Class 1 Permit Notifications

Revise Module III, Table III.A.1
Revise Module IV, Table IV.A.1
Revise Module VII, Table 2A
Make Various Revisions to the Contingency Plan
Revise Reference in Attachment E
Delete Two Headspace Gas Analytes
Correct the Statistical Terminology
Add Self-Contained Self-Rescuers as Emergency Equipment
Correct Waste Hoist Conveyance Terminology
Editorial Changes

Waste Isolation Pilot Plant
Carlsbad, New Mexico

WIPP HWFP #NM4890139088-TSDF

September 2007

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Acronyms and Abbreviations

CBFO	Carlsbad Field Office
CFR	Code of Federal Regulations
DOE	Department of Energy
HWFP	Hazardous Waste Facility Permit
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
PMN	Permit Modification Notification
RCRA	Resource Conservation and Recovery Act
TSDF	Treatment, Storage and Disposal Facility
WIPP	Waste Isolation Pilot Plant
WTS	Washington TRU Solutions LLC

Overview of the Permit Modification Notification

This document contains several Class 1 Permit Modification Notifications (**PMN**) to the Hazardous Waste Facility Permit (**HWFP**) at the Waste Isolation Pilot Plant (**WIPP**), Permit Number NM4890139088-TSDF hereinafter referred to as the WIPP HWFP.

These PMNs are being submitted by the U.S. Department of Energy (**DOE**), Carlsbad Field Office (**CBFO**) and Washington TRU Solutions LLC (**WTS**), collectively referred to as the Permittees, in accordance with the WIPP HWFP, Condition I.B.1, (20.4.1.900 New Mexico Administrative Code) (**NMAC**) incorporating Title 40 of the Code of Federal Regulations (40 (**CFR**) §270.42(a)). The PMNs in this document include the following:

- revise Module III, Table III.A.1
- revise Module IV, Table IV.A.1
- revise Module VII, Table 2A
- revise tables and figures in the Contingency Plan
- revise references in Attachments E
- delete two headspace gas analytes
- correct the statistical terminology
- add self-contained self-rescuer as emergency equipment
- correct waste hoist conveyance terminology
- editorial changes

These changes do not reduce the ability of the Permittees to provide continued protection to human health and the environment.

The requested modifications to the WIPP HWFP and related supporting documents are provided in this PMN. The proposed modifications to the text of the WIPP HWFP have been identified using a double underline and revision bar in the right hand margin for added information, and a ~~strikeout~~ font for deleted information. All direct quotations are indicated by italicized text.

Attachment A

Description of the Class 1 Permit Modification Notifications

Table 1. Class 1 Hazardous Waste Facility Permit Modification Notification

No.	Affected Permit Section	Item	Category	Attachment A Page #
1	a. Module III	Revise Table III.A.1 to correct language	A.1	A-3
2	a. Module IV	Revise Table IV.A.1 to indicate final waste volume in Panel 3	A.1	A-5
3	a. Module VII	Revise Table 2A to add Panels 2, 3 and 4	A.1	A-7
4	a. Attachment F b. Attachment G c. Attachment O	Revise Table F-1, Table F-3, Figures F-1, F-1a, F-2, F-3, F-5, F-6, F-8, F-9, G-2, O3-1 and O3-2	A.1	A-8
5	a. Attachment E	Revise incorrect reference in Section E-2a	A.1	A-12
6	a. Attachment B	Delete two headspace gas analytes in Table B-1 for consistency	A.1	A-14
7	a. Attachments B2 and B3	Correct the statistical terminology and equations	A.1	A-17
8	a. Attachment F	Add additional emergency equipment	B.6.b	A-26
9	a. Attachments E, F, G, H1, I, M1, M2 and O	Correct waste hoist terminology	A.1	A-34
10	a. Module VII, Attachments B1, B3, B7, D, F, H1, I2, M1, M2 and O	Editorial changes	A.1	A-51

Item 1

Description:

This modification will remove text in the HWFP which was previously removed but inadvertently left in the HWFP. Typically, struck out text is used in a modification to depict changes that are proposed for removal and the text is eliminated when the change is approved.

Basis:

These changes are administrative and informational changes to the HWFP and therefore qualify as Class 1 notifications pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion:

Table III.A.1 contains text which should have been deleted when the October 2006 permit was issued. The changes are in the column entitled "Container Equivalent".

Revised Permit Text:

a.1. Module III, Table III.A.1

Table III.A.1 - WHB Unit			
Description	**Area**	**Maximum Capacity**	**Container Equivalent**
CH Bay Storage Area	26,151 ft^2 (2,430 m^2)	4,800 ft^3 (135.9 m^3)	~~17~~ 13 loaded facility pallets and 4 CH Packages at the TRUDOCKS
CH Bay Surge Storage Area	included in CH Bay Storage Area	1,600 ft^3 (45.3 m^3)	5 loaded facility pallets
Derived Waste Storage Area	included in CH Bay Storage Area	66.3 ft^3 (1.88 m^3)	1 Standard Waste Box
Total for CH Waste	26,151 ft^2 (2,430 m^2)	**6,466.3 ft^3 183.1 m^3**	
RH Bay	12,552 ft^2 (1,166 m^2)	156 ft^3 (4.4 m^3)	2 loaded casks and 1 drum of derived waste

Table III.A.1 - WHB Unit			
Description	**Area**	**Maximum Capacity**	**Container Equivalent**
Cask Unloading Room	382 ft^2 (36 m^2)	74 ft^3 (2.1 m^3)	1 loaded cask
Hot Cell	1,841 ft^2 (171 m^2)	94.9 ft^3 (2.7 m^3)	~~10~~ 12 drums and 1 drum of derived waste
Transfer Cell	1,003 ft^2 (93 m^2)	31.4 ft^3 (0.89 m^3)	1 canister
Facility Cask Loading Room	1,625 ft^2 (151 m^2)	31.4 ft^3 (0.89 m^3)	1 canister
Total for RH Waste	**17,403 ft^2 (1,617 m^2)**	**387.7 ft^3 (11.0 m^3)**	
Facility Total	**43,554 ft^2 (4,047,m^2)**	**6,854 ft^3 (194.1 m^3)**	

Item 2

Description:

This modification will add the final waste volume to Panel 3 which is now filled.

Basis:

Theses changes are administrative and informational changes to the HWFP and therefore qualify as Class 1 notifications pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion:

Table IV.A.1 requires the final waste volume to be listed for all filled panels. Panel 3 is now full and that volume needs to be added to the HWFP.

Revised Permit Text:

a.1. Module IV, Table IV.A.1

Table IV.A.1 - Underground HWDUs

Description[1]	Waste Type	Maximum Capacity[2]	Container Equivalent	Final Waste Volume
Panel 1	CH TRU	636,000ft^3 (18,000 m^3)		371,000 ft^3 (10,500 m^3)
Panel 2	CH TRU	636,000 ft^3 (18,000 m^3)		634,500 ft^3 (17,998 m^3)
Panel 3	CH TRU	662,150 ft^3 (18,750 m^3)		569,164 ft^3 (17,092 m^3)
Panel 4	CH TRU	662,150 ft^3 (18,750 m^3)		
	RH TRU	22,950 12,570 ft^3 (356 m^3)	400 RH TRU Canisters	
Panel 5	CH TRU	662,150 ft^3 (18,750 m^3)		
	RH TRU	22,950 15,720 ft^3 (445 m^3)	500 RH TRU Canisters	

Table IV.A.1 - Underground HWDUs				
Description[1]	**Waste Type**	**Maximum Capacity[2]**	**Container Equivalent**	**Final Waste Volume**
Panel 6	CH TRU	662,150 ft^3 (18,750 m^3)		
	RH TRU	22,950 18,860 ft^3 (534 m^3)	600 RH TRU Canisters	
Panel 7	CH TRU	662,150 ft^3 (18,750 m^3)		
	RH TRU	22,950 ft^3 (650 m^3)	730 RH TRU Canisters	
Total	**CH TRU**	**4,582,750 ft^3 (129,750 m^3)**		
	RH TRU	**114,750 70,100 ft^3 (1,985 m^3)**	**2230 RH TRU Canisters**	

Item 3

Description:

This modification will add panels 2, 3 and 4 as solid waste management units which do not require a RCRA facility investigation.

Basis:

Theses changes are administrative and informational changes to the HWFP and therefore qualify as Class 1 notifications pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion:

The HWFP requires the Permittees to list each solid waste management unit, which does not require a RCRA facility investigation in Table 2a of Module VII. This modification will add Panels 2, 3 and 4 to that table.

Revised Permit Text:

a.1. Module VII, Table 2a

TABLE 2A
SWMUS NOT REQUIRING AN RFI

SWMU NUMBER	NAME
TRU Mixed Waste Management Unit (3 SWMUs)	
SWMU 013a	Waste Handling Building Unit
SWMU 013b	Parking Area Unit
SWMU 013c	Underground HWDU - Panel 1
SWMU 013d	Underground HWDU - Panel 2
SWMU 013e	Underground HWDU - Panel 3
SWMU 013f	Underground HWDU - Panel 4

Item 4

Description:

This modification will allow several changes to the WIPP Contingency Plan and other sections of the HWFP. These changes occur in Tables F-1 and F-3 and in Figures F-1, F-1a, F-2, F-3, F-5, F-6, F-8, F-9, G-2, O3-1 and O3-2.

Basis:

Theses changes are administrative and informational changes to the HWFP and therefore qualify as Class 1 notifications pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion:

The Permittees have noted some items within the HWFP which require update or correction.

These changes include the following:

1. Table F-1 lists the location of the diesel fuel oil storage in the WIPP underground as being at the S-1300 Maintenance Shop. The location is now referred to as the Oil Depot.

2. Figure F-5 shows the location of emergency response equipment in the WIPP underground. Shown on the figure are the locations of emergency eye wash stations. The eye wash locations change periodically as a result of changes in mining and waste emplacement activities. The WIPP safety group is required to have emergency eye wash stations in locations where hazards exist. The eyewash station near E-300 and S-700 was moved and the new location is shown in the revised figure.

3. Figure F-9 indicates the underground assembly areas. The HWFP shows an assembly area near E-140 and S-3080. This area is moved to E-140 between S-2180 and S-1950.

4. Table F-3 references Table G-1. This reference should be changed to Table F-1.

5. Figures F-1, F-6, F-8 and G-2 indicate the location of above-ground facilities. These figures require revision for accuracy.

6. Figures F-2, F-3, F-9, O3-1 and O3-2 have the legends revised from “Hazardous Waste Management Units” to “Hazardous Waste Disposal Units”.

7. Figure F-5 has been revised to delete the word “Storage” from the legend “Waste Storage Panel”.

8. Figure F-5 has been revised to remove primary and secondary escape routes in Panels 1 and 2 and insert them in Panels 4 and 5.

Revised Permit Text:

a.1. Attachment F, Table F-1

Chemical Description	Building Location	Hazard Category
Ethylene Glycol Solution - 35%	Buildings 411; 412; 451; 452; 486; 463; 474C; FAC 414	Immediate (acute) Delayed (chronic)
Gasoline, Unleaded GASC0001	FAC 480	Fire Immediate (acute) Delayed (chronic)
No. 1 Diesel Fuel Oil GASC0210	~~S-1300 Maint Shop~~ Oil Depot U/G; FACs 480, 255.1 & 255.2; Transport Tank; Building 456 Trailer 911F	Fire Immediate (acute) Delayed (chronic)
One Standard Waste Box or two or more 55 gallon drums of CH TRU Waste	WHB Waste Shaft U/G	Delayed (chronic)
Hazardous materials in quantities that exceed 5 times the Reportable Quantity (Per DOE O 151.1) values as defined in 40 CFR 302	It should be noted that WIPP is not expected to possess such quantities.	Fire Immediate (acute) Delayed (chronic)

b.1. Attachment F, Figures F-1, F-1a, F-2, F-3, F-5, F-6, F-8, F-9, G-2, O3-1 and O3-2

Revised Figures are included in Attachment B

C.1 Attachment F, Table F-3

INCIDENT CONDITION	INCIDENT LEVEL		
	I	II *	III *
Product identifications	Placard not required, NFPA 0 or 1 all categories, all Other Regulated Materials A, B, C, and D.	DOT placarded, NFPA 2 for any categories, PCBs without fire, EPA regulated waste. SITE SPECIFIC: Table F-1 ~~G-1~~ and TRU mixed waste AND	Poison A (gas), explosive A/B, organic peroxide, flammable, solid, materials dangerous when wet, chlorine, fluorine, anhydrous ammonia, radioactive materials, NFPA 3 and 4 for any categories including special hazards, PCBs and fire including special hazards, PCBs and fire DOT inhalation hazard, EPA extremely hazardous substances, and cryogenics.
Container size	Container size does not impact this incident level.	Involves multiple packages.	Tank truck.
Fire/explosion potential	Under control.	May spread/may be explosive.	May spread/may be explosive.
Leak severity	No release or small release contained or confined with readily available resources.	Release may not be controllable without special resources.	Release may not be controllable even with special resources.
Life safety	No life-threatening situation from materials involved.	Localized area, limited evacuation area.	Localized area, limited evacuation area.
Environmental impact (Potential)	None.	Limited to incident boundaries	Contained within the Hazardous waste Management Units.
Container integrity	Not damaged.	Damaged but able to contain the contents to allow handling or transfer of product.	Damaged to such an extent that catastrophic rupture is possible.

Item 5

Description:

This modification will revise a reference to a figure which was incorrectly identified in Attachment E.

Basis:

This change is an administrative and informational change to the HWFP and therefore qualify as a Class 1 notification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion:

Attachment E, Section E-2a, paragraph 10, references the underground transporter as Figure M2-7. The correct reference should be Figure M2-6.

Revised Permit Text:

a.1. Attachment E, Section E-2a

Once underground, the facility pallet is removed from the hoist cage by the underground waste transporter (see Figure ~~M2-7~~ M2-6 in Permit Attachment M2), a commercially available articulated diesel vehicle. The trailer is designed specifically for transporting palletized TRU mixed waste and is sized to accommodate the facility pallet. All motorized waste handling equipment is equipped with on-board fire-suppression systems.

Item 6

Description:

This modification will revise Table B-1 to remove two headspace gas sampling analytes which were inadvertently left in this table.

Basis:

This change is an administrative and informational change to the HWFP and therefore qualify as a Class 1 notification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion:

Table B-1 still shows that hydrazine and formaldehyde are required analytes when performing headspace gas sampling and analysis. These analytes are only required for homogeneous solids and soil/gravel. Headspace gas sampling and analysis is no longer required for homogeneous solids or soil/gravel. All other references to these analytes had been removed when the HWFP was reissued in October 2006.

This modification corrects that noted discrepancy.

Revised Permit Text:

a.1. Attachment B, Table B-1

TABLE B-1
SUMMARY OF HAZARDOUS WASTE CHARACTERIZATION REQUIREMENTS
FOR TRANSURANIC MIXED WASTE [a]

Parameter	Techniques and Procedure
Physical Waste Form Summary Category Names S3000 Homogeneous Solid S4000 Soil/Gravel S5000 Debris Wastes	**Waste Inspection Procedures** Radiography Visual Examination (Permit Attachment B1-3)

TABLE B-1
SUMMARY OF HAZARDOUS WASTE CHARACTERIZATION REQUIREMENTS FOR TRANSURANIC MIXED WASTE [a]

Parameter	Techniques and Procedure
Headspace Gases **Volatile Organic Compounds** Benzene Bromoform Carbon tetrachloride Chlorobenzene Chloroform 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethylene (cis)-1,2-Dichloroethylene (trans)-1,2-Dichloroethylene Ethyl benzene Ethyl ether ~~Formaldehyde~~[b] ~~Hydrazine~~[c] Methylene chloride 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene 1,1,1-Trichloroethane Trichloroethylene 1,1,2-Trichloro-1,2,2-trifluoroethane Xylenes Alcohols and Ketones Acetone Butanol Methanol Methyl ethyl ketone Methyl isobutyl ketone	**Gas Analysis** [f] Gas Chromatography /Mass Spectroscopy (GC/MS), EPA TO-14 or modified SW-846 8240/8260 (Permit Attachment B3) GC/Flame Ionization Detector (FID), for alcohols and ketones, SW-846 8015 (Permit Attachment B3) Fourier Transform Infrared Spectroscopy (FTIRS), SW-846
Total Volatile Organic Compounds Acetone Benzene Bromoform Butanol Carbon disulfide Carbon tetrachloride Chlorobenzene Chloroform 1,4-Dichlorobenzene[d] 1,2-Dichlorobenzene[d] 1,2-Dichloroethane 1,1-Dichloroethylene Ethyl benzene Ethyl ether Formaldehyde[b] Hydrazine[c] Isobutanol Methanol Methyl ethyl ketone Methylene chloride Pyridine[d] 1,1,2,2-Tetrachloroethane Tetrachloroethylene Toluene 1,1,2-Trichloro-1,2,2-trifluoroethane Trichlorofluoromethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethylene Vinyl chloride Xylenes (trans)-1,2-Dichloroethylene	**Total Volatile Organic Compound Analysis** [g] TCLP, SW-846 1311 GC/MS, SW-846 8260 or 8240 GC/FID, SW-846 8015 (Permit Attachment B3) Acceptable Knowledge for Summary Category S5000 (Debris Wastes)

TABLE B-1
SUMMARY OF HAZARDOUS WASTE CHARACTERIZATION REQUIREMENTS FOR TRANSURANIC MIXED WASTE [a]

Parameter	Techniques and Procedure
Total Semivolatile Organic Compounds Cresols 1,4-Dichlorobenzene[e] 1,2-Dichlorobenzene[e] 2,4-Dinitrophenol 2,4-Dinitrotoluene Hexachlorobenzene Hexachloroethane Nitrobenzene Pentachlorophenol Pyridine[e]	**Total Semivolatile Organic Compound Analysis** [g] TCLP, SW-846 1311 GC/MS, SW-846 8250 or 8270 (Permit Attachment B3) Acceptable Knowledge for Summary Category S5000 (Debris Wastes)
Total Metals Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Lead, Mercury, Nickel, Selenium, Silver, Thallium, Vanadium, Zinc	**Total Metals Analysis** [g] TCLP, SW-846 1311 ICP- MS, SW-846 6020 , ICP Emission Spectroscopy, SW-846 6010 Atomic Absorption Spectroscopy , SW-846 7000 (Permit Attachment B3) Acceptable Knowledge for Summary Category S5000 (Debris Wastes)

[a] Permit Attachment B
[b] Required only for homogeneous solids and soil/gravel waste from Savannah River Site to resolve the assignment of EPA hazardous waste numbers.
[c] Required only for homogeneous solids and soil/gravel waste from Oak Ridge National Laboratory and Savannah River Site to resolve the assignment of EPA hazardous waste numbers.
[d] Can also be analyzed as a semi-volatile organic compound.
[e] Can also be analyzed as a volatile organic compound.
[f] Required only to resolve the assignment of EPA hazardous waste numbers to debris waste streams.
[g] Required only to resolve the assignment of EPA hazardous waste numbers to homogeneous solid and soil/gravel waste streams.

Item 7

Description:

This modification will revise Attachments B2 and B3 to correct statistical terminology and equations for consistency and accuracy.

Basis:

This change is an administrative and informational change to the HWFP and therefore qualify as a Class 1 notification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion:

There are inconsistent and inaccurate uses of statistical terminology in Attachments B2 and B3 which should be corrected. For example, the equation for estimating the appropriate number of samples to be collected for each contaminant is shown in Section B2-1a. Table 9-2 of Test Methods for Evaluating Solid Waste (SW-846), indicates the symbol for the 90th percentile for a *t* distribution is indicated by the symbol "*t*". The HWFP indicates that the symbol is "t^2".

The Permittees also are requesting the flexibility to collect more than 5 samples for solids and 10 samples for headspace gas when determining the chemical content of the waste in order to ensure statistical accuracy.

Revised Permit Text:

Attachment B2

B2-1a Statistical Selection of Containers for Totals Analysis

The statistical approach for characterizing retrievably stored and newly generated homogeneous solids (S3000) and soil/gravel (S4000) waste and repackaged or treated S3000 waste relies on using acceptable knowledge to segregate waste containers into relatively homogeneous waste streams. Using acceptable knowledge, generator/storage sites will classify the entire waste stream as hazardous or nonhazardous rather than individual waste containers. Individual waste containers serve as convenient units for characterizing the combined mass of waste from the waste stream of interest. Once segregated by waste stream, random selection and sampling of the waste containers followed by analysis of the waste samples shall be performed to ensure that the resulting mean contaminant concentration provides an unbiased representation of the true mean contaminant concentration for each waste stream. The Permittees shall require each site project manager to verify that the samples collected from within a waste stream were selected randomly.

An end use of analytical results for retrievably stored homogeneous solids and soil/gravel is for assigning the Environmental Protection Agency (**EPA**) hazardous waste numbers associated with toxicity characteristic waste (D-numbers) that apply to each mixed waste stream. The toxicity characteristic D-numbers are indicators that the waste

exhibits the toxicity characteristic for specific contaminants under the Resource Conservation and Recovery Act (**RCRA**). The RCRA-toxicity determination is made on the basis of sampling and analysis of waste streams and on whether or not the waste stream includes F-number wastes. If a waste stream includes one or more RCRA F-numbers identified via acceptable knowledge, toxicity characteristic contaminants associated with the F-number waste(s) are not included in the RCRA-toxicity characteristic determination. That is, the F-numbers take precedence over RCRA-toxicity D-number, and the waste stream is assumed hazardous regardless of the concentration. Therefore, toxicity characteristics contaminants associated with F-numbers for a waste stream shall be omitted from all calculations for determining the number of containers to sample because these wastes streams are assumed to be hazardous. In addition, each toxicity characteristic contaminant associated with the F-number(s) shall be excluded from evaluation of analytical results to determine D-numbers. Contaminants of interest for the sampling, analysis, and RCRA-toxicity determination of a waste stream, then, excludes contaminants associated with F-numbers that have been assigned to the waste stream.

The sampling and analysis strategy is illustrated in Figure B2-1. Preliminary estimates of the mean concentration and variance of each RCRA regulated contaminant in the waste will be used to determine the number of waste containers to select for sampling and analysis. Preliminary estimates will be based on a minimum of five samples selected randomly from the waste stream. If the entire waste stream is not accessible for sampling, then a minimum of five preliminary samples will be selected randomly from the accessible population. As the rest of the waste stream is retrieved or generated, additional selected containers will be sampled as provided below and the analytical results will be reported to the Permittees. Samples collected to establish preliminary estimates that are selected, sampled, and analyzed using a Permittee approved laboratory in accordance with applicable provisions of the WAP may be used as part of the required number of samples to be collected. The applicability of the preliminary estimates to the waste stream to be sampled shall be justified and documented. The preliminary estimates will be determined in accordance with the following equations:

$$\bar{x} = \frac{1}{n}\sum_{i=1}^{n} x_i \qquad \text{(B2-1)}$$

$$s^2 = \frac{1}{n-1}\sum_{i=1}^{n}\left(x_i - \bar{x}\right)^2 \qquad \text{(B2-2)}$$

Where:

$\bar{x}$ = the calculated mean.
s^2 = the calculated concentration variance.
n = the number of samples analyzed.
x_i = the concentration determined in the *ith* sample.
i = an index from 1 to n.

Based upon the preliminary estimates of ~~x~~ $\bar{x}$ and s^2 for each chemical contaminant of concern, estimate the appropriate minimum number of samples (*n)* to be collected for each contaminant using the following formula~~s~~ from SW-846 (EPA 1996):

$$n = \frac{t^2_{\alpha,n_0-1}s^2}{\left(RT - \bar{x}\right)^2} \qquad \text{(B2-3)}$$

Where:

n_0 = the initial number of samples used to calculate the preliminary ~~sample~~ estimate~~s~~.
n = the calculated minimum number required of samples ~~in the preliminary estimate~~.
~~t^2~~ $t_{\alpha,n-1}$= the 90th percentile for ~~a~~ the t distribution with n_0-1 degrees of freedom.
RT = the Regulatory Threshold of the contaminant (TC limit for toxicity characteristic wastes, PRQL for listed wastes)

The number of samples to be collected will be based upon the largest n calculated for each of the contaminants of concern. The actual number of samples collected shall be adjusted as necessary to ensure that an adequate number of samples are collected to allow for acceptable levels of completeness.

~~All~~ Non-integer results of calculations for required sample size should be rounded up to the ~~nearest~~ next integer. A minimum of five containers shall be sampled and analyzed in each waste stream. If there are fewer containers than the minimum or required number of ~~containers~~ samples in a waste stream, one or more randomly selected containers shall be sampled more than once to obtain the number of needed samples of the waste. Otherwise any one container may be selected for sampling only once.

The calculated total number of required waste containers will then be randomly sampled and analyzed using a Permittee approved laboratory. Waste container samples from the preliminary mean and variance estimates may be counted as part of the total number of calculated required samples if and only if:

- There is documented evidence that the waste containers for the preliminary estimate samples were selected in the same random manner as is chosen for the required samples.
- There is documented evidence that the method of sample collection in the preliminary estimate samples were identical to the methodology to be employed for the required samples.
- There is documented evidence that the method of sample analysis in the preliminary estimate samples were identical to the analytical methodology employed for the required samples.
- There is documented evidence that the validation of the sample analyses in the preliminary estimate samples were comparable to the validation employed for the required samples. In addition, the validated samples results shall indicate that all sample results were valid according to the analytical methodology.

If only a portion of a waste stream is accessible for sampling (e.g., the remainder of the waste stream will be recovered from storage at the generator/storage site, or only a portion of the waste stream has been repackaged, treated, or generated), the calculated number of samples will be randomly selected from the accessible portion of the waste stream. A minimum of five randomly selected samples will be obtained and analyzed from the accessible portion of the waste stream. The Permittees may approve the WSPF and authorize the generator/storage site to begin shipping the waste stream to WIPP once the analytical data for the randomly selected samples from the accessible portion of the waste stream have been obtained.

The generator/storage site will also randomly select the calculated number of sample locations from the waste stream as a whole. A minimum of five randomly selected sample locations will be selected from the waste stream as a whole. As those randomly selected locations (e.g., buried or newly generated waste containers) become accessible for sampling, samples will be obtained and analyzed.

For those waste streams where the population of the waste stream as a whole is indeterminate (e.g., continually generated waste streams from ongoing processes) or to facilitate waste processing, the generator/storage site may divide the waste stream into lots. In this case, a minimum of five randomly selected sample locations will be selected from within each subsequent lot. As those randomly selected locations (e.g., buried or newly generated waste containers) become accessible, samples will be obtained and analyzed. As with sampling from the waste stream as a whole, the generator/storage site may ship waste from the lot being generated or retrieved prior to completing sampling and analysis of the lot.

The generator/storage site will use the data to update the UCL_{90} values for the waste stream as described in Section B2-2a and assign EPA hazardous waste numbers as appropriate. The generator/storage sites will submit the analytical data from subsequent sampling to the Permittees for inclusion in the WIPP facility operating record upon completion of project level data validation in Permit Attachment B3, Section B3-10b. If changes to EPA hazardous waste numbers are required as a result of subsequent sampling, the generator/storage site will notify the Permittees and shipments of the affected waste stream shall be suspended until the Permittees approve a revised WSPF for the affected waste stream.

Upon collection and analysis of the preliminary samples, or at any time after the preliminary samples have been analyzed, the generator/storage site may presumptively assign hazardous waste numbers to a waste stream even if the calculated number of required samples is greater than the preliminary number of samples collected. For waste streams with calculated upper confidence limits below the regulatory threshold, the site shall collect the required number of samples if the site intends to establish that the constituent is below the regulatory threshold.

B2-1b Statistical Selection of Containers for Headspace Gas Analysis

Headspace gas sampling of a waste stream may be done on a randomly selected portion of containers in the waste stream. The minimum number of containers, *n*, that must be sampled is determined by taking an initial VOC sample from ten randomly selected containers. These samples are analyzed for all the target analytes analytes using a Permittee approved laboratory. The standard deviation, *s,* is calculated for each of the nine VOCs in Module IV, Table IV.D.1. The value of *n* is determined as the

largest number of samples (not to exceed the number of containers in the waste stream or waste stream lot) calculated using the following equation:

$$n_{voc_i} = \frac{t^2_{0.9,n-1} s^2_{e_{voc_i}}}{E^2_{voc_i}}$$ (Delete this equation and insert as indicated below)

$$n_{voc_i} = \frac{t^2_{\alpha,n-1} s^2_{e_{voc_i}}}{E^2_{voc_i}}$$ (B2-4)

Where:

n_{voc_i} = the number of samples needed to representatively sample the waste stream for the voc_i from Table IV.D.1

$t_{\alpha,n-1}$ = the 90th percentile of the *t* distribution with *n-1* degrees of freedom

$s_{e_{voc_i}}$ = the estimated standard deviation, based on the initial ~~ten~~ *n* samples, for VOC_i from Table IV.D.1

E_{voc_i} = the allowable error determined as 1 percent of the limiting concentration for VOC_i from Table IV.D.1

~~All~~ Non-integer results of calculations for the required sample size should be rounded up to the next integer. A minimum of ten containers shall be sampled and analyzed in each waste stream. If there are fewer than the minimum or required number of containers in a waste stream, then each container should be sampled once.
The calculated total number of required waste containers will then be randomly sampled and analyzed. Waste container samples from the preliminary mean and variance estimates may be counted as part of the total number of calculated required samples if and only if:

- There is documented evidence that the waste containers for the preliminary estimate samples were selected in the same random manner as is chosen for the required samples.
- There is documented evidence that the method of sample collection in the preliminary estimate samples were identical to the methodology to be employed for the required samples.
- There is documented evidence that the method of sample analysis in the preliminary estimate samples were identical to the analytical methodology employed for the required samples.

- There is documented evidence that the validation of the sample analyses in the preliminary estimate samples were comparable to the validation employed for the required samples. In addition, the validated samples results shall indicate that all sample results were valid according to the analytical methodology.

The mean and standard deviation calculated after sampling *n* containers can be used to calculate a UCL_{90} for each of the headspace gas VOCs using the methodology presented in Section B2-2b.

If only a portion of a waste stream is accessible for sampling (e.g., the remainder of the waste stream will be recovered from storage at the generator/storage site or only a portion of the waste stream has been repackaged or treated), the calculated number of samples will be randomly selected from the accessible portion of the waste stream. A minimum of ten randomly selected samples will be obtained and analyzed from the accessible portion of the waste stream. The Permittees may approve the WSPF and authorize the generator/storage site to begin shipping the waste stream to WIPP once the analytical data for the randomly selected samples from the accessible portion of the waste stream has been obtained.

The generator/storage site will also randomly select the calculated number of sample locations from the waste stream as a whole. A minimum of ten randomly selected sample locations will be selected from the waste stream as a whole. As those randomly selected locations (e.g., buried or newly generated waste containers) become accessible for sampling, samples will be obtained and analyzed.

For those waste streams where the population of the waste stream as a whole is indeterminate (e.g., continually generated waste streams from ongoing processes) or to facilitate waste processing, the generator/storage site may divide the waste stream into lots. In this case, a minimum of ten randomly selected containers will be selected from within each subsequent lot. As those randomly selected containers (e.g., buried or newly generated waste containers) become accessible, samples will be obtained and analyzed. As with sampling from the waste stream as a whole, the generator/storage site may ship waste from the lot being generated or retrieved prior to completing sampling and analysis of the lot.

The generator/storage site will use the data to update the UCL_{90} values for the waste stream as described in Section B2-2b and assign EPA hazardous waste numbers as appropriate. The generator/storage sites will submit the analytical data from subsequent sampling to the Permittees for inclusion in the WIPP facility operating record upon completion of project level data validation in Permit Attachment B3, Section B3-10b. If changes to EPA hazardous waste numbers are required as a result of subsequent sampling, the generator/storage site will notify the Permittees, and shipments of the affected waste stream shall be suspended until the Permittees approve a revised WSPF for the affected waste stream.

Upon collection and analysis of the preliminary samples, or at any time after the preliminary samples have been analyzed, the generator/storage site may presumptively assign hazardous waste numbers to a waste stream even if the calculated number of required samples is greater than the preliminary number of samples collected. For waste streams with calculated upper confidence limits below the regulatory threshold, the site shall collect the required number of samples if the site intends to establish that the constituent is below the regulatory threshold.

B2-2 Upper Confidence Limits for Statistical Sampling

B2-2a Upper Confidence Limit for Statistical Solid Sampling

Upon completion of the required sampling, final mean and variance estimates and the UCL_{90} for the mean concentration for each contaminant shall be determined. The observed sample *n** shall be checked against the preliminary estimate for the number of samples (n) to be collected before proceeding, where n* is:

$$n^* = \frac{t^2_{\alpha,n-1} s^2}{(RT - \bar{x})^2} \qquad \text{(B2-5)}$$

and the right-side terms in the equation are as defined in Section B2-1a.

If the observed sample *n** estimate results in greater than 20 percent or more required samples than were originally calculated, then the additional samples required to fulfill the revised sample estimate shall be collected and analyzed. The determination of *n** is an iterative process that follows the collection and analysis of any additional samples and continues until the difference between *n** and the previous sample size determination is less than 20 percent.

Once sufficient sampling and analysis has occurred, the waste characterization will proceed. The assessment will be made ~~with~~ at the 90 percent confidence level. The UCL_{90} for the mean concentration of each contaminant will be calculated ~~in accordance with~~ using the following equation from OSWER 9285.6-10 (EPA 2002):

$$UCL_{90} = \bar{x} + \frac{t_{\alpha,n-1} s}{\sqrt{n}} \qquad \text{(B2-6)}$$

~~When composite headspace gas sample results are used, the mean, standard deviation and t-statistic are based on the number of composite samples analyzed, rather than the number of drums sampled.~~ If the UCL_{90} for the mean concentration is less than the regulatory threshold limit, the waste stream ~~will not~~ is not required to be assigned the hazardous waste number for ~~this~~ the associated contaminant. If the UCL_{90} is greater than or equal to the regulatory threshold limit, the waste stream will be assigned the hazardous waste number for ~~this~~ the associated contaminant.

