Colorado Department of Public Health and Environment
Radioactive Materials License 1102-01
Renewal Application

Volume 5 of 7

Contents:

Clean Harbors Deer Trail (CHDT). 2004. Permit Renewal Report for Incorporation of a Geosynthetic Clay Liner (GCL) in the Liner Section for Secure Cells 3 Through 7 and in the Cover Section for Secure Cells 1 Through 7 (the Permit Renewal Report – Volume 1).

May 2010

Clean Harbors Deer Trail, LLC
108555 East Highway 36
Deer Trail, CO 80105-9611

Table of Contents

1	Part A Application
2	Part I: Standard Conditions
3	Part II: General Conditions
4	Part II: Storage in Containers
5	Part IV: Storage in Tanks
6	Part V: Storage and Treatment in Surface Impoundments
7	Part VI: Disposal in Secure Cells
8	Part VII: Groundwater Protection Program
9	Part VIII: Corrective Action for Solid Waste Management Units
10	Attachment 1: Figures and Maps
11	Attachment 2: Waste Analysis Plan (WAP)
12	WAP Appendix A: Forms
13	WAP Appendix B: Waste Sampling Procedures
14	WAP Appendix C: Analytical Test Methods
15	WAP Appendix D: Approved waste Codes
16	WAP Appendix E: References for HDPE Incompatible Materials
17	WAP Appendix F: Reactive, Explosive, Shock Sensitive
18	WAP Appendix G: Discrepancy Criteria on Site Waste ...
19	WAP Appendix H: Standard Operating Procedures
20	WAP Appendix I: Potential Incompatible Group Designations
21	WAP Appendix J: Dioxin Waste management Plan
22	WAP Appendix K: NORM, TENORM and Exempt Materials
23	Attachment 3: Inspection Check List
24	Attachment 4: Contingency Plan
25	Attachment 5: Personnel Training Plan
26	Attachment 8: Groundwater Sampling Plan
27	Attachment 9: Truck Wash Operations
28	Attachment 11: NORM/TENORM Protection Plan
29	
30	
31	

For EPA Regional Use Only

Date Received
Month Day Year

EPA

United States Environmental Protection Agency
Washington, DC 20460

Hazardous Waste Permit Application Part A

(Read the instructions before starting)

I. Facility's EPA ID Number *(Mark 'X' in the appropriate box)*

[ ] A. First Part A Submission

[X] B. Revised Part A Submission (Amendment # ____)

C. Facility's EPA ID Number

COD991300484

D. Secondary ID Number *(If applicable)*

II. Name of Facility

CLEAN HARBORS DEER TRAIL LLC

III. Facility Location *(Physical address not P.O. Box or Route Number)*

A. Street

10855 SOUTH HIGHWAY 36

Street *(Continued)*

City or Town

DEER TRAIL

State CO

Zip Code 80105

County Code *(If known)*

County Name

ADAMS

B. Land Type *(Enter Code)*

P

C. Geographic Location

LATITUDE (Degrees, minutes, & seconds) 39 45 28 N

LONGITUDE (Degrees, minutes, & seconds) 103 43 01 W

D. Facility Existence Date

Month Day Year: 07 19 1991

IV. Facility Mailing Address

Street or P.O. Box

10855 SOUTH HIGHWAY 36

City or Town

DEER TRAIL

State CO

Zip Code 80105-

V. Facility Contact *(Person to be contacted regarding waste activities at facility)*

Name *(last)*

KEHOE

(First)

JOHN

Job Title

GENERAL MANAGER

Phone Number *(Area Code and Number)*

970-386-2293

VI. Facility Contact Address *(See Instructions)*

A. Contact Address

Location [ ] Mailing [X] Other [ ]

B. Street or P.O. Box

City or Town

State

Zip Code

EPA ID Number *(Enter from page 1)*: COD991300484

Secondary ID Number *(Enter from page 1)*:

VII. Operator Information *(See instructions)*

A. Name of Operator: CLEAN HARBORS DEER TRAIL LLC

Street or P.O. Box: 10855 SOUTH HIGHWAY 36

City or Town: DEER TRAIL

State: CO

Zip Code: 80105-

Phone Number *(Area Code and Number)*: 970-386-2293

B. Operator Type: P

C. Change of Operator Indicator: Yes [ ] No [X]

Date Changed Month / Day / Year:

VIII. Owner Information *(See instructions)*

A. Name of Owner: CLEAN HARBORS ENV. SERVICES INC.

Street or P.O. Box: 1501 WASHINGTON STREET

City or Town: BRAINTREE

State: MA

Zip Code: 02184-7599

Phone Number *(Area Code and Number)*: 781-849-1800

B. Owner Type: P

C. Change of Owner Indicator: Yes [ ] No [X]

Date Changed Month / Day / Year:

IX. NAICS Codes *(in order of significance; start in left box)*

First: 562211 — *(Description)* Hazardous Waste Treatment & Disposal

Second: *(Description)*

Third: *(Description)*

Fourth: *(Description)*

X. Other Environmental Permits *(See instructions)*

A. Permit Type (Enter Code)	B. Permit Number	C. Description
R	CO-980226011	RCRA PERMIT
N	CO-0042064	COLORADO DISCHARGE PERMIT
P	01AD0713	COLORADO AIR PERMIT
E	147-82-C-CD	ADAMS COUNTY

EPA ID Number *(Enter from page 1)*

C	O	D	9	9	1	3	0	0	4	8	4

Secondary ID Number *(Enter from page 1)*

XI. Nature of Business *(Provide a brief description)*

PROVIDE TREATMENT, STORAGE AND DISPOSAL OF RCRA AND INDUSTRIAL WASTE

XII. Process Codes and Design Capacities

A. PROCESS CODE - *Enter the code from the list of process codes below that best describes each process to be used at the facility. Thirteen lines are provided for entering codes. If more lines are needed, attach a separate sheet of paper with the additional information. For "other" processes (i.e., D99, S99, T04 and X99), describe the process (including its design capacity) in the space provided in item XII.*

B. PROCESS DESIGN CAPACITY - *For each code entered in column A, enter the capacity of the process.*

1. AMOUNT - *Enter the amount. In a case where design capacity is not applicable (such as in a closure/post-closure or enforcement action) enter the total amount of waste for that process.*
2. UNIT OF MEASURE - *For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.*

C. PROCESS TOTAL NUMBER OF UNITS - *Enter the total number of units used with the corresponding process code.*

PROCESS CODE	PROCESS	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
	Disposal:	
D79	Underground Injection Well Disposal	Gallons; Liters; Gallons Per Day; or Liters Per Day
D80	Landfill	Acre-feet; Hectare-meter; Acres; Cubic Meters; Hectares; Cubic Yards
D81	Land Treatment	Acres or Hectares
D82	Ocean Disposal	Gallons Per Day or Liters Per Day
D83	Surface Impoundment Disposal	Gallons; Liters; Cubic Meters; or Cubic Yards
D99	Other Disposal	Any Unit of Measure Listed Below
	Storage:	
S01	Container	Gallons; Liters; Cubic Meters; or Cubic Yards
S02	Tank Storage	Gallons; Liters; Cubic Meters; or Cubic Yards
S03	Waste Pile	Cubic Yards or Cubic Meters
S04	Surface Impoundment Storage;	Gallons; Liters; Cubic Meters; or Cubic Yards
S05	Drip Pad	Gallons; Liters; Acres; Cubic Meters Hectares; or Cubic Yards
S06	Containment Building Storage	Cubic Yards or Cubic Meters
S99	Other Storage	Any Unit of Measure Listed Below
	Treatment:	
T01	Tank Treatment	Gallons Per Day; Liters Per Day; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons per Day; or Metric Tons Per Hour
T02	Surface Impoundment Treatment	Gallons Per Day; Liters Per Day; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons per Day; or Metric Tons Per Hour
T03	Incinerator	Short Tons Per Hour;Metric Tons Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million Btu Per Hour
T04	Other Treatment	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Gallons Per Day; Liters Per Hour; or Million Btu Per Hour
T80	Boiler	Gallons; Liters; Gallons Per Hour; Liters Per Hour; Btu Per Hour; or Million Btu Per Hour
T81	Cement Kiln	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Liters Per Hour;Kilograms Per Hour; or Million Btu Per Hour
T82	Lime Kiln	
T83	Aggregate Kiln	
T84	Phosphate Kiln	
T85	Coke Oven	
T86	Blast Furnace	
T87	Smelting, Melting Or Refining Furnace	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour; Kilograms Per Hour; Metric Tons Per Day; Metric Tons Per Hour; Short Tons Per Day; Btu Per Hour; Gallons Per Hour; Liters Per Hour; or Million Btu Per Hour
T88	Titanium Dioxide Chloride Oxidation Reactor	
T89	Methane Reforming Furnace	
T90	Pulping Liquor Recovery Furnace	
T91	Combustion Device Used In The Recovery Of Sulfur Values From Spent Sulfuric Acid	
T92	Halogen Acid Furnaces	
T93	Other Industrial Furnaces Listed in 40 CFR 260.10	
T94	Containment Building - Treatment	Cubic Yards; Cubic Meters; Short Tons Per Hour; Gallons Per Hour; Liters Per Hour; Btu Per Hour; Pounds Per Hour; Short Tons Per Day; Kilograms Per Hour; Metric Tons Per Day; Gallons Per Day; Liters Per Day; Metric Tons Per Hour; or Million Btu Per Hour
	Miscellaneous (Subpart X):	
X01	Open Burning/Open Detonation	Any Unit of Measure Listed Below
X02	Mechanical Processing	Short Tons Per Hour; Metric Tons Per Hour; Short Tons Per Day; Metric Tons Per Day;Pounds Per Hour;Liters Per Hour; or Gallons Per Day
X03	Thermal Unit	Gallons Per Day; Liters Per Day; Pounds Per Hour; Short Tons Per Hour;Kilograms Per Hour;Metric Tons Per Day; Metric Tons Per Hour;Short Tons Per Day;Btu Per Hour; or Million Btu Per Hour
X04	Geologic Repository	Cubic Yards;Cubic Meters;Acre-feet; Hectare-meter;Gallons; or Liters
X99	Other Subpart X	Any Unit of Measure Listed Below

Unit of Measure	Unit of Measure Code
Gallons	G
Gallons Per Hour	E
Gallons Per Day	U
Liters	L
Liters Per Hour	H
Liters Per Day	V

Unit of Measure	Unit of Measure Code
Short Tons Per Hour	D
Metric Tons Per Hour	W
Short Tons Per Day	N
Metric Tons Per Day	S
Pounds Per Hour	J
Kilograms Per Hour	R
Million Btu Per Hour	X

Unit of Measure	Unit of Measure Code
Cubic Yards	Y
Cubic Meters	C
Acres	B
Acre-feet	A
Hectares	Q
Hectare-meter	F
Btu Per Hour	I

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XII. Process Codes and Design Capabilities *(Continued)*

EXAMPLE FOR COMPLETING ITEM XII (shown in line number X-1 below): A facility has a storage tank which can hold 533,788 gallons.

Line Number	A. Process Code (from list above)	B. PROCESS DESIGN CAPACITY 1. Amount (Specify)	B. 2. Unit of Measure (Enter code)	C. Process Total Number Of Units	For Official Use Only
X-1	S 0 2	5 3 3 7 8 8 .	G	0 0 1	
1	D 8 0	2 8 2 8 0 0 0 .	Y	0 0 7	
2	S 0 1	1 0 5 0 0 0 .	G	0 0 2	
3	S 0 1	2 5 8 0 .	Y	0 0 3	
4	S 0 2	5 3 5 3 0 0 .	G	0 1 0	
5	T 0 2	4 8 4 7 3 8 .	U	0 0 1	
6		.			
7		.			
8		.			
9		.			
10		.			
11		.			
12		.			
13		.			

NOTE: If you need to list more than 13 process codes, attach an additional sheet(s) with the information in the same format as above. Number the lines sequentially, taking into account any lines that will be used for "other" processes (i.e., D99, S99, T04 and X99) in item XIII.

XIII. Other Processes *(Follow instructions from item XII for D99, S99, T04 and X99 process codes)*

Line Number (Enter #s in sequence)	A. Process Code (From list above)	B. PROCESS DESIGN CAPACITY 1. Amount (Specify)	B. 2. Unit of Measure (Enter code)	C. Process Total Number Of Units	D. Description of Process
X-1	T 0 4				
1		.			
2		.			
3		.			
4		.			

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes

A. EPA HAZARDOUS WASTE NUMBER - *Enter the four-digit number from 40 CFR, Part 261 Subpart D of each listed hazardous waste you will handle. For hazardous wastes which are not listed in 40 CFR, Part 261 Subpart D, enter the four-digit number(s) from 40 CFR, Part 261 Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.*

B. ESTIMATED ANNUAL QUANITITY - *For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.*

C. UNIT OF MEASURE - *For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:*

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in item XII A. on page 3 to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in item XII A. on page 3 to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

NOTE: THREE SPACES ARE PROVIDED FOR ENTERING PROCESS CODES. IF MORE ARE NEEDED:

1. *Enter the first two as described above.*
2. *Enter "000" in the extreme right box of item XIV-D(1).*
3. *Use additional sheet, enter line number from previous sheet, and enter additional code(s) in item XIV-E.*

2. PROCESS DESCRIPTION: *If a code is not listed for a process that will be used, describe the process in the space provided on the form (D(2)).*

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER - Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. *Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.*
2. *In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.*
3. *Repeat step 2 for each EPA Hazardous Waste Number that can be used to describe the hazardous waste.*

EXAMPLE FOR COMPLETING ITEM XIV (shown in line number X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

Line Number		A. EPA Hazardous Waste No. (Enter Code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
X	1	K 0 5 4	900	P	T 0 3 D 8 0	
X	2	D 0 0 2	400	P	T 0 3 D 8 0	
X	3	D 0 0 1	100	P	T 0 3 D 8 0	
X	4	D 0 0 2				Included With Above

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number		A. EPA Hazardous Waste No. *(Enter Code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									(2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*								
	1	D	0	0	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	2	D	0	0	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	3	D	0	0	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	4	D	0	0	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	5	D	0	0	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	6	D	0	0	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	7	D	0	0	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	8	D	0	0	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	9	D	0	0	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	0	D	0	1	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	1	D	0	1	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	2	D	0	1	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	3	D	0	1	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	4	D	0	1	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	5	D	0	1	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	6	D	0	1	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	7	D	0	1	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	8	D	0	1	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	9	D	0	1	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	0	D	0	2	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	1	D	0	2	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	2	D	0	2	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	3	D	0	2	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	4	D	0	2	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	5	D	0	2	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	6	D	0	2	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	7	D	0	2	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	8	D	0	2	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	9	D	0	2	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	0	D	0	3	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	1	D	0	3	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	2	D	0	3	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	3	D	0	3	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					

EPA ID Number *(Enter from page 1)*											Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4												

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									D. PROCESSES (2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*						
1	D 0 3 4	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
2	D 0 3 5	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
3	D 0 3 6	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
4	D 0 3 7	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
5	D 0 3 8	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
6	D 0 3 9	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
7	D 0 4 0	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
8	D 0 4 1	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
9	D 0 4 2	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
10	D 0 4 3	100,000	T	S 0 1	S 0 2	T 0 2							D 8 0						
11																			
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32																			
33																			

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. (Enter Code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	F001	100,000	T	S01 S02 T02	D80
2	F002	100,000	T	S01 S02 T02	D80
3	F003	100,000	T	S01 S02 T02	D80
4	F004	100,000	T	S01 S02 T02	D80
5	F005	100,000	T	S01 S02 T02	D80
6	F006	100,000	T	S01 S02 T02	D80
7	F007	100,000	T	S01 S02 T02	D80
8	F008	100,000	T	S01 S02 T02	D80
9	F009	100,000	T	S01 S02 T02	D80
10	F010	100,000	T	S01 S02 T02	D80
11	F011	100,000	T	S01 S02 T02	D80
12	F012	100,000	T	S01 S02 T02	D80
13	F019	100,000	T	S01 S02 T02	D80
14	F020	100,000	T	S01 S02 T02	D80
15	F021	100,000	T	S01 S02 T02	D80
16	F022	100,000	T	S01 S02 T02	D80
17	F023	100,000	T	S01 S02 T02	D80
18	F024	100,000	T	S01 S02 T02	D80
19	F025	100,000	T	S01 S02 T02	D80
20	F026	100,000	T	S01 S02 T02	D80
21	F027	100,000	T	S01 S02 T02	D80
22	F028	100,000	T	S01 S02 T02	D80
23	F032	100,000	T	S01 S02 T02	D80
24	F034	100,000	T	S01 S02 T02	D80
25	F035	100,000	T	S01 S02 T02	D80
26	F037	100,000	T	S01 S02 T02	D80
27	F038	100,000	T	S01 S02 T02	D80
28	F039	100,000	T	S01 S02 T02	D80
29					
30					
31					
32					
33					

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued, use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									(2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*						
1	K 0 0 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
2	K 0 0 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
3	K 0 0 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
4	K 0 0 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
5	K 0 0 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
6	K 0 0 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
7	K 0 0 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
8	K 0 0 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
9	K 0 0 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
10	K 0 1 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
11	K 0 1 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
12	K 0 1 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
13	K 0 1 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
14	K 0 1 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
15	K 0 1 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
16	K 0 1 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
17	K 0 1 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
18	K 0 1 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
19	K 0 2 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
20	K 0 2 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
21	K 0 2 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
22	K 0 2 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
23	K 0 2 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
24	K 0 2 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
25	K 0 2 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
26	K 0 2 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
27	K 0 2 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
28	K 0 2 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
29	K 0 3 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
30	K 0 3 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
31	K 0 3 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
32	K 0 3 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												
33	K 0 3 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0												

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*	D. PROCESSES (2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*
1	K035	100,000	T	S01 S02 T02	D80
2	K036	100,000	T	S01 S02 T02	D80
3	K037	100,000	T	S01 S02 T02	D80
4	K038	100,000	T	S01 S02 T02	D80
5	K039	100,000	T	S01 S02 T02	D80
6	K040	100,000	T	S01 S02 T02	D80
7	K041	100,000	T	S01 S02 T02	D80
8	K042	100,000	T	S01 S02 T02	D80
9	K043	100,000	T	S01 S02 T02	D80
10	K044	100,000	T	S01 S02 T02	D80
11	K045	100,000	T	S01 S02 T02	D80
12	K046	100,000	T	S01 S02 T02	D80
13	K047	100,000	T	S01 S02 T02	D80
14	K048	100,000	T	S01 S02 T02	D80
15	K049	100,000	T	S01 S02 T02	D80
16	K050	100,000	T	S01 S02 T02	D80
17	K051	100,000	T	S01 S02 T02	D80
18	K052	100,000	T	S01 S02 T02	D80
19	K060	100,000	T	S01 S02 T02	D80
20	K061	100,000	T	S01 S02 T02	D80
21	K062	100,000	T	S01 S02 T02	D80
22	K069	100,000	T	S01 S02 T02	D80
23	K071	100,000	T	S01 S02 T02	D80
24	K073	100,000	T	S01 S02 T02	D80
25	K083	100,000	T	S01 S02 T02	D80
26	K084	100,000	T	S01 S02 T02	D80
27	K085	100,000	T	S01 S02 T02	D80
28	K086	100,000	T	S01 S02 T02	D80
29	K087	100,000	T	S01 S02 T02	D80
30	K088	100,000	T	S01 S02 T02	D80
31	K093	100,000	T	S01 S02 T02	D80
32	K094	100,000	T	S01 S02 T02	D80
33	K095	100,000	T	S01 S02 T02	D80

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number		A. EPA Hazardous Waste No. *(Enter Code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									(2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*						
	1	K	0	9	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	2	K	0	9	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	3	K	0	9	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	4	K	0	9	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	5	K	1	0	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	6	K	1	0	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	7	K	1	0	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	8	K	1	0	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	9	K	1	0	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	0	K	1	0	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	1	K	1	0	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	2	K	1	0	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	3	K	1	0	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	4	K	1	0	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	5	K	1	1	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	6	K	1	1	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	7	K	1	1	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	8	K	1	1	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	9	K	1	1	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	0	K	1	1	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	1	K	1	1	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	2	K	1	1	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	3	K	1	1	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	4	K	1	2	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	5	K	1	2	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	6	K	1	2	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	7	K	1	2	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	8	K	1	3	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	9	K	1	3	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	0	K	1	3	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	1	K	1	4	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	2	K	1	4	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
3	3	K	1	4	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued - use additional sheets as necessary)*

Line Number		A. EPA Hazardous Waste No. *(Enter Code)*				B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter Code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									D. PROCESSES (2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*							
	1	K	1	4	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	2	K	1	4	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	3	K	1	4	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	4	K	1	4	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	5	K	1	4	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	6	K	1	5	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	7	K	1	5	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	8	K	1	5	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
	9	K	1	5	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	0	K	1	5	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	1	K	1	5	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	2	K	1	6	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	3	K	1	6	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	4	K	1	7	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	5	K	1	7	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	6	K	1	7	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	7	K	1	7	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	8	K	1	7	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
1	9	K	1	7	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	0	K	1	7	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	1	K	1	7	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0					
2	2																							
2	3																							
2	4																							
2	5																							
2	6																							
2	7																							
2	8																							
2	9																							
3	0																							
3	1																							
3	2																							
3	3																							

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									(2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*									
1	P 0 0 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
2	P 0 0 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
3	P 0 0 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
4	P 0 0 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
5	P 0 0 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
6	P 0 0 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
7	P 0 0 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
8	P 0 0 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
9	P 0 0 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
10	P 0 1 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
11	P 0 1 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
12	P 0 1 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
13	P 0 1 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
14	P 0 1 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
15	P 0 1 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
16	P 0 1 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
17	P 0 1 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
18	P 0 1 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
19	P 0 2 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
20	P 0 2 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
21	P 0 2 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
22	P 0 2 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
23	P 0 2 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
24	P 0 2 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
25	P 0 2 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
26	P 0 2 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
27	P 0 2 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
28	P 0 3 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
29	P 0 3 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
30	P 0 3 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
31	P 0 3 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
32	P 0 3 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															
33	P 0 3 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0															

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. (Enter Code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	P038	100,000	T	S01 S02 T02	D80
2	P039	100,000	T	S01 S02 T02	D80
3	P040	100,000	T	S01 S02 T02	D80
4	P041	100,000	T	S01 S02 T02	D80
5	P042	100,000	T	S01 S02 T02	D80
6	P043	100,000	T	S01 S02 T02	D80
7	P044	100,000	T	S01 S02 T02	D80
8	P045	100,000	T	S01 S02 T02	D80
9	P046	100,000	T	S01 S02 T02	D80
10	P047	100,000	T	S01 S02 T02	D80
11	P048	100,000	T	S01 S02 T02	D80
12	P049	100,000	T	S01 S02 T02	D80
13	P050	100,000	T	S01 S02 T02	D80
14	P051	100,000	T	S01 S02 T02	D80
15	P054	100,000	T	S01 S02 T02	D80
16	P056	100,000	T	S01 S02 T02	D80
17	P057	100,000	T	S01 S02 T02	D80
18	P058	100,000	T	S01 S02 T02	D80
19	P059	100,000	T	S01 S02 T02	D80
20	P060	100,000	T	S01 S02 T02	D80
21	P062	100,000	T	S01 S02 T02	D80
22	P063	100,000	T	S01 S02 T02	D80
23	P064	100,000	T	S01 S02 T02	D80
24	P065	100,000	T	S01 S02 T02	D80
25	P066	100,000	T	S01 S02 T02	D80
26	P067	100,000	T	S01 S02 T02	D80
27	P068	100,000	T	S01 S02 T02	D80
28	P069	100,000	T	S01 S02 T02	D80
29	P070	100,000	T	S01 S02 T02	D80
30	P071	100,000	T	S01 S02 T02	D80
31	P072	100,000	T	S01 S02 T02	D80
32	P073	100,000	T	S01 S02 T02	D80
33	P074	100,000	T	S01 S02 T02	D80

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*											
C	O	D	9	9	1	3	0	0	4	8	4												

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									D. PROCESSES (2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*										
1	P 0 7 5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
2	P 0 7 6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
3	P 0 7 7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
4	P 0 7 8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
5	P 0 8 1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
6	P 0 8 2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
7	P 0 8 4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
8	P 0 8 5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
9	P 0 8 7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
10	P 0 8 8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
11	P 0 8 9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
12	P 0 9 2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
13	P 0 9 3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
14	P 0 9 4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
15	P 0 9 5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
16	P 0 9 6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
17	P 0 9 7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
18	P 0 9 8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
19	P 0 9 9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
20	P 1 0 1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
21	P 1 0 2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
22	P 1 0 3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
23	P 1 0 4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
24	P 1 0 5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
25	P 1 0 6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
26	P 1 0 8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
27	P 1 0 9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
28	P 1 1 0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
29	P 1 1 1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
30	P 1 1 2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
31	P 1 1 3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
32	P 1 1 4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								
33	P 1 1 5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0								

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. (Enter Code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	P116	100,000	T	S01 S02 T02	D80
2	P118	100,000	T	S01 S02 T02	D80
3	P119	100,000	T	S01 S02 T02	D80
4	P120	100,000	T	S01 S02 T02	D80
5	P121	100,000	T	S01 S02 T02	D80
6	P122	100,000	T	S01 S02 T02	D80
7	P123	100,000	T	S01 S02 T02	D80
8	P127	100,000	T	S01 S02 T02	D80
9	P128	100,000	T	S01 S02 T02	D80
10	P185	100,000	T	S01 S02 T02	D80
11	P188	100,000	T	S01 S02 T02	D80
12	P189	100,000	T	S01 S02 T02	D80
13	P190	100,000	T	S01 S02 T02	D80
14	P191	100,000	T	S01 S02 T02	D80
15	P192	100,000	T	S01 S02 T02	D80
16	P194	100,000	T	S01 S02 T02	D80
17	P196	100,000	T	S01 S02 T02	D80
18	P197	100,000	T	S01 S02 T02	D80
19	P198	100,000	T	S01 S02 T02	D80
20	P199	100,000	T	S01 S02 T02	D80
21	P201	100,000	T	S01 S02 T02	D80
22	P202	100,000	T	S01 S02 T02	D80
23	P203	100,000	T	S01 S02 T02	D80
24	P204	100,000	T	S01 S02 T02	D80
25	P205	100,000	T	S01 S02 T02	D80
26					
27					
28					
29					
30					
31					
32					
33					

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. (Enter Code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U001	100,000	T	S01 S02 T02	D80
2	U002	100,000	T	S01 S02 T02	D80
3	U003	100,000	T	S01 S02 T02	D80
4	U004	100,000	T	S01 S02 T02	D80
5	U005	100,000	T	S01 S02 T02	D80
6	U006	100,000	T	S01 S02 T02	D80
7	U007	100,000	T	S01 S02 T02	D80
8	U008	100,000	T	S01 S02 T02	D80
9	U009	100,000	T	S01 S02 T02	D80
10	U010	100,000	T	S01 S02 T02	D80
11	U011	100,000	T	S01 S02 T02	D80
12	U012	100,000	T	S01 S02 T02	D80
13	U014	100,000	T	S01 S02 T02	D80
14	U015	100,000	T	S01 S02 T02	D80
15	U016	100,000	T	S01 S02 T02	D80
16	U017	100,000	T	S01 S02 T02	D80
17	U018	100,000	T	S01 S02 T02	D80
18	U019	100,000	T	S01 S02 T02	D80
19	U020	100,000	T	S01 S02 T02	D80
20	U021	100,000	T	S01 S02 T02	D80
21	U022	100,000	T	S01 S02 T02	D80
22	U023	100,000	T	S01 S02 T02	D80
23	U024	100,000	T	S01 S02 T02	D80
24	U025	100,000	T	S01 S02 T02	D80
25	U026	100,000	T	S01 S02 T02	D80
26	U027	100,000	T	S01 S02 T02	D80
27	U028	100,000	T	S01 S02 T02	D80
28	U029	100,000	T	S01 S02 T02	D80
29	U030	100,000	T	S01 S02 T02	D80
30	U031	100,000	T	S01 S02 T02	D80
31	U032	100,000	T	S01 S02 T02	D80
32	U033	100,000	T	S01 S02 T02	D80
33	U034	100,000	T	S01 S02 T02	D80

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*											
C	O	D	9	9	1	3	0	0	4	8	4												

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									(2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*
1	U 0 3 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
2	U 0 3 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
3	U 0 3 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
4	U 0 3 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
5	U 0 3 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
6	U 0 4 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
7	U 0 4 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
8	U 0 4 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
9	U 0 4 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
10	U 0 4 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
11	U 0 4 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
12	U 0 4 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
13	U 0 4 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
14	U 0 4 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
15	U 0 5 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
16	U 0 5 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
17	U 0 5 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
18	U 0 5 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
19	U 0 5 5	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
20	U 0 5 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
21	U 0 5 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
22	U 0 5 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
23	U 0 5 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
24	U 0 6 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
25	U 0 6 1	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
26	U 0 6 2	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
27	U 0 6 3	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
28	U 0 6 4	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
29	U 0 6 6	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
30	U 0 6 7	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
31	U 0 6 8	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
32	U 0 6 9	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						
33	U 0 7 0	100,000	T	S 0 1	S 0 2	T 0 2	D 8 0						

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*	D. PROCESSES (2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*
1	U071	100,000	T	S01 S02 T02	D80
2	U072	100,000	T	S01 S02 T02	D80
3	U073	100,000	T	S01 S02 T02	D80
4	U074	100,000	T	S01 S02 T02	D80
5	U075	100,000	T	S01 S02 T02	D80
6	U076	100,000	T	S01 S02 T02	D80
7	U077	100,000	T	S01 S02 T02	D80
8	U078	100,000	T	S01 S02 T02	D80
9	U079	100,000	T	S01 S02 T02	D80
10	U080	100,000	T	S01 S02 T02	D80
11	U081	100,000	T	S01 S02 T02	D80
12	U082	100,000	T	S01 S02 T02	D80
13	U083	100,000	T	S01 S02 T02	D80
14	U084	100,000	T	S01 S02 T02	D80
15	U085	100,000	T	S01 S02 T02	D80
16	U086	100,000	T	S01 S02 T02	D80
17	U087	100,000	T	S01 S02 T02	D80
18	U088	100,000	T	S01 S02 T02	D80
19	U089	100,000	T	S01 S02 T02	D80
20	U090	100,000	T	S01 S02 T02	D80
21	U091	100,000	T	S01 S02 T02	D80
22	U092	100,000	T	S01 S02 T02	D80
23	U093	100,000	T	S01 S02 T02	D80
24	U094	100,000	T	S01 S02 T02	D80
25	U095	100,000	T	S01 S02 T02	D80
26	U096	100,000	T	S01 S02 T02	D80
27	U097	100,000	T	S01 S02 T02	D80
28	U098	100,000	T	S01 S02 T02	D80
29	U099	100,000	T	S01 S02 T02	D80
30	U101	100,000	T	S01 S02 T02	D80
31	U102	100,000	T	S01 S02 T02	D80
32	U103	100,000	T	S01 S02 T02	D80
33	U105	100,000	T	S01 S02 T02	D80

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. (Enter Code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U 1 0 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
2	U 1 0 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
3	U 1 0 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
4	U 1 0 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
5	U 1 1 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
6	U 1 1 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
7	U 1 1 2	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
8	U 1 1 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
9	U 1 1 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
10	U 1 1 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
11	U 1 1 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
12	U 1 1 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
13	U 1 1 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
14	U 1 1 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
15	U 1 2 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
16	U 1 2 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
17	U 1 2 2	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
18	U 1 2 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
19	U 1 2 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
20	U 1 2 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
21	U 1 2 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
22	U 1 2 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
23	U 1 2 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
24	U 1 2 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
25	U 1 3 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
26	U 1 3 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
27	U 1 3 2	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
28	U 1 3 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
29	U 1 3 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
30	U 1 3 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
31	U 1 3 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
32	U 1 3 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
33	U 1 3 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*									(2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*											
1	U	1	4	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
2	U	1	4	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
3	U	1	4	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
4	U	1	4	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
5	U	1	4	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
6	U	1	4	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
7	U	1	4	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
8	U	1	4	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
9	U	1	4	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
10	U	1	4	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
11	U	1	5	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
12	U	1	5	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
13	U	1	5	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
14	U	1	5	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
15	U	1	5	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
16	U	1	5	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
17	U	1	5	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
18	U	1	5	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
19	U	1	5	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
20	U	1	5	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
21	U	1	6	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
22	U	1	6	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
23	U	1	6	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
24	U	1	6	3	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
25	U	1	6	4	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
26	U	1	6	5	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
27	U	1	6	6	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
28	U	1	6	7	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
29	U	1	6	8	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
30	U	1	6	9	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
31	U	1	7	0	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
32	U	1	7	1	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						
33	U	1	7	2	100,000	T	S	0	1	S	0	2	T	0	2	D	8	0						

EPA ID Number *(Enter from page 1)*: C O D 9 9 1 3 0 0 4 8 4

Secondary ID Number *(Enter from page 1)*:

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. (Enter Code)	B. Estimated Annual Quantity of Waste	C. Unit of Measure (Enter code)	D. PROCESSES (1) PROCESS CODES (Enter code)	D. PROCESSES (2) PROCESS DESCRIPTION (If a code is not entered in D(1))
1	U 1 7 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
2	U 1 7 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
3	U 1 7 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
4	U 1 7 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
5	U 1 7 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
6	U 1 7 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
7	U 1 8 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
8	U 1 8 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
9	U 1 8 2	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
10	U 1 8 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
11	U 1 8 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
12	U 1 8 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
13	U 1 8 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
14	U 1 8 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
15	U 1 8 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
16	U 1 8 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
17	U 1 9 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
18	U 1 9 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
19	U 1 9 2	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
20	U 1 9 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
21	U 1 9 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
22	U 1 9 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
23	U 1 9 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
24	U 2 0 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
25	U 2 0 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
26	U 2 0 2	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
27	U 2 0 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
28	U 2 0 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
29	U 2 0 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
30	U 2 0 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
31	U 2 0 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
32	U 2 0 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
33	U 2 0 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*											
C	O	D	9	9	1	3	0	0	4	8	4												

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*	D. PROCESSES (2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*
1	U 2 1 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
2	U 2 1 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
3	U 2 1 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
4	U 2 1 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
5	U 2 1 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
6	U 2 1 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
7	U 2 1 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
8	U 2 1 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
9	U 2 2 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
10	U 2 2 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
11	U 2 2 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
12	U 2 2 2	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
13	U 2 2 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
14	U 2 2 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
15	U 2 2 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
16	U 2 2 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
17	U 2 2 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
18	U 2 3 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
19	U 2 3 5	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
20	U 2 3 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
21	U 2 3 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
22	U 2 3 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
23	U 2 3 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
24	U 2 4 0	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
25	U 2 4 3	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
26	U 2 4 4	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
27	U 2 4 6	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
28	U 2 4 7	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
29	U 2 4 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
30	U 2 4 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
31	U 2 7 1	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
32	U 2 7 8	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0
33	U 2 7 9	100,000	T	S 0 1 S 0 2 T 0 2	D 8 0

EPA ID Number *(Enter from page 1)*												Secondary ID Number *(Enter from page 1)*												
C	O	D	9	9	1	3	0	0	4	8	4													

XIV. Description of Hazardous Wastes *(Continued; use additional sheets as necessary)*

Line Number	A. EPA Hazardous Waste No. *(Enter Code)*	B. Estimated Annual Quantity of Waste	C. Unit of Measure *(Enter code)*	D. PROCESSES (1) PROCESS CODES *(Enter code)*	(2) PROCESS DESCRIPTION *(If a code is not entered in D(1))*
1	U280	100,000	T	S01 S02 T02	D80
2	U328	100,000	T	S01 S02 T02	D80
3	U353	100,000	T	S01 S02 T02	D80
4	U359	100,000	T	S01 S02 T02	D80
5	U364	100,000	T	S01 S02 T02	D80
6	U367	100,000	T	S01 S02 T02	D80
7	U372	100,000	T	S01 S02 T02	D80
8	U373	100,000	T	S01 S02 T02	D80
9	U387	100,000	T	S01 S02 T02	D80
10	U389	100,000	T	S01 S02 T02	D80
11	U394	100,000	T	S01 S02 T02	D80
12	U395	100,000	T	S01 S02 T02	D80
13	U404	100,000	T	S01 S02 T02	D80
14	U409	100,000	T	S01 S02 T02	D80
15	U410	100,000	T	S01 S02 T02	D80
16	U411	100,000	T	S01 S02 T02	D80
17					
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21					
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EPA ID Number (Enter from page 1)												Secondary ID Number (Enter from page 1)												
N	E	D	9	8	1	7	2	3	5	1	3													

XV. Map

Attach to this application a topographic map, or other equivalent map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in this map area. See instructions for precise requirements.

