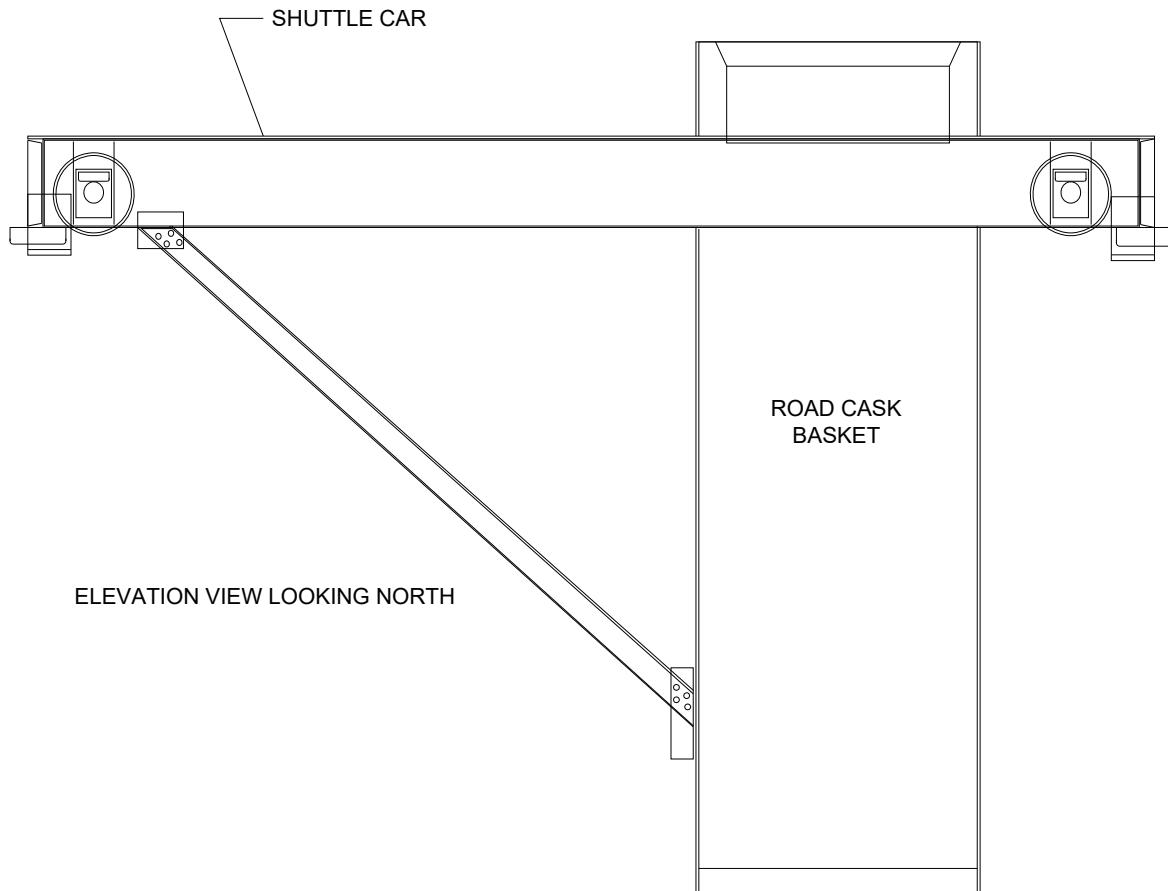
**Figure M-32**  
**RH-TRU 72-B Cask Transfer Car**



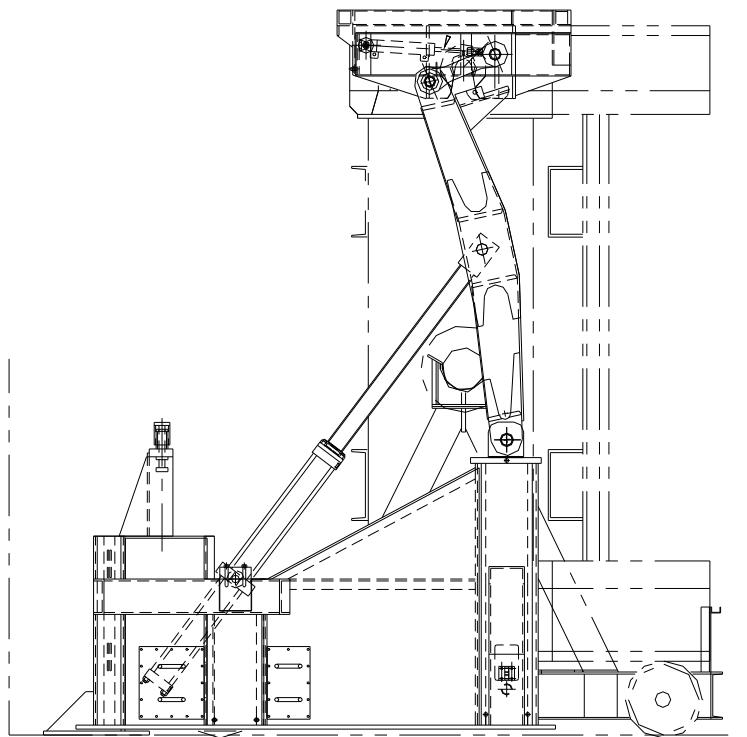
**Figure M-33**  
**CNS 10-160B Cask Transfer Car**



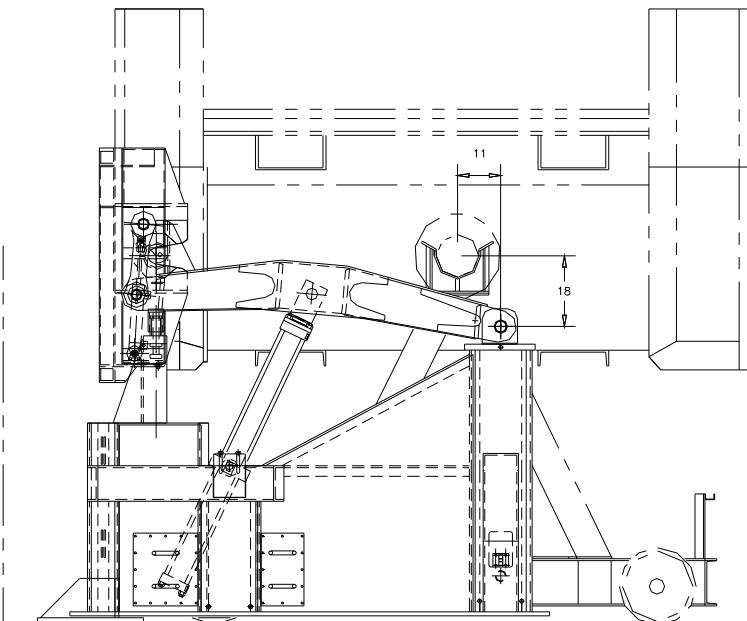
**Figure M-34**  
**RH Facility Cask Transfer Car (Side View)**



**Figure M-35**  
**Transfer Cell Shuttle Car**

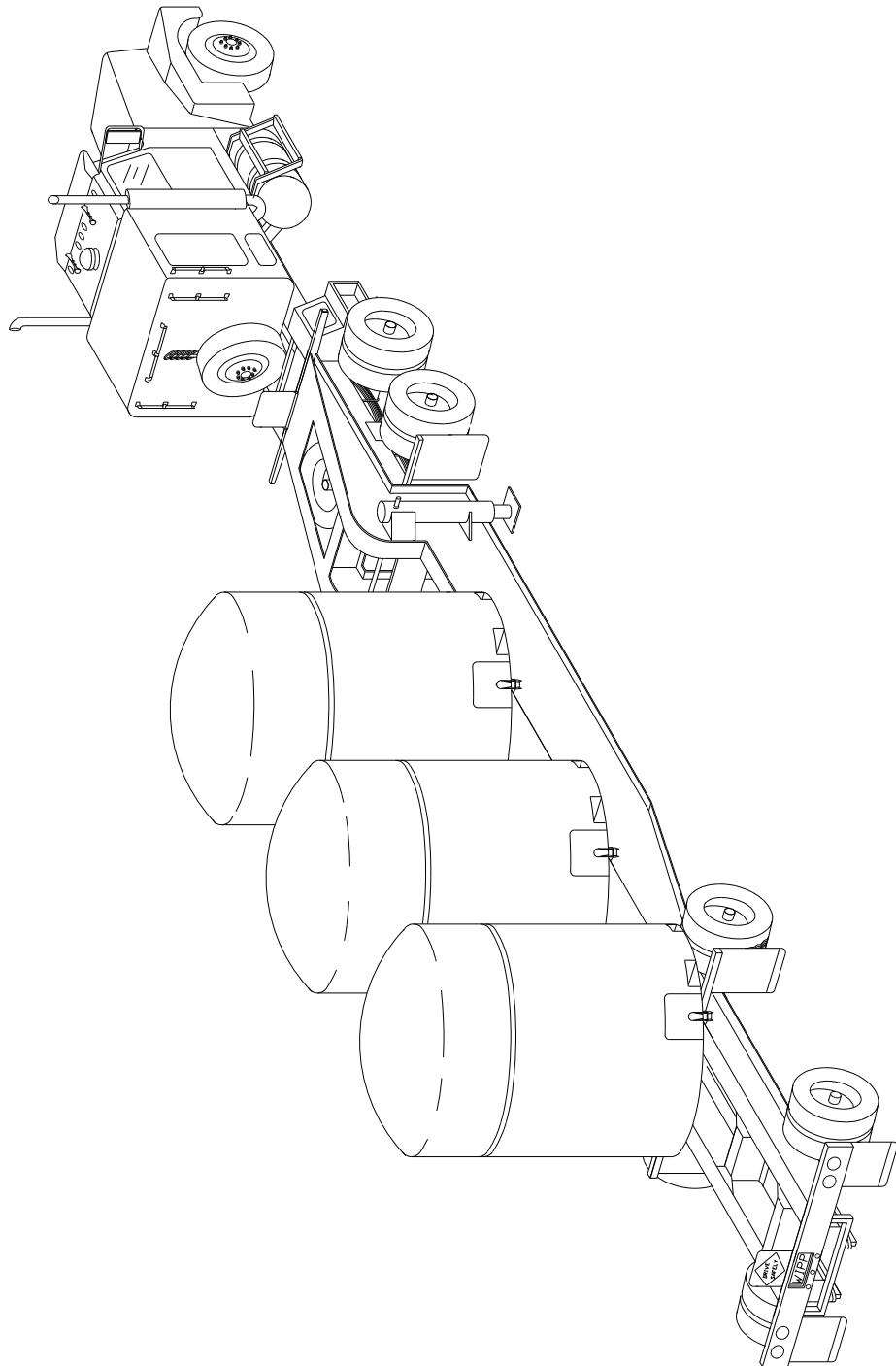


FRONT ELEVATION  
CASK VERTICAL



FRONT ELEVATION  
CASK HORIZONTAL

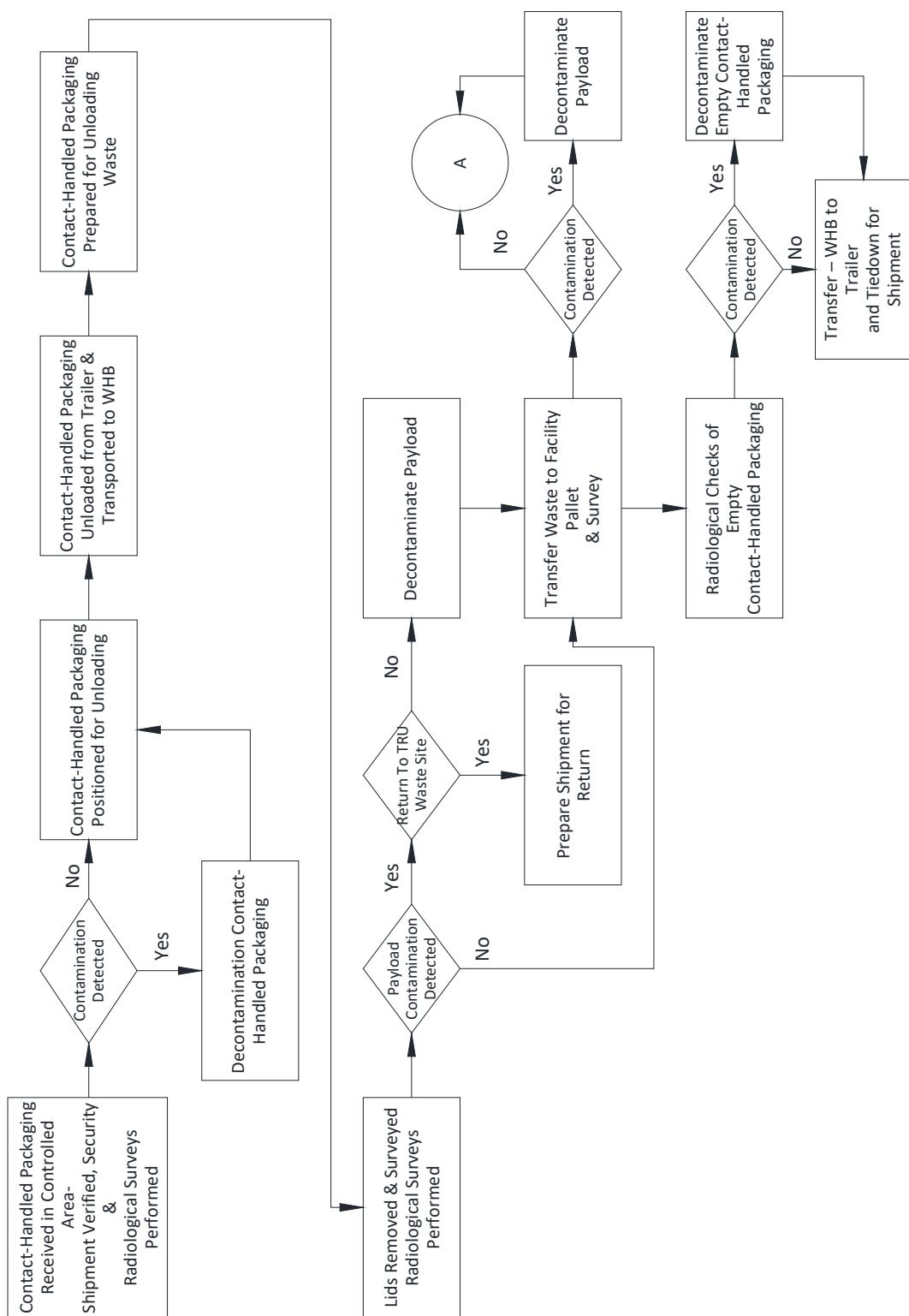
**Figure M-36**  
**Facility Cask Rotating Device**



**Figure M-37**  
**TRUPACT-II Containers on Trailer**

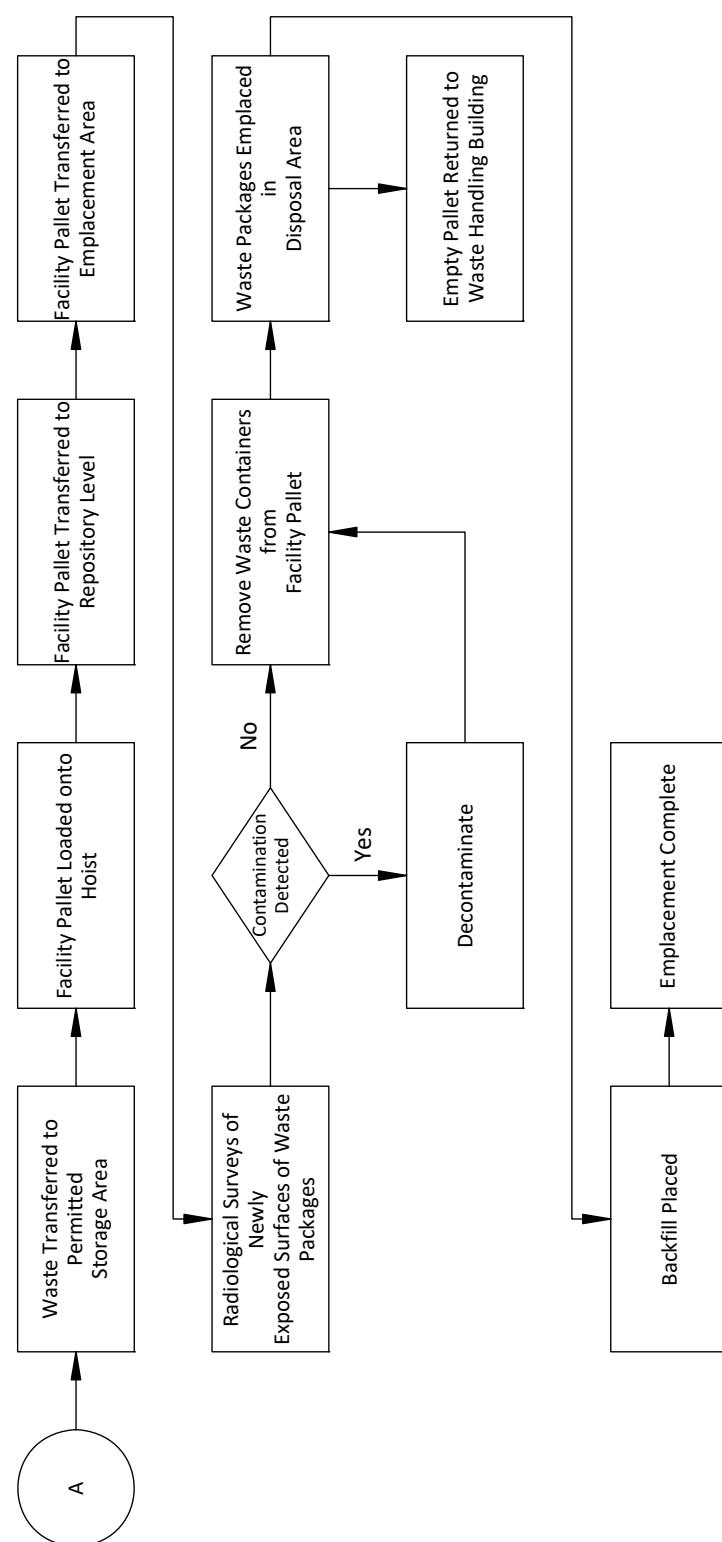
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

## Attachment M



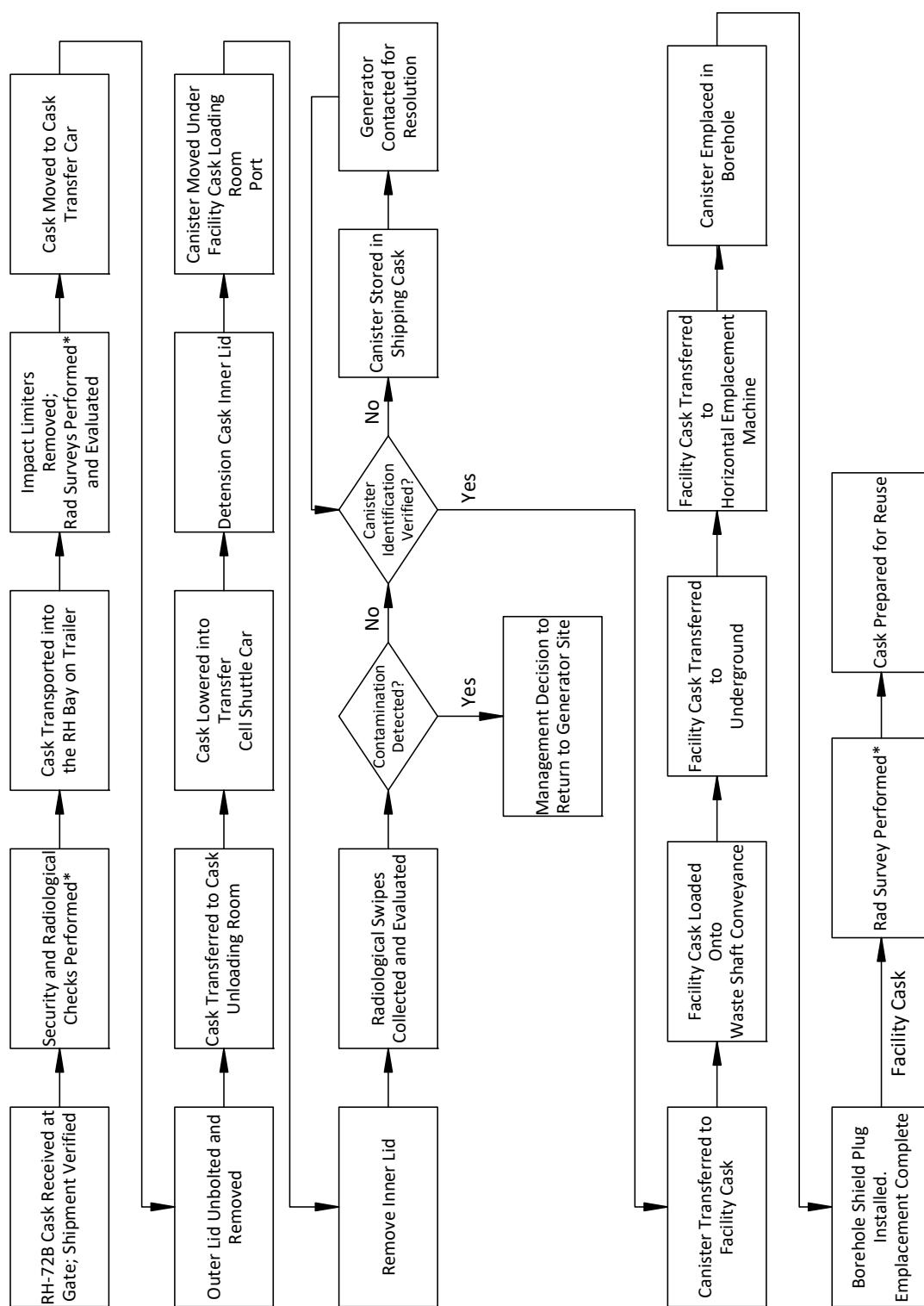
**Figure M-38**  
**WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram**