B2-2b Upper Confidence Limit for Statistical Headspace Gas Sampling

A UCL_{90} concentration for each of the headspace gas VOCs must be calculated from the sample data collected. The observed sample *n** shall be checked against the estimate for the number of samples (n) to be collected before proceeding, where n* is:

(B2-7)

$$n^* = \frac{t^2_{\alpha,n-1} s^2}{E^2}$$

where *E* is as defined in Section B2-1b and the remaining right-side terms in the equation are defined in Section B2-1a. When composite headspace gas sample results are used, the mean, standard deviation and t-statistic are based on the number of composite samples analyzed, rather than the number of drums sampled.

If the observed sample n^* estimate results in greater than 20 percent or more required samples than were originally calculated, then the additional samples required to fulfill the revised sample estimate shall be collected and analyzed. The determination of n^* is an iterative process that follows the collection and analysis of any additional samples and continues until the difference between n^* and the previous sample size determination is less than 20 percent. ~~Then, the~~ The UCL_{90} is then calculated using equation B2-6. In this case, UCL_{90} is the 90 percent upper confidence limit for the mean VOC concentration, $\bar{x}$ is the calculated sample mean VOC concentration and s is the calculated sample standard deviation. The value of $t_{(\alpha,n-1)}$ is ~~taken from~~ found in Table 9-2 of Chapter 9 of SW-846.

References

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U.S. EPA, 1996. *Test Methods for Evaluating Solid Waste*. SW-846, Office of Solid Waste and Emergency Response, Washington DC.

U.S. EPA, 2002. *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*. OSWER 9285.6-10, Office of Emergency and Remedial Response, Washington, DC.

Figure B2-1
A revised Figure B2-1 is included in Attachment B of this modification

Attachment B3, Section B3-1

Method Detection Limit

The method detection limit (**MDL**) is the minimum concentration of an analyte that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. The MDL for all quantitative measurements (except for those using Fourier Transform Infrared Spectroscopy [**FTIRS**]) is defined as follows:

$$MDL = t_{(n-1,1-\alpha=.99)} \times s \qquad \text{(B3-7)}$$

where ~~T~~ $t_{(n-1,1-\alpha=.99)}$ is the t-distribution value ~~appropriate~~ corresponding to a 99 percent confidence level ~~and a standard deviation estimate~~ with n-1 degrees of freedom, n is the number of observations, and s is the standard deviation of replicate measurements.

For headspace-gas analysis using FTIRS, MDL is defined as follows:

$$MDL = 3s \qquad \text{(B3-8)}$$

where s is the standard deviation. Initially, a minimum of seven samples spiked at a level of three to five times the estimated MDL and analyzed on non-consecutive days must be used to establish the MDLs. MDLs should be updated using the results of the laboratory control sample or on-line control samples.

Item 8

Description: This modification adds self-contained self-rescuers to the list of emergency equipment maintained in the WIPP repository.

Basis: This change is an upgrade to emergency equipment in the HWFP and therefore qualifies as a Class 1 notification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, B.6.b).

Discussion: Caches of self-contained self-rescuers (SCSR) will be available to all personnel in the underground. These SCSRs will provide protection to personnel for up to 60 minutes. This modification will add SCSRs to the list of emergency equipment at the WIPP facility.

Revised Permit Text:

Attachment F

TABLE F-6
EMERGENCY EQUIPMENT MAINTAINED
AT THE WASTE ISOLATION PILOT PLANT

Equipment	Description and Capabilities	Location
Communications		
Building Fire Alarms	Manual pull stations and automatic devices (sprinkler system flow, and smoke and thermal detectors) trigger fire alarm; locally visible and audible; visual display and alarm in Central Monitoring Room (CMR)	Guard and Security Building, Pumphouse, Warehouse/Shops, Exhaust Filter Building, Support Building, CMR/ Computer Room, Waste Handling Building, TRUPACT Maintenance Facility, SH Hoisthouse, Maintenance Shops, Guard Shack*, Auxiliary Warehouse, Core Storage Building, Engineering Building, Training Facility, Safety Building, Maintenance Shop, Hazardous Waste Storage (non-TRU) Area (Facility 474) *local alarms; not connected to the CMR
Underground Fire Alarms	Automatic/Manual; have priority over other paging channel signals but not override intercom channels; alarms sound in the general area of the control panel and are connected to the underground evacuation alarms; they also interface with the CMR.	Fire detection and control panel locations: Waste Shaft Underground Station, SH Shaft Underground Station, Between E-140 and E-300 in S-2180 Drift, E-O/N-1200, Fuel Station
Site-wide Evacuation Alarm	Transmitted over paging channel of the public address system, overriding its normal use; manually initiated according to procedures requiring evacuation; audible alarm produced by tone generator at 10 decibels above ambient noise level (or at least 75 decibels); flashing strobe lights; radios and/or pagers are used to notify facility personnel outside alarm range. Monthly test are performed on the PA, site notification alarms, and plectrons.	Site-wide

Equipment	Description and Capabilities	Location
Vehicle Siren	Manual; oscillating; emergency services/surface response vehicles, is mechanical and electronic.	WIPP surface emergency vehicles
Public Address System	Includes intercom phones; handset stations and loudspeaker assemblies, each with own amplifiers; multichannel, one for public address and pages, and others for independent party lines.	Surface and underground
Intraplant Phones	Private automatic branch exchange; direct dial; provide communication link between surface and underground operations	Throughout surface and underground
Mine Page Phones	Battery-operated paging system	CMR, Mine Rescue Room, EOC, lamproom, underground at S550/W30, S100/W30, S1950/E140, SH Shaft Collar and Underground Station, Waste Shaft Collar and Underground Station, FSM desk.
Emergency Pagers	Manual; , intermittent alarm signals	Issued to appropriate emergency personnel
Plectrons	Tone-alert radio receivers placed in areas not accessible by the public address system	Site-wide
Portable Radios	Two-way, portable; transmits and monitors information to/from other transmitters	Issued to individuals
Plant Base Radios	Two-way, stationary, VHF-FM; linked to Eddy County Sheriff Department, NM State Police, and Otis Fire Department), and WIPP Channels 1-18 (Communication with the Lea County Sheriff's Department, the Hobbs Fire Department, Carlsbad Medical Center and Lea Regional Hospital is available via the Eddy County dispatcher) (Site Security, Site Operations and Site Emergency, maintenance, repeater to Carlsbad). Wireless communications such as cellular phones may be used to contact the Eddy County emergency responders.	Various site locations
Mobile Phones	Provide communications link between WIPP Security and key personnel	Issued to individuals plus emergency vehicles,
Spill Response		
SPILL-X-S Guns and Recharge Powder	Containment; (1)SPILL-X model SC-30-C(Gun) (1)SPILL-X model XC-30-S(Gun) (1)SPILL-X model SC-30-A(Gun); (1) A-Acid, 5 gallon bucket (Recharge Powder) (1)S-Solvent, 5 gallon bucket (Recharge Powder) (1)C-Caustic, 5 gallon bucket (Recharge Powder)	HAZMAT trailer
Absorbent Sheets	Containment or cleanup; (1) 3' x 100' Sheet	HAZMAT trailer
Absorbents	Grab and Go container; spill control bucket; (1) for solvents and neutralizing absorbents; 5 gallon bucket (1) for acids/caustics; 5 gallon bucket	HAZMAT trailer
Absorbent Material	Containment or cleanup; (1) 100 ft. rolled or equivalent socks " Pig" for general liquid (1) 100 ft. rolled or equivalent socks " Pig" for oil	HAZMAT trailer

Equipment	Description and Capabilities	Location
Air Bag System	Extrication, Stabilization, Cribbing (1) bag system with tank kit and the following bag sizes: (1)12-ton, (1) 21.8-ton, (1)17-ton	Surface rescue truck
Air Chisel	Extrication (1) Capable of cutting 3/16" steel	Surface rescue truck
Drum Transfer Pumps and Drum Opener	Containment or cleanup; (1) unit for chemical transfer (1) hand operated pump for petroleum transfer (1) drum opener	HAZMAT trailer
Floor Squeegee	Containment or cleanup; (1) straight rubber blade, nonwood handle	HAZMAT trailer
Foam Concentrate	AFFF 6% (4) 5-gallon pail	Fire truck # 1
Gas Cylinder Leak Control Kit	(1)Series A Hazardous Material Response Kit; contains nonsparking equipment to control and plug leaks	HAZMAT trailer
Portable Generator	(1)Backup power; 5,000 watt; 120 or 240 volt	Surface rescue truck
Hand Tools	Containment and cleanup; Underground rescue truck: (1)12# Sledge Hammer (1)3/8" Drive Socket Set (1)½" Drive Socket Set (1)3/4" Drive Socket Set (1)25' ½" Chain (1)6' Wrecking Bar (1)Bottle Jack (1)4# Hammer (1)18" Crescent Wrench (1)5' Pry Bar (1)2' Pry Bar (1)100' Extension Cord (1)4' Nylon Sling (1)6' Nylon Sling (1)10' Nylon Sling These tools are located in the HAZMAT Trailer. They are non-sparking. (1)14"L adjustable pipe wrench (1)15" multi-opening bung wrench (1)hammer/crate opener (1)8" pipe pliers (1)8" blade Phillips (1)#2 screwdriver (1)6" blade standard screwdriver (1)Claw Hammer	Underground rescue truck, HAZMAT trailer
Come-a-longs	(1) 4-ton; cable-type Ratchet lever tool designed specifically for lifting, lowering and pulling applications including jobs requiring rigging, positioning, and stretching. Used in rescue for extrication.	Surface rescue truck and underground rescue truck
Porta-power	(1) 10-ton hydraulic, hand-powered jaws used for extrication during rescues.	Surface rescue truck
Jugs	Containment or cleanup; (4) 1-gallon plastic	HAZMAT trailer
Pails	Containment or cleanup; (3) 5-gallon plastic with lid	HAZMAT trailer

Equipment	Description and Capabilities	Location
Portable Lighting	(1) Emergency lighting system; 120 volts; 500-watt bulbs, suitable for wet location	Underground rescue truck
Patching Kit	Series A Hazardous Response Kit; Class A; contains nonsparking equipment to control and plug leaks.	HAZMAT trailer
Scoops and Shovels	Cleanup; plastic; various sizes; nonsparking; nonwood handles (1) Scoop (3) Shovels	HAZMAT trailer
Medical Resources		
Ambulance #1	Equipped as per Federal Specifications KKK-A-1822 and New Mexico Emergency Medical Services Act General Order 35; equipped with a radio to Carlsbad Medical Center, VHF radio, UHF medical frequency, cellular phone	Surface (Safety and Emergency Services Facility)
Ambulance #2	Diesel hardcab ambulance equipped with first aid kit, 2 stretchers, and other associated medical supplies	Underground
Rescue Truck	Special purpose vehicle; light and heavy duty rescue equipment; transports 1 litter patient, medical oxygen and supplies for mass casualties, fire suppression support equipment (rescue tool, air bag, K-12 Rescue Saw, 5,000-watt generator, self-contained breathing apparatus (SCBA), and much more equipment	Surface (Safety and Emergency Services Facility)
Fire Detection and Fire Suppression Equipment		
Building Smoke, Thermal Detectors, or Manual Pull Stations	Ionization and photoelectric or fixed temperature/rate of rise detectors; visual display and alarm in CMR; manual pull stations. The underground has manual fire alarm pull stations located where personnel have access when evacuating. These are connected to the U/G evacuation alarm.	Guard and Security Building, Warehouse/Shops, Support Building, CMR/Computer Room, Waste Handling Building, TRUPACT Maintenance Facility, Waste Shaft Collar, Underground Fuel Station, SH Hoisthouse, Engineering Building, Industrial Safety Building, Training Facility
Fire Truck # 1	Equipped per Class "A" fire truck per NFPA; capacity 750 gallons, with pump capacity of 1200 gallons per minute	Surface (Safety and Emergency Services Facility)
Rescue Truck # 2 (U/G)	(1) 125-pound dry chemical extinguisher (1) 150-pound foam extinguisher	Underground
Extinguishers	Individual fire extinguisher stations; various types located throughout the facility, conforming to NFPA-10.	Buildings, underground, and underground vehicles
Automatic Dry Chemical Extinguishing Systems	Automatic; 1,000-pound system (Purple K); actuated by thermal detectors or by manual pull stations	Underground fuel station
Sprinkler Systems	Fire alarms activated by water flow	Pumphouse, Guard and Security Building, Support Building, Waste Handling Building (contact-transuranic waste area only), Warehouse/Shops Building, Auxiliary Warehouse Building, TRUPACT Maintenance Facility, Training Facility, SH Shaft Hoisthouse, Exhaust Filter Building, Engineering Building, and Safety Building

Equipment	Description and Capabilities	Location
Water Tanks, Hydrants	Fire suppression water supply; one 180,000-gallon capacity tank, plus a second tank with 100,000 gallon reserve	Tanks are at southwestern edge of WIPP facility; pipelines and hydrants are throughout the surface
Fire Water Pumps	Fire suppression water supply; 125 pounds per square inch, 1,500 gallons per minute centrifugal pump, one with electric motor drive, the other with diesel engine; pressure maintenance pump	Pumphouse
Personal Protection Equipment		
Headlamps	Mounted on hard hat; battery operated	Each person underground
Underground Self-Rescuer Units	Short-term rebreathers; approximately 300	Each person underground
Self-Contained Self-Rescuer	At least 60 minutes of oxygen available. Approximately 400 units cached throughout the underground.	Cached throughout the underground.
Self-Contained Breathing Apparatus (SCBA)	Oxygen supply; 4-hour units; approximately 14 Mine Rescue Team Draeger units	Mine Rescue Training Room
Chemical and Chemical-Supported Gloves	Body protection; (12 pair) inner-cloth, (12 pair) outer-pvc, (5 pair) outer-viton	HAZMAT trailer
Suit, Acid	Body protection; (4) acid	HAZMAT trailer
Suit, Fully Encapsulated	Body protection; used with SCBAs; full outerboot; (4) Level A; (4) Level B	HAZMAT trailer
Emergency Medical Equipment		
Antishock Trousers	Shock treatment; (2) inflatable, one on each ambulance	Ambulance # 1 and # 2
Zoll 1600 Heart Monitor and Defibrillator	Heart Monitor/defibrillator	Ambulance # 1 and # 2
Oxygen	Patient care; Size D: (2) Ambulance #1 (1) Underground Ambulance (1) Health Services Size E: (1) Rescue Truck (2) Underground Ambulance Size M: (1) Ambulance #1	Ambulance # 1 and # 2, surface rescue truck
Resuscitators (Bag)	Disposable bag resuscitation Ambulance #1: (2) adult size (1) child size Underground Ambulance: (2) adult size	Ambulance # 1, Ambulance # 2

Equipment	Description and Capabilities	Location
Splints	Immobilize limbs; (1) Adult traction splint, lower extremity, with limb-supporting slings, padded ankle hitch and traction device per ambulance. (2) Rigid splinting devices or equivalents, suitable for immobilization of upper extremities per ambulance. (2) Rigid splinting devices or equivalents, suitable for the immobilization of lower extremities. (1) Set of Airsplints: 6 assorted splints; hand/wrist, half arm, full arm, foot/ankle, half leg, and full leg per miner's aid stations.	Ambulance # 1 and # 2, Miner's Aid Stations
Stretchers	Patient transport; (2) Spine Boards, one short and one long, with nylon straps per ambulance. (also used to perform cardiopulmonary resuscitation) (2) Emergency Stretchers or scoops, or combination per ambulance (1) All-purpose multi-level ambulance stretch (gurney), with 3 safety straps and locking mechanism per ambulance. (1) Stretcher in each miner's aid station.	Various combinations in Ambulance # 1 and # 2, Miner's Aid Station
Suctions	For medical emergencies: Portable (1) Suction unit, capable of delivering at least 300 mm. HG on each ambulance.	Ambulances #1 and #2
Trauma Kits	(1) adult blood pressure cuff and stethoscope (4) soft-roller bandages (3) triangular bandages (1) pkg. band-aids (2) trauma dressings (25) 4X4 sponges (1) roll adhesive tape (1) bite stick (1) penlight (1) sterile burn sheet (1) oropharyngeal airway (1) glucose substance (2) sterile gauze dressings	(1) kit in each: Ambulances #1 and #2, surface rescue truck
Miner's Aid Station	For First Aid Stations in the Underground (1) Stretcher--as referenced above per station (1) Set of airsplints--as referenced above per station (1) Blanket per station (1) Box of latex gloves (50) per station (5) Pathogen Wipes per station (1) First Aid Kit (24) per station; includes, (3) Band-Aid Combo Paks (2) Swabs, PVP (1) Antibiotic Ointment (1) Sting-Kill Swab (2) Dressing, compresses (2) Roller Bandages (2) Tape (2) Triangle Bandage (1) Eyedressing Pak (1) Burn Dressing (1) Ammonia Inhalants (1) User Log Sheet	Miner's Aid Stations - Various Underground Locations

Equipment	Description and Capabilities	Location
First Aid Supplies	According to General Order #35 (12) bandages, soft roller, self-adhering type--4" or 6" x 5 yards. (6) triangular bandages, 40" (1) box band-aids (1) 1 pair bandage shears (6) Trauma dressings, 30" x 10" (6) Trauma dressings, 5" x 7" (50) 4" x 4" sponges, individually wrapped and sterile (2) rolls adhesive tape (1) penlight (2) sterile burn sheets (2) oropharyngeal airways -- adult (2) oropharyngeal airways -- child (Ambulance #1 only) (2) oropharyngeal airways -- infant (Ambulance #1 only) (1) Glucose substance (3) Occlusive dressings (1) Roll aluminum foil (6) Rigid cervical collars--2 each small, medium and large sizes (4) Cold packs (4) Heat packs (2) Bite sticks	Ambulance #1
First Aid Supplies	(2) Transfer sheets (2) Blankets	Ambulances #1 and #2
First Aid Supplies	(2) #16g angiosets (2) #18g angiosets (2) #20g angiosets (1) 1000cc LR IV fluid (1) 500cc NS IV fluid	Ambulances #1 and #2, surface rescue truck
General Plant Emergency Equipment		
Emergency Lighting	For employee rescue and evacuation, and fire/spill containment; linked to main power supply, and selectively linked to back up diesel power supply and/or battery-backed power supply	Surface and underground
Backup Power Sources	Two diesel generators, and battery-powered uninterruptible power supply (UPS); use limited to essential loads; manual or remote starting 1,100-kilowatt diesel generators with on-site fuel for 62% load for 3 days for selected loads; 30-minute battery capacity for essential loads	Generators are east of Safety and Emergency Services Building; UPS is located at the essential loads
Hoists	Hoists in Waste Shaft, Air Intake Shaft, and SH Shaft	Waste Shaft, Air Intake Shaft, SH Shaft
Radiation Monitoring Equipment	(5) Portable alpha and beta survey meters, portable air samplers, and portable continuous air monitors	Building 412
Emergency Shower	For emergency flushing of contaminated individual	Surface
Eye Wash Fountains	For emergency flushing of affected eyes	Various locations on surface and in the underground
Decon Shower Equipment	Self-contained decon shower trailer, portable decon shower unit, disposable decon shower	Surface
Overpack containers	14-85 Gallon drums 4-SWBs 1-TDOP	Building 481 Building 481 Building 481
HEPA Vacuums	2 HEPA Vacuums to be utilized for removal of contamination.	Building 481
Aquaset or Cement	100 lbs. of aquaset or cement material for solidification of liquid waste generated as a result of fire fighting water or decontamination solutions.	Building 481

Equipment	Description and Capabilities	Location
Polyvinyl Alcohol or Paint	1 - 5 gallon bucket of approved fixative to be used during recovery.	Building 481
TDOP Upender	Upender facilitates overpacking standard waste boxes	Building 481
Non hazardous Decontaminating Agents	4-1 Gallon bottles for decontamination of surfaces, equipment, and personnel	Building 481

Item 9

Description: This modification clarifies the terminology throughout the HWFP with regards to the waste hoist.

Basis: This change is an administrative and informational change to the HWFP and therefore qualify as a Class 1 notification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion: This modification will correct the inconsistent use of terminology relative to the waste hoist system. This change is necessary so that procedures and work instructions are consistent with the wording in the HWFP.

Revised Permit Text:

Attachment D, Table D-1 (Continued)

TABLE D-1 (CONTINUED)
INSPECTION SCHEDULE/PROCEDURES NOTES

[a] Inspection may be accomplished as part of or in addition to regularly scheduled preventive maintenance inspections for each item or system. Certain structural systems of the WHB, ~~Waist~~ Waste Hoist and Station A are also subject to inspection following severe natural events including earthquakes, tornados, and severe storms. Structural systems include columns, beams, girders, anchor bolts and concrete walls.

[b] Deterioration includes: obvious visible cracks, erosion, salt build-up, damage, corrosion, loose or missing parts, malfunctions, and structural deterioration.

[c] "Preoperational" signifies that inspections are required prior to the first use during a calendar day. For calendar days in which the equipment is not in use, no inspections are required. For an area this includes: area is clean and free of obstructions (for emergency equipment); adequate aisle space; emergency and communications equipment is readily available, properly located and sign-posted, visible, and operational. For equipment, this includes: checking fluid levels, pressures, valve and switch positions, battery charge levels, pressures, general cleanliness, and that all functional components and emergency equipment is present and operational.

[e] These weekly inspections apply to container storage areas when containers of waste are present for a week or more.

[g] In addition, the water tank levels are maintained by the CMR and level readouts are available at any time.

Attachment E, E-2a

E-2a Unloading Operations

The WIPP facility's equipment, structures, and procedures are specially designed for the safe handling of TRU mixed waste. Permit Attachments M1 and M2 detail how CH and RH TRU mixed waste is handled, including unloading and transport operations. The following is a summary of the activities, structures, and equipment that were developed to prevent hazards in unloading of TRU mixed waste, as required by 20.4.1.900 NMAC (incorporating 40 CFR §270.14(b)(8)(i)).

CH TRU Mixed Waste

The TRUPACT-II shipping container has a gross loaded weight of 19,265 lbs (8,737 kgs). The HalfPACT shipping container has a gross loaded weight of 18,100 lbs (8,210 kgs). The gross loaded weight is defined as the weight of the payload and the weight of the Contact Handled Package itself. The Contact Handled Packages have forklift pockets at the bottom of the container specifically for lifting the container with a forklift (see Figure M1-8 in Permit Attachment M1). The 13 ton (11.8 metric tons) electric forklift unloads the TRUPACT-II from the trailer and transfers it to an unloading dock in the WHB Unit. The unloading dock is designed to accommodate the Contact Handled Package and functions as a work platform, providing TRU mixed waste handling and health physics personnel with easy access to the container during unloading operations.

An overhead 6-ton (5.4-metric ton) crane and adjustable center-of-gravity lift fixture transfer TRU mixed waste containers from the Contact Handled Package to a pallet on the WHB Unit floor. The facility pallet is a fabricated steel structure designed to securely hold waste containers. Each facility pallet has a rated load capacity of 25,000 lb (11,340 kg). The upper surface of the facility pallet has two recesses sized to accept the waste containers, ensuring that the containers are held in place. Up to four SWBs, four 7-packs of 55-gallon drums, four 4-packs consisting of 85-gallon drums, four 3-packs of 100-gallon drums, or two TDOPs may be placed on a facility pallet. Each stack of waste containers is strapped down to holding bars in the top reinforcement plate of the facility pallet to avoid spillage during movement. Two rectangular tube openings in the bed allow the facility pallet to be securely lifted by forklift. In order to assure a facility pallet is not overloaded, operationally it will hold the contents of two Contact Handled Packages, as specified in Permit Attachment M1.

The WIPP facility has the capability to handle each of the CH TRU containers singly using forklifts and single container attachments. In such cases, the container would be loaded on the waste shaft conveyance and moved underground as a single unit.

All unloading equipment is inspected in accordance with the schedule shown in Tables D-1 and D-1a. Cranes that are used in the unloading and handling of TRU mixed waste have been designed and constructed so that they will retain their loads in the event of a loss of power. Cranes in the WHB Unit are also designed to withstand a design basis earthquake without moving off of their rails and without dropping their load. Lowering loads is a priority activity after a disruptive event.

The following is a summary of the activities, structures, and equipment that were developed to prevent hazards in transporting TRU mixed waste.

Palletized CH TRU mixed waste is either transferred by a 13-ton (11.8-metric ton) forklift or the facility transfer vehicle, which is designed with an adjustable bed height that is used to transfer the facility pallets to the special pallet-support stands in the waste shaft conveyance ~~hoist cage~~.

The waste hoist system in the waste shaft and all waste shaft furnishings are designed to resist the dynamic forces of the hoisting system, which are greater than the seismic forces on the underground facilities. In addition the waste hoist headframe is designed to withstand the design-basis earthquake (**DBE**). Maximum operating speed of the hoist is 500 ft (152.4 m) per minute. During loading and unloading operations, the waste shaft conveyance ~~hoist~~ is steadied by fixed guides. The waste hoist is equipped with a control system that will detect malfunctions or abnormal operations of the hoist system, such as overtravel, overspeed, power loss, or circuitry failure. The control response is to annunciate the condition and shut the hoist down. Operator response is required to recover from the automatic shutdown. Waste hoist operation is continuously monitored by the CMS. A battery powered FM transmitter/receiver allow communication between the hoist conveyance and the hoist house.

The waste hoist ~~shaft system~~ has two pairs of brake calipers acting on independent brake paths. The hoist motor is normally used for braking action of the hoist. The brakes are used to hold the hoist in position during normal operations and to stop the hoist under emergency conditions. Each pair of brake calipers is capable of holding the hoist in position during normal operating conditions and stopping the hoist under emergency conditions. In the event of power failure, the brakes will set automatically.

The hoist is protected by a fixed automatic fire suppression system. Portable fire extinguishers are also provided on the hoist floor and in equipment areas.

Once underground, the facility pallet is removed from the hoist cage by the underground waste transporter (see Figure M2-7 in Permit Attachment M2), a commercially available articulated diesel vehicle. The trailer is designed specifically for transporting palletized TRU mixed waste and is sized to accommodate the facility pallet. All motorized waste handling equipment is equipped with on-board fire-suppression systems.

The underground waste transporter is equipped with a fire suppression system, rupture-resistant diesel fuel tanks, and reinforced fuel lines to minimize the potential for a fire involving the fuel system. Waste containers will be placed into underground HWDUs using a forklift and attachments.

All CH TRU mixed waste transport equipment is inspected at a frequency indicated in Table D-1.

RH TRU Mixed Waste

Cranes and forklifts that are used to unload and handle RH TRU mixed waste have been designed and constructed to retain their loads in the event of a loss of power. RH TRU mixed waste received in an RH-TRU 72-B cask is unloaded from the trailer in the RH Bay, using the RH Bay Overhead Bridge Crane, and is placed on the cask transfer car. The cask transfer car moves the RH-TRU 72-B cask into the Cask Unloading Room, where a bridge crane lifts the cask from the cask transfer car and lowers it into the Transfer Cell

and onto the Transfer Cell shuttle car. The Transfer Cell shuttle car moves the RH-TRU 72-B cask into position for transferring the canister to the facility cask.

RH TRU mixed waste received in a CNS 10-160B cask is unloaded from the trailer in the RH Bay using the RH Bay overhead bridge crane and is placed on the cask transfer car. The cask transfer car moves the CNS 10-160B cask into the Facility Cask Unloading Room. The Hot Cell crane lifts the two drum carriage units from the CNS 10-160B cask in the Facility Cask Unloading Room into the Hot Cell, where the drums are transferred into RH TRU mixed waste facility canisters using the Overhead Powered Manipulator or Hot Cell Crane. The facility canisters are then lowered into a shielded insert on the Transfer Cell Shuttle Car in the Transfer Cell. The Transfer Cell Shuttle Car moves the shielded insert into position for transferring the facility canister to the facility cask.

A remotely-operated fixed hoist grapple lifts the canister from the RH-TRU 72-B cask or from the shielded insert on the Transfer Cell shuttle car and transfers the canister into the facility cask located on the facility cask transfer car in the Facility Cask Loading Room. The facility cask is rotated to a horizontal position on the Facility Cask Transfer Car and the Facility Cask Transfer Car moves onto the waste shaft conveyance ~~hoist~~ and is lowered underground.

Once underground, the RH TRU mixed waste handling forklift lifts the facility cask from the Facility Cask Transfer Car and carries the facility cask to the Horizontal Emplacement and Retrieval Equipment (**HERE**). After placing the facility cask on the HERE, the canister is emplaced in the wall of the disposal room.

Pertinent RH TRU mixed waste transport equipment is inspected at a frequency indicated in Table D-1a.

Figures of RH TRU mixed waste emplacement equipment are included in Attachments M1 and M2.

Attachment E, E-2e

E-2e Personnel Protection

The following description of procedures, structures, or equipment used at the facility to prevent undue exposure of personnel to hazardous waste is required by 20.4.1.900 NMAC (incorporating 40 CFR §270.14(b)(8)(v)).

Procedures used at the WIPP facility to prevent undue exposure of personnel to hazardous waste and the sections in this permit application where these procedures are discussed in detail are listed below.

- The TSDF-WAC are criteria designed to prevent the shipment or acceptance of TRU mixed waste exhibiting the characteristics of ignitability, corrosivity, or reactivity.

- Written procedures to prevent the addition of materials to the TRU mixed waste that could exhibit incompatibility or the characteristics of reactivity and/or ignitability are discussed in Section E-3 of this Permit Attachment.

- TRU mixed waste handling operations are conducted so that the need for TRU mixed waste handling personnel to touch the TRU mixed waste containers during unloading, overpacking (if necessary), and emplacement operations is minimized. Appropriate personal protective equipment (**PPE**) will be used depending on locations and operations (e.g., steel-toed shoes, hard hat, safety glasses inside a crane operating envelope; steel-toed shoes, hard hat, mine lamp, self rescuer, and safety glasses in the Underground).

- Tagout/Lockout and work authorization procedures, discussed in Section D-1, prohibit WIPP facility personnel from utilizing TRU mixed waste handling equipment that is temporarily out of service and prevent inappropriate use of TRU mixed waste handling equipment that is not operational for all uses.

- A system for monitoring and inspecting monitoring equipment, safety and emergency systems, security devices, and operating and structural equipment is in place to prevent, detect, or respond to environmental or human health hazards caused by hazardous waste. The inspection/monitoring requirements are described in Permit Attachment D.

- Adequate aisle space is maintained for emergency response purposes, as discussed in Section E-1b of this Permit Attachment.

- Procedures to protect personnel from hazardous and/or TRU mixed waste during nonroutine events are detailed in Permit Attachment F.

The following discusses the structures and equipment that prevent undue exposures of personnel at the WIPP facility to hazardous constituents:

- The WIPP facility was sited and designed to be protective of human health and ensure safe operations during the Disposal Phase.

- TRU mixed waste containers are required to meet shipping/structural requirements.

- The shipping container, forklifts, unloading dock, crane, facility pallets, containment pallets, facility transfer vehicle, waste shaft conveyance ~~hoist cage~~, and underground waste transporter were designed or selected for use in order to minimize the need for CH TRU mixed waste handling personnel to come into contact with CH TRU mixed waste. Each of these items is discussed in detail in Permit Attachments M1 and M2; Section E-2a of this Permit Attachment discusses prevention of hazards to personnel during unloading operations.

- The shipping containers, forklifts, cranes, cask shuttle, transfer cars, manipulators, Hot Cell, waste shaft conveyance ~~hoist cage~~, and HERE were designed or selected for use in order to minimize the need for RH TRU mixed waste handling personnel to come into

contact with RH TRU mixed waste. These items are discussed in Permit Attachments M1 and M2. Section E-2a of this Permit Attachment discusses in detail prevention of hazards to personnel during unloading operations.

- The hood ventilation system, used during the initial opening of Contact Handled Packages, is used to vent any potential release of radioactive contaminants into the ventilation system of the WHB Unit (Permit Attachment M1).

- Differential air pressure between the RH TRU mixed waste handling locations in the RH Complex protects workers and prevents potential spread of contamination during handling of RH TRU mixed waste. Airflow between key rooms in the WHB are controlled by maintaining differential pressures between the rooms. The CH Receiving Bay is maintained with a negative pressure relative to outside atmosphere. The RH Receiving Bay is maintained with a requirement to be positive pressure relative to the CH Receiving Bay. The RH Hot Cell is maintained with a negative differential pressure relative to the RH Receiving Bay. The Hot Cell ventilation is exhausted through high-efficiency particulate air filters prior to venting through the WHB filtered exhaust.

- The WIPP facility has internal and external communications and alarm systems to notify personnel of emergency situations and provide instructions for response, evacuation, etc. as discussed in this Permit Attachment and Permit Attachment F.

- The WIPP facility is well equipped with spill-response equipment, transport vehicles, emergency medical equipment and rescue vehicles, fire detection, fire-suppression and firefighting equipment (including water for fire control), PPE, emergency lighting and backup power, and showers and eye-wash fountains. These are discussed in Sections E-1a, E-2c and E-2d of this Permit Attachment and are listed in Permit Attachment F.

- The surface and underground ventilation systems, discussed in Permit Attachment M2, are designed to provide personnel with a suitable environment during routine operations.

F-1e(2) RH Complex Operations

Loaded RH TRU casks are received in the RH Bay of the WHB. The RH Bay is served by an overhead bridge crane used for cask handling and maintenance operations. Storage in the RH Bay occurs in the RH-TRU 72-B or CNS 10-160B casks. A maximum of two loaded casks may be stored in the RH Bay and a maximum of one cask in the Cask Unloading Room may be stored at one time. A minimum of 44 inches (1.1 m) will be maintained between loaded casks in the RH Bay. The cask serves as secondary containment in the RH Bay for the RH TRU mixed waste payload container. In addition, the RH Bay has a concrete floor.

Single RH TRU mixed waste canisters are unloaded from the RH-TRU 72-B casks in the Transfer Cell of the RH Complex where they are transferred to facility casks. Drums of RH TRU mixed waste will be transferred remotely from the CNS 10-160B cask, into the Hot Cell, and loaded into a canister. Storage in the Hot Cell occurs in either drums or canisters. A maximum of 12 55-gallon drums of RH TRU mixed waste and one 55-gallon drum of derived waste (94.9 ft^3 (2.7 m^3)) may be stored in the Hot Cell. Except for the derived waste drum, individual 55-gallon drums may not be stored in the Hot Cell for more than 25 days. The Transfer Cell houses the Transfer Cell Shuttle Car, which is used to facilitate transferring the canister to the facility cask. Storage in this area typically occurs at the end of a shift or in an off-normal event that results in the suspension of waste handling. A maximum of one canister (31.4 ft^3 (0.89 m^3)) may be stored in the Transfer Cell in a shielded insert in the Transfer Cell Shuttle Car or in a RH-TRU 72-B cask.