XVI. Facility Drawing

All existing facilities must include a scale drawing of the facility (See instructions for more detail).

XVII. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

XVIII. Certification(s)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Signature	Date Signed

Name and Official Title (Type or print)
John H Kehoe, General Manager

Owner Signature	Date Signed

Name and Official Title (Type or print)

Operator Signature	Date Signed
John H Kehoe	10-13-04

Name and Official Title (Type or print)
John H Kehoe, General Manager

Operator Signature	Date Signed

Name and Official Title (Type or print)

XIX. Comments

Note: Mail completed form to the appropriate EPA Regional or State Office. (Refer to instructions for more information)

PART I: STANDARD PERMIT CONDITIONS

A. EFFECT OF PERMIT

A.1. The Permittee is allowed to store, treat, and dispose of hazardous waste in accordance with the conditions of this Permit. Any storage, treatment or disposal of hazardous waste not authorized in this Permit is prohibited. Compliance with this Permit generally constitutes compliance, for purposes of enforcement, with the Colorado Revised Statutes. Issuance of this Permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of federal, state, or local law or regulations. Compliance with the terms of this Permit does not constitute a defense to any order issued or any action brought under the imminent-hazard provisions of the Act, or 7003 of RCRA; Section §106(a), 104 or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq.), (CERCLA), or any other law providing for protection of public health or the environment [6 CCR 1007-3 §100.46 and §100.42(g)].

B. PERMIT ACTIONS

B.1. Permit Modification, Revocation and Reissuance, and Termination

B.1.1. This Permit may be modified, revoked and reissued, or terminated for cause, as specified in 6 CCR 1007-3 §100.60. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes or anticipated noncompliance on the part of the Permittee, does not stay the applicability or enforceability of any permit condition. [6 CCR 1007-3, 100.60 and 100.42(f)]

B.2. Permit Renewal

B.2.1. This Permit may be renewed as specified in 6 CCR 1007-3 §100.42(b) and Permit Condition I.E.2. Review of any application for a Permit renewal shall consider improvements in the state of control and measurement technology, as well as changes in applicable regulations [6 CCR 1007-3, §100.42(b)].

C. SEVERABILITY

C.1. The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Permit shall not be affected thereby.

D. DEFINITIONS

D.1. For purposes of this Permit, terms used herein shall have the same meaning as those in 6 CCR 1007-3 Parts 2, 99, 100, and 260 through 268, unless this Permit specifically provides otherwise; where terms are not defined in the regulations or the Permit, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term. "Director" means the Director of the Colorado Department of Public Health and Environment (CDPHE), Hazardous Materials and Waste Management Division, or his designee or authorized representative.

E. DUTIES AND REQUIREMENTS

E.1. Duty to Comply

E.1.1. The Permittee must comply with all conditions of this Permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any Permit noncompliance, other than noncompliance authorized by an emergency Permit, constitutes a violation of the Act and is grounds for enforcement action; for Permit termination, revocation and reissuance, or modification; or for denial of a Permit renewal application. [6 CCR 1007-3 §100.42(a)]

E.2. Duty to Reapply

E.2.1. If the Permittee wishes to continue an activity allowed by this Permit after the expiration date of this Permit, the Permittee must submit a complete application for a new Permit at least 180 days prior to Permit expiration. [6 CCR 1007-3 §100.42(b) and §100.11(e)(1)]

E.3. Permit Expiration

E.3.1. Pursuant to 6 CCR 1007-3 §100.45, this Permit shall be effective for a fixed term of five years. As long as CDPHE is the Permit-issuing authority, this Permit and all conditions herein will remain in effect beyond the Permit's expiration date, if the Permittee has submitted a timely, complete application and, through no fault of the Permittee, the Director has not issued a new Permit, as set forth in 6 CCR 1007-3 §100.11(e)(2).

E.4. Need to Halt or Reduce Activity Not a Defense

E.4.1. It shall not be a defense for the Permittee, in an enforcement action, that it would have been necessary to halt or reduce the Permitted activity in order to maintain compliance with the conditions of this Permit. [6 CCR 1007-3 §100.42(c)]

E.5. Duty to Mitigate

E.5.1. In the event of noncompliance with this Permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. [6 CCR 1007-3 §100.42(d)]

E.6. Proper Operation and Maintenance

E.6.1. The Permittee shall at all times properly operate and maintain all facilities and systems of disposal and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls including appropriate quality assurance/quality control procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Permit. [6 CCR 1007-3 §100.42(e)]

E.7. Duty to Provide Information

E.7.1. The Permittee shall furnish to the Director, within a reasonable time, any relevant information, which the Director may request, to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit, or to determine compliance with this Permit. The Permittee must also furnish to the Director, upon request, copies of records required to be kept by this Permit. [6 CCR 1007-3 §264.74(a), §100.42(h)]

E.8. Inspection and Entry

E.8.1. Pursuant to 6 CCR 1007-3 §100.42(i), the Permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

E.8.1.1. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Permit;

E.8.1.2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Permit;

E.8.1.3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

E.8.1.4. Sample or monitor, at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by the Act, any substances or parameters at any location.

E.9. Monitoring and Records

E.9.1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste shall be the appropriate method from Appendix I of 6 CCR 1007-3 Part 261, or other method approved by the Division; the method used to obtain representative samples of ground water must be as described in *Permit Attachment 8*. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, Standard Methods of Wastewater Analysis, or an equivalent waste analysis method as specified in the Waste Analysis Plan (Permit Attachment 2), and/or an equivalent analysis method as specified in the Groundwater Sampling Plan (*Permit Attachment 8*) And / or other methods as approved by the Department. [6 CCR 1007-3 §100.42(j)(1)]

E.9.2. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this Permit and 6 CCR 1007-3 §264.74, the certifications required by 6 CCR 1007-3 §264.73(b)(9) and (11), and records of all data used to complete the application for this Permit, from the date of the sample, measurement, report, record, certification, or application until post-closure care is terminated. This period may be extended by request of the Director at any time and is automatically extended during the course of any unresolved enforcement action regarding this facility. The Permittee must maintain records from all ground water monitoring wells and associated ground water surface elevations for the post-closure care period. These forms, records or documentation maybe received, stored, transmitted, and/or retreived electronically in addition to, or in lieu of, hard (paper) copy." [6 CCR 1007-3 §264.74(b) and §100.42(j)(2)]

E.9.3. Pursuant to 6 CCR 1007-3 §100.42(j)(3), records of monitoring information must specify:

E.9.3.1. The date(s), exact place, and times of sampling or measurements;

E.9.3.2. The individual(s) who performed the sampling or measurements;

E.9.3.3. The sample collection, storage, and handling techniques;

E.9.3.4. The date(s) analyses were performed;

E.9.3.5. The individual(s) who performed the analyses;

E.9.3.6. The analytical technique(s) or method(s) used; and

E.9.3.7. The results of such analyses.

E.10. Reporting Planned Changes

E.10.1. The Permittee shall give notice to the Director, as soon as possible, of any planned physical alterations or additions to the Permitted facility. For a facility being modified the Permittee may not treat, store, or dispose of hazardous waste in the modified portion of the facility until:

E.10.1.1. The Permittee has submitted to the Director by certified mail or hand delivery a letter signed by the Permittee and a Registered Professional Engineer stating that the facility has been constructed or modified in compliance with the Permit; and

E.10.1.2. The Director has inspected the modified facility and finds it is in compliance with the conditions of the Permit or

E.10.1.2.1. Within 15 days of the date of submission of the letter in Section I.E.10.1, the Permittee has not received notice from the Director of his or her intent to inspect, prior inspection is waived and the Permittee may commence treatment, storage, or disposal of hazardous waste. [6 CCR 1007-3 §100.42(l)(1)]

E.11. Reporting Anticipated Noncompliance

E.11.1. The Permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements. For a facility being modified, the Permittee may not treat, store, or dispose of hazardous waste in the modified portion of the facility except as provided in §100.61 and §100.63, until:

E.11.1.1. The Permittee has submitted to the Director by certified mail or hand delivery a letter signed by the Permittee and a Registered Professional Engineer stating that the facility has been constructed or modified in compliance with the Permit; and

E.11.1.2. The Director has inspected the modified facility and finds it in compliance with the conditions of the Permit; or

E.11.1.2.1. Within 15 days of the date of submission of the letter in Section I.E.11.1, the Permittee has not received notice from the Director of his or her intent to inspect, prior inspection is waived and the Permittee may commence treatment, storage, or disposal of hazardous waste. [6 CCR 1007-3 §100.42(l)(2)]

E.12. Transfer of Permits

E.12.1. This Permit is not transferable to any person, except after notice to the Director. The Director may require modification or revocation and reissuance of the Permit to change the name of the Permittee and incorporate such other requirements as may be necessary under the State Hazardous Waste Act, pursuant to 6 CCR 1007-3 §100.62. Before transferring ownership or operation of the facility during its operating life, or of the disposal facility during the post closure care period, the Permittee must notify the new owner or operator in writing of the

requirements of 6 CCR 1007-3, Parts 264 and 100 and this Permit. [6 CCR 1007-3 §100.42(l)(3), §264.12(c)]

E.13. Twenty-Four-Hour Reporting

E.13.1. The Permittee shall report to the Director any noncompliance, which may endanger health or the environment. Any such information shall be provided orally within 24 hours from the time the Permittee becomes aware of the circumstances. The report must include the following:

E.13.1.1. Information concerning release of any hazardous waste or hazardous constituent (§261, Appendix VIII and §264, Appendix IX) that may endanger public drinking water supplies.

E.13.1.2. Any information of a release or discharge of hazardous waste or hazardous constituent, (§261, Appendix VIII and §264, Appendix IX), or of a fire or explosion from the hazardous waste management facility which could threaten the environment or human health outside the facility.

E.13.2. The description of the occurrence and its cause shall include:

E.13.2.1. Name, address, and telephone number of the owner or operator;

E.13.2.2. Name, address, and telephone number of the facility;

E.13.2.3. Date, time, and type of incident;

E.13.2.4. Name and quantity of materials involved;

E.13.2.5. The extent of injuries, if any;

E.13.2.6. An assessment of actual or potential hazards to the environment and human health outside the facility, where this is applicable; and

E.13.2.7. Estimated quantity and disposition of recovered material that resulted from the incident.

E.13.3. A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission must contain a description of the noncompliance and its cause; the period(s) of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and, if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Director may waive the five-day written notice requirement in favor of a written report within 15 days [6 1007-3, §100.42(l)(6)].

E.14. Other Noncompliance

E.14.1. The Permittee shall report all instances of noncompliance not otherwise required to be reported above, Permit Conditions I.E.10 through I.E.13, at the time monitoring reports are submitted. The reports must contain the information listed in Permit Condition I.E.13 [6 CCR 1007-3 §100.42(l)(7)].

E.15. Other Information

E.15.1. Whenever the Permittee becomes aware that it failed to submit any relevant facts in the Permit application, or submitted incorrect information in a Permit application or in any report to the Director, the Permittee must submit such facts or information within 30 calendar days. [6 CCR 1007-3 §100.42(l)(8)]

F. SIGNATORY REQUIREMENT

F.1. All applications, reports, or information submitted to or requested by the Director, his designee, or authorized representative, shall be signed and certified in accordance with 6 CCR 1007-3 §100.44(a) and §100.42(k).

G. REPORTS, NOTIFICATIONS, AND SUBMISSIONS TO THE DIRECTOR

G.1. All reports, notifications, or other submissions which are required by this Permit to be sent or given to the Director should be sent by certified mail or hand delivered to:

G.1.1. Colorado Department of Public Health and Environment

G.1.2. Hazardous Materials and Waste Management Division

G.1.3. HMWMD-HWC-B2

G.1.4. 4300 Cherry Creek Drive South

G.1.5. Denver, Colorado 80246-1530

H. CONFIDENTIAL INFORMATION

H.1. In accordance with 6 CCR 1007-3 Part 2, the Permittee may claim as confidential any information required to be submitted by this Permit.

I. DOCUMENTS TO BE MAINTAINED AT THE FACILITY

I.1. The Permittee must maintain at the facility, until post-closure care is completed and certified by an independent, Colorado Registered Professional Engineer, the following documents and all amendments, revisions and modifications to these documents:

I.1.1. This Permit and all approved modifications.

I.1.2. Waste Analysis Plan, as required by 6 CCR 1007-3, §264,13 and this Permit.

I.1.3. Inspection schedules, as required by 6 CCR 1007-3 §264.15(b)(2) and this Permit.

I.1.4. Personnel training documents and records, as required by 6 CCR 1007-3 §264.16(d) and this Permit.

I.1.5. Contingency Plan, as required by 6 CCR 1007-3 §264.53(a) and this Permit.

I.1.6. Operating record, as required by 6 CCR 1007-3 §264.73 and this Permit.

I.1.7. Closure Plan, as required by 6 CCR 1007-3 §264.112(a) and this Permit.

I.1.8. All other documents required by Permit Condition I.E.9.

J. COMPLIANCE SCHEDULES -Reserved

PART II: GENERAL FACILITY CONDITIONS

A. DESIGN AND OPERATION OF FACILITY

A.1. The Permittee must construct, maintain, and operate the facility to minimize the possibility of a fire, explosion, or any unplanned, sudden or non-sudden release of hazardous waste constituents to air, soil, surface water, or ground water which could threaten human health or the environment, as required by 6 CCR 1007-3, §264.31.

B. REQUIRED NOTICES

B.1. The Permittee must notify the Department in writing at least four weeks in advance of the date the Permittee expects to receive hazardous waste imported from a foreign country. Notice of subsequent shipments of the same waste from the same foreign source is not required. [6 CCR 1007-3, §264.12(a)]

B.2. When the Permittee is to receive hazardous waste from an off-site source (except where the Permittee is also the generator), he must inform the generator in writing that he has the appropriate permits for, and will accept the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the operating record. [6 CCR 1007-3, §264.12(b)]

B.3. Before transferring ownership or operation of the facility during its operating life, or during the post closure care period, the Permittee must notify the new owner or operator in writing of the requirements of this Permit and the requirements of 6 CCR 1007-3 §264 and §100. [6 CCR 1007-3, §264.12(c)]

C. GENERAL WASTE ANALYSIS

C.1. The Permittee must follow the waste analysis procedures required by 6 CCR 1007-3, §264.13, and as described in the attached Waste Analysis Plan, Permit Attachment 2, and comply with the following:

C.2. At a minimum, the Permittee must maintain proper functional instruments, verify the validity of sampling and analytical procedures, and perform correct calculations. The method used to obtain a representative sample of the waste to be analyzed must be the appropriate method from Appendix I of 6 CCR 1007-3, Part 261, or as described in the Waste Analysis Plan, Attachment 2.

C.3. Laboratory methods must be those specified in the most current, approved version of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods SW-846, as referenced in 6 CCR 1007-3, §260.11, or an equivalent approved method, as specified in the Waste Analysis Plan, Attachment 2. If the Permittee uses a contract laboratory to perform analyses, then the Permittee must inform the laboratory in writing that it must operate under the waste analysis conditions set forth in this Permit. The Permittee must keep a copy of this written notice as part of the operating record.

C.4. The following wastes are specifically prohibited from storage, treatment, or disposal at the facility:

C.4.1. Compressed gases

C.4.2. Air Reactive Materials

C.4.3. Shock Sensitive Materials

C.4.4. Infectious Wastes

C.4.5. DOT Forbidden Explosives

C.4.6. PCBs > 50 mg/kg or 50 mg/l

C.4.7. Radioactive Materials > 116 uR/hr, or as approved by the Department

D. SECURITY

D.1. The Permittee must prevent the unknowing entry and minimize the possibility for unauthorized entry, of persons or livestock onto the active portion of the Facility. [6 CCR 1007-3 §264.14(a)]

D.2. The facility will provide at a minimum one employee present at the facility at all times when untreated waste is present in the Treatment Basinsthat may produce ignitable, explosive, or toxic, fumes or gases. The waste will be evaluated on a case by case basis. [6 CCR 1007-3 §264.14(b)]

D.3. The Permittee shall maintain the fence, which consists of an eight-foot chain link fence topped with barbed wire, surrounding the Facility. The fence includes an additional locked gate at the east, west and south sides of the Facility. [6 CCR 1007-3 §264.14(b)]

D.4. The Permittee shall post and maintain warning signs at the entry gates and at a maximum of 200-foot intervals along the perimeter fence. The signs shall read "Danger - Unauthorized Personnel Keep Out" and shall be legible from a distance of at least 25 feet. [6 CCR 1007-3 §264.14(c)]

E. GENERAL INSPECTION REQUIREMENTS

E.1. The Permittee must follow the inspection procedures required by 6 CCR 1007-3, §264.15, and as described in the attached Inspection Plan, Attachment 3, and comply with the following requirements.

E.2. The Permittee must record the date and time of the inspection and all inspection observations on the appropriate Inspection Checklist provided in Attachment 3. The Permittee must require inspectors to sign or print their names on each Inspection Checklist after indicating the status of the items inspected. Items not inspected must be marked "NI" on the Inspection Checklist. Inspectors will sign and clearly define sections of the inspection that they performed, if different inspectors complete sections of an inspection. Records of the inspections must be kept for at least three years from the date of inspection. [6 CCR 1007-3, §264.15(d)]

E.3. If a deficiency is corrected within 24 hours, it will be noted and documented on the inspection form. If it cannot be corrected within 24 hours, a written corrective action report shall be filed with the original Inspection Checklist on which an item was first noted as requiring correction. [6 CCR 1007-3 §264.15(c)]

E.4. The Permittee shall remedy any deterioration or malfunction of equipment or structures identified during the inspection within fourteen (14) calendar days after the inspection in which the problem is first identified, except as provided in Condition I.E.6. and 7. of this Permit. [6 CCR 1007-3 §264.15(c)]

E.5. The Permittee shall immediately initiate remedial actions to remedy any health or safety hazards and actual or imminent releases from the Facility into the environment of solid or hazardous wastes, hazardous waste constituents, potentially contaminated runoff, or precipitation runoff which has contacted solid or hazardous waste. Remedial action must be completed within twenty-four (24) hours after the problem is identified. [6 CCR 1007-3 §264.15(c)]

E.6. The Permittee may submit either a verbal or written request to extend the time limits specified in Conditions II.E.4. and II.E.5.of this Permit, on a case-by-case basis. The request must include an explanation of the unforeseen or uncontrollable circumstances that have resulted in the need for additional time to complete such remedial action(s) and must be received at the Department prior to the time limit expiration.

E.7. During the time prior to completion of final remedial actions, the Permittee shall implement interim mitigation measures to prevent or minimize continuing deterioration of structures or equipment, safety hazards, or releases of wastes.

F. PERSONNEL TRAINING

F.1. The Permittee must conduct personnel training as required by 6 CCR 1007-3 §264.16, and as described in the Personnel Training Plan, Attachment 5, and comply with the following requirements.

F.2. The Permittee must maintain qualified and competent personnel in key facility positions (such as management, supervisory personnel, and waste management personnel).

F.3. The Permittee must maintain the following documents and records at the Facility:

F.3.1. The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job.

F.3.2. A written job description for each position listed in the Personnel Training Plan, Attachment 5. This description may be consistent in its degree of specificity with descriptions for other similar positions at the Facility, but must include the requisite skill, education, or other qualifications, and duties of employees assigned to each position.

F.3.3. A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position listed in the Personnel Training Plan, Attachment 5.

F.3.4. Records that document that the training or job experience required under Permit Condition II.F. has been given to, and successfully completed by, Facility personnel. [6 CCR 1007-3 §264.16(d)]

F.4. Training records on current personnel must be kept until closure of the facility; training records on former personnel must be kept for at least three years from the date the employee last worked at the Facility. Personnel training records may accompany personnel transferred within the same company. [6 CCR 1007-3 §264.16(e)]

F.5. Personnel who handle hazardous waste must not work without direct supervision until training requirements are met. New personnel must complete the training program within six months of their assignment to the hazardous waste management areas. [6 CCR 1007-3 §264.16(b)]

F.6. Facility personnel must take part in an annual review of the initial training required in Permit Condition II.F. and described in the Personnel Training Plan, Attachment 5. Annual training requirements must be completed within thirteen months of previous annual or initial training. [6 CCR 1007-3 §264.16(c)]

G. SPECIAL PROVISIONS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE

G.1. The Permittee must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction including but not limited to: open flames, smoking, cutting, and welding, hot surfaces, frictional heat, sparks (static, electrical, mechanical), incompatible chemicals or wastes, spontaneous ignition (e.g. from heat producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the Permittee must confine smoking and open flames to specifically designated locations. "No Smoking" signs shall be conspicuously placed wherever there is a hazard from ignitable or reactive waste. Smoking shall be confined to designated locations at all times. [6 CCR 1007-3 §264.17(a)]

G.2. When treating, storing or disposing of ignitable or reactive waste or mixing incompatible waste or incompatible waste and other materials, the Permittee must take precautions to prevent reactions which:

G.2.1. Generate extreme heat or pressure, fire or explosions, or violent reactions;

G.2.2. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

G.2.3. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose risk of fire or explosions;

G.2.4. Damage the structural integrity of the device or Facility;

G.2.5. Through other like means threaten human health or the environment. [6 CCR 1007-3 §264.17(b)]

G.3. The Permittee must document compliance with Permit Conditions II.G.1. and 2. in the Operating Record. This documentation may be based on references to published scientific or engineering literature, data from trial tests (bench scale or pilot scale tests), waste analysis, or the results of treatment of similar wastes by similar treatment processes and under similar operating conditions. [6 CCR 1007-3 §264.17(c)]

G.4. The Permittee must comply, at a minimum, with all applicable standards specified in NFPA30 - Flammable and Combustible Liquids Code, 1987 Edition.

G.5. The Permittee must follow the procedures for handling ignitable, reactive, and incompatible wastes set forth in Parts III, IV, V, and VI and Attachment 4 of this Permit.

H. CONSTRUCTION QUALITY ASSURANCE PROGRAM

H.1. The Permittee must follow the Construction Quality Assurance Program (CQA) required by 6 CCR 1007-3 §264.19, and as described in the attached Construction Quality Assurance Plan, Attachment 10, and comply with the following requirements:

H.2. The CQA Program must be developed and implemented under the direction of a CQA officer who is a Registered Professional Engineer. [6 CCR 1007-3 §264.19(a)]

H.3. Waste shall not be received in a secure cell until the Permittee has submitted to the Department by certified mail or hand delivery a certification signed by the CQA officer that the approved CQA Plan has been successfully carried out and that the unit meets the requirements of §264.3018 and (d); the procedure in §100.42(l)(2)(ii) of 6 CCR 1007-3 has been completed; and

the Department has approved, in writing, the certification. Documentation supporting the CQA officer's certification must be furnished to the Department upon request. [6 CCR 1007-3 §264.19(d)]

I. PREPAREDNESS AND PREVENTION

I.1. The Facility must be maintained and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, surface or ground water which could threaten human health or the environment. [6 CCR 1007-3 §264.31]

I.2. At a minimum the Permittee must test and maintain the equipment specified in the Contingency Plan, Attachment 4, and as required by 6 CCR 1007-3 §264.32, as necessary, to ensure proper operation in time of emergency and as required by 6 CCR 1007-3 §264.33. Documentation of this testing and maintenance must be maintained in the operating record.

I.3. Access of communications or alarm system

I.3.1. Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee. [6 CCR 1007-3 §264.34(a)]

I.3.2. The Permittee must maintain access to the communications and alarm system described in Permit Attachment 4, and as required by 6 CCR 1007-3 §264.34.

I.4. Required aisle space and roadways

I.4.1. At a minimum, the Permittee must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation. [6 CCR 1007-3 §264.35]

I.4.2. The roadways to all permitted hazardous waste management areas must be maintained to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment in an emergency.

I.5. Arrangements with Local Agencies

I.5.1. The Permittee must attempt to maintain arrangements with state and local agencies, as required by 6 CCR 1007-3 §264.37. The Permittee will maintain arrangements with the following agencies:

I.5.1.1. Adams County Mutual Aid/Fire Department

I.5.1.2. Adams County Sheriff

I.5.1.3. Byers Rescue Squad

I.5.1.4. Fort Morgan Community Hospital

I.5.1.5. Emergency Medical Air Service (AMI-Presbyterian, Aurora)

I.5.1.6. Southwestern Washington County Fire District

I.5.2. If any local authorities terminate or decline to enter into such arrangements with the Permittee, the Permittee must document this termination or declination in the operating record, notify the Department in writing within 10 days, specifying alternative emergency response arrangements, and comply with 6 CCR 1007-3 §264.31. [6 CCR 1007-3 §264.37(b)]

J. CONTINGENCY PLAN AND EMERGENCY PROCEDURES

J.1. The Permittee must follow the procedures required by 6 CCR 1007-3, Subpart D, and as described in the attached Contingency Plan, Attachment 4, and the following requirements:

J.2. The Permittee must immediately carry out the provisions of the Contingency Plan, Attachment 4, whenever there is a fire, explosion, or release of hazardous waste or hazardous constituents, which could threaten human health or the environment, and as specified in Attachment 4. [6 CCR 1007-3 §264.51(b)]

J.3. The Permittee must keep a copy of the Contingency Plan and all revisions to the Plan at the Facility, and must submit the Plan with relevant maps and figures to all local fire departments, hospitals, and local emergency response teams that may be called to provide emergency services. [6 CCR 1007-3 §264.53]

J.4. The Permittee must review and immediately amend, if necessary, the Contingency Plan whenever

J.4.1. The facility Permit is revised;

J.4.2. The Plan fails in an emergency;

J.4.3. The facility changes in its design, construction, operation, maintenance, or other circumstances, in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or changes the response necessary in an emergency;

J.4.4. The list of emergency coordinators changes; or

J.4.5. The list of emergency equipment changes. [6 CCR 1007-3 §264.54]

J.5. At all times, there must be at least one employee either on the facility premises or on call (i.e. capable of verbal communication and available to respond within 30 minutes) with the responsibility for coordinating all emergency response measures. This emergency coordinator must be thoroughly familiar with all aspects of the Facility's Contingency Plan, all operations and activities at the Facility, the location and characteristics of wastes handled, the location of all records within the Facility, and the Facility layout. In addition, this person must have the authority to commit the resources necessary to carry out the Contingency Plan. [6 CCR 1007-3 §264.55]

J.6. The Permittee will invite local emergency response personnel, such as volunteer fire department and sheriff's office personnel, to participate in emergency response training conducted at the Facility.

J.7. The following occurrences will be verbally reported to the Department within 48 hours even if they do not exceed the thresholds defined in the Contingency Plan, Attachment 4, for implementation of the Contingency Plan:

J.7.1. Any fire or explosion

J.7.2. Any spill or release of hazardous waste or hazardous waste constituent outside of a hazardous waste unit

J.7.3. Any spill or release of hazardous waste or hazardous waste constituent inside of a secondary containment system

K. MANIFEST SYSTEM

K.1. The Permittee will comply with the manifest requirements of 6 CCR 1007-3 Subpart E, including §264.71 regarding the use of the manifest system, §264.72 regarding manifest discrepancies, and §264.76 regarding unmanifested waste reports.

L. OPERATING RECORD

L.1. The Permittee shall maintain a written operating record at the Facility to comply with 6 CCR 1007-3 §264.73 and Part 264, Appendix I. The following items must be maintained as part of the operating record:

L.2. The Permittee shall maintain a description and the quantity of each hazardous waste received, and method(s) and date(s) of its treatment, storage and/or disposal at the Facility as required by 6 CCR 1007-3, Part 264, Appendix I.

L.3. The Permittee shall maintain hazardous waste management unit logbooks to document the location of each hazardous waste within the Facility. For all units, this information must include cross-references to specific manifest document numbers, if the waste was accompanied by a manifest. For each secure disposal cell, the location and quantity of each hazardous waste must be recorded on a map or diagram using a three-dimensional grid system.

L.4. The Permittee shall maintain copies of all records and results of all waste analysis and waste determinations.

L.5. The Permittee shall maintain copies of descriptions of all waste analysis discrepancies.

L.6. The Permittee shall maintain copies of all samples and measurements taken for the purpose of monitoring including, but not limited to, weather instrumentation readings, drainage ditch samples, background soil samples, and groundwater and surface water samples.

L.6.1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

L.6.2. The Permittee shall retain records of all monitoring information, including calibration (such as laboratory equipment calibrations) and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the application for this Permit for a period of at least three years from the date of the sample, measurement, report, or application. These periods may be extended by request of the Director at any time and are automatically extended during the course of any unresolved enforcement action regarding this Facility.

L.7. Records of monitoring information shall include:

L.7.1. The dates, exact place, and time of sampling or measurement

L.7.2. The individual(s) who perform the sampling or measurement

L.7.3. The date(s) the analyses were performed

L.7.4. Chain of custody forms

L.7.5. The individual(s) who performed the analyses

L.7.6. The analytical techniques and methods used

L.7.7. The results of such analyses

L.8. The Permittee shall maintain a record and results of all inspections at the Facility

L.9. The Permittee shall maintain summary reports and details, including the time and date, of all incidents that require implementation of the Contingency Plan. Within five days after an incident, the Permittee must submit a written report on the incident to the Department. The report must include:

L.9.1. Name, address, and telephone number of the Permittee

L.9.2. Name, address, and telephone number of the Facility

L.9.3. Date, time, and type of incident (e.g. fire, explosion, spill, release)

L.9.4. Type and quantity of material(s) involved

L.9.5. An assessment of actual and/or potential hazards to human health or the environment

L.9.6. Estimated quantity and disposition of recovered material that resulted from the incident

L.9.7. Remediation techniques and equipment employed

L.9.8. Duration of incident

L.9.9. Weather conditions at the time of the incident, including but not limited to, wind speed and direction, temperature, and precipitation

L.10. After the Contingency Plan is implemented and upon resumption of operations at the Facility, the Emergency Coordinator shall notify all agencies as specified in the Contingency Plan, which were contacted about the incident, and document the notification in the operating record.

L.11. The Permittee shall report to the Department any noncompliance with the Permit, which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall be documented in the operating record and shall include the following:

L.11.1. Information concerning the release from the site of any hazardous waste constituents via air, surface water or groundwater.

L.11.2. Information concerning the release or discharge of any hazardous waste, including but not limited to fire, explosion, spill, flood, precipitation events, escape of contaminated run-off, which could threaten human health or the environment outside the Facility. The description of the occurrence and its cause shall include:

L.11.2.1. Name, address, and telephone number of the Permittee

L.11.2.2. Name, address, and telephone number of the Facility

L.11.2.3. Date, time, and type of incident

L.11.2.4. Name and quantity of material(s) involved

L.11.2.5. The extent of injuries, if any

L.11.2.6. An assessment of actual and/or potential hazard to human health or the environment outside the Facility

L.11.2.7. Estimated quantity and disposition of recovered material that resulted from the incident

L.11.2.8. Remediation techniques and equipment employed

L.11.2.9. Duration of incident

L.11.2.10. Weather conditions including, but not limited to, wind speed and direction, temperature and precipitation

L.11.3. A written submission shall also be provided within 7 days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance (including exact dates and times); and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Permittee need not comply with the seven-day written notice requirement if the Director waives the requirement and the Permittee submits a written report within fifteen days of the time the Permittee becomes aware of the circumstances. Documentation of the notification must be maintained in the operating record.

L.12. The Permittee must maintain, as part of the operating record, a written job description for each position listed in the Personnel Training Plan, Attachment 5, and a record of the individuals employed in each of those positions. These descriptions must include the requisite skill, education or other qualifications, and duties of employees assigned to each position.

L.13. The Permittee shall maintain records that document that the training required by this Permit has been given to, and completed by the appropriate personnel. [6 CCR 1007-3 §264.16(d)(4)]

L.13.1. The Permittee shall maintain as part of the operating record training records of current personnel until closure of the facility. The Permittee shall maintain training records for former employees for 3 years from the date the employee last worked at the facility.

L.13.2. The Permittee must maintain training records of emergency response training or local emergency response agencies/individuals and document refusal by those agencies to take part in the training.

L.14. The Permittee shall maintain copies of all monitoring and measurements that are taken during the closure period including monitoring to determine the level of decontamination. The Permittee shall maintain copies of all closure notices, certifications, and documents required during the Closure Care period.

L.15. The Permittee shall maintain a Post-Closure operating record which includes the following:

L.15.1. Post-closure sampling and analytical data, including the amount of leachate or liquids removed from Leachate Collection/Leak Detection System(s).

L.15.2. Survey plat indicating landfill location; and a three-dimensional record of hazardous waste in each cell.

L.15.3. Inspection reports and inspection log forms including any necessary remedial action.

L.15.4. Detailed reports of incidents that required implementation of the Contingency Plan.

L.15.5. Documentation of the required post-closure personnel training or employees or contractors.

L.15.6. Certification of Post-Closure and Notice in Deed of Post-Closure.

L.16. The Permittee shall maintain in the operating record documentation of the current financial assurance mechanisms for Closure and Post-Closure.

L.17. The Permittee shall maintain in the operating record all closure cost estimates under 6 CCR 1007-3 §266.12 and all post closure cost estimates under 6 CCR 1007-3 §266.13.

L.18. The Permittee shall maintain records of Secure Cell or Containment Building Leachate Collection Systems/Leak Detection Systems. The Permittee shall notify the Department if contamination, as defined by Permit Condition VII.C.3., is present in the Groundwater Leak Detection System or Leachate Detection System as verified by the required analysis. Notification shall be reported orally within 24 hours from the time the Permittee becomes aware of the contamination and a written submission shall also be provided within seven days of the time the Permittee becomes aware of the contamination. All analytical results, which show contamination, shall be submitted to the Department.

L.19. The Permittee shall record daily in the operating record the volume of liquids removed from each sump. [6 CCR 1007-3 §264.73 and §264.303(b)]

L.20. The Permittee shall maintain copies of samples analyses for the CDPS Wastewater Treatment Operation including on-site use, and discharge samples, as part of the operation for 3 years from the date of the analysis.

L.21. The Permittee shall record in the operating record the amount of flammable or combustible liquids received at and removed from the Container Management Building and the Container Storage Area on a daily basis. The record shall identify the class of the liquid based on flash point and the amount of liquids received and removed. The flammable and combustible liquid classes are as follows:

L.21.1. Class I (flash point less than 100^0 F)

L.21.2. Class II (flash point between 100^0 F and $140^{\square}$ F)

L.21.3. Class III (flash point greater than 140^0 F)

L.22. The Permittee shall retain the following documentation for inclusion in each tank certification report: remedial investigation or corrective action engineering feasibility reports, or other reports as needed through the Facility Closure period: [6 CCR 1007-3 §264.191]

L.22.1. Certification, by a Registered Professional Engineer, of structural integrity.

L.22.2. Tank and containment coating certification.

L.22.3. Proper installation of coupons.

L.22.4. As-built drawing for tank foundations and containment areas.

L.23. The Permittee shall retain records related to construction and operation of Segregated Stormwater Retention Basin through the Facility closure period, including but not limited to:

L.24. The Permittee shall retain the following documentation in the operating record for inclusion in each secure cell certification report, remedial investigation or corrective action engineering feasibility reports, or other reports as needed, through the Facility Post-Closure period: [6 CCR 1007-3 §264.74]

L.24.1. Exploratory boring logs and any sample tests.

L.24.2. Construction inspection reports, logs, soil and water sample analyses, moisture content, compaction and permeability test results, and corrective or remedial work reports, including sand zone replacement.

L.24.3. Construction reports detailing geomembrane liner installation including seam evaluation reports.

L.24.4. As-built drawings of all constructed Secure Cells, with all changes in details of original design clearly marked.

L.24.5. Geologic maps of cell excavations, and associated soil graduation analyses.

L.25. The Permittee shall retain records from the Facility groundwater monitoring and inspection programs through the Post-Closure period, including but not limited to the following: [6 CCR 1007-3 §264.15(a), §264.74, §264.99, §264.100]

L.25.1. Well boring and/or core logs.