October 2023June 2024



**Figure M-39**  
**WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow Diagram**  
**(Continued)**

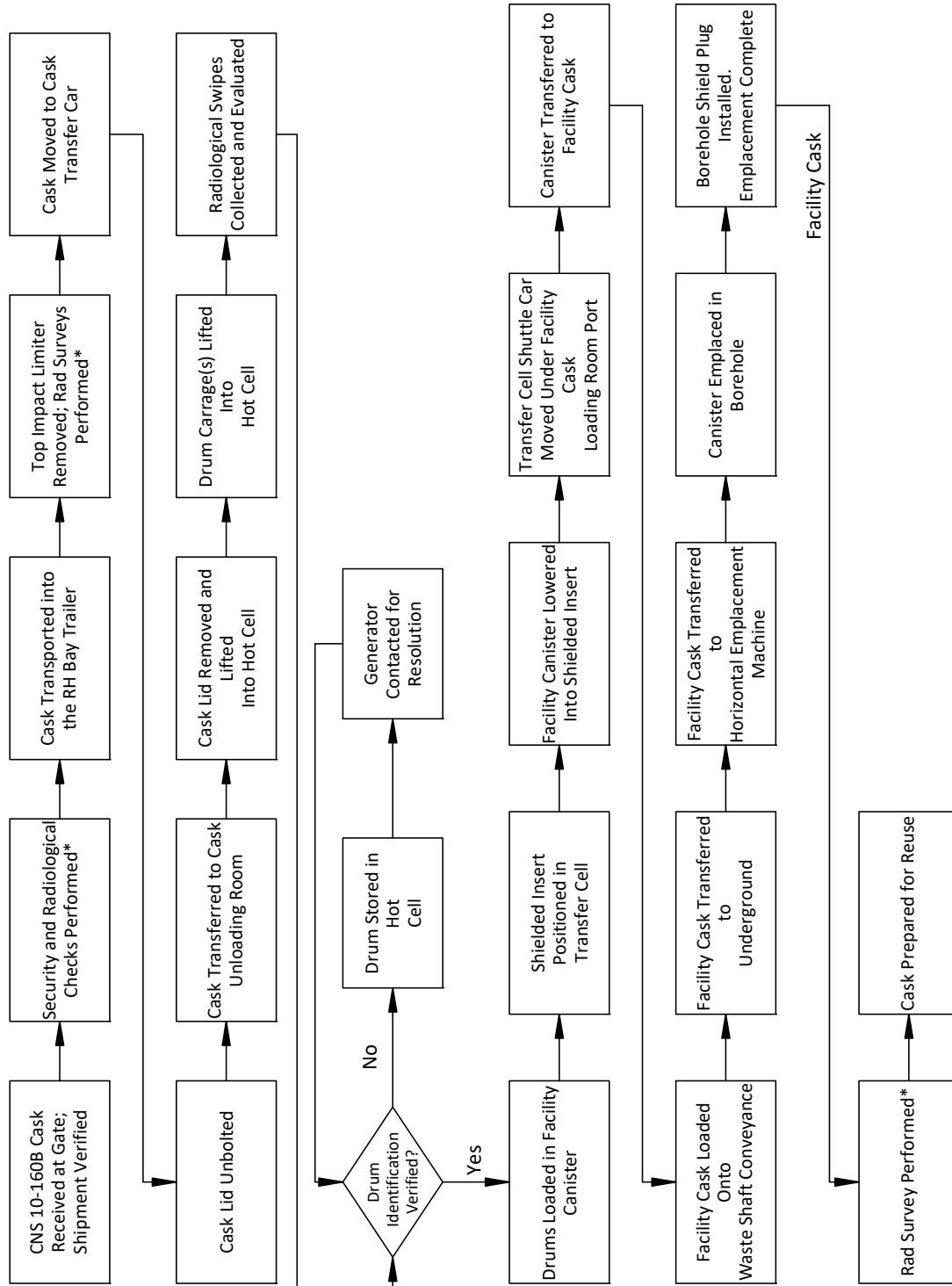
**October 2023June 2024**



\* If radiological surveys or swipes reveal cask contamination, the cask will be decontaminated.

**Figure M-40**  
**Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for RH-TRU 72-B Shipping Cask**

## Attachment M

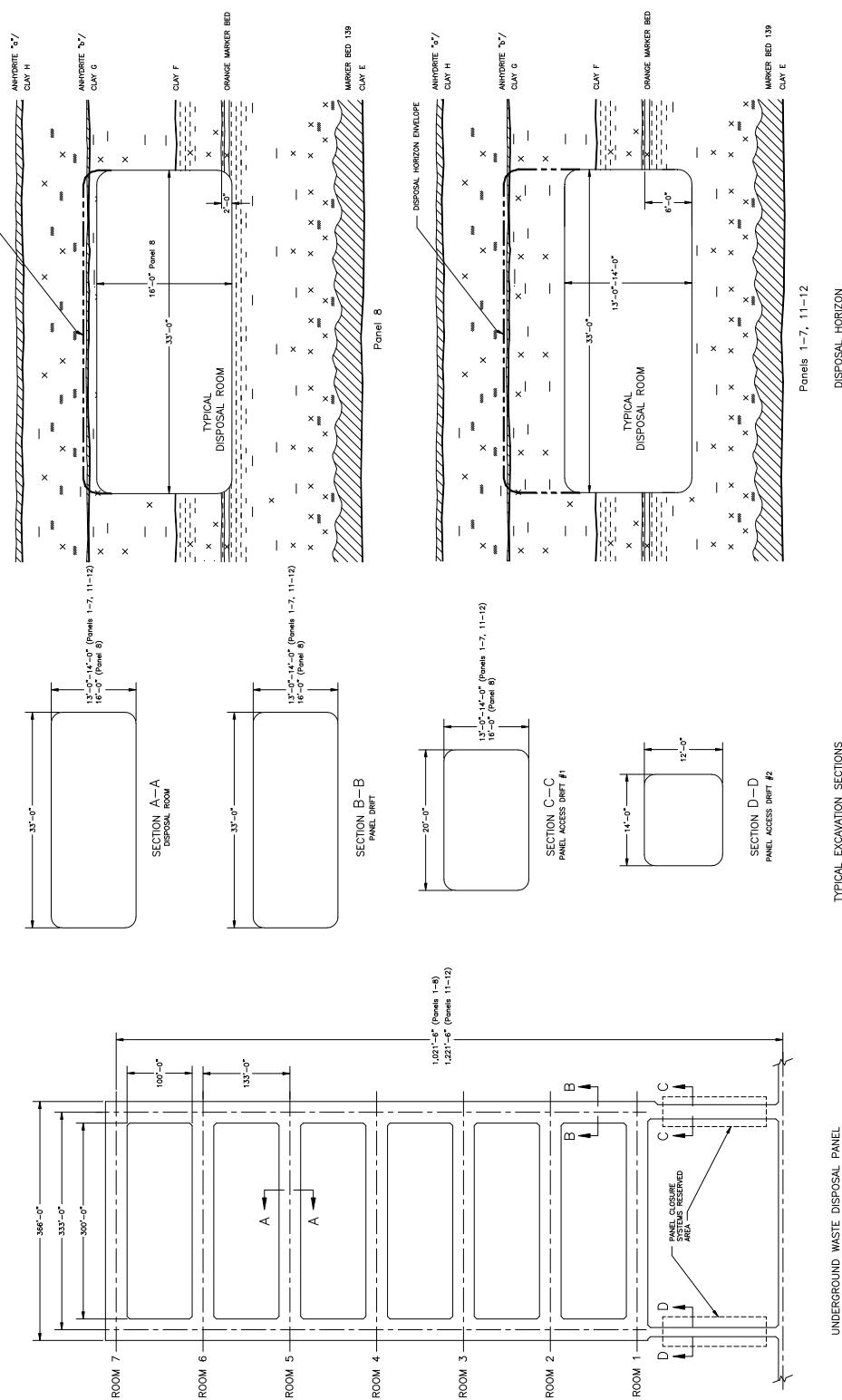


\* If radiological surveys or swipes reveal cask contamination, the cask will be decontaminated.

**Figure M-41**  
**Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for  
CNS 10-160B Shipping Cask**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

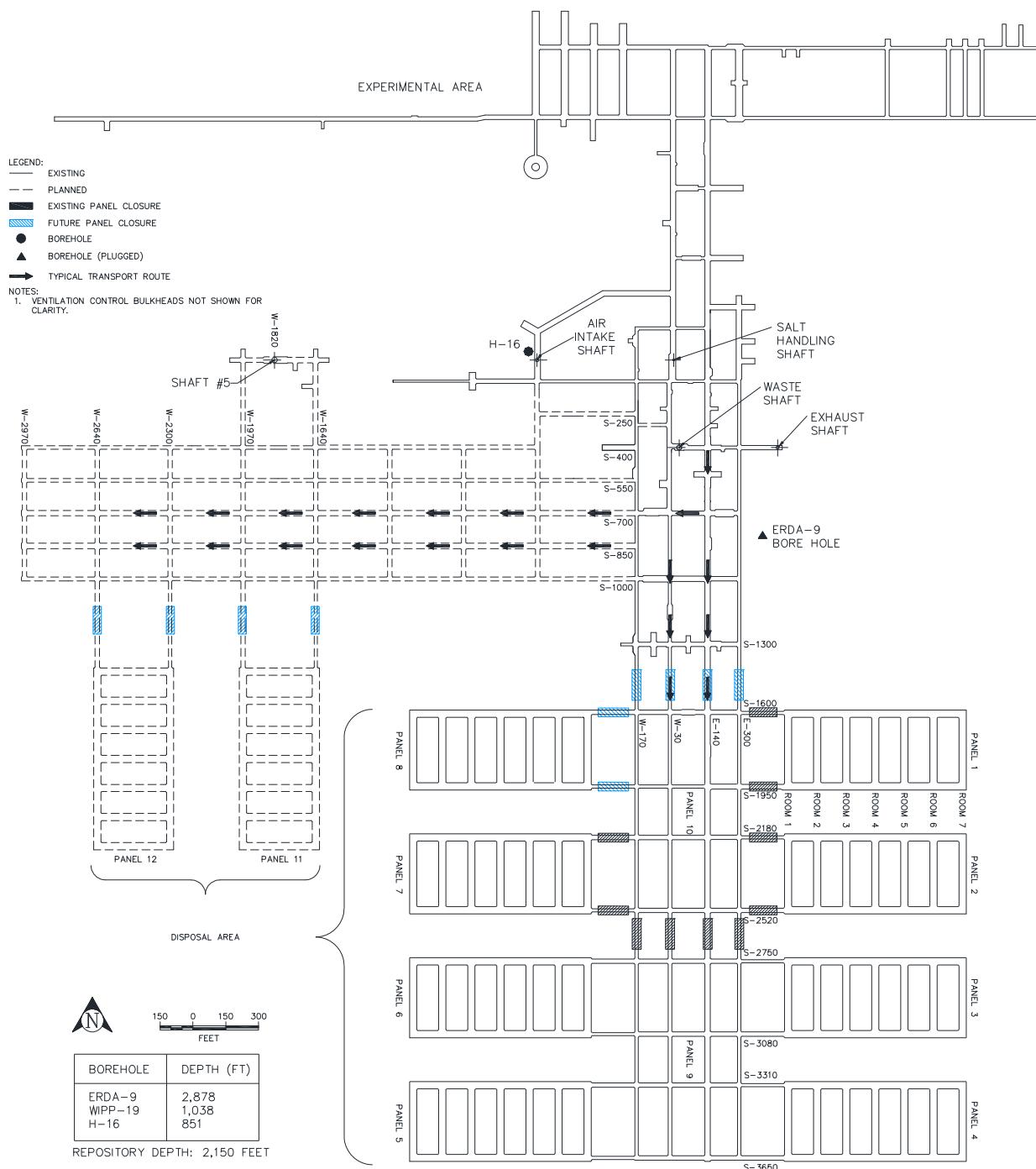
**October 2023** June 2024



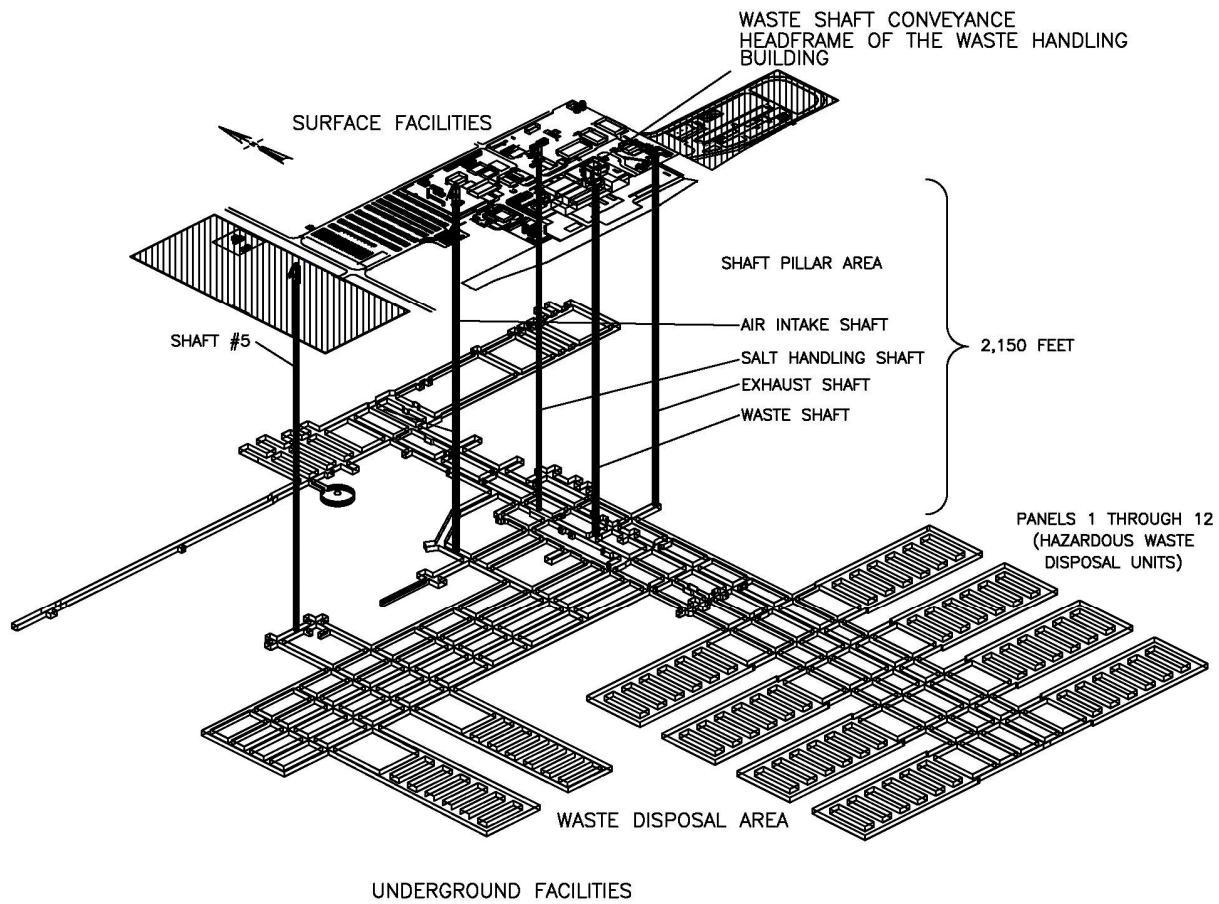
**Figure M-42**  
**Typical Disposal Panel**

Waste Isolation Pilot Plant  
 Hazardous Waste Facility Permit  
 Attachment M  
October 2023  
June 2024

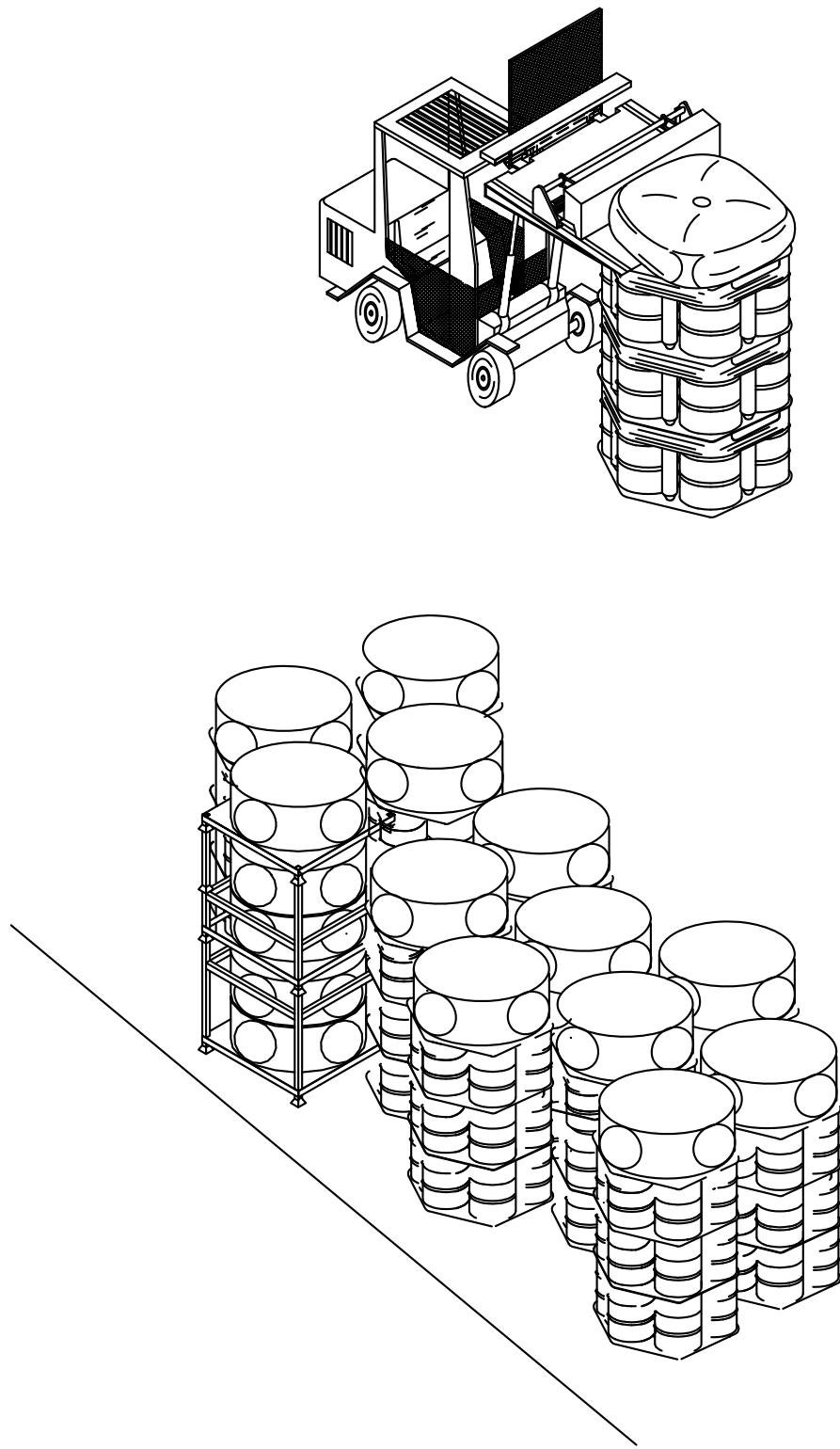
▲ WIPP-19



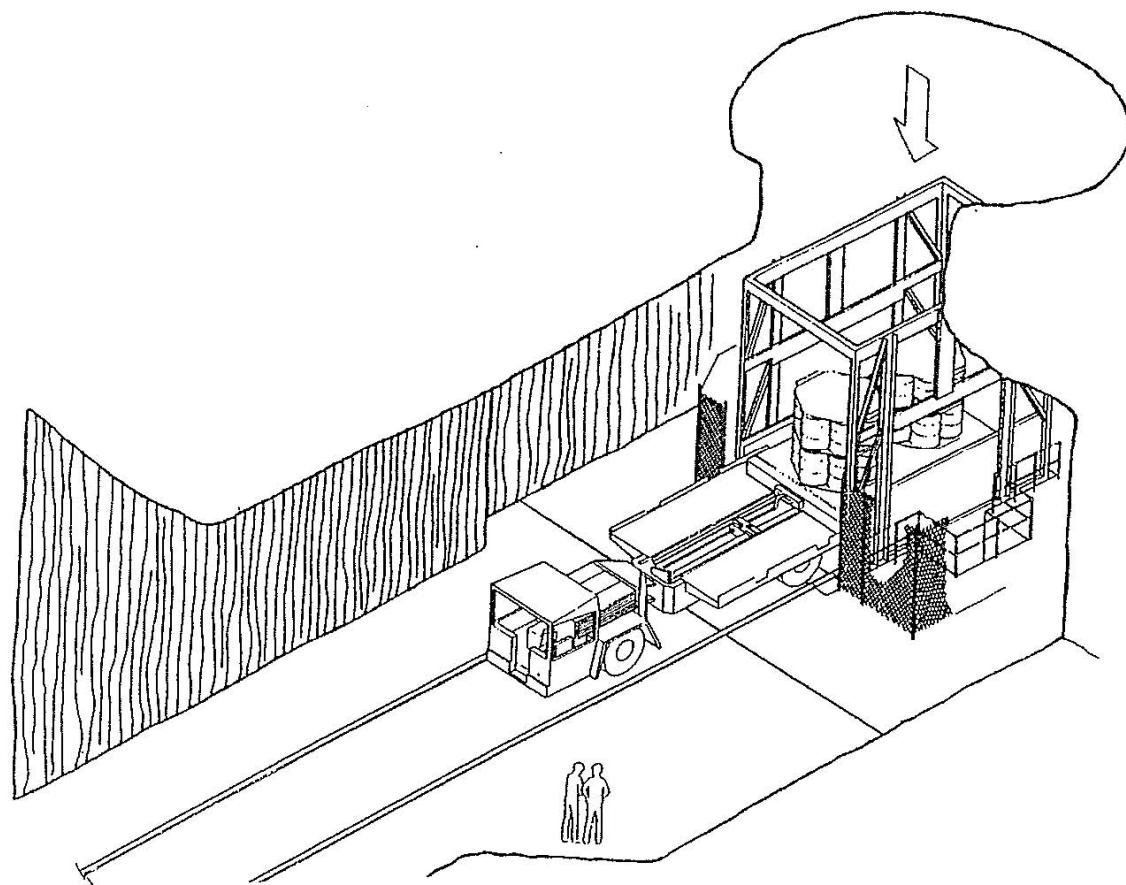
**Figure M-43**  
**Repository Horizon and Underground Waste Transport Routes**