The Facility Cask Loading Room provides for transfer of a canister to the facility cask for subsequent transfer to the waste shaft conveyance ~~hoist~~ and to the Underground Hazardous Waste Disposal Unit. The Facility Cask Loading Room also functions as an air lock between the waste shaft and the Transfer Cell. Storage in this area typically occurs at the end of a shift or in an off-normal event that results in the suspension of waste handling. A maximum of one canister (31.4 ft^3 (0.89 m^3)) may be stored in the Facility Cask in the Facility Cask Loading Room.

Derived waste will be stored in the RH Bay and in the Hot Cell.

Attachment G

G-3 Waste Handling Building Traffic

CH TRU mixed waste will arrive by tractor-trailer at the WIPP facility in sealed Contact Handled Packages. Upon receipt, security checks, radiological surveys, and shipping documentation reviews will be performed. A forklift will remove the Contact Handled Packages and transport them a short distance through an air lock that is designed to maintain differential pressure in the WHB. The forklift will place the shipping containers at one of the two TRUPACT-II unloading docks (**TRUDOCK**) inside the WHB.

The TRUPACT-II may hold up to two 55-gallon drum seven (7)-packs, two 85-gallon drum four (4)-packs, two 100-gallon drum three (3)-packs, two standard waste boxes (SWB), or one ten-drum overpack (**TDOP**). A HalfPACT may hold seven 55-gallon drums, one SWB, or four 85-gallon drums. A six-ton overhead bridge crane will be used to remove the contents of the Contact Handled Package. Waste containers will be surveyed for radioactive contamination and decontaminated or returned to the Contact Handled Package as necessary.

Each facility pallet will accommodate four seven(7)-packs of 55-gallon drums, four SWBs, four four(4)-packs of 85-gallon drums, four three(3)-packs of 100-gallon drums, two TDOPs, or any combination thereof. Waste containers will be secured to the facility pallet prior to transfer. A forklift or facility transfer vehicle will transport the loaded facility pallet

the air lock at the Waste Shaft (Figure G-3). The facility transfer vehicle will be driven onto the waste shaft conveyance ~~hoist~~ deck, where the loaded facility pallet will be transferred to the waste shaft conveyance ~~hoist~~ and downloaded for emplacement.

RH TRU mixed waste will arrive at the WIPP facility in a payload container contained in a shielded cask loaded on a tractor-trailer. Upon arrival, radiological surveys, security checks, and shipping documentation reviews will be performed, and the trailer carrying the cask will be moved into the Parking Area or directly into the RH Bay of the Waste Handling Building Unit.

The cask is unloaded from the trailer in the RH Bay and is placed on the Cask Transfer Car. The Cask Transfer Car is used to move the cask to the Cask Unloading Room. At this point, a crane moves the waste to the Hot Cell or the Transfer Cell. Some RH TRU mixed waste may be moved to the Hot Cell for overpacking before being moved to the Transfer Cell. Once in the Transfer Cell, the Transfer Cell Shuttle Car moves the waste beneath the facility cask. A crane is used to move the waste from the Transfer Cell Shuttle Car into the facility cask. The Facility Cask Transfer Car then moves the facility cask to the underground. A more detailed description of waste handling in the WHB is included in Attachment M1. Figures G-5, G-6 and G-7 show RH TRU mixed waste transport routes.

Attachment H1

RCRA Hazardous Waste Management Job Descriptions

Position Title:
Underground Hazardous Waste Worker

Duties:

- Move waste from generation point to waste shaft conveyance ~~hoist~~
- Containerize waste generated at the wash bay and exhaust shaft catchment basin

Requisite Skills, Experience and Education:

High school diploma or equivalent.

Training (Type/Amount):

- General Employee Training (GET-19X/GET-20X) (Annual)
- Hazardous Waste Worker (HWW-101/102) (Annual)

Attachment H1

RCRA Hazardous Waste Management Job Descriptions

Position Title: Waste Hoist Shaft Tender

Duties:

- Oversees and directs loading and unloading of the Waste Shaft Conveyance ~~Hoist~~ above and below ground

Requisite Skills, Experience and Education:

Vocational or academic high school graduate, or equivalent.

Training (Type/Amount):

- General Employee Training (GET-19X/GET-20X)
- General Employee Training Refresher (GET-19XA/GET-20XA)
- Hazardous Waste Worker (HWW-101/102)
- Waste Hoist Shaft Tender (M-31)

Attachment I

Waste Handling Equipment ~~and~~

The waste shaft ~~hoist~~ conveyance and associated waste handling equipment will be decontaminated to background or be disposed as derived waste as part of both contingency and final facility closure. Procedures for detection and sampling will be as described above. Equipment cleanup will be as above using chemical or nonchemical techniques.

Attachment M1

Facility Transfer Vehicle

The facility transfer vehicle is a battery or electric powered automated vehicle that either operates on tracks or has an on-board guidance system that allows the vehicle to operate on the floor of the WHB. An integrated or removable roller bed will be used to move pallets on and off the vehicle. It is designed with a flat bed that has adjustable height capability and will transfer waste payloads on facility pallets to the storage areas be used to transfer the facility pallets on or off the pallet support stands in the waste shaft conveyance ~~hoist cage~~ by raising and lowering the bed (see Figure M1-11).

Attachment M1, RH TRU Mixed Waste

RH TRU Mixed Waste

The RH TRU mixed waste is handled and stored in the RH Complex of the WHB Unit which comprises the following locations: RH Bay (12,552 ft^2 (1,166 m^2)), the Cask Unloading Room (382 ft^2 (36 m^2)), the Hot Cell (1,841 ft^2 (171 m^2)), the Transfer Cell (1,003 ft^2 (93 m^2)) (Figures M1-17a, b and c), and the Facility Cask Loading Room (1,625 ft^2 (151 m^2)) (Figure M1-17d).

The RH Bay (Figure M1-14a) is a high-bay area for receiving casks and subsequent handling operations. The trailer carrying the RH-TRU 72-B or CNS 10-160B shipping cask (Figures M1-18, M1-19, M1-20 and M1-21) enters the RH Bay through a set of double doors on the east side of the WHB. The RH Bay houses the Cask Transfer Car. The RH Bay is served by the RH Bay Overhead Bridge Crane used for cask handling and maintenance operations. Storage in the RH Bay occurs in the RH-TRU 72-B or CNS 10-160B casks. The storage occurs after the trailer containing the cask is moved into the RH Bay and prior to moving the cask into the Cask Unloading Room to stage the waste for disposal operations. A maximum of two loaded casks and one 55-gallon drum for derived waste (156 ft^3 (4.4 m^3)) may be stored in the RH Bay.

The Cask Unloading Room (Figure M1-17a) provides for transfer of the RH-TRU 72-B cask to the Transfer Cell, or the transfer of drums from the CNS 10-160B cask to the Hot Cell. Storage in the Cask Unloading Room will occur in the RH-TRU 72-B or CNS 10-160B casks. Storage in this area typically occurs at the end of a shift or in an off-normal event that results in the suspension of waste handling operations. A maximum of one cask (74 ft^3 (2.1 m^3)) may be stored in the Cask Unloading Room.

The Hot Cell (Figure M1-17b) is a concrete shielded room in which drums of RH TRU mixed waste will be transferred remotely from the CNS 10-160B cask, staged in the Hot Cell, and loaded into a Facility Canister. The loaded Facility Canister is then lowered from the Hot Cell into the Transfer Cell Shuttle Car containing a Shielded Insert. Storage in the Hot Cell occurs in either drums or Facility Canisters. Drums that are stored are either on the drum carriage unit that was removed from the CNS 10-160B cask or in a Facility Canisters. A maximum of 12 55-gallon drums and one 55-gallon drum for derived waste (94.9 ft^3 (2.7 m^3)) may be stored in the Hot Cell.

The Transfer Cell (Figure M1-17c) houses the Transfer Cell Shuttle Car, which moves the RH-TRU 72-B cask or Shielded Insert into position for transferring the canister to the Facility Cask. Storage in this area typically occurs at the end of a shift or in an off-normal event that results in the suspension of a waste handling evolution. A maximum of one canister (31.4 ft^3 (0.89 m^3)) may be stored in the Transfer Cell in the Transfer Cell Shuttle Car.

The Facility Cask Loading Room (Figure M1-17d) provides for transfer of a canister to the Facility Cask for subsequent transfer to the waste shaft conveyance ~~hoist~~ and to the Underground Hazardous Waste Disposal Unit (**HWDU**). The Facility Cask Loading Room also functions as an air lock between the Waste Shaft and the Transfer Cell. Storage in this area typically occurs at the end of a shift or in an off-normal event that results in the suspension of waste handling operations. A maximum of one canister (31.4 ft^3 (0.89 m^3)) may be stored in the Facility Cask (Figure M1-23) in the Facility Cask Loading Room.

Following is a description of major pieces of equipment that are used to manage RH TRU mixed waste in the WHB Unit. A summary of equipment capacities, as required by 20.4.1.500 NMAC, is included in Table M1-3.

Attachment M1, M1-1d(2)

Each facility pallet has two recessed pockets to accommodate two sets of 7-packs, two sets of 4-packs, two sets of 3-packs, or two SWBs stacked two-high, two TDOPs, or any combination thereof. Each stack of waste containers will be secured prior to transport underground (see Figure M1-10). A forklift or the facility transfer vehicle will transport the loaded facility pallet to the conveyance loading room located adjacent to the Waste Shaft. The conveyance loading room serves as an air lock between the CH Bay and the Waste ~~Hoist~~ Shaft, preventing excessive air flow between the two areas. The facility transfer vehicle will be driven onto the waste shaft conveyance ~~hoist deck~~, where the loaded facility pallet will be transferred to the waste shaft conveyance ~~hoist~~, and the facility transfer vehicle will be backed off. Containers of CH TRU mixed waste (55-gal (208 L) drums, SWBs, 85-gal (321 L) drums, 100-gal (379-L) drums, and TDOPs) can be handled individually, if needed, using the forklift and lifting attachments (i.e., drum handlers, parrot beaks).

The waste hoist will lower the loaded facility pallet to the Underground HWDUs. Figure M1-13 is a flow diagram of the CH TRU mixed waste handling process.

Attachment M1, M1-1d(3)

Transfer of the Canister to the Underground

When the canister is fully within the Facility Cask, the lower shield valve is closed. The 6.25 Ton Grapple Hoist detaches from the canister and is raised until the 6.25 Ton Grapple Hoist clears the Facility Cask, at which time the upper shield valve is closed. The 6.25 Ton Grapple Hoist and shield bell are then raised clear of the Facility Cask, and the telescoping port shield is retracted. The Facility Cask Rotating Device rotates the Facility Cask until it is in the horizontal position on the Facility Cask Transfer Car. The shield doors on the Facility Cask Loading Room are opened, and the facility Cask Transfer Car moves onto the waste shaft ~~hoist~~ conveyance and is lowered to the waste Shaft Station underground. At the waste Shaft Station underground, the Facility Cask Transfer Car moves the Facility Cask from the waste shaft ~~hoist~~ conveyance. A forklift is used to remove the Facility Cask from the Facility Cask Transfer Car and to transport the Facility Cask to the Underground HWDU.

Attachment M1, Figure M1-13
A revised Figure M1-13 is included in Attachment B

Attachment M1, Figure M1-26
A revised Figure M1-26 is included in Attachment B

Attachment M1, Figure M1-27
A revised Figure M1-27 is included in Attachment B

Attachment M2, List of Figures

List of Figures

Attachment M2, M2-2a(1)

The Waste ~~Hoist~~ Shaft Conveyance

The hoist systems in the shafts and all shaft furnishings are designed to resist the dynamic forces of the hoisting system and to withstand a design-basis earthquake of 0.1 g. Appendix D2 of the WIPP RCRA Part B Permit Application (DOE, 1997) provided engineering design-basis earthquake report which provides the basis for seismic design of WIPP facility structures. The waste hoist is equipped with a control system that will detect malfunctions or abnormal operations of the hoist system (such as overtravel, overspeed, power loss, circuitry failure, or starting in a wrong direction) and will trigger an alarm that automatically shuts down the hoist.

The waste hoist ~~operates in~~ moves the Waste Shaft Conveyance and is a multirope, friction-type hoist. A counterweight is used to balance the waste ~~hoist~~ shaft conveyance. The waste ~~hoist~~ shaft conveyance (outside dimensions) is 30 ft (9 m) high by 10 ft (3 m) wide by 15 ft (4.5 m) deep and can carry a payload of 45 tons (40,824 kg). During loading and unloading operations, it is steadied by fixed guides. The hoist's maximum rope speed is 500 ft (152.4 m) per min.

The Waste Shaft hoist system has two sets of brakes, with two units per set, plus a motor that is normally used to stop the hoist. The brakes are designed so that either set, acting alone, can stop a fully loaded conveyance under all emergency conditions.

Attachment M2, M2-2a(4)

M2-2a(4) RH TRU Mixed Waste Handling Equipment

The following are the major pieces of equipment used to manage RH TRU mixed waste in the geologic repository. A summary of equipment capacities is included in Table M2-3.

The Facility Cask Transfer Car

The Facility Cask Transfer Car is a self-propelled rail car (Figure M2-14) that operates between the Facility Cask Loading Room and the geologic repository. After the Facility Cask is loaded, the Facility Cask Transfer Car moves onto the waste ~~hoist~~ shaft conveyance and is then transported underground. At the underground waste shaft station, the Facility Cask Transfer Car proceeds away from the waste ~~hoist~~ shaft conveyance to provide forklift access to the Facility Cask.

M2-2b Geologic Repository Process Description

Prior to receipt of TRU mixed waste at the WIPP facility, waste operators will be thoroughly trained in the safe use of TRU mixed waste handling and transport equipment. The training will include both classroom training and on-the-job training.

RH TRU Mixed Waste Emplacement

The Facility Cask Transfer Car is loaded onto the waste ~~hoist~~ shaft conveyance and is lowered to the waste shaft station underground. At the waste shaft station underground, the Facility Cask is moved from the waste ~~hoist~~ shaft conveyance by the Facility Cask Transfer Car (Figure M2-16). A forklift is used to remove the Facility Cask from the Facility Cask Transfer Car and to transport the Facility Cask to the Underground HWDU. There, the Facility Cask is placed on the HERE (Figure M2-17). The HERE is used to

emplace the RH TRU mixed waste canister into the borehole. The borehole will be visually inspected for obstructions prior to aligning the HERE and emplacement of the RH TRU mixed waste canister. The Facility Cask is moved forward to mate with the shield collar, and the transfer carriage is advanced to mate with the rear Facility Cask shield valve. The shield valves on the Facility Cask are opened, and the transfer mechanism advances to push the canister into the borehole. After retracting the transfer mechanism into the Facility Cask, the forward shield valve is closed, and the transfer mechanism is further retracted into its housing. The transfer mechanism is moved to the rear, and the shield plug carriage containing a shield plug is placed on the emplacement machine. The transfer mechanism is used to push the shield plug into the Facility Cask. The front shield valve is opened, and the shield plug is pushed into the borehole (Figure M2-18). The transfer mechanism is retracted, the shield valves close on the Facility Cask, and the Facility Cask is removed from the HERE.

A shield plug is a concrete filled cylindrical steel shell (Figure M2-21) approximately 61 in. long and 29 in. in diameter, made of concrete shielding material inside a 0.24 in. thick steel shell with a removable pintle at one end. Each shield plug has integral forklift pockets and weighs approximately 3,750 lbs. The shield plug is inserted with the pintle end closest to the HERE to provide the necessary shielding, limiting the borehole radiation dose rate at 30 cm to less than 10 mrem per hour for a canister surface dose rate of 100 rem/hr. Additional shielding is provided at the direction of the Radiological Control Technician based on dose rate surveys following shield plug emplacement. This additional shielding is provided by the manual emplacement of one or more shield plug supplemental shielding plates and a retainer (Figures M2-19 and M2-20).

The amount of RH TRU mixed waste disposal in each panel is limited based on thermal and geomechanical considerations and shall not exceed 10 kilowatts per acre as described in Permit Attachment M2-1. RH TRU mixed waste emplacement boreholes shall be drilled in the ribs of the panels at a nominal spacing of 8 ft (2.4 m) center-to-center, horizontally.

Figures M1-26 and M1-27 are flow diagrams of the RH TRU mixed waste handling process for the RH-TRU 72-B and CNS 10-160B casks, respectively.

CH TRU Mixed Waste Emplacement

CH TRU mixed waste containers will arrive by tractor-trailer at the WIPP facility in sealed shipping containers (e.g., TRUPACT-IIs or HalfPACTs), at which time they will undergo security and radiological checks and shipping documentation reviews. The trailers carrying the shipping containers will be stored temporarily at the Parking Area Container Storage Unit (Parking Area Unit). A forklift will remove the Contact Handled Packages from the transport trailers and will transport them into the Waste Handling Building Container Storage Unit for unloading of the waste containers. Each TRUPACT-II may hold up to two 7-packs, two 4-packs, two 3-packs, two SWBs, or one TDOP. Each HalfPACT may hold up to seven 55-gal (208 L) drums, one SWB, or four 85-gal (321 L) drums. An overhead bridge crane will be used to remove the waste containers from the Contact Handled Packaging and place them on a facility or containment pallet. Each facility pallet has two recessed pockets to accommodate two sets of 7-packs, two sets of 3-packs, two sets of 4-packs, two SWBs stacked two-high, or two TDOPs. Each stack of waste containers will be secured prior to transport underground (see Figure M2-3). A forklift or the facility transfer vehicle will transport the loaded facility pallet to the conveyance loading room adjacent to the Waste Shaft. The facility transfer vehicle will be driven onto the waste hoist deck, where the loaded facility pallet will be transferred to the

waste ~~hoist~~ shaft conveyance , and the facility transfer vehicle will be backed off. Containers of CH TRU mixed waste (55-gal (208 L) drums, SWBs, 85-gal (321 L) drums, 100-gal (379 L) drums, and TDOPs) can be handled individually, if needed, using the forklift and lifting attachments (i.e., drum handlers, parrot beaks).

The waste hoist will lower the loaded facility pallet to the underground. At the waste shaft station, the CH TRU underground transporter will back up to the waste ~~hoist~~ shaft conveyance ~~cage~~, and the facility pallet will be transferred from the waste ~~hoist~~ shaft conveyance onto the transporter (see Figure M2-6). The transporter will then move the facility pallet to the appropriate Underground HWDU for emplacement.

A forklift in the HWDU near the waste stack will be used to remove the waste containers from the facility pallets and to place them in the waste stack using a push-pull attachment. The waste will be emplaced room by room in Panels 1 through 7. Each panel will be closed off when filled. If a waste container is damaged during the Disposal Phase, it will be immediately overpacked or repaired. CH TRU mixed waste containers will be continuously vented. The filter vents will allow aspiration, preventing internal pressurization of the container and minimizing the buildup of flammable gas concentrations.

Once a waste panel is mined and any initial ground control established, flow regulators will be constructed to assure adequate control over ventilation during waste emplacement activities. The first room to be filled with waste will be Room 7, which is the one that is farthest from the main access ways. A ventilation control point will be established for Room 7 just outside the exhaust side of Room 6. This ventilation control point will consist of a bulkhead with a ventilation regulator. When RH TRU mixed waste canister emplacement is completed in a room, CH TRU mixed waste emplacement can begin in that room. Stacking of CH waste will begin at the ventilation control point and proceed down the access drift, through the room and up the intake access drift until the entrance of Room 6 is reached. At that point, a brattice cloth and chain link barricade will be emplaced. This process will be repeated for Room 6, and so on until Room 1 is filled. At that point, the panel closure system will be constructed.

The emplacement of CH TRU mixed waste into the HWDUs will typically be in the order received and unloaded from the Contact Handled Packaging. There is no specification for the amount of space to be maintained between the waste containers themselves, or between the waste containers and the walls. Containers will be stacked in the best manner to provide stability for the stack (which is up to three containers high) and to make best use of available space. It is anticipated that the space between the wall and the container could be from 8 to 18 in. (20 to 46 cm). This space is a function of disposal room wall irregularities, container type, and sequence of emplacement. Bags of backfill will occupy some of this space. Space is required over the stacks of containers to assure adequate ventilation for waste handling operations. A minimum of 16 in. (41 cm) was specified in the Final Design Validation Report (Appendix D1, Chapter 12 of the WIPP RCRA Part B Permit Application (DOE, 1997)) to maintain air flow. Typically, the space above a stack of containers will be 36 to 48 in. (90 to 122 cm). However 18 in. (0.45 m) will contain backfill material consisting of bags of Magnesium Oxide (MgO). Figure M2-8 shows a typical container configuration, although this figure does not mix containers on any row. Such mixing, while inefficient, will be allowed to assure timely movement of waste into the underground. No aisle space will be maintained for personnel access to emplaced waste containers. No roof maintenance behind stacks of waste is planned.

The anticipated schedule for the filling of each of the Underground HWDUs known as Panels 1 through 7 is shown in Permit Attachment I, Table I-1. Panel closure in accordance with the Closure Plan in Permit Attachment I and Permit Attachment I1 is estimated to require an additional 150 days.

Figure M2-12 is a flow diagram of the CH TRU mixed waste handling process.

Attachment M2, Figure M2-2
A revised Figure M2-2 is included in Attachment B

Attachment M2, Figure M2-12
A revised Figure M2-12 is included in Attachment B

Attachment M2, Figure M2-16
A revised Figure M2-12 is included in Attachment B

TABLE OF CONTENTS

8. PROCESS—CODES AND DESIGN CAPACITIES (continued)

The Waste Isolation Pilot Plant (WIPP) geologic repository is defined as a "miscellaneous unit" under 40 CFR §260.10. "Miscellaneous unit" means a hazardous waste management unit where hazardous waste is treated, stored, or disposed of and that is not a container, tank, surface impoundment, waste pile, land treatment unit, landfill, incinerator, containment building, boiler, industrial furnace, or underground injection well with appropriate technical standards under 40 CFR Part 146, corrective action management unit, or unit eligible for research, development, and demonstration permit under 40 CFR §270.65. The WIPP is a geologic repository designed for the disposal of defense-generated transuranic (TRU) waste. Some of the TRU wastes disposed of at the WIPP contain hazardous wastes as co-contaminants. More than half the waste to be disposed of at the WIPP also meets the definition of debris waste. The debris categories include manufactured goods, biological materials, and naturally occurring geological materials.

Approximately 120,000 cubic meters (m^3) of the 175,600 m^3 of WIPP wastes is categorized as debris waste. The geologic repository has been divided into ten discrete hazardous waste management units (HWMU) which are being permitted under 40 CFR Part 264, Subpart X.

During the Disposal Phase of the facility, which is expected to last 25 years, the total amount of waste received from off-site generators and any derived waste will be limited to 175,600 m^3 of TRU waste of which up to 7,080 m^3 may be remote-handled (RH) TRU mixed waste. For purposes of this application, all TRU waste is managed as though it were mixed.

On March 25, 1996, the DOE reached the conclusion that in order to comply with 40 CFR 191 §13 which regulates the long-term release of radionuclides from a geologic disposal facility, it is necessary to add magnesium oxide to each disposal room. This additive is to be placed as a backfill. The function of the backfill is to chemically alter the composition of brine that may accumulate in the disposal region. The result of the chemical alteration is to significantly reduce the solubility of the prevalent TRU radionuclides.

The process design capacity for the miscellaneous unit (composed of ten underground HWMUs in the geologic repository) shown in Section XII B, is for the maximum amount of waste that may be received from off-site generators plus the maximum expected amount of derived wastes that may be generated at the WIPP facility. In addition, two HWMUs have been designated as container storage units (S01) in Section XII. One is inside the Waste Handling Building (WHB) and consists of the contact-handled (CH) bay, waste shaft conveyance loading room, waste ~~hoist~~ shaft conveyance entry room, RH bay, cask unloading room, hot cell, transfer cell, and facility cask loading room. This HWMU will be used for waste receipt, handling, and storage (including storage of derived waste) prior to emplacement in the underground geologic repository. No treatment or disposal will occur in this S01 HWMU. The capacity of this S01 unit for storage is 194.1 m^3, based on 36 ten-drum overpacks on 18 facility pallets, four CH Packages at the TRUDOCKs, one standard waste box of derived waste, two loaded casks and one 55-gallon drum of derived waste in the RH Bay, one loaded cask in the Cask Unloading Room, 13 55-gallon drums in the Hot Cell, one canister in the Transfer Cell and one canister in the Facility Cask Unloading Room. The second S01 HWMU is the parking area outside the WHB where the Contact- and Remote-Handled Package trailers and the road cask trailers will be parked awaiting waste handling operations. The capacity of this unit is 50 Contact-Handled Packages and twelve Remote-Handled Packages with a combined volume of 242 m^3. The HWMUs are shown in Appendix O3 as Figures O3-2, O3-3, and O3-4.

Figure O4-7

Change title as indicated in revised Table of Contents

Item 10

Description: This modification corrects page and section numbering, language inconsistencies, removes deletions previously approved for removal by the NMED and updates a position title in the HWFP.

Basis: This change is an administrative and informational change to the HWFP and therefore qualify as a Class 1 notification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, A.1).

Discussion: This modification proposes various editorial changes such as page/figure numbering and language inconsistencies. Table B3-11 contains struck out text which should have been deleted when the October 2006 permit was issued. The text indicated by braces is the text which is being removed.

Revised Permit Text:

Module VII

Page numbering will be changed to read “1 of 53" up to “53 of 53"

Attachment B1

B1-3 Radiography

Radiography has been developed by the Permittees specifically to aid in the examination and identification of containerized waste. The Permittees shall require that sites describe all activities required to achieve the radiography objectives in site QAPjPs and SOPs. These SOPs should include instructions specific to the radiography system(s) used at the site. For example, to detect liquids, some systems require the container to be rotated back and forth while other systems require the container to be tilted.

A radiography system (e.g., real time radiography, digital radiography/computed tomography) normally consists of an X-ray-producing device, an imaging system, an enclosure for radiation protection, a waste container handling system, an audio/video recording system, and an operator control and data acquisition station. Although these six components are required, it is expected there will be some variation within a given component between sites. The radiography system shall have controls or an equivalent process which allow the operator to control image quality. On some radiography systems, it should be possible to vary the voltage, typically between 150 to 400 kilovolts (**kV**), to provide an optimum degree of penetration through the waste. For example, high-density material should be examined with the X-ray device set on the maximum voltage. This ensures maximum penetration through the waste container. Low-density material should be examined at lower voltage settings to improve contrast and image definition. The imaging system typically utilizes either a fluorescent screen and a low-light television camera or x-ray detectors to generate the image.

To perform radiography, the waste container is scanned while the operator views the television screen. A video and audio recording is made of the waste container scan and is maintained as a non-permanent record. A radiography data form is also used to

document the Waste Matrix Code to, ensure that the waste container contains no ignitable, corrosive, or reactive waste by documenting the absence of liquids in excess of TSDF-WAC limits or compressed gases, and verify that the physical form of the waste is consistent with the waste stream description documented on the WSPF. Containers whose contents prevent full examination of the remaining contents shall be subject to visual examination unless the site certifies that visual examination would provide no additional relevant information for that container based on the acceptable knowledge information for the waste stream. Such certification shall be documented in the generator/storage site's record.

Attachment B3

TABLE B3-11
TESTING BATCH DATA REPORT CONTENTS

Required Information	Radiography	Visual Examination	Comment
Batch Data Report Date	X	X	
Batch number	X	X	
Waste container number	X	X	
Waste stream name and/or number	O	O	
Waste Matrix Code	X	X	Summary Category Group included in waste matrix code
Implementing procedure (specific version used)	X	X	If procedure cited contains more than one method, the method used must also be cited. Can use revision number, date, or other means to track specific version used.
Container type	O	O	Drums, Standard Waste Box, Ten Drum Overpack, etc.
Video media reference	X	X	Reference to Video media applicable to each container. For visual examination of newly generated waste, video media not required if two trained operators review the contents of the waste container to ensure correct reporting.

Required Information	Radiography	Visual Examination	Comment
Imaging check	O		
Camera check		O	
Audio check	O	O	
QC documentation	X	X	
Verification that the physical form matches the waste stream description and Waste Matrix Code.	X	X	Summary Category Group included in waste matrix code
Comments	X	X	
Reference to or copy of associated NCRs, if any	X	X	Copies of associated NCRs must be available.
~~{Visual examination expert decisions}~~		~~{X}~~	~~{Only applicable if visual examination expert is consulted during visual examination.}~~
Verify absence of prohibited items	X	X	
Operator signature and date of test	X	X	Signatures of both operators required for Visual Verification of Acceptable Knowledge
~~{Signature of visual examination expert and date }~~		~~{X}~~	
Data review checklists	X	X	All data review checklists will be identified

Attachment B7

B7-1c(2) Visual Examination Oversight

The Permittees shall designate at least one VE expert. The VE expert shall be familiar with the processes that ~~generated the~~ were used to generate the waste streams being confirmed using VE. The VE expert shall be responsible for the overall direction and implementation of the Permittees' VE program. The Permittees shall specify the selection, qualification, and training requirements of the visual examination expert in an SOP.

Attachment D

TABLE D-1
INSPECTION SCHEDULE/PROCEDURES

System/Equipment Name	Responsible Organization	Inspection [a] Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Air Intake Shaft Hoist	Underground Operations	Preoperational [c] See Lists 1b and c	WP 04-HO1004 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m] in accordance with Mine Safety and Health Administration (MSHA) requirements
Ambulances (Surface and Underground) and related emergency supplies and equipment	Emergency Services	Weekly See List 11	PM000030 Inspecting for Mechanical Operability[m], Deterioration[b], and Required Equipment[n]
Adjustable Center of Gravity Lift Fixture	Waste Handling	Preoperational See List 8	WP 05-WH1410 Inspecting for Mechanical Operability[m] and Deterioration[b]
Backup Power Supply Diesel Generators	Facility Operations	Monthly See List 3	WP 04-ED1301 Inspecting for Mechanical Operability[m] and Leaks/Spills by starting and operating both generators. Results of this inspection are logged in accordance with WP 04-AD3008.
Facility Inspections (Water Diversion Berms)	Facility Engineering	Annually See List 4	WP 10-WC3008 Inspecting for Damage, Impediments to water flow, and Deterioration[b]
Central Monitoring Systems (CMS)	Facility Operations	Continuous See List 3	Automatic Self-Checking
Contact-Handled (CH) TRU Underground Transporter	Waste Handling	Preoperational See List 8	WP 05-WH1603 Inspecting for Mechanical Operability[m], Deterioration[b], and area around transporter clear of obstacles
Facility Transfer Vehicle	Waste Handling	Preoperational See List 8	WP 05-WH1406 Inspecting for Mechanical Operability[m], Deterioration[b], path clear of obstacles, and guards in the proper place
Exhaust Shaft	Underground Operations	Quarterly See List 1a	PM041099 Inspecting for Deterioration[b] and Leaks/Spills
Eye Wash and Shower Equipment	Equipment Custodian	Weekly See List 5	WP 12-IS1832 Inspecting for Deterioration[b]
		Semi-annually See List 2a	WP 12-IS1832 Inspecting for Deterioration[b] and Fluid Levels–Replace as Required

TABLE D-1
INSPECTION SCHEDULE/PROCEDURES

System/Equipment Name	Responsible Organization	Inspection [a] Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Fire Detection and Alarm System	Emergency Services	Semiannually See List 11	PM000027 Inspecting for Deterioration[b], Operability of indicator lights and, underground fuel station dry chemical suppression system. Inspection is per NFPA 72
Fire Extinguishers[j]	Emergency Services	Monthly See List 11	PM000036 Inspecting for Deterioration[b], Leaks/Spills, Expiration, seals, fullness, and pressure
Fire Hoses	Emergency Services	Annually (minimum) See List 11	PM000031 Inspecting for Deterioration[b] and Leaks/Spills
Fire Hydrants	Emergency Services	Semi-annual/ annually See List 11	PM000034 Inspecting for Deterioration[b] and Leaks/Spills
Fire Pumps	Emergency Services	Weekly/annually See List 11	PM000026 Inspecting for Deterioration[b], Leaks/Spills, valves, and panel lights
Fire Sprinkler Systems	Emergency Services	Monthly/ quarterly See List 11	PM000025 Inspecting for Deterioration[b], Leaks/Spills, static pressures, and removable strainers
Fire and Emergency Response Trucks (Seagrave Fire Apparatus, Emergency One Apparatus, and Underground Rescue Truck)	Emergency Services	Weekly See List 11	PM000033 Inspecting for Mechanical Operability[m], Deterioration[b], Leaks/Spills, and Required Equipment[n]
Forklifts Used for Waste Handling (Electric and Diesel forklifts, Push-Pull Attachment)	Waste Handling	Preoperational See List 8	WP 05-WH1401, WP 05-WH1402, WP 05-WH1403, and WP 05-WH1412 Inspecting for Mechanical Operability[m], Deterioration[b], and On board fire suppression system
Hazardous Material Response Equipment	Emergency Services	Weekly See List 11	PM000033 Inspecting for Mechanical Operability[m], Deterioration[b], and Required Equipment[n]
Miners First Aid Station	Emergency Services	Quarterly See List 11	PM000035 Inspecting for Required Equipment[n]
Mine Pager Phones (between surface and underground)	Facility Operations	Monthly See List 3	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations
MSHA Air Quality Monitor	Maintenance/ Underground Operations	Daily[l] See Lists 1 and 10	WP 12-IH1828 Inspecting for Air Quality Monitoring Equipment Functional Check
Perimeter Fence, Gates, Signs	Security	Daily See List 6	PF0-011 Inspecting for Deterioration[b] and Posted Warnings
Personal Protective Equipment (not otherwise contained in emergency vehicles or issued to individuals): —Self-Contained Breathing Apparatus	Emergency Services	Weekly See List 11	PM000029 Inspecting for Deterioration[b] and Pressure

TABLE D-1
INSPECTION SCHEDULE/PROCEDURES

System/Equipment Name	Responsible Organization	Inspection [a] Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Public Address (and Intercom System)	Facility Operations	Monthly See List 3	WP 04-PC3017 Testing of PA and Underground Alarms and Mine Page Phones at essential locations Systems operated in test mode
Radio Equipment	Facility Operations	Daily[j] See List 3	Radios are operated daily and are repaired upon failure
Rescue Truck (Surface and Underground)	Emergency Services	Weekly See List 11	PM000030 and PM000033 Inspecting for Mechanical Operability[m], Deterioration[b], Leaks/Spills, and Required Equipment[n]
Salt Handling Shaft Hoist	Underground Operations	Preoperational See List 1b and c	WP 04-HO1002 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m] in accordance with MSHA requirements
Self-Rescuers	Underground Operations	Quarterly See List 1c	WP 04-AU1026 Inspecting for Deterioration[b] and Functionality in accordance with MSHA requirements
Surface TRU Mixed Waste Handling Area [k]	Waste Handling	Preoperational or Weekly [e] See List 8	WP 05-WH1101 Inspecting for Deterioration[b], Leaks/Spills, Required Aisle Space, Posted Warnings, Communication Systems, Container Condition, and Floor coating integrity
TRU Mixed Waste Decontamination Equipment	Waste Handling	Annually See List 8	WP 05-WH1101 Inspecting for Required Equipment[n]
Underground Openings—Roof Bolts and Travelways	Underground Operations	Weekly See List 1a	WP 04-AU1007 Inspecting for Deterioration[b]
Underground—Geomechanical Instrumentation System (GIS)	Geotechnical Engineering	Monthly See List 9	WP 07-EU1301 Inspecting for Deterioration[b]
Underground TRU Mixed Waste Disposal Area	Waste Handling	Preoperational See List 8	WP 05-WH1810 Inspecting for Deterioration[b], Leaks/Spills, mine pager phones, equipment, unobstructed access, signs, debris, and ventilation
Uninterruptible Power Supply (Central UPS)	Facility Operations	Daily See List 3	WP 04-ED1542 Inspecting for Mechanical Operability[m] and Deterioration[b] with no malfunction alarms. Results of this inspection are logged in accordance with WP 04-AD3008.
TDOP Upender	Waste Handling	Preoperational See List 8	WP 05-WH1010 Inspecting for Mechanical Operability[m] and Deterioration[b]
Vehicle Siren	Emergency Services	Weekly See List 11	Functional Test included with inspection of the Ambulances, Fire Trucks, and Rescue Trucks
Ventilation Exhaust	Maintenance Operations	Quarterly See List 10	IC041098 Check for Deterioration[b] and Calibration of Mine Ventilation Rate Monitoring Equipment
Waste Handling Cranes	Waste Handling	Preoperational See List 8	WP 05-WH1407 Inspecting for Mechanical Operability[m], Deterioration[b], and Leaks/Spills

TABLE D-1
INSPECTION SCHEDULE/PROCEDURES

System/Equipment Name	Responsible Organization	Inspection [a] Frequency and Job Title of Personnel Normally Making Inspection	Procedure Number and Inspection Criteria
Waste Hoist	Underground Operations	Preoperational See List 1b and c	WP 04-HO1003 Inspecting for Deterioration[b], Safety Equipment, Communication Systems, and Mechanical Operability[m], Leaks/Spills, in accordance with MSHA requirements
Water Tank Level	Facility Operations	Daily See List 3	SDD-WD00 Inspecting for Deterioration[b], and water levels. Results of this inspection are logged in accordance with WP 04-AD3008.
Push-Pull Attachment	Waste Handling	Preoperational See List 8	WP 05-WH1401 Inspecting for Damage and Deterioration[b]
Trailer Jockey	Waste Handling	Preoperational See List 8	WP 05-WH1405 Inspecting for Mechanical Operability[m] and Deterioration[b]
~~Facility Grapple~~	~~Waste Handling~~	~~Preoperational See List 8~~	~~To Be Determined (RH equipment)~~
~~15-Ton Bridge Crane~~	~~Waste Handling~~	~~Preoperational See List 8~~	~~To Be Determined (RH equipment)~~
~~Hook and Rope on 50/25-Ton Bridge Crane~~	~~Waste Handling~~	~~Preoperational See List 8~~	~~To Be Determined (RH equipment)~~

Attachment F

F-1e(1) CH Bay Operations

Once unloaded from the Contact-Handled Package, CH TRU mixed waste containers (7-packs of 55-gal drums, 3-packs of 100-gal drums, 4-packs of 85-gal drums, SWBs, or TDOPs) are placed in one of two positions on the facility pallet. The waste containers are stacked on the facility pallets (one- or two-high, depending on weight considerations). The use of facility pallets will elevate the waste at least 6 inches (in.) (15 centimeters [cm]) from the floor surface. Pallets of waste will then be relocated to the northeast area of the CH bay for normal storage. This storage area will be clearly marked to indicate the lateral limits of the storage area. This storage area will have a maximum capacity of seven facility pallets of waste during normal operations. These pallets will typically be staged in this area for a period of up to five days.