L.25.2. Soil sample gradation analyses and permeability test results.

L.25.3. Well completion reports.

L.25.4. Sampling logbooks.

L.25.5. Annual flow rate and direction reports.

L.25.6. Interim information reports and final source determination reports.

L.25.7. Corrective action feasibility plans and/or variance applications.

L.25.8. Sample custody forms.

L.25.9. Groundwater analysis and QA/QC reports.

L.25.10. Background concentration calculations.

L.25.11. Quarterly statistical test calculations for LCS, LDS, and PS.

L.25.12. Semi-annual statistical test calculations for groundwater monitoring wells.

L.26. The Permittee shall maintain records of the quantities (and date of placement) for each shipment of hazardous waste placed in land disposal units under an extension to the effective date of any land disposal restriction granted pursuant to 40 CFR §268.5, a petition pursuant to 40 CFR §268.6, or a certification under 40 CFR §268.8, and the applicable notice required by a generator under 6 CCR 1007-3 §268.7(a).

L.27. For wastes generated off-site which have been treated, a copy of the notice, and the certification and demonstration, if applicable, required by the generator or the owner or operator under 6 CCR 1007-3, §268.7 or 40 CFR §268.8.

L.28. For wastes generated on-site which have been treated, the information contained in the notice (except the manifest number), and the certification and demonstration, if applicable, required by the generator or the owner or operator under §268.7 or 40 CFR §268.8.

L.29. For wastes generated off-site which are to be disposed of at the Facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or the owner or operator of a treatment facility under §268.7 or 40 CFR §268.8, whichever is applicable

L.30. For wastes generated on-site which are to be disposed of at the Facility, the information contained in the notice by the generator or owner or operator of a treatment facility under 6 CCR 1007-3 §268.7, except for the manifest number, and the certification and demonstration if applicable, required under 40 CFR §268.8, which is applicable

L.31. For wastes generated off-site which are accepted for storage at the Facility, a copy of the notice, and the certification and demonstration if applicable, required by the generator or owner or operator under 6 CCR 1007-3 §268.7 or 40 CFR §268.8.

L.32. For wastes generated on-site that are stored at the Facility, the information contained in the notice, except for the manifest number, and the certification and demonstration if applicable, required by the generator or owner or operator under 6 CCR 1007-3 §268.7or 40 CFR §268.8.

M. ADDITIONAL RECORD KEEPING AND REPORTING

M.1. In addition to the record keeping and reporting requirements specified elsewhere in this Permit, the Permittee must comply with the following:

M.2. The Permittee must comply with the biennial reporting requirements of 6 CCR 1007-3 §264.75.

M.3. Waste Minimization

M.3.1. The Permittee must maintain a written program to reduce the volume or quantity and toxicity of hazardous waste generated by the Permittee to the maximum degree determined by the Permittee to be economically practicable, and use treatment, storage, or disposal methods currently available to the Permittee which minimize the present and future threat to human health and the environment. A copy of the waste minimization program will be maintained at the Facility as part of the operating record. [6 CCR 1007-3 §264.73(b)(9)]

M.3.2. The Permittee must certify annually in the operating record that the above described waste minimization practices are being implemented at the Facility. The certification shall be submitted to the Department by December 31 of each year.

M.4. The Permittee must also report to the Department:

M.4.1. Releases, fires, and explosions as specified in this Permit and 6 CCR 1007-3 §264.56(j).

M.4.2. Facility closures as specified in this Permit and 6 CCR 1007-3 §264.115.

M.4.3. All reports otherwise required by 6 CCR 1007-3 §264 Subparts F, K through N, AA, BB, and CC.

M.4.4. Annual report information for the purpose of assessing facility annual fees in accordance with 6 CCR 1007-3 §100.31. [6 CCR 1007-3, §264.77]

N. CLOSURE REQUIREMENTS

N.1. The Permittee must close the Facility, as required by 6 CCR 1007-3, Subpart G, and in accordance with the Closure Plan, Attachment 6, and comply with the following.

N.2. The Permittee must amend the Closure Plan whenever necessary, in accordance with 6 CCR 1007-3 §264.112(c), following the modification procedures in 6 CCR 1007-3 §100.63.

N.3. The Permittee must notify the Director in writing at least 60 days prior to the date on which he expects to begin closure of a landfill unit or the treatment building. The permittee must notify the Director in writing at least 45 days prior to the date on which he expects to begin closure of a tank or container storage unit.

N.4. After receiving the final volume of hazardous waste, the Permittee must treat or remove from each unit or the Facility all hazardous waste, and must complete closure activities in accordance with 6 CCR 1007-3 §264.113 and the schedules specified in the Closure Plan, Attachment 6. Partial closures must follow the time frames set forth in 6 CCR 1007-3 Subpart G and the Closure Plan, Attachment 6.

N.5. The Permittee must decontaminate or dispose of all contaminated equipment, structures, and soils, as required by 6 CCR 1007-3 §264.114 and the Closure Plan, Attachment 6.

N.6. The Permittee and an independent, qualified, Colorado Registered Professional Engineer must certify that the Facility has been closed in accordance with the specifications in the approved Closure Plan, as required by 6 CCR 1007-3 §264.115.

O. CLOSURE COST ESTIMATE FOR THE FACILITY

O.1. During the operating life of the Facility, the Permittee shall adjust the Closure Cost Estimate annually; the Closure Cost Estimate must be submitted to the Department by the anniversary date of the initial establishment of the current financial assurance instrument for closure each year. The adjustment must be made using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in its Survey of Current Business. [6 CCR 1007-3 §266.12(b)]

O.2. The Permittee shall revise the Closure Cost Estimate whenever a change in the Closure Plan increases the cost of closure. [6 CCR 1007-3 §266.12(c)]

O.3. The Permittee shall keep at the Facility the latest Closure Cost Estimate prepared in accordance with 6 CCR 1007-3 §266.12(a) and (c) and when this estimate has been adjusted in accordance with Condition II.O.1., the latest adjusted Closure Cost Estimate. [6 CCR 1007-3 §266.12(d)]

P. GENERAL POST CLOSURE REQUIREMENTS

P.1. The Post-Closure Care period shall commence at the date of certification of Closure and continue for a period of 30 years unless extended by the Department. The Permittee shall comply with the requirements of 6 CCR 1007-3, Subpart G, the requirements of the Post Closure Plan, Attachment 7, and the following requirements. [6 CCR 1007-3 §264.117(a)(1)]

P.2. Within 60 days of completion of the post closure care period for each hazardous waste disposal unit, the Permittee shall submit to the Department a certification by both the Permittee and an

independent Registered Professional Engineer that the Post-Closure Care activities were in accordance with the Post-Closure Plan. In addition, the certification shall include documentation of any previous or on-going incidents, both sudden and non-sudden that could affect human health and the environment. [6 CCR 1007-3 §264.120]

P.3. The Permittee must obtain approval from the Director prior to an amended Post-Closure Plan becoming effective. [6 CCR 1007-3 §264.118(b) and (c)]

P.4. The Permittee may amend the Post-Closure Plan at any time during the active life of the Facility or during the Post-Closure Care period. The Permittee must amend the plan whenever changes in operating plans or facility design, or events that occur during the active life of the Facility or during the Post-Closure Period affect the Post-Closure Plan. [6 CCR 1007-3 §264.118(d)]

P.5. When a permit modification is requested during the active life of the Facility to authorize a change in operating plans or facility design that will affect the Post-Closure Plan, a modification of the Post-Closure Plan must be requested at the same time. In all other cases, the request for modification of the Post-Closure Plan must be made within 60 days after the change in operating plans or facility design or the events that affect the Post-Closure Plan occur. [6 CCR 1007-3 §264.118(d)]

P.6. Within 60 days after closure is completed, the Permittee must submit to the Adams County Planning Department Office, and to the Department, a survey plat indicating the location and dimensions of Secure Disposal Cells or other disposal areas with respect to permanently surveyed benchmarks. This plat must be prepared and certified by a Professional Land Surveyor. The plat filed with the Adams County Planning Department must contain a note, prominently displayed, which states the Permittee's obligation to restrict disturbance of the site. In addition, the Permittee must submit to the Adams County Planning Department and to the Department a record of the type, location and quantity of hazardous waste disposed of within each cell or area of the Facility. Any changes in the type, locations, or quantity of hazardous waste disposed of within each cell or area of the Facility that occurs after the survey plat and record of waste have been filed must be reported to the Adams County Planning Department and to the Department. [6 CCR 1007-3 §264.119]

P.7. The owner must record a notation on the deed to the Facility property or on all other instruments which are normally examined during a title search that will in perpetuity notify any potential purchaser of the property that the land has been used to manage hazardous wastes; that its use is restricted under the provisions of the Colorado Hazardous Waste Regulations, 6 CCR 1007-3, Section 264.117(c); and that the survey plat and record of the type, location, and quantity of hazardous wastes disposed of within each cell or area of the Facility required in Section 265.119 have been filed with the local zoning authority or the authority with jurisdiction over local land use and with the Director.

Q. POST CLOSURE COST ESTIMATE FOR THE FACILITY

Q.1. During the operating life of the Facility, the Permittee shall adjust the Post Closure Cost Estimate annually; the Post Closure Cost Estimate must be submitted to the Department by the anniversary date of the initial establishment of the current financial assurance instrument for closure each year. The adjustment must be made using an inflation factor derived from the annual Implicit Price Deflator for Gross National Product as published by the U.S. Department of Commerce in its Survey of Current Business. [6 CCR 1007-3 §266.12(b)]

Q.2. The Permittee shall revise the Post Closure Cost Estimate whenever a change in the Post Closure Plan increases the cost of closure. [6 CCR 1007-3 §266.12(c)]

Q.3. The Permittee shall keep at the Facility the latest Post Closure Cost Estimate prepared in accordance with 6 CCR 1007-3 §266.12(a) and (c) and when this estimate has been adjusted in accordance with Condition II.Q.1., the latest adjusted Post Closure Cost Estimate. [6 CCR 1007-3 §266.12(d)]

R. FINANCIAL ASSURANCE

R.1. The Permittee shall demonstrate continuous compliance with 6 CCR 1007-3, Section 266.14 by providing documentation of financial assurance, through the use of one or more of the mechanisms specified in 6 CCR 1007-3 §266.14(a) through §266.14(j) in at least the amount of the total closure and post-closure costs as specified in Permit Attachments 6 and 7.

R.2. The Permittee shall demonstrate financial responsibility for bodily injury and property damage to third parties caused by sudden and non-sudden accidental occurrences arising from operations of the Facility, and continuous compliance with the requirements of 6 CCR 1007-3, Section 266.16 by maintaining liability coverage for sudden accidental occurrences in the amount of at least $3 million per occurrence with an annual aggregate of at least $6 million, exclusive of legal defense costs and maintaining liability coverage for non-sudden accidental occurrences in the amount of at least $5 million per occurrence with an annual aggregate of at least $10 million, exclusive of legal defense costs. The Permittee shall demonstrate the required liability coverage by having one or more of the financial assurance mechanisms for liability coverage specified in 6 CCR 1007-3 Sections 266.16(f) thru (l) in place at all times.

R.3. The Permittee shall cease receiving wastes upon the effective expiration or cancellation of the current mechanism for demonstrating liability coverage until an alternate mechanism allowed by 6 CCR 1007-3, Section 266.16 (f) - (l) is in effect.

R.4. The Permittee shall comply with 6 CCR 1007-3, Section 266.17 by notifying the Department by certified mail of the commencement of a voluntary or involuntary proceeding under Title II (Bankruptcy), U.S. Code, naming the Permittee within 10 days after commencement of the proceeding.

S. LAND DISPOSAL RESTRICTIONS

S.1. The Permittee must comply with all applicable requirements of 6 CCR 1007-3 Part 268 and 40 CFR Part 268. Compliance includes, but is not limited to the following:

S.2. The testing of treatment residues in accordance with Sections 268.7 (b)(1), (2), and (3).

S.3. The certification requirements for treatment facilities specified in Section 268.7 (b)(5).

S.4. The notification requirements for treatment facilities specified in Sections 268.7 (b)(4), (6), and (7).

S.5. The record keeping and testing requirements for disposal facilities specified in Section 268.7(c).

S.6. The hazardous waste storage prohibitions specified in Part 268, Subpart E.

S.7. The marking requirements for owners and operators specified in Section 268.50(a)(2).

S.8. Permittee must not treat or ship off-site any land disposal restricted hazardous waste until the generator of the waste provides the Permittee with all applicable notification and certifications specified in Section 268.7(a).

PART III: STORAGE IN CONTAINERS

A. UNIT DESCRIPTION

The Permittee is allowed to store hazardous waste in containers following the requirements of 6 CCR 1007-3 Part 264, Subpart I and in the following manner:

A.1. Container Management Building A

A.1.1. Container Management Building A is located in the southeast section of the Treatment Building as shown in Figures 1 and 2 of Attachment 1. The maximum capacity of Container Management Building A is 33,000 gallons. Container Management Building A is divided into Class I/II and Class III Areas by a 2-Hour Rated Firewall. A maximum of 22,000 gallons may be stored in the Class III area and a maximum of 11,000 gallons may be stored in the Class I and II area. Class I is defined as wastes having a flash point less than 100°F, Class II is defined as wastes having a flash point between 100°F and 140°F, and Class III is defined as wastes having a flash point greater than 140°F.

A.2. Container Storage Area A

A.2.1. Container Storage Area A is located east of the Maintenance Building in the south east corner of the Process Area as shown in Figures 1 and 2 of Attachment 1. The maximum capacity of Container Storage Area A is 2000 yd3 total volume.

A.3. Container Storage Area B

A.3.1. Container Storage Area B is located west of the Treatment Building as shown in Figures 1 and 2 of Attachment 1. The maximum capacity of Container Storage Area B is 1000 yd^3 total volume.

B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

B.1. The following table lists the approved waste codes for storage in containers in Container Management Building A and B and Container Storage Areas A and B:

D Codes	F Codes	K Codes	P Codes	U Codes
D001 thru D043	F001 thru F012	K001 thru K052	P001 thru P018	U001 thru U012
	F019 thru F028	K060 thru K062	P020 thru P031	U014 thru U223
	F032	K064 thru K066	P033 thru P051	U225 thru U249
	F034, F035	K069, K071	P054	U271
	F037 thru F039	K073	P056 thru P060	U277 thru U280
		K083 thru K088	P062 thru P078	U328,U353, U359
		K090, K091	P081, P082	U364 thru U367
		K093 thru K118	P084, P085	U372, U373
		K123 thru K126	P087 thru P089	U375 thru U379
		K131, K132	P092 thru P099	U381 thru U387
		K136, K140	P101 thru P116	U389 thru U396
		K141 thru K145	P127, P128	U400 thru U404
		K147 thru K151	P185	U407, U408
		K156 thru K161	P188 thru P192	U409,U410, U411
		K169 thru K172	P194	
		K176-K178	P196 thru P199	
			P201 thru P205	

B.2. In addition the following wastes are specifically prohibited from storage in the respective units:

B.2.1. Container Management Building A - Class I and II Areas

- Pyrophoric Materials
- Class A Explosives
- Shock Sensitive Materials
- Polychlorinated Biphenyls (PCBs) in excess of 50 ppm
- Infectious Wastes
- Compressed Gases

B.2.2. Container Management Building A - Class III Area

- NFPA Class I and Class II Materials
- Pyrophoric Materials
- Class A Explosives
- Shock Sensitive Materials
- Polychlorinated Biphenyls (PCBs) in excess of 50 ppm
- Infectious Wastes
- Compressed Gases

B.2.3. Container Storage Area A and Container Storage Area B

- Wastes identified by the EPA Waste Codes F020 - F023, F026 and/or F027 (Dioxin containing materials)
- Wastes containing free liquids (This condition does not apply to the storage of Lab Packs which may contain free liquids within the individual containers)
- Pyrophoric Materials
- Ignitable solids at less than 100^0F
- Class A Explosives
- Shock Sensitive Materials
- Polychlorinated Biphenyls (PCBs) in excess of 50 ppm
- Infectious Wastes
- Compressed Gases

B.3. To protect human health and/or the environment, in emergency situations, unknown wastes may be accepted for hazardous waste management at Container Management Building A.

B.3.1. Prior to accepting the waste, a sample of the waste must be analyzed using ASTM Method E680-79, Drop Weight Impact Sensitivity of Solid Phase Hazardous Materials.

B.3.2. The material must be segregated from other waste in the storage facility until a sample of the material can be analyzed.

B.3.3. After composition of the waste has been determined, the generator must complete a Waste Profile Sheet. The waste will then be processed by the procedures described in this Permit. If the waste cannot be managed at the Facility it will be shipped to an appropriate permitted or interim-status facility according to the manifest procedures of 6 CCR 1007-3 §263 Subpart B.

B.3.4. In emergency situations, unknown hazardous wastes may be accepted from the State of Colorado and/or any Colorado County Agency.

B.3.5. The Department shall be notified orally within 24 hours from the time of receipt of any unknown wastes. The notification shall include the following information:

- Agency requesting storage of the material
- Amount and any known or suspected properties of the material
- Location that the material was taken from

C. SAVE FOR FUTURE USE

D. CONDITION OF CONTAINERS

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee shall transfer the waste from such container to a container that is in good condition or have its contents transferred to a Treatment Mixing Basin or tank. [6 CCR 1007-3 §264.71] If the container is leaking then the procedures in Permit Condition III.G.3. shall be followed.

E. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee must use a container made of or lined with materials, which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain waste is not impaired. [6 CCR 1007-3 §264.172]

F. MANAGEMENT OF CONTAINERS FOR STORAGE

F.1. The Permittee shall keep all containers closed during storage, except when it is necessary to sample the container contents, or add or remove waste, and shall not open, handle, or store containers in a manner, which may rupture the container or cause it to leak.

F.2. The Permittee must store hazardous waste in containers which meet the Colorado Department of Transportation (CDOT), or equivalent, specifications found in 49 CFR Subchapter C, Part 173. If other containerized materials are stored in a permitted area, these materials must be stored in a container, which is in good condition and if is appropriate for the type of material.

F.3. The Permittee may store stacked drums two high in Container Management Building A.

F.4. The Permittee shall maintain adequate aisle space at all permitted storage areas such that each container can be visually inspected, with container identification accessible for inspection, and so that containers can be removed if necessary. The following specific unit aisle spacing shall be maintained.

F.4.1. Container Management Building A

An aisle spacing of at least two feet shall be maintained between all rows of containers. All containers must be within 20 feet of a major aisle which must be four feet or wider.

F.4.2. Container Storage Area A and B

An aisle space of at least 10 feet shall be maintained between rows of rolloff boxes (i.e., 20 CY or equivalent) and at least four feet will be maintained between the ends of each box in a row. An aisle space of at least 4 feet shall be maintained between rows of drums.

F.5. The Permittee shall inspect the container areas in accordance with the Inspection Plan, Attachment 3, to detect leaking containers, and deterioration of containers and/or the containment system caused by corrosion and other factors.

F.6. All containers of hazardous waste must be marked with the following information, once they have been received for storage:

- Clearly marked "Hazardous Waste"
- Clearly marked with at least one major waste code, UN code or other DOT shipping label which indicates the primary hazardous characteristic of the material (ignitable/flammable, corrosive, reactive)
- Date placed in storage or verification procedure such as required below
- Site-specific number or identification which can be cross referenced with the manifest or shipping papers accompanying waste to the facility

G. CONTAINMENT SYSTEMS

G.1. The Permittee shall construct and maintain containment systems in accordance with 6 CCR 1007-3, §264.175, the attached plans and specifications, and the following unit specific requirements:

G.1.1. Container Management Building A and B: Each segregated area slopes to a Collection Trench. Slopes are a minimum of three percent grade. Each Collection Trench has a minimum capacity of 220 gallons. The combined capacity of the Collection Trench and sloped area of each segregated storage area shall be a minimum of 1,100 gallons. The Collection Trench in the drum unloading area shall have a minimum capacity of 440 gallons. The combined capacity of the Collection Trench and the sloped area of the drum unloading area shall be a minimum of 2,200 gallons.

G.1.2. Container Storage Areas A and B: The Container Storage Areas shall be maintained to allow for drainage and removal of precipitation. Slopes are a minimum of approximately one percent for Container Storage Area A and 0.6 percent for Container Storage Area B.

G.2. The containment systems shall conform to the following descriptions:

G.2.1. The concrete base underlying all permitted container storage areas (Container Management Building A and B and Container Storage Areas A and B) shall be sufficiently impervious to contain leaks, spills, and accumulated precipitation until detected and removed.

G.2.2. In addition, the Permittee shall maintain the concrete of the Container Management Building A and B with a chemical resistant impervious coating and by repairing any detected cracks in accordance with the Inspection Plan, Attachment 3.

G.3. All spills or leaks at the container storage areas (Container Management Building A and B and Container Storage Areas A and B) must be immediately cleaned up, during the same work shift as the incident or inspection in which the condition was found. Any material collected in the secondary containment must be removed during the same work shift as the incident or inspection in which the condition was found. Any material removed from the secondary containment system or the storage areas must be characterized. If the material is hazardous waste, it must be appropriately managed (i.e. recycled, managed according to the requirements of this permit, or shipped off-site to an appropriate designated facility).

H. OPERATIONAL PROCEDURES FOR CONTAINER MANAGEMENT BUILDING A

H.1. Trucks delivering containers to the Container Management Building A will be sent to one of the Container Management Building loading docks via a Movement Request.

H.1.1. Waste management of containerized waste will not be initiated without a Movement Request. This includes off-loading, storage, and process/treatment of the containerized waste. Instructions on the Movement Request will be followed explicitly. If instructions cannot be followed or are unclear, processing will stop and a supervisor notified.

H.1.2. In the receiving area, all container labels will be inspected and verified. Each container will be opened for visual inspection. The sampling as required by the Waste Analysis Plan, Attachment 2, will be conducted at this time. Each container will be marked with the appropriate compatibility grouping designation detailed in Waste Analysis Plan Appendix I.

H.2. Containers not scheduled for processing during that operating day will be relocated to segregated storage areas or staging according to compatibility.

H.2.1. The containment system must have sufficient capacity to contain 10% of the volume of containers or the volume of the largest container, whichever is greater.

H.2.2. The Operating record shall document the type and quantity of the stored containers.

H.2.3. Container labels will be visible.

H.3. Containers scheduled for processing will be handled as follows:

H.3.1. Full containers to be shredded will either be transported to the shredder feed within the Container Management Building or the Shredder Staging Area in the Treatment Building. In other cases, containers will be transported to the Treatment Building and emptied into either one of the treatment basins or into a waste staging area after which the empty container may be shredded separately.

H.3.2. For the purposes of this Permit, a staging area is recognized as an area within a container storage unit/area or the Treatment Building in which containers are placed for a short period of time (not to exceed 365 calendar days) while being received; while being prepared for or

awaiting transfer; while awaiting sampling, analysis, and/or analytical results; or while being prepared for or awaiting treatment. Staging areas and containers temporarily located within them are subject to the following requirements:

H.3.2.1. Staged containers may be grouped together in arrays of up to three containers wide by eight containers long. Staged containers placed along walls shall not exceed two containers wide.

H.3.2.2. Each container group will be clearly marked with signs indicating that area is designated for staging and the date the staging area was initiated.

H.3.2.3. Staged containers shall be placed with sufficient space between double rows of containers (at least four to six inches) to identify leaks or releases which may occur while the containers are in the staging area. The Permittee shall inspect the staging areas in accordance with the Inspection Plan, Attachment 3, to detect leaking containers and deterioration of containers caused by corrosion or other factors.

H.3.2.4. A minimum 26-inch aisle will be maintained around groups of containers located within a staging area.

H.3.2.5. Staged containers will be identified by a roped area, a painted boundary on the floor of the area, or other physical means to identify the status of the containers. The staging area will also be documented in the operating record.

H.3.2.6. Containers located within the staging areas must not impede the ability of facility personnel to respond to incidents in the area.

H.3.3. The management of containers will be administered and tracked with a Movement Request. Operations Foremen or designated Operators will confirm all activities on the Movement Request.

H.4. Movement of drums and feeding of drums to the shredder will be conducted in a safe manner. A minimum of two operators will be present during shredder loading operations.

I. OPERATIONAL PROCEDURES FOR CONTAINER STORAGE AREAS A & B

I.1. Delivery or transfer to the Container Storage Areas will be via a Movement Request. Storage of containerized waste within the Container Storage Areas will not be initiated without the Movement Request. Instructions on the Movement Request will be followed explicitly. If instructions cannot be followed or are unclear, movement of the container will not proceed and the supervisor will be notified.

I.2. Management of containers into the Container Storage Areas will be recorded in the Operating Record.

I.3. Except for inspection or sampling, all containers stored within the Container Storage Areas will be tarped and/or kept closed at all times. No movement of waste materials between containers shall occur within the Container Storage Areas.

I.4. The Operations Foreman or designated Operator will confirm all movement of containers into, within, and out of the Container Storage Areas on the Movement Request.

I.5. The Container Storage Areas will be delineated through curbing, barriers and/or other means to prevent unauthorized entry.

I.6. The containers stored in the Container Storage Areas will be elevated or otherwise protected from coming into contact with any accumulated precipitation or liquid.

I.7. In the unlikely event of a spill, the spilled material shall be removed within the same work shift as the incident or the same work shift as the inspection in which the spill condition was found. Provided that the container is not damaged, the spilled material may be placed back into the container from which it came. Otherwise, the spilled materials will be handled in accordance with established on-site transfer procedures.

I.8. A retention curb with a manually operated drain will be provided on the down-sloped side of the Container Storage Areas.

I.8.1. During normal operations the drain will be closed. The gate will be opened to allow precipitation run-off from the Container Storage Areas to be collected in the Facility's Segregated Stormwater Retention Basin.

I.8.2. In the event that a spill is detected within the Container Storage Areas and the drain is open, the retention curb shall be immediately closed. The drain will remain closed until the spill has been cleaned up. If precipitation occurs prior to the spill being cleaned up, then the captured precipitation shall be transferred to the Contaminated Water Storage Tanks. The transfer shall be in accordance with the procedures specified in the Waste Analysis Plan.

J. CLOSURE

At closure of the Container Management Building A and Container Storage Areas A and B, the Permittee shall remove all hazardous waste and hazardous waste residues from the containment system, in accordance with the procedures in the Closure Plan, Attachment 6.

K. SPECIAL CONTAINER PROVISIONS FOR IGNITABLE AND REACTIVE WASTE

K.1. The Permittee shall not locate containers holding ignitable or reactive waste within 15 meters (50 feet) of the facility's property line. [6 CCR 1007-3 §264.176]

K.2. The Permittee shall take precautions to prevent accidental ignition or reaction of ignitable or reactive wastes. [6 CCR 1007-3 §264.17]

L. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

L.1. Incompatible wastes, or incompatible waste and materials (see Appendix V of 6 CCR 1007-3, Part 264 for examples), must not be placed in the same container, unless 6 CCR 1007-3 §264.17(b) is complied with. [6 CCR 1007-3 §264.177(a)]

L.2. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material. [6 CCR 1007-3 §264.177(b)]

L.3. The Permittee shall identify containers of potentially incompatible wastes according the method specified in the Waste Analysis Plan, Attachment 2.

L.4. A container that is incompatible with the waste material it contains shall be immediately over packed or have its contents transferred to a container or tank, which is compatible with the waste.

L.5. A container holding hazardous waste that is incompatible with any other waste or materials stored nearby in other containers must be physically separated from the other materials or protected from them by means of a dike, berm, wall, or other device. Lab packs are considered to be compatible with other containers for purposes of this requirement, provided that all individual containers within a lab pack contain compatible materials. Lab pack compatibility grouping will be determined by the wastes contained in the lab pack container.

M. SPECIAL REQUIREMENTS FOR STORAGE OF HAZARDOUS WASTES RESTRICTED FROM LAND DISPOSAL

M.1. Except as provided in this Permit Condition and 6 CCR 1007-3 §268.50, the storage of hazardous waste restricted from land disposal under Subpart C of 6 CCR 1007-3 §268 or RCRA Section 3004 [42 U.S.C. §6924] is prohibited unless the following conditions are met [6 CCR 1007-3 §268.50(a)]:

M.1.1. The Permittee stores such waste in containers solely for the purpose of accumulation of such quantities of hazardous waste as necessary to facilitate proper recovery, treatment, or disposal [6 CCR 1007-3 §268.50(a)(2):

M.1.2. Each container is clearly marked to identify its contents and the date each period of accumulation begins. [6 CCR 1007-3 §268.50(a)(2)(I)]

M.2. The Permittee may store such wastes for up to one year unless the Department can demonstrate that such storage was not solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment, or disposal. [6 CCR 1007-3 §268.50(b)]

M.3. The Permittee may store such wastes beyond one year, however, the Permittee bears the burden of proving that such storage was solely for the purpose of accumulation of such quantities of hazardous waste as are necessary to facilitate proper recovery, treatment of disposal. [6 CCR 1007-3 §268.50(c)]

N. AIR EMISSION STANDARDS FOR CONTAINERS

The Permittee shall control air pollutant emissions from each container in accordance with the standards specified in 6 CCR 1007-3 and 40 CFR §264.1086 and §264.1087.

N.1. A container is exempt from the standards specified in Permit Condition III.N.3. and 6 CCR 1007-3 and 40 CFR §264.1086 and §264.1087 provided that the container is one of the following:

N.1.1. A container for which all hazardous waste entering the container has an average volatile organic (VO) concentration at the point of waste origination of less than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in Permit Condition III.N.2. The Permittee shall review and update, as necessary, this determination at least once every 12 months following the date of the initial determination for the containers entering the Container Management Building. The initial review shall be conducted within 30 days of the effective date of this Permit. The reviews shall be documented in the Operating Record.

N.1.2. A container for which the organic content of all hazardous waste entering the container has been reduced by an organic destruction method or removal process that achieves any one of the conditions contained in 6 CCR 1007-3 and 40 CFR §264.1082(c)(2).

N.1.3. A container for which all hazardous waste placed in the container either:

N.1.3.1. Meets the numerical concentration limits for organic constituents, applicable to the hazardous waste, as specified in 6 CCR 1007-3 Part 268 - Land Disposal Restrictions under Table "Treatment Standards for Hazardous Waste" in §268.40; or

N.1.3.2. Has been treated by the treatment technology established by EPA for the waste in 6 CCR 1007-3 §268.42(a), or treated by an equivalent method of treatment approved by EPA in 6 CCR 1007-3 §268.42(b).

N.1.4. The Director may at any time perform or request that the owner or operator perform a waste determination for a hazardous waste managed in a container exempted from using air emission controls following the provisions of 6 CCR 1007-3 and 40 CFR §264.1082(d).

N.2. Waste Determination Procedures

N.2.1. Waste determination procedures to determine average volatile organic (VO) concentration at the point of waste generation:

N.2.1.1. The Permittee shall determine the average VO concentration at the point of waste origination for each waste placed in the Container Management Building exempted under the provisions of 6 CCR 1007-3 and 40 CFR §264.1082(c)(1) from using air emission controls in accordance with standards specified in 6 CCR 1007-3 and 40 CFR §264.1082 through §264.1086 as applicable to the Container Management Building.

N.2.1.2. The average VO concentration of a hazardous waste at the point of waste origination may be determined in accordance with the procedures specified in 6 CCR 1007-3 and 40 CFR §265.1084(a)(2) through (a)(4).

N.2.2. Waste determination for treated waste:

N.2.2.1. The Permittee shall perform the applicable waste determination for each treated waste placed in the Container Management Building exempted under the provisions of 6 CCR 1007-3 and 40 CFR §264.1082(c)(2) from using air emission controls in accordance with standards specified in 6 CCR 1007-3 and 40 CFR §264.1082 through §264.1086 as applicable to the Container Management Building.

N.2.2.2. The average VO concentration of a treated hazardous waste may be determined in accordance with the procedures specified in 6 CCR 1007-3 and 40 CFR §265.1084(b)(2) through (b)(9).

N.2.3. The procedure for determining no detectable organic emissions for the purpose of complying with this section of the Permit shall be conducted in accordance with the procedures specified in 6 CCR 1007-3 and 40 CFR §265.1084(d).

N.3. The Permittee shall control air emissions from each of the containers stored at the Container Management Building in accordance with the applicable provisions of 6 CCR 1007-3 and 40 CFR 264.1082 and 6 CCR 1007-3 and 40 CFR 264.1086.

N.3.1. For containers at the Container Management Building (having a design capacity greater than 0.1 m^3 (about 26 gallons) and less than or equal to 0.46 m^3 (about 119 gallons)), the Permittee shall control air pollutant emissions from the container in accordance with Container Level 1 standards [6 CCR 1007-3 and 40 CFR §264.1086(c).]

N.3.2. Containers using Level 1 controls must be one of the following:

N.3.2.1. A container that meets the applicable U.S. DOT regulations on packaging hazardous materials for transportation, as specified in Permit Condition III.F.2. and 49 CFR Part 178 - Specifications for Packaging, the applicable requirements of 49 CFR Part 107, Subpart B - Exemptions; 49 CFR Part 172 - Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements, 49 CFR Part 173 - Shippers - General Requirements for Shipments and Packages; and 49 CFR Part 180 - Continuing Qualification and Maintenance of Packaging. No exceptions to the 49 CFR Part 178 regulations are allowed, except for lab packs managed in accordance with 49 CFR Part 178 may comply with the exceptions for combination packaging specified in 49 CFR §173.12(b). [6 CCR 1007-3 and 40 CFR §264.1086(c)(1)(I) and §264.1086(f)]

N.3.2.2. A container that is equipped with a cover and closure devices that form a continuous barrier over the container openings such that when the cover and closure devices are secured in the closed position, there are no visible holes, gaps, or other open spaces into the interior of the container. The cover may be a separate cover installed on the container, or may be an integral part of the container structural design. [6 CCR 1007-3 and 40 CFR §264.1086(c)(1)(ii)]

N.3.2.3. An open-top container in which an organic-vapor suppressing barrier is placed on or over the hazardous waste in the container such that no hazardous waste is exposed to the atmosphere. [6 CCR 1007-3 and 40 CFR §264.1086(c)(1)(iii)]

N.3.2.4. A container complying with permit conditions III.N.3.b.ii) or iii) shall be equipped with covers and closure devices, as applicable to the container, that are composed of suitable materials to minimize exposure of the hazardous waste to the atmosphere, and to maintain the equipment integrity for as long as it is in service. [6 CCR 1007-3 and 40 CFR §264.1086(c)(2)]

N.3.2.5. Whenever a hazardous waste is in a container using Level 1 controls, the Permittee shall install all covers and closure devices for the container, as applicable to the container, and secure and maintain each closure device in the closed position, except as follows:

N.3.2.5.1. Opening of a closure device or cover is allowed for the purpose of adding hazardous waste or other material.

N.3.2.5.1.1. When filling the container to the intended final level in one continuous operation, the Permittee shall promptly secure the closure devices in the closed position and install the covers, as applicable to the container, upon conclusion of the filling operation [6 CCR 1007-3 and 40 CFR §264.1086(c)(3)(I)(A)];

N.3.2.5.1.2. When filling the container with batches of material, the Permittee shall promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon either the container being filled to the intended final level; the completion of a batch loading after which no additional material will be added to the container after 15 minutes; the person performing the loading operation leaving the immediate vicinity of the container; or the shutdown of the process generating the material being added to the container, whichever condition occurs first. [6 CCR 1007-3 and 40 CFR §264.1086(c)(3)(I)(B)];

N.3.2.5.2. Opening of a closure device or cover is allowed for the purpose of removing hazardous waste from the container as follows:

N.3.2.5.2.1. Opening of the closure device or cover is allowed at any time if the container is empty as defined in 40 CFR §261.7(b). [6 CCR 1007-3 and 40 CFR §264.1086(c)(3)(ii)(A)];

N.3.2.5.2.2. Opening of the closure device or cover is allowed for the purpose of removing hazardous waste from the container. If batches of material are removed from the container, the Permittee must promptly secure the closure devices in the closed position and install covers, as applicable to the container, upon the completion of a batch removal after which no additional material will be removed from the container within 15 minutes, or the person performing the unloading operation leaves the immediate vicinity of the container, whichever condition occurs first. [6 CCR 1007-3 and 40 CFR §264.1086(c)(3)(ii)(B)];

N.3.2.5.3. Opening of a cover or closure device is allowed when access inside the container is needed to perform routine activities other than transfer of hazardous waste. Following completion of the activity, the Permittee shall promptly secure the closure device in the closed position or reinstall the cover, as applicable to the container. [6 CCR 1007-3 and 40 CFR §264.1086(c)(3)(iii)]

N.3.2.5.4. Opening of a spring-loaded pressure-vacuum relief valve, conservation vent, or similar type of pressure relief device which vents to the atmosphere is allowed during normal operations, for the purpose of maintaining the internal pressure of the container in accordance with the design specifications. The device shall be designed to operate with no detectable organic emissions when the device is secured in the closed position. [6 CCR 1007-3 and 40 CFR §264.1086(c)(3)(iv)]

N.3.2.5.5. Opening of a safety device, as defined in 6 CCR 1007-3 and 40 CFR 265.1081, is allowed at any time conditions require doing so to avoid an unsafe condition.[6 CCR 1007-3 and 40 CFR §264.1086(c)(3)(v)]

N.4. Monitoring and Inspection Schedules and Procedures

N.4.1. The containers at the Container Management Building must be inspected daily in accordance with the Inspection Plan, Permit Attachment 3.