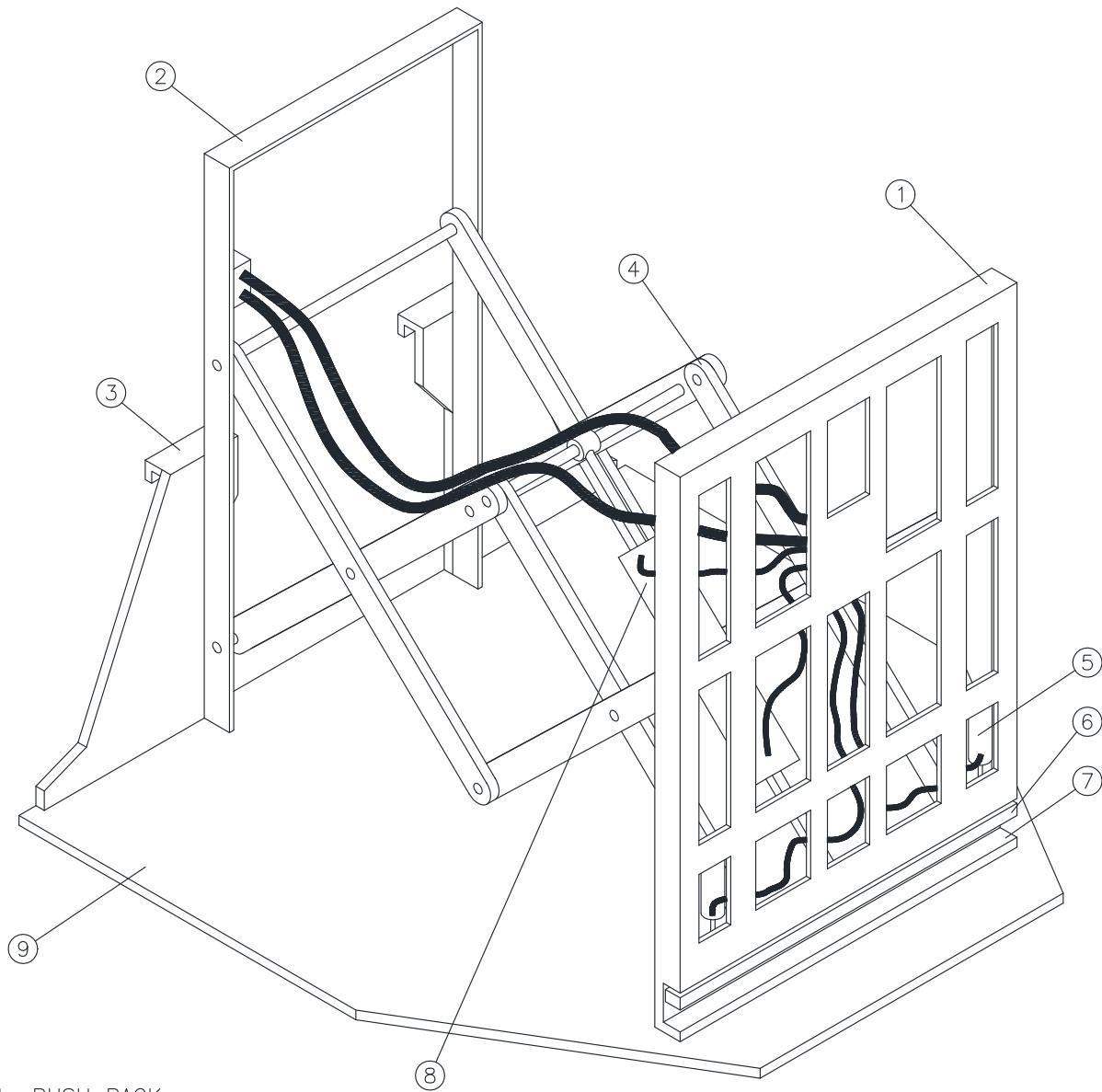
**Figure M-44**  
**Spatial View of the Miscellaneous Unit and Waste Handling Facility**



**Figure M-45**  
**Typical MgO Backfill Sacks Emplaced on Drum Stacks and Emplacement Configurations**

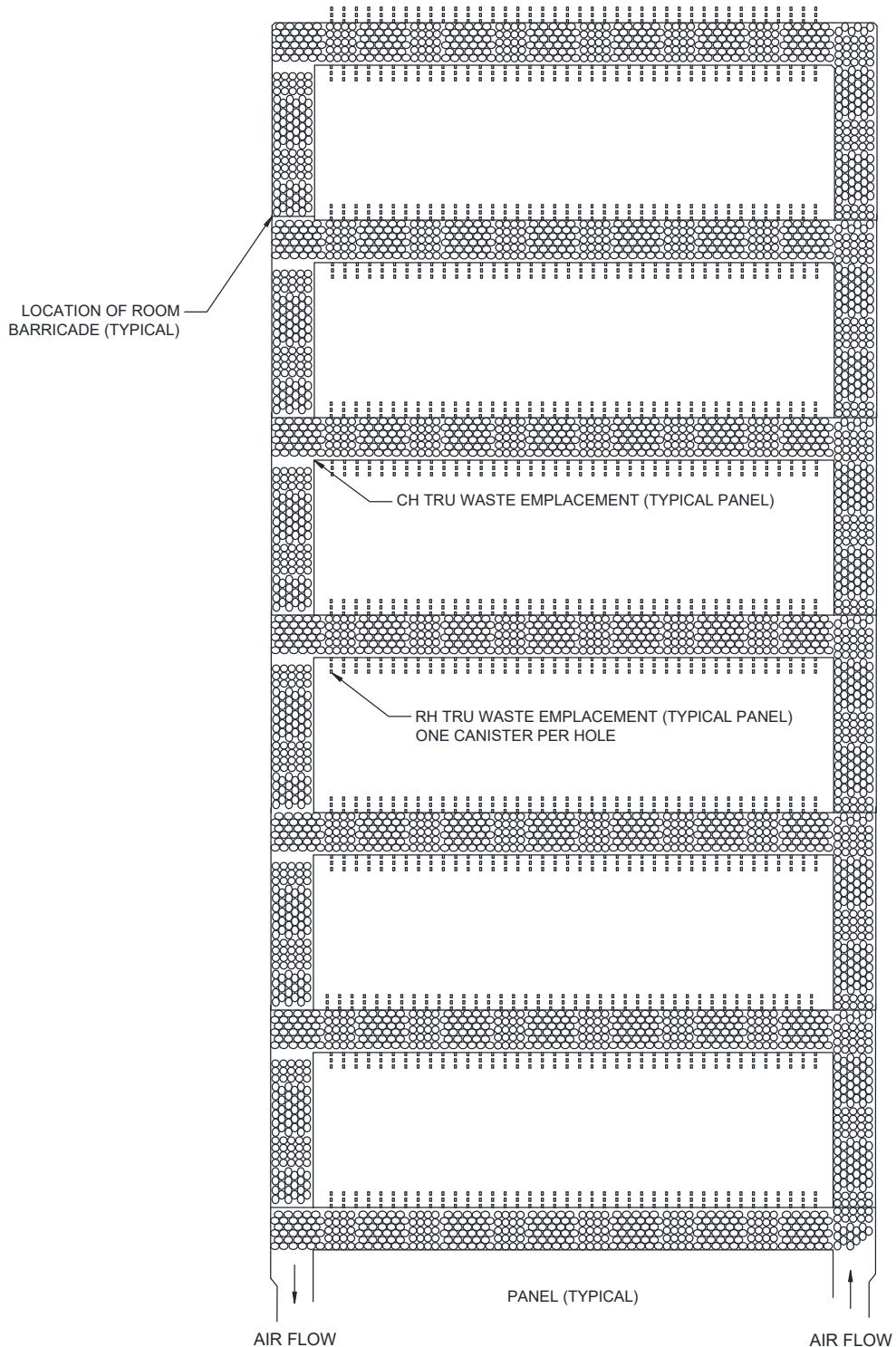


**Figure M-46**  
**Waste Transfer Cage to Transporter**



1. PUSH RACK
2. BASE ASSEMBLY
3. UPPER RETAINER
4. LINKAGE ASSEMBLY
5. GRIPPER CYLINDER
6. GRIPPER BAR
7. GRIPPER JAW
8. PUSH CYLINDER
9. PLATFN

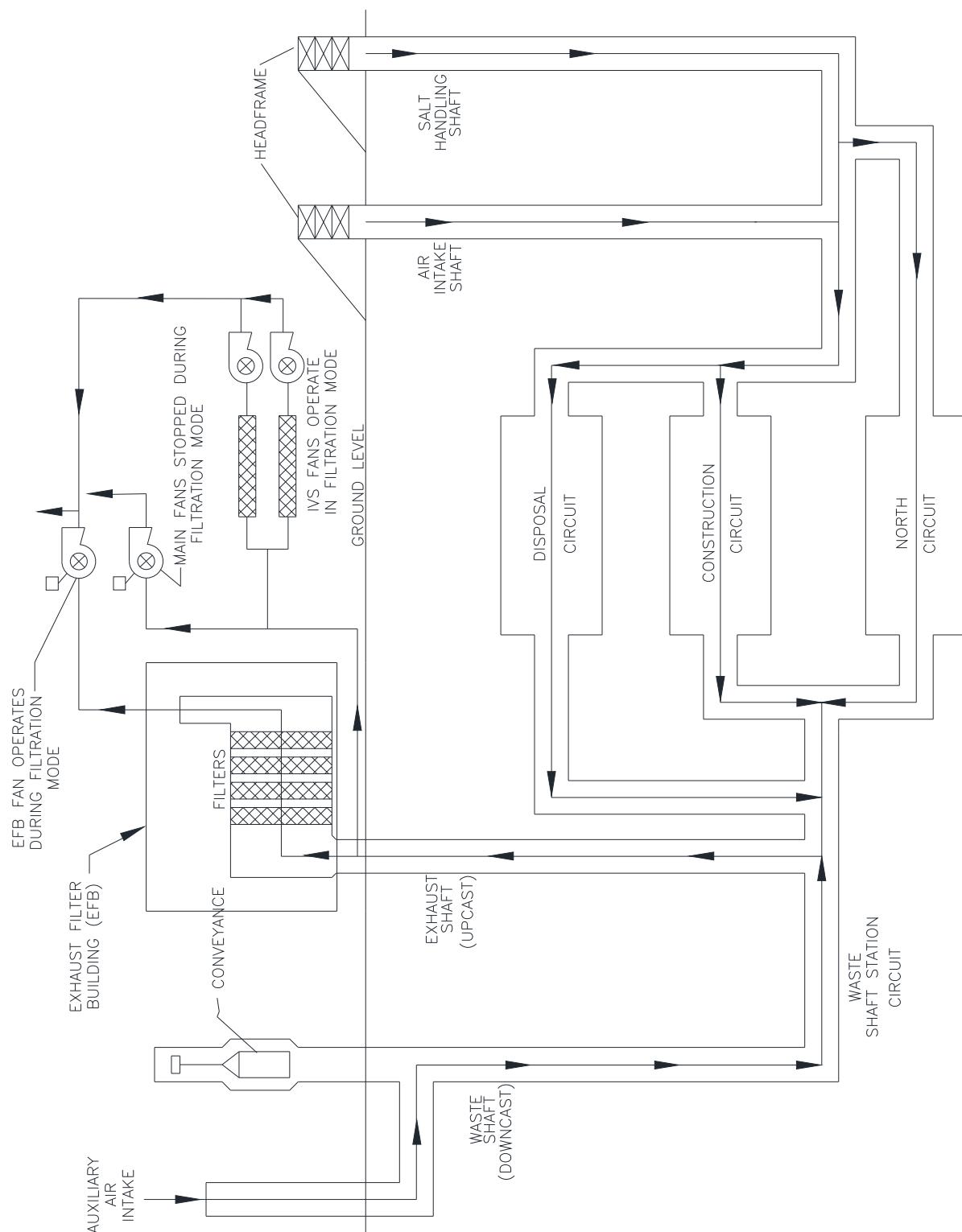
**Figure M-47**  
**Push-Pull Attachment to Forklift to Allow Handling of Waste Containers**



**Figure M-48**  
**Typical RH and CH TRU Mixed Waste Container Disposal Configuration**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

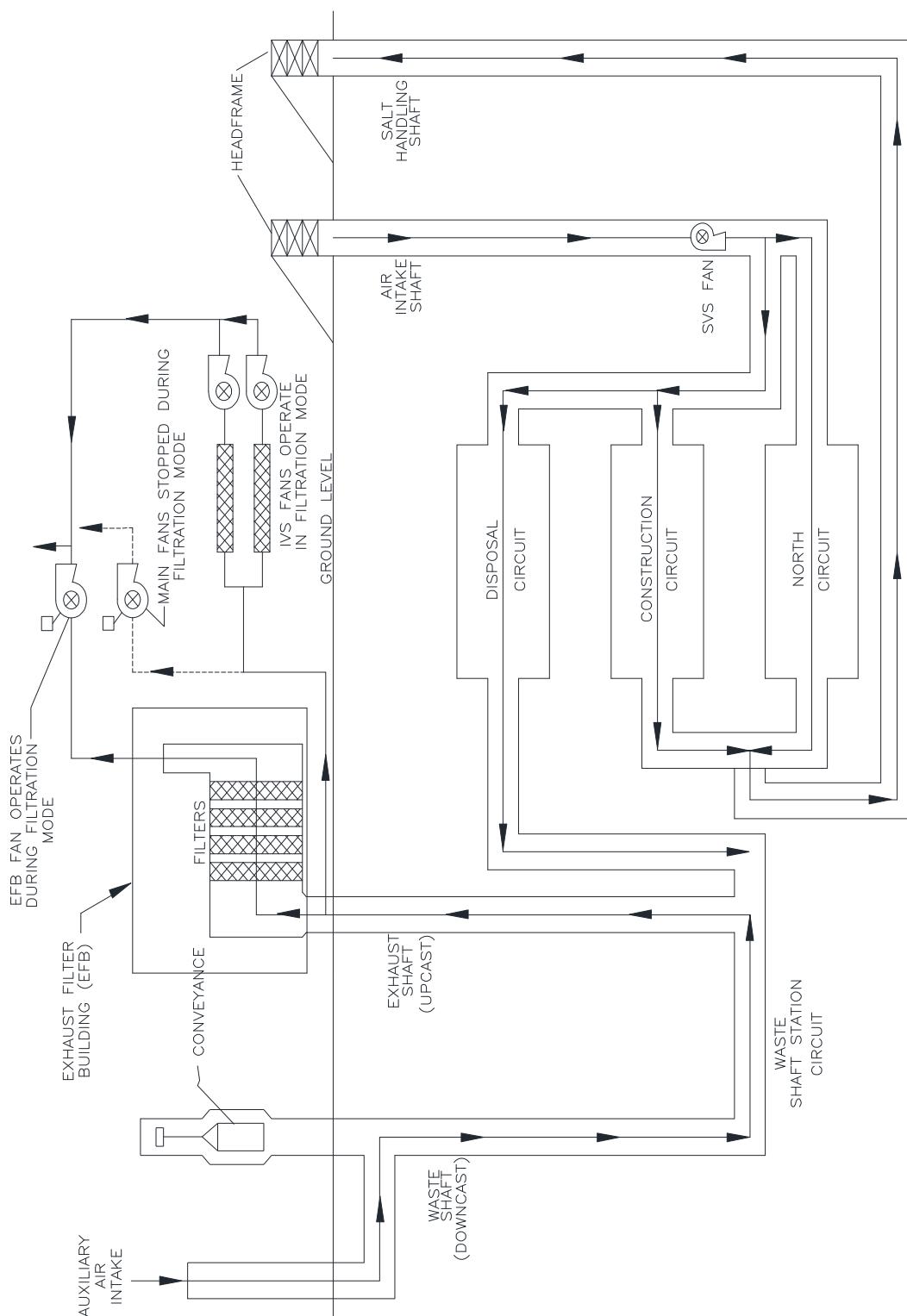
~~October 2023~~ June 2024



**Figure M-49**  
**Underground Ventilation System Airflow**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

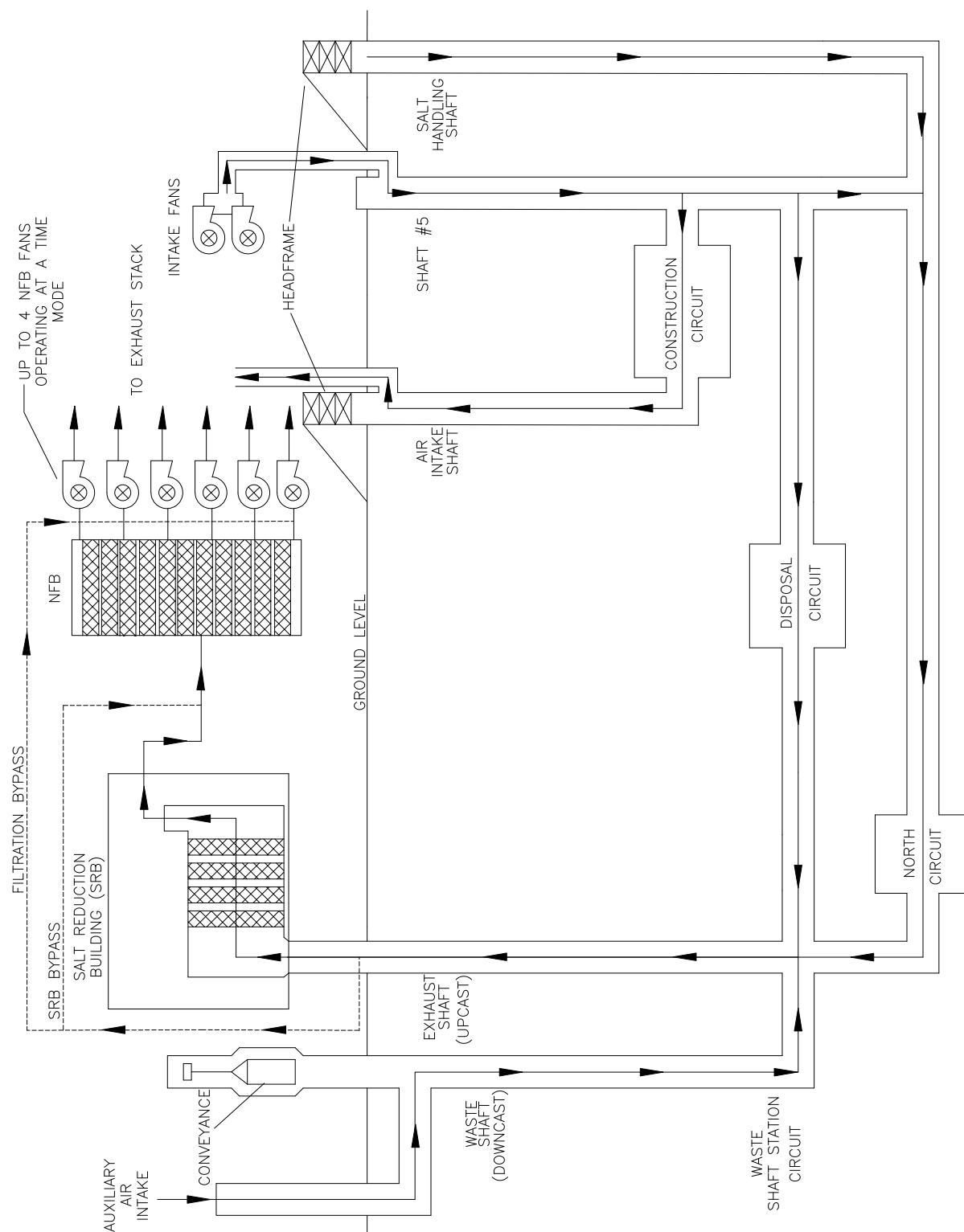
~~October 2023~~ June 2024



**Figure M-50**  
**Underground Ventilation System Airflow (with SVS)**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