In addition, four Contact-Handled Packages, containing up to 640 ft^3 of CH TRU waste in containers, may occupy ~~the staging~~ positions at the TRUPACT-II Unloading Docks (**TRUDOCK**).

Attachment H1

Position Title: Manager, ~~Shipping Coordination~~ Transportation Operations

Duties:

- Oversee all TRU waste and non-TRU handling activities conducted by ~~Shipping Coordination~~ Transportation Operations

Requisite Skills, Experience and Education:

B.S. degree, or equivalent, in nuclear-related field.

Training (Type/Amount):

- General Employee Training (GET-19X/GET-20X)
- General Employee Training Refresher (GET-19XA/GET-20XA)
- Hazardous Waste Worker Supervisor (HWS-101/101A)

Attachment I2, Appendix A

Contents

A2.6 Earthen Fill

Compacted earthen fill comprise approximately 150 m of shaft fill in the Dewey Lake Redbeds and near surface stratigraphy.

A2.6.1 Functions
There are minimal performance requirements imposed for Components 1 and 3 and none that affect regulatory compliance of the site. Specifications for Components 1 and 3 are general: fill the shaft with relatively dense material to reduce subsidence.

A2.56.2 Material Characteristics
Fill can utilize material that was excavated during shaft sinking and stored at the WIPP site, or a borrow pit may be excavated to secure fill material. The bulk fill material may include bentonite additive, if deemed appropriate.

A2.56.3 Construction
Dynamic compaction is specified for the clay column in the Dewey Lake Formation because of its perceived expediency. Vibratory compaction will be used near surface when there is no longer space for the three stage construction deck.

A2.56.4 Performance Requirements
Care will be taken to compact the earthen fill with an energy of twice Modified Proctor energy, which has been shown to produce a dense, uniform fill.

A2.56.6 Verification
Materials placed will be documented, with density measurements as appropriate.

Attachment M1

Section M1-1d(3) Transfer of Disposal Canister into the Facility Cask

The transfer of a canister into the Facility Cask from the Transfer Cell is monitored by closed-circuit television cameras. The Transfer Cell Shuttle Car positions the RH-TRU 72-B cask or Shielded Insert under the Facility Cask Loading Room port and the shield valve is opened. Then the remotely operated 6.25 Ton Grapple Hoist attaches to the canister, and the canister is lifted through the open shield valve into the vertically-oriented Facility Cask located on the Cask Transfer Car in the Facility Cask Loading Room. During this cask-to-cask transfer, the telescoping port shield is in contact with the underside of the Facility Cask to assure shielding continuity, as does the shield bell located above the Facility Cask.

For canisters received at the WIPP from the generator site in a RH-TRU 72-B cask, the identification number is verified using cameras, which also provide images of the canister surfaces during the lifting operation. Identification numbers are verified against the WWIS. If there are any discrepancies, the canister is returned to the RH-TRU 72-B cask, returned to the Parking Area Unit ~~Staging Area~~, and the generator is contacted for resolution. Discrepancies that are not resolved within 15 days will be reported to the NMED as required by 20.4.1.500 NMAC (incorporating 40 CFR §264.72). As the canister is being lifted from the RH-TRU 72-B cask into the Facility Cask, additional swipe samples may be taken.

Attachment M2

M2-5b(3) ~~Confirmatory~~ Volatile Organic Compound Monitoring

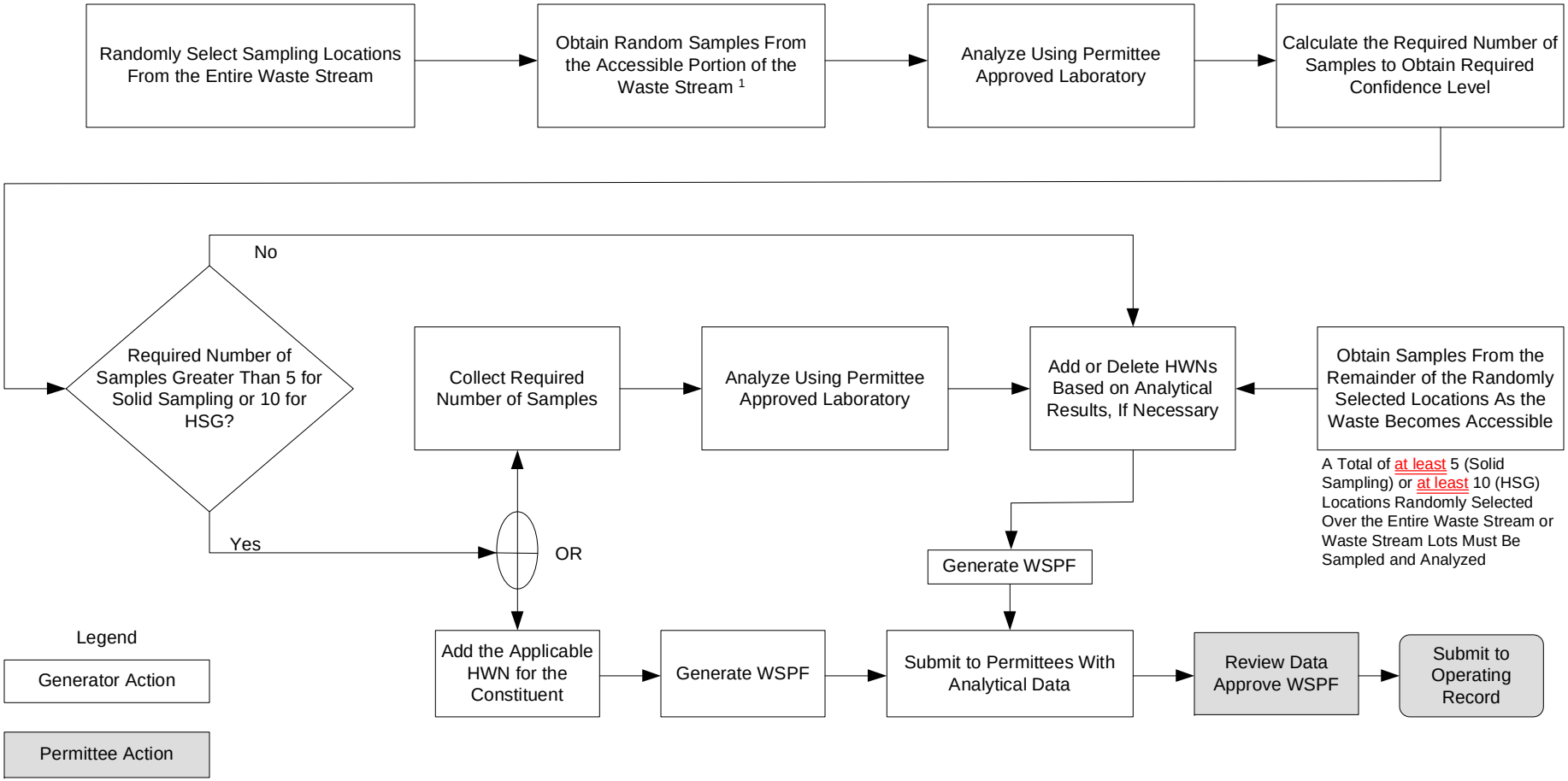
The ~~confirmatory~~ volatile organic compound monitoring for the WIPP Underground HWDUs will be conducted in accordance with Module IV and Permit Attachment N of this permit.

Attachment O

Figures O2-3, O3-1 and O3-2

These figures will be revised to change the “0" to “O” in the figure titles.

ATTACHMENT B



[1] Samples Are Obtained From the First Five Accessible Random Locations for Solid Sampling and the First Ten Accessible Random Locations for Headspace Gas Sampling

Figure B2-1
Approach for Solid and Heasdspace Gas Sampling and Analysis to Obtain Additional Waste Characterization Information

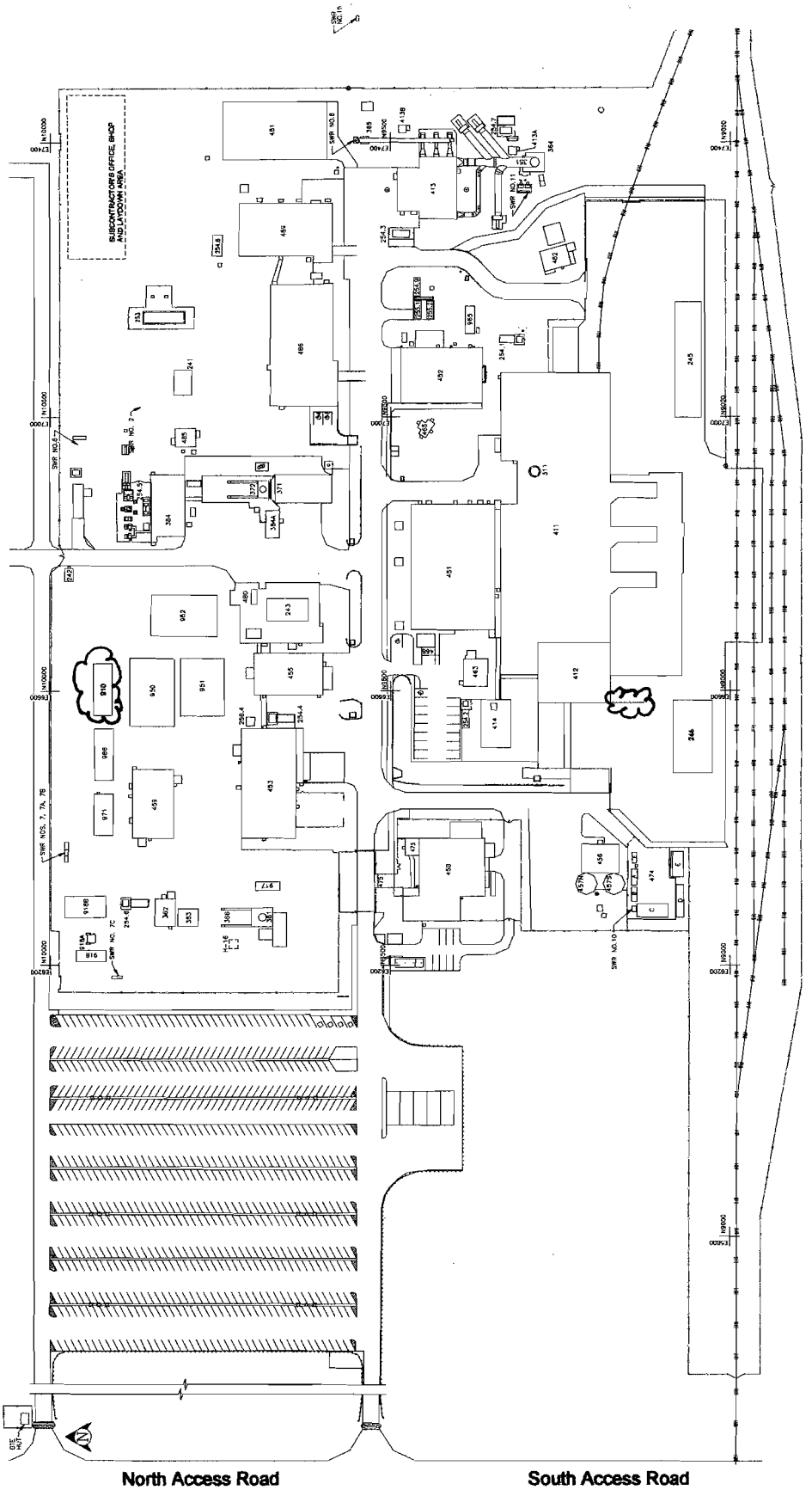


Figure F-1
WIPP Surface Structures

BLDG./ FAC. #	DESCRIPTION	BLDG./ FAC. #	DESCRIPTION	BLDG./ FAC. #	DESCRIPTION
#241	EQUIPMENT SHED	#384	SALT HANDLING SHAFT HOISTHOUSE	#475	GATEHOUSE
#242	GUARDSHACK	#384A	MINING OPERATIONS	#480	VEHICLE FUEL STATION
#243	SALT HAULING TRUCKS SHELTER	#411	WASTE HANDLING BUILDING	#481	WAREHOUSE ANNEX
#245	TRUPACT TRALER SHELTER	#412	TRUPACT MAINTENANCE BUILDING	#482	EXHAUST SHAFT HOIST EQUIP. WAREHOUSE
#246	MgO STORAGE SHELTER	#413	EXHAUST SHAFT FILTER BUILDING	#485	SULLAIR COMPRESSOR BUILDING
#253	13.8 KV SWITCHGEAR 25P-SWG15/1	#413A	MONITORING STATION A	#486	ENGINEERING BUILDING
#254.1	AREA SUBSTATION NO. 1 25P-SW15.1	#413B	MONITORING STATION B	#489	TRAINING BUILDING
#254.2	AREA SUBSTATION NO. 2 25P-SW15.2	#414	WATER CHILLER FACILITY & BLDG	#H-16	SANDIA TEST WELL
#254.3	AREA SUBSTATION NO. 3 25P-SW15.3	#451	SUPPORT BUILDING	~~#910~~	~~ENVIRONMENTAL MONITORING TRAILER~~
#254.4	AREA SUBSTATION NO. 4 25P-SW15.4	#452	SAFETY & EMERGENCY SERVICES FACILITY	#917	AIS MONITORING
#254.5	AREA SUBSTATION NO. 5 25P-SW15.5	#453	WAREHOUSE/SHOPS BUILDING	#918	VOC TRAILER
#254.6	AREA SUBSTATION NO. 6 25P-SW15.6	#455	AUXILLIARY WAREHOUSE BUILDING	#918A	VOC AIR MONITORING STATION
#254.7	AREA SUBSTATION NO. 7 25P-SW15.7	#456	WATER PUMPHOUSE	#918B	VOC LAB TRAILER
#254.8	AREA SUBSTATION NO. 8 25P-SW15.8	#457N	WATER TANK 25-D-001A	#950	WORK CONTROL TRAILER
#254.9	480V SWITCHGEAR (25P-SWGO4/9)	#457S	WATER TANK 25-D-001B	#951	PROCUREMENT/PURCHASING
#255.1	BACK-UP DIESEL GENERATOR #1 25-PE 503	#458	GUARD AND SECURITY BUILDING	#952	TRAILER
#255.2	BACK-UP DIESEL GENERATOR #2 25-PE 504	#459	CORE STORAGE BUILDING	#965	SAMPLE LABORATORY TRAILER
#256.4	SWITCHBOARD #4 (25P-SBD04/4)	#463	COMPRESSOR BUILDING	#971	HUMAN RESOURCES TRAILER
#311	WASTE SHAFT	#465	AUXILLIARY AIR INTAKE	#986	PUBLICATIONS & PROCEDURES TRAILER
#351	EXHAUST SHAFT	#468	TELEPHONE HUT	SWR NO. 6	SWITCHRACK NO. 6
#361	AIR INTAKE SHAFT	#473	ARMORY BUILDING	SWR NO. 7, 7A, 7B	SWITCHRACK NO. 7, 7A, 7B
#362	AIR INTAKE SHAFT/HOIST HOUSE	#474	HAZARDOUS WASTE STORAGE FACILITY	SWR NO. 7C	SWITCHRACK NO. 7C
#363	AIR INTAKE SHAFT/WINCH HOUSE	#474A	HAZARDOUS WASTE STORAGE BUILDING	SWR NO. 10	SWITCHRACK NO. 10
#364	EFFLUENT MONITORING INSTRUMENT SHED A	#474B	HAZARDOUS WASTE STORAGE BUILDING	SWR NO. 11	SWITCHRACK NO. 11
#365	EFFLUENT MONITORING INSTRUMENT SHED B	#474C	OIL & GREASE STORAGE BUILDING	SWR NO. 12	SWITCHRACK NO. 12
#366	AIR INTAKE SHAFT HEADFRAME	#474D	GAS BOTTLE STORAGE BUILDING	SWR NO. 15	SWITCHRACK NO. 15
#371	SALT HANDLING SHAFT	#474E	HAZARD MATERIAL STORAGE BUILDING		
#372	SALT HANDLINT SHAFT HEADFRAME	#474F	WASTE OIL RETAINER		

Figure F-1a
Legend to Figure F-1

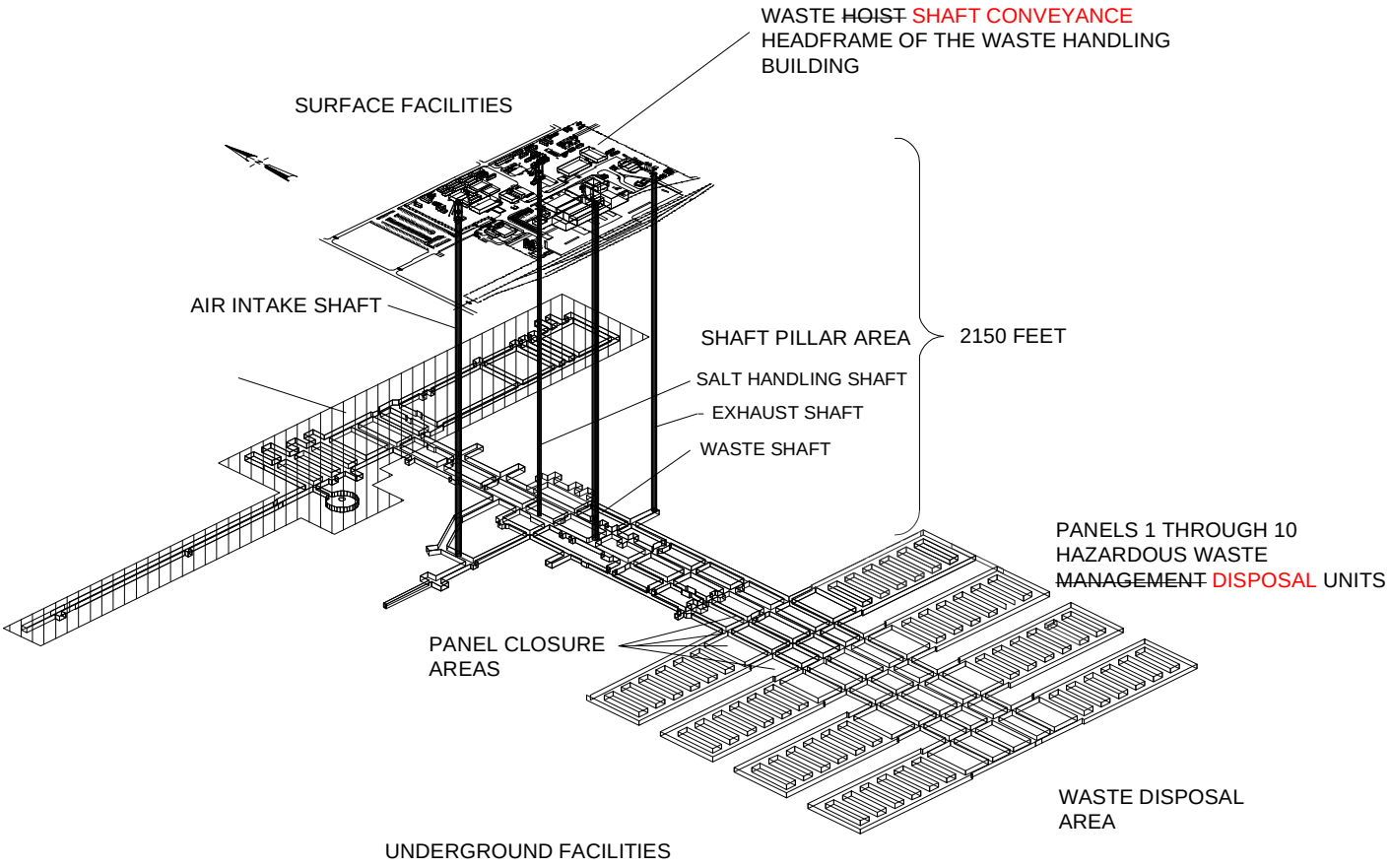
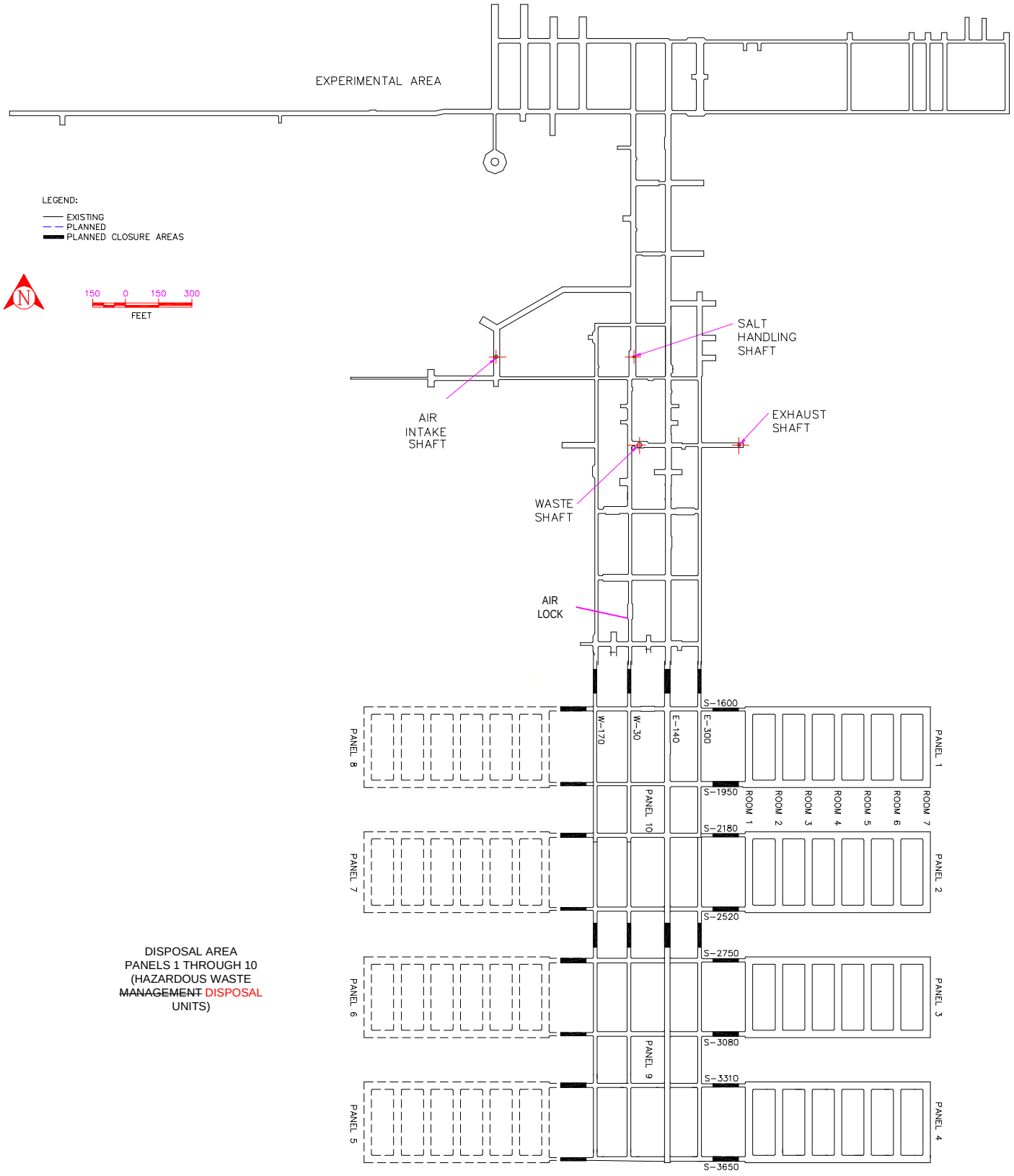


Figure F-2
Spatial View of the WIPP Facility



DISPOSAL AREA
PANELS 1 THROUGH 10
(HAZARDOUS WASTE
~~MANAGEMENT~~ DISPOSAL
UNITS)

Figure F-3
WIPP Underground Facilities

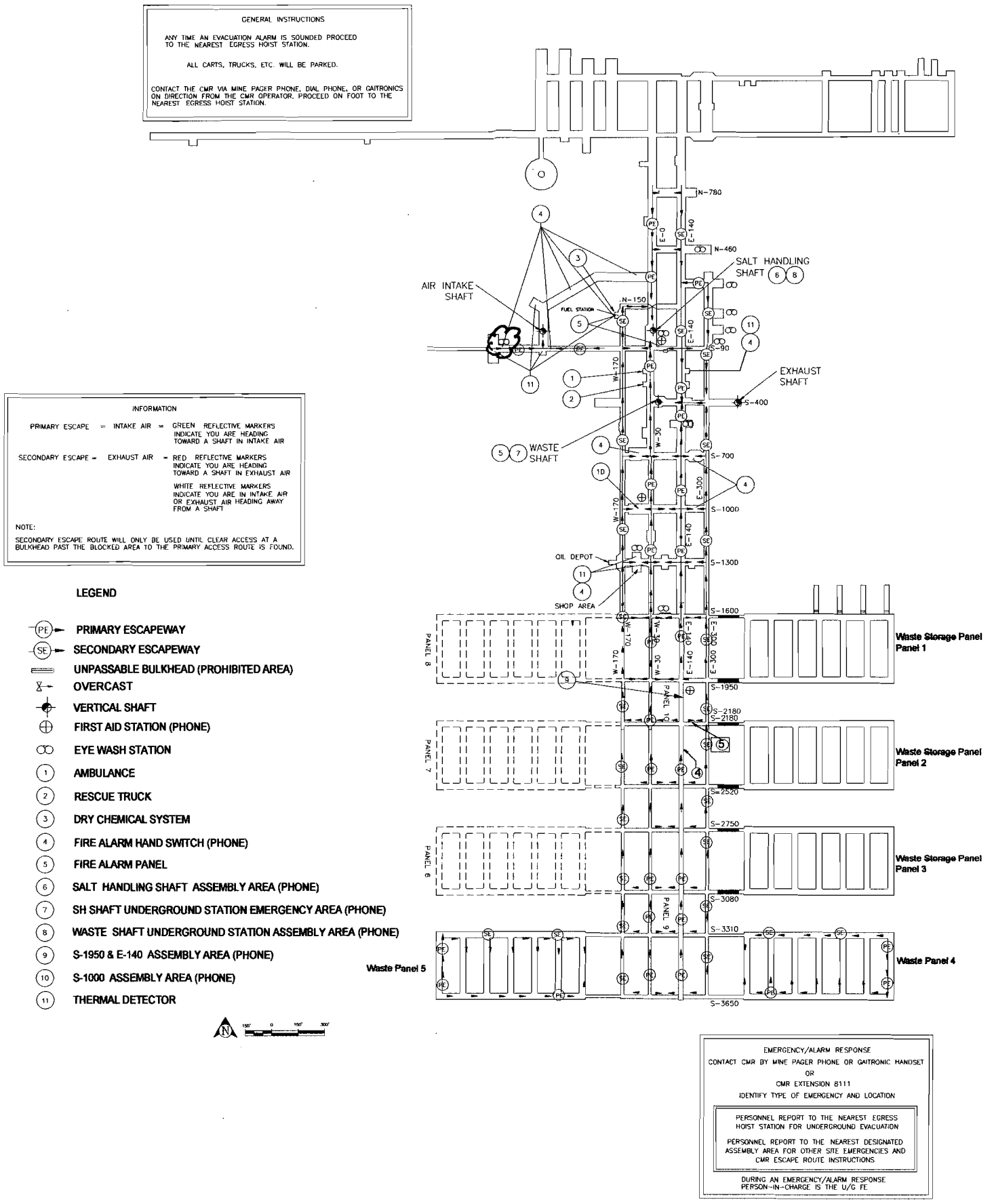


Figure F-5
Underground Emergency Equipment Locations and Underground Evacuation Routes