N.4.2. The Permittee shall visually inspect the container and its cover and closure devices to check for visible cracks, holes, gaps, or other open spaces into the interior of the container when the cover and closure devices are secured in the closed position. Notwithstanding the requirements of permit condition III.D., if a defect is detected, the Permittee shall make first attempts at repair no later than 24 hours after detection and the repair shall be completed as soon as possible, but no later than 5 calendar days after detection. If repair of a defect cannot be completed within 5 calendar days, then the hazardous waste shall be removed from the container and the container shall not be used to manage hazardous waste until the defect is repaired. [6 CCR 1007-3 and 40 CFR §264.1086(c)(4)]

PART IV: STORAGE IN TANKS

A. UNIT DESCRIPTION

A.1. The Permittee is allowed to store hazardous waste in tanks following the requirements of 6 CCR 1007-3 Part 264, Subpart J and in the following manner:

A.2. Contaminated Water Tanks - The Contaminated Water Tanks were constructed and shall be maintained as follows:

A.2.1. The Contaminated Water Tanks are two above ground, dish-bottomed, steel tanks. The tanks are lined with Tenemac Series 104. The minimum shell thicknesses for the tanks are as follows: 1/4 inch for the tank bottom, 5/16 inch from the tank wall in the area of 0 to 7 feet from the bottom, 1/4 inch for the tank wall in the area of 7 to 21 feet from the bottom, and 3/16 inch for the tank wall in the area of 21 to 35 feet from the bottom. The tanks were constructed with an additional 1/8-inch corrosion allowance added to each of the minimum thicknesses. The maximum capacity of the tanks is 250,000 gallons each, for a maximum total capacity of 500,000 gallons. The tanks are located as shown on Figures 1 and 5 of Attachment 1.

A.3. Operations and Maintenance Accumulation Tanks - The Operations and Maintenance Accumulation Tanks were installed and shall be maintained as follows:

A.3.1. The Operations and Maintenance Accumulation Tanks ("AO & M Tanks") are two underground, fiberglass tanks. The interior shells of the tanks are lined with a chemical resistant vinyl ester to a minimum thickness of 100 mils. The tanks have a minimum shell thickness of 0.22 inch. An additional 0.12 inch corrosion allowance has also been added to the initial thickness of each surface. The maximum capacity of each tank is 4,000 gallons. The tanks are located adjacent to the Operations and Maintenance Buildings.

A.4. Truck Wash Recycle System - The Truck Wash Recycle System was constructed and shall be maintained as follows:

The Truck Wash Recycle System consists of a pre-engineered metal frame building with an office area, a general storage area, an equipment room, and a wash bay. The Truck Wash Recycle System is shown in Figure 1 of Attachment 1.

A.4.1. Washbay water is contained in a collection trench that runs down the center of the bay. The epoxy coated concrete floor slopes to the trench drain. The trench drain is lined as follows (top to bottom): 3/4" steel plate liner on sides, 1" steel plate liner on the bottom; compacted sand leak detection layer; an 80-mil geomembrane liner; a 10" concrete subfloor; a compacted clay liner that is a minimum of 3 feet thick at the bottom of the drain. The leak detection system slopes to a vertical riser pipe on the north end of the trench drain. The Permittee is not allowed to store wash water in the trench drain.

A.4.2. The Truck Wash System is two above ground, elevated, conical bottom, fiberglass tanks. The tanks have a minimum shell thickness of 0.18 inch. An additional corrosion allowance has been added to the minimum thickness of each surface. The maximum capacity of each tank is 1,650 gallons, for a total maximum capacity of 3,300 gallons.

B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

B.1. Wastes or wastes and materials, which are incompatible, shall not be placed in the same tank. Wastes or materials are incompatible if upon or after mixing they generate extreme heat or pressure, cause fire or explosion, cause violent reactions, produce uncontrolled toxic mists, fumes, dusts, or gases, produce uncontrolled flammable fumes or gases, or damage the integrity of the tank.

B.2. Contaminated Water Tanks

B.2.1. The following wastes are approved for storage in the Contaminated Water Tanks:

- Leachate collected from Leachate Collection Systems
- Liquids collected from Leak Detection Systems
- Liquids collected from the Permanent Sumps
- Contaminated rainwater from a Secure Cell
- Contaminated water from the Truck Wash Recycle Tanks, the Operations Accumulation Tank, and/or the Maintenance Accumulation Tank
- Aqueous materials generated from fire or spill response actions
- Aqueous materials collected from the floor trenches/sumps in the Container Management Building A or B or unloading areas
- Aqueous materials generated from the on-site Wastewater Treatment System
- Accumulated water from ground water monitor well purging and sampling activities
- Wash water from wastewater treatment and treatment process area
- Aqueous materials collected from the 90 day storage areas
- Aqueous materials generated from on-site decontamination activities during operational and closure periods

B.2.2. The Permittee shall not store waste or other materials in the tanks which after mixing, have a specific gravity greater than 1.2.

B.2.3. The Permittee shall not place ignitable or reactive wastes into the Contaminated Water Tanks.

B.2.4. The Permittee shall not place any waste in the Contaminated Water Tanks which has an average volatile organic concentration at the point of waste origination of greater than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in 6 CCR 1007-3 and 40 CFR '264.1083(a).

B.3. Operations and Maintenance Accumulation Tanks

B.3.1. In the Operations Accumulation Tank, the Permittee is allowed to store dilute concentrations of wastewaters generated from the washing and cleaning of laboratory equipment and glassware and overspills from sampling. Waste samples or laboratory reagents shall not be disposed of in the tank.

B.3.2. In the Maintenance Accumulation Tank, the Permittee is allowed to store dilute concentrations of waste generated on-site from the maintenance, servicing and cleaning of on-site or off-site vehicles.

B.3.3. The Permittee shall not store ignitable or reactive wastes in the Accumulation Tanks.

B.3.4. The Permittee shall not place any waste in the Accumulation Tanks which has an average volatile organic concentration at the point of waste origination of greater than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in 6 CCR 1007-3 and 40 CFR §264.1083(a).

B.4. Truck Wash Recycle Tanks

B.4.1. The Permittee is allowed to store dilute concentrations of wastewater generated from the cleaning and washing of those vehicles which are to go off-site.

B.4.2. The Permittee shall not store ignitable or reactive wastes in the Truck Wash Recycle Tanks.

B.4.3. The Permittee shall not place any waste in the Truck Wash Recycle Tanks which has an average volatile organic concentration at the point of waste origination of greater than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in 6 CCR 1007-3 and 40 CFR §264.1083(a).

C. SECONDARY CONTAINMENT

C.1. The Permittee shall operate the secondary containment system for each tank and/or tank system in accordance with 6 CCR 1007-3 §264.193 and the terms and conditions of this Permit.

C.2. The concrete containment systems underlying the Contaminated Water Tanks and the Truck Wash Recycle Tanks shall be sufficiently impervious to contain leaks, spills, and accumulated precipitation until detected and removed. In addition the Permittee shall maintain a chemical resistant impervious coating on the concrete of the secondary containment, and repair any detected cracks according the requirements in Permit Attachment 3.

C.3. The uncovered secondary containment systems for the Contaminated Water Tanks shall be maintained to allow sufficient capacity to contain at least the volume of one tank plus the 25-year, 24-hour storm event. In order to meet this requirement, the secondary containment for the Contaminated Water Tanks shall be maintained at 296,640 gallons.

C.4. The covered containment system for the Truck Wash Recycle Tanks shall be maintained to allow sufficient capacity to contain the capacity of the largest tank or 10% of the volume stored in the tank system, whichever is greater. The secondary containment for the Truck Wash Recycle Tanks shall be maintained at 3554 gallons.

C.5. The outer shell of the double-walled Operations and Maintenance Accumulation Tanks shall be maintained to contain leaks, spills, and allow accumulated liquids to be detected and removed.

C.6. The Permittee shall comply with the requirements of 6 CCR 1007-3 §264.193 for ancillary equipment of all tank systems.

C.7. All spills or leaks at the permitted tank storage units must be cleaned up within the same shift in which they are detected. Any removed material from the collection systems must be characterized,

and if hazardous waste, managed appropriately (i.e. recycled, stored, treated or disposed of according to this Permit, or shipped off-site to a designated hazardous waste facility).

D. INTEGRITY ASSESSMENTS

D.1. Potential corrosion and deterioration of the Contaminated Water Tanks shall be monitored using coupons. The coupons consist of 1/4 inch ASTM 283-C carbon steel, coated with the same material and the same thickness as the tank interior. A minimum of five coupons are placed in each tank at levels of 1 foot, 8.75 feet, 16.5 feet, 24.25 feet, and 32 feet from the bottom of the tank. The coupons will be inspected as required by Permit Attachment 3, Inspection Plan.

D.2. Potential deterioration of the Operations and Maintenance Accumulation Tanks shall be monitored using coupons. The coupons consist of 0.34-inch fiberglass coated with the same coating as the tank shell to a thickness of approximately 100 mil. A minimum of two coupons are placed in each tank at levels of 1 foot and 4 feet from the bottom of the tank. The coupons will be inspected as required by Permit Attachment 3, Inspection Plan.

D.3. If any tank's minimum measured coupon thickness is below the required tank wall thickness design value (i.e., corrosion allowance equals zero) specified for that tank, it shall be considered unfit for use, and removed from service immediately, in accordance with Permit Condition IV.D.4.

D.4. If a tank system or component is found to be unfit for use as a result of the integrity assessment or any inspection, the Permittee shall comply with Permit Condition IV.F. of this Permit and notify the Department, in accordance with Permit Condition IV.H. of this Permit.

E. OPERATING REQUIREMENTS

E.1. The Permittee shall not place hazardous wastes in any tank system if they could cause the tank, its ancillary equipment, or a containment system to rupture, leak, corrode, or otherwise fail.

E.2. Contaminated Water Tanks

E.2.1. The Contaminated Water Tanks are equipped and maintained with a high level indicator that will automatically shut off the feed to the tank when a liquid level of 32' is reached. The high level switch shall also activate a local audible alarm when the high level is reached.

E.2.2. Level indicators on the sides of the tanks will indicate the current status of each tank.

E.2.3. Pumps will be used to transfer the wastes to or from any of the tanks. All valves will remain in the closed position unless waste transfers are taking place.

E.2.4. The quantity of each hazardous waste contained in each of the Contaminated Water Tanks will be maintained in the Operating Record.

E.3. Operations and Maintenance Accumulation Tanks

E.3.1. The Accumulation Tanks shall be inspected daily for a high level condition. The high level shall be set at 90% capacity or less.

E.3.2. Pumps or a VAC truck will be used to transfer the wastes to or from any of the tanks. All valves will remain in the closed position unless waste transfers are taking place.

E.3.3. The quantity of each hazardous waste contained in the Operations and Maintenance Accumulation Tanks will be maintained in the Operating Record.

E.4. Truck Wash Recycle System

E.4.1. The Permittee shall operate the Truck Wash Recycle System as described in Attachment 9.

E.4.2. The Truck Wash Recycle Tanks and the Collection Trench are equipped and shall be maintained with float operated switches to shutoff makeup water if the water level is too high and shut down the truck wash equipment if the water level is too low. The high level switch will also activate a local audible and visible alarm when the high level is reached.

E.4.3. Pumps will be used to transfer the wash water to or from the tanks or the collection trench. All valves will remain closed unless transfers are taking place.

E.4.4. The Operating Record shall document the type and quantity of hazardous waste contained in the Truck Wash Recycle System.

E.5. The Permittee shall prevent spills and overflows from any tank or containment system.

E.6. The Permittee shall clearly label each hazardous waste storage tank with a description of its contents, as required by 6 CCR 1007-3 §268.50(a)(2)(ii). This description shall include the words "Hazardous Waste" and appropriate NFPA or UFC label if flammable.

F. RESPONSE TO LEAKS OR SPILLS

In the event of a leak or a spill from the tank system, from a secondary containment system, or if a system becomes unfit for use, the Permittee shall remove the system from service immediately and complete the following actions:

F.1. Stop the flow of hazardous waste into the system and inspect the system to determine the cause of the release. [6 CCR 1007-3 §264.196(a)]

F.2. Remove waste and accumulated precipitation from the system within 24 hours of the detection of the leak to prevent further release, and to allow inspection and repair of the system. If the Permittee finds that it will be impossible to meet this time period, the Permittee shall notify the Department and demonstrate that the longer time period is required. The collected material must be managed in accordance with Permit Condition IV.C.7. [6 CCR 1007-3 §264.196(b)]

F.3. The Permittee shall immediately conduct a visual inspection of all releases to the environment and based on that inspection: (1) prevent further migration of the leak or spill to soils or surface water and (2) remove and properly dispose of any visible contamination of the soil or surface water. [6 CCR 1007-3 §264.196(c)]

F.4. The Permittee shall close that system in accordance with the Closure Plan, Permit Attachment 6, unless the following actions are taken:

F.4.1. For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the released waste and make necessary repairs to fully restore the integrity of the system before returning the tank system to service.

F.4.2. For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system prior to returning it to service.

F.4.3. For a release to the environment caused by a leak from a portion of the tank system that does not have secondary containment, and can be visually inspected, the Permittee shall repair the tank system before returning it to service.

F.4.4. If the Permittee replaces a component of the tank system to eliminate the leak, that component must satisfy the requirement for new tank systems or components in 6 CCR 1007-3, §264.192 and 264.193. [6 CCR 1007-3 §264.196(e)]

F.5. If the Permittee has repaired a tank system in accordance with Permit Condition IV.F.4, and the repair has been extensive (e.g., installation of an internal liner; repair of a ruptured primary or secondary containment vessel), the tank system must not be returned to service unless the Permittee has obtained a certification by an independent, qualified, Colorado Registered Professional Engineer in accordance with §264.12(d), that the repaired system is capable of handling hazardous wastes without release for the intended life of the system. This certification must be submitted to the Department within seven days after returning the tank system to use. [6 CCR 1007-3 §264.196(f)]

G. INSPECTION SCHEDULES AND PROCEDURES

G.1. The Permittee shall inspect the tank systems, in accordance with the Inspection Plan and Schedules, Permit Attachment 3, and shall complete the items in IV.G.2. and IV.G.3. as part of the inspections. [6 CCR 1007-3 §264.195(a)]

G.2. The Permittee shall inspect the overfill controls (e.g. level indicators, high level alarms), in accordance with Permit Attachment 3.

G.3. The Permittee shall conduct ultrasonic testing of each tank in accordance with procedures specified in Permit Attachment 3 and at a frequency indicated from the coupon testing specified in Permit Attachment 3.

G.4. The Permittee shall conduct an internal tank inspection in accordance with procedures specified in Permit Attachment 3 and at a frequency indicated by the ultrasonic testing specified in Permit Attachment 3.

G.5. The Permittee shall inspect the following components of the tank system at least once each operating day:

G.5.1. Aboveground portions of the tank system to detect corrosion or release of waste;

G.5.2. Data gathered from monitoring and leak detection equipment (e.g., pressure or temperature gauges) to ensure that the tank system is being operated according to its design;

G.5.3. Construction materials and the area immediately surrounding the externally accessible portion of the tank system, including the secondary containment system, to detect erosion or signs of releases of hazardous waste (e.g., wet spots, dead vegetation). [6 CCR 1007-3 §264.195(b)]

G.6. The Permittee shall document compliance with Permit Conditions IV.G.2. and IV.G.3. and place this documentation in the operating record for the facility. [6 CCR 1007-3 §264.195(d)]

H. RECORD KEEPING AND REPORTING

H.1. The Permittee shall report to the Director, within 24 hours of detection, when a leak or spill occurs from the tank system or secondary containment system to the environment. A leak or spill of one pound or less of hazardous waste, that is immediately contained and cleaned-up need not be reported.

Releases that are contained within a secondary containment system and removed need not be reported. If the Permittee has reported a release pursuant to 40 CFR Part 302, that report will satisfy the requirements of Permit Condition IV.H.1. [6 CCR 1007-3 §264.195(d)]

H.2. Within 30 days of detecting a release to the environment from the tank system or secondary containment system, the Permittee shall report the following information to the Department:

- Likely route of migration of the release
- Characteristics of the surrounding soil (including soil composition, geology, hydrogeology, and climate);
- Results of any monitoring or sampling conducted in connection with the release. If the Permittee finds it will be impossible to meet this time period, the Permittee should provide the Department with a schedule of when the results will be available. This schedule must be provided before the required 30-day submittal period expires;
- Proximity of down gradient drinking water, surface water, and populated areas; and
- Description of response actions taken or planned. [6 CCR 1007-3 §264.195(d)(3)]

H.3. The Permittee shall submit to the Department all certifications of major repairs to correct leaks within seven days from returning the tank system to use. [6 CCR 1007-3 §264.196(f)]

H.4. The Permittee shall obtain, and keep on file at the facility the written statements by those persons required to certify the design and installation of the new tank systems. [6 CCR 1007-3 §264.192(f)]

H.5. The Permittee shall keep on file at the facility the written integrity assessment of each permitted tank or tank system. [6 CCR 1007-3 §264.191(a)]

H.6. The Permittee shall maintain at the facility a record of the integrity test results conducted in accordance with Permit Condition IV.D.

H.7. The Permittee shall place the results of all waste analyses and trial tests, and any other documentation showing compliance with the requirements of Permit Conditions IV.K.1. and IV.K.2., and 6 CCR 1007-3, §264.17(b) and §264.199 in the facility operating record.

I. CLOSURE

At closure of the tank systems identified in Permit Condition IV.A., the Permittee shall comply with 6 CCR 1007-3 §264.197 and follow the procedures specified in the Closure Plan, Permit Attachment 6.

J. SPECIAL PROVISIONS FOR IGNITABLE OR REACTIVE WASTES

J.1. The Permittee shall not place ignitable or reactive waste in the tank system or in the secondary containment system, unless the procedures specified in the Waste Analysis Plan, Permit Attachment 2 and the procedures below are followed.

J.2. Flammable or reactive wastes will be clearly marked as such and will be separated and protected from sources of ignition or reaction, such as open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g. from heat-producing chemical reactions), and radiant heat. Smoking, hot surfaces, and open flames are

prohibited in any area where flammable waste are managed and "No Smoking" signs must be displayed conspicuously in such areas. [6 CCR 1007-3 §264.198(a)]

J.3. The Permittee shall comply, at a minimum, with the requirements for the maintenance of protective distances between the waste management area and any public ways, streets, alleys, or an adjoining property line that can be built upon, as required in Tables 2-1 through 2-6 of the National Fire Protection Association's-"NFPA 30-Flammable and Combustibles Liquids Code", or in accordance with the applicable local fire code, whichever is more stringent. [6 CCR 1007-3 §264.198(b)]

K. SPECIAL TANK PROVISIONS FOR INCOMPATIBLE WASTES

K.1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same tank system or same secondary containment system, except as discussed elsewhere in this Permit. The Permittee shall identify potentially incompatible waste mixtures using the methods specified in the Waste Analysis Plan, Permit Attachment 2. [6 CCR 1007-3 §264.199(a)]

K.2. The Permittee shall not place hazardous waste in a tank system that previously held an incompatible waste or material, unless the tank system has been decontaminated. [6 CCR 1007-3 §264.199(b)]

L. AIR EMISSION STANDARDS

L.1. A tank is exempt from the standards specified in Permit Condition IV.L.3. and 6 CCR 1007-3 and 40 CFR §264.1084 and §264.1087 provided that the tank is one of the following:

L.1.1. A tank for which all hazardous waste entering the tank has an average volatile organic (VO) concentration at the point of waste origination of less than 500 parts per million by weight (ppmw). The average VO concentration shall be determined using the procedures specified in Permit Condition IV.L.2. The Permittee shall review and update, as necessary, this determination at least once every 12 months following the date of the initial determination for each tank. The initial review shall be conducted within 30 days of the effective date of this Permit. The reviews shall be documented in the Operating Record.

L.1.2. A tank for which the organic content of all hazardous waste entering the tank has been reduced by an organic destruction method or removal process that achieves any one of the conditions contained in 6 CCR 1007-3 and 40 CFR §264.1082(c)(2).

L.1.3. A tank for which all hazardous waste placed in the tank either:

L.1.3.1. Meets the numerical concentration limits for organic constituents, applicable to the hazardous waste, as specified in 6 CCR 1007-3 Part 268 - Land Disposal Restrictions under Table "Treatment Standards for Hazardous Waste" in §268.40; or

L.1.3.2. Has been treated by the treatment technology established by EPA for the waste in 6 CCR 1007-3 §268.42(a), or treated by an equivalent method of treatment approved by EPA in 6 CCR 1007-3 §268.42(b).

L.1.4. The Director may at any time perform or request that the Permittee perform a waste determination for a hazardous waste managed in a tank exempted from using air emission controls following the provisions of 6 CCR 1007-3 and 40 CFR §264.1082(d).

L.2. Waste Determination Procedures

L.2.1. Waste determination procedures to determine average volatile organic (VO) concentration at the point of waste generation:

L.2.1.1. The Permittee shall determine the average VO concentration at the point of waste origination for each waste placed in a tank exempted under the provisions of 6 CCR 1007-3 and 40 CFR §264.1082(c)(1) from using air emission controls in accordance with standards specified in 6 CCR 1007-3 and 40 CFR §264.1082 through §264.1086 as applicable to each the tank.

L.2.1.2. The average VO concentration of a hazardous waste at the point of waste origination may be determined in accordance with the procedures specified in 6 CCR 1007-3 and 40 CFR §265.1084(a)(2) through (a)(4).

L.2.2. Waste determination for treated waste:

L.2.2.1. The Permittee shall perform the applicable waste determination for each treated waste placed in a tank exempted under the provisions of 6 CCR 1007-3 and 40 CFR §264.1082(c)(2) from using air emission controls in accordance with standards specified in 6 CCR 1007-3 and 40 CFR §264.1082 through §264.1086 as applicable to each tank.

L.2.2.2. The average VO concentration of a treated hazardous waste may be determined in accordance with the procedures specified in 6 CCR 1007-3 and 40 CFR §265.1084(b)(2) through (b)(9).

L.2.3. The procedure for determining no detectable organic emissions for the purpose of complying with this section of the Permit shall be conducted in accordance with the procedures specified in 6 CCR 1007-3 and 40 CFR §265.1084(d).

L.3. The Permittee shall repair each defect detected during an inspection performed in accordance with the requirements of IV.L.3.d. as follows:

L.3.1. The Permittee shall make first efforts at repair of the defect no later than 5 calendar days after detection, and repair shall be completed as soon as possible but no later than 45 calendar days after detection except as provided in Permit Condition IV.L.5.b.

L.3.2. Repair of a defect may be delayed beyond 45 calendar days if the Permittee determines that repair of the defect requires emptying or temporary removal from service of the tank and no alternative tank capacity is available at the site to accept the hazardous waste normally managed in the tank. In this case, the Permittee shall repair the defect the next time the process or unit that is generating the hazardous waste managed in the tank stops operation. Repair of the defect shall be completed before the process or unit resumes operation.

L.4. Following the initial inspection and monitoring of the cover as required by the Permit Condition IV.L., subsequent inspection and monitoring may be performed at intervals longer than 1 year under the following special conditions:

L.4.1. In the case when inspecting or monitoring the cover would expose a worker to dangerous, hazardous, or other unsafe conditions then the Permittee may designate a cover as an "unsafe to inspect and monitor cover" and comply with all of the following requirements:

L.4.2. Prepare a written explanation for the cover stating the reasons why the cover is unsafe to visually inspect or to monitor, if required.

L.4.3. Develop and implement a written plan and schedule to inspect and monitor the cover, using the procedures specified in Permit Condition IV.L. as frequently as practicable during those times when a worker can safely access the cover.

PART V: STORAGE AND TREATMENT IN SURFACE IMPOUNDMENTS

The Permittee is allowed to store and treat hazardous waste in the Treatment Building following the requirements of 6 CCR 1007-3 Part 264 Subpart K and in the following manner:

A. UNIT DESCRIPTION

A.1. Treatment Building - The Treatment Building was constructed and shall be maintained as follows:

A.2. The Treatment Building is a metal fabricated building set on a spread footing foundation. The Building is contained within a double liner system described in Permit Condition VI.C. The Treatment Building is located as shown in Figures 1 and 2 of Permit Attachment 1.

A.3. Hazardous waste treatment occurs in eight treatment mixing basins, designated A-1, A-2, A-3, A-4, D-1, D-2, D-3 , Basins B and C. The treatment processes are described in Permit Condition VI.D. The treatment mixing basins and the process equipment containing basins are constructed of reinforced concrete with a protective, sacrificial steel liner installed inside the basins. Basins A-1, A-2, A-3, D-1 and D-2 have an approximate capacity of 150 yd^3 each. Basin D-3 has an approximate capacity of 300 yd^3. Basins B and C have an approximate capacity of 600 yd^3 each.

A.4. Hazardous waste storage and staging occurs in the western portion of the Treatment Building, designated Staging Area No.1. Wastes will be stored in containers Staging Area No. 1 is approximately 120 feet by 60 feet. The maximum capacity for storing and/or staging in Staging Area No. 1 is 600 yds^3.

B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

B.1. The following table lists the approved waste codes for treatment and/or storage in the Treatment Building:

B.1.1. For wastes codes, which have specific treatment technologies, specified in 6 CCR 1007-3 §268.40, the Permittee may treat such wastes for other physical (such as load bearing) or chemical parameters once the treatment technology standard or alternate treatment standard has been met.

B.2. The Permittee may treat those wastes that have been tested and/or determined to be acceptable for processing, according to the preacceptance waste evaluation process, in the treatment mixing basins, in the Treatment Building.

B.3. Wastes that are ignitable below 100° F will not be accepted for treatment.

B.4. Wastes which have an average volatile organic (VO) concentration at the point of waste origination of greater than 500 parts per million by weight (ppmw) will not be accepted for treatment. The average VO concentration shall be determined using the procedures specified in 6 CCR 1007-3 and 40 CFR §264.1083(a).

D Codes	F Codes	K Codes	P Codes	U Codes
D001 thru D043	F001 thru F012	K001 thru K052	P001 thru P018	U001 thru U012
	F019 thru F028	K060 thru K062	P020 thru P031	U014 thru U223
	F032	K064 thru K066	P033 thru P051	U225 thru U249
	F034, F035	K069, K071	P054	U271
	F037 thru F039	K073	P056 thru P060	U277 thru U280
		K083 thru K088	P062 thru P078	U328,U353, U359
		K090, K091	P081, P082	U364 thru U367
		K093 thru K118	P084, P085	U372, U373
		K123 thru K126	P087 thru P089	U375 thru U379
		K131, K132	P092 thru P099	U381 thru U387
		K136, K140	P101 thru P116	U389 thru U396
		K141 thru K145	P127, P128	U400 thru U404
		K147 thru K151	P185	U407, U408
		K156 thru K161	P188 thru P192	U409,U410, U411
		K169 thru K172	P194	
		K176-K178	P196 thru P199	
			P201 thru P205	

C. DESIGN REQUIREMENTS

C.1. The liner system for the Treatment Building consists of (from the bottom to top) prepared subgrade, three feet of compacted clay, a 40-mil High Density Polyethylene (HDPE) geomembrane, a leachate collection/leak detection system, three feet of compacted clay, and an 80-mil geomembrane. The liner system is shown in Figures 6 and 7 of Permit Attachment 1.

C.2. The leachate collection system consists of a geocomposite layer which drains to a sump. The leachate system is accessed by a HDPE riser pipe.

C.3. In the area of the basins, the primary liner is covered by a minimum of 1.5 feet of clayey structural fill, which is overlain by 1.5 to 2.25 feet of concrete. The concrete is then overlain with a one-inch steel plate.

C.4. An annulus monitoring system exists between the concrete and the steel plate in each basin. The annulus monitoring system slopes to a sump in one corner of each basin. The annulus monitoring systems are accessed by riser pipes.

C.5. The floors of the Treatment Building are sloped to provide segregated drainage to each of the mixing basins.

D. OPERATION REQUIREMENTS

D.1. The Treatment Building will be used for waste receiving, waste staging, storage of treated and untreated wastes, waste sizing, preparation, and mixing.

D.2. Staging Area No. 1 will be used for waste receiving, waste staging and accumulation, and addition of reagents to solidify liquids and improve waste handling.

D.3. Wastes will be transferred to the Treatment Basins directly from waste receiving trucks, from the Container Management Building A, from the Container Storage Area A or B, or from Staging Area No.1. All transfers shall be in accordance with the Waste Analysis Plan, Permit Attachment 2.

D.3.1. Waste delivery trucks will be directed to a specified Treatment Building door for unloading.

D.3.2. Treatment Building doors will only be opened to allow entry or exit of waste via truck and/or in the case of emergencies.

D.4. The Permittee shall separately, based on compatibility, pre-treat, treat, stabilize and/or solidify each waste or group of similar wastes which require additives or reagents to be added, in order to meet the Land Disposal Restrictions of 6 CCR 1007-3 Part 268.

D.5. Impermissible dilution of wastes to achieve Land Disposal Restriction standards is prohibited.

D.6. Wastes will be treated by stabilization, solidification, encapsulation, or chemical treatment. The type and quantity of reagents used will be predetermined by a treatment recipe. The type and quantity of reagents used will be recorded in the operating record.

D.7. Treatment process will be performed through shredding or back-hoe mixing.

D.8. Waste Shredding

D.8.1. Wastes may be shredded through the shredder located adjacent to Basin D2.

D.8.2. Containerized waste will be conveyed to the shredder from the floor staging area adjacent to the shredder.

D.8.3. The shredder will typically provide size reduction to 1" by 6" particles.

D.8.4. Shredded wastes will be contained in Basin D2.

D.8.5. Shredded waste will be transferred to other basins for further treatment if needed.

D.8.6. The shredder must be maintained according to the technical information and drawings contained in Attachment 1. Applicable operating procedures defining safe operating practices will be maintained at the Facility and updated as necessary.

D.9. Backhoe Mixing

D.9.1. Reagents feed for Basins A1, A2, A3, and A4 will be conveyed by metering equipment or manually. Reagent feed for Basins D1, D2, D3, and D4 is from storage silo or manual transfer.

D.9.2. The Permittee shall record the amount (weight and/or volume) of reagent used in the treatment process. Resettable flow totalizers or other calibrated method can record the volume of each reagent used for each batch. Controls allow varying reagent feed rates for each batch.

D.9.3. The backhoe is positioned adjacent to the treatment mixing basin and will mix and incorporate reagents into the waste. As the waste is being mixed, additional reagents may be added.

D.9.4. The waste reagent mixture may be left in the mixing basin to cure or it may be out loaded to bulk containers (roll-offs or form boxes) and transferred to Staging Area No. 1., or to Container Storage Area A.

D.10. The Permittee shall maintain one foot of free board in the basins when managing liquid waste.

D.11. The Permittee shall not allow waste to remain overnight in the Treatment Mixing Basin or process equipment if the wastes may produce ignitable, explosive, or toxic fumes, vapors or gases. Determination of probable fume or vapor concentrations, which may accumulate in the Treatment Building from volatile or slightly volatile wastes, must be based on calculations or laboratory data assuming loss of ventilation for one hour.

D.12. After the treated waste has cured and been evaluated in accordance with the Waste Analysis Plan, Permit Attachment 2, the waste is then transferred to the secure disposal cells.

D.13. The leak detection system shall be operated and maintained to minimize clogging during the active life of the Treatment Building. [6 CCR 1007-3 §264.221(c)(2)(iv)]

D.13.1. The leak detection system shall be operated with pumps of sufficient size to collect and remove liquid from the sump and prevent liquids from backing up into the drainage layer. [6 CCR 1007-3 §264.221(c)(2)(v)]

D.13.2. The Permittee shall collect and remove pumpable liquids in the sumps to minimize the head on the bottom liner. Liquid accumulation shall be minimized by removal of liquid from the sump when the depth of liquid in the sump exceeds o.67 feet, as determined by inspections required by the Inspection Plan, Permit Attachment 3.

D.14. Leak Action Rate and Response Actions for Treatment Building Impoundments

D.14.1. The action leakage rate, calculated in accordance with 6 CCR 1007-3 §264.222, for the Treatment Building Impoundment is 500 gallons per acre per day.

D.14.2. To determine if the action leakage rate has been exceeded, the owner or operator must covert the monthly flow rate from the monitoring data obtained to an average daily flow rate (gallons per acre per day) for the sump.

D.14.3. If the action leakage rate has been exceeded, if liquid containing wastes, leachate, or any hazardous waste constituent is found in the Treatment Building leak detection system the following response actions must be taken:

D.14.3.1. Notify the Department in writing of the exceedance within 7 days of the determination;

D.14.3.2. Submit a preliminary written assessment to the Department within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size and cause of any leaks, and short-term actions taken and planned;

D.14.3.3. Determine to the extent practicable the location, size, and cause of any leak;

D.14.3.3.1. Determine whether waste processing in the Treatment Building should cease or be curtailed,

D.14.3.3.2. Determine whether any waste should be removed from the unit for inspection, repairs, or controls,

D.14.3.3.3. Determine whether or not the Treatment Building should be removed from service, and

D.14.3.3.4. Determine whether the Treatment Building should be closed;

D.14.3.3.5. Determine any other short-term and longer-term actions to be taken to mitigate or stop any liquids; and

D.14.3.3.6. Within 30 days after the notification that the action leakage rate has been exceeded, submit to the Department the results of the analyses specified in V.D.14.3.3), 4), and 5), the results of actions taken, and actions planned. Monthly, thereafter, as long as the flow rate in the leak detection systems exceeds the action leakage rate, the owner or operator must submit to the Department a report summarizing the results of any remedial actions taken and actions planned.

D.14.4. To make the leak and/or remediation determinations in V.D.14.3.3), 4), and 5), the Permittee must

D.14.4.1. Assess the source of liquids and amounts of liquid by source:

D.14.4.1.1. Conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids and possible location of any leaks, and the hazard and mobility of the liquid; and

D.14.4.1.2. Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

D.14.4.2. Document why such assessments are not needed.

D.14.5. If the Treatment Building has been removed from service in accordance with Permit Condition V.D.14.3.4), it may not be restored to service unless the portion of the impoundment which was failing or leaking is repaired and the impoundment's structural integrity is recertified in accordance with 6 CCR 1007-3 §264.226(c). [6 CCR 1007-3 §264.227(d)]

D.14.6. If the Treatment Building has been removed from service in accordance with V.D.14.3.4), and is not being repaired, it must be closed in accordance with the Closure Plan, Permit Attachment 6 and with the provision of 6 CCR 1007-3 §264.228. Repairs or closure must commence within 30 days of the removal from service. [6 CCR 1007-3 §264.227(e)]

E. MONITORING AND INSPECTION

E.1. While the Treatment Building is in operation, it must be inspected weekly and after storms to detect evidence of any of the following:

E.1.1. Deterioration, malfunction, or improper function of operating systems

E.1.2. Severe erosion or other signs of deterioration in containment devices

E.2. The Permittee must record the amount of liquids removed from the leak detection system sump at least once each week during the active life and closure period. [6 CCR 1007-3 §264.226(d)]

E.3. The Permittee shall inspect the annulus between the steel liners and concrete of each basin following the procedures specified in the Inspection Plan, Permit Attachment 3.

F. CONTINGENCY PLAN IMPLEMENTATION

F.1. The Permittee shall implement the Contingency Plan when the resampling event described in Part VII.D.3.2. of this Permit confirms a significant increase for any of the detection monitoring parameters listed in Table VII-3.