**October 2023June 2024**

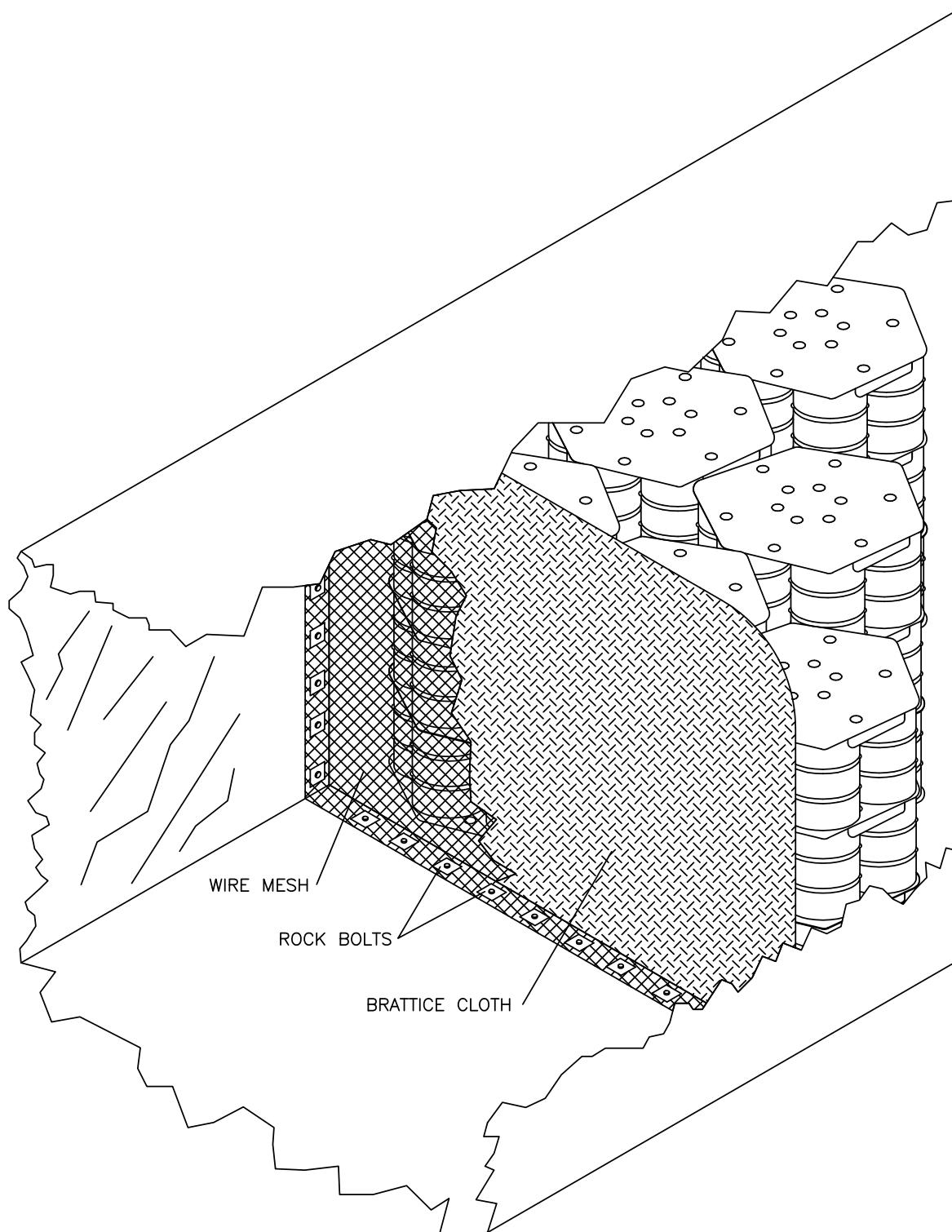


**Figure M-51**  
**Underground Ventilation System Airflow (with S#5)**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit

Attachment M

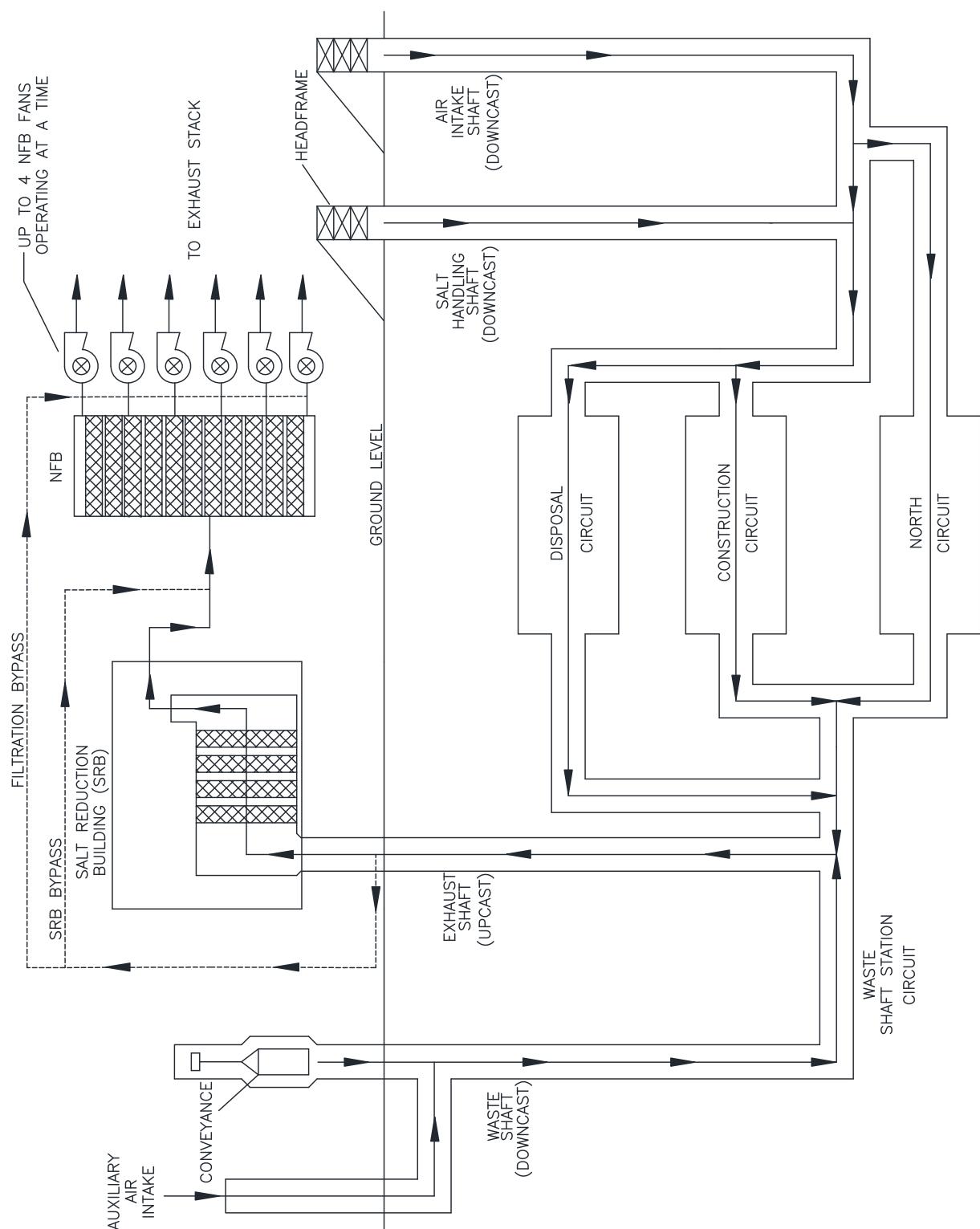
October 2023 June 2024



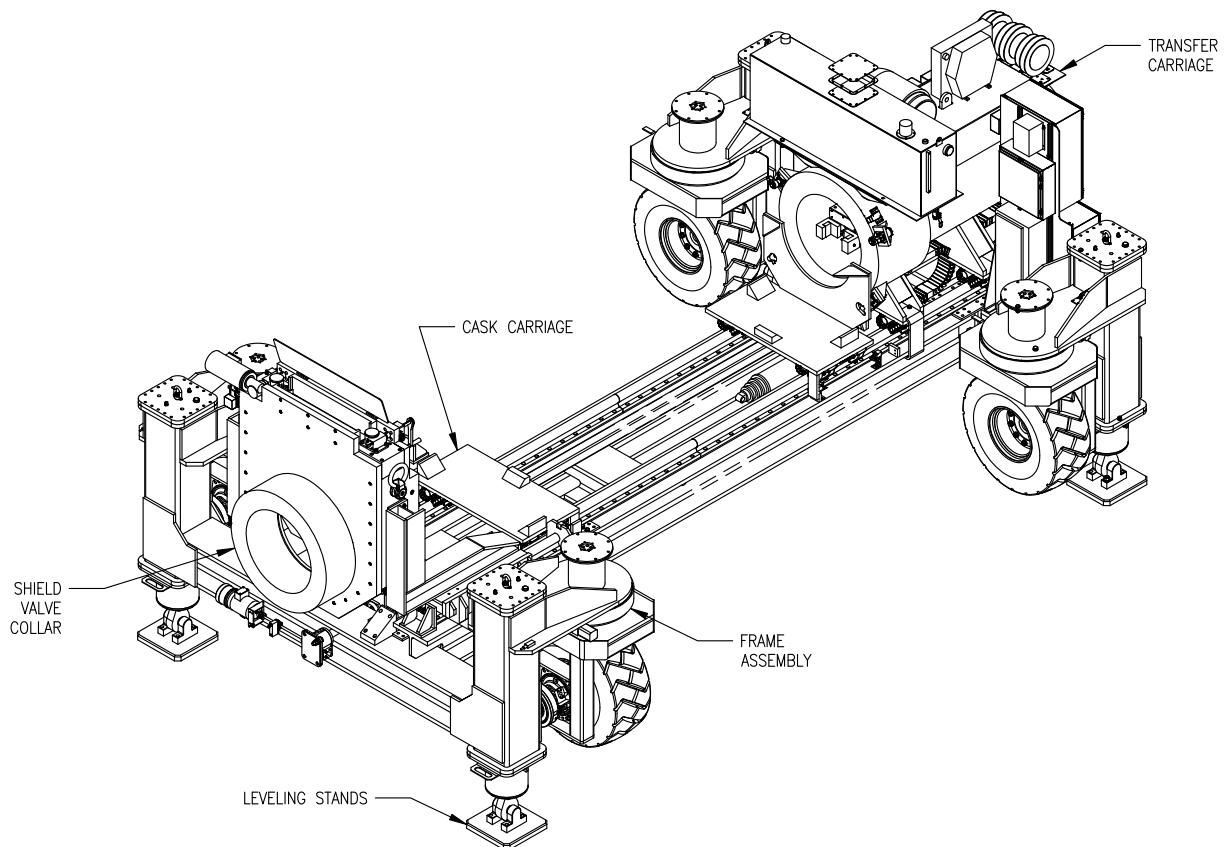
**Figure M-52**  
**Typical Room Barricade**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

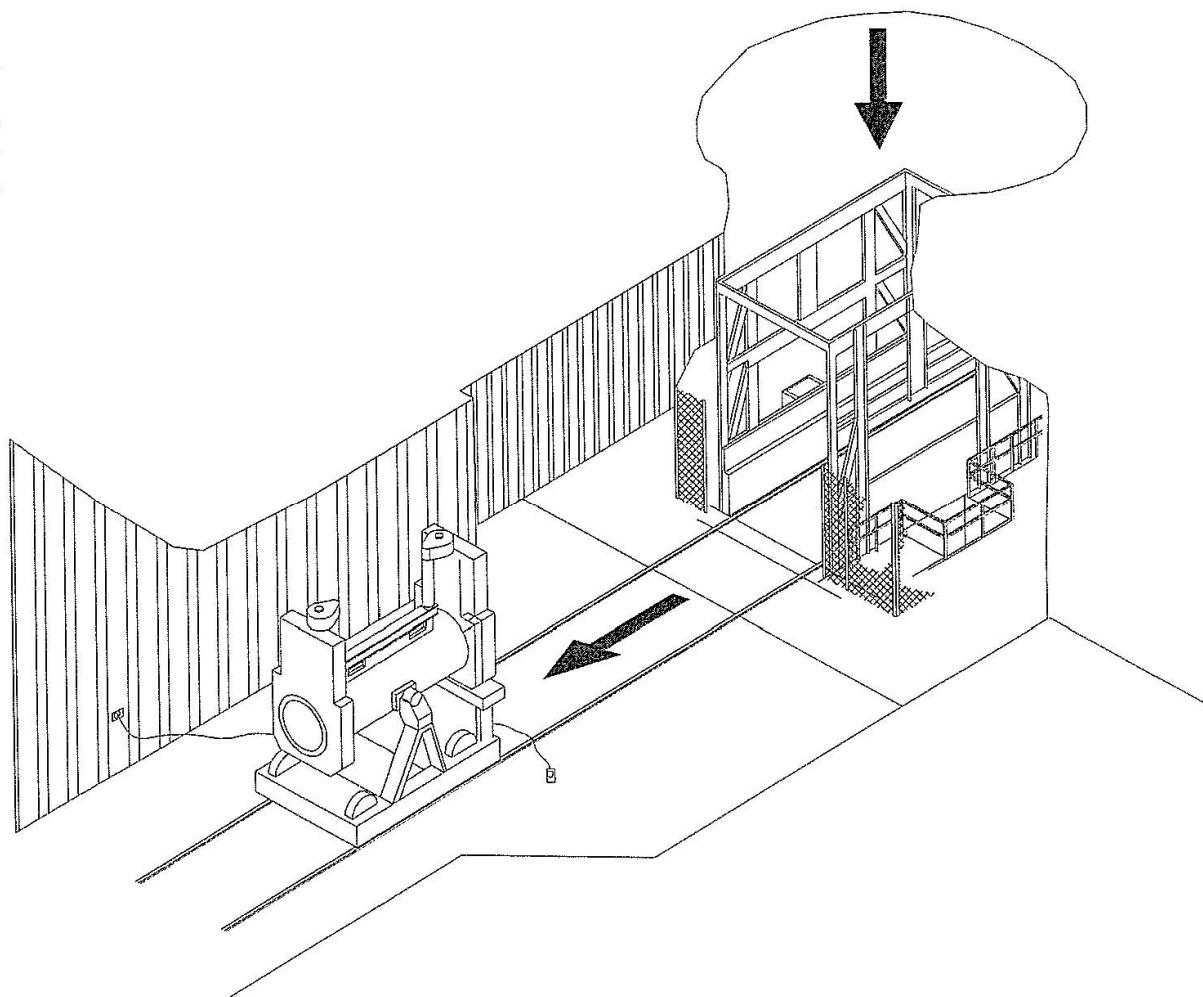
**October 2023June 2024**



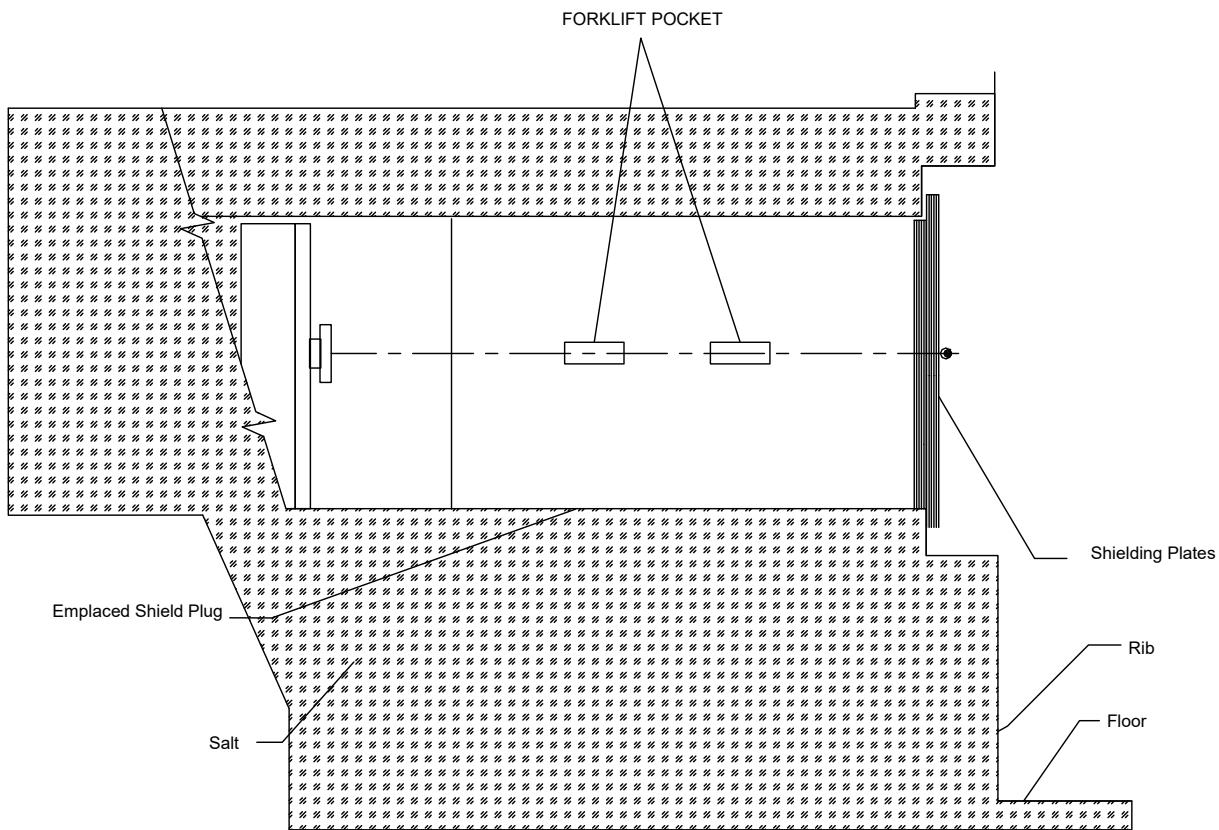
**Figure M-53**  
**Underground Ventilation System Airflow (with Building 416)**



**Figure M-54**  
**Typical RH Emplacement Equipment**



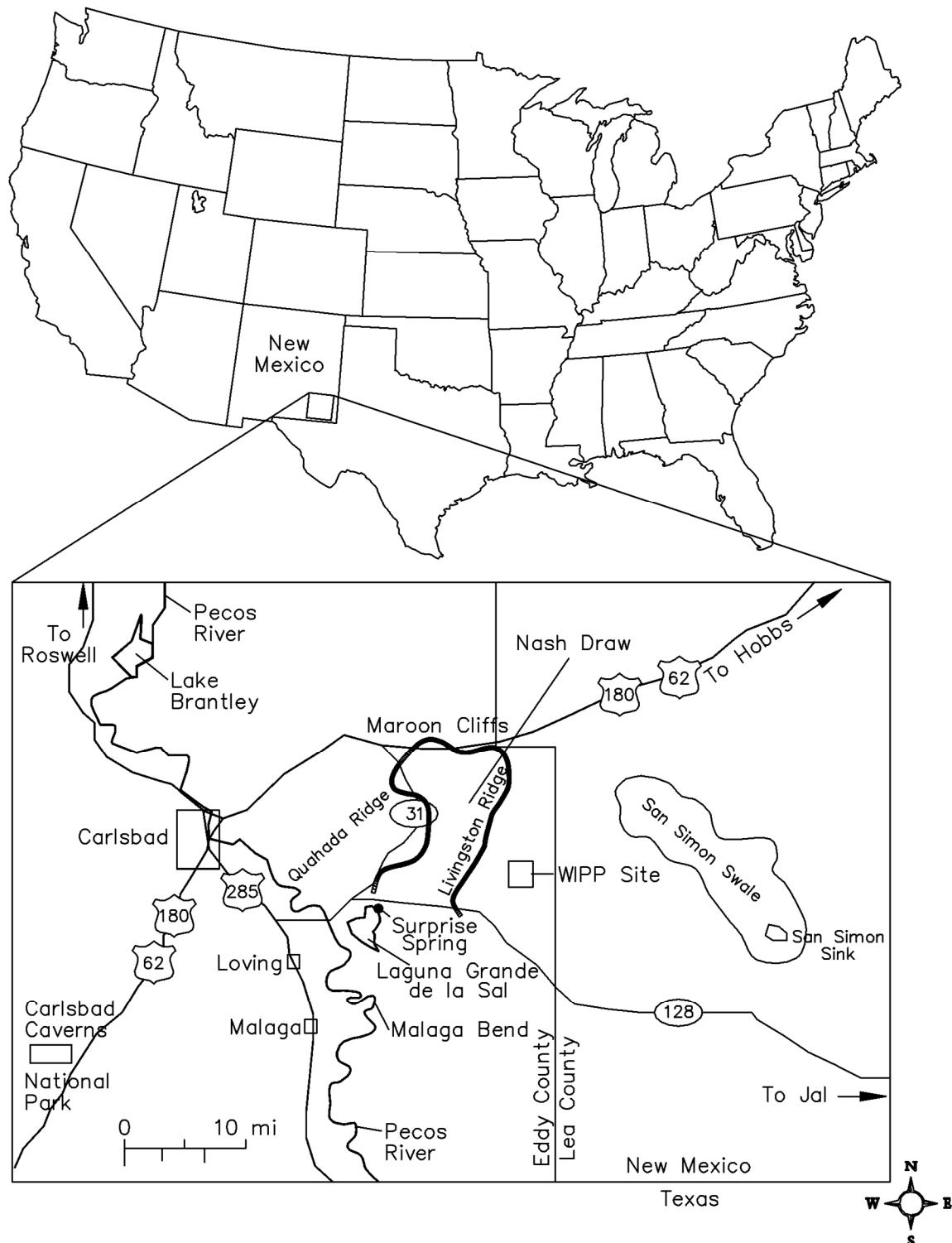
**Figure M-55**  
**RH TRU Waste Facility Cask Unloading from Waste Shaft Conveyance**