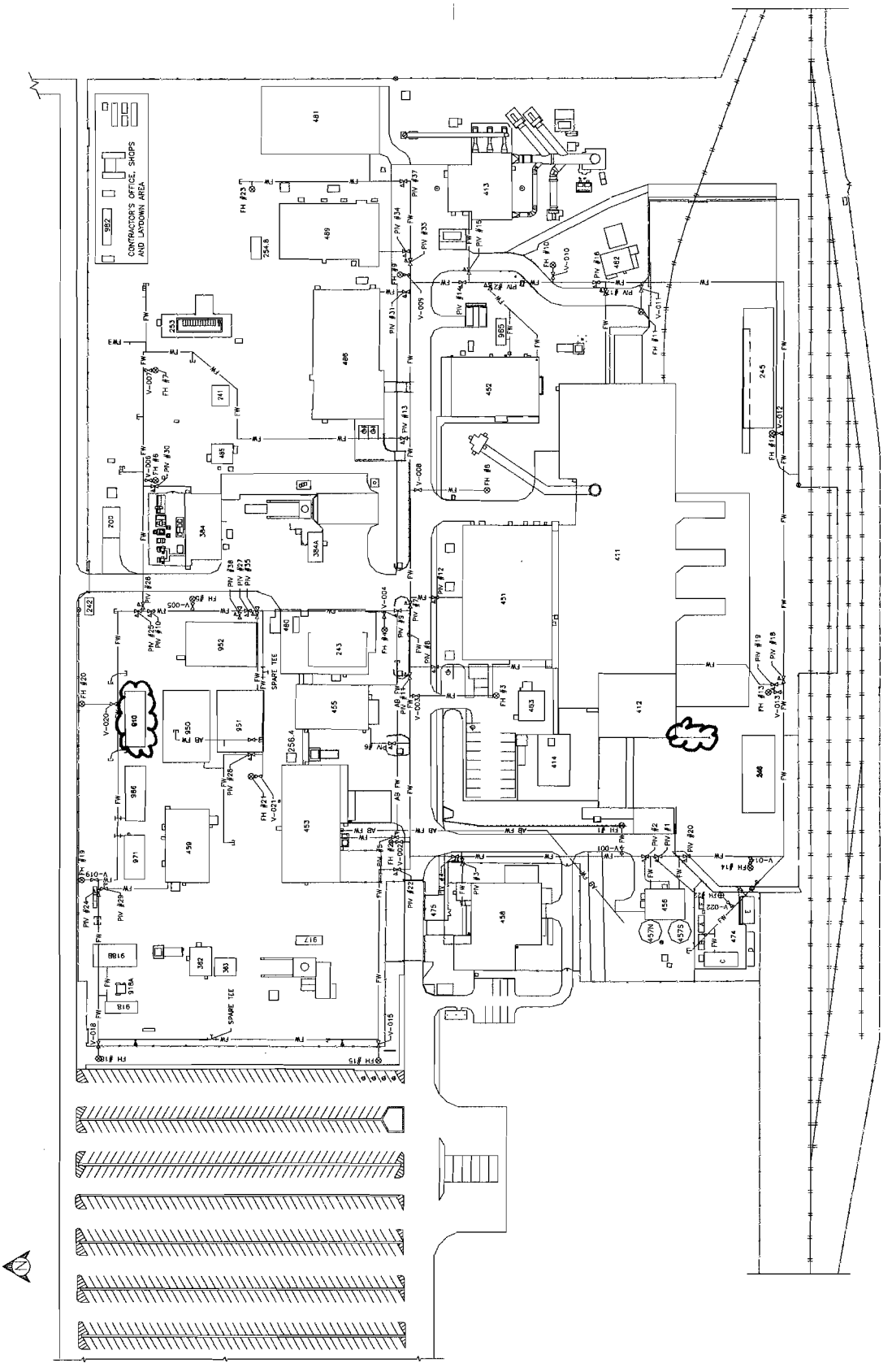


Figure F-6
Fire-Water Distribution System

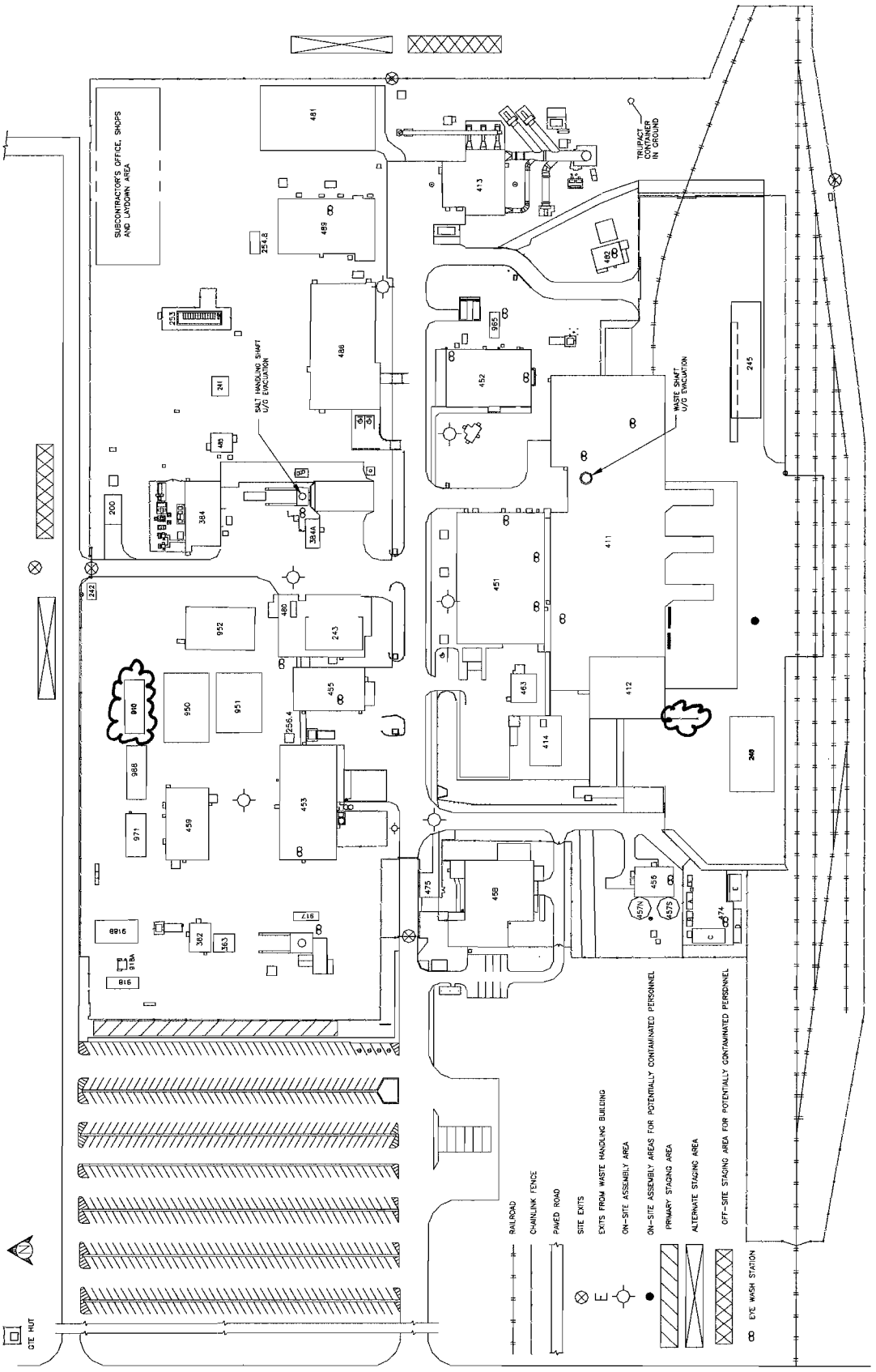
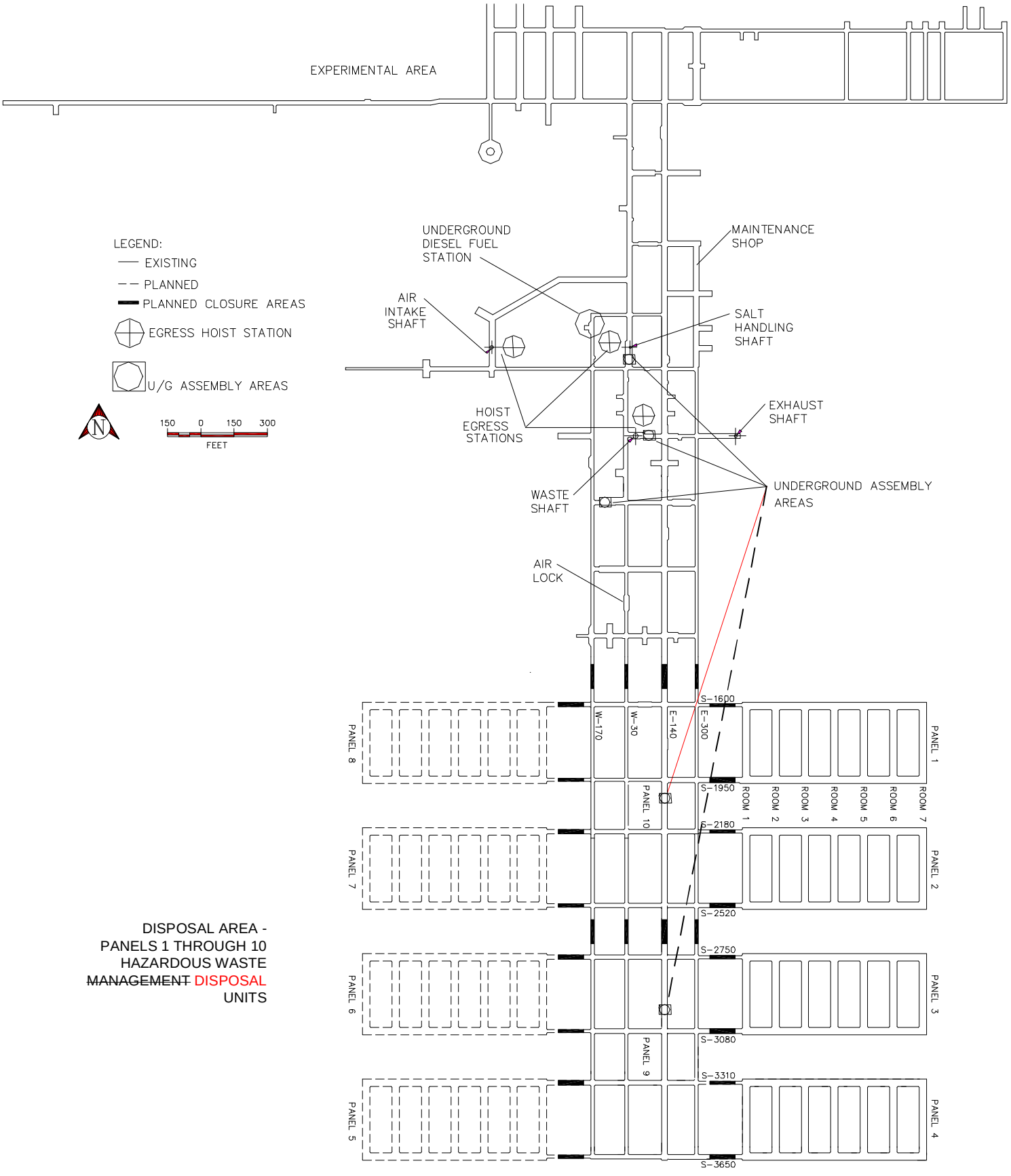


Figure F-8
WIPP On-Site Assembly Areas and WIPP Staging Areas



DISPOSAL AREA - PANELS 1 THROUGH 10 HAZARDOUS WASTE ~~MANAGEMENT~~ DISPOSAL UNITS

Figure F-9
Designated Underground Assembly Areas

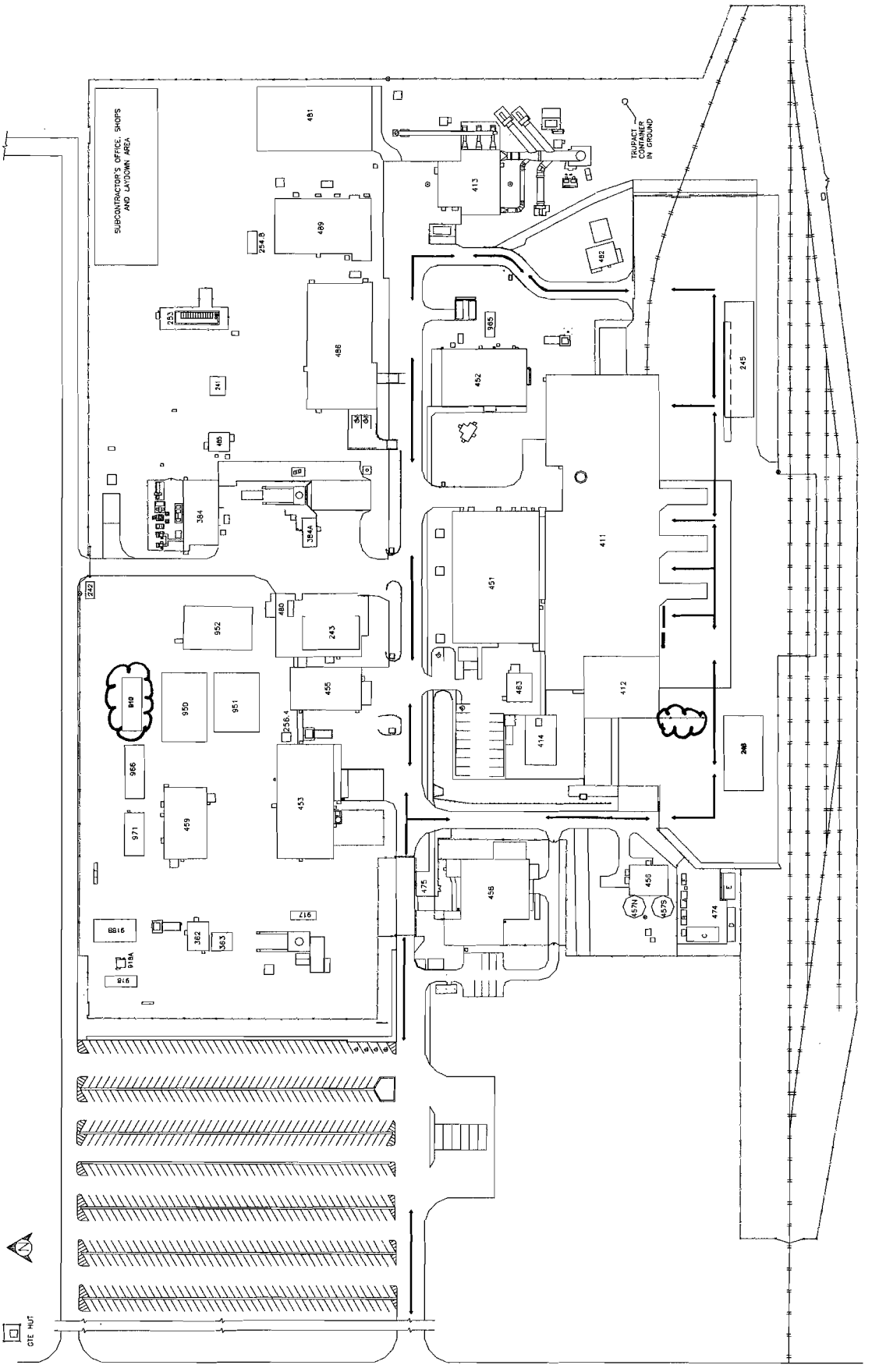


Figure G-2
WIPP Traffic Flow Diagram

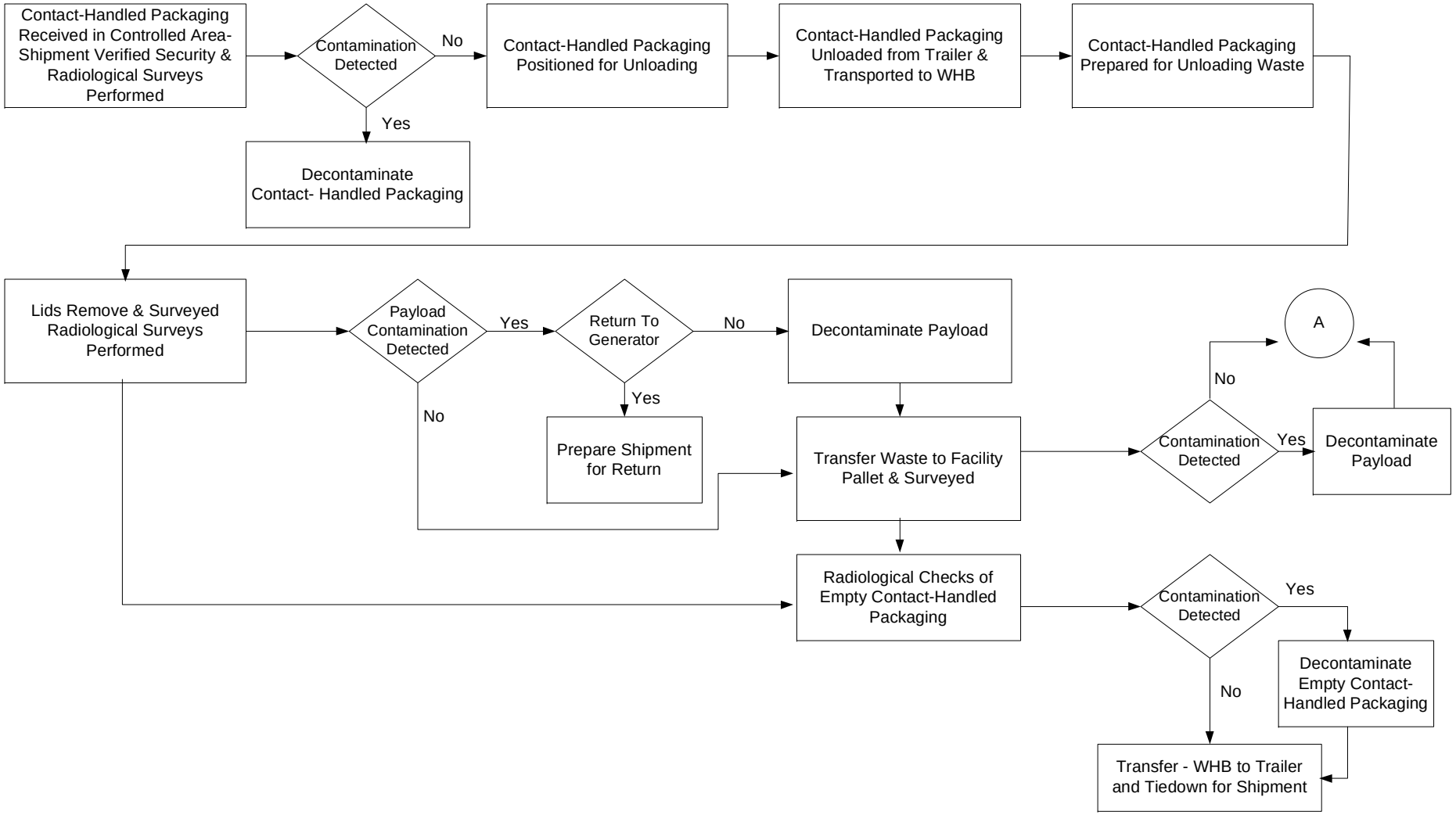


Figure M1-13
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow

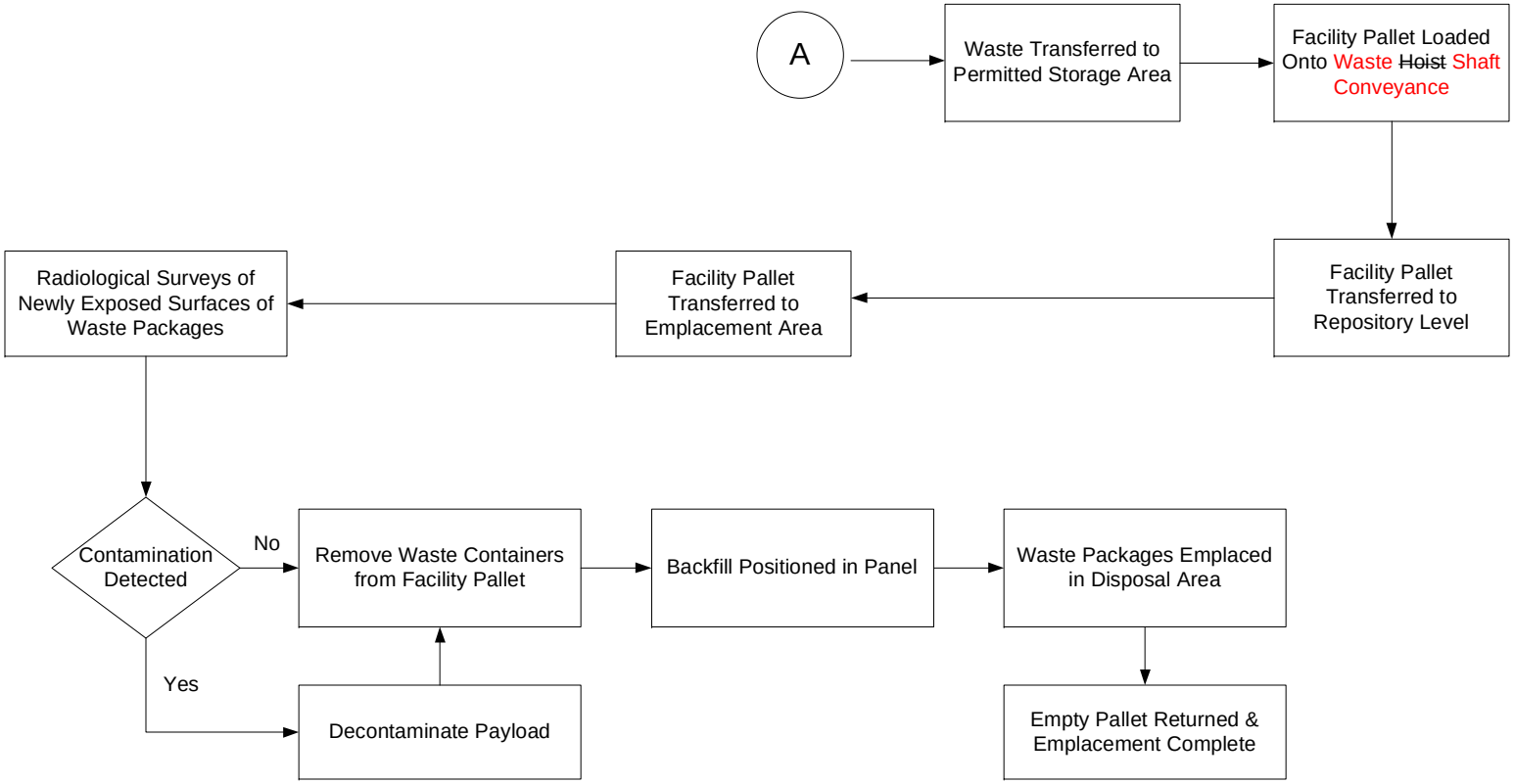


Figure M1-13
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow (continued)

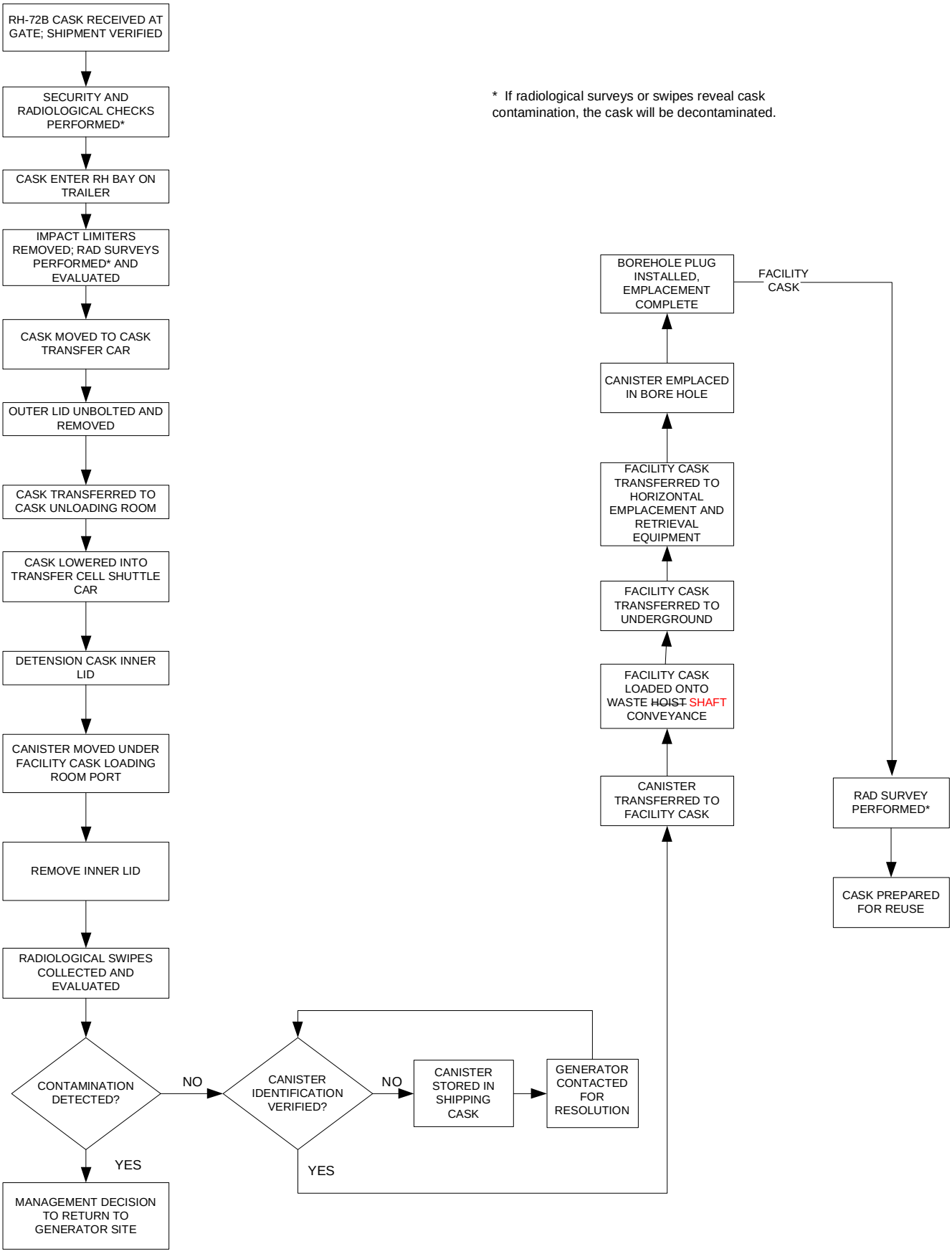


Figure M1-26
Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for RH-TRU 72-B Shipping Cask

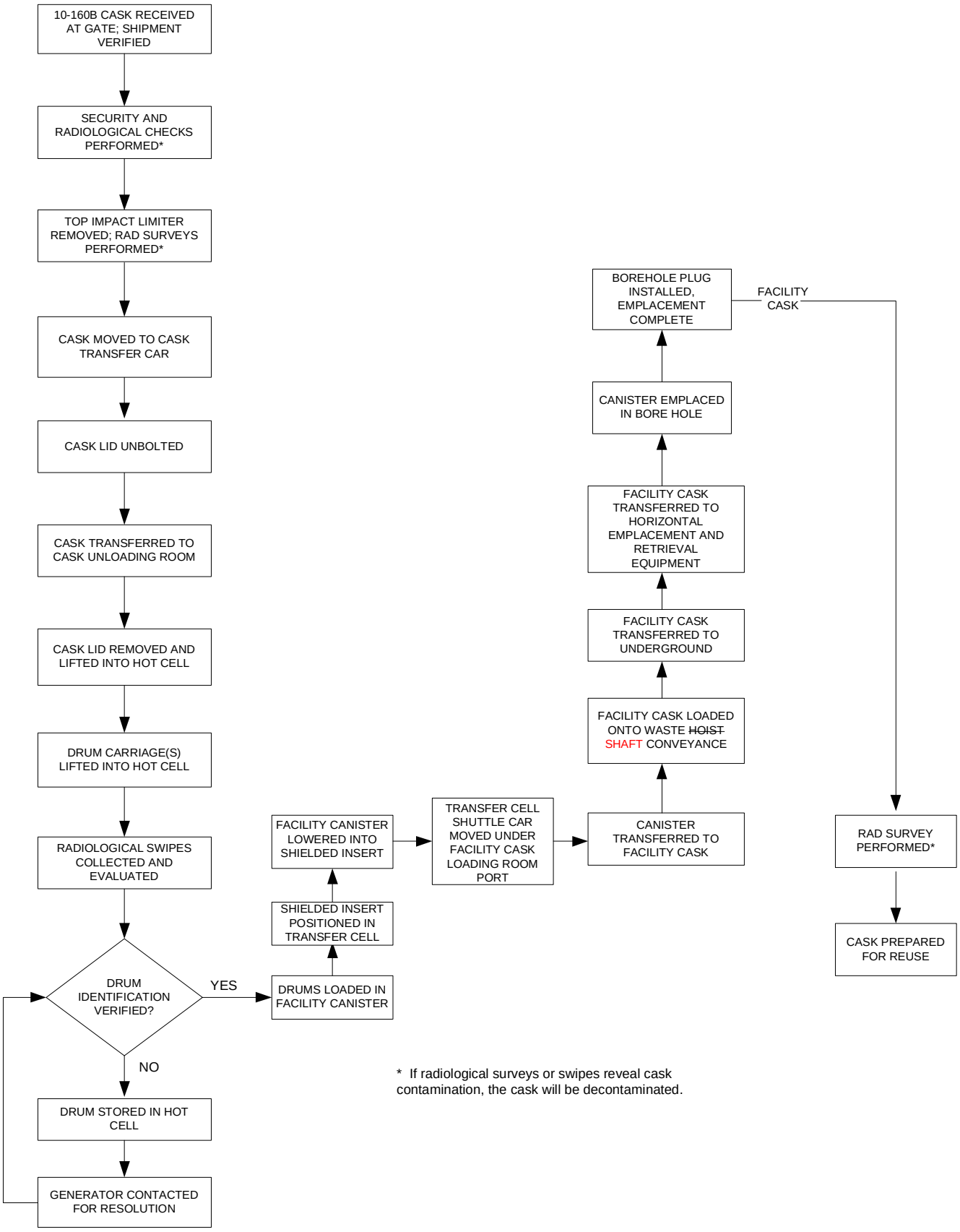


Figure M1-27
Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for CNS 10-160B Shipping Cask