F.2. The Permittee shall implement the Contingency Plan whenever unexpected or uncontrolled reactions occur in a Treatment Mixing Basin which produce toxic or ignitable mists, fumes, dust or gases, extreme heat or pressure, violent reactions, fire, or explosions.

G. CLOSURE

G.1. At closure, the Permittee must remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste unless 6 CCR 1007-3 §261.3(d) applies. All closure activities must be performed in accordance with the requirements of the Closure Plan, Permit Attachment 6.

H. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

H.1. Ignitable or reactive waste will not be placed in any treatment basin, unless the waste and the basin satisfy the requirements of 6 CCR 1007-3 Part 268 and

H.1.1. The waste is treated, rendered or mixed immediately after placement in the basin so that the resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under 6 CCR 1007-3 §261.21 or §261.23 and 6 CCR 1007-3 §264.17(b) is complied with; or

H.1.2. The waste is managed in such a way, following the procedures specified in Permit Conditions V.H.2 and V.H.3., that it is protected from any material or conditions which may cause it to ignite or react; or

H.1.3. The basin is used solely for emergencies. [6 CCR 1007-3 §264.229]

H.2. Special handling procedures for managing reactive wastes will include:

- Treatment of the material will be under the direct supervision of either the Production Manager, Health and Safety Administrator, or shift Foreman
- Specific Personnel Protective Equipment shall be specified by the Health and Safety Manager
- Specific monitoring for the release of potentially hazardous gases will be prescribed by a manager and conducted by operations personnel and
- Monitoring of pH will be conducted during treatment as specified in the PDR form

H.3. Special handling procedures for materials, which are ignitable between 100° F and 140° F, will include the following:

- "No Smoking" signs will be posted in the Treatment Building
- Only 12,000 gallons or 60 yd^3 of ignitable materials will be processed in a mixing basin at one time
- Prior to unloading, the drum or truck will be grounded to prevent build up of static electricity
- If combustible wastes are co-mingled, the co-mingled waste will be pre-tested to see if the resulting mixture still exhibits characteristics of ignitability between 100° F and 140° F
- If the treated material continues to exhibit ignitability then the above procedures as applicable will be followed in loading the material for transport to the secure cells
- Containers will be bonded when transferring waste between containers.
- Non-sparking tools shall be used when handling ignitable wastes

H.4. The Permittee shall document compliance with this section for all potentially ignitable or reactive wastes treated in the Treatment Building by providing written references in the Facility Operating Record citing specific chemical principles, test data, and/or calculations relevant to the treatment process.

I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

I.1. Incompatible wastes, or incompatible wastes and materials, (see Appendix I of the Waste Analysis Plan for examples) must not be placed in the same basin unless 6 CCR 1007-3 §264.17(b) is complied with.

I.2. The Movement Request will be utilized to indicate the proper treatment mixing basin and/or staging area for unloading each waste.

I.3. The Permittee shall document compliance with this section for all potentially incompatible wastes treated in the Treatment Building by providing written references in the Facility Operating Record citing specific chemical principles, test data, and/or calculations relevant to the treatment process.

J. SPECIAL REQUIREMENTS FOR HAZARDOUS WASTES F020, F021, F022, F023, F026 AND F027

J.1. The Permittee may treat wastes identified by the waste codes F020 through F023, F026 and F027, which have been incinerated and meet the land disposal restriction requirements of 6 CCR 1007-3 §268, only to achieve the land disposal restrictions for characteristic wastes, constituents other than dioxins or load bearing requirements.

J.2. Special handling requirements for handling hazardous wastes F020 through F023, F026 and F027 will follow the Dioxin Management Plan as specified below:

J.2.1. Untarping of bulk loads and/or opening of containers will occur only at the time of unloading or sampling. No load will be untarped or opened prior to positioning the truck and/or container inside the Treatment Building.

J.2.2. Bulk loads will be checked prior to commencing unloading to determine if the addition of water is necessary to minimize dust generation. Water will be applied to the dry waste during unloading inside the Treatment Building to minimize dust.

PART VI: DISPOSAL IN SECURE CELLS

The Permittee is allowed to dispose of hazardous waste in secure cells following the requirements of 6 CCR 1007-3 Part 264 Subpart N and in the following manner:

A. UNIT DESCRIPTION

The Facility is permitted for seven secure disposal cells. The cells will have the following approximate volumes: Cell 1 - 173,000 yds^3, Cell 2 - 220,600 yds^3, Cell 3 - 480,240 yds^3, Cell 4 - 491,840 yds^3, Cell 5 - 472,120 yds^3, Cell 6 - 433,840 yds^3, Cell 7 - 466,320 yds^3. The total maximum permitted capacity is 2,737,960 yds^3. The Secure Cell configuration is shown in Figure 6 of Permit Attachment 10.

B. PERMITTED AND PROHIBITED WASTE IDENTIFICATION

B.1. The following table lists the approved waste codes for disposal in the secure landfill cells, provided the waste meets the applicable Land Disposal Restrictions specified in 6 CCR 1007-3 §268:

D Codes	F Codes	K Codes	P Codes	U Codes
D001 thru D043	F001 thru F012	K001 thru K052	P001 thru P018	U001 thru U012
	F019 thru F028	K060 thru K062	P020 thru P031	U014 thru U223
	F032	K064 thru K066	P033 thru P051	U225 thru U249
	F034, F035	K069, K071	P054	U271
	F037 thru F039	K073	P056 thru P060	U277 thru U280
		K083 thru K088	P062 thru P078	U328,U353, U359
		K090, K091	P081, P082	U364 thru U367
		K093 thru K118	P084, P085	U372, U373
		K123 thru K126	P087 thru P089	U375 thru U379
		K131, K132	P092 thru P099	U381 thru U387
		K136, K140	P101 thru P116	U389 thru U396
		K141 thru K145	P127, P128	U400 thru U404
		K147 thru K151	P185	U407, U408
		K156 thru K161	P188 thru P192	U409,U410, U411
		K169 thru K172	P194	
		K176-K178	P196 thru P199	
			P201 thru P205	

B.2. Hazardous wastes must meet all applicable land disposal restrictions prior to disposal.

B.3. Non-hazardous wastes that contain free liquids or produce a leachate with hazardous constituents are not permitted for disposal in the Secure Cells unless they are treated as necessary to pass the free liquids and leachability acceptance tests.

B.4. Leachable Constituents

B.4.1. Leachable constituent values shall be determined by the Toxicity Characteristic Leaching Procedure (TCLP) contained in SW-846 (Method 1311).

B.5. The following wastes are prohibited from disposal in secure cells, or require treatment or special handling such as segregation or containerization as noted:

- Any waste containing free liquids as determined according to EPA Method 9095
- Hydrophobic or pyrophoric wastes
- DOT Forbidden Explosives
- Shock Sensitive Materials
- Polychlorinated Biphenyls (PCBs) > 50 ppm
- Radio Active Materials >116 uR/hr, or as approved by the Department
- Infectious Wastes
- Compressed Gases
- Wastes which are ignitable below 140□F
- Wastes exhibiting a pH less than 2.5 including containerized wastes
- Wastes that release greater than 500 ppm sulfide or 250 ppm cyanide when subjected to a change in pH. Wastes that release greater than 20 ppm sulfide or greater than 10 ppm cyanide shall be segregated from other wastes which have a pH < 5.0.
- Lab packs that do not meet the requirements of 6 CCR 1007-3 §268.

B.6. The Permittee is prohibited from disposing in secure cells any hazardous waste that is not included in Permit Condition VI.B.1.

C. DESIGN REQUIREMENTS

C.1. Drawings and Plans

C.1.1. Construction phasing of individual secure cells will proceed as needed for waste disposal operations. Construction drawings for each cell will be prepared and submitted to CDPHE for approval 45 days prior to commencement of cell construction. The drawings must include details regarding the potentially contaminated runoff drainage ditches associated with each cell. The drawings must be approved by CDPHE prior to commencement of cell construction and will be incorporated into Permit Attachment 10 as a Class 1 with Prior Approval Modification.

C.1.2. A cell specific filling plan will be prepared for each cell as part of the final design studies. This plan will incorporate operational requirements, stability constraints, and surface water control features. This cell specific filling plan will be submitted to CDPHE 30 days prior to planned waste placement in each cell. The Plan will be approved by CDPHE prior to commencement of waste placement in each cell. The Plan will be incorporated into the Permit as a Class 1 Modification.

C.1.3. As-built drawings for completed cells will be submitted to CDPHE upon completion of construction of each secure cell as part of the Certification Report. The as-built drawings will be incorporated into the CDPHE Administrative Record for the Facility and into the Facility's Operating Record.

C.2. The Permittee shall install two composite liners and a leachate collection system and removal system, one above and one between the liner systems, in accordance with the design plans and specifications contained in Permit Attachments 1 and 10. [6 CCR 1007-3 §264.301(c)]

C.3. Liner Systems Descriptions

C.3.1. Secure Cells 1 and 2

The base liner system consists of (from bottom to top) prepared subgrade, three feet of compacted clay, an 80-mil HDPE geomembrane liner,(these two components comprise the secondary composite liner system), a geocomposite leak detection system, three feet of compacted clay, an 80-mil HDPE geomembrane liner (these two component comprise the primary composite liner system), a geocomposite leachate collection system, one foot of sand, and two feet of compacted protective soil. A Permanent Sump is installed under the Leak Detection Sump and consists of gravel surrounded by geotextile fabric.

The sideslope liner system consists of (from bottom to top) prepared subgrade, 4.5 feet of compacted clay, an 80-mil HDPE geomembrane liner, (these two components comprise the secondary composite liner), a geocomposite drainage layer, three feet of compacted clay, an 80-mil HDPE geomembrane liner, (these two components comprise the primary liner system), a geocomposite drainage layer and 1.5 feet of protective soil layer.

C.3.2. Secure Cells 3 through 7

The bottom liner system shall consist of (from bottom to top) prepared subgrade, three feet of compacted clay, and 80-mil HDPE geomembrane liner, (these two components comprise the secondary composite liner), a geocomposite leak detection system, three feet of compacted clay, a geosynthetic clay liner, an 80-mil HDPE geomembrane liner, (these three components comprise the primary composite liner), a geocomposite drainage layer, one foot of sand, (these two components comprise the leachate collection system), a geotextile, and two foot of protective soil.

The sideslope liner system shall consist of (from bottom to top) prepared subgrade, 4.5 feet of compacted clay, an 80-mil HDPE geomembrane liner, (these two components comprise the secondary liner system), a geocomposite drainage layer, a geosynthetic clay liner, an 80-mil HDPE geomembrane liner, (these two components comprise the primary liner system), and 1.5 feet of protective soil.

C.4. Leachate Collection Systems

C.4.1. Secure Cell 1

The leachate collection system for Secure Cell 1 is located on the base of the Secure Cell and consists of ten lateral pipes and one header pipe; nine of the lateral pipes are connected to the header pipe, the remaining lateral pipe drains to the leachate collection system sump along with the header pipe.

The 4-inch diameter pipes are installed on top of a geotextile cushion layer that overlies the primary geomembrane liner, the pipes are covered with gravel, and the geotextile cushion layer is wrapped around the gravel. There is one leachate collection system cleanout riser pipe.

C.4.2. Secure Cells 2 through 7

The leachate collection system for Secure Cells 2 through 7 consists and shall consist of two leachate collection pipes that drain to the leachate collection sump and a layer of geonet that extends across the base of the secure cell beneath the geotextile layer. The 8-inch diameter pipes are installed over the geotextile layer, covered with gravel, and the geotextile cushion is wrapped around the gravel. There are three leachate collection system cleanout pipes and a geonet flush pipe is located in the corner of the cell near the access ramp and along the toe of the access ramp slope.

C.5. Leachate, Leak Detection, and Permanent Sump Riser Pipes and Sump Configurations

C.5.1. Secure Cell 1

The Permanent Sump for Secure Cell 1 is accessed by a 14-in diameter HDPE riser pipe placed near the corner of the cell on a 2:1 slope; the bottom one foot section of the pipe is perforated and the bottom end of the pipe is sealed by a HDPE plate welded to its bottom surface. The Leak Detection System for Secure Cell 1 is accessed by a 14-in diameter HDPE riser pipe placed along the corner of the slope; the bottom one foot section of the pipe is perforated and the bottom end is sealed by a HDPE plate welded to its bottom surface. For Secure Cell 1, the Leachate Collection System header pipe and one leachate collection system lateral pipe drain into a 36-inch diameter reinforced concrete rise pipe that rises vertically out of the sump; the concrete riser pipe was extended vertically as the secure cell was filled.

C.5.2. Secure Cells 2 through 7

The Permanent Sump for Secure Cells 2 through 7 is accessed by a 18-inch diameter HDPE riser pipe trenched into the corner of the cell; the liquid in the sump enters the pipe through a perforated section of pipe which lays along the bottom of each sump; the end of the pipe is sealed with a HDPE perforated end cap. The Leak Detection System is accessed by an 18-inch diameter HDPE riser pipe placed along the corner of the slope; the liquid in the sump enters the pipe through a perforated section of pipe which lays along the bottom of each sump; the end of the pipe is sealed with a HDPE perforated end cap. For Secure Cells 2 through 7, the Leachate Collection System drains and is accessed by a 24-inch HDPE riser pipe placed along the corner of the slope; leachate enters the pipe through a 19 foot perforated section of pipe that lays along the bottom of each sump; the end of the pipe is sealed with a HDPE perforated end cap. The sump riser pipes are covered with structural fill.

D. CONSTRUCTION REQUIREMENTS

D.1. The Permittee shall excavate Secure Cells, install liners, sumps, runoff drainage channels and other components as required by 6 CCR 1007-3 §264.301 and §264.310, as specified in the plans and specifications in Permit Attachment 9, and comply with the following requirements.

D.2. Background Soil Sampling - For Secure Cells 3-7, the background sampling and testing program will take place after construction of each Secure Disposal Cell and related structures as necessary but prior to acceptance of wastes in the Secure Disposal Cell just constructed.

D.2.1. During each phase's background sampling and testing program:

- A minimum of five samples will be taken for every 400 feet of roadway constructed during the phase;

- A minimum of five samples will be taken for every 400 feet of uncontaminated drainage channel constructed during the phase; and

- A minimum of five samples will be taken for every 400 feet of segregated stormwater drainage channel constructed during the phase.

D.2.2. These samples may be composited in a ratio of 2 to 1. The sampling methods, procedures, record keeping protocol and the soil sampling equipment will be those specified in Section III for the closure of surface impoundments. The test methods and procedures will be those specified in the Waste Analysis Plan. The soil samples will be taken at a depth of 0-6" and analyzed for soil pH and 6 CCR 1007-3, §261, Appendix VIII constituents.

D.3. Each secure cell shall be excavated into the Unweathered Pierre Shale. The entire floor of each cell must be contained in the Unweathered Pierre Shale.

D.4. The Permittee shall provide a professional geologist to map, in detail, the natural soils exposed at the limit of each cell excavation, before recompaction or placement of any cell liner component.

D.4.1. Each distinct soil stratum shall be sampled and classified according to ASTM D2487-93.

D.4.2. Soil maps and grain size analyses shall be included in each secure cell certification report.

D.4.3. The Permittee shall provide the Department adequate notice of the mapping schedule and cooperate with Department representatives who may participate in the mapping.

D.5. The Permittee shall remove soils with a Unified Soil Classification (USC) gradation coarser than SM (silty sand) found at the limit of the cell excavation of at the compliance point, according to the following criteria: [6 CCR 1007-3 §264.31 and §264.301(c) and (k)]

D.5.1. Soil classified coarser than USC SM shall be removed at the time of cell excavation for a distance of one hundred feet from the nearest point of the secure cell secondary synthetic liner.

D.5.2. Exemption from or modification of the soil removal requirement may be approved if the exemption is adequately justified, and the Department determines, in advance, that soil removal is not necessary.

D.5.3. The Permittee shall replace removed soil with recompacted soil which is of equal or lower hydraulic conductivity than adjacent undisturbed soil.

D.5.4. The Permittee shall provide adequate construction inspection and moisture, density and hydraulic conductivity testing of both undisturbed and replaced soil to verify compliance with Permit Condition VI.D.3.c. The testing program must be submitted to the Department before placement of recompacted soil.

D.5.5. The Permittee shall apply to the Department to modify this Permit, following the procedures in 6 CCR 1007-3 '100.63, if coarse soils required to be removed cannot be practicably removed, or if the Permittee can technically justify that removal of the coarse soils is not required.

D.6. Construction Inspection

D.6.1. Construction inspection of secure cell components, including but not limited to, subsoils, clay and synthetic liner covers and liners, leachate collection, and leak detection systems shall be conducted as described and at the frequencies specified in the Construction Quality Assurance Plan contained in Permit Attachment 10.

D.6.2. Clay and geosynthetic clay liners and covers must be inspected for imperfections including lenses, cracks, channels, root holes, or other structural non-conformities that may cause an increase in the permeability on the liner or cover. [6 CCR 1007-3 §264.303(a)(2)]

D.6.3. The Permittee shall require leak testing and certification of the entire length of each seam in each geomembrane, including cap and sump welds and connections, by vacuum box, unless an equivalent or more rigorous method is used. [6 CCR 1007-3 §264.303(a)(1)]

D.6.4. The Permittee shall require continuous close inspection by a qualified inspector on foot of spreading or grading of primary and secondary leachate collection sand layers with any earthmoving equipment.

D.6.4.1. All points of contact or possible contact of any part of the earth moving equipment with the synthetic liner shall be immediately exposed with hand tools.

D.6.4.2. Visible damage, including small scratches, indentations, tears or punctures, must be inspected by the liner installation contract inspector and repaired if necessary.

D.6.4.3. Locations of every point of visible damage, and the size of every patch, shall be noted on as-built cell design plan sheets included in each cell certification report.

D.7. The source and amount of water used to increase moisture content of compacted clay liners shall be included in the daily inspecting engineer's reports. A summary of the volume and quality of the water used, including quarterly analysis, of each source of water used during that quarter, for the parameters listed in the Background Groundwater Monitoring Parameters List, shall be included in the final secure cell certification report.

D.8. The Final Secure Cell Certification Report (also referred to as the Final CQA Report) shall be submitted to the Department. No wastes shall be placed in a secure cell or a completed portion of a secure cell until the Department has approved, in writing that cell's or that portion of the cell's Final Secure Cell Certification Report.

E. OPERATIONS REQUIREMENTS

E.1. Collected leachate must be managed in accordance with the Waste Analysis Plan, Permit Attachment 2. The Permittee shall operate and maintain the Leachate Collection Systems and the Leak Detection Systems to remove leachate from the secure cells as specified below and in accordance with the Inspection Plan, Permit Attachment 3.

E.1.1. The interior surface of each cell shall be inspected for accumulation of free liquids. The Permittee shall transfer ponded free liquids to the Contaminated Water Storage Tanks as soon as possible.

E.1.2. Leachate accumulation shall be minimized by removal of leachate from each sump when the depth exceeds 0.67 feet as determined by inspections required by the Inspection Plan, Permit Attachment 3.

E.1.3. Daily volume of liquids removed from each sump and liquid level measurement shall be recorded in the operating record. Leachate and leak detection liquids shall be sampled and analyzed as required by Part VII of this Permit.

E.1.4. Accumulated liquids shall be removed from the leachate collection sump and leak detection sumps by pumping through the riser pipe. A submersible pump shall be used for leachate

removal. The pumps shall be of sufficient size to collect and remove liquids from the sumps and prevent liquids from backing up into the drainage layers. [6 CCR 1007-3 §264.301(c)(2) and (3)]

E.1.5. Accumulated leachate will be transferred by above ground piping to the Contaminated Water Tanks, or will be transferred to the Contaminated Water Tanks by vacuum truck.

E.1.6. Piping will be chemical resistant and managed to avoid freezing. Leachate discharge piping is sized to provide pumping velocities of approximately 5 ft per second. The maximum operating pressure in the leachate discharge piping will be 135 psi.

E.2. The Permittee shall construct, operate, and maintain the landfill so as to prevent the migration of any hazardous constituents into ground water or surface water, in accordance with 6 CCR 1007-3 §264.301(c), and comply with the following:

E.2.1. All components of the cell or a specified portion of a cell shall be completed prior to the commencement of operations.

E.2.1.1. This includes the leachate collection system, the access ramp, and the buffer material over the leachate collection system and on the side slopes.

E.2.1.2. If a portion of a cell is to be constructed and used prior to completion of the entire cell, the design and operation plans and specifications for such activity must be submitted to and approved by CDPHE prior to commencement of construction of the cell. The approved design and operation plans and specifications will be incorporated into the Permit following the procedures of 6 CCR 1007-3 §100.63.

E.3. Waste materials to be placed in the secure cells will be bulk solids, solidified blocks, and drummed solids. The bulk solids will consist of solidified sludges, treated material and direct landfilled solids. Any intact drums will be filled with solids or crushed to eliminate significant voids to the extent practical, space between drums will be filled with bulk solids to eliminate void space.

E.4. Daily cover will be placed over the wastes. [6 CCR 1007-3 §264.301(j)]

E.4.1. The daily cover may be a two inch soil cover, a geosynthetic cover (either a geotextile or geomembrane), or a combination of both or other forms of cover as approved by the department.

E.4.2. One type of geosynthetic cover which may be used is a woven geotextile reinforced with optional nylon strapping around the perimeter and 12 feet on center in both directions. The ends of the nylon strapping contain heavy duty D-rings to facilitate anchoring and heavy equipment hookup. The optional nylon strapping will be used to attach the cover to a spreader bar for deploying and removing the cover and also will be used to tie and/or anchor the cover down.

E.4.3. Sand bags, buffer soil, or other items of sufficient weight that will not damage the cover maybe used to anchor the geosynthetic cover. Stakes may be used only if the cover is equipped with the appropriate attachments for staking. The stakes will be one to two feet long. The stakes will not be placed within six feet horizontally from the sideslope lining system or within three feet vertically of the cell floor lining system.

E.4.4. When anchoring the geosynthetic cover, care will be taken to ensure that wind can't get beneath the cover and cause a "blowout".

E.4.5. The entire perimeter of the cover will be anchored at the end of each day and tears within the cover shall be repaired within the same shift in which they are discovered.

E.5. The bed of each truck entering the cell shall be covered with a tight fitting tarp over all waste. The tarp shall not be removed until disposal activities are ready to commence.

E.6. Each truck exiting a cell shall be inspected for visible wastes; visible particles of wastes shall be swept, brushed or otherwise cleaned to remove all visible particles of waste from the tires and frame.

E.7. Wind and precipitation gauges shall be installed at locations that provide accurate measurements.

E.7.1. The Permittee shall install and maintain a wind anemometer and directional vane instrumentation on the roof of the Treatment Building, with a recorder located in an easily accessible location. The instrument shall be alarmed such that the alarm is audible and/or visible from the active secure cell(s). Wind socks at appropriate locations shall be maintained.

E.7.2. The Permittee shall install and maintain a g-type precipitation gauge located at a location easily accessible to inspectors. The gauge must be capable of registering rain or snow to an accuracy of not less than one-tenth (0.1) inch of water equivalent precipitation. The gauge shall be provided with a recording capacity of at least twelve inches.

E.8. Shipments of wastes to a secure cell shall be halted during any time period whenever wind speed is high enough to blow wastes out of a cell. At a minimum, shipments of wastes to a secure cell shall be halted during any time wind speeds reach thirty-five miles per hour.

E.8.1. Intermediate cover application shall commence or continue during periods of such high wind.

E.8.2. Intermediate cover shall be placed over waste that has been placed above the crest of the landfill at any time when waste placement is non-active or waste placement is expected to be non-active for a period of two hours.

E.8.2.1. During waste placement above the crest, a stockpile of soil or geosynthetic cover will be placed near the working face which will be used to cover the waste immediately after placement, should wind conditions warrant.

E.8.2.2. In addition, soil stabilization products or non-organic tackifiers may be used to seal the surface soils and reduce dust generation during high wind periods.

E.8.3. The condition of the cover shall be maintained at all times to prevent loss of waste from the active secure cell(s).

E.9. Wastes shall be placed in horizontal lifts and compacted in place.

E.9.1. The waste will be compacted to an in-place compressive strength of approximately 0.33 tons per square foot.

E.9.2. If an operating face, beyond that required for an individual lift is required, it will be sloped no steeper than 4H:1V from the base of the landfill to the planned maximum cover elevation and will be covered with daily cover.

E.10. Waste filling will generally progress in horizontal lifts to near the crest of the secure cell.

E.11. Waste placement above the crest of the secure cell shall be modified to form a V-trench around the perimeter of the secure cell that will have sufficient capacity to hold the runoff from active waste areas from a 24-hour, 8.2 inch storm event with one inch of freeboard.

E.11.1. The V-trench will be formed by the side slopes of the secure cell and a 5H:1V waste fill slope. The depth a the V-trench will vary depending on the required storage capacity. The 5H:1V waste fill slope will continue until it intercepts the five percent final cover slope.

E.11.2. During the final cover construction, the V-trench may be filled with waste as the active cell area is reduced. At all times, the Permittee must comply with Permit Condition V.E.10.

E.11.3. During waste placement above the crest, standing surface liquids which collect in the V-trench shall be removed within 24 hours after a storm event.

F. PROCEDURES TO MANAGE AND CONTROL RUN-OFF

F.1. Definitions

F.1.1. **"Uncontaminated Stormwater"** means stormwater runoff and accumulated water that occurs in closed or undeveloped areas of the site and is isolated and segregated from areas that contain, receive, or drain stormwater from waste processing areas.

F.1.2. **"Contaminated Stormwater"** means stormwater runoff and accumulation water that comes into direct contact with waste materials or known contaminated areas.

F.1.3. **"Segregated Stormwater"** means stormwater runoff and accumulated water which contacts or accumulates in areas of the site that could possibly come in contact with spills of waste material. Areas of segregated stormwater include all onsite roadways past the sampling station over which waste materials are transported, waste processing areas, partially closed secure cell areas, cell areas not containing waste or segregated by a divider berm, all equipment storage and parking areas for vehicles carrying wastes or vehicles which have not been externally washed after handling wastes.

F.2. The Permittee must design, construct, operate, and maintain the run-off management system to collect and control at least the water volume resulting from a 24-hour, 1000 year storm event which has been defined as an 8.2 inch storm. [6 CCR 1007-3 §264.301(h)]

F.3. Reserved

F.4. The Stormwater Management System consists of series of channels designated Uncontaminated (UC) Channels and Segregated Stormwater (SS) Channels, culverts, drop structures, an Uncontaminated Detention Pond (UCDP), a Segregated Stormwater Retention Pond (SSRB),.

F.4.1. The UC channels, SS channels, UCDP, SSRB and Lift Station A are located as shown in Figure 1 of Permit Attachment 1.

F.4.2. The capacity of the SSRB is and shall be maintained at 4,300,000 gallons, which will contain runoff from the 8.2-inch storm event with two feet of freeboard.

F.5. The Stormwater Management Plan will be implemented in phases as waste management processes require the closure and construction of individual cells.

F.5.1. The UC ditches are permanent.

F.6. Drainage Flow Paths

F.6.1. Uncontaminated runoff will drain to and collect in the UCDP.

F.6.2. Segregated runoff will drain directly to the SSRB or Lift Station A. Runoff collected in Lift Station A will be pumped to the SSRB. Runoff accumulating on Segregated Stormwater areas of the site will be removed by a pump truck and deposited in the SSRB or pumped directly to a SS channel that will flow to the SSRB.

F.6.3. All contaminated water will be collected and transferred to the Contaminated Water Storage Tanks.

F.7. Waste placement in secure cells shall progress such that liquid that is allowed to leach through the waste will be minimized.

F.7.1. Removal of standing surface liquids on the surface of the waste and within segregated contaminated water areas shall commence during the next working shift following the storm event to prevent excessive ponding. Removal of storm water shall be continuous during operational hours until all standing water is removed.

F.7.2. All liquids collected in this manner will be transferred to the Contaminated Water Tanks.

F.8. Stormwater Management System Descriptions

F.8.1. Channels have been and will be constructed to the following criteria:

- Grass-lined, V-shaped, with side slopes no steeper than 3H:1V for temporary channels and side slopes no steeper than 4H:1V for permanent channels.
- Maximum stormwater flow depth in all channels is limited to four feet.
- A minimum free board of 0.3 feet will be maintained for all future channels within the disposal area; a minimum free board of one inch of freeboard will be maintained for all currently constructed channels; freeboard at channel junctions and curved sections of channel will be increased to allow for elevated flow conditions.
- A maximum flow velocity of five feet per second within the vegetated channels is allowed; if velocities exceed five feet per second, the channels will be lined with rip rap or other suitable erosion protection; CDPHE will be notified within seven days of the determination that flow velocities in any channel have exceeded five feet per second; the affected channel shall be lined with the erosion protection within 14 days of this determination.
- Normal channel flow velocity for a design flow peak event will be less than the critical flow velocity. (All channel flows will be subcritical.)
- Erosion protection will be placed at all channel junctions requiring such protection.
- Erosion protection will be installed at the outlet of all culverts.
- Bank protection, drop structures, and culverts will be designed and constructed as specified in Permit Attachment 10.

F.8.2. The Segregated Stormwater Retention Basin and Lift Station A have been constructed and must be maintained as follows (liner system is from bottom to top):

- Prepared subgrade
- 40-mil HDPE Geomembrane Liner
- Geocomposite leak detection layer
- 80-mil HDPE Geomembrane liner

F.9. The Permittee shall inspect the Stormwater Management System as specified in the Inspection Plan, Permit Attachment3.

F.10. The Permittee shall maintain and repair impoundment liners, leak detection systems, dikes, walls, and floors to prevent or correct structural or waste containment failures due to stresses of installation and operation, soil compression or expansion, or chemical reaction. Repairs shall be conducted in accordance with the Remedial Action Procedures detailed in the Inspection Plan, Permit Attachment 3.

F.11. Response Action Rate and Response Actions

F.11.1. The action leakage rates, calculated in accordance with 6 CCR 1007-3 §264.222, for the SSRB is 1700 gallons per acre per day.

F.11.2. To determine if the response action rate has been exceeded, the owner or operator must covert the monthly flow rate from the monitoring data obtained to an average daily flow rate (gallons per acre per day) for each sump.

F.11.3. The following response actions must be taken if the response action rate has been exceeded, if a dike is found leaking, if liquid containing wastes, leachate, or any hazardous waste constituent is found in the SSRB leak detection system, or if the level of liquid in the SSRB drops more than three inches in one day and the drop is not accounted for by pumping, evaporation and/or reflected in the volume of water contained in the leak detection system.

F.11.3.1. Notify the Department in writing of the exceedance within 7 days of the determination;

F.11.3.2. Submit a preliminary written assessment to the Department within 14 days of the determination, as to the amount of liquids, likely sources of liquids, possible location, size and cause of any leaks, and short-term actions taken and planned;

F.11.3.3. Determine to the extent practicable the location, size, and cause of any leak;

F.11.3.4. Determine whether stormwater inflow into the SSRB should cease or be curtailed, whether any water should be removed from the unit for inspection, repairs, or controls, and whether or not the SSRB should be closed;

F.11.3.5. Determine any other short-term and longer-term actions to be taken to mitigate or stop any liquids; and

F.11.3.6. Within 30 days after the notification that the response action rate has been exceeded, submit to the Department the results of the analyses from samples collected, the results of actions taken, and actions planned. Monthly, thereafter, as long as the flow rate in the

leak detection systems exceeds the response action rate, the owner or operator must submit to the Department a report summarizing the results of any remedial actions taken and actions planned.

F.11.4. To make the leak and/or remediation determinations in VI.F.11.3.3), 4), and 5), the Permittee must

F.11.4.1. Assess the source of liquids, generation rates and amounts of liquid by source:

- Conduct a fingerprint, hazardous constituent, or other analyses of the liquids in the leak detection system to identify the source of liquids, possible location of any leaks, and the hazard and mobility of the liquid; and

- Assess the seriousness of any leaks in terms of potential for escaping into the environment; or

F.11.4.2. Document why such assessments are not needed.

G. ACTION LEAKAGE RATE FOR SECURE CELLS

G.1. The action leakage rate, calculated in accordance with 6 CCR 1007-3 §264.302(a), for secure disposal cells is as follows:

G.1.1. For Secure Cell No. 1 the response action rate is 600 gallons of clean water removed from the leak detection sump in one week.

G.1.2. For Secure Cell Nos. 2 - 7, the action leakage rate is 2400 gallons per day (gpd).

G.2. To determine if the action leakage rate has been exceeded, the Permittee must convert the weekly or monthly flow rate from the monitoring data obtained under Permit Condition VI.H.2, to an average daily flow rate (gallons per acre per day) for each sump. The average daily flow rate must be calculated weekly during the active life and closure period, and monthly during the post-closure care period when monthly monitoring is required under 6 CCR 1007-3 §264.303 8 and Permit Condition VI.H.2. [6 CCR 1007-3 §264.302(b)]

G.3. If the liquid level in any sump rises more than one foot between daily inspections, the Permittee must implement the procedures of Permit Conditions VI.H.1.2. and VI.H.1.3, even if the Action Leakage Rate has not been exceeded. The results of the inspection required in Permit Condition VI.H.1.3. will be recorded in the operating record and the Department shall be notified of the results.

H. RESPONSE ACTIONS

If the ALR is exceeded for any of the Secure Cells 2-7 LDS sumps, Highway 36 shall:

H.1. Within 24 hours of becoming aware of the exceedance

H.1.1. Verbally notify the Department of the exceedance. The notification shall include identification of the cell in which the exceedance occurred and the quantity of water which was in excess of the ALR

H.1.2. Monitor the liquid level and remove any liquid from that Secure Cell's LDS sump

H.1.3. Visually inspect all accessible portions of that cell's upper liner system for evidence of failure

H.2. The monitoring and liquid removal shall occur for a total of 5 consecutive calendar days

H.3. Obtain a sample of liquid from that Cell's Leachate Collection System (LCS) and a sample of the LDS water from the first re-inspection. Prior to sampling, the Permittee shall submit an analyte list to the Department. Upon approval by the Department, the Permittee shall obtain the sample and analyze the sample for the approved constituents. The results of these analyses shall be used to help identify the source(s) of the liquid and possible location of any leaks, as well as the potential hazard associated with the liquid and its mobility. The results of these analyses shall be submitted to the Department within 5 days of receipt.

H.4. Assess the seriousness of any leaks in terms of potential for escaping into the environment

H.5. Notify the Department in writing of the exceedance within 7 days of the determination of the exceedance.

H.6. Determine if the flow rate into the LDS varies with precipitation events. If the flow rate varies with precipitation, the relationship between the flow rate and precipitation events must be analyzed (i.e. is flow rate instantaneously effected or is there a lag time).

H.7. If the monitoring of liquids, conducted in accordance with 2) above do not continue to show an exceedance of that Cell's ALR and no visual evidence of failure of the upper liner system is found, then Highway 36 shall submit the records of the re-inspections to the Department within 5 days and may return to the normal inspections schedules for that Cell's LDS. The submittal must include an assessment as to why the exceedance occurred. This submittal must be approved by the Department to close-out the ALR exceedance incident.

H.8. If the monitoring of liquids, conducted in accordance with V.H.2. above, continues to show an exceedance of the ALR for that Cell, the Permittee shall:

H.8.1. Continue to monitor the liquids in the Secure Cells LDS on a daily basis and remove any liquids.