**Figure M-56**  
**Section of Borehole Showing the RH Shield Plug and Supplemental Shielding Plate(s)**

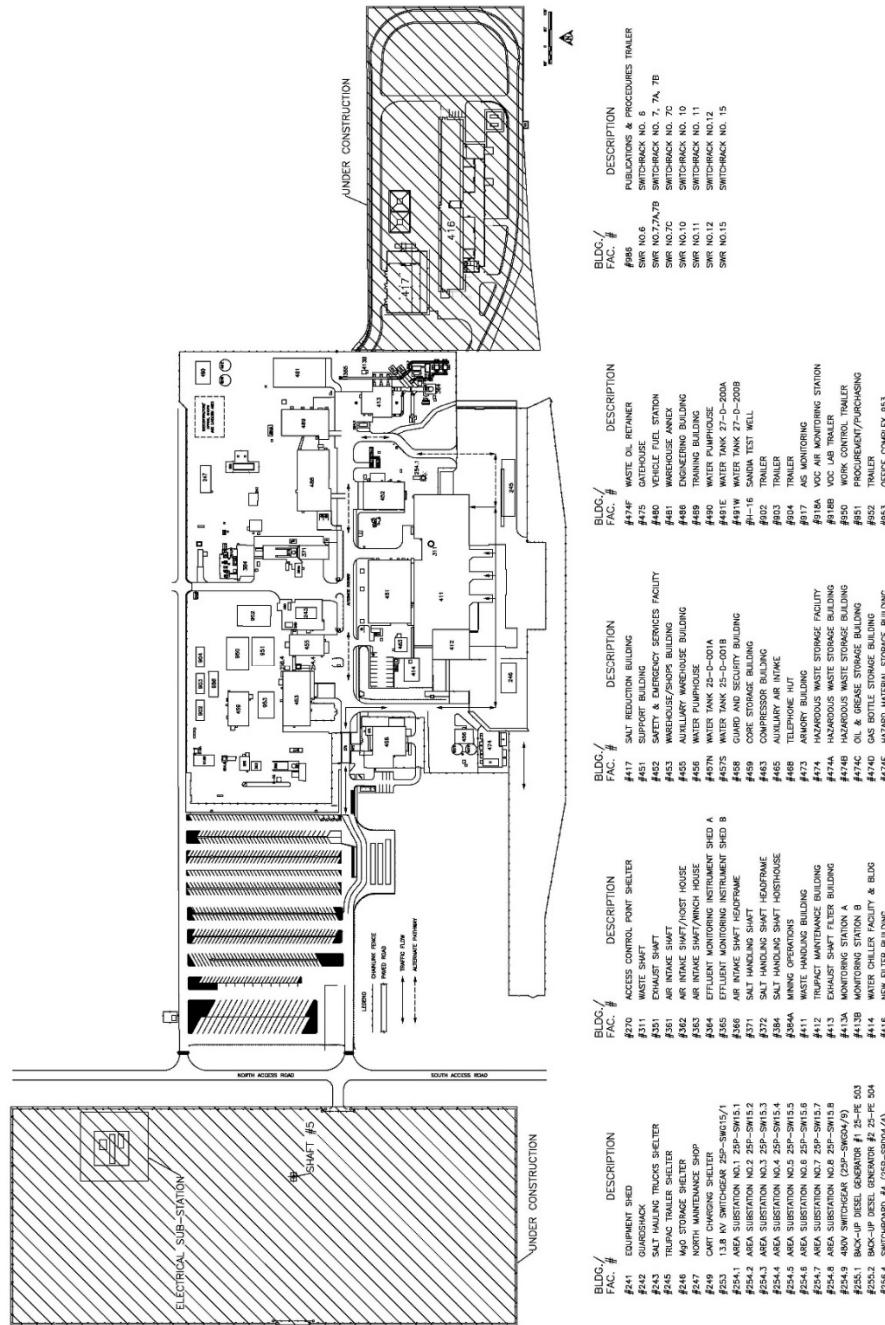
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

October 2023-June 2024



**Figure M-57**  
**General Location of the WIPP Facility**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M  
**October 2023**  
**June 2024**



(see Figure D-1 for legend of the surface buildings)

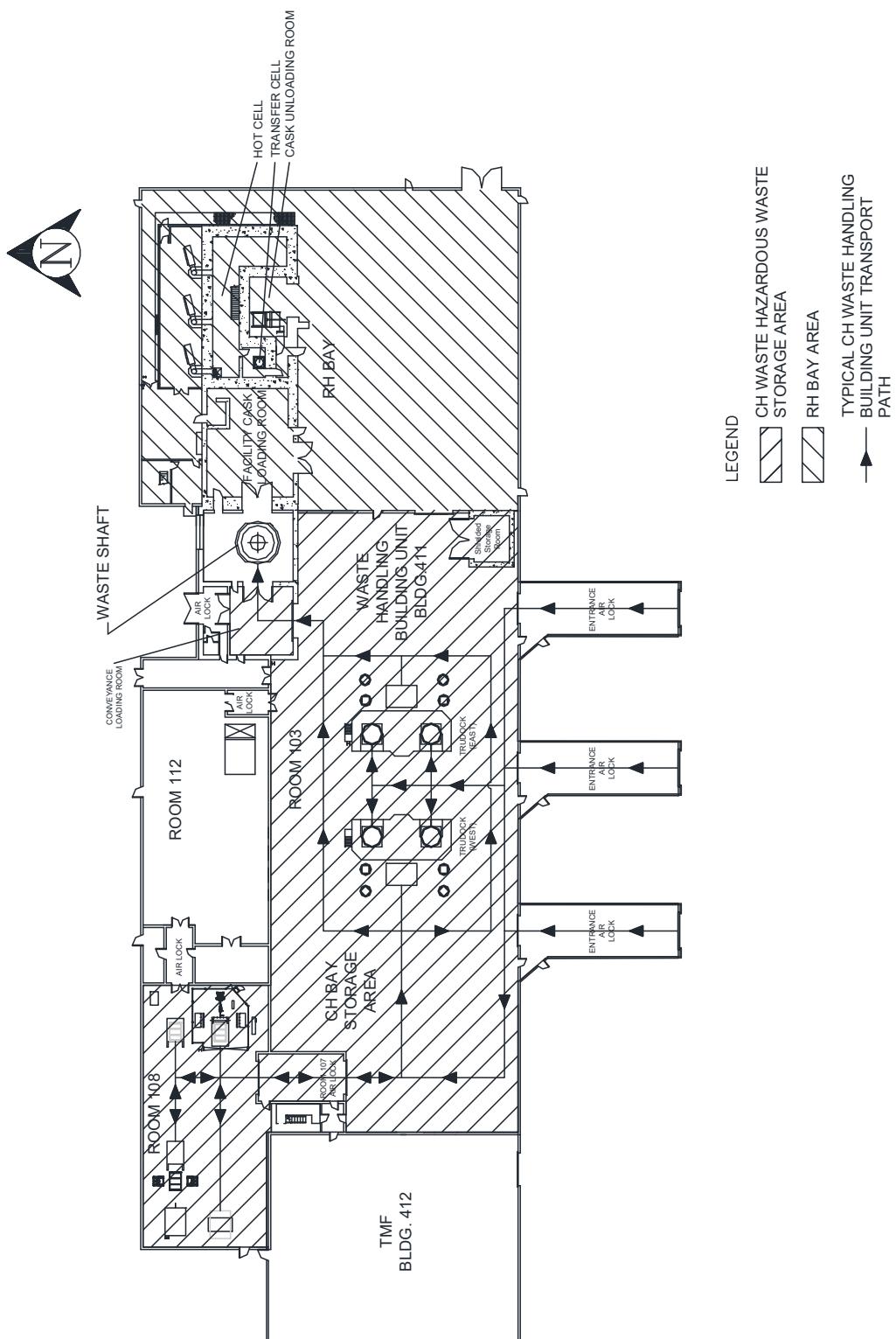
**Figure M-58**  
**WIPP Traffic Flow Diagram**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M  
October 2023June 2024

**Figure M-59  
Reserved**

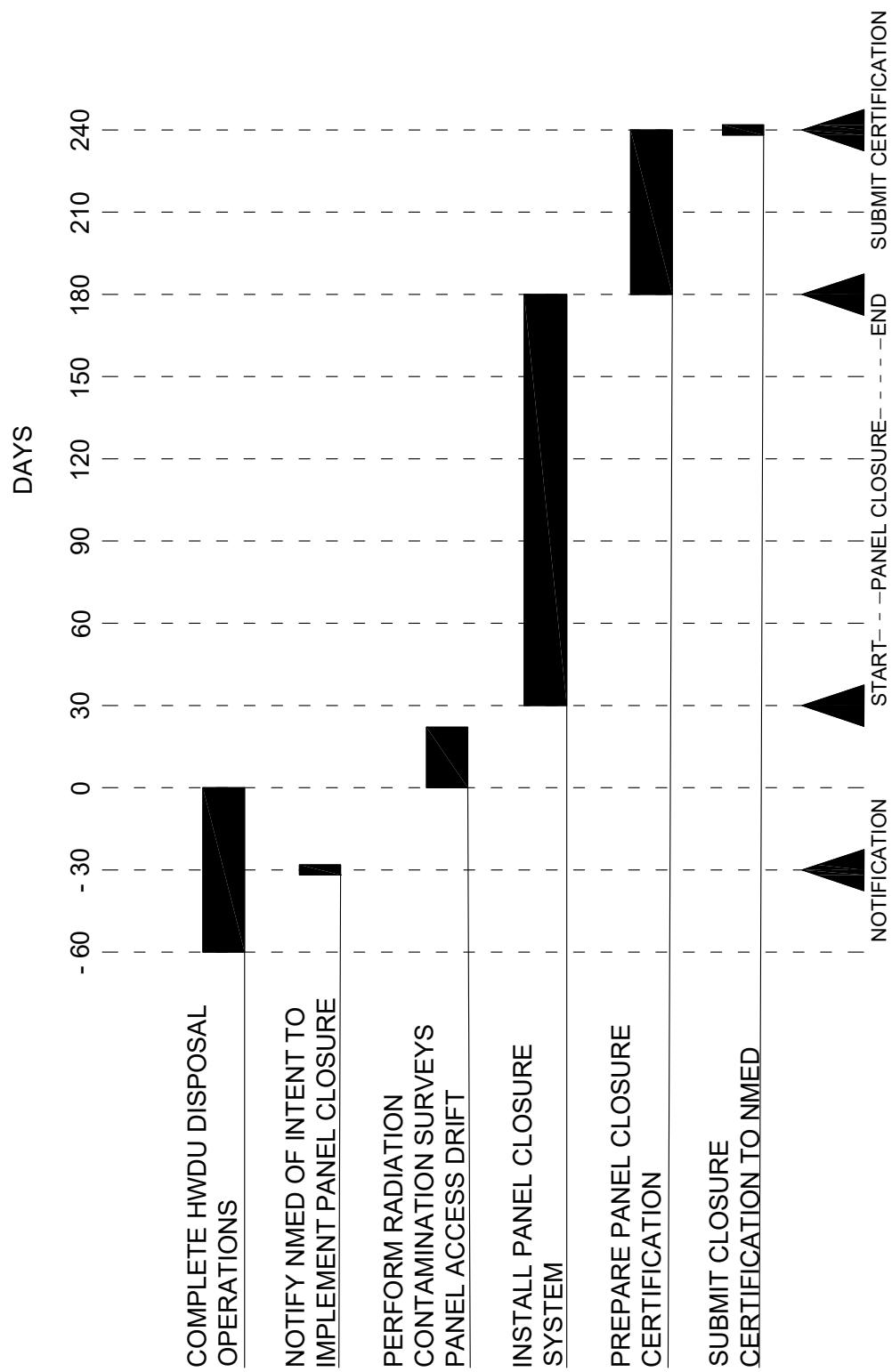
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

October 2023June 2024



**Figure M-60**  
**Typical CH Mixed Waste Transport Routes in Waste Handling Building - Container Storage Unit**

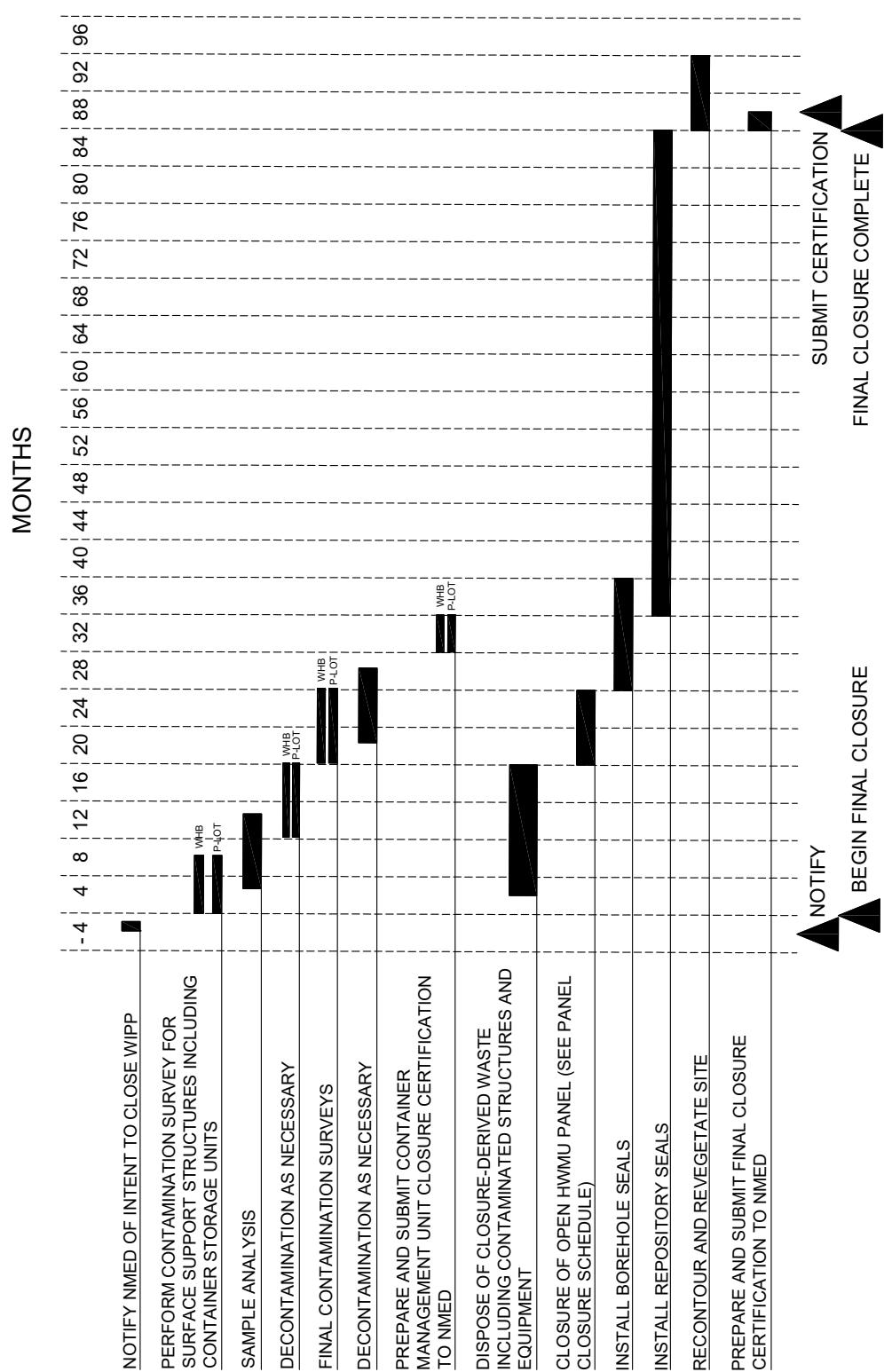
~~October 2023~~ June 2024



**Figure M-61**  
**WIPP Panel Closure Schedule**

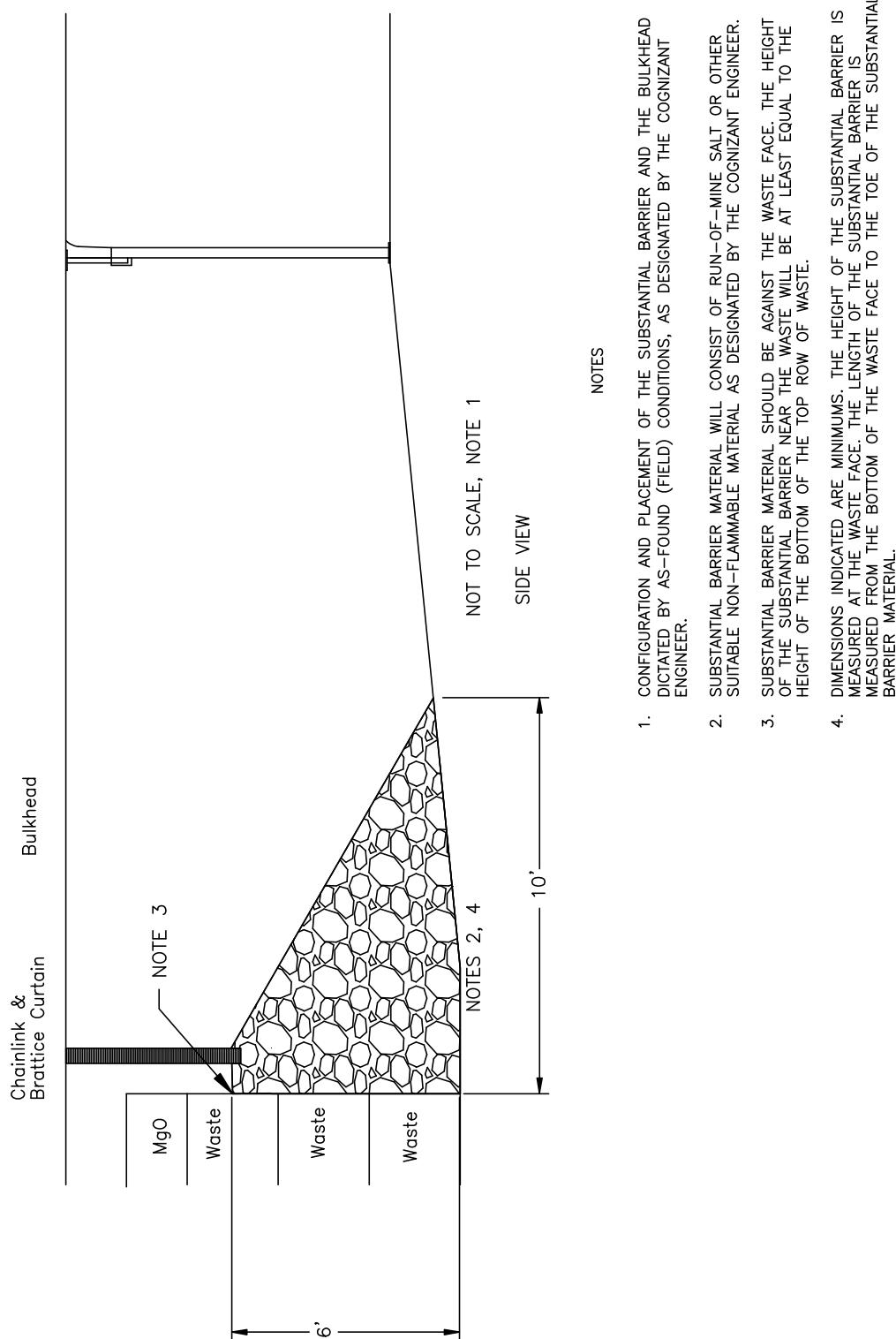
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

~~October 2023~~ June 2024



**Figure M-62**  
**WIPP Facility Final Closure 84-Month Schedule**

October 2023June 2024



**Figure M-63**  
**Typical Substantial Barrier and Bulkhead**

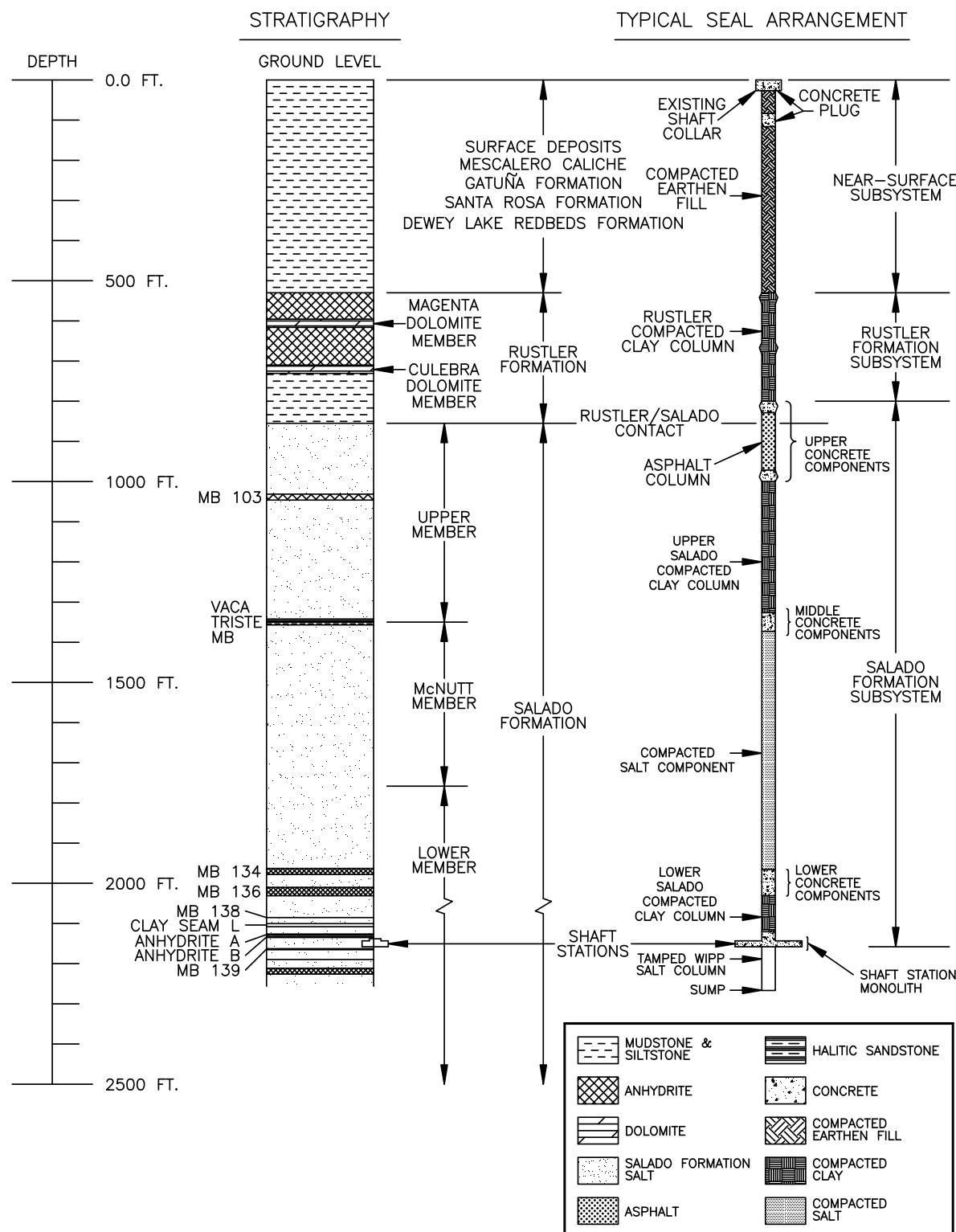
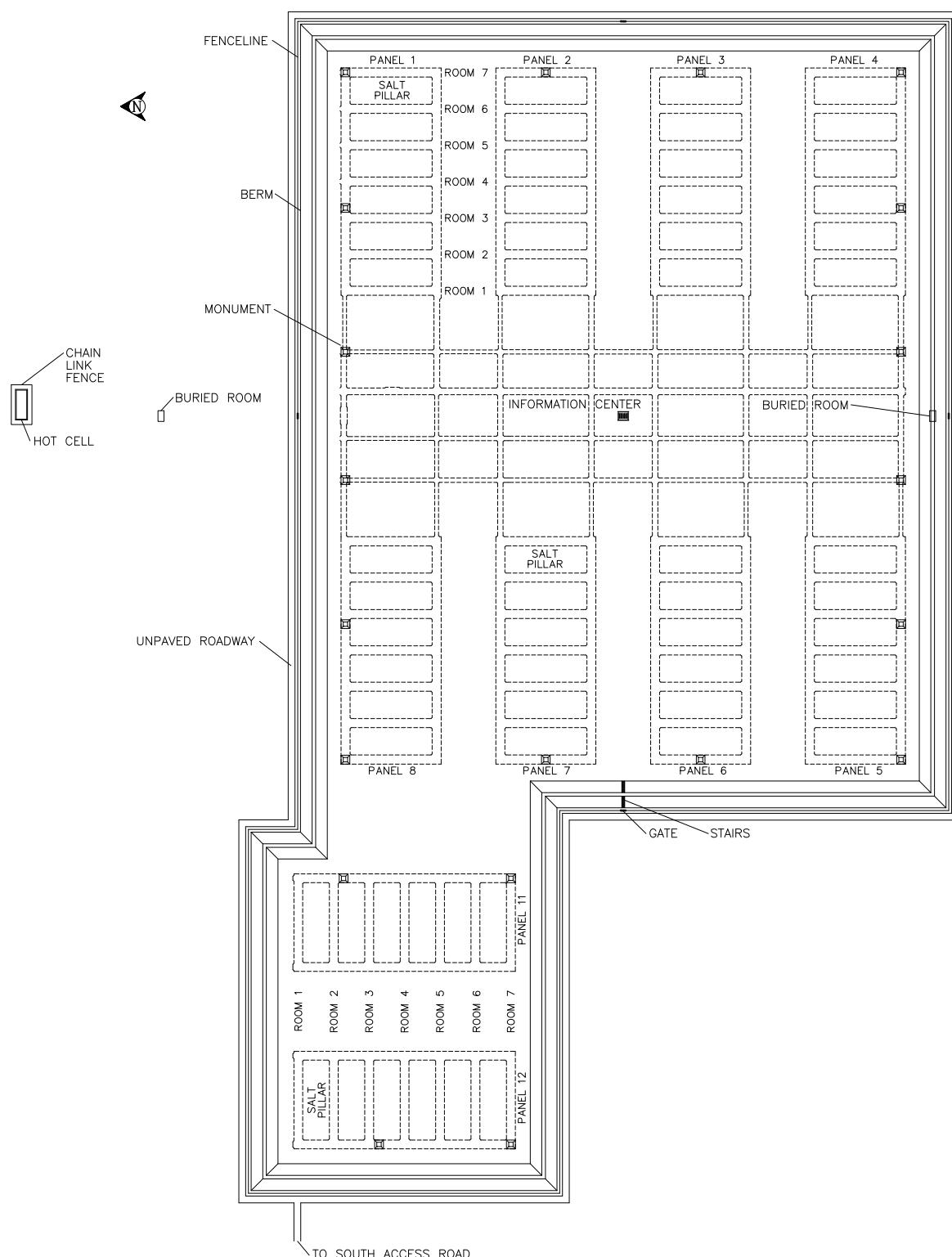