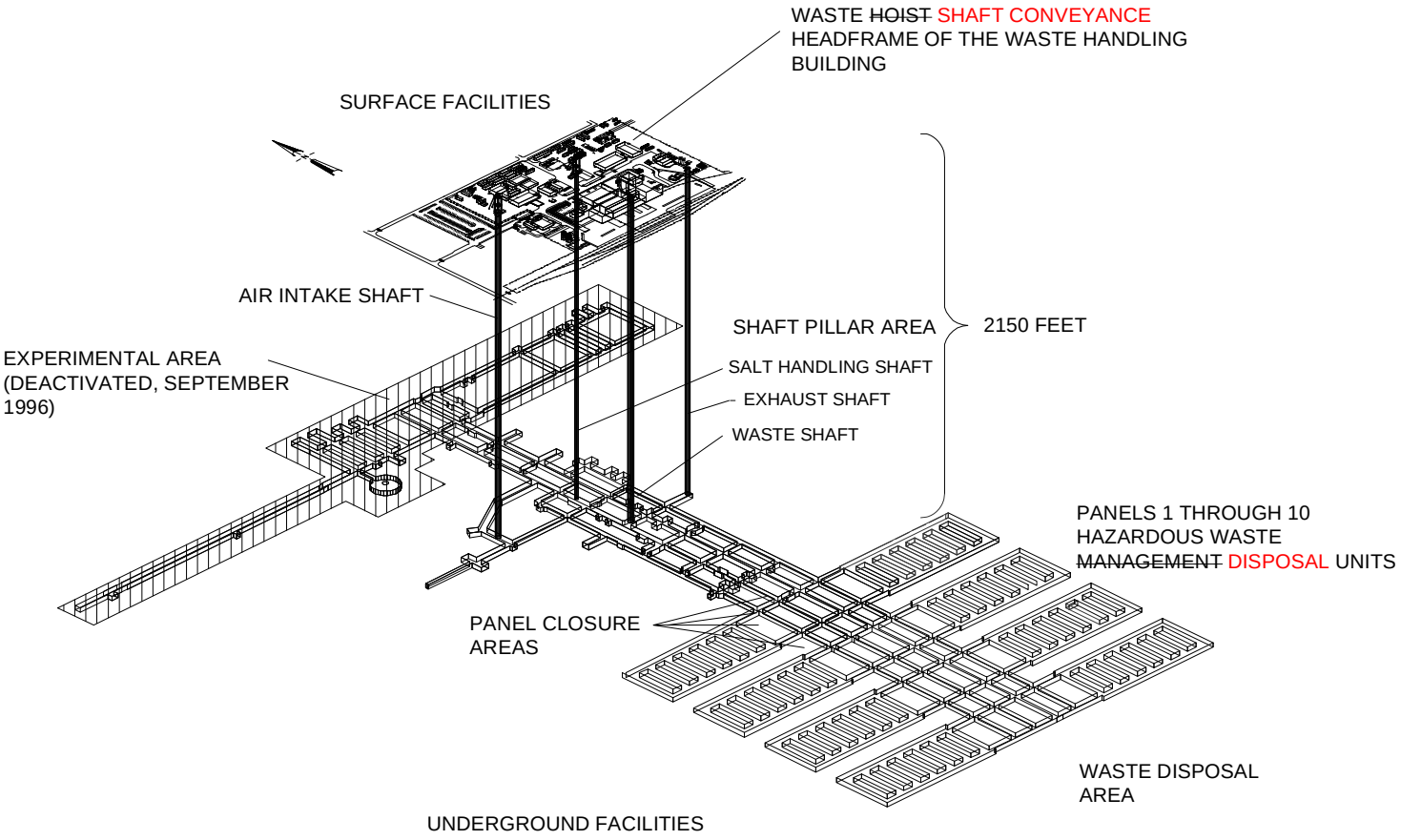


Figure M2-2
Spatial View of the Miscellaneous Unit and Waste Handling Facility

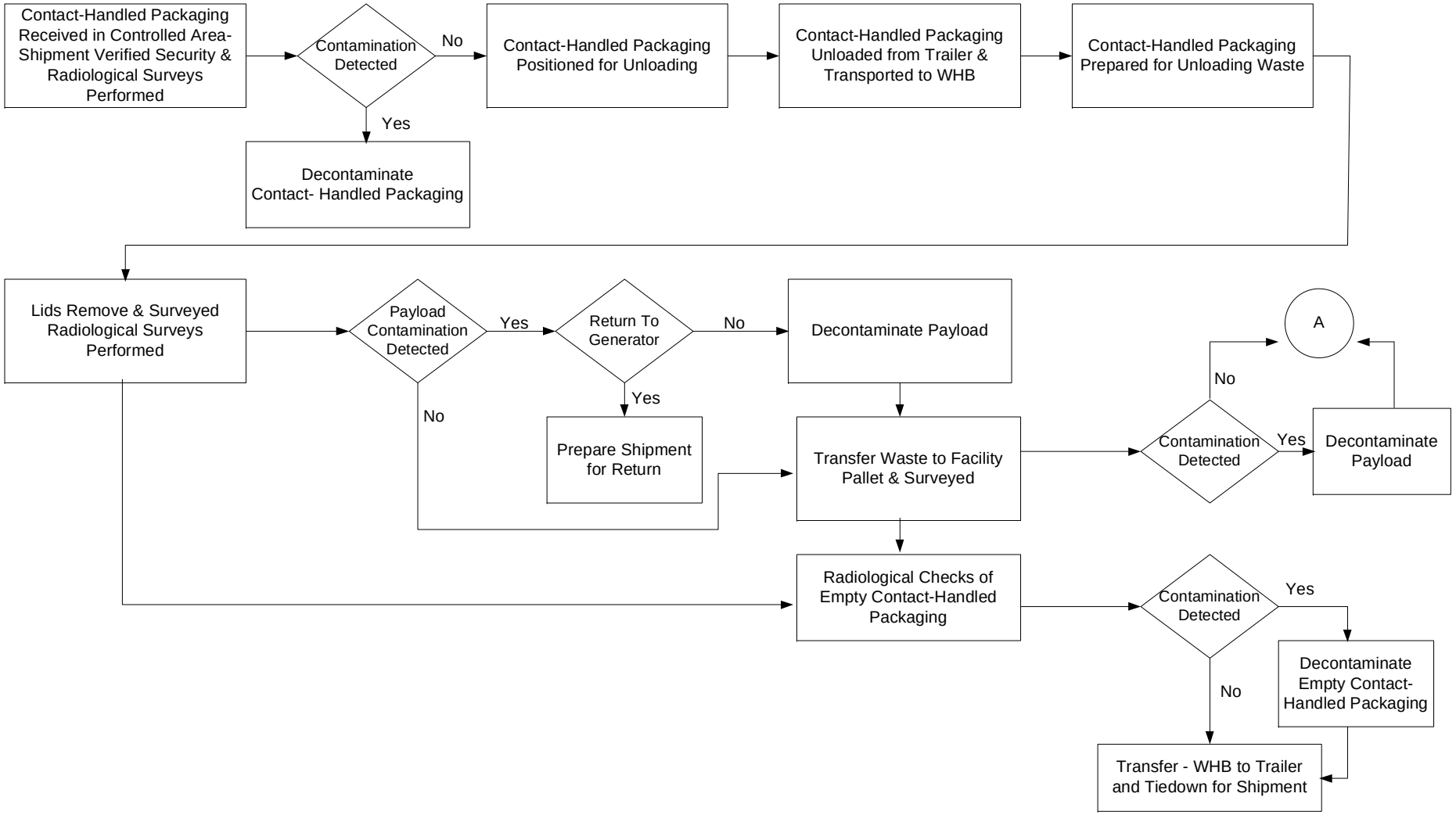


Figure M2-12

WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow

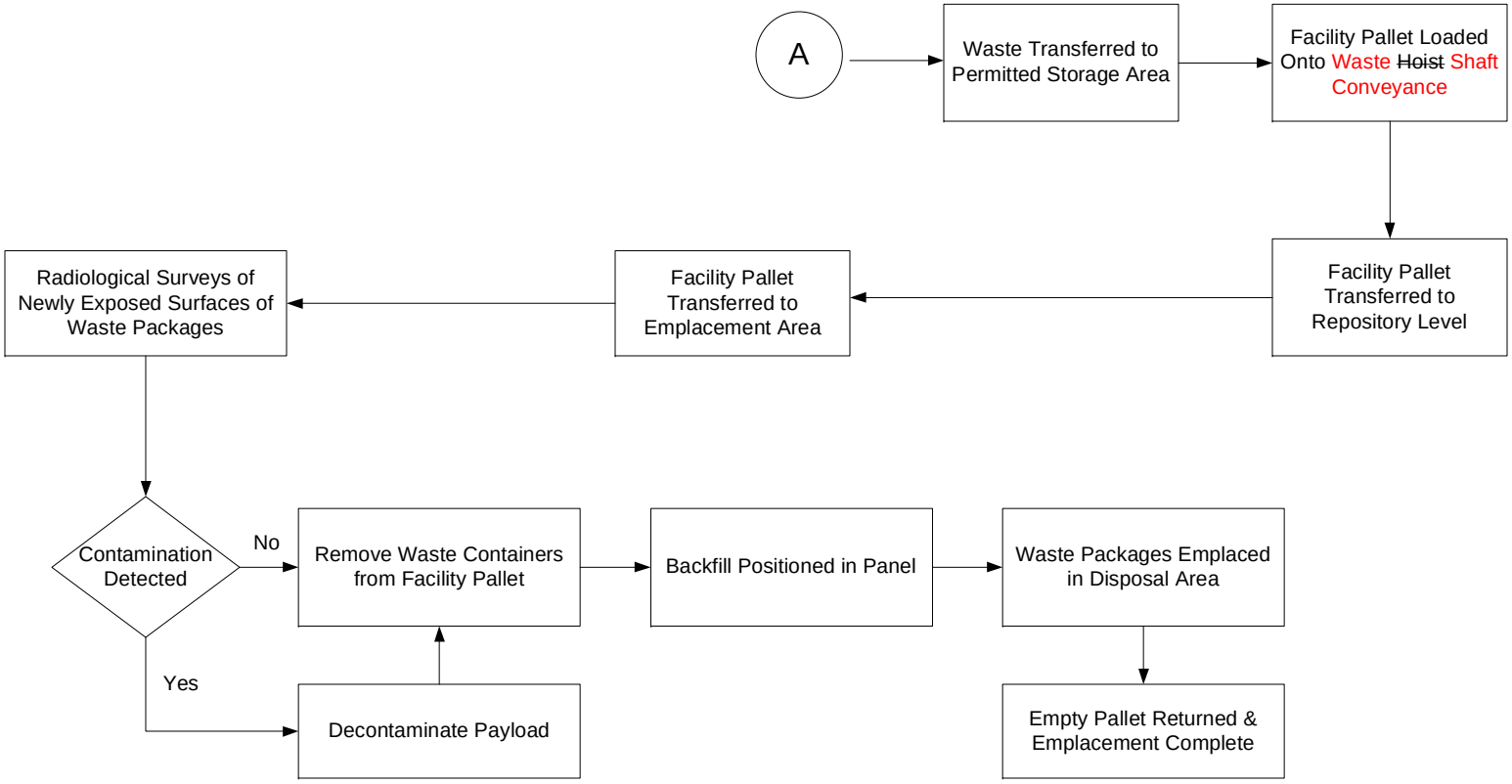


Figure M2-12
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow (continued)

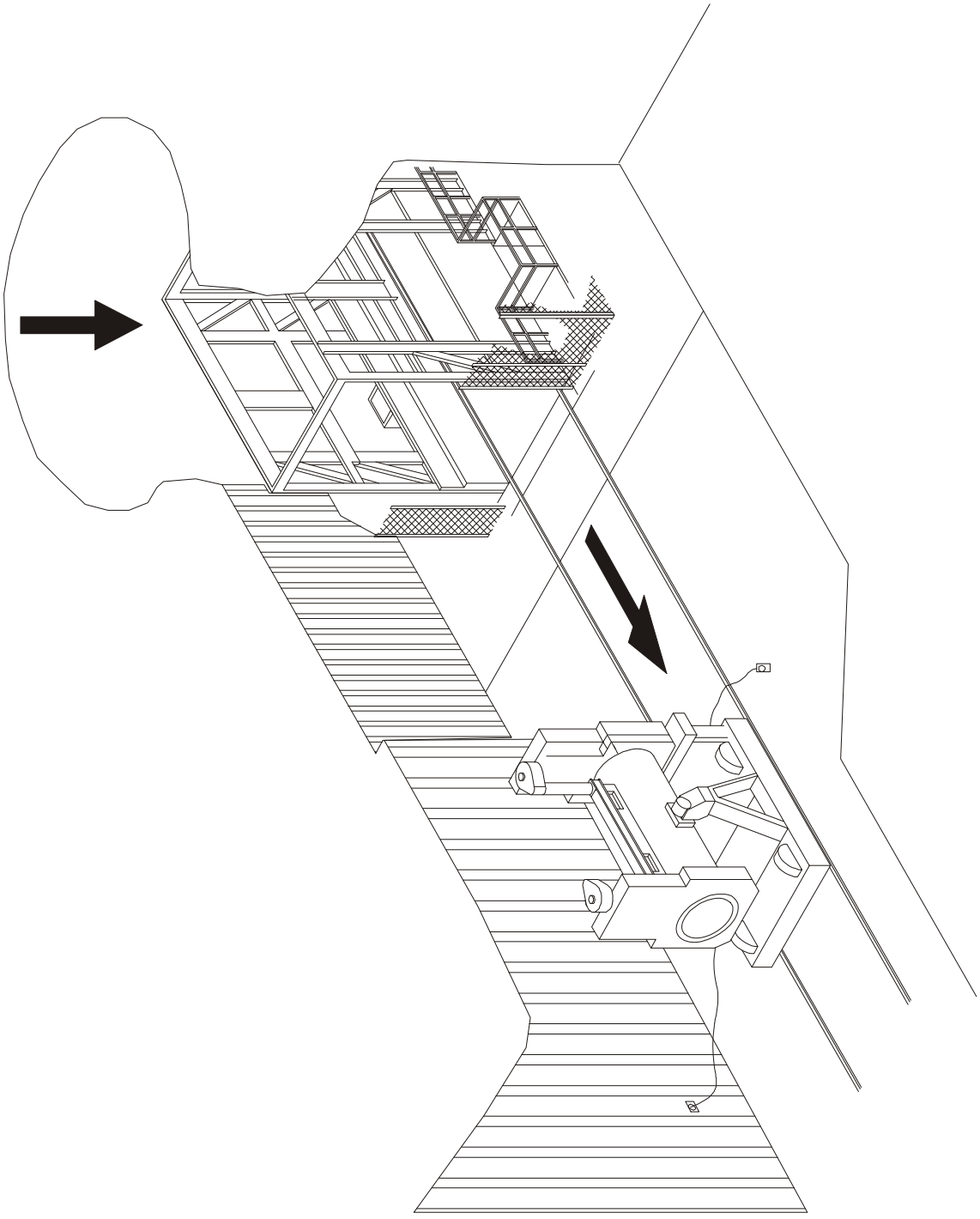


Figure M2-16
RH TRU Waste Facility Cask Unloading from Waste ~~Hoist~~ Shaft Conveyance

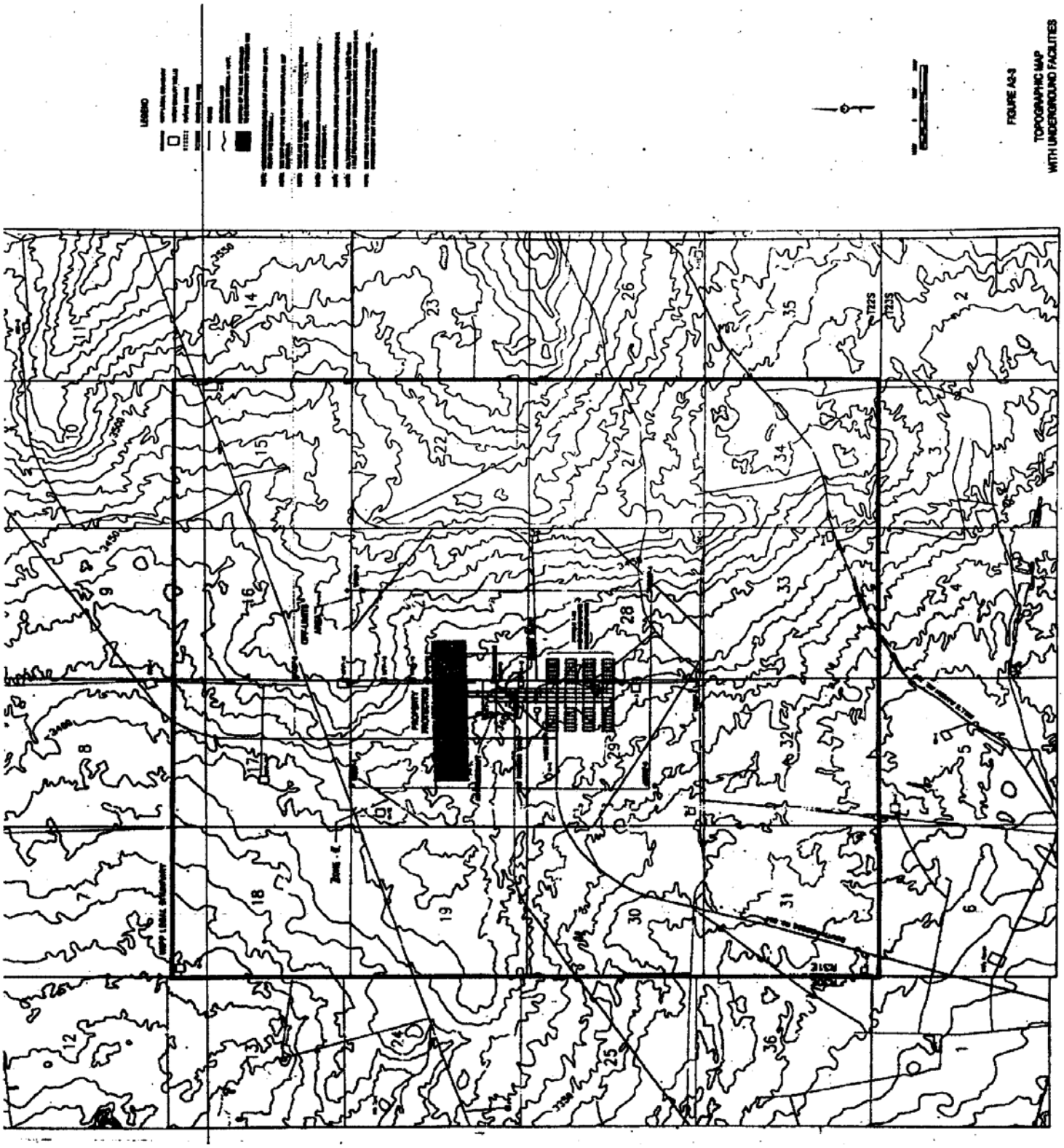


Figure ~~0~~O2-3
Topographical Map Designating WIPP Property Boundaries and Underground

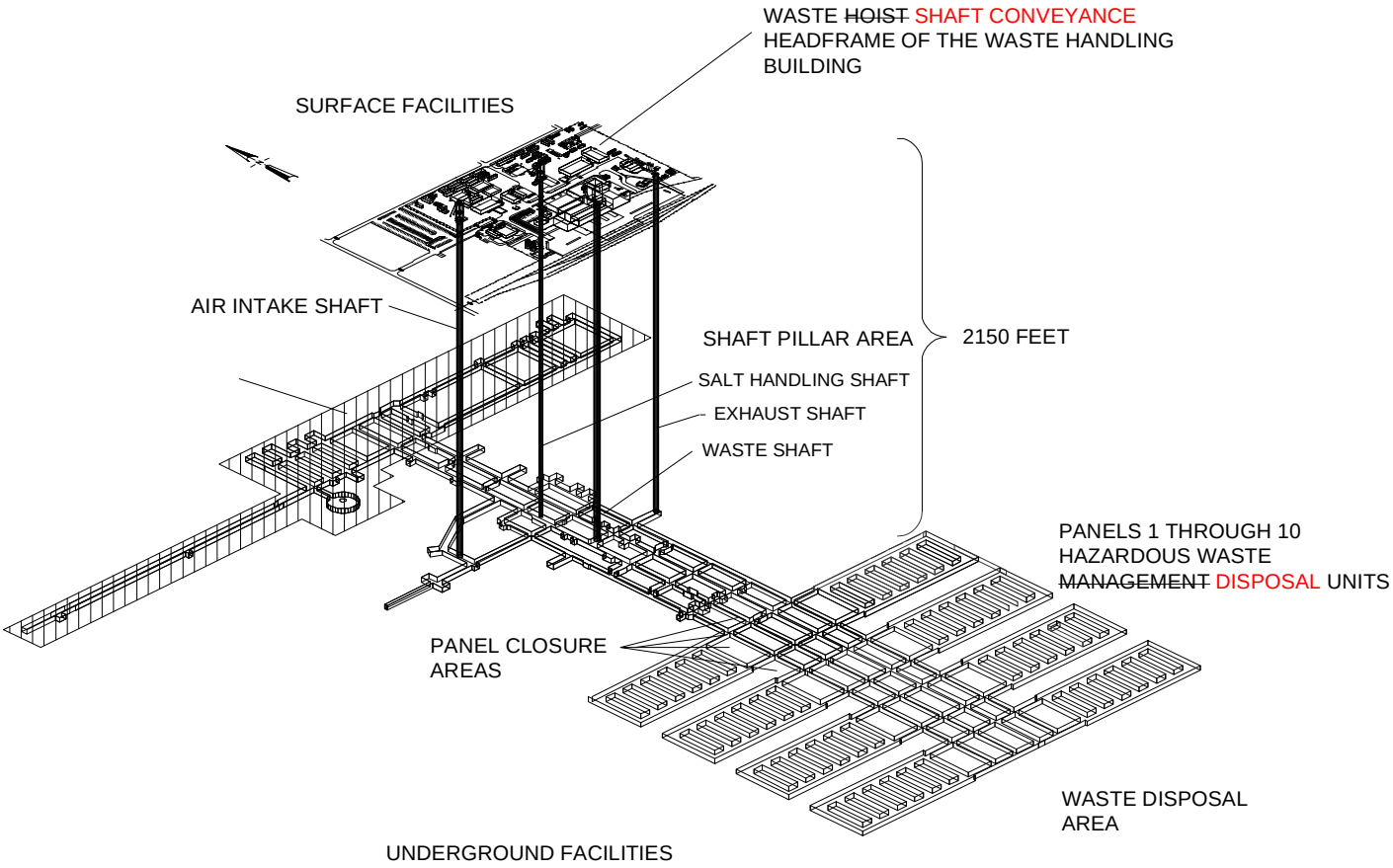
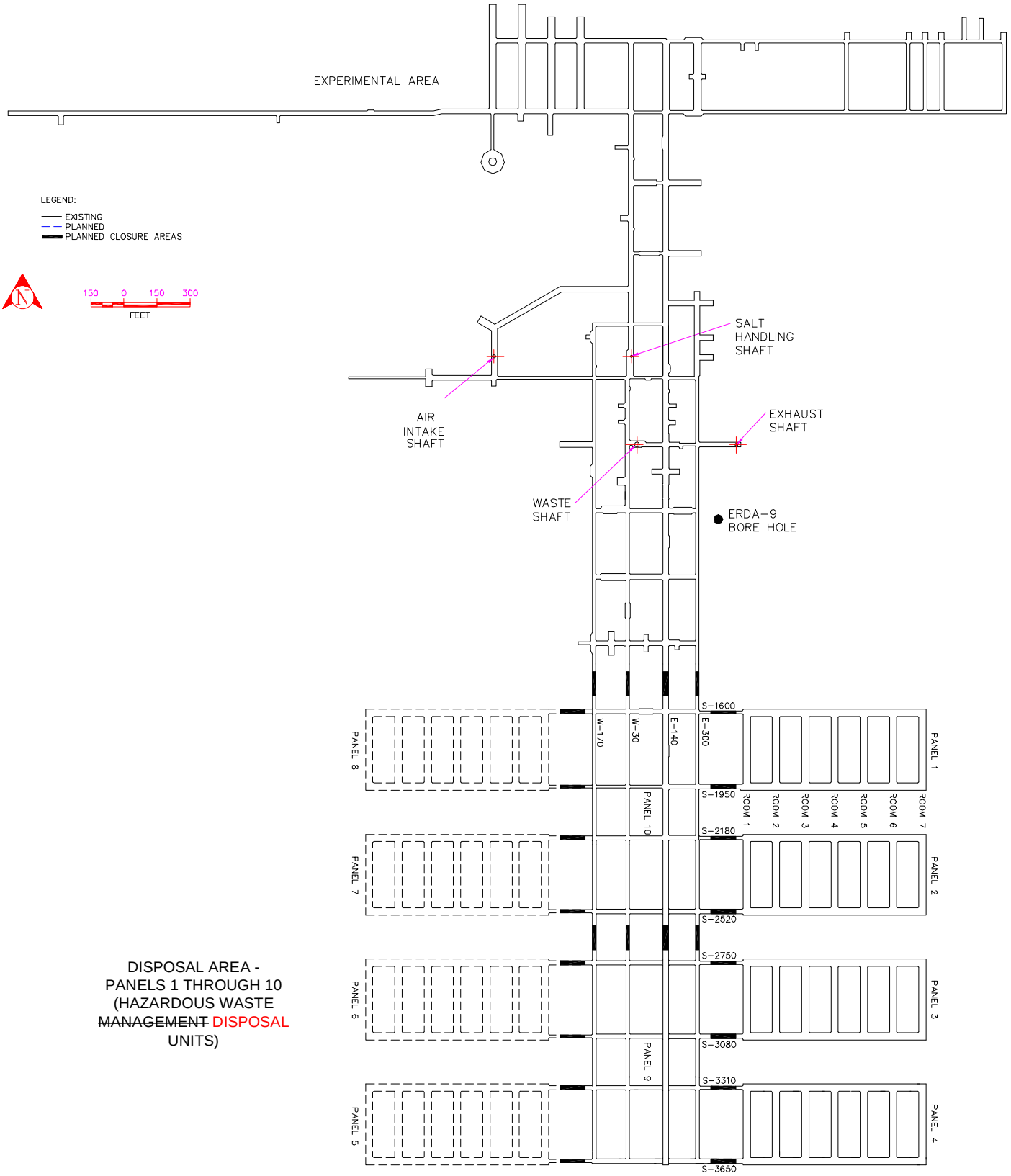


Figure ~~0~~O3-1
Spatial View of the WIPP Facility

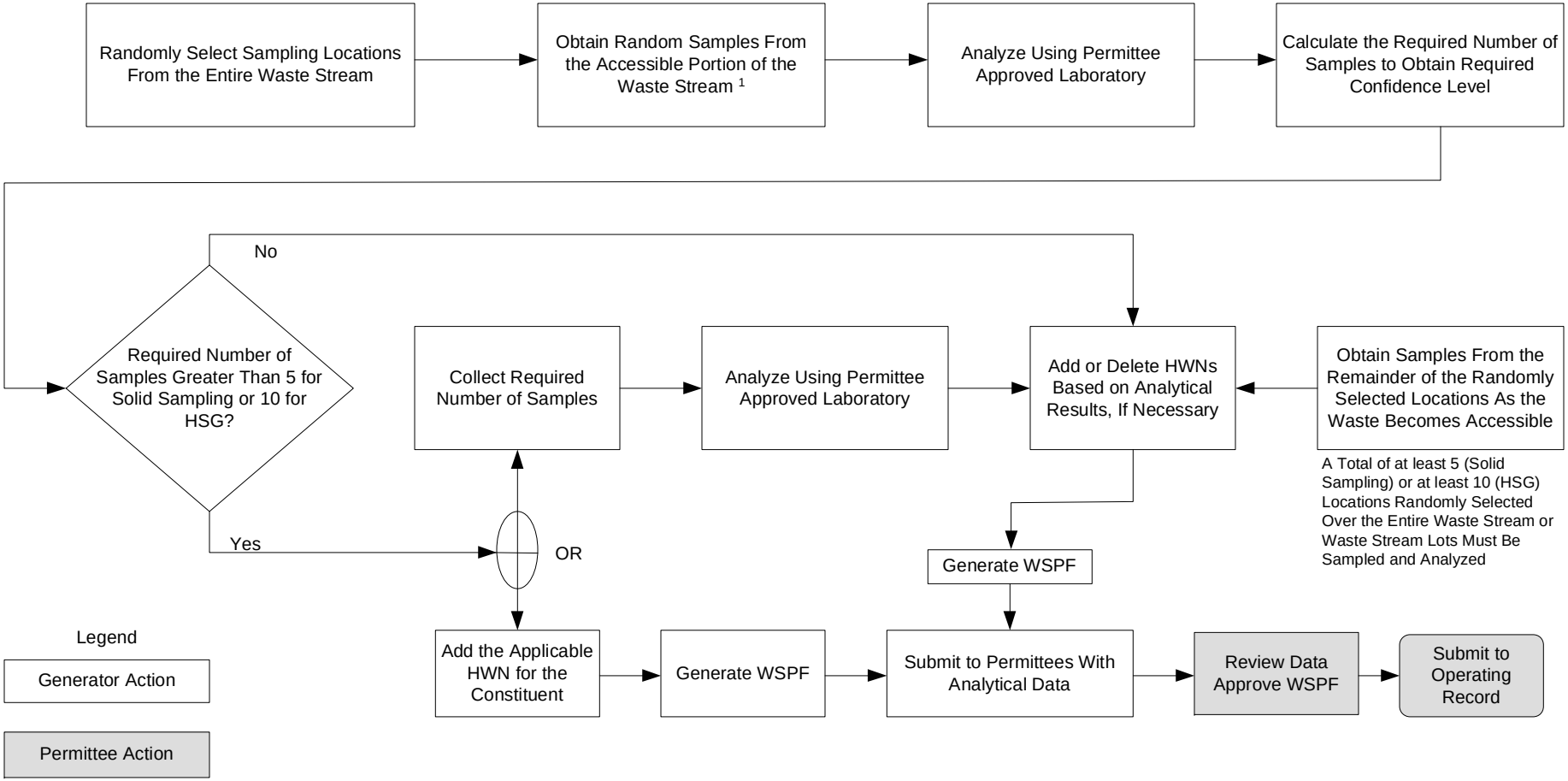


DISPOSAL AREA - PANELS 1 THROUGH 10 (HAZARDOUS WASTE ~~MANAGEMENT~~ DISPOSAL UNITS)

Figure ~~0~~O3-2
Repository Horizon

Figure O4-7
Waste ~~Hoist~~ Shaft Conveyance - Loading Facility Pallet with CH Waste, Waste Handling Building

Attachment C
Clean Copy Figures



[1] Samples Are Obtained From the First Five Accessible Random Locations for Solid Sampling and the First Ten Accessible Random Locations for Headspace Gas Sampling

Figure B2-1
Approach for Solid and Heasdspace Gas Sampling and Analysis to Obtain Additional Waste Characterization Information

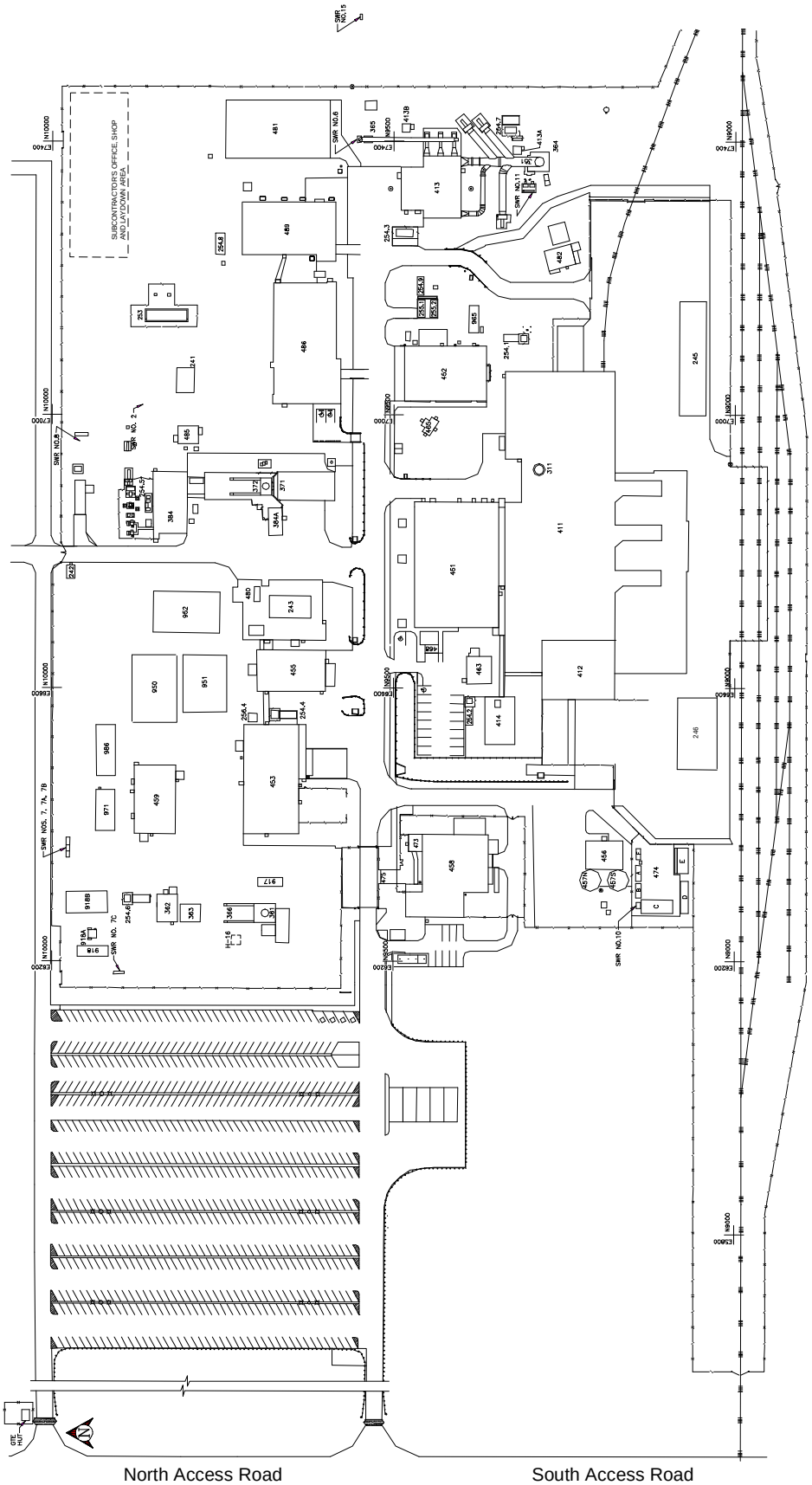


Figure F-1
WIPP Surface Structures

BLDG./ FAC. #	DESCRIPTION	BLDG./ FAC. #	DESCRIPTION	BLDG./ FAC. #	DESCRIPTION
#241	EQUIPMENT SHED	#384	SALT HANDLING SHAFT HOISTHOUSE	#475	GATEHOUSE
#242	GUARDSHACK	#384A	MINING OPERATIONS	#480	VEHICLE FUEL STATION
#243	SALT HAULING TRUCKS SHELTER	#411	WASTE HANDLING BUILDING	#481	WAREHOUSE ANNEX
#245	TRUPACT TRALER SHELTER	#412	TRUPACT MAINTENANCE BUILDING	#482	EXHAUST SHAFT HOIST EQUIP. WAREHOUSE
#246	MgO STORAGE SHELTER	#413	EXHAUST SHAFT FILTER BUILDING	#485	SULLAIR COMPRESSOR BUILDING
#253	13.8 KV SWITCHGEAR 25P-SWG15/1	#413A	MONITORING STATION A	#486	ENGINEERING BUILDING
#254.1	AREA SUBSTATION NO. 1 25P-SW15.1	#413B	MONITORING STATION B	#489	TRAINING BUILDING
#254.2	AREA SUBSTATION NO. 2 25P-SW15.2	#414	WATER CHILLER FACILITY & BLDG	#H-16	SANDIA TEST WELL
#254.3	AREA SUBSTATION NO. 3 25P-SW15.3	#451	SUPPORT BUILDING	#917	AIS MONITORING
#254.4	AREA SUBSTATION NO. 4 25P-SW15.4	#452	SAFETY & EMERGENCY SERVICES FACILITY	#918	VOC TRAILER
#254.5	AREA SUBSTATION NO. 5 25P-SW15.5	#453	WAREHOUSE/SHOPS BUILDING	#918A	VOC AIR MONITORING STATION
#254.6	AREA SUBSTATION NO. 6 25P-SW15.6	#455	AUXILLIARY WAREHOUSE BUILDING	#918B	VOC LAB TRAILER
#254.7	AREA SUBSTATION NO. 7 25P-SW15.7	#456	WATER PUMPHOUSE	#950	WORK CONTROL TRAILER
#254.8	AREA SUBSTATION NO. 8 25P-SW15.8	#457N	WATER TANK 25-D-001A	#951	PROCUREMENT/PURCHASING
#254.9	480V SWITCHGEAR (25P-SWGO4/9)	#457S	WATER TANK 25-D-001B	#952	TRAILER
#255.1	BACK-UP DIESEL GENERATOR #1 25-PE 503	#458	GUARD AND SECURITY BUILDING	#965	SAMPLE LABORATORY TRAILER
#255.2	BACK-UP DIESEL GENERATOR #2 25-PE 504	#459	CORE STORAGE BUILDING	#971	HUMAN RESOURCES TRAILER
#256.4	SWITCHBOARD #4 (25P-SBD04/4)	#463	COMPRESSOR BUILDING	#986	PUBLICATIONS & PROCEDURES TRAILER
#311	WASTE SHAFT	#465	AUXILLIARY AIR INTAKE	SWR NO. 6	SWITCHRACK NO. 6
#351	EXHAUST SHAFT	#468	TELEPHONE HUT	SWR NO. 7, 7A, 7B	SWITCHRACK NO. 7, 7A, 7B
#361	AIR INTAKE SHAFT	#473	ARMORY BUILDING	SWR NO. 7C	SWITCHRACK NO. 7C
#362	AIR INTAKE SHAFT/HOIST HOUSE	#474	HAZARDOUS WASTE STORAGE FACILITY	SWR NO. 10	SWITCHRACK NO. 10
#363	AIR INTAKE SHAFT/WINCH HOUSE	#474A	HAZARDOUS WASTE STORAGE BUILDING	SWR NO. 11	SWITCHRACK NO. 11
#364	EFFLUENT MONITORING INSTRUMENT SHED A	#474B	HAZARDOUS WASTE STORAGE BUILDING	SWR NO. 12	SWITCHRACK NO. 12
#365	EFFLUENT MONITORING INSTRUMENT SHED B	#474C	OIL & GREASE STORAGE BUILDING	SWR NO. 15	SWITCHRACK NO. 15
#366	AIR INTAKE SHAFT HEADFRAME	#474D	GAS BOTTLE STORAGE BUILDING		
#371	SALT HANDLING SHAFT	#474E	HAZARD MATERIAL STORAGE BUILDING		
#372	SALT HANDLINT SHAFT HEADFRAME	#474F	WASTE OIL RETAINER		