H.8.2. Increase the inspections of that Cell's LCS to daily and remove any leachate within the LCS sump that exceeds 0.67 feet in depth

H.9. Submit a preliminary written assessment by a Registered Professional Engineer to the Department within 14 days of the exceedance determination. The preliminary assessment shall include:

H.9.1. All data collected relative to the quantity and quality of water removed from the LCS and LDS sumps

H.9.2. An assessment as to the likely sources of liquids

H.9.3. If the inspection in V.H.1. above identifies a primary liner failure in exposed portions of the liner, then the preliminary assessment shall include:

- A plan for repairing the failure
- An assessment as to whether the identified failure is the cause of the ALR exceedance and follow up monitoring necessary to verify that assessment

H.9.4. If the investigations in V.H.1. and V.H.3. above do not identify a primary liner failure in the upper, exposed liner and/or the above assessment indicates that there may be other sources of the ALR exceedance, then the preliminary assessment will include a plan for assessing the

existence, location, size, and cause of the suspected leak in the lower, waste covered primary liner system that may be causing the ALR exceedance. The plan will, at a minimum, address:

- Applicable procedures for correlating the chemical analysis of LCS and/or LDS liquids with the records of waste characteristics and waste location within the cell
- Analysis of LDS liquid accumulation rates versus potential size of a leak in the primary liner
- The potential hazard of the liquid contained within the LDS sump and the potential for short-term migration through the lower liner system
- The frequency of any continued chemical analysis of liquids within the LCS and/or LDS

H.9.5. An assessment of the need for any reduction of waste receipts into the Cell. If waste receipts are to continue this assessment will address the following:

- The need for any short term removal of waste from the unit to facilitate inspection and/or repair
- The potential for continued waste receipts to increase the apparent leak in the primary liner system

H.9.6. The need for any short term removal of waste from the unit to facilitate inspection and/or repair

H.9.7. Determine any other short-term or long-term actions to be taken to mitigate or stop any leaks

H.9.8. A schedule for implementing the plans presented within the preliminary assessment. The schedule shall reflect implementation of the plans as soon as practicable

H.10. Within 30 days after the notification that the ALR has been exceeded, a status report on implementation of the plans contained in the preliminary assessment shall be submitted to the Department. The status reports will continue to be submitted monthly, as long as the ALR is exceeded. The status reports will include, at a minimum, the results of the determinations described above, the results of any remedial actions taken, and a description of any further or modified actions planned.

H.11. After making the determinations outlined within the preliminary assessment, the Permittee shall submit a final assessment, made by a Registered Professional Engineer, of the ALR exceedance. The final assessment shall, at a minimum, address:

H.11.1. The estimated location of a primary liner failure or justification that the ALR exceedance does not indicate a primary liner failure

H.11.2. The need for any primary liner repair or justification if the liner is not to be repaired

H.11.3. A plan for repairing the liner if required

H.11.4. The plans for any required removal of waste from the Cell

H.11.5. Plans and justification for any continued waste placement into the affected cell during the repair

H.11.6. The final assessment shall be approved by the Department prior to implementation of the repair or close-out of the ALR exceedance incident

H.12. After making the required repairs, a final report documenting the repairs must be submitted; the report shall include a certification by an independent registered professional engineer certifying that the repairs were made in accordance with the approved plans. The final report shall be completed in accordance with the requirements of Permit Attachment 9.

I. MONITORING AND INSPECTION

I.1. The Secure Cells will be inspected according the Inspection Plan, Permit Attachment 3 and according to the following requirements.

I.2. During operation, each secure cell must be inspected weekly and after storms to detect evidence of any of the following:

I.2.1. Deterioration, malfunctions, or improper operation of runoff control systems;

I.2.2. Proper functioning of wind dispersal control systems; and

I.2.3. The presence of leachate in and proper functioning of all leachate collection and removal systems.

I.3. The Permittee must record the amount of liquids removed from each leak detection sump each day that liquids are removed from a leak detection system during the active life of the Facility and at least once each week during periods when liquids have not been removed daily from the system during the active life and closure period.

I.4. The Permittee must record the amounts of liquid removed from each leak detection sump in compliance with the Post Closure Care Plan, Permit Attachment 7.

J. SURVEYING AND RECORD KEEPING

The Permittee must maintain the following items in the operating record

J.1. On a map, the exact location and dimensions, including depth, of each cell with respect to permanently surveyed benchmarks; and

J.2. The location and quantity of each hazardous waste placement recorded on a map or diagram for each secure cell using a three dimensional grid system. [6 CCR 1007-3 §264.309]

K. CLOSURE AND POST CLOSURE CARE

K.1. At final closure of each secure cell, the Permittee must cover each cell with a final cover designed and constructed in accordance with 6 CCR 1007-3 §264.310(a) and in accordance with Permit Attachments 7 and 10.

K.2. After the final closure of each cell, the Permittee must comply with all post-closure requirements contained in 6 CCR 1007 §264.117 through 264.120 and contained in the Post Closure Care Plan, Permit Attachment 7, including maintenance and monitoring throughout the post closure care period. The Permittee must:

K.2.1. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, or other events;

K.2.2. Continue to operate the leachate collection and removal system until leachate is no longer detected;

K.2.3. Maintain and monitor the leak detection system in accordance with 6 CCR 1007-3 §264.301(c)(3)(iv) and (4) and 264.303(c) and this Permit, and comply with all other applicable leak detection system requirements of 6 CCR 1007-3 §264, Subpart N;

K.2.4. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of Subpart F of 6 CCR 1007-3 §264.

K.2.5. Prevent run-off from eroding or otherwise damaging the final cover; and

K.2.6. Protect and maintain surveyed benchmarks used in complying with Permit Condition VI.J. [6 CCR 1007-3 §264.310]

L. SPECIAL REQUIREMENTS FOR IGNITABLE OR REACTIVE WASTES

L.1. Wastes which are ignitable below 140° F shall not be placed in the landfill.

L.2. Except as provided in Permit Condition VI.L.3, and in Permit Condition VI.P, ignitable or reactive waste will not be placed in the secure cells, unless the applicable requirements of 6 CCR 1007-3 Part 268 are met and

L.2.1. The resulting waste, mixture, or dissolution of material no longer meets the definition of ignitable or reactive waste under 6 CCR 1007 §261.21 or §261.23 and

L.2.2. Permit Condition II.G. and 6 CCR 1007-3 §264.17 are complied with. [6 CCR 1007-3 §264.312(a)]

L.3. Except for prohibited wastes which remain subject to treatment standards in Subpart D of 6 CCR 1007-3 §268, ignitable wastes in containers may be landfilled without meeting the requirements of Permit Condition V.L.2., provided that the wastes are disposed of in such a way that they are protected from any material or conditions which may cause them to ignite. At a minimum, ignitable wastes must be disposed of in non-leaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture or any other condition that might cause ignition of the wastes; must be covered daily with soil or non-combustible material to minimize the potential for ignition of the wastes; and must not be disposed of in cells that contain or will contain other wastes which may generate heat sufficient to cause ignition of the waste. [6 CCR 1007-3 §264.312(b)]

M. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

Incompatible wastes, or incompatible wastes and materials, per Appendix I of the Waste Analysis Plan, Permit Attachment 2 or Appendix V of 6 CCR 1007-3 Part 264, must not be placed in the same secure cell, unless Permit Condition II.G. and 6 CCR 1007-3 §264.17 are complied with. [6 CCR 1007-3 §264.313]

N. SPECIAL REQUIREMENTS FOR BULK AND CONTAINERIZED LIQUIDS

N.1. The placement of bulk or non-containerized liquid hazardous waste or hazardous waste containing free liquids (whether or not sorbents have been added) in any secure cell is prohibited. [6 CCR 1007-3 §264.314(a)]

N.2. Containers holding free liquid will not be placed in any secure cell unless:

N.2.1. All free standing liquid:(I) has been removed by decanting, or other method; (ii) has been mixed with sorbent or solidified so that free standing liquid is no longer observed; or (iii) has been otherwise eliminated; or

N.2.2. The container is very small, such as an ampule; or

N.2.3. The container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or

N.2.4. The container is a lab pack as defined by 6 CCR 1007-3 §264.316, and is disposed of in accordance with Permit Condition V.P. [6 CCR 1007-3 §263.314(c)]

N.3. To demonstrate that the absence or presence of free liquids in either a containerized or a bulk waste, the following must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA Publication SW-846. [6 CCR 1007-3 §264.314(d)]

N.4. Sorbents used to treat free liquids to be disposed of in the secure cells must be non-biodegradable. Non-biodegradable sorbents are materials listed or described in paragraph (a) of this condition; materials that pass one of the tests in paragraph (b) of this condition; or materials that are determined by EPA to be non-biodegradable through 40 CFR Part 260 petition process.

N.4.1. Non-biodegradable sorbents:

N.4.1.1. Inorganic minerals, other inorganic materials, and elemental carbon (e.g. aluminosilicates, clays, smectites, Fuller's earth, bentonite, calcium bentonite, montmorillonite, calcined montmorillonite, kaolinite, micas (illite), vermiculites, zeolites, calcium carbonate (organic free limestone); oxides/hydroxides, alumina, lime, silica (sand), diatomaceous earth, perlite (volcanic glass); expanded volcanic rock, volcanic ash, cement kiln dust; fly ash; rice hull ash; activated charcoal/activated carbon); or

N.4.1.2. High molecular weight synthetic polymers (e.g. polyethylene, high-density polyethylene (HDPE), polypropylene, polystyrene, polyurethane, polyacrylate, polynorborene, polyisobutylene, ground synthetic rubber, cross-linked allylstryrene and tertiary butyl copolymers). This does not include polymers derived from biological materials or polymers specifically designed to be degradable; or

N.4.1.3. Mixtures of these non-biodegradable materials. [6 CCR 1007-3 §264.314(e)(1)]

N.4.2. Tests for non-biodegradable sorbents.

N.4.2.1. The sorbent material is determined to be non-biodegradable under ASTM Method G22-70 (1984a)-Standard Practice for Determining Resistance of Synthetic Polymer Materials to Fungi; or

N.4.2.2. The sorbent material is determined to be non-biodegradable under ASTM Method G22-76 (1984b)-Standard Practice for Determining the Resistance of Plastics to Bacteria; or

N.4.2.3. The sorbent material is determined to be non-biodegradable under the Organization for Economic Cooperation and Development (OECD) Test 301B: [CO_2 Evolution (Modified Sturm Test, July 1992]. [6 CCR 1007-3 §264.314(e)(2)]

N.5. The placement of any free liquid, including a hazardous waste, in a secure cell is prohibited. [6 CCR 1007-3 §264.314(f)]

O. SPECIAL REQUIREMENTS FOR CONTAINERS

O.1. Unless they are very small, such as an ampule, containers will either be:

- At least 90 percent full when placed in the secure cells; or
- Emptied and crushed flat, shredded, or similarly reduced in volume to the maximum practical extent before burial in the secure cells. [6 CCR 1007-3 §264.315]

O.2. Drummed materials with no free liquid and measurable void space will be treated as follows:

- Drums with less than 15% void space may be topped off with filler material. Filler will consist of clean fill material or compatible waste.
- Drums with greater than 15% void space will be processed through the treatment system in the Containment Building prior to secure cell disposal.

O.3. Drums containing liquids, semi-solid, or solid waste material with free liquids will be processed in the treatment system in the Containment Building. Drums will be emptied and crushed or shredded (with or without their contents) prior to secure cell disposal.

P. DISPOSAL OF SMALL CONTAINERS OF HAZARDOUS WASTE IN OVERPACKED DRUMS (LAB PACKS)

Small containers of hazardous waste in overpacked drums (LAB packs) may be placed in a secure cell if the following requirements are met:

P.1. Hazardous waste must be packaged in non-leaking inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by the contained waste. Inside containers must be tightly and securely sealed. The inside containers must be of the size and type specified in the Department of Transportation (DOT) hazardous materials regulations (49 CFR parts 173, 178, and 179), if those regulations specify a particular inside container for the waste. [6 CCR 1007-3 §264.316(a)]

P.2. The inside containers must be overpacked in an open head DOT-specification metal shipping container (49 CFR Parts 178 and 179) of no more than 416-liter (110 gallon) capacity and surrounded by, at a minimum, a sufficient quantity of sorbent material, determined to be nonbiodegradable in accordance with Permit Condition V.N.4., to complete sorb all of the liquid contents of the inside containers. The metal outer container must be full after it has been packed with inside containers and sorbent material. [6 CCR 1007-3 §264.316(b)]

P.3. The sorbent material used must not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers in accordance with 6 CCR 1007-3 §264.17(b). [6 CCR 1007-3 §264.316(c)]

P.4. Incompatible wastes, as defined in 6 CCR 1007-3 §260.10, must not be placed in the same outside container. [6 CCR 1007-3 §264.316(d)]

P.5. Reactive wastes, other than cyanide- or sulfide-bearing waste as defined in 6 CCR 1007-3 §261.23(a)(5), must be treated or rendered non-reactive prior to packaging in accordance with Permit Conditions V.P.1 through V.P.4. Cyanide- and sulfide-bearing reactive waste may be packed in accordance with Permit Conditions V.P.1. through V.P.4. without first being treated or rendered non-reactive. [6 CCR 1007-3 §264.316(e)]

P.6. Such disposal is in compliance with the requirements of 6 CCR 1007-3 Part 268 and Permit Condition VI.B.5. [6 CCR 1007-3 §264.316(f)]

Q. SPECIAL REQUIREMENTS FOR HAZARDOUS WASTES F020, F021, F022, F023, F026, AND F027

The Permittee must manage hazardous wastes F021, F021, F022, F023, F026, and F027 in accordance with the following "Dioxin Management Plan".

Q.1. Waste Analysis

Q.1.1. The Permittee shall follow the procedures in Section III.F.4. of the Waste Analysis Plan, Permit Attachment 2 for pre-acceptance of hazardous wastes F020 through F023, F026 and F027.

Q.1.2. The Permittee shall follow the procedures in Section IV.B.4. of the Waste Analysis Plan, Permit Attachment 2 for on-site acceptance of the hazardous wastes F020 through F023, F026 and F027.

Q.2. Waste Receiving and Handling

Q.2.1. Waste containers will be kept closed or tarped except during the process of waste sampling and waste unloading into either the unloading area of the treatment basins or the landfill.

Q.2.2. Dioxin and furan wastes may be treated to meet other treatment standards, such characteristic metals, load bearing, reduction of dust generations potential, free-liquids criteria or other treatment without approval by the Division.

Q.2.3. For wastes which require treatment prior to secure cell disposal, the following unloading procedures at the Treatment Building will be followed to minimize particulate dispersion:

Q.2.3.1. Untarping of bulk loads and/or opening of containers will occur only at the time of unloading or sampling. No load will be untarped or opened prior to positioning the truck and/or container inside the Treatment building.

Q.2.3.2. Bulk loads will be checked prior to commencing unloading to determine if the addition of water is required to minimize dust generation. Water will be applied to dry waste material during unloading inside the Treatment Building to minimize dust.

Q.2.4. Unloading at the secure cell will be in accordance with the following to minimize particulate dispersion:

Q.2.4.1. Trucks or containers will not be uncovered until they are in the unloading position in the landfill.

Q.2.4.2. Dioxin and furan waste placed in the landfill must be covered as soon as transfer and placement activities for that waste are completed. If a campaign or batch is only partially transferred and placed in the cell and a break in the transfer or placement process is necessary, then the waste must be covered.

Q.3. Co-Disposal Compatibility

The waste addressed by this management plan shall not be received at the Facility unless the residual dioxin and furan constituent concentrations meet the treatment standard established in 40 CFR

and/or 6 CCR 1007-3, §268.40. This requirement combined with the waste compatibility review procedures outlined in the WAP will ensure these wastes are compatible with co-disposed waste in the cell.

Q.4. Environmental Monitoring and Secure Cell Inspection

Secure Disposal Cell Operations include scheduled inspections to verify that the physical integrity of the cell liner systems is maintained. The inspection requirements are outlined in Inspection Plan, Attachment 3. The inspection, sampling and analysis of collected liquids from the Leachate Collection System and the Leak Detection System will be performed as described by the Inspection Plan.

PART VII: GROUNDWATER PROTECTION PROGRAM

The Permittee shall perform groundwater monitoring following the requirements of 6 CCR 1007-3 Part 264 Subpart F, following the requirements of this Permit Part, and following the requirements of the Groundwater Sampling and Analysis Plan, Attachment 8 of this Permit.

A. WELL LOCATION AND CONSTRUCTION

A.1. The Permittee shall maintain groundwater monitoring wells at the Compliance Point and other designated locations in accordance with: 6 CCR 1007-3 §264.15, §264.91, §264.95, and §264.97, and the schedules, maps, and specifications in this Permit. The Permittee shall use the document, USEPA OSWER Directive 9950.1 dated September 1986, titled *RCRA Groundwater Monitoring Technical Enforcement Guidance Document* and the USEPA document dated November 1992, titled *RCRA Ground-Water Monitoring: Draft Technical Guidance* as guidance for constructing and maintaining the groundwater monitoring wells.

A.1.1. The groundwater monitoring well system must consist of a sufficient number of wells, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer below the facility where saturated conditions exist or may be likely to occur in the future.

A.2. Compliance Point and Compliance Boundary are equivalent terms, defined as the continuous surface extending down into the upper most saturated strata within unweathered Pierre Shale bedrock, from a line at the ground surface at the outer perimeter of: the seven secure cells which can be constructed under this Permit, the Treatment Building, Segregated Stormwater Retention Basin, including the perimeter berm around the waste processing area.

A.2.1. If sand zones are removed at the Compliance Boundary as required in Permit Condition VI.D.4., the Compliance Boundary shall be adjusted (if necessary) to include the outer limit of all removed sand.

A.2.2. At the beginning of the Facility post-closure period, after Department acceptance of closure certifications for all waste management structures and areas, the Compliance Boundary may be moved to the outer perimeter of the completed Secure Cell Area.

A.2.3. During a Corrective Action Compliance Period, which may begin before Closure, and which involves or may involve areas outside the completed Secure Cell Area, the Department may maintain all or part of the Compliance Boundary at its original location.

A.3. The locations of the monitoring wells and monitoring points are shown in Figure 1 of Attachment 8. The points are defined by and the wells are screened in different and distinct hydro-stratigraphic units (called "Zones"), as described below:

A.3.1. The Level 1 (L1) Zone is defined as the Leachate Collection System in each individual Secure Cell. Each Leachate Collection System shall be constructed according to the Plans and Specifications in Permit Attachment 10, construction of each Leachate Collection System shall be inspected according to the Construction Quality Assurance/Quality Control Procedures contained in Permit Attachment 10, and the each system shall be operated and maintained according to Permit Conditions VI.C.4.

A.3.2. The Level 2 (L2) Zone is defined as the Leak Detection System in each individual Secure Cell. The Leak Detection System consists of a geocomposite drainage layer between the primary and secondary liners and the Permanent Sump which is a drainage layer underlying the

secondary liner sump area. Each Leak Detection System and Permanent Sump shall be constructed according to the Plans and Specifications contained in Permit Attachment 10, construction of each Leak Detection System shall be inspected according to the Construction Quality Assurance/Quality Control Procedures contained in Permit Attachment 10 and each system shall be operated and maintained according to Permit Conditions VI.C.5.

A.3.3. The Level 3 (L3) Zone is defined as the discrete lenticular sand body that occurs within the surficial Silty Clay Unit. Level 3 Wells located along the compliance boundary have been installed at 50-foot intervals adjacent to secure cells along potential fluid migration pathways in the Sand Unit. The number and location of all new Level 3 wells shall be approved by the Department, in writing, prior to installation.

A.3.4. The Level 4A (L4A) Zone is defined as the interface between the Surficial Silty Clay Unit and the underlying weathered Pierre Shale. Level 4A Monitoring Wells have been installed at 100-foot intervals in those areas where the L4A Zone is saturated. The number and location of all new Level 4A wells shall be approved by the Department, in writing, prior to installation.

A.3.5. The Level 4 (L4) Zone is defined as the interface between the weathered Pierre Shale and the underlying unweathered Pierre Shale. Level 4 Zone Monitoring Wells have been installed at 300-foot intervals along the compliance boundary in unsaturated conditions, at 100-foot intervals in saturated conditions, and around each secure cell. The number and location of additional L4 Monitoring Wells around each secure cell shall be approved by the Department, in writing, prior to installation. Additional L4 Monitoring Wells shall be installed on a schedule to allow collection of complete (four quarters) background sample data from the wells, prior to receipt of wastes in any secure cell.

A.3.6. The Level 5 (L5) Zone is defined as the uppermost saturated, water producing, portion of the unweathered Pierre Shale. There are eight Level 5 Monitoring Wells that are approximately equally spaced around the Compliance Boundary.

A.3.7. The Level 6 (L6) Zone is defined as the first occurrence of saturated conditions in the alluvial drainages outside the Compliance Boundary.

A.4. Additional saturated zone or sand zone monitoring wells shall be installed to maintain compliance with Section VII.A.1. if subsurface conditions or the Department's or Permittee's knowledge of those conditions significantly change after Permit issuance. Such changes may include, but are not limited to, water level elevation or apparent flow direction changes, detection of water in previously dry observation wells, detection of saturated conditions below a leak detection system sump, detection of solvents or other potentially sorbing or leaching organic compounds in a well or nearby well, or discovery of previously unknown sand or silt strata during cell excavation or other exploration. [6 CCR 1007-3 §264.15, §264.91(b), §264.92, §264.97]

A.5. The Department may require the Permittee to install and sample additional wells at any time during active life, Closure, Post-Closure or compliance periods if new information or unforeseen circumstances reveal a need for them. [6 CCR 1007-3 §264.15, §264.31, §264.91, §264.94, §264.95, §264.97, §264.98, §264.99, §264.100]

A.6. The Permittee shall construct additional or replacement monitoring wells in accordance with 6 CCR 1007-3 Part 264, Subpart F; USEPA OSWER Directive 9950.1, titled *RCRA Groundwater Monitoring Technical Enforcement Guidance Document;* USEPA Publication 600/4-89/034, titled *Handbook of Suggested Practices for the Design and Installation of Ground-Water Monitoring*

Wells; the USEPA document dated November 1992, titled *RCRA Ground-Water Monitoring: Draft Technical Guidance* and the following requirements.

A.6.1. An experienced professional geologist or engineer shall supervise all work installation activities and report preparation.

A.6.2. All cores shall be cataloged, boxed and stored for two years from the date of installation. The well log will be available for Department inspection, for the operating life of the Facility.

A.6.3. Groundwater samples must not be adversely affected by well construction materials.

A.6.3.1. The Department must be notified and an evaluation must be performed, if the detection of contaminants, as defined by Permit Condition VII.C.3, in any monitoring well, may have been introduced by, adsorbed to, or leached from the construction materials used in the well.

A.6.3.2. The notification procedures of Permit Condition VII.D.3. shall be followed.

A.6.3.3. The evaluation shall include, but not be limited to, a demonstration and assessment that the well produces samples that are representative of the groundwater in the geologic formation surrounding the well and a determination as to whether the well should be replaced. The evaluation must be submitted within 30 days of the notification of the detection of the contaminants.

A.6.4. Replacement wells must be located within ten feet from an original well or in an alternate location approved by the Department.

A.6.5. A minimum of one sample from each source of water introduced into wells to complete drilling work, logging, cleaning, or for any other reason, shall be analyzed for the parameters in Table VII–3. .

A.6.6. All equipment introduced into a well bore must be steam cleaned, or washed with hot water and laboratory detergent (e.g. Alconox or equivalent) and thoroughly rinsed with distilled water, prior to introduction.

A.6.7. Well intakes must be designed and constructed to allow sufficient groundwater flow to the well for sampling; minimize the passage of formation, filter pack, or other materials into the well; and ensure sufficient structural integrity to prevent collapse of the well.

A.6.7.1. All screen material must be factory slotted.

A.6.7.2. Filter pack material shall be installed between the formation and screen.

A.6.7.2.1. Filter material shall be clean quartz sand or chemically inert beads (e.g. silica or glass).

A.6.7.2.2. Filter pack should not extend more than two feet above the screen.

A.6.7.2.3. Filter pack grain size and screen slot size shall be chosen to optimize the performance of the well as specified above.

A.6.7.3. Each well completed in a saturated zone must be developed to restore the natural hydraulic conductivity of the formation adjacent to the screen and to remove turbidity.

A.6.7.3.1. Surge blocks, bailers or pumps may be used for development. Compressed air surging shall not be used.

A.6.7.3.2. Following installation, wells shall be developed until the turbidity of the groundwater is less than five Nephelometric Turbidity Units (NTUs). If the Permittee cannot reach this standard, the Permittee shall document in the operating record these wells and the development procedures and documentation . The Permittee shall also evaluate the validity of the data obtained from the wells, during each sampling event. Documentation of this evaluation shall be contained in the Semi-annual Monitoring Reports.

A.6.7.4. Monitoring wells completed in zones which do not produce water or do not produce enough water to develop the well shall not be developed at the time of installation.

A.6.7.4.1. Upon discovery of water in a previously dry L4A, L4, L5 or L6 well at an elevation at or above the top of the screen in the course of monitoring or inspection, the well shall be developed as specified in section VII.A.6.7.3).

A.6.8. At least two feet of bentonite pellets followed by bentonite-Portland cement mixtures of anti-shrink cement mixtures must be used as sealants in the annular space above the screen and filter pack, to within ten feet from the surface.

A.6.8.1. A tremie pipe shall be used to place cement or other slurry in the annular space.

A.6.8.2. The upper ten feet (approximately) of the annular space shall be sealed with cement, blending into a concrete apron extending at least three feet around the surface casing.

A.6.9. Steel surface casing with locking security caps shall be provided for all wells, whether dry or water producing.

A.6.10. Completion and development reports for each well must include at least the following information.

- Date(s) of drilling, completion and development.
- Drilling method and fluid(s) used; Reference to source and analysis of any introduced water.
- Well location, referenced to site within grid 0.5 foot.
- Bore and casing(s) diameter(s).
- Total depth, within 0.1 foot.
- Drilling and lithologic logs.
- Casing and sump material specification and size; Reference material certification.
- Screen material, slot size and type, installed depth to top of screen and length.
- Casing and screen joint type.

- Filter pack material source, complete grain size analysis and D10 grain size estimated from specifications provided by sand supplier.
- Filter pack volume.
- Filter pack placement method.
- Sealant material source(s), type(s), mix design.
- Sealant volume.
- Sealant placement method.
- Surface seal design.
- Well development procedures, including equipment and methods used, total daily amounts of water removed, recovery rates, and turbidity and water surface elevation measurements during development.
- Description of protective cap.
- Surveyed ground and well reference elevations (concrete apron, top of surface and well casings).
- Detailed drawing of well, with dimensions.

A.6.11. The Permittee shall conduct in situ permeability test in each new well that exhibits sufficient water to properly conduct an in-situ test.

A.6.12. Abandoned wells and borings shall be plugged to avoid providing a potential preferential flow conduit.

A.6.12.1. Abandoned wells shall be either auger-reamed to remove the casing, screen and filter pack, or pressure grouted across the screened interval with expanding neat cement.

A.6.12.2. Boreholes not used to construct monitoring wells, and reamed or grouted wells, shall be filled within five feet or less from the surface with tamped bentonite pellets or bentonite-cement slurry.

A.6.13. Level 5 Wells: Air rotary technique shall be employed to drill Level 5 boreholes.

A.6.13.1. Temporary surface casing may be installed in auger borings not to exceed 30 feet in depth.

A.6.13.2. Air supply shall be filtered or provided with an efficient separator to minimize water or compressor oil introduced into the well bore.

A.6.13.3. Auger and air cutting shall be continuously inspected and logged. Cuttings shall be observed carefully to detect and quantify sand content.

A.6.13.4. Cores shall be taken at each lithologic change and through anticipated water producing strata.

A.6.13.5. Potable water may be used to complete drilling, cleaning and geophysical logging of boreholes after the first water producing zone is penetrated.

A.6.13.6. Schedule 80 polyvinyl chloride casing and screen with flush threaded couplings may be used in the monitoring program, as long as performance standards (for representative samples of groundwater) are met.

A.6.13.7. PVC material shall meet National Sanitation Foundation and/or ASTM material specifications.

A.6.13.8. Construction material shall be at a minimum four inch nominal diameter.

A.6.13.9. Screens shall be a maximum of 20 feet in length, centered at the first water producing zone penetrated during drilling.

A.6.14. Level 4 Wells: Air rotary or hollow stem auger techniques shall be employed to drill Level 4 wells. If air rotary technique is utilized the procedure specified in Permit Condition VII.A.6.13 shall be utilized.

A.6.14.1. PVC casing and screen may be used, as specified for Level 5 wells in Permit Condition VII.A.6.13, except Level 4 screens shall be 10 feet or less in length, centered at the weathered/unweathered bedrock interface.

A.6.15. Level 3 Wells: Level 3 well bores shall be continuous core drilled, sampled by split spoon or equivalent, then augured to complete the boring.

A.6.15.1. PVC casing and screen material may be used, as specified in Permit Condition VII.A.6.13. as long as performance standards are met.

A.6.15.2. Screened intervals for dry sand zone wells shall not extend above the sand, and not exceed ten feet in length, beginning one to two feet below the bottom of the sand lens and extending upward to penetrate into the sand.

A.6.15.3. Screened intervals for shallow saturated zone wells shall not exceed ten feet in length, centered at the stable water table elevation determined immediately after drilling of the wells.

A.7. The Permittee shall submit monitoring well completion reports to the Department within 60 days after completion.

B. MONITORING PROGRAMS

B.1. The Groundwater Protection Program shall consist of three monitoring programs: 1) the Secure Cell and Surface Impoundment Performance Monitoring Program, 2) the Inspection Well Monitoring Program, and 3) the Detection Well Monitoring Program.

B.2. The Permittee shall perform data collection and data evaluation for each of the three programs at the frequencies outlined in Table VII-1.

B.3. The Permittee shall establish the background data pool for all new or replacement wells and previously dry wells which contain water by collecting at least four consecutive quarterly samples. If water is found in a well at least once, but less than four times during a background sample collection period, the data obtained during that period will be considered the background data.

B.4. Prior to taking water level elevation measurements, purging, or sampling each well, the well will be inspected. The condition of each well will be noted on the inspection log.

B.5. Water level measurements will be collected quarterly on all wells, including wells that have been historically dry.

B.5.1. Upon discovery of water in a previously dry well, Permit Condition VII.A.6.7.4) will be implemented.

B.5.2. Wells for which the water level elevation is below the screened interval will not be sampled.

B.6. Monitoring wells will be classified based on recovery rate as follows:

B.6.1. A high yield well is defined as a well that recovers at least 90% of its initial water level within 12 hours, per Attachment 8. High yield wells will be purged a minimum of three casing volumes, or until field parameters (pH and specific conductance) have stabilized, which ever is later.

B.6.2. A low yield well is defined as a well that takes longer than 12 hours to recover, per Attachment 8, Condition III.A.2. Low yield wells will be purged by removing the standing volume of water from the well.

B.7. Sampling will be performed on high yeild wells only according to the procedures in the Groundwater Sampling and Analysis Plan, Permit Attachment 8.

B.7.1. Sampling of high yield wells will be completed within 24 hours from the time the last well volume was purged.

B.7.2. Sampling of low yield wells will not be done.

B.7.3. If a sufficient amount of water is unobtainable for any analysis the well will be considered dry for that sampling event.

B.8. Monitoring Parameters

B.8.1. The Permittee shall analyze groundwater samples in accordance with the methods specified in the Groundwater Sampling and Analysis Plan, Permit Attachment 8.

B.8.2. The Permittee shall analyze groundwater samples taken for the purpose of establishing background for the parameters listed in Table VII-2.

B.8.3. The Permittee shall analyze groundwater samples taken from the inspection and detection monitoring wells, Secure Cell Leak Detection Systems, Permanent Sumps, and the Treatment Building Leak Detection System for the parameters listed in Table VII-3 and VII-4

B.8.4. In addition, the Permittee shall analyze groundwater samples from the Level 4 wells for the parameters listed in 6 CCR 1007-3 Part 264, Appendix IX once every five years. The Permittee shall perform the first Appendix IX analysis five years from the most recent Appendix IX analysis.

B.8.5. The Permittee shall analyze samples from the Secure Cell Leachate Collection Systems for the all of the parameters listed in 6 CCR 1007-3 §268.40 for waste code F039 once every five years.

The LCS will be sampled at the frequency specified in Table VII-1 and analyzed for the chemicals detected in the most recent complete F039 analysis.

B.8.6. The Permittee shall annually evaluate the results of the analysis from the Leachate Collection System to determine if new parameters must be added to Table VII-3. This evaluation shall be submitted to the Department 30 days prior to the first sampling event of each calendar year. The Department will approve the evaluation prior to the sampling event.

B.9. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually. The determination shall include an evaluation of the groundwater flow patterns in any perched zones. If there is no definable hydraulic gradient, this must be demonstrated by, at a minimum, mapping the water level elevations. This map must be included in the Annual Monitoring Report.

C. DATA EVALUATION

C.1. The Quarterly and Semiannual Monitoring Reports shall include hydrographs illustrating water level elevations.

C.2. A data validation procedure was submitted to the Department 30 days prior to the second quarter of 1998 sampling event.

C.2.1. The data validation procedure was approved by the Department and incorporated into the Permit , Attachment 8, Appendix 9..

C.2.2. The data validation procedure shall be used to evaluate the validity of all data prior to performing a statistical analysis of the data

C.3. Data evaluation shall be performed at the frequencies indicated in Table VII-1.

C.3.1. The Permittee must determine if there is a statistically significant increase over the background value or applicable tolerance level for each of the inorganic Detection Monitoring Parameters contained in Table VII-3.

C.3.2. For the Organic Parameters listed in Table VII-3, any detectable quantity beyond the reportable detection limit (as defined in Table VII-2 and VII-3) in any detection monitoring well is considered significant and subject to the requirements of Permit Condition VII.D.3.

C.3.3. The Permittee must determine if there is a significant trend variation over the background value for each of the General Groundwater Quality Parameters contained in Table VII-4

C.4. Statistical Procedures

C.4.1. Trend analysis shall be performed to identify temporal changes in the data sets that may result from natural changes in the composition of the secure cell fluids and groundwater in the hydrostratigraphic units at the Facility and to evaluate the suitability of the current indicator parameters for making evaluation regarding potential, releases from the secure cells.

C.4.2. Comparative statistical analyses will be performed to identify significant changes in water quality that may indicate a release.

C.5. All statistical tests will be performed at the 95 percent level of significance.

C.6. Data for each inorganic parameter in Table VII-3 will be used for each individual well and sump for trend analyses.

C.7. Data handling procedures for statistical analyses:

C.7.1. When parameter concentrations are not quantified below the detection levels for the chemicals presented in Tables VII-3, simple substitution of one half the parameter-specific detection level will be used to modify the data set for graphical presentation and, where necessary, to perform the statistical analyses.

C.7.2. Plots of logarithmic data, such as pH and log-transformed data, may be shown on semi-log plots to facilitate linear trend analysis.

C.7.3. Parameter values for duplicate samples will not be averaged for statistical analyses; the original value will be used, unless rejected as a result of poor quality.

C.7.4. Trend analyses are not required for monitoring parameters that have less than 10 detections in the background database.

C.8. Background database:

C.8.1. The background database for each secure cell leachate collection system and leak detection system, and the Treatment Building leak detection system, will consist of all data obtained from the system that meet the criteria listed in Permit Condition VII.C.8.3..

C.8.2. The background database for each monitoring well will consist of data obtained prior to waste acceptance at the Facility (or waste acceptance into each individual secure cell) and data obtained after waste acceptance that meets the criteria in Permit Condition VII.C.8.3.

C.8.3. The following procedures will be used to evaluate new data for incorporation into the background database.

C.8.3.1. The data validation procedure will be completed. In the event that data of questionable quality are identified, samples will either be reanalyzed or resampling will be recommended. The Quality Control (QC) and other data will be evaluated to reach decisions regarding the useability of the original data. Errors, corrections, or deletions will be reported and discussed in the quarterly and semiannual reports.

C.8.3.2. Outlier tests and trend analyses will also be used to identify data that may be of questionable quality. Notable changes in these analyses will prompt a review of the QC data and supporting documentation to determine what may have caused the change. When changes in descriptive statistics or trend analyses occur, QC data will be reviewed to determine whether poor data quality may have been a contributing factor.

C.8.3.3. Data that show no statistically significant difference (i.e., 95 percent level of significance) from previous background data will be included in the background database. Data that show a statistically significant difference from the background will not be included unless those data are shown to be truly valid and representative based on an evaluation of the next sampling event data.

C.9. The specific statistical methods to be used to perform the statistical evaluations required by this section of the Permit are found in Attachment 8, Appendix 10 of this permit. The methods selected comply with Permit Condition VII.C. and 6 CCR 1007-3 §264.97.

C.10. The Permittee shall perform the data evaluations and statistical procedures within 45 days after the Permittee receives the final laboratory results for the sampling event. The data must be received with sufficient time to allow its incorporation into the required reports. [6 CCR 1007-3 §264.98(f)(2)]

D. RECORD KEEPING AND REPORTING

D.1. The Permittee must record, as it becomes available, all monitoring, sampling, testing, and analytical data obtained in accordance with this Permit Part in the operating record. The data must include a summary of all computations (including example calculations, data for each calculation, each measured, known, or estimated value so that each calculation can be verified) required by this Permit.