Figure M-64  
 Typical Shaft Sealing System

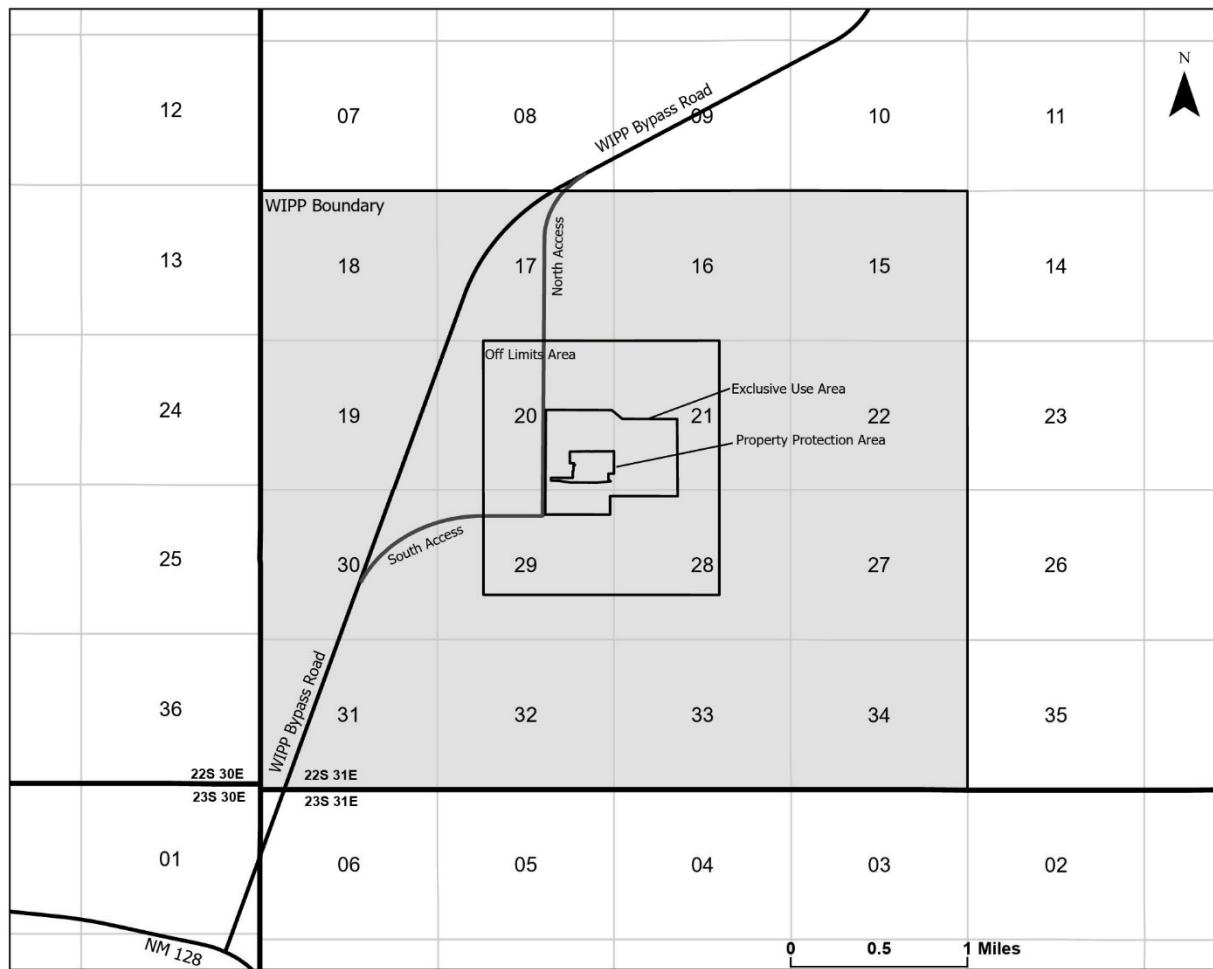
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

October 2023June 2024



**Figure M-65**  
**Perimeter Fenceline and Roadway**

Waste Isolation Pilot Plant  
 Hazardous Waste Facility Permit  
 Attachment M  
October 2023June 2024



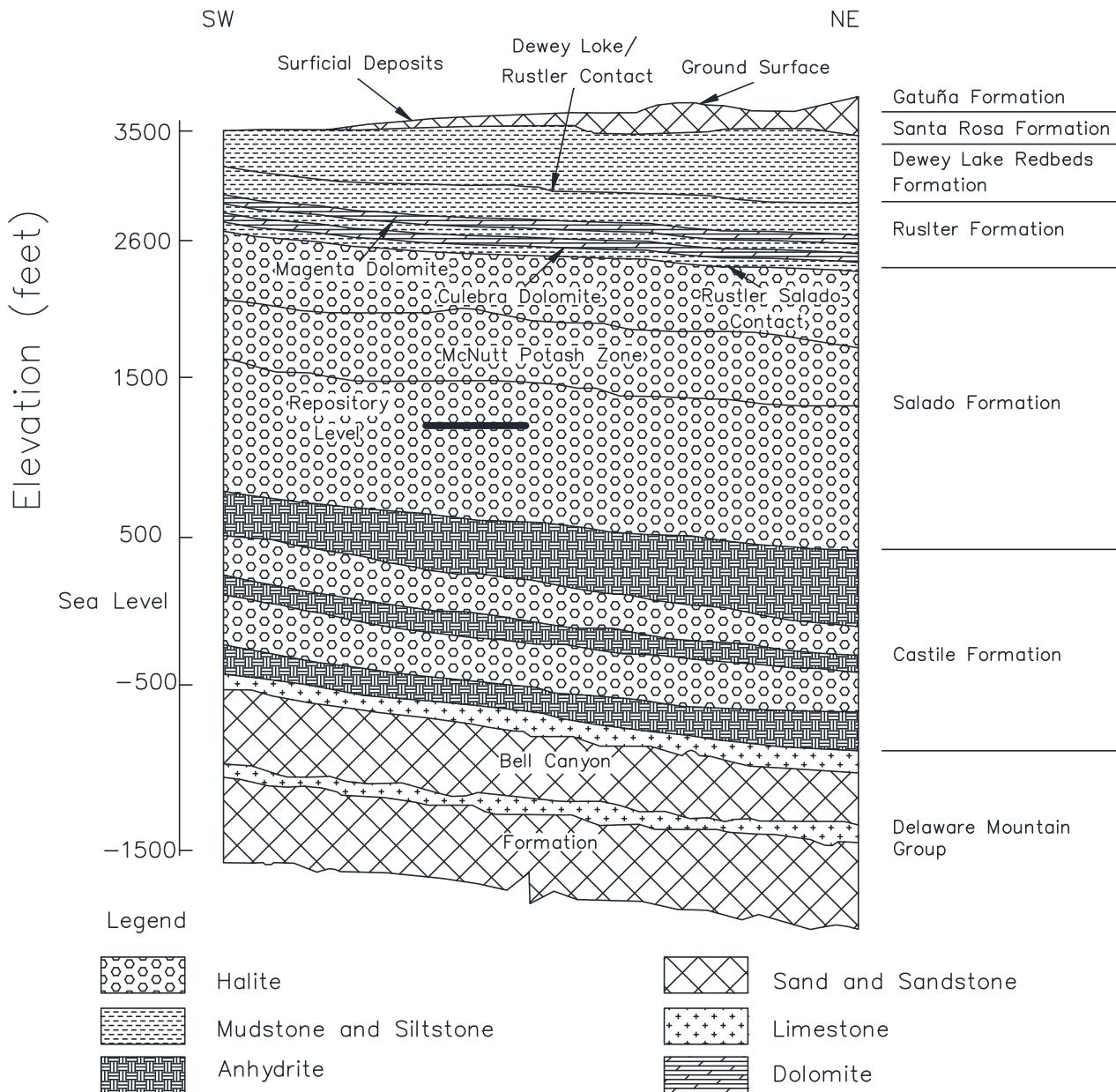
**Figure M-66**  
**WIPP Facility Boundaries Showing 16-square-Mile Land Withdrawal Boundary**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

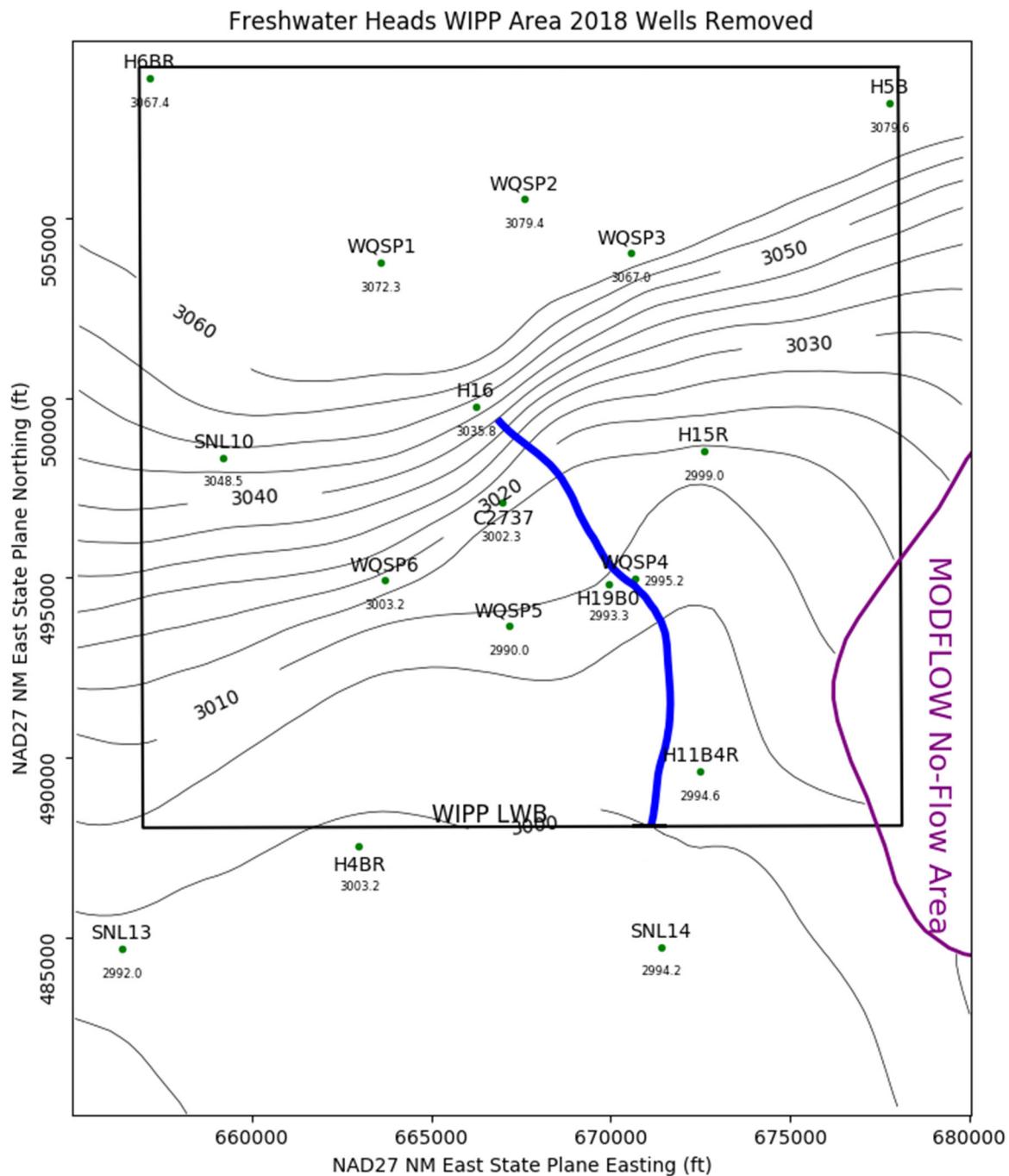
~~October 2023~~ June 2024

SYSTEM	SERIES	GROUP	FORMATION	MEMBER
RECENT	RECENT		SURFICIAL DEPOSITS	
QUATERNARY	PLEISTOCENE		MESCALERO CALICHE	
			GATUÑA	
TERTIARY	MID-PLIOCENE		OGALLALA	
TRIASSIC		DOCKUM	SANTA ROSA	
PERMIAN	OCHOAN		DEWEY LAKE REDBEDS	
			RUSTLER	FORTY-NINER
				MAGENTA DOLOMITE
				TAMARISK
				CULEBRA DOLOMITE
			SALADO	LOS MEDAÑOS
				UPPER
	GUADALUPIAN	DELAWARE MOUNTAIN		MCNUTT POTASH
		CASTILE	LOWER	
			BELL CANYON	
			CHERRY CANYON	
			BRUSHY CANYON	

**Figure M-67**  
**Site Geologic Column**

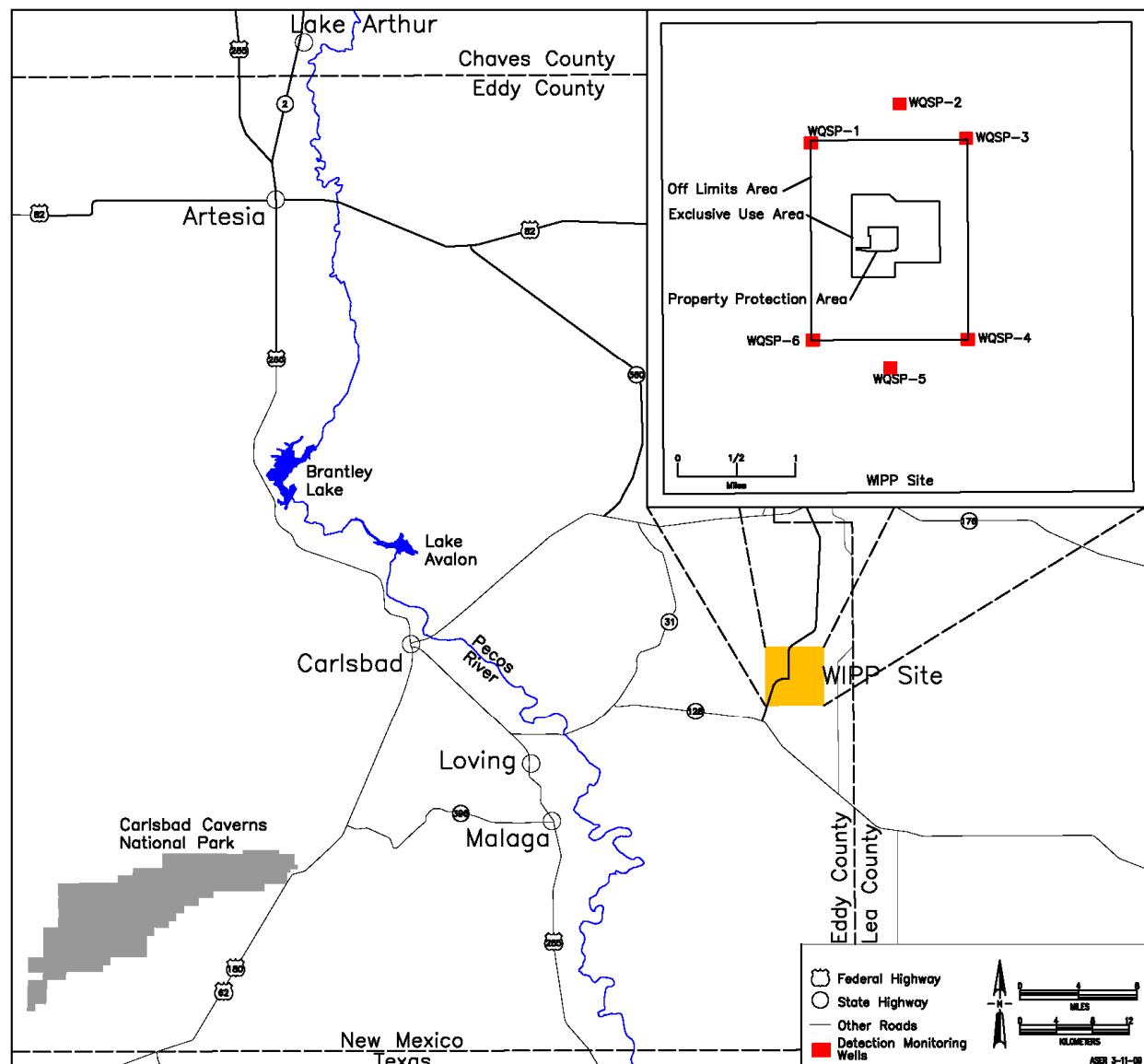


**Figure M-68**  
**Generalized Stratigraphic Cross Section above the Bell Canyon Formation at the WIPP Site**



*Model generated September 2019 utilizing May 2018 freshwater head contours with observed heads (ft) listed at each well. Contours are at 5 ft intervals with the blue line particle track from the waste handling shaft to the WIPP Land Withdrawal Boundary. The purple line is a constant head boundary representing the Rustler halite margin.*

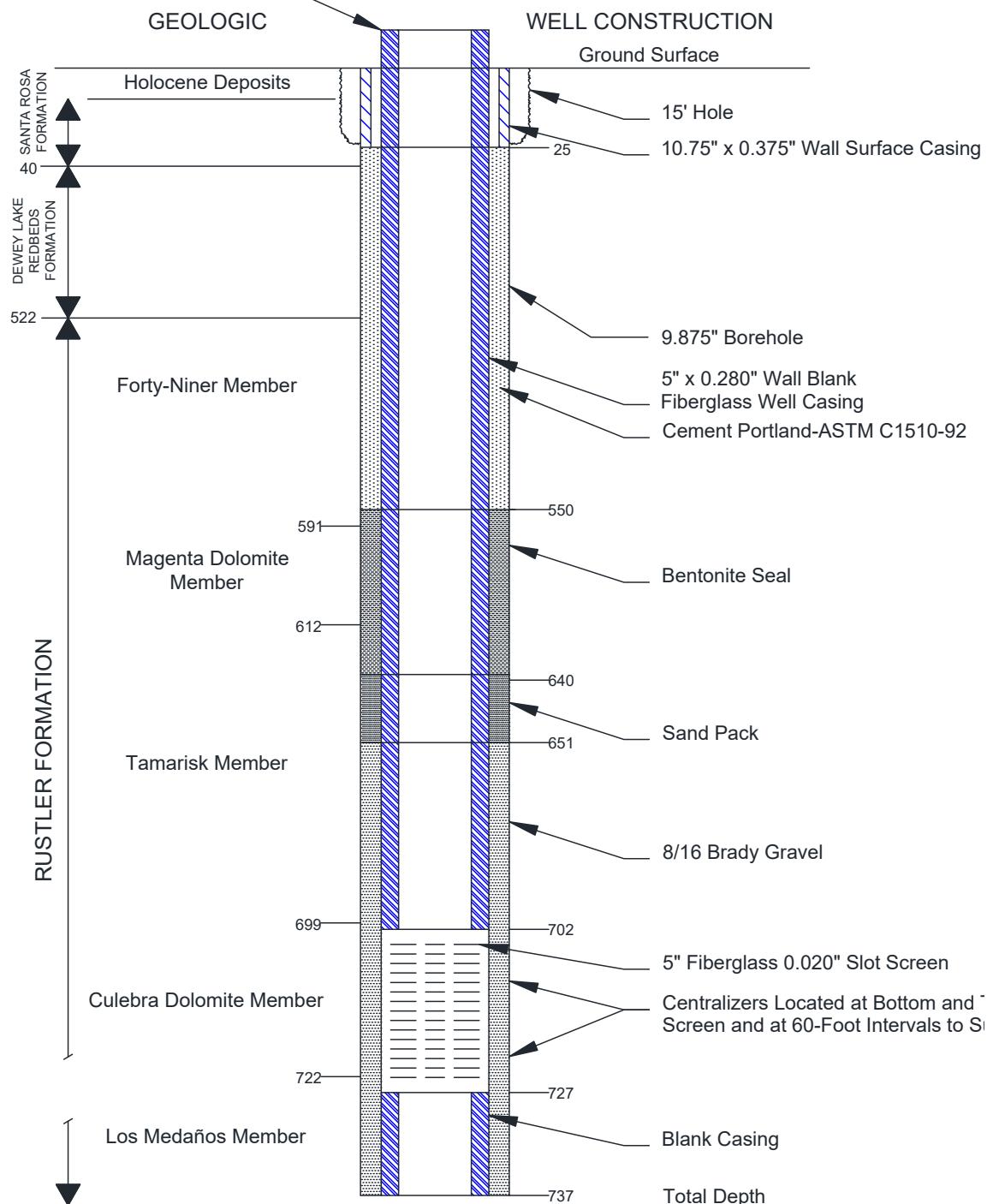
**Figure M-69**  
**Culebra Freshwater-Head Potentiometric Surface**