Figure F-1a
Legend to Figure F-1

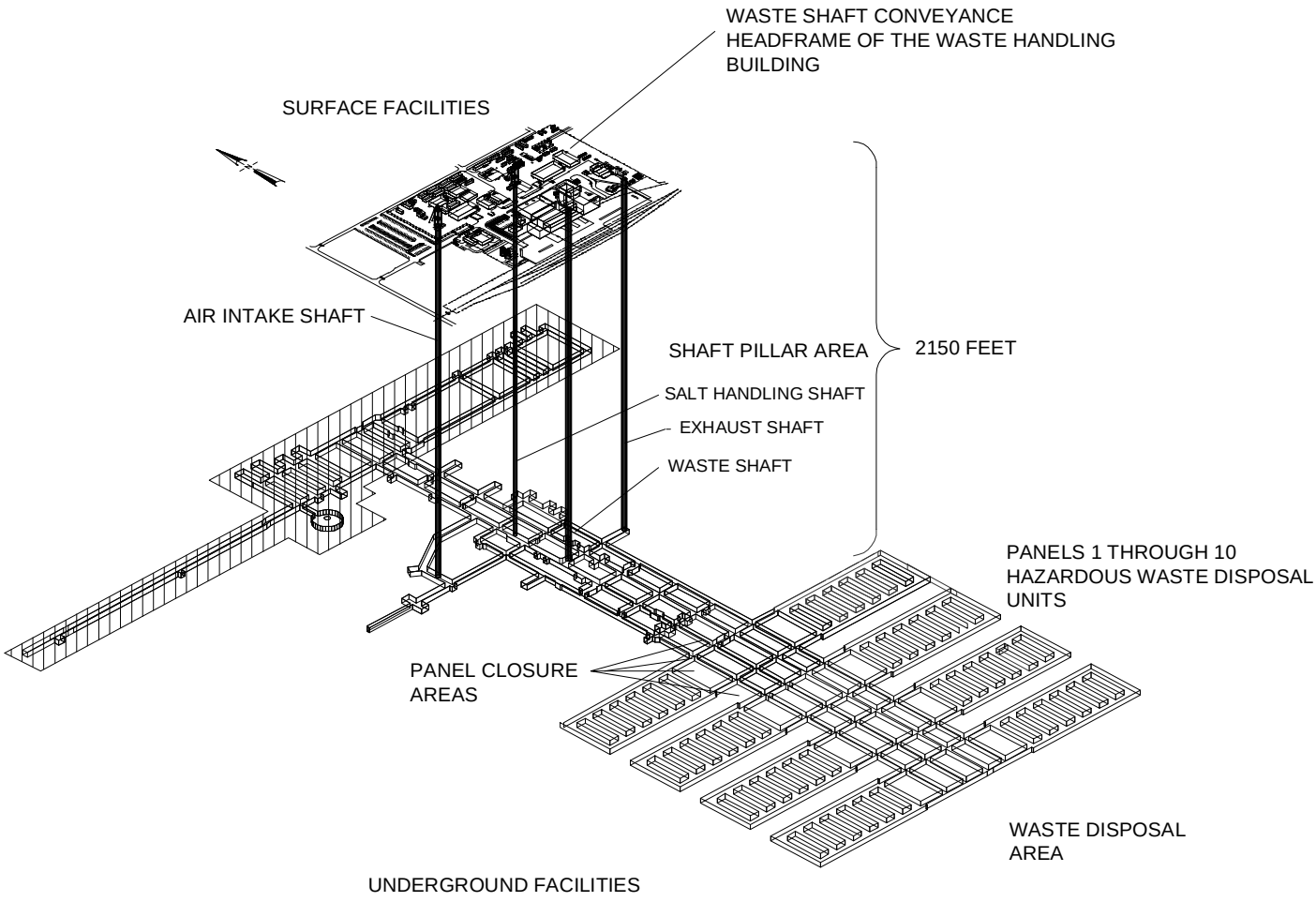


Figure F-2
Spatial View of the WIPP Facility

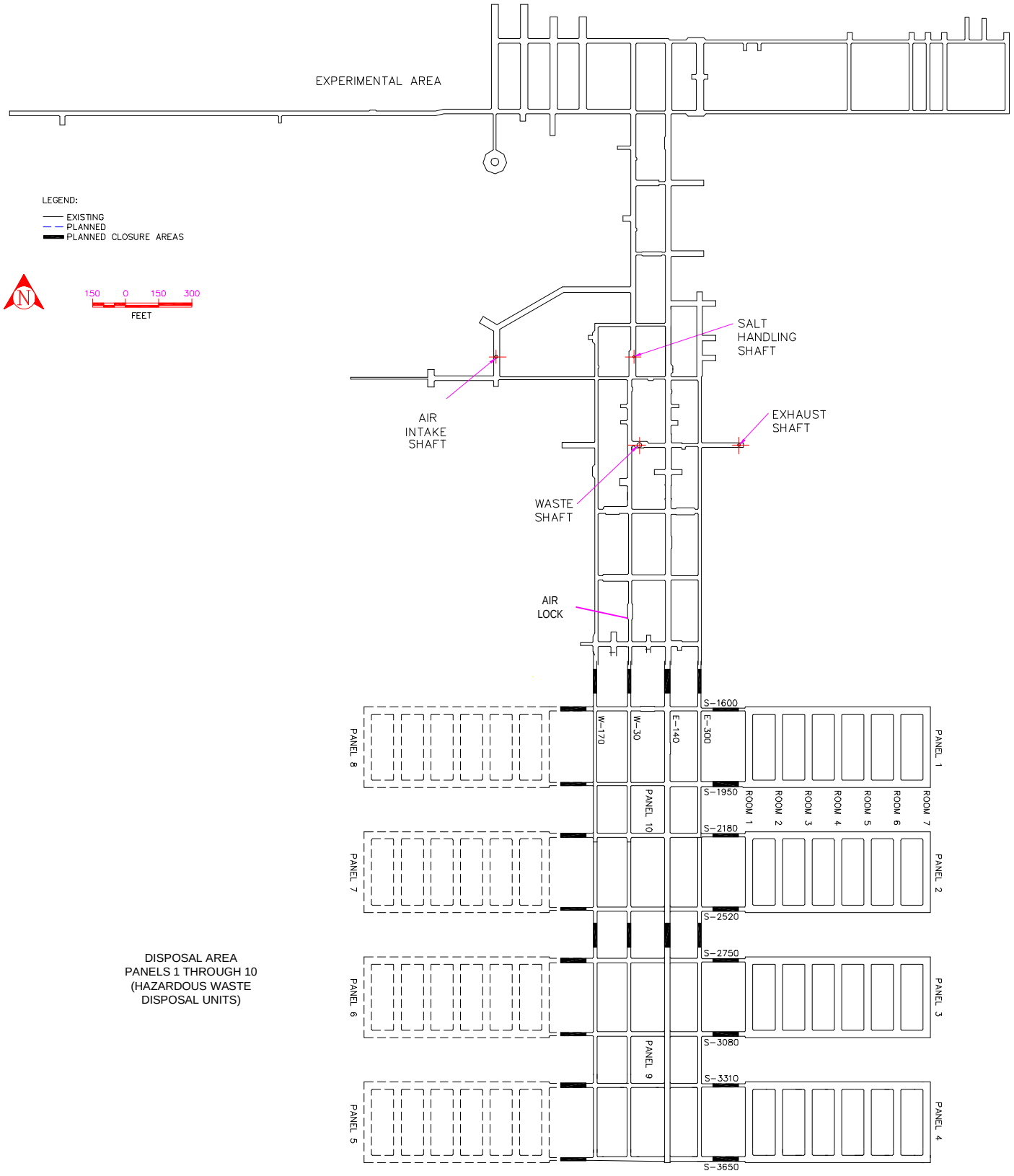


Figure F-3
WIPP Underground Facilities

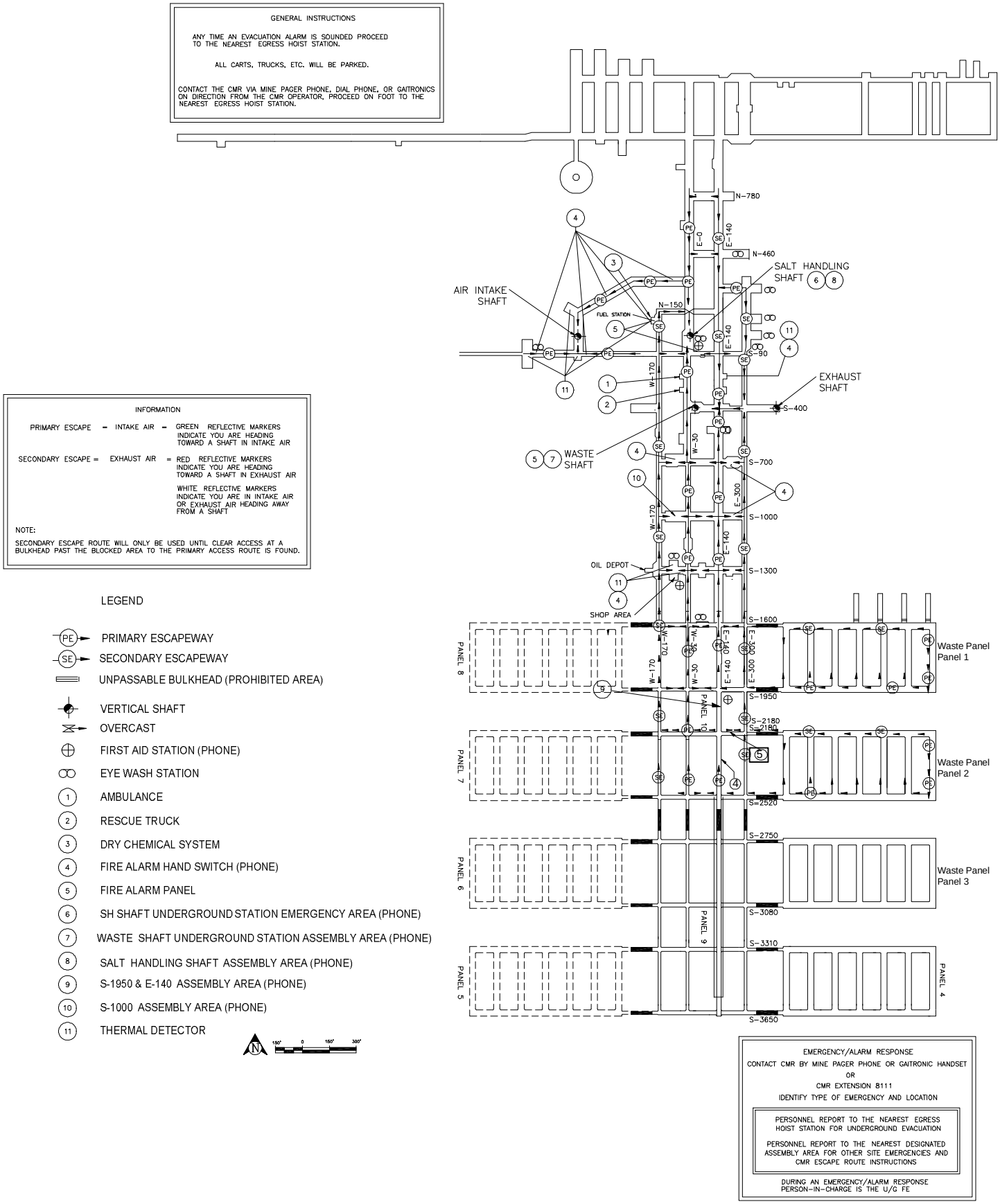


Figure F-5
Underground Emergency Equipment Locations and Underground Evacuation Routes

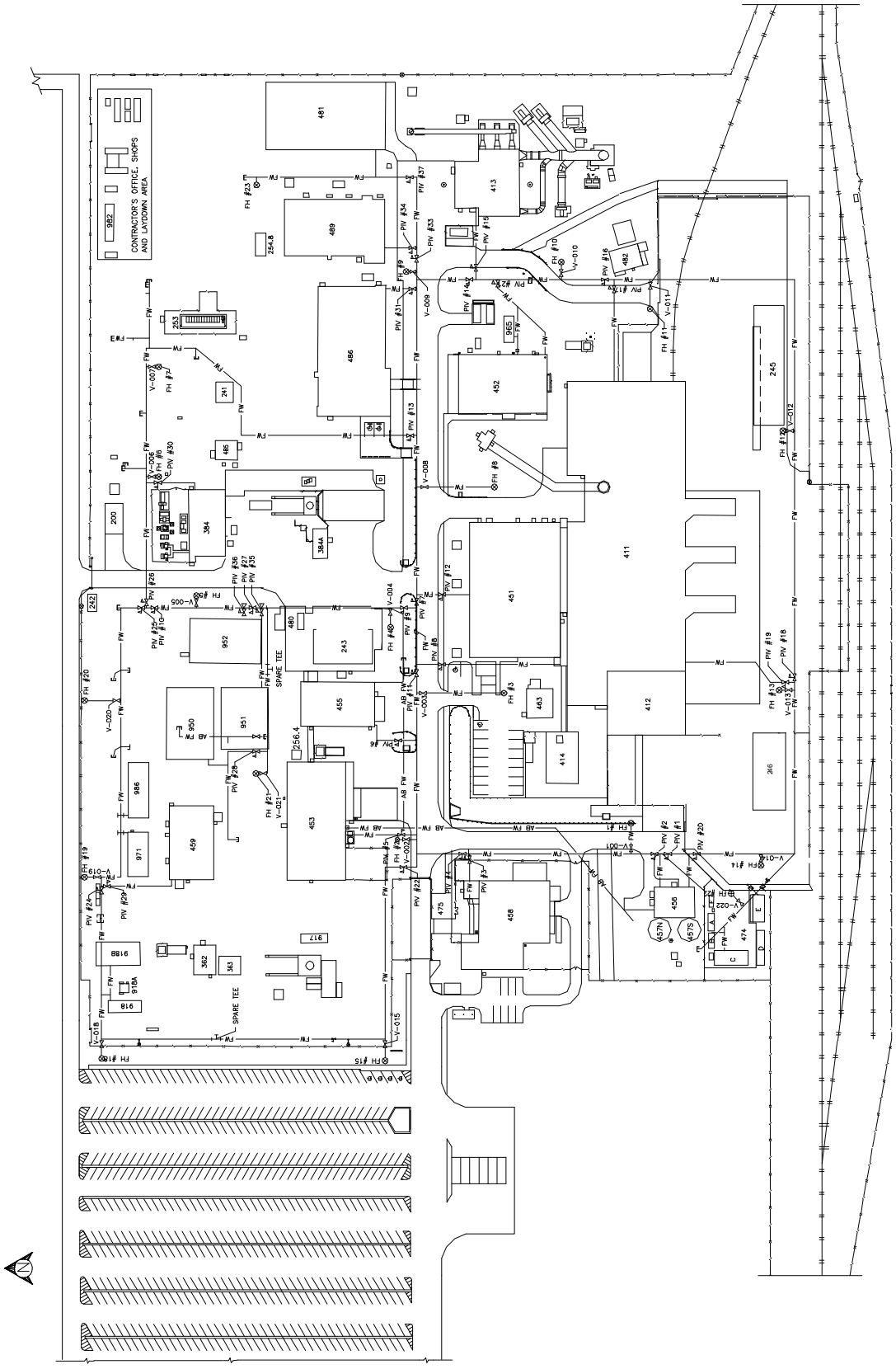


Figure F-6
Fire-Water Distribution System

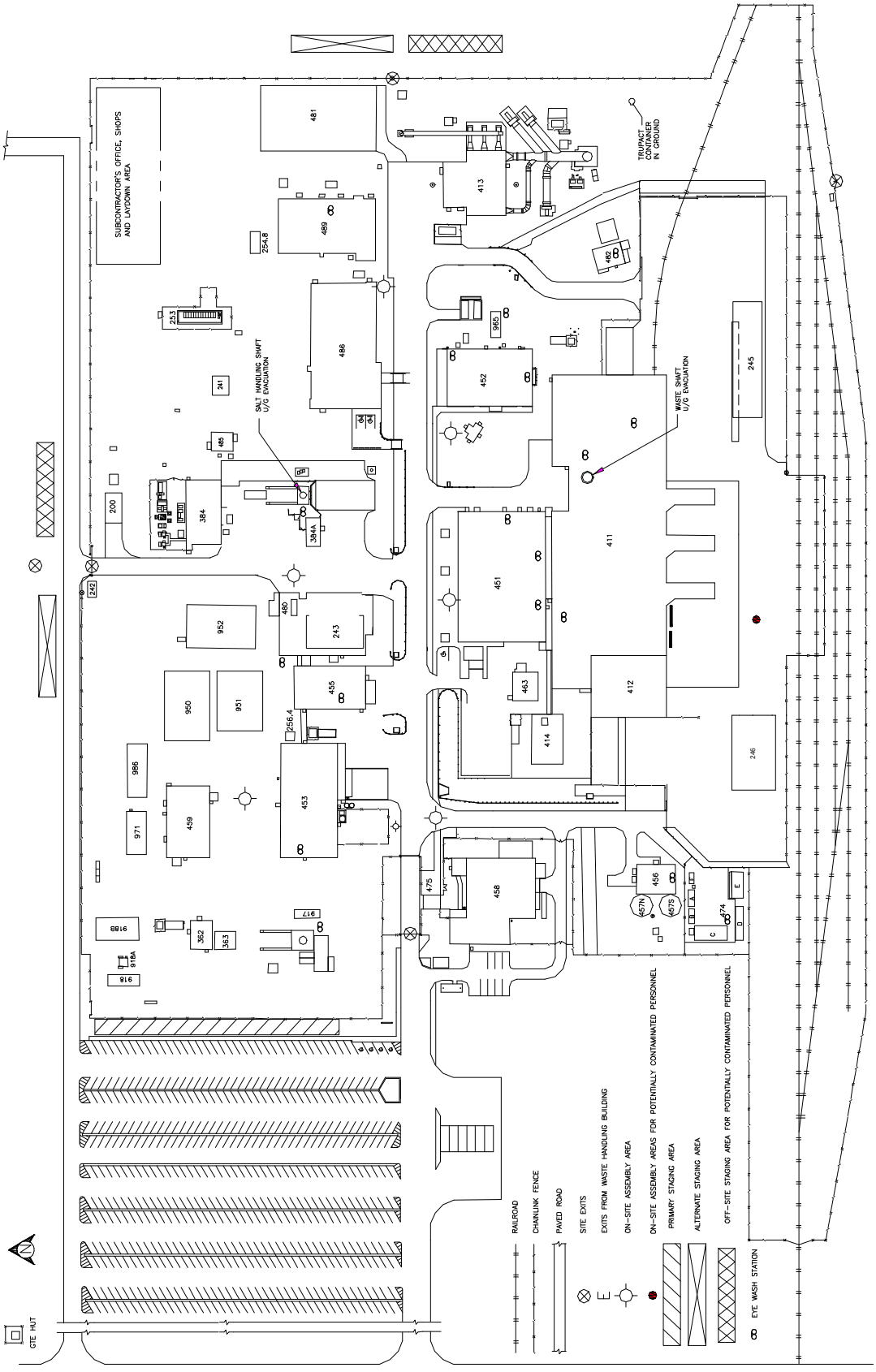
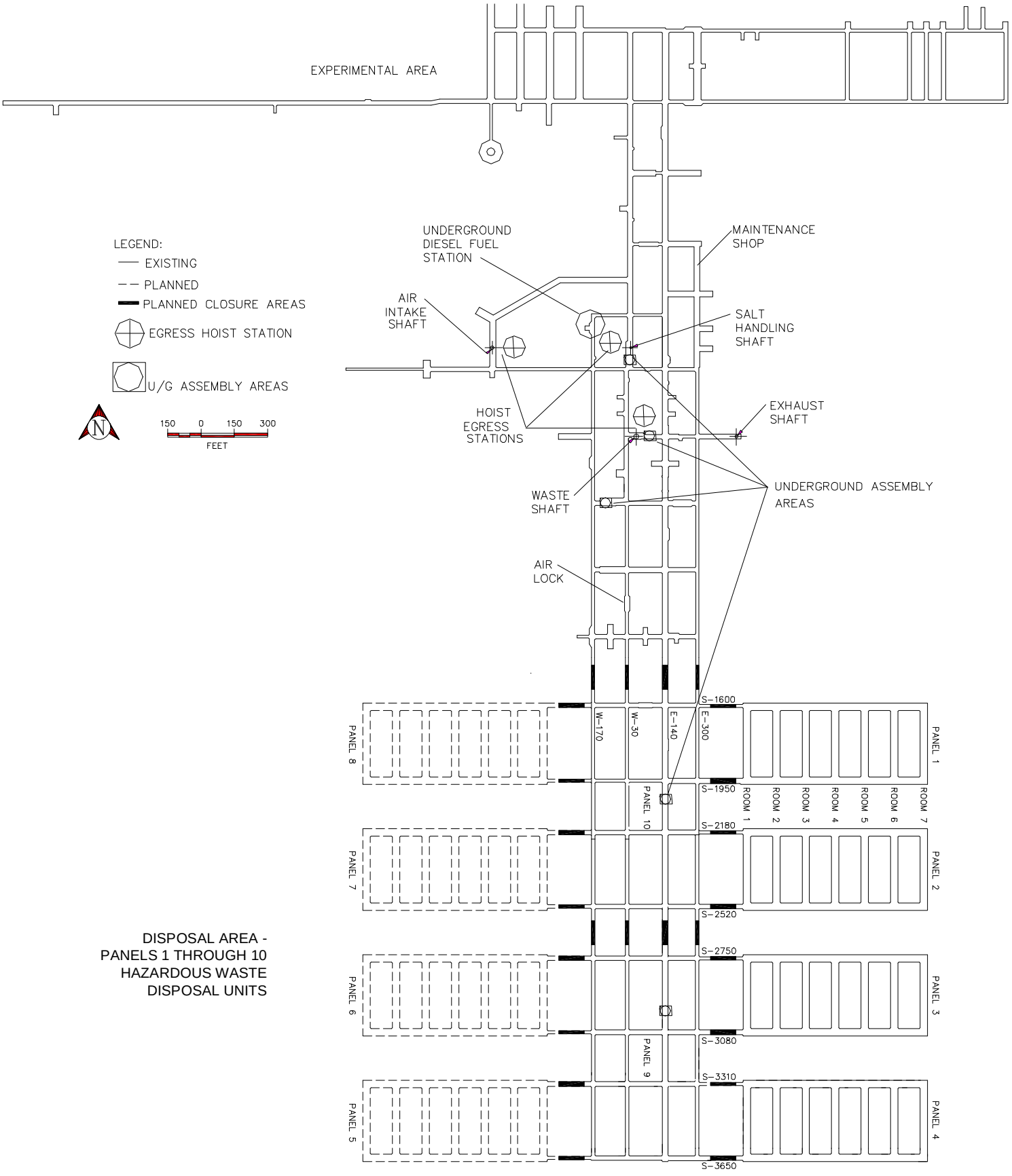


Figure F-8
WIPP On-Site Assembly Areas and WIPP Staging Areas



DISPOSAL AREA - PANELS 1 THROUGH 10 HAZARDOUS WASTE DISPOSAL UNITS

Figure F-9
Designated Underground Assembly Areas

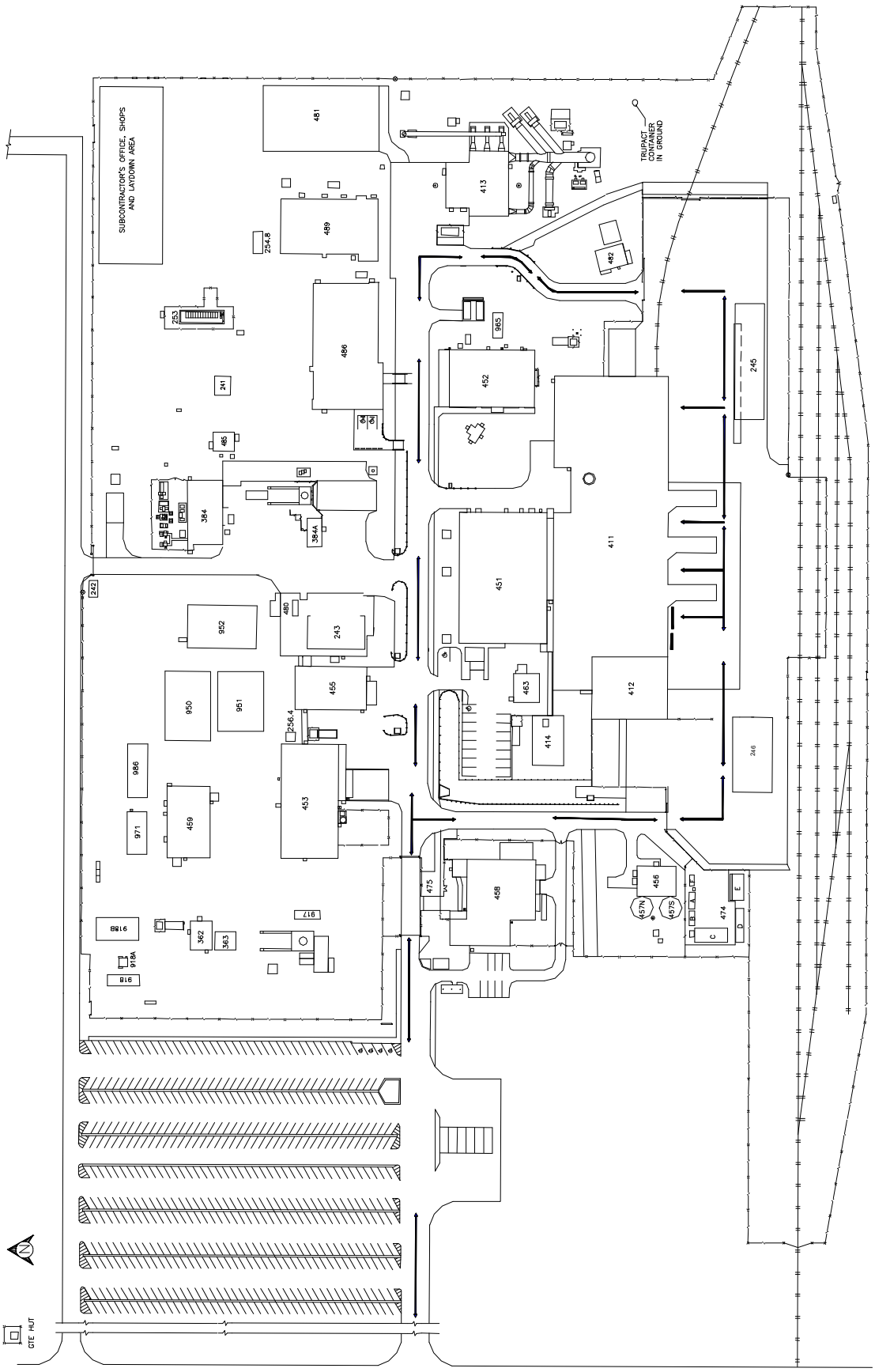


Figure G-2
WIPP Traffic Flow Diagram

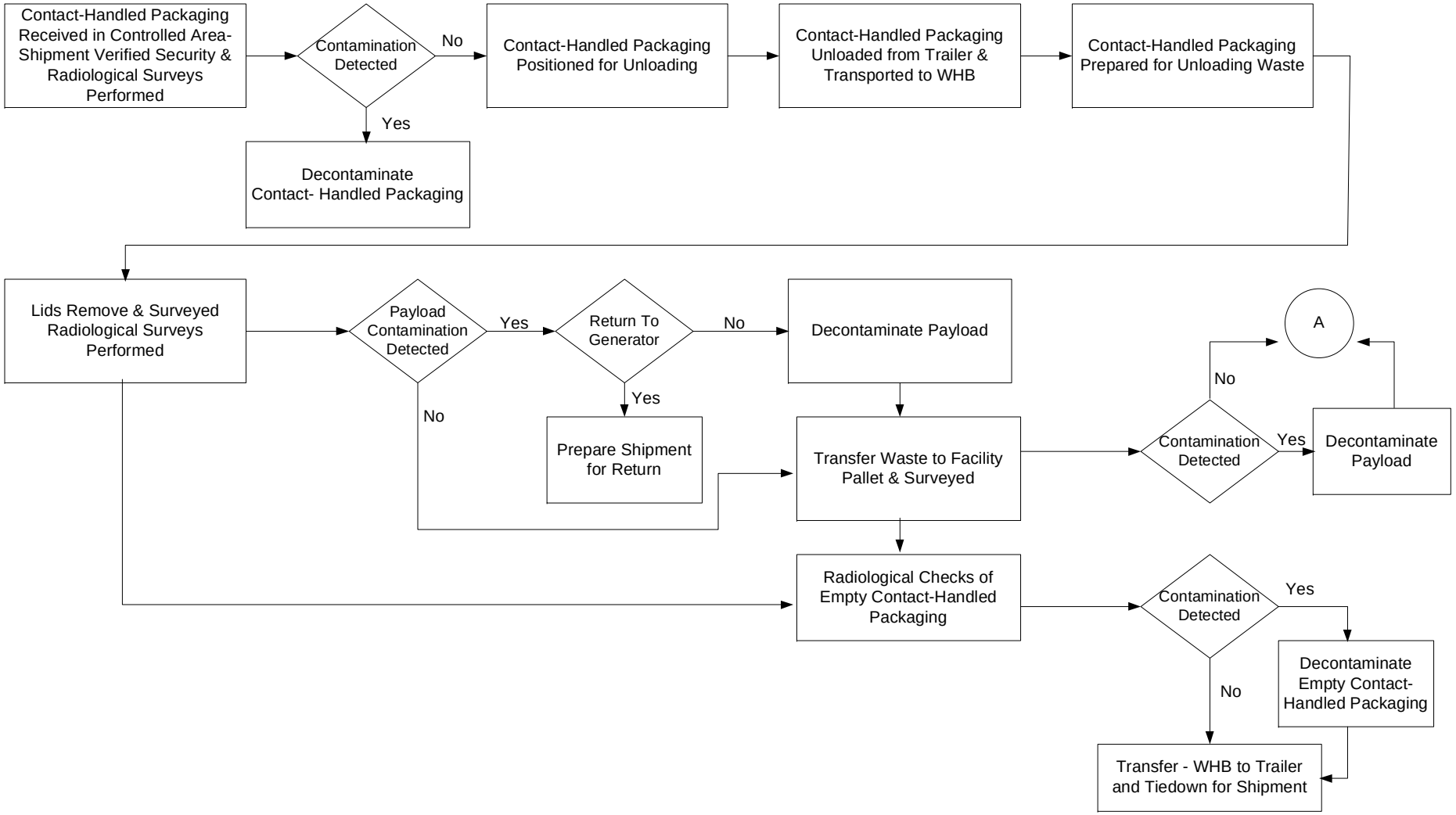


Figure M1-13
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow

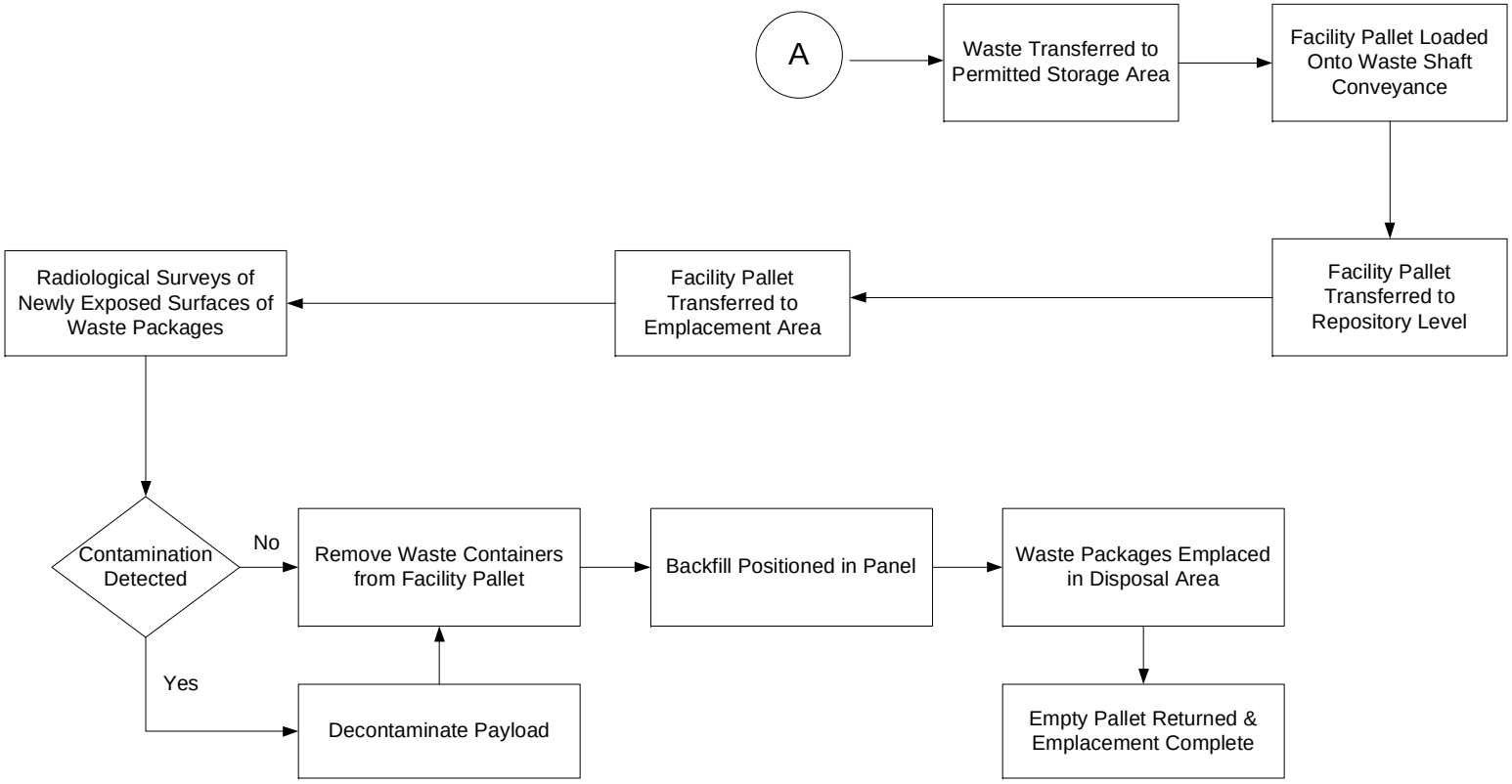


Figure M1-13
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow (continued)