D.2. The Permittee must submit all analytical results and the results of the statistical analyses obtained for the Secure Cell and Surface Impoundment Performance Monitoring Program, Inspection Well Monitoring Program, and Detection Well Monitoring Program, within 90 days after the samples are collected.

D.2.1. The complete Semi-Annual Monitoring Reports for the Secure Cell and Surface Impoundment Performance Monitoring Program, Inspection Well Monitoring Program, and Detection Well Monitoring Program shall include all data, field reports, descriptions of anomalous or unexplained data, new or increased concentrations, quality control, and any other problems.

D.2.2. A complete Annual Data Evaluation Reportshall include the annual evaluation of the detection monitoring parametersand the annual determination of groundwater flow and directions. This report shall be submitted within 30 days after the submission of the second semi-annual report.

D.3. If the Permittee determines, pursuant to Permit Condition VII.C.3., there is a statistically significant increase for any of the detection monitoring parameters (Table VII-3), the Permittee must:

D.3.1. Notify the Department in writing within seven days. [6 CCR 1007-3 §264.98(g)(1)]

D.3.2. When the well or sump has recovered sufficiently to produce a complete set of aliquots, the Permittee shall immediately resample the well or sump from which the exceedance data was obtained and analyze for the parameters in Table VII-2. The results of the sample analysis shall be submitted to the Department as soon as possible, but in no case more than 45 days after collection.

D.3.2.1. The Permittee shall determine whether the resampling data confirms the initial exceedance or excursion indication, and submit a written Resampling Evaluation Report to the Department within seven days after receipt of the analyses. The Resampling Evaluation Report must include determination of the joint probability of occurrence of concentrations of organic hazardous waste constituents found in the initial excursion data set and resampling data.

D.3.2.2. The Permittee shall follow the procedures contained in Permit Sections VII.D.4. through VII.D.7. if the resampling confirms a significant increase in a Detection Monitoring Well.

D.4. If the resampling confirms a significant increase in a Detection Monitoring Well, the Permittee shall immediately resample the groundwater in all wells in which the significant increase occurred. The samples shall be analyzed for all constituents in 6 CCR 1007-3 §264, Appendix IX.

D.5. The Permittee shall establish the compliance monitoring constituent list using the Appendix IX groundwater analytical results. [6 CCR 1007-3 §264.98(g)(3)]

D.6. Within 90 days of the resampling confirmation of a detection monitoring parameter, submit to the Department a permit modification request to establish a compliance monitoring program meeting the requirements of 6 CCR 1007-3 §264.99. The modification request must include the following information: [6 CCR 1007-3 §264.98(g)(4)]

D.6.1. An identification of the concentration of each Appendix IX constituent found in the groundwater at the each monitoring well at the compliance point. [6 CCR 1007-3 §264.98(g)(4)(I)]

D.6.2. Any proposed changes to the groundwater monitoring system at the Facility necessary to meet the requirements of compliance monitoring as described in 6 CCR 1007-3 §264.99. [6 CCR 1007-3 §264.98(g)(4)(ii)]

D.6.3. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures at the Facility necessary to meet the requirements of compliance monitoring as described in 6 CCR 1007-3 §264.99. [6 CCR 1007-3 §264.98(g)(4)(iii)]

D.6.4. For each hazardous constituent found at the compliance point, a proposed concentration limit, or a notice of intent to seek an alternate concentration limit for a hazardous constituent. [6 CCR 1007-3 §264.98(g)(4)(iv)]

D.7. Submit a corrective action feasibility plan to the Department within 180 days. [6 CCR 1007-3 §264.98(g)(5)]

D.8. If the Permittee determines pursuant to Permit Condition VII.D.3.2, there is a statistically significant increase above the background values for the parameters specified in Permit Condition VII.B.8.2, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. In such cases, the Permittee must:

D.8.1. Notify the Department in writing within seven (7) days that he intends to make a demonstration. [6 CCR 1007-3, Section 264.98(g)(6)(I)]

D.8.2. Within 90 days, submit a report to the Department that demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. [6 CCR 1007-3, §264.98(g)(6)(ii)]

D.8.3. Within 90 days, submit to the Department an application for a permit modification to make any appropriate changes to the detection monitoring program at the facility if necessary. [6 CCR 1007-3 § 264.98)g)(6)(iii)]

D.8.4. Continue to monitor in accordance with the compliance and corrective action monitoring program at the facility. [6 CCR 1007-3, §264.98(g)(6)(iv)]

E. COMPLIANCE SCHEDULE – RESERVED

TABLES

FREQUENCY OF DATA COLLECTION AND EVALUATION
(TABLE VII-1)

Monitoring Location	Monitoring Program	Data Collection Frequency		Data Evaluation Frequency		
		Hydraulic Measurements	Sampling and Lab Analysis (if appropriate)	Descriptive Statistics	Comparative Statistics	Trend Analyses
Secure Cell LCS	Secure Cell Performance Monitoring	Weekly	Annually	NA	NA	NA
Secure Cell LDS	Secure Cell Performance Monitoring	Weekly	Semiannually	NA	NA	NA
Secure Cell Permanent Sump	Secure Cell Performance Monitoring	Weekly	Semiannually	NA	NA	NA
Treatment Building LDS	Surface Impoundment Performance Monitoring	Weekly	Semiannually	NA	NA	NA
BP Wells	Inspection Monitoring	Quarterly	NA	NA	NA	NA
Level 3 Wells	Inspection Monitoring	Quarterly	Semiannually	Semiannually	Semiannually	Semiannually
Level 4A Wells	Detection Monitoring	Quarterly	Semiannually	Semiannually	Semiannually	Semiannually
Level 4 Wells	Detection Monitoring	Quarterly	Semiannually	Semiannually	Semiannually	Semiannually
Level 5 Wells	Detection Monitoring	Quarterly	Semiannually	Semiannually	Semiannually	Semiannually
Level 6 Wells	Inspection Monitoring	Quarterly	Semiannually	Semiannually	Semiannually	Semiannually

BACKGROUND MONITORING PARAMETERS
(TABLE VII-2)

ANALYTE	CAS Number	Minimum Detection Limit	Units	Analysis Method *
PHYSICAL PROPERTIES				
pH	N/A	N/A	N/A	Field
Specific Conductance	N/A	1	umhos/cm	Field
Turbidity	N/A	1.0	NTU	Field
Total Dissolved Solids	n/a	21	mg/l	EPA 160.1
INORGANIC, NON-METALLICS				
Total alkalinity	71-52-3	5	mg/l	EPA 310.1
Chloride	16887-00-6	3	mg/l	EPA 325.2
Fluoride, Free	16984-48-8	0.1	mg/l	EPA 340.2
Nitrogen, Ammonia	N/A	0.1	mg/l	EPA 350.1
Nitrogen, Nitrate-Nitrite	N/A	1.0	mg/l	EPA 353.2
Sulfate	14808-79-8	5.0	mg/l	EPA 375.4
Radium	7440-14-4	3	pCi/l	EPA 903 or SW-846 9320
Gross Alpha, Gross Beta	N/A	3	pCi/l	EPA 900 or SW-846 9310
ORGANICS				
Total Organic Carbon (TOC)	N/A	1.0	mg/l	EPA 415.1
Total Organic Halides (TOX)	N/A	10	ug/l	SW846 9020

ANALYTE	CAS Number	App. IX PQL (ug/L)	Minimum Detection Limit** (ug/L)	Analysis Method *
METALS				
Antimony	7440-36-0	300	10	SW846 6010
Arsenic	7440-38-2	500	15	SW846 6010
Barium	7440-39-3	20	50	SW846 6010
Beryllium	7440-41-7	3	50	SW846 6010
Cadmium	7440-43-9	40	10	SW846 6010
Chromium	7440-47-3	70	50	SW846 6010
Copper	7440-50-8	60	50	SW846 6010
Iron	7439-89-6	N/A	100	SW846 6010
Lead	7439-92-1	40	20	SW846 6010
Manganese	7439-96-5	N/A	50	SW846 6010
Mercury	7439-97-6	2	0.5	SW846 7470
Nickel	7440-02-0	50	50	SW846 6010
Selenium	7782-49-2	750	15	SW846 6010
Silver	7440-22-4	70	50	SW846 6010
Sodium	7440-23-5	N/A	1,000	SW846 6010
Thallium	7440-28-0	400	50	SW846 6010
Zinc	7440-66-6	20	50	SW846 6010
VOLATILE ORGANICS				
Benzene	71-43-2	5	5	SW-846 8260
Bromodichloromethane	75-27-4	5	5	SW-846 8260
Bromoform (Tribromomethane)	75-25-2	5	5	SW-846 8260
Bromomethane	74-83-9	10	10	SW-846 8260
Carbon tetrachloride	56-23-5	5	5	SW-846 8260

BACKGROUND MONITORING PARAMETERS
(TABLE VII-2)

ANALYTE	CAS Number	App. IX PQL (ug/L)	Minimum Detection Limit** (ug/L)	Analysis Method *
Chlorobenzene	108-90-7	5	5	SW-846 8260
Chloroethane	75-00-3	10	10	SW-846 8260
2-Chloroethyl vinyl ether	110-75-3	n/a	10	SW-846 8260
Chloroform	67-66-3	5	5	SW-846 8260
Chloromethane	74-87-3	10	10	SW-846 8260
Dibromochloromethane	124-48-1	5	5	SW-846 8260
1,1-Dichloroethane	75-34-3	5	5	SW-846 8260
1,2-Dichloroethane	107-06-2	5	5	SW-846 8260
trans-1,2-Dichloroethene	156-60-5	5	5	SW-846 8260
1,1-Dichloroethene	75-35-4	5	5	SW-846 8260
1,2-Dichloropropane	78-87-5	5	5	SW-846 8260
cis-1,3-Dichloropropene	10061-01-5	5	5	SW-846 8260
trans-1,3-Dichloropropene	10061-02-6	5	5	SW-846 8260
Ethylbenzene	100-41-4	5	5	SW-846 8260
Methylene chloride (Dichloromethane)	75-09-2	5	10	SW-846 8260
1,1,2,2-Tetrachloroethane	79-34-5	5	5	SW-846 8260
Tetrachloroethene	127-18-4	5	5	SW-846 8260
Toluene	108-88-3	5	5	SW-846 8260
1,1,1-Trichloroethane	71-55-6	5	5	SW-846 8260
1,1,2-Trichloroethane	79-00-5	5	5	SW-846 8260
Trichloroethene	79-01-6	5	5	SW-846 8260
Trichlorofluoromethane	75-69-4	5	10	SW-846 8260
Vinyl chloride	75-01-4	10	10	SW-846 8260
SEMIVOLATILE COMPOUNDS (ACID/BASE/NEUTRAL EXTRACTABLES)				
Acenaphthene	83-32-9	10	10	SW-846 8270
Acenaphthylene	208-96-8	10	10	SW-846 8270
Anthracene	120-12-7	10	10	SW-846 8270
Benzidine	92-87-5	n/a	100	SW-846 8270
Benzo(a)anthracene	56-55-3	10	10	SW-846 8270
Benzo(a)pyrene	50-32-8	10	10	SW-846 8270
Benzo(b)fluoranthene	205-99-2	10	10	SW-846 8270
Benzo(g,h,i)perylene	191-24-2	10	10	SW-846 8270
Benzo(k)fluoranthene	207-08-9	10	10	SW-846 8270
bis(2-Chloroethoxy)methane	111-91-1	10	10	SW-846 8270
bis(2-Chloroethyl) ether	111-44-4	10	10	SW-846 8270
bis(2-Chloroisopropyl) ether (2,2'-oxybis(1-Chloropropane))	108-60-1	10	10	SW-846 8270
bis(2-Ethylhexyl) phthalate	117-81-7	10	10	SW-846 8270
4-Bromophenyl phenyl ether	101-55-3	10	10	SW-846 8270
Butyl benzyl phthalate	85-68-7	10	10	SW-846 8270
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	59-50-7	20	20	SW-846 8270
2-Chloronaphthalene	91-58-7	10	10	SW-846 8270
2-Chlorophenol	95-57-8	10	10	SW-846 8270
4-Chlorophenyl phenyl ether	7005-72-3	10	10	SW-846 8270
Chrysene	218-01-9	10	10	SW-846 8270
Dibenz(a,h)anthracene	53-70-3	10	10	SW-846 8270

BACKGROUND MONITORING PARAMETERS
(TABLE VII-2)

ANALYTE	CAS Number	App. IX PQL (ug/L)	Minimum Detection Limit** (ug/L)	Analysis Method *
Di-n-butyl phthalate	84-74-2	10	10	SW-846 8270
1,2-Dichlorobenzene (o-Dichlorobenzene)	95-50-1	10	10	SW-846 8270
1,3-Dichlorobenzene (m-Dichlorobenzene)	541-73-1	10	10	SW-846 8270
1,4-Dichlorobenzene (p-Dichlorobenzene)	106-46-7	10	10	SW-846 8270
3,3'-Dichlorobenzidine	91-94-1	20	50	SW-846 8270
2,4-Dichlorophenol	120-83-2	10	10	SW-846 8270
Diethyl phthalate	84-66-2	10	10	SW-846 8270
2,4-Dimethylphenol	105-67-9	10	10	SW-846 8270
Dimethyl phthalate	131-11-3	10	10	SW-846 8270
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol) (2-methyl-4,6-dinitrophenol)	534-52-1	50	50	SW-846 8270
2,4-Dinitrophenol	51-28-5	50	50	SW-846 8270
2,4-Dinitrotoluene	121-14-2	10	10	SW-846 8270
2,6-Dinitrotoluene	606-20-2	10	10	SW-846 8270
Di-n-octyl phthalate	117-84-0	10	10	SW-846 8270
1,2-Diphenylhydrazine	122-66-7	N/A	10	SW-846 8270
Fluoranthene	206-44-0	10	10	SW-846 8270
Fluorene	86-73-7	10	10	SW-846 8270
Hexachlorobenzene	118-74-1	10	10	SW-846 8270
Hexachlorobutadiene	87-68-3	10	10	SW-846 8270
Hexachlorocyclopentadiene	77-47-4	10	50	SW-846 8270
Hexachloroethane	67-72-1	10	10	SW-846 8270
Indeno(1,2,3-cd)pyrene	193-39-5	10	10	SW-846 8270
Isophorone	78-59-1	10	10	SW-846 8270
Naphthalene	91-20-3	10	10	SW-846 8270
Nitrobenzene	98-95-3	10	10	SW-846 8270
4-Nitrophenol (p-Nitrophenol) 50	100-02-7	10	50	SW-846 8270
N-Nitroso-di-n-propylamine	621-64-7	10	10	SW-846 8270
N-Nitrosodimethylamine	62-75-9	10	10	SW-846 8270
N-Nitrosodiphenylamine	86-30-6	10	10	SW-846 8270
Pentachlorophenol	87-86-5	50	50	SW-846 8270
Phenanthrene	85-01-8	10	10	SW-846 8270
Phenol	108-95-2	10	10	SW-846 8270
Pyrene	129-00-0	10	10	SW-846 8270
1,2,4-Trichlorobenzene	120-82-1	10	10	SW-846 8270
2,4,6-Trichlorophenol	88-06-2	10	10	SW-846 8270
ORGANOCHLORINE PESTICIDES				
Aldrin	309-00-2	0.05	0.05	SW-846 8081
Hexachlorocyclohexane alpha-BHC	319-84-6	0.05	0.05	SW-846 8081
Hexachlorocyclohexane beta-BHC	319-85-7	0.05	0.05	SW-846 8081
Hexachlorocyclohexane delta-BHC	319-86-8	0.1	0.05	SW-846 8081
Hexachlorocyclohexane gamma-BHC (Lindane)	58-89-9	0.05	0.05	SW-846 8081
Chlordane	57-74-9	0.1	0.50	SW-846 8081
4,4'-DDD	72-54-8	0.1	0.10	SW-846 8081
4,4'-DDE	72-55-9	0.1	0.10	SW-846 8081
4,4'-DDT	50-29-3	0.1	0.20	SW-846 8081
Dieldrin	60-57-1	0.05	0.10	SW-846 8081

BACKGROUND MONITORING PARAMETERS
(TABLE VII-2)

ANALYTE	CAS Number	App. IX PQL (ug/L)	Minimum Detection Limit** (ug/L)	Analysis Method *
Endosulfan I	959-98-8	0.1	0.05	SW-846 8081
Endosulfan II	33213-65-9	0.05	0.10	SW-846 8081
Endosulfan Sulfate	1031-07-8	0.5	0.10	SW-846 8081
Endrin	72-20-8	0.1	0.1	SW-846 8081
Endrin Aldehyde	7421-93-4	0.02	0.10	SW-846 8081
Heptachlor	76-44-8	0.05	0.05	SW-846 8081
Heptachlor epoxide	1024-57-3	1	0.05	SW-846 8081
Methoxychlor	72-43-5	2	0.50	SW-846 8081
Toxaphene	8001-35-2	2	5.0	SW-846 8081
PCBs				
PCB-1016	12674-11-2	50	1.0	SW-846 8082
PCB-1221	11104-28-2	50	1.0	SW-846 8082
PCB-1232	11141-16-5	50	1.0	SW-846 8082
PCB-1242	53469-21-9	50	1.0	SW-846 8082
PCB-1248	12672-29-6	50	1.0	SW-846 8082
PCB-1254	11097-69-1	50	1.0	SW-846 8082
PCB-1260	11096-82-5	50	1.0	SW-846 8082
PCB-1262 0.5	37324-23-5	N/A	1.0	SW-846 8082
PCB- 1268 0.5	11100-14-4	N/A	1.0	SW-846 8082
CHLORINATED HERBICIDES				
2,4-Dichlorophenoxy acetic acid (2,4-D)	94-75-7	10	4	SW-846 8151
2,4,5-T	93-76-5	2	1	SW-846 8151
2,4,5-TP (Silvex)	93-72-1	2	1	SW-846 8151
ORGANOPHOSPHORUS PESTICIDES				
Bolstar (Sulprofos)	35400432	N/A	0.5	SW-846 8141
Chloropyrifos methyl (Methyl Dursban, Reldan) 2921882	5598130	N/A	1.0	SW-846 8141
Diazinon	33-41-5	N/A	0.5	SW-846 8141
Disulfoton	298-04-4	2	0.5	SW-846 8141
Ethoprop (Mocap)	13194484	N/A	0.5	SW-846 8141
Fenthion (Baytex, Tiguvon)	55-38-9	N/A	0.5	SW-846 8141
Malathion (Cythion)	121-75-5	N/A	1.2	SW-846 8141
Methyl parathion	298-00-0	0.5	0.5	SW-846 8141
Phorate	298-02-2	2	0.5	SW-846 8141
Ronnel 0.3	299843	N/A	10	SW-846 8141
Sulfotepp	3689-24-5	10	0.5	SW-846 8141
Parathion (Ethyl parathion)	56-38-2	10	0.5	SW-846 8141
EPN (o-ethyl-o,p-nitrophenyl phenylphosphorothioate)	2104-64-5	N/A	0.5	SW-846 8141

* Typical Analytical Method. Any EPA or ASTM method may be used if necessary to achieve the minimum detection limit.

** If the Laboratory Quantitation Limit is higher than the Minimum Detection Limit or Reporting Limit, the Laboratory Quantitiation limit may be used instead.

DETECTION MONITORING AND GENERAL GROUNDWATER QUALITY PARAMETERS (TABLES VII-3 & VII-4)

ANALYTE	CAS Number	App. IX PQL (ug/L)	Reporting** Limit (ug/L)	Analysis Method *
VOLATILE ORGANICS				
Cyclohexanone (LDS Only)	108-94-1	N/A	20	SW-846 8260
4-Methyl-2-pentanone (LDS Only)	108-10-1	50	50	SW-846 8260
2-Butanone (MEK) (LDS only)	78-93-3	100	100	SW-846 8260
Toluene (LDS Only)	108-88-3	5	5	SW-846 8260
Xylenes, Total (LDS Only)	1330-20-7	5	5	SW-846 8260
SEMIVOLATILE COMPOUNDS (ACID/BASE/NEUTRAL EXTRACTABLES)				
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	59-50-7	20	10	SW-846 8270
2-Chlorophenol	95-57-8	10	10	SW-846 8270
2,4-Dichlorophenol	120-83-2	10	10	SW-846 8270
2,6-Dichlorophenol (LDS ONLY)	87-65-0	10	10	SW-846 8270
2,4-Dimethylphenol	105-67-9	10	10	SW-846 8270
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol) (2-methyl-4,6-dinitrophenol)	534-52-1	50	50	SW-846 8270
2,4-Dinitrophenol	51-28-5	50	50	SW-846 8270
4-Nitrophenol (p-Nitrophenol)	100-02-7	10	50	SW-846 8270
Pentachlorophenol	87-86-5	50	50	SW-846 8270
Phenol	108-95-2	10	10	SW-846 8270
2,4,6-Trichlorophenol	88-06-2	10	10	SW-846 8270
ORGANOCHLORINE PESTICIDES & PCBs				
Aldrin	309-00-2	0.05	0.05	SW-846 8081
Hexachlorocyclohexane alpha-BHC	319-84-6	0.05	0.05	SW-846 8081
Hexachlorocyclohexane beta-BHC	319-85-7	0.05	0.05	SW-846 8081
Hexachlorocyclohexane delta-BHC	319-86-8	0.1	0.05	SW-846 8081
Hexachlorocyclohexane gamma-BHC (Lindane)	58-89-9	0.05	0.05	SW-846 8081
Chlordane	57-74-9	0.1	0.50	SW-846 8081
4,4'-DDD	72-54-8	0.1	0.10	SW-846 8081
4,4'-DDE	72-55-9	0.1	0.10	SW-846 8081
4,4'-DDT	50-29-3	0.1	0.1	SW-846 8081
Dieldrin	60-57-1	0.05	0.1	SW-846 8081
Endosulfan I	959-98-8	0.1	0.05	SW-846 8081
Endosulfan II	33213-65-9	0.05	0.10	SW-846 8081
Endosulfan Sulfate	1031-07-8	0.5	0.10	SW-846 8081
Endrin	72-20-8	0.1	0.1	SW-846 8081
Endrin Aldehyde	7421-93-4	0.02	0.1	SW-846 8081
Heptachlor	76-44-8	0.05	0.05	SW-846 8081
Heptachlor epoxide	1024-57-3	1	0.05	SW-846 8081
Methoxychlor	72-43-5	2	0.50	SW-846 8081
Toxaphene	8001-35-2	2	5	SW-846 8081
CHLORINATED HERBICIDES				
2,4-Dichlorophenoxy acetic acid (2,4-D)	94-75-7	10	4	SW-846 8151
2,4,5-T	93-76-5	2	1.0	SW-846 8151
2,4,5-TP (Silvex)	93-72-1	2	1.0	SW-846 8151

DETECTION MONITORING AND GENERAL GROUNDWATER QUALITY PARAMETERS (TABLES VII-3 & VII-4)

ANALYTE	CAS Number	Minimum Detection Limit**	Units	Analysis Method *
PHYSICAL PROPERTIES				
pH	N/A	N/A	N/A	Field
Specific Conductance	N/A	1	umhos/cm	Field
Turbidity	N/A	1.0	NTU	Field
Total Dissolved Solids	n/a	21	mg/l	EPA 160.1
INORGANIC, NON-METALLICS				
Total alkalinity	71-52-3	5	mg/l	EPA 310.1
Chloride	16887-00-6	3	mg/l	EPA 325.2
Nitrogen, Nitrate-Nitrite		0.1	mg/l	EPA 353.2
Sulfate	14808-79-8	5.0	mg/l	EPA 375.4
ORGANICS				
Total Organic Carbon (TOC)	N/A	1.0	mg/l	EPA 415.1

ANALYTE	CAS Number	App. IX PQL (ug/L)	Minimum Detection Limit** (ug/L)	Analysis Method *
METALS				
Arsenic	7440-38-2	500	15	SW846 6010
Iron	7439-89-6	N/A	100	SW846 6010
Manganese	7439-96-5	N/A	50	SW846 6010
Sodium	7440-23-5	N/A	1,000	SW-846 6010
Zinc	7440-66-6	20	20	SW846 6010

* Typical Analytical Method. Any EPA or ASTM method may be used if necessary to achieve the minimum detection limit.

** If the Laboratory Quantitation Limit is higher than the Minimum Detection Limit or Reporting Limit, the Laboratory Quantitiation limit may be used instead.

REFERENCES:

1. Methods for Chemical Analysis of Water and Wastes, March 1983, USEPA, 600/4-79-020 and additions thereto.

2. Test Methods for Evaluating Solid Waste, Physical/Chemical Method, September 1986, Third Edition, Update II, USEPA, SW-846 and additions thereto.

3. Prescribed Procedure for Measurement of Radioactivity in Drinking Water, USEPA, EPA-600/4-80-032, August 1980.

PART VIII: CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

1) DEFINITIONS

For the purposes of this Part the following definitions shall apply:

a) "Facility" means all contiguous property under the ownership or control of the owner or operator seeking a permit under the Colorado Hazardous Waste Regulations, 6 CCR 1007-3.

b) "Release" means any spilling, leaking, pouring, emitting, emptying, discharging, injecting, pumping, escaping, leaching, dumping, or disposing of hazardous wastes (including hazardous constituents) into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing hazardous wastes or hazardous constituents).

c) "Solid waste management unit" (SWMU) means any discernible unit at which solid waste has been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste.

d) "Hazardous waste" means a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed. The term hazardous waste includes hazardous constituent as defined below.

e) "Hazardous constituent" means any constituent identified in Appendix VIII of 6 CCR 1007-3 Part 261, or any constituent identified in Appendix IX of 6 CCR 1007-3 Part 264.

2) SUMMARY OF FINDINGS/RESULTS

a) The following Solid Waste Management Units (SWMUs) were identified during the RCRA Facility Assessment (RFA) and are shown in Figure VIII-1:

i) SWMU NO. 1: JOLLY-AXTELL NO. 2

(1) This unit is a brine pond and area associated with the oil field production well Jolly-Axtell No. 2 Well, which was located near the northern boundary of the site. The well and pond were used from 1972 to 1986. The pond was closed and regraded in 1986. The wastes disposed in the brine pond consisted of oil field brines, with high levels of dissolved salts and generally trace levels of organic compounds associated with crude oil. The nature, rate, and extent of constituent migration from the brine pond has been characterized, and is documented in the *RCRA Facility Investigation Report, Highway 36 Site Brine Ponds, Adams County CO*. The groundwater impacted by the operations of the former oil well and brine pond occurs in zones of perched ground water, approximately 10 to 50 feet below the ground surface. Over time the groundwater levels in these zones have decreased, due to removal of the Jolly Axtell pond as a source of liquids. There is no potential for further impacts or releases from this unit. No further action is required under the Corrective Action provisions of this Permit at this time.

ii) SWMU NO.2: ZEXCO-STATE WELL NO. 1

(1) This unit is the well head area of the Zexco-State Well No. 1, which was located near the western boundary of the site. The well was drilled in 1973, produced oil from 1981 thru 1983, and was plugged and abandoned in 1984. This is no evidence of a brine pond associated with the Zexco-State Well, however some surface contamination occurred near the well as a result of brine spills associated with the production of crude oil. The spills consisted of oil field brines, with high levels of dissolved salts and generally trace levels of organic compounds associated with crude oil. The nature, rate, and extent of constituent migration of contamination resulting from oil production activities has been characterized, and is documented in the *RCRA Facility Investigation Report, Highway 36 Site Brine Ponds, Adams County CO.* The groundwater impacted by the operations of the former oil well and brine pond occurs in zones of perched ground water, approximately 10 to 50 feet below the ground surface. Over time the groundwater levels in these zones have decreased, due to removal of the Zexco-State well as a source of liquids. There is no potential for further impacts or releases from this unit. No further action is required under the Corrective Action provisions of this Permit at this time.

iii) SWMU NO. 3: DOMESTIC WASTEWATER TREATMENT UNIT AND ASSOCIATED EFFLUENT POND

(1) This unit is a non-discharging domestic wastewater treatment works for treating domestic waste from the Operations Building kitchen and on-site restrooms in the Operations Building, Maintenance Building and Security Building. The system is designed for an average daily flow capacity of 3,150 gallons per day and organic loading capacity of 7.2 pounds BOD_5/day. The treatment process used is a packaged extended aeration treatment plant. The effluent from the treatment unit is held in a lined evaporation pond. Two lift stations of less than 2,000 gallons per day are used to transfer domestic waste from the Operations Building and Maintenance Building restrooms. The unit has been in operation since 1989 and operates under the approval of the Water Quality Control Division of the Colorado Department of Public Health and Environment. No laboratory or hazardous wastes are treated in this unit. No evidence of a release has been noted. No further action is required under the Corrective Action provisions of this Permit at this time.

iv) SWMU NO.4: CONCRETE RUBBLE AREA

(1) This unit is an area used for the disposal of concrete rubble and debris, including rebar from construction, repair and maintenance of the facility. The area, used since 1988, is located north of SWMU No. 1. The area consists of a slight depression (3-4 feet) in the ground and is approximately 100 feet wide x 200 feet long, with excavated dirt mounded on the north end of the area. Contents of the rubble area include demolition concrete from groundwater monitoring well pads, from box testing plugs, bumper posts, broken parking lot barriers, heels from concrete trucks, minimal rebar, and miscellaneous concrete from other demolitions. The total volume for this unit is approximately 1700 cubic yards. Concrete from waste handling areas, oils, antifreeze or other liquids, or hazardous waste are not placed in this unit. The Permittee is allowed to continue using this unit for the accumulation of discarded concrete debris and heels of concrete trucks, as long as it is operated in accordance with the Regulations Pertaining to Solid Waste Disposal Sites and Facilities, 6 CCR 1007-2. At the time of closure of this unit, it will be closed according to the closure requirements for Solid Waste Management Units. No evidence of a release has been noted. No further action is required under the Corrective Action provisions of this Permit at this time.

v) SWMU NO.5: WASTEWATER TREATMENT PLANT

(1) This unit is the facility's wastewater treatment plant. The plant is authorized under the Water Quality Division of the Colorado Department of Public Health and Environment under NPDES permit No. CO-0042064. Located on the east side of the facility, the building has a footprint of 50 x 100 feet. It consists of a sheet metal enclosed building with a concrete floor equipped with integral floor drains. Water to be treated is conducted through either of two flow circuits depending upon the water's classification as contaminated or potentially contaminated. Potentially contaminated water originates from the Potentially Contaminated Retention Basin (PCRB)(now designated the Segregated Stormwater Retention Basin). Contaminated water has the following sources: secure cell leachate collection systems, operations sump, maintenance sump, contaminated water tanks, north and east scrubber blowdown, truck wash sump, drum storage area, treatment basin wash water, and bulk liquid reagent storage.

(2) Potentially contaminated water completes the following circuit: PCRB water is pumped to the reaction tank where ferric hydroxide/ferric sulfate and lime are introduced. Following sufficient contact time under impeller mixing, the mixture is pumped to a clarifier where a polyelectrolyte flocculent is introduced for phase separation. The underflow proceeds to the sludge thickener and hence to the filter press. Dewatered sludge exits the system here for landfill disposal if sufficiently dry or if not, then it is treated with cement or kiln dust pozzolans for subsequent disposal. Overflow from the thickener is recycled as makeup water in the process. Supernatant from the filter press is recycled back to the clarifier. The overflow from the clarifier is routed through multimedia filtration (two in parallel) and then through a granular activated carbon filtration step (three in parallel). The polished water is then pumped to the backwash water and treated water storage tank where pH adjustment with hydrochloric acid is performed with some of this water being recycled to backwash the filtration units. The remaining water is pumped to the treated water accumulation tanks where it can then be discharged or more likely utilized in waste treatment.

(3) Water classified as contaminated is routed along the following circuit: Contaminated water is pumped from the aforementioned sources to the contaminated water storage tanks (2 x 250,000 gallons). The water is then pumped to the reaction tank where ferric hydroxide/ferric sulfate and lime are introduced via impeller mixing. After sufficient residence time, the mixture is pumped to the clarifier flash mix tank where flocculent is introduced to assist phase separation. The mixture cascades into the flocculent tank to promote efficient floc size increase. The flocced mixture then cascades to the clarifier for solids/liquids separation. The clarifier underflow is then routed through the same thickening/dewatering circuit as mentioned previously, ultimately resulting in an acceptably dry filter cake for disposal in a secure cell. The overflow from the clarifier is sent to the clarifier clear well storage tank and hence through multimedia filtration and granular activated carbon filtration polishing, then to the backwash water and treated water storage tank where pH adjustment with hydrochloric acid is performed, and finally to the treated water accumulation tank for waste processing or ultimate discharge.

(4) The structure and floor of the wastewater treatment plant are sound. No evidence of a release has been noted. No further action under Corrective Action is recommended at this time.

3) STANDARD CONDITIONS

a) The following conditions outline procedures that must be followed if any future potential releases occur or if any new SWMU are identified.

i) Section 3004(u) of RCRA, as amended by HSWA, and 6 CCR 1007-3, §264.101 require that permits issued after November 8, 1984, address corrective action for releases of hazardous wastes including hazardous constituents from any solid waste management unit (SWMU) at the facility, regardless of when the waste was placed in the unit.

ii) Failure to submit the information required in this Corrective Action Schedule of Compliance, or falsification of any submitted information, is grounds for termination of this Permit [6 CCR 1007-3 §100.64]. The Permittee shall ensure that all plans, reports, notifications, and other submissions to the Director required in this Corrective Action Schedule of Compliance are signed and certified in accordance with 6 CCR 1007-3 §100.42(k). Two copies of these plans, reports, notifications or other submissions shall be submitted to the Director, and sent by mail or hand delivered to:

Colorado Department of Public Health and Environment

Hazardous Materials & Waste Management Division

4300 Cherry Creek Drive South

Denver, CO 80246-1530

iii) All plans and schedules required by the conditions of this Corrective Action Schedule of Compliance are, upon approval of the Director, incorporated into this Schedule of Compliance by reference and become an enforceable part of this Permit. Extensions of the due dates for submittal may be granted by the Director in accordance with the permit modification processes under 6 CCR 1007-3 §100.6.

iv) If the Director determines that further actions beyond those provided in this Corrective Action Schedule of Compliance, or changes to that which is stated herein, are warranted, the Director shall modify the Schedule of Compliance according to procedures in the permit modification processes under 6 CCR 1007-3 §100.6.

v) All raw data, such as laboratory reports, drilling logs, bench-scale or pilot-scale data, and other supporting information gathered or generated during activities undertaken pursuant to this Corrective Action Schedule of Compliance shall be maintained at the facility during the term of the Permit, including any reissued Permits.

4) REPORTING REQUIREMENTS

a) The Permittee shall submit to the Director signed quarterly progress reports of all activities (e.g., SWMU Assessments, Interim Measures, RCRA Facility Investigations, Corrective Measures Studies) conducted pursuant to the provisions of this Corrective Action Schedule of Compliance, beginning no later than ninety (90) calendar days after the Permittee is first required to begin implementation of any requirement herein. These reports shall contain:

i) A description of the work completed;

ii) Summaries of all findings, including summaries of laboratory data:

iii) Summaries of all problems or potential problems encountered during the reporting period, and actions taken to rectify problems; and

iv) Projected work for the next reporting period.

b) Copies of other reports (e.g., inspection reports, drilling logs and laboratory data) shall be made available to the Director upon request.

c) As specified under condition VIII.C.4 of this permit, the Director may require the Permittee to conduct new or more extensive assessments, investigations, or studies, as needed, based on information provided in these progress reports or other supporting information.