**Figure M-70**  
**Detection Monitoring Well Locations**

**October 2023** June 2024

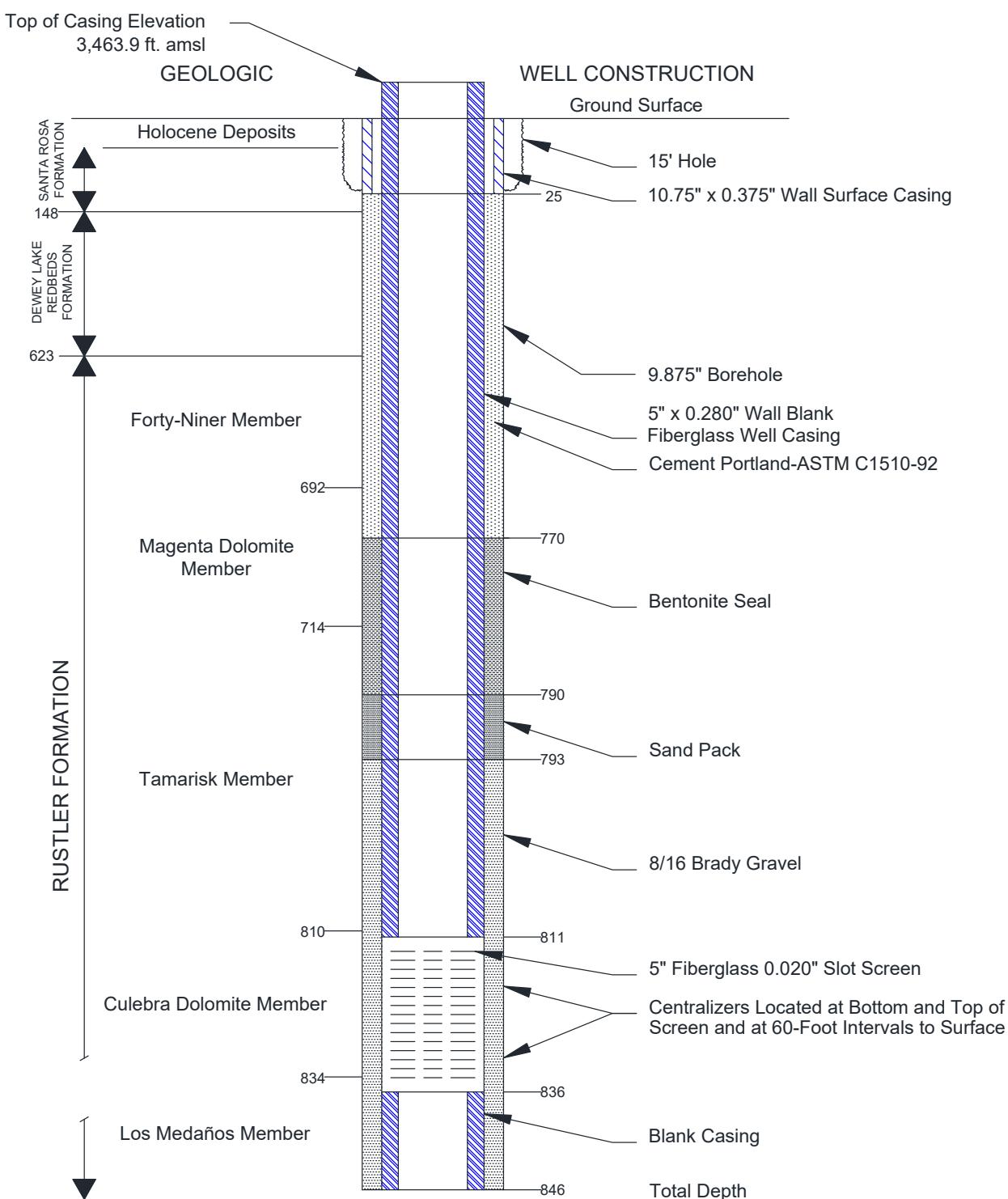
Top of Casing Elevation 3,419.2 ft.  
above mean sea level (amsl)



*Note: Depths in feet below ground surface (bgs) approximate.*

**Figure M-71**  
**As-Built Configuration of Well WQSP-1**

**October 2023** June 2024

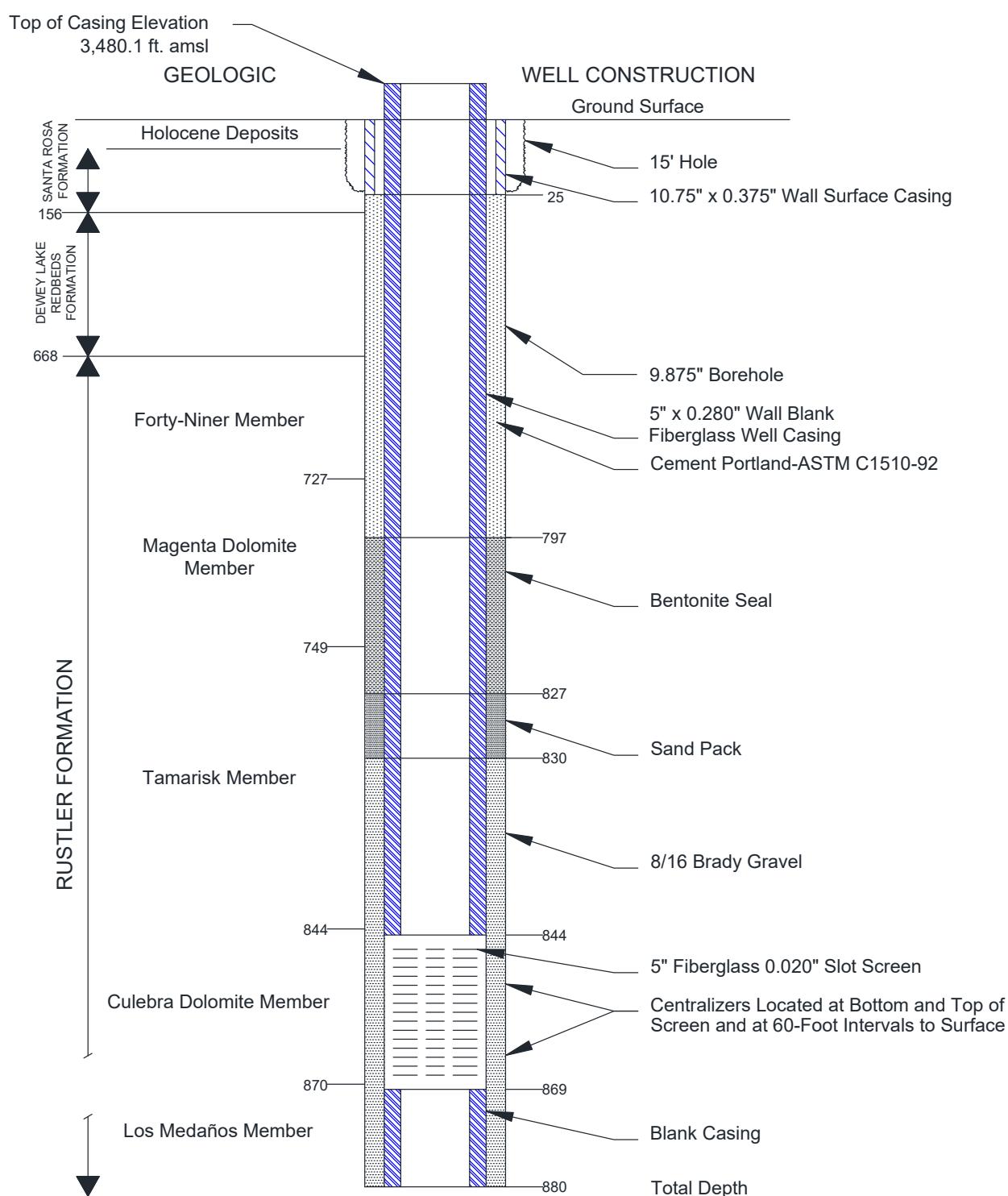


*Note: Depths in feet bgs approximate.*

**Figure M-72**  
**As-Built Configuration of Well WQSP-2**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

**October 2023June 2024**

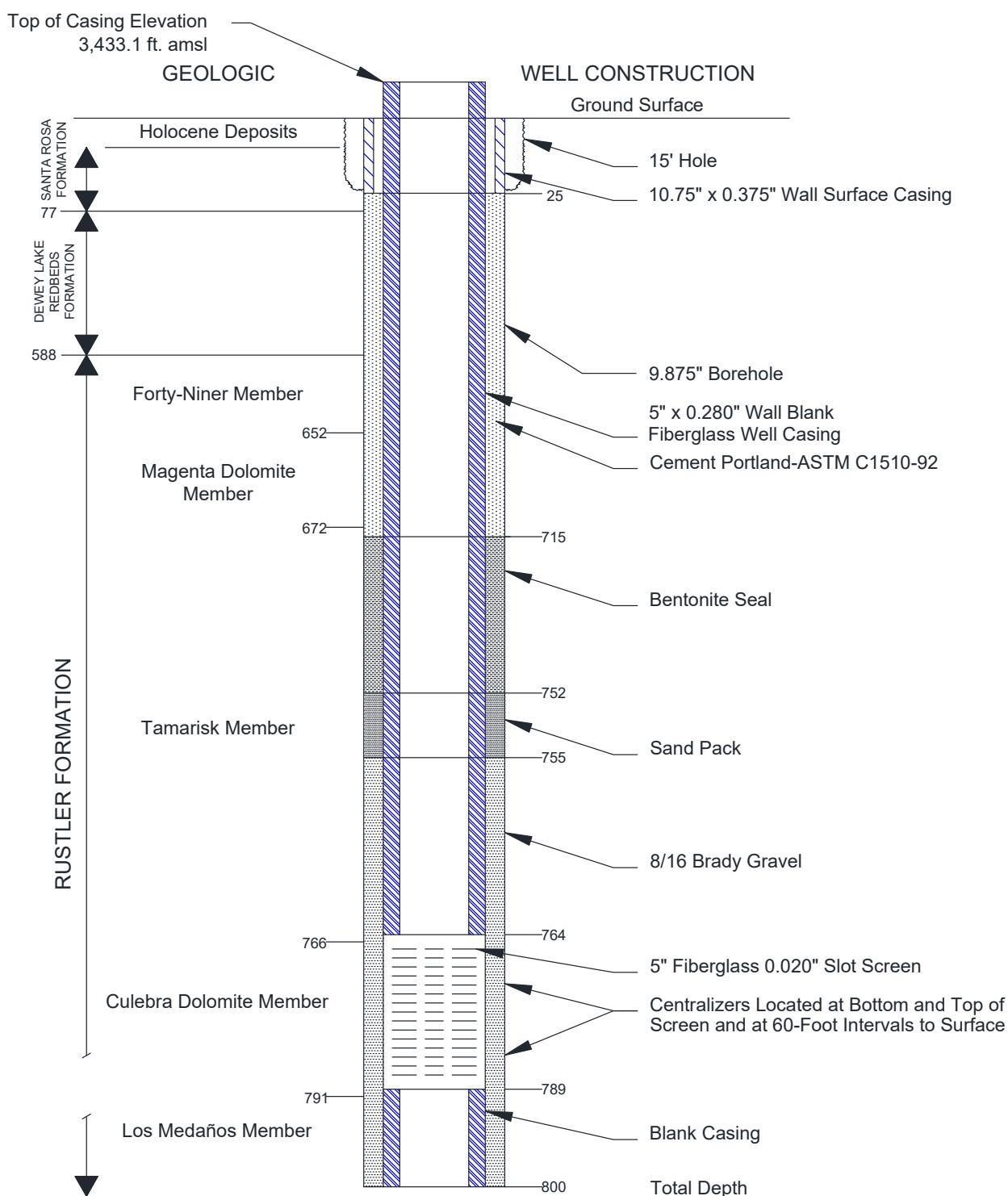


*Note: Depths in feet bgs approximate.*

**Figure M-73**  
**As-Built Configuration of Well WQSP-3**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

~~October 2023~~ June 2024

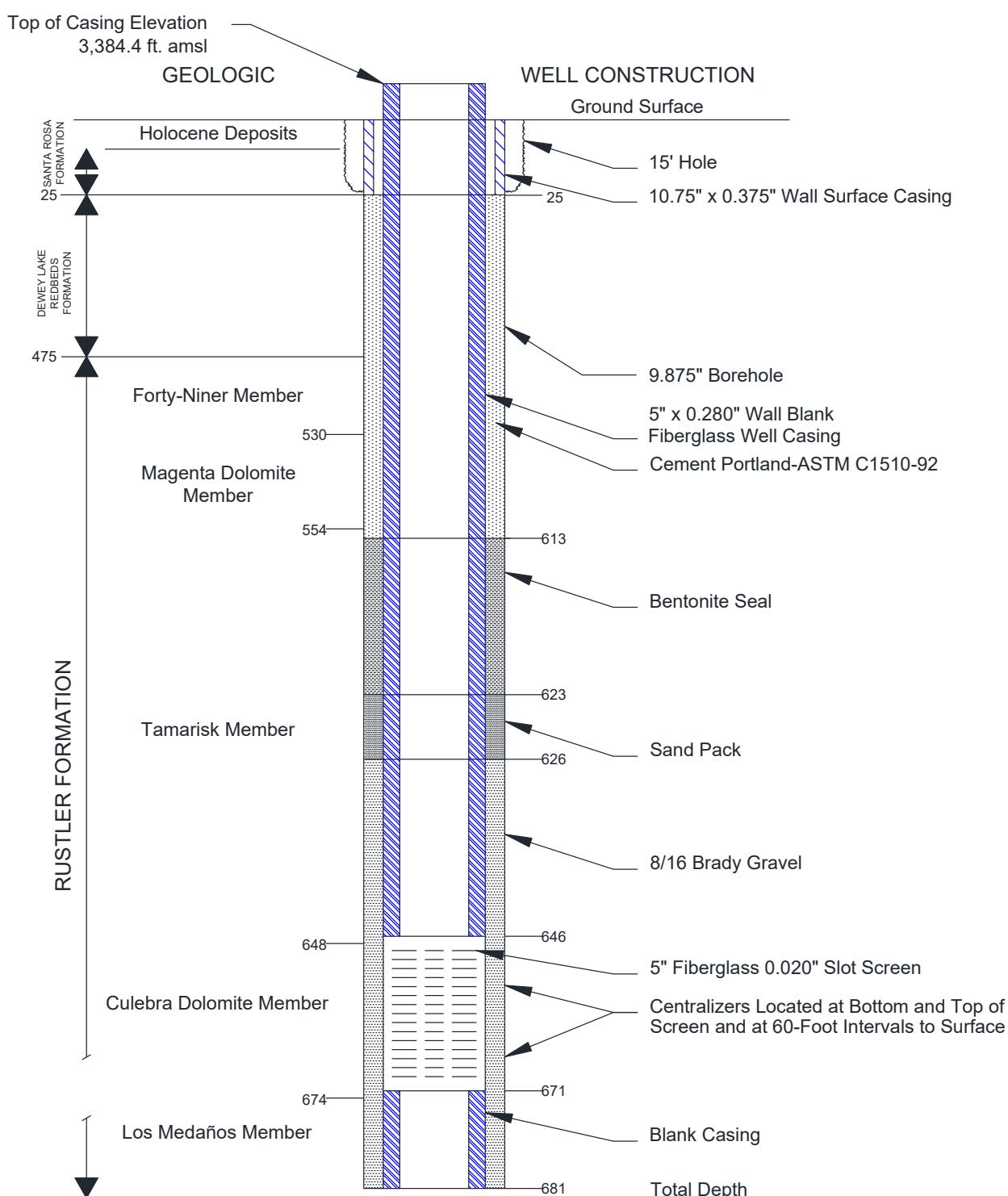


*Note: Depths in feet bgs approximate.*

**Figure M-74**  
**As-Built Configuration of Well WQSP-4**

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit  
Attachment M

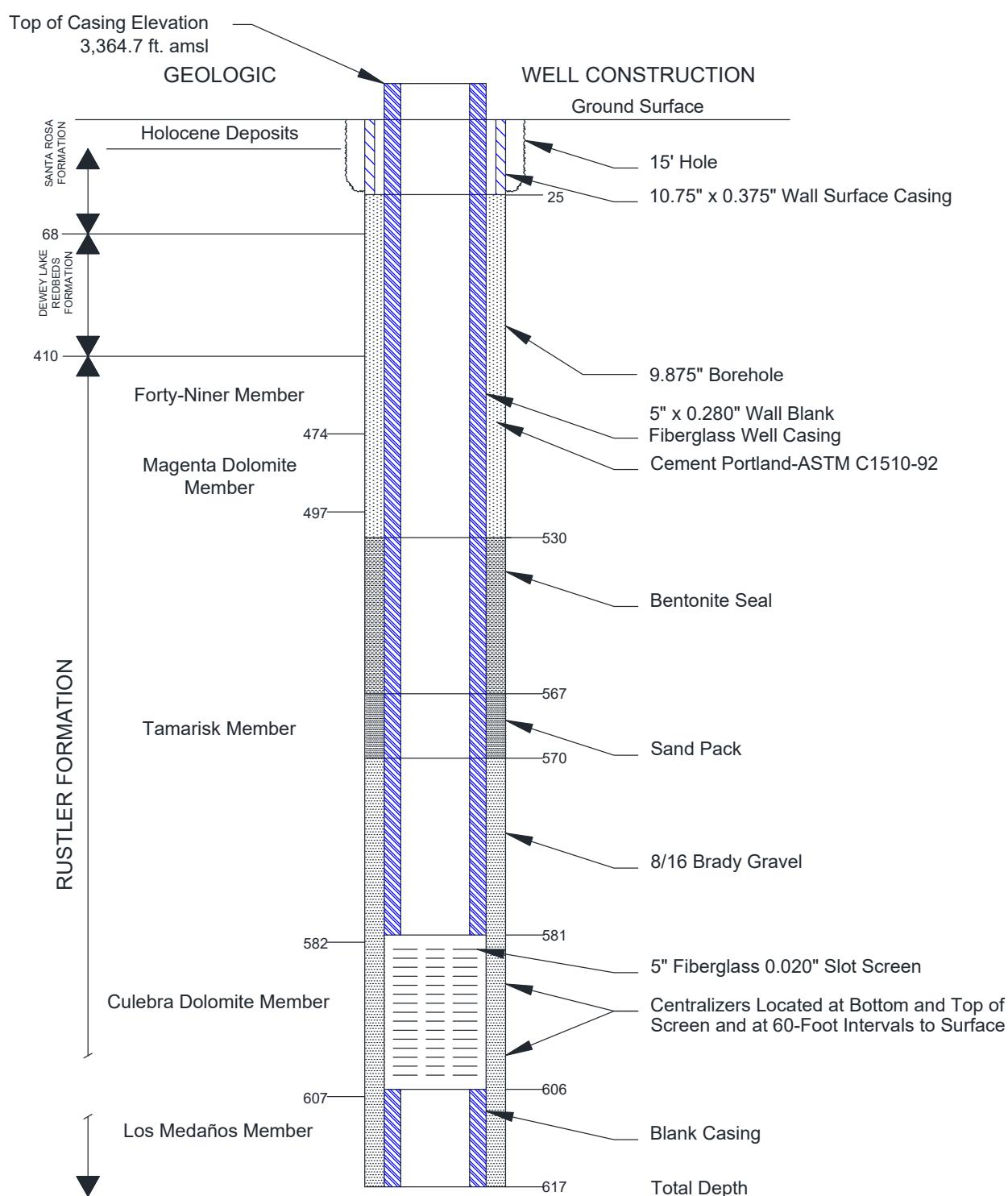
~~October 2023~~ June 2024



Note: Depths in feet bgs approximate.