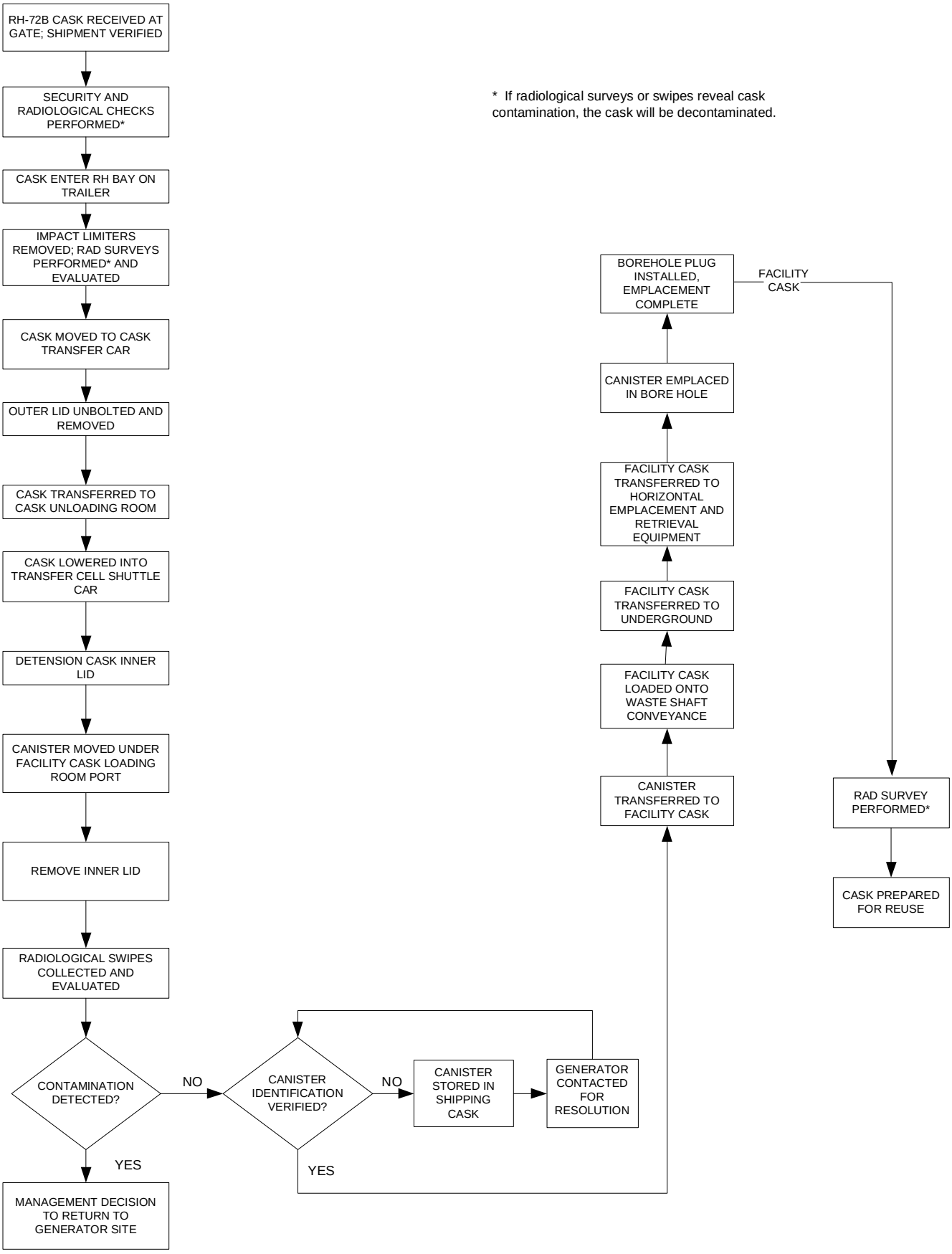


Figure M1-26
Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for RH-TRU 72-B Shipping Cask

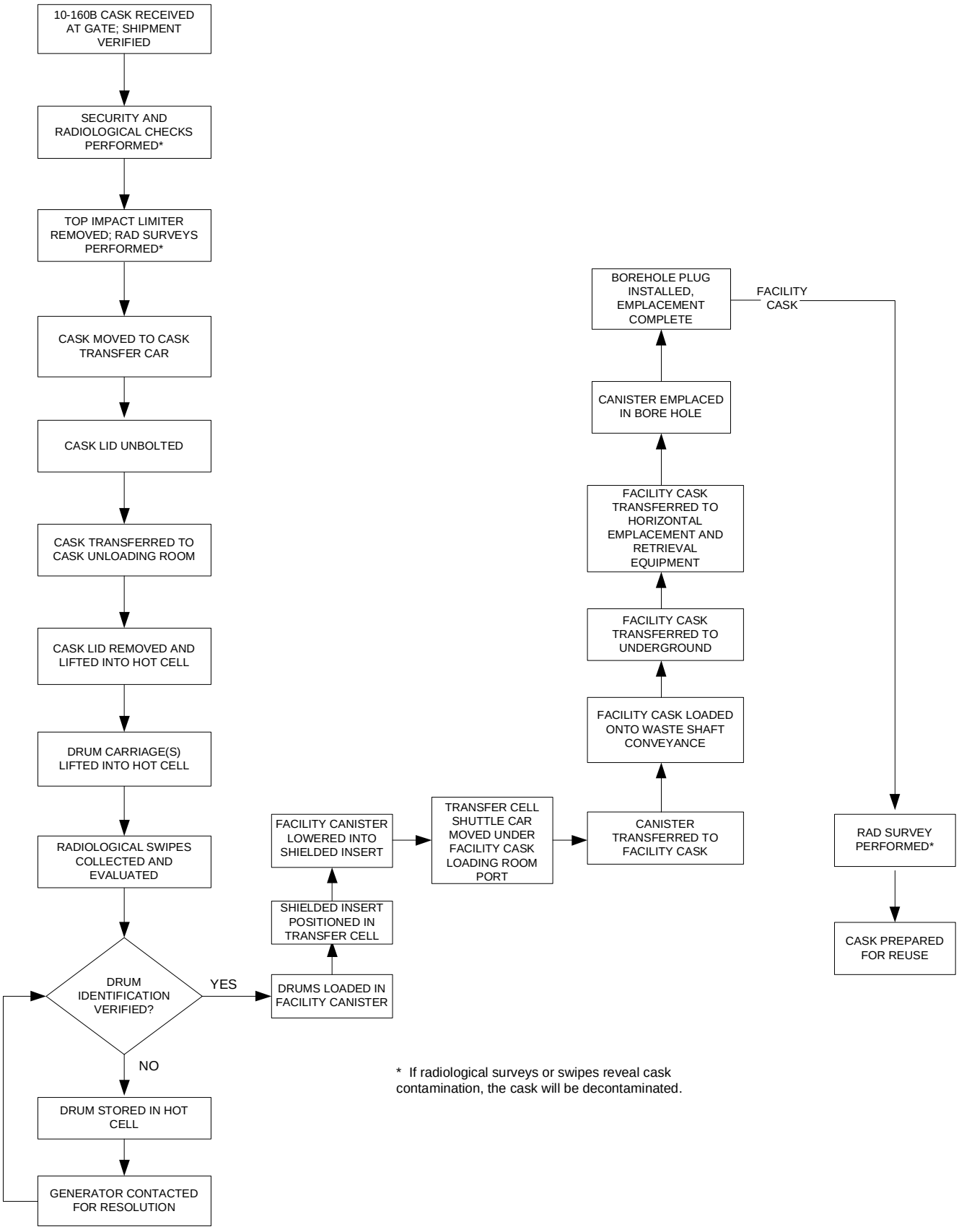


Figure M1-27
Surface and Underground RH Transuranic Mixed Waste Process Flow Diagram for CNS 10-160B Shipping Cask

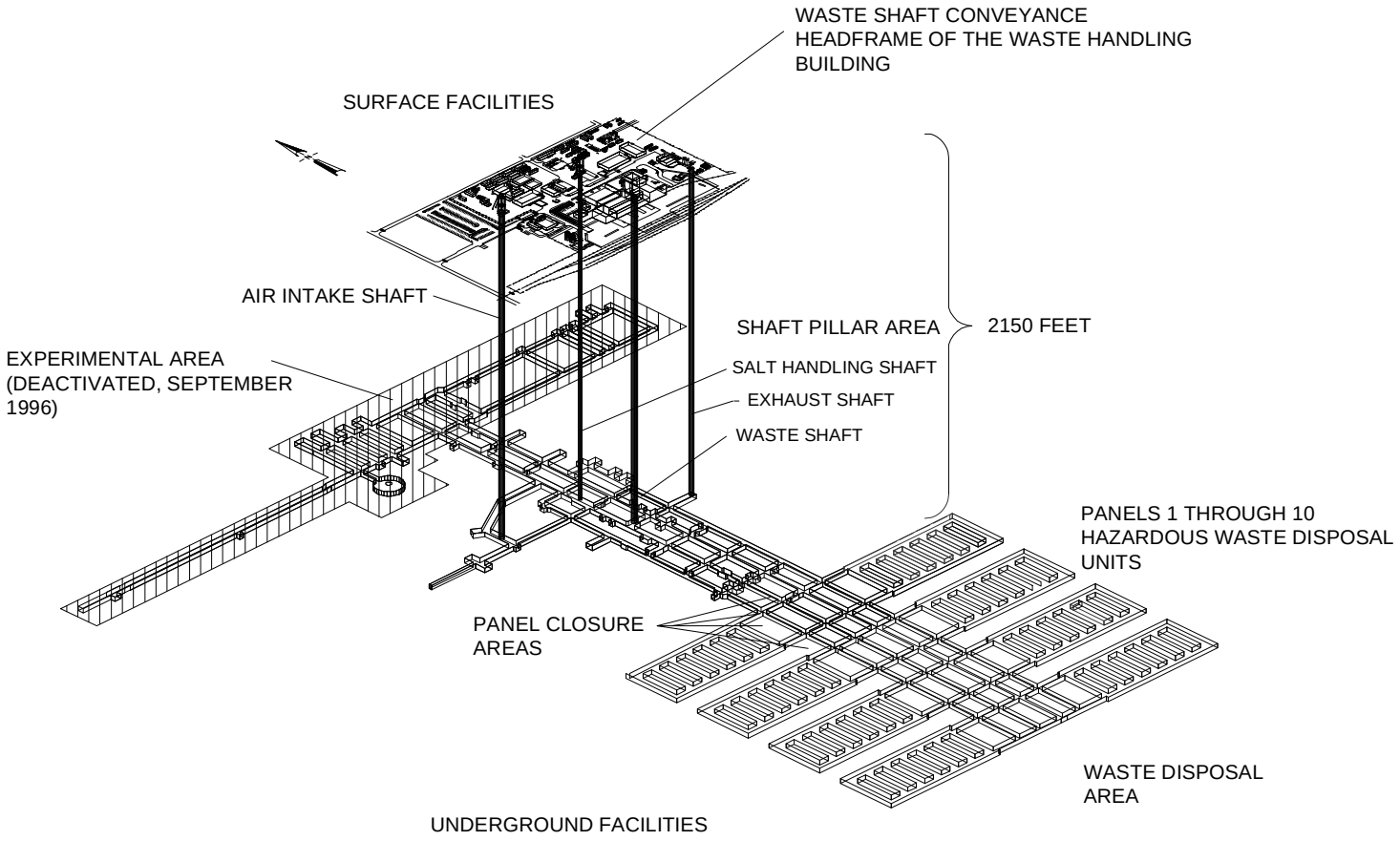


Figure M2-2
Spatial View of the Miscellaneous Unit and Waste Handling Facility

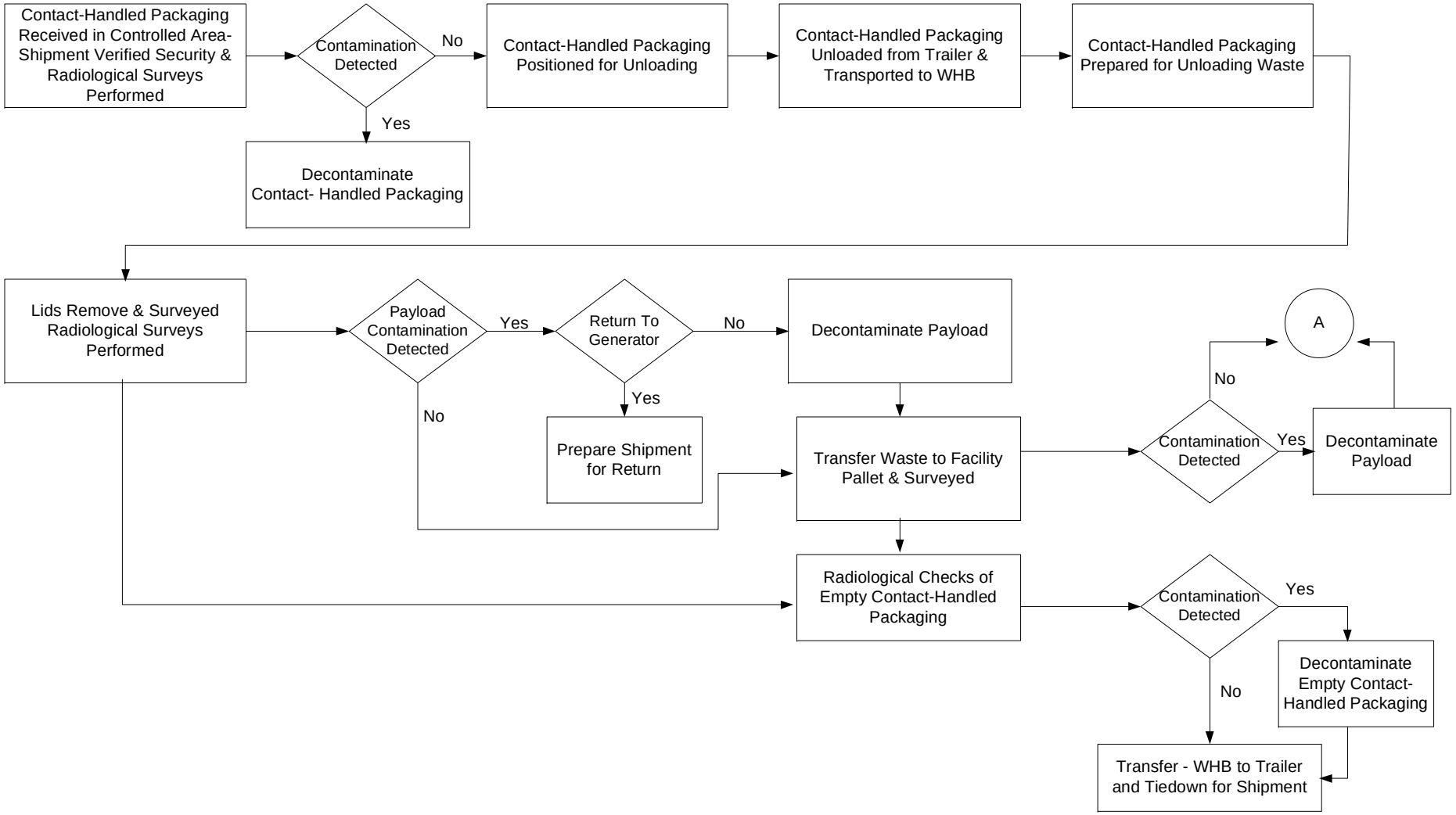


Figure M2-12

WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow

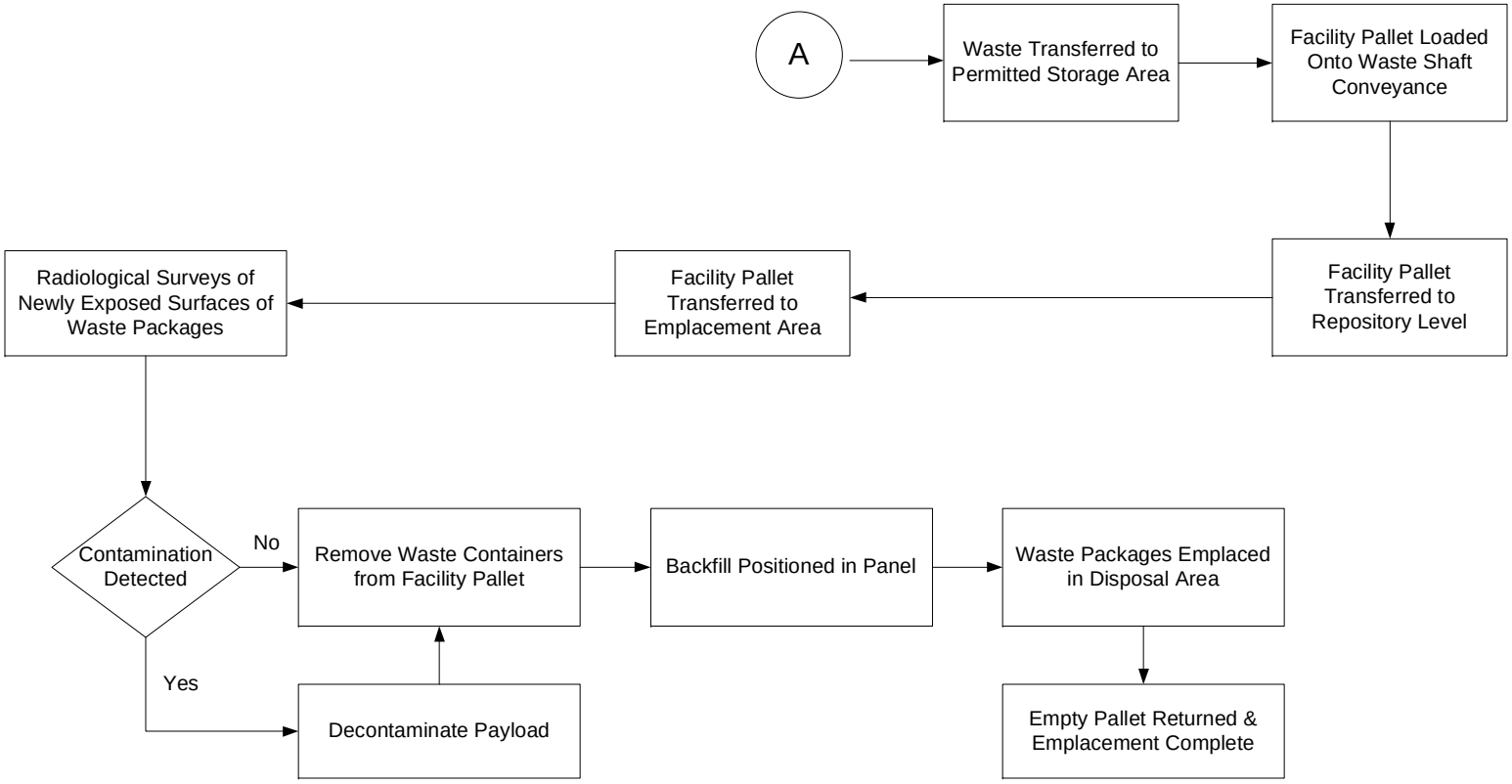


Figure M2-12
WIPP Facility Surface and Underground CH Transuranic Mixed Waste Process Flow (continued)

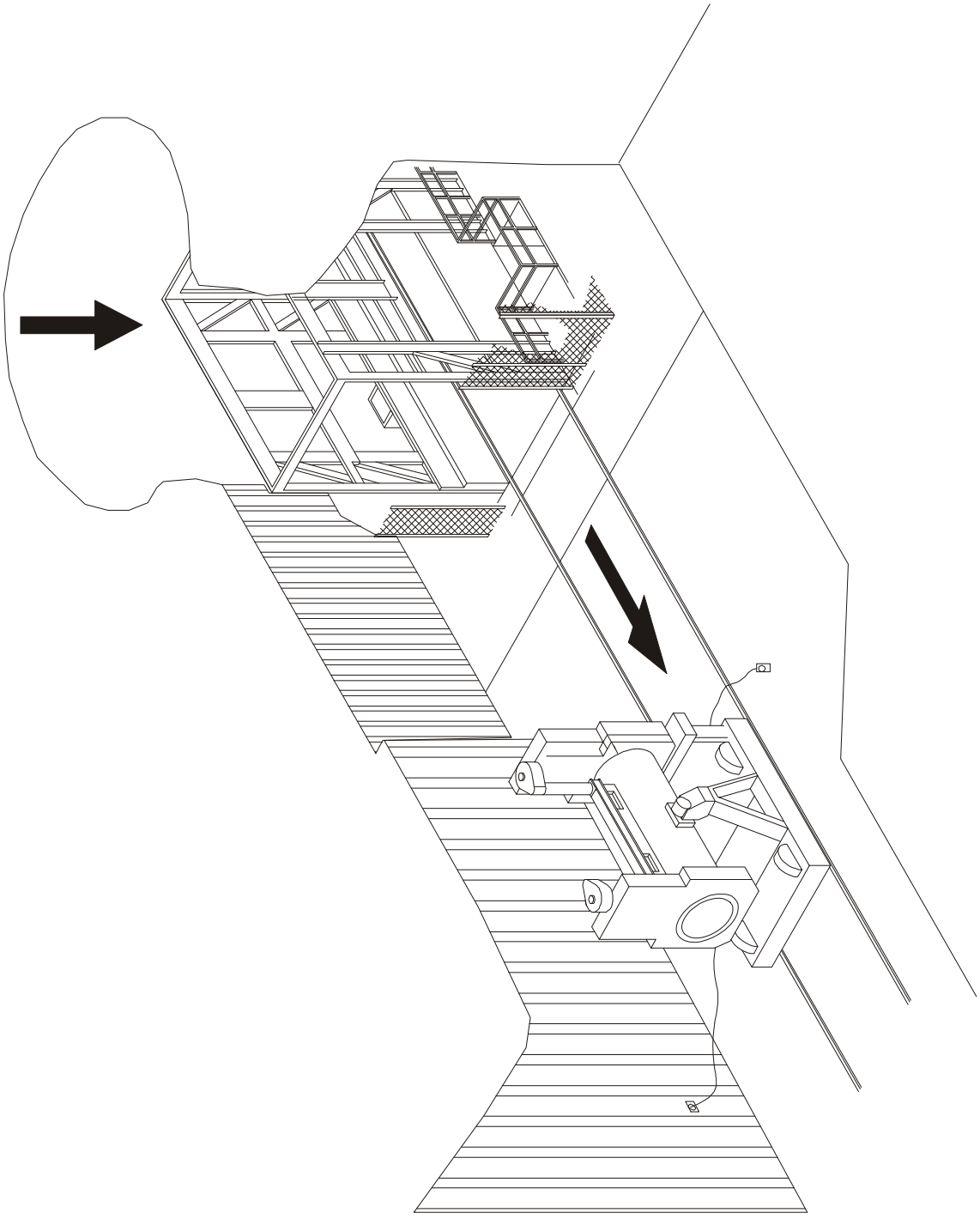


Figure M2-16
RH TRU Waste Facility Cask Unloading from Waste Shaft Conveyance

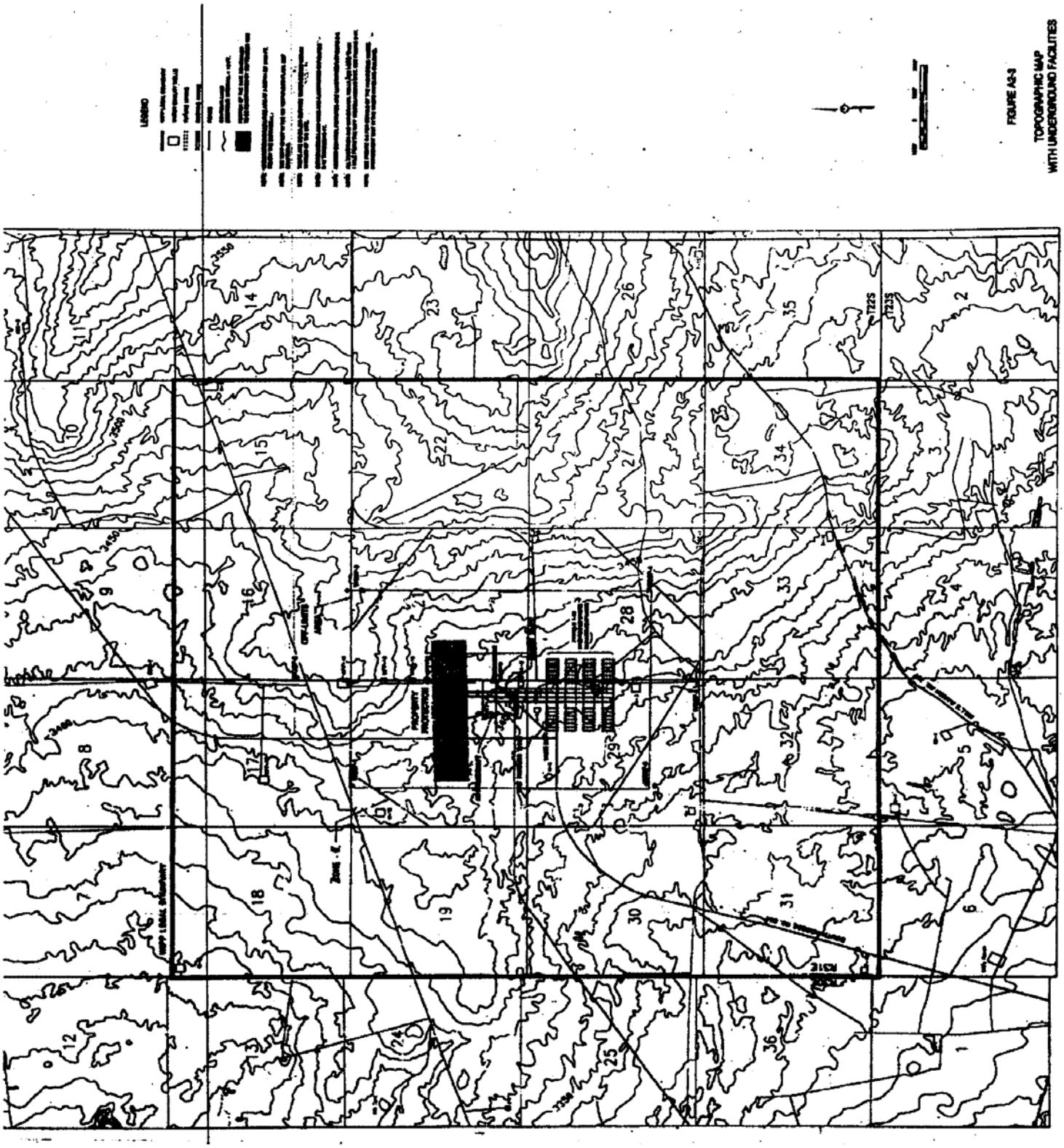


Figure O2-3
Topographical Map Designating WIPP Property Boundaries and Underground

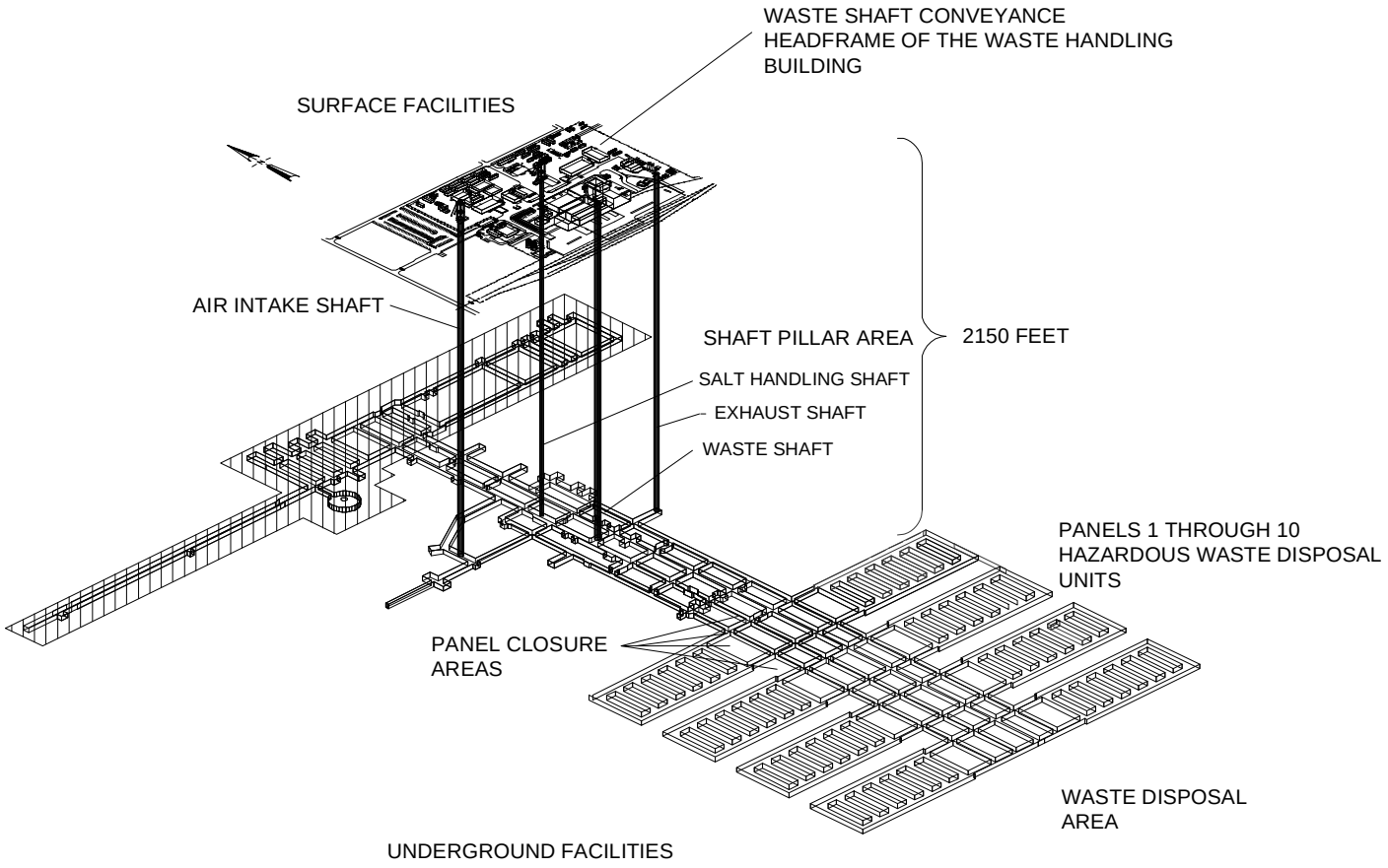
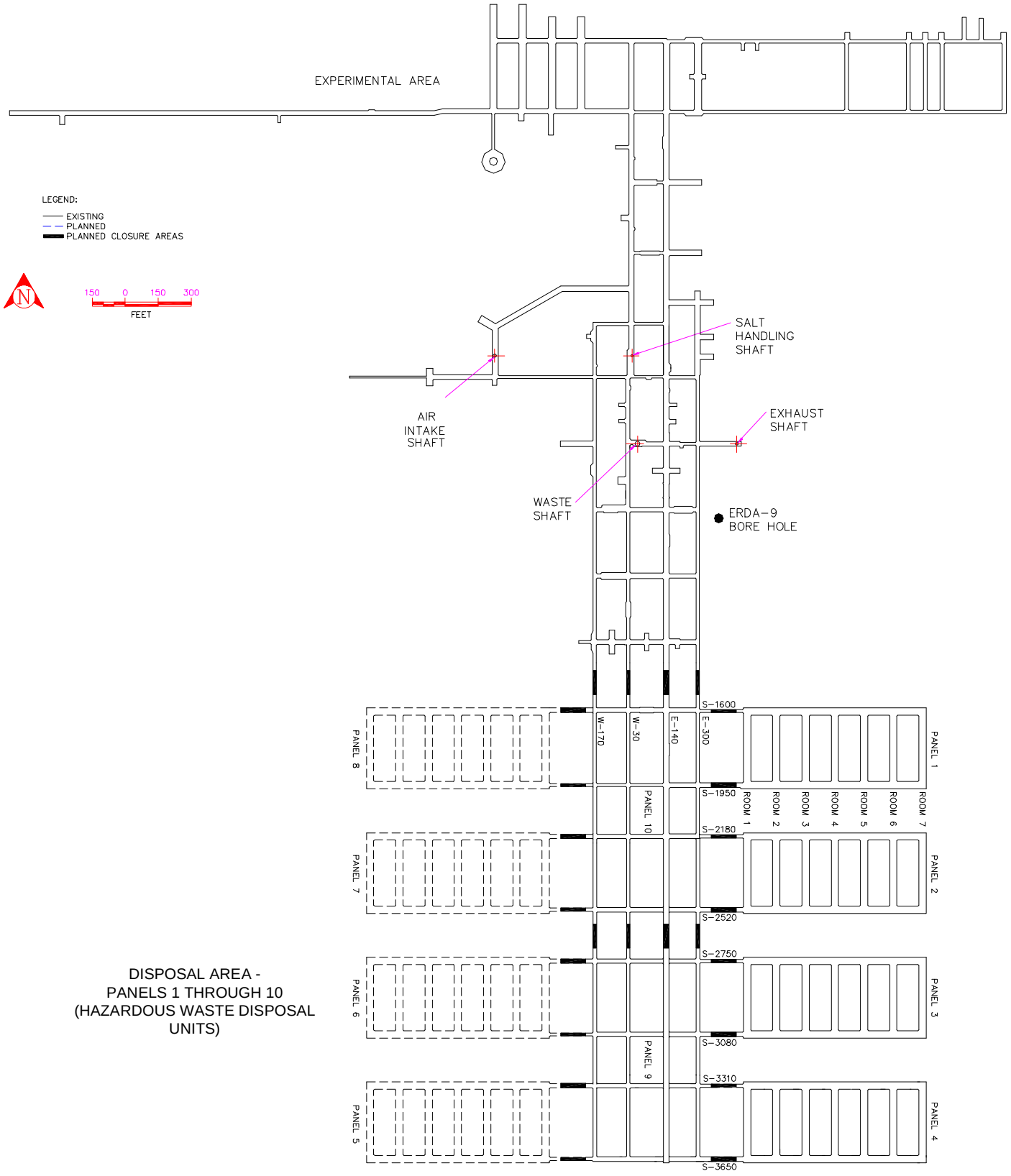


Figure O3-1
Spatial View of the WIPP Facility



DISPOSAL AREA -
PANELS 1 THROUGH 10
(HAZARDOUS WASTE DISPOSAL UNITS)

Figure O3-2
Repository Horizon

Figure O4-7
Waste Shaft Conveyance - Loading Facility Pallet with CH Waste, Waste Handling Building