5) NOTIFICATION REQUIREMENTS FOR AND ASSESSMENT OF NEWLY-IDENTIFIED SOLID WASTE MANAGEMENT UNITS

a) The Permittee shall notify the Director in writing of any newly-identified SWMU(s) (i.e., a unit not specifically identified during the RFA and listed in condition VIII.B. of this permit) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than fifteen (15) calendar days after discovery.

b) After such notification, the Director may request, in writing, that the Permittee prepare a Solid Waste Management Unit (SWMU) Assessment Plan and a proposed schedule of implementation and completion of the provisions in the Plan for any additional SWMU(s) discovered subsequent to the issuance of this Permit.

c) Within sixty (60) calendar days after receipt of the Director's request for a SWMU Assessment Plan, the Permittee shall prepare a SWMU Assessment Plan, for determining past and present operations at the unit, as well as any sampling and analysis of ground water, land surface and subsurface strata, and surface water or air, as necessary to determine whether a release of hazardous waste including hazardous constituents from such unit(s) has occurred, is likely to have occurred, or is likely to occur. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste including hazardous constituents from the newly-discovered SWMU(s) to the environment.

i) After the permittee submits the SWMU Assessment Plan, the Director shall either approve or disapprove the Plan in writing.

ii) If the Director approves the Plan, the Permittee shall begin to implement the Plan within thirty (30) calendar days of receiving such written notification.

iii) If the Director disapproves the Plan, the Director shall either(1) notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised Plan, or (2) revise the Plan and notify the Permittee of the revisions. This Director-revised Plan becomes the approved SWMU Assessment Plan. The Permittee shall implement the Plan within thirty (30) calendar days of receiving written approval.

d) The Permittee shall submit a SWMU Assessment Report to the Director no later than sixty (60) calendar days from completion of the work specified in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the

approved SWMU Assessment Plan. At a minimum., the Report shall provide the following information for each newly-identified SWMU:

i) The location of the newly-identified SWMU in relations to other SWMUs;

ii) The type and function of the unit;

iii) The general dimensions, capacities, and structural description of the unit, including any available drawings;

iv) The period during which the unit was operated;

v) The specifics on all wastes that have been or are being managed at the SWMU, to the extent available; and

vi) The results of any sampling and analysis required for the purpose of determining whether releases of hazardous wastes including hazardous constituents have occurred, are occurring, or are likely to occur from the unit.

e) Based on the results of this Report, the Director shall determine the need for further investigations at specific unit(s) covered in the SWMU Assessment. If the Director determines that such investigations are needed, the Director may require the Permittee to prepare a plan for such investigations. This plan will be reviewed for approval as part of the RFI Workplan under condition VIII.G. of this Corrective Action Schedule of Compliance.

6) NOTIFICATION REQUIREMENTS FOR NEWLY-DISCOVERED RELEASES AT SWMUS

a) The Permittee shall notify the Director, in writing, of any release(s) of hazardous waste including hazardous constituents discovered during the course of groundwater monitoring, field investigation, environmental auditing, or other activities undertaken after the commencement of the RFI, no later than fifteen (15) calendar days after discovery. Such newly discovered releases may be from newly-identified units, from units for which, based on the findings of the RFA, the Director had previously determined that no further investigation was necessary, or from units investigated as part of an RFI. The Director may require further investigation of the newly identified release(s). A plan for such investigation will be reviewed for approval as part of the RFI Workplan under condition VIII.G. of this permit.

7) RCRA FACILITY INVESTIGATION (RFI) WORKPLAN

a) If it is determined a RCRA Facility Investigation Workplan is required, the following procedures shall be followed.

i) The Workplan shall describe the objectives of the investigation and the overall technical and analytical approach to completing all actions necessary to characterize the nature, direction, rate, movement, and concentration of releases of hazardous waste including hazardous constituents from specific units or groups of units, and their actual or potential receptors. The Workplan shall detail all proposed activities and procedures to be conducted at the facility, the schedule for implementing and completing such investigations, the qualifications of personnel performing or directing the investigations, including contractor personnel, and the overall management of the RFI.

ii) After the Permittee submits the Workplan, the Director will either approve or disapprove the Workplan in writing.

(1) If the Director disapproves the Workplan, the Director shall either (1) notify the Permittee in writing of the Workplan's deficiencies and specify a due date for submittal of a revised Plan, or (2) revise the Workplan and notify the Permittee of the revisions. This modified Workplan becomes the approved RFI Workplan.

iii) The Director shall review for approval as part of the RFI Workplan any plans developed pursuant to condition VIII.E of this permit, addressing further investigations of newly-identified SWMUS, or condition VIII.F., addressing new releases from previously-identified units. The Director shall modify the Schedule of Compliance according to the permit modification procedures under 6 CCR 1007-3 §100.6, to incorporate these units and releases into the RFI Workplan.

8) RCRA FACILITY INVESTIGATION WORKPLAN IMPLEMENTATION

a) No later than forty-five (45) calendar days after the Permittee has received written approval from the Director for the RFI Workplan, the Permittee shall begin implementation of the RCRA Facility Investigation according to the schedules specified in the RFI Workplan. Pursuant to condition VIII.C.3. of this permit, the RFI shall be conducted in accordance with the approved RFI Workplan.

9) RCRA FACILITY INVESTIGATION FINAL REPORT

a) Within ninety (90) calendar days after the completion of the RFI, the Permittee shall submit an RFI Final Report. The RFI Report shall describe the procedures, methods, and results of all facility investigations of SWMUs and their releases, including information on the type and extent of contamination at the facility, sources and migration pathways, and actual or potential receptors. The RFI Final Report shall present all information gathered under the approved RFI Workplan. The Final Report must contain adequate information to support further corrective action decisions at the facility.

b) After the Permittee submits the RFI Final Report the Director shall either approve or disapprove the Report in writing.

i) If the Director approves the RFI Report, the Permittee shall mail a short summary of the approved RFI Report to all individuals on the facility mailing list established pursuant to 6 CCR 1007-3 §100.506(c)(I)(ii) and (iii), within fifteen (15) calendar days of receipt of approval.

ii) If the Director determines the RFI Final Report did not fully detail the objectives stated under Permit Condition VIII.G., the Director may disapprove the RFI Final Report. If the Director disapproves the Report, the Director shall notify the Permittee in writing of the Report's deficiencies and specify a due date for submittal of a revised Final Report. The Permittee shall mail a short summary of the approved Final Report to all individuals on the facility mailing list.

10) DETERMINATION OF NO FURTHER ACTION

a) Based on the results of the RFI and other relevant information, the Permittee may submit an application to the Director for a Class III permit modification under 6 CCR 1007-3 §100.63(c)to terminate the Corrective Action Schedule of Compliance. This permit modification application must contain information demonstrating that there are no releases of hazardous wastes including hazardous constituents from SWMUs at the facility that pose a threat to human health and the environment, and information required in 6 CCR 1007-3 §100.63(c).

b) If, based upon review of the Permittee's request for a permit modification, the results of the RFI, and other information, including comments received during the 60-day public comment period required for Class III permit modifications, the Director determines that releases or suspected releases that were investigated either are non-existent or do not pose a threat to human health and the environment, the Director will prepare a draft permit for the requested modification.

c) A determination of no further action shall not preclude the Director from requiring further investigations, studies, or remediation at a later date, if new information or subsequent analysis indicates a release or likelihood of a release from a SWMU at the facility that is likely to pose a threat to human health or the environment. In such a case, the Director shall initiate a modification to the Corrective Action Schedule of Compliance according to the procedures for a permit modification, as specified in 6 CCR 1007-3 §100.6, to rescind the determination made in accordance with Permit Condition VIII.K.1.

11) CORRECTIVE MEASURES STUDY PLAN

a) If the Director has reason to believe that a SWMU has released concentrations of hazardous constituents in excess of an action level, or if the Director determines that contaminants present at levels below an action level pose a threat to human health and the environment given site-specific exposure conditions, the Director may require a Corrective Measures Study (CMS) and shall notify the Permittee in writing. This notice shall identify the hazardous constituent(s) that have exceeded action levels as well as those which have been determined to threaten human health and the environment given site-specific exposure conditions. The notification may also specify remedial alternatives to be evaluated by the Permittee during the CMS.

b) The Permittee shall submit a CMS Plan to the Director within sixty (60) calendar days from notification of the requirement to conduct a CMS. The CMS Plan shall provide the following information:

i) A description of the general approach to investigating and evaluating potential remedies;

ii) A definition of the overall objectives of the study;

iii) The specific plans for evaluating remedies to ensure compliance with remedy standards;

iv) The schedules for conducting the study; and

v) The proposed format for the presentation of information.

c) If the Director disapproves the CMS Plan, the Director shall either (1) notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised Plan, or (2) revise the Plan and notify the Permittee of the revisions. This modified Plan becomes the approved CMS Plan.

12) CORRECTIVE MEASURES STUDY IMPLEMENTATION

a) No later than forty-five (45) calendar days after the Permittee has received written approval from the Director for the CMS Plan, the Permittee shall begin to implement the Corrective Measures Study according to the schedules specified in the CMS Plan. Pursuant to Permit Condition VI.C.3., the CMS shall be conducted in accordance with the approved Plan.

13) CORRECTIVE MEASURES STUDY FINAL REPORT

a) Within ninety (90) calendar days after the completion of the CMS, the Permittee shall submit a CMS Final Report. The CMS Final Report shall summarize the results of the investigations for each remedy studied and of any bench-scale or pilot tests conducted. The CMS Report must include an evaluation of each remedial alternative. The CMS Report shall present all information gathered under the approved CMS Plan. The final report must contain adequate information to support the Director in the remedy selection decision making process, described under condition VIII.N of the Corrective Action Schedule of Compliance.

b) If the Director determines that the CMS Final Report does not fully satisfy the information requirements specified under condition VIII.M. of this permit, the Director may disapprove the CMS Final Report. If the Director disapproves the Final Report, the Director shall notify the Permittee in writing of deficiencies in the Report and specify a due date for submittal of a revised Final Report.

c) As specified under condition VIII.M.1., based on preliminary results and the final CMS report, the Director may require the Permittee to evaluate additional remedies or particular elements of one or more proposed remedies.

14) REMEDY SELECTION

a) Based on the results of the CMS and any further evaluations of additional remedies under this study, the Director shall select remedial alternative(s) evaluated in the CMS that will (1) be protective of human health and the environment; (2) achieve the concentration levels of hazardous constituents in each medium that will be protective of human health and the environment; (3) control the source(s) of release(s) so as to reduce or eliminate, to the maximum extent practicable, further releases that might pose a threat to human health and the environment; and (4) meet all applicable waste management requirements.

15) PERMIT MODIFICATION FOR REMEDY

a) Based on information the Permittee submits in the RFI Final Report, the CMS Final Report, and other information, the Director will select a remedy and initiate a permit modification to this Permit, pursuant to 6 CCR 1007-3, Section 100.6.

i) The modification must specify the selected remedy and include, at a minimum, the following:

(1) Description of all technical features of the remedy that are necessary for achieving the standards for remedies established under condition VIII.O.1. of this permit, including length of time for which compliance must be demonstrated at specified points of compliance;

(2) All concentration levels of hazardous constituents in each medium that the remedy must achieve to be protective of human health and the environment;

(3) All requirements for achieving compliance with these concentration levels;

(4) All requirements for complying with the standards for management of wastes;

(5) The requirements for removal, decontamination, closure, or post-closure of units, equipment, devices or structures that will be used to implement the remedy;

(6) A schedule for initiating and completing all major technical features and milestones of the remedy; and

(7) The requirements for submission of reports and other information.

16) INTERIM MEASURES

a) The Permittee may propose for approval or the Director may require additional interim corrective measures.

17) COMMUNITY RELATIONS REQUIREMENTS

a) Except in the case of an emergency, if the Permittee issues a press release or initiates media contact for the purpose of providing information to the media with reference to any permitted activities, including corrective actions, the Permittee must advise the Director of such press release or media contact, and the contents thereof, at least two (2) working days prior to issuance. Other documents prepared by the Permittee for community involvement purposes related to the site will be submitted to the Director for review and comments at least seven (7) working days in advance of issuance, unless otherwise agreed to.

b) CDPHE will review, evaluate, and comment upon any informational materials prepared to support community involvement activities. Technical assistance in the preparation of such materials will be available from CDPHE as resources permit.

c) The Permittee will notify CDPHE at least seven (7) working days prior to any community meetings scheduled as part of the Permittee's community involvement efforts.

d) Upon CDPHE approval of the final RFI report, the Permittee must mail a short summary of the final approved RFI report to all individuals on the facility mailing list established pursuant to 6 CCR 1007-3 Section 100.506(c)(I), (ii), and (iii), within fifteen calendar days of the receipt of approval.

18) MODIFICATION OF THE CORRECTIVE ACTION COMPLIANCE SCHEDULE

If at any time the Director determines that modification of the Corrective Action Schedule of Compliance is necessary, he may initiate a modification to the Schedule of Compliance according to the procedures specified in 6 CCR 1007-3, Section 100.6.

TABLE VIII.R.1.: CORRECTIVE ACTION COMPLIANCE SCHEDULE SUMMARY

Below is a summary of the planned reporting requirements pursuant to Part VIII's Schedule of Compliance:

Facility Submission Requirements	**Due Date**
Notification of newly-identified SWMUs	fifteen (15) calendar days after discovery
Notification of newly-discovered releases	fifteen (15) calendar days after discovery
Progress reports on all activities	quarterly
SWMU Assessment Plan for newly-identified SWMUs	thirty (30) calendar days after receipt of request
Revised SWMU Assessment Plan	as determined
Implement SWMU Assessment Plan	thirty (30) calendar days after Director approval
SWMU Assessment Report	forty five (45) calendar days after completion of implementation of SWMU Assessment Plan
RFI Workplan for Newly Identified SWMU's or Releases	as determined
Revised RFI Workplan	as determined
Implement RFI Workplan	forty five (45) calendar days after Director approval
RFI Report	ninety (90) calendar after completion of the field investigations of the RFI
Revised RFI Report	as determined
Mail RFI Summaries to Mailing List	fifteen (15) calendar days After Director Approval
CMS Plan	sixty (60) calendar days after notification of requirement to perform CMS
Revised CMS Plan	as determined
Implement CMS Plan	forty-five (45) calendar days after Director approval
CMS Report	ninety (90) calendar days after completion of implementation of CMS plan
Revised CMS Report	as determined

TABLE VIII.R.1.: CORRECTIVE ACTION COMPLIANCE SCHEDULE SUMMARY

Below is a summary of the planned reporting requirements pursuant to Part VIII's Schedule of Compliance:

Facility Submission Requirements	**Due Date**
Notification of newly-identified SWMUs	fifteen (15) calendar days after discovery
Notification of newly-discovered releases	fifteen (15) calendar days after discovery
Progress reports on all activities	quarterly
SWMU Assessment Plan for newly-identified SWMUs	thirty (30) calendar days after receipt of request
Revised SWMU Assessment Plan	as determined
Implement SWMU Assessment Plan	thirty (30) calendar days after Director approval
SWMU Assessment Report	forty five (45) calendar days after completion of implementation of SWMU Assessment Plan
RFI Workplan for Newly Identified SWMU's or Releases	as determined
Revised RFI Workplan	as determined
Implement RFI Workplan	forty five (45) calendar days after Director approval
RFI Report	ninety (90) calendar after completion of the field investigations of the RFI
Revised RFI Report	as determined
Mail RFI Summaries to Mailing List	fifteen (15) calendar days After Director Approval
CMS Plan	sixty (60) calendar days after notification of requirement to perform CMS
Revised CMS Plan	as determined
Implement CMS Plan	forty-five (45) calendar days after Director approval
CMS Report	ninety (90) calendar days after completion of implementation of CMS plan
Revised CMS Report	as determined

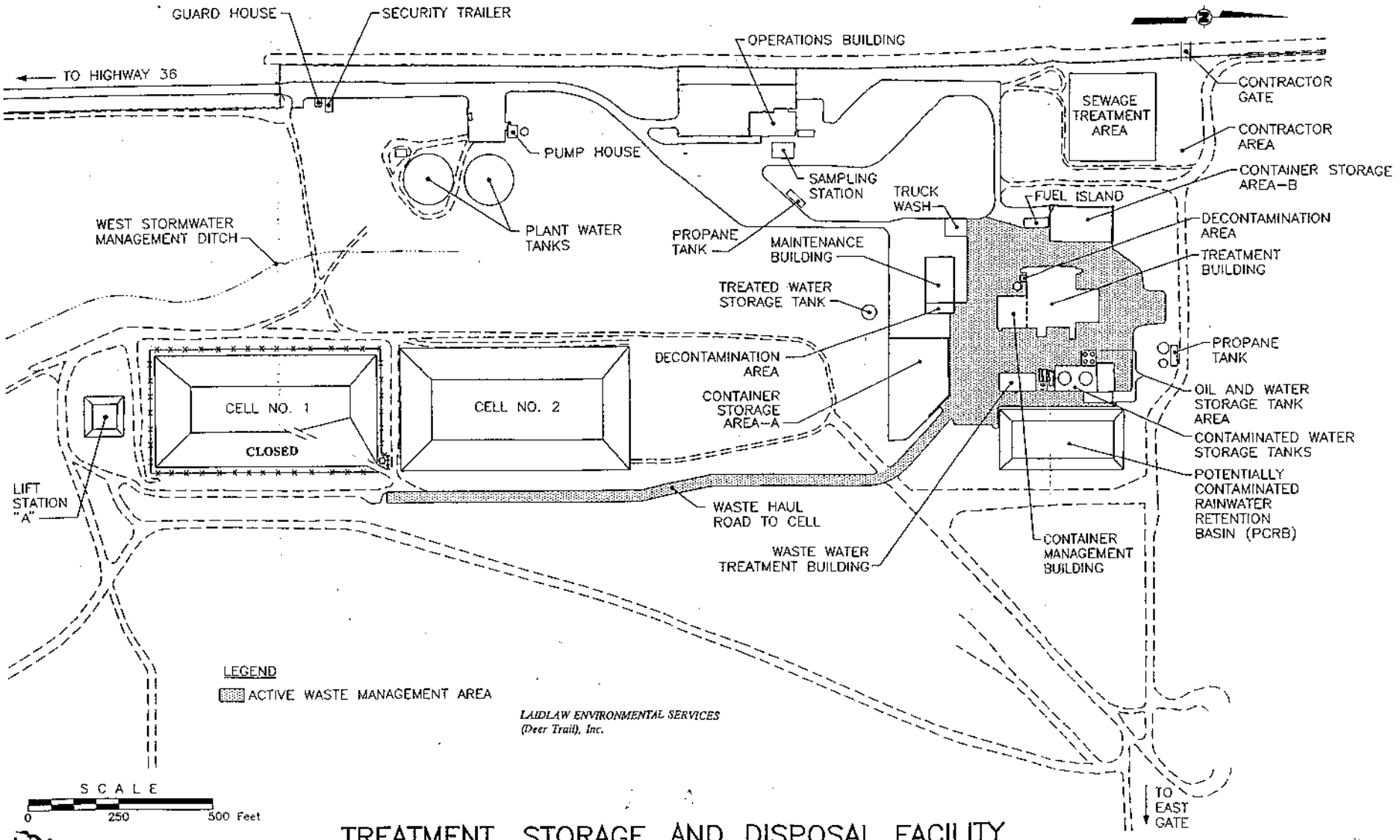
PERMIT ATTCHMENT 1

FIGURES AND MAPS

PERMIT ATTCHMENT 1

FIGURES 1

GENERAL SITE LAYOUT



TREATMENT, STORAGE, AND DISPOSAL FACILITY

FIGURE 1

CleanHarbors ENVIRONMENTAL SERVICES, INC.
CLEAN HARBORS DEER TRAIL, LLC
10555 East Highway 36
Deer Trail, Colorado 80105

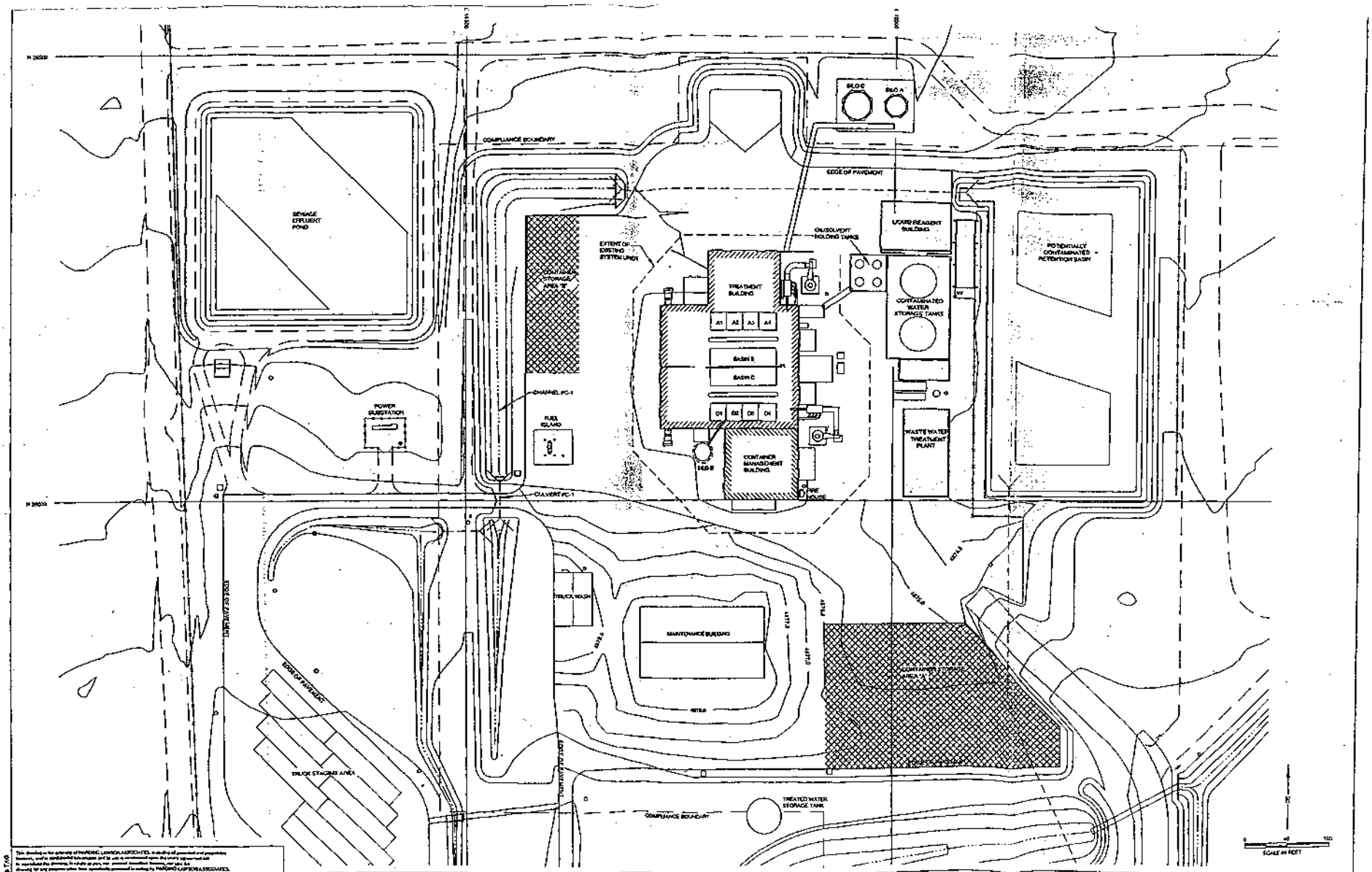
D:\SIT-PLAN.DWG 6/28/95

PERMIT ATTCHMENT 1

FIGURES 2

GENERAL SITE LAYOUT

TREATMENT AND STORAGE AREAS



NO.	DATE	REVISIONS	BY	CHK

DRAWN: TAD/LOZ	PROJECT NO: 33008.4
ENGINEER: BAG	SCALE: AS SHOWN
CHECKED:	APPROVED:
DATE:	DATE:

Harding Lawson Associates
Engineering and Environmental Services
2400 ARCO Tower
707 Seventeenth Street
Denver, Colorado 80202
(303) 292-1365

CLEAN HARBORS DEER TRAIL, LLC
108335 East Highway 36
Deer Trail, Colorado 80105

CIVIL

EXISTING SITE CONDITIONS

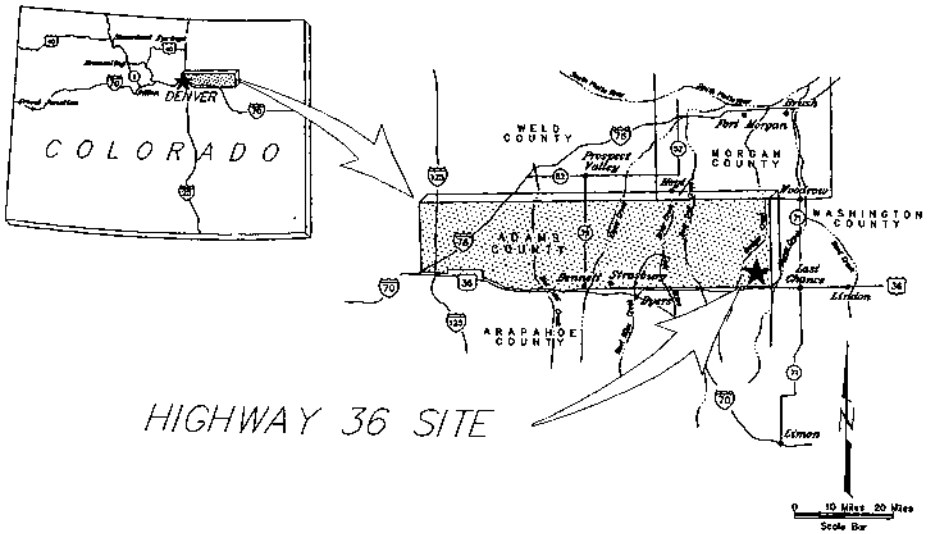
DRAWING NO: C-1

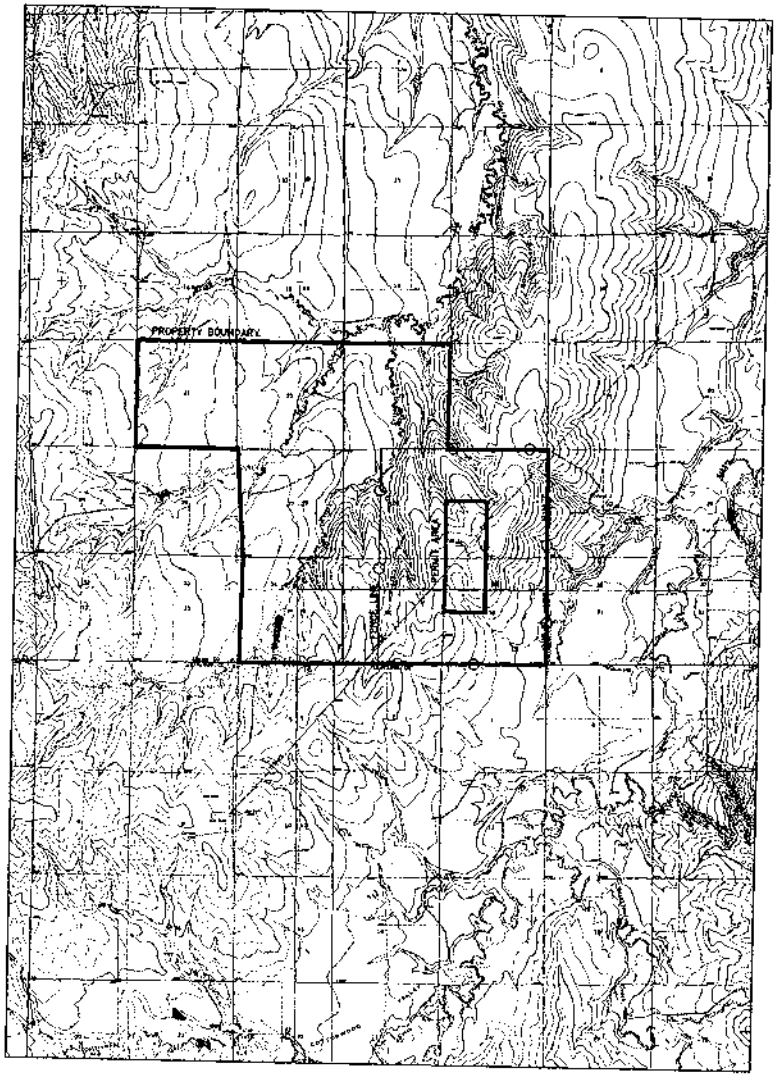
FIGURE 2

PERMIT ATTCHMENT 1

FIGURES 3

SITE LOCATION





GENERAL NOTES

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
A	FOR PERMIT	JKM	06/27/04	

CleanHarbors
DEER TRAIL

DRAWN	CHECKED	SCALE	DATE
JKM		NTS	06/27/04

TITLE
DEER TRAIL
SITE LOCATION

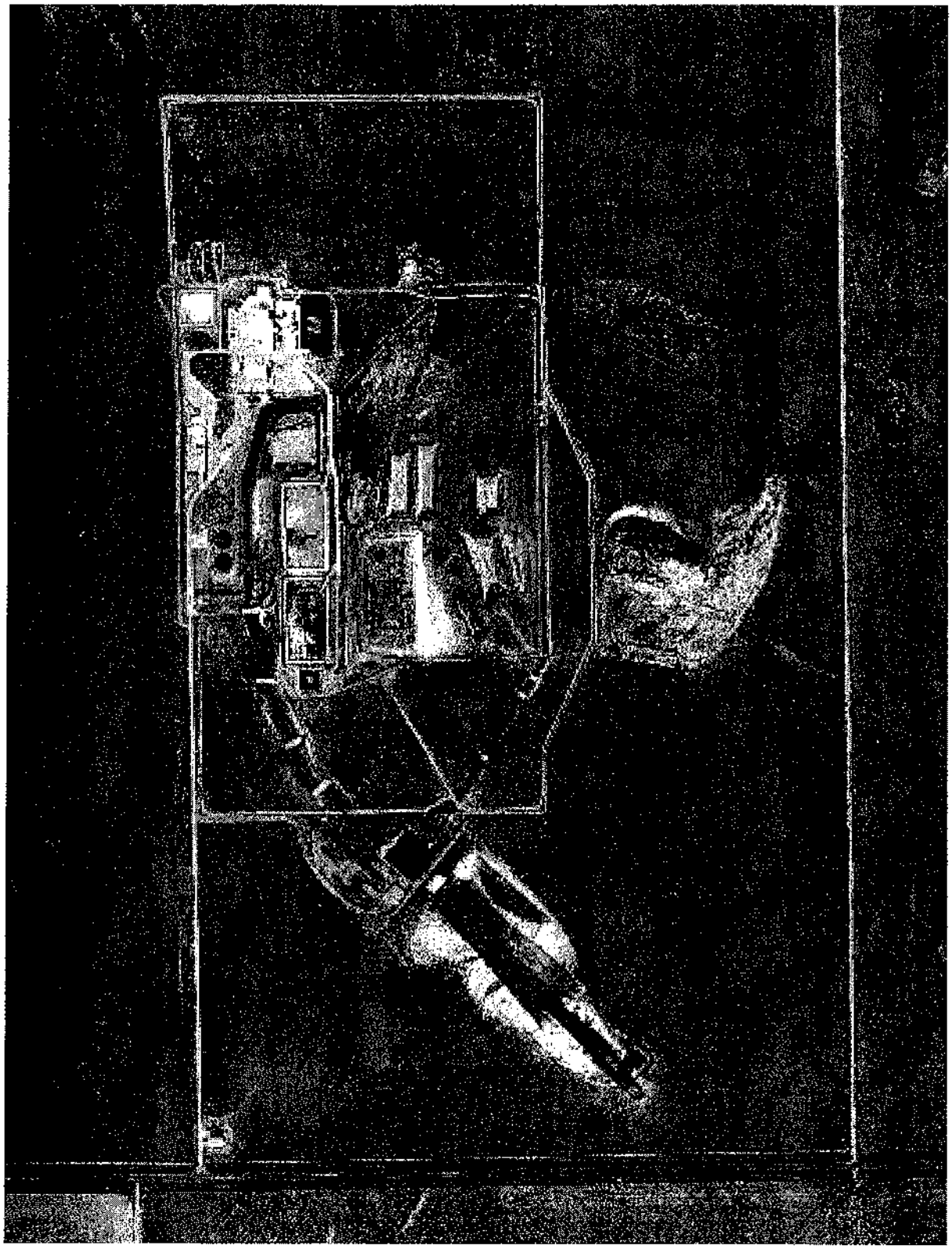
DRAWING NO. DT-001-SL-001-D

REV. A

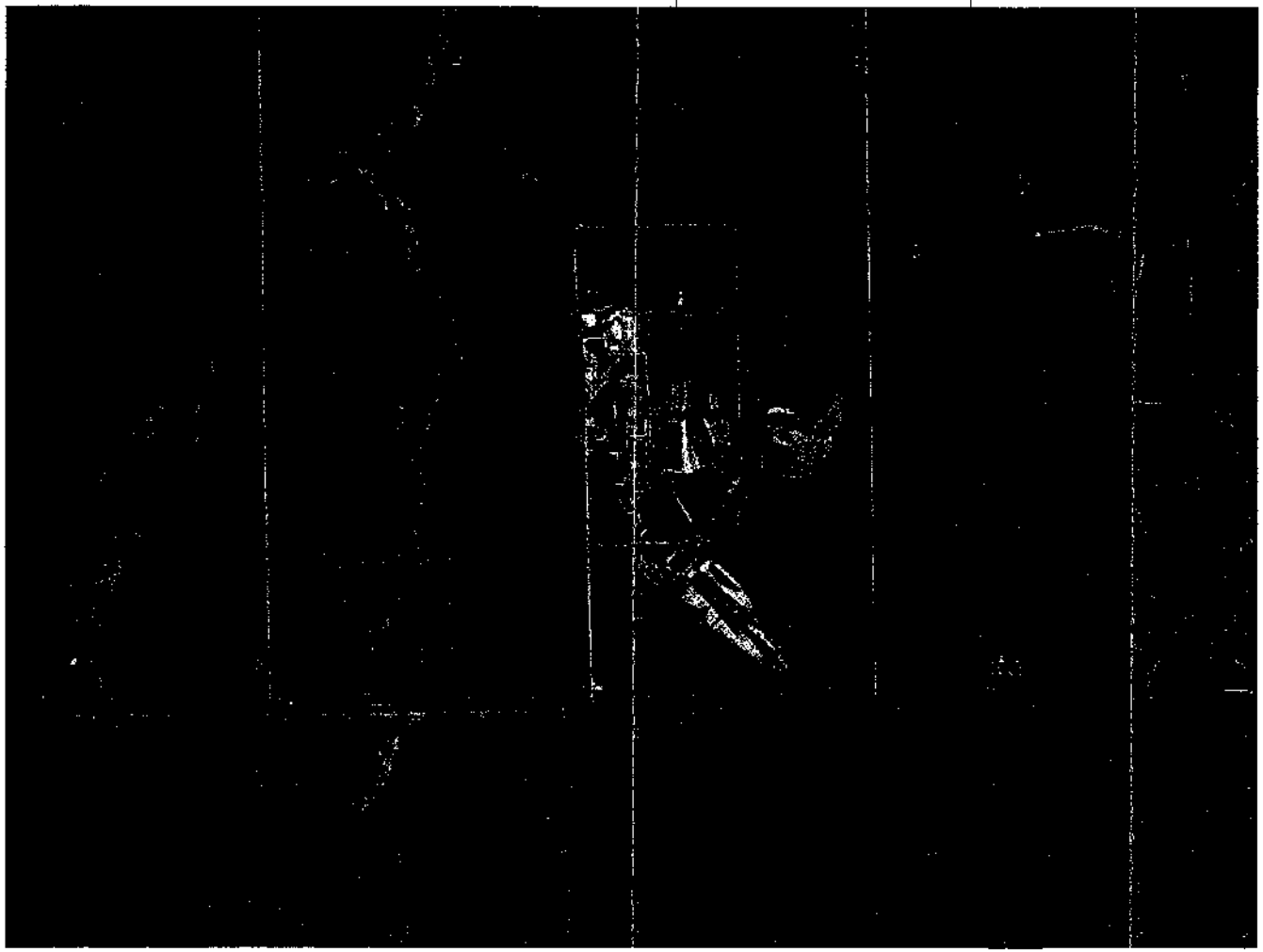
PERMIT ATTCHMENT 1

FIGURES 4

AERIAL PHOTOS



0
1Km
0
5Mi



GENERAL NOTES

REFERENCE DRAWINGS

REV.	DESCRIPTION	DRAWN BY	DATE	APPR. BY
A	FOR PERMIT	JMCM	08/27/04	

CleanHarbors
DEER TRAIL

DRAWN	CHECKED	SCALE	DATE
WDS		NTS	08/27/04

TITLE
DEER TRAIL