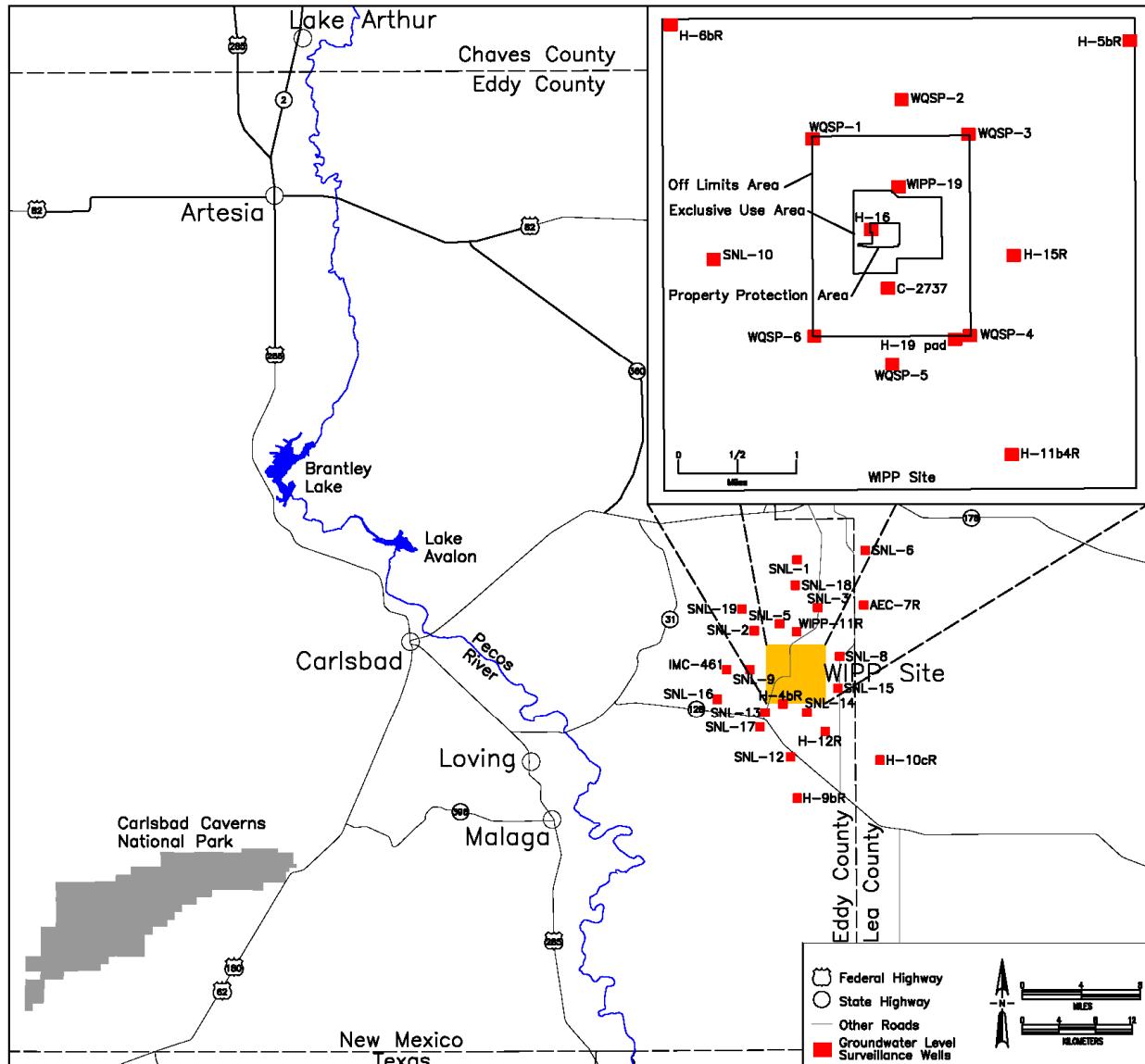
**Figure M-75**  
**As-Built Configuration of Well WQSP-5**

~~October 2023~~ June 2024



*Note: Depths in feet bgs approximate.*

**Figure M-76**  
**As-Built Configuration of Well WQSP-6**

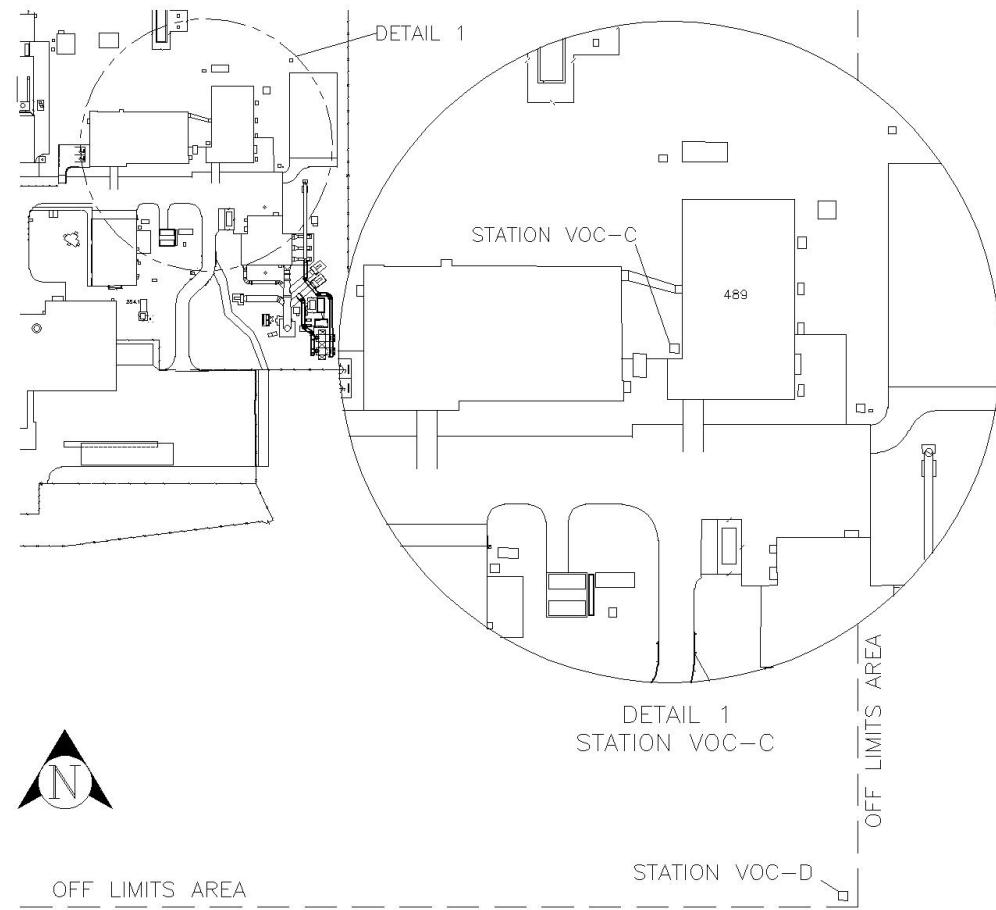


**Figure M-77**  
**Groundwater Level Surveillance Wells**  
 (inset represents the Groundwater Level Surveillance Wells within the WIPP Land Withdrawal Area)

Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit

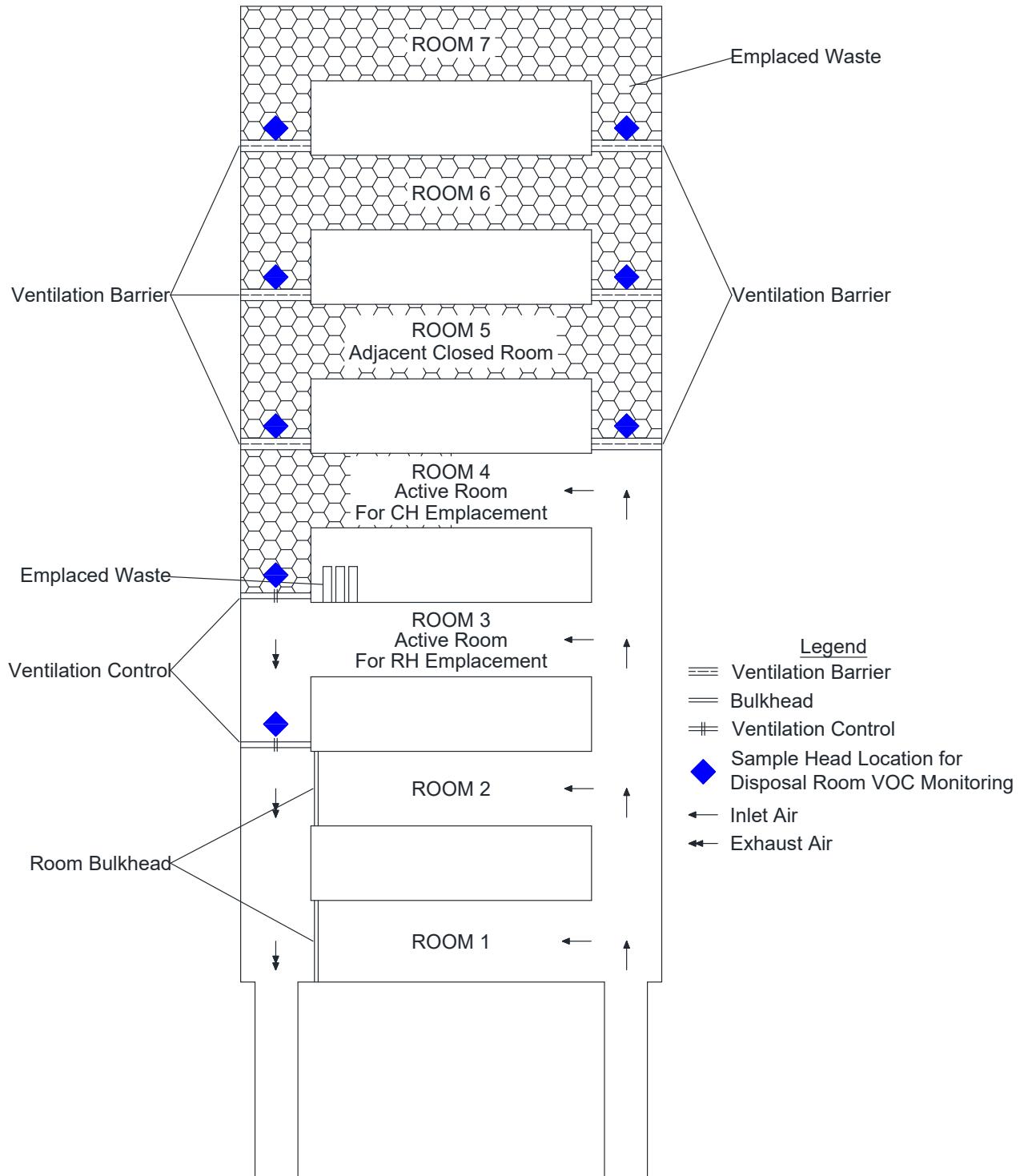
Attachment M

~~October 2023~~ June 2024

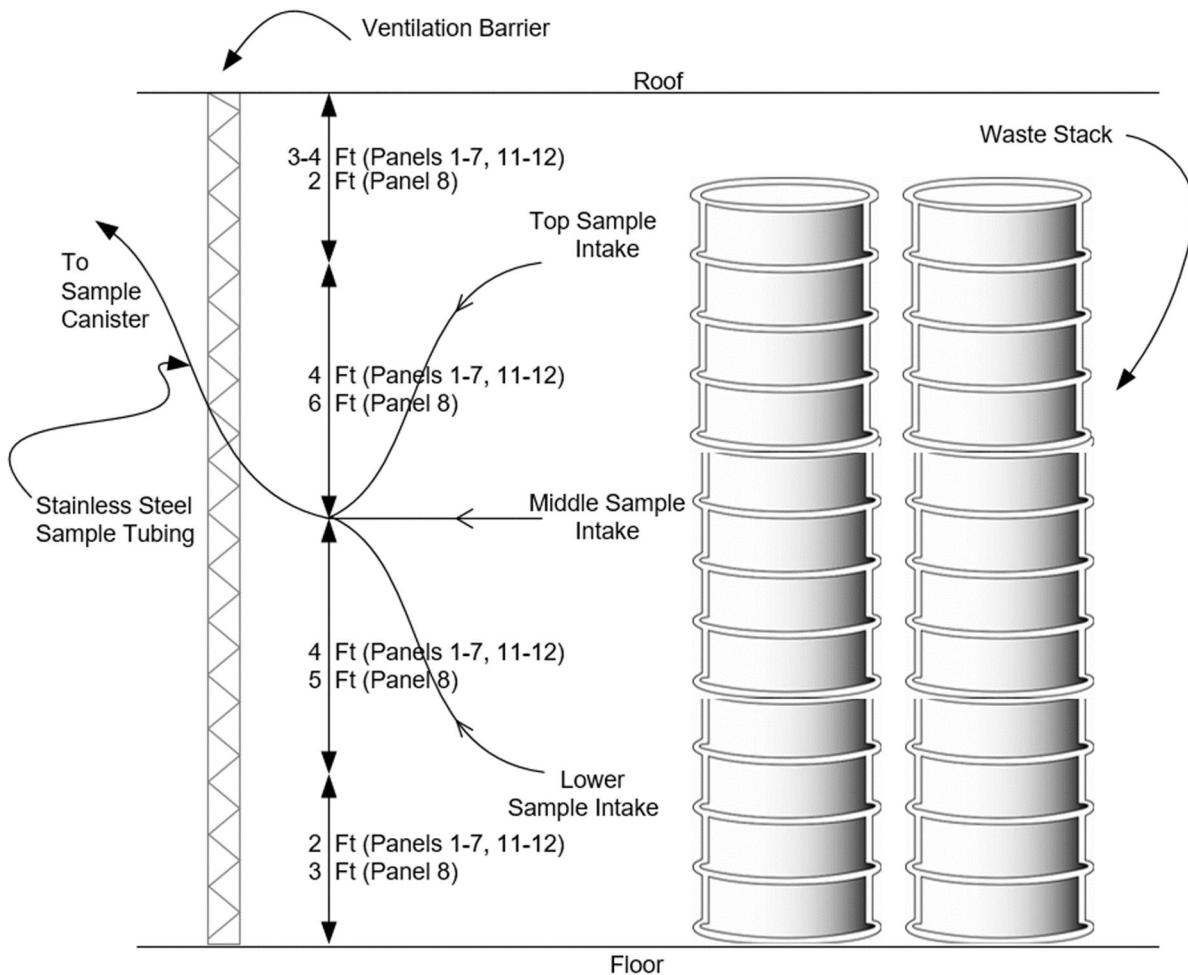


(see Figure D-1 for a detailed map and legend of the surface buildings)

**Figure M-78**  
**Repository VOC Monitoring Locations**



**Figure M-79**  
Typical Disposal Room VOC Monitoring Locations

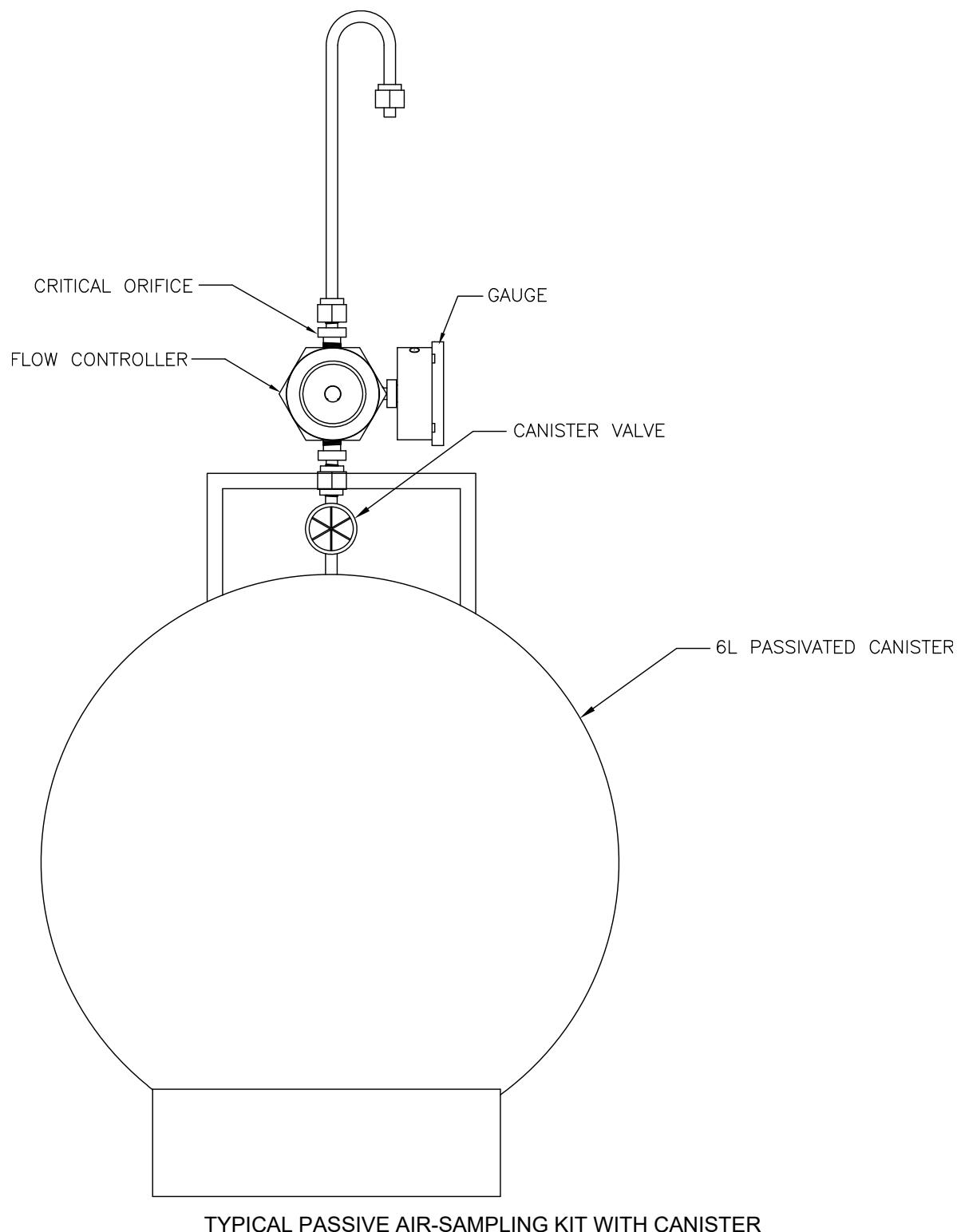


**Figure M-80**  
**Typical Disposal Room Sample Head Arrangement**

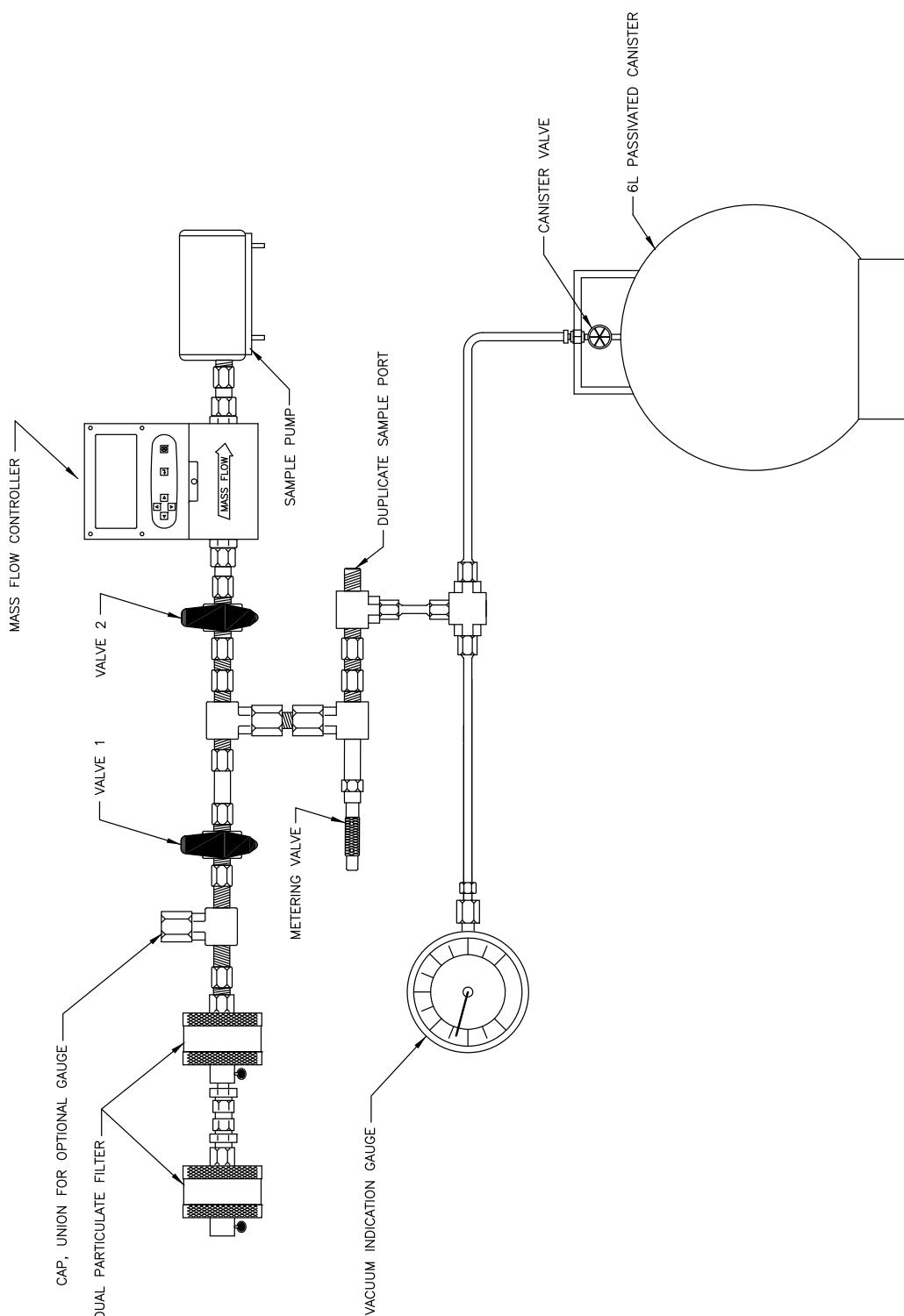
Waste Isolation Pilot Plant  
Hazardous Waste Facility Permit

Attachment M

~~October 2023~~ June 2024



**Figure M-81**  
**VOC Monitoring System Design**



TYPICAL SUBATMOSPHERIC SAMPLING ASSEMBLY WITH CANISTER

**Figure M-82**  
**VOC Monitoring System Design (continued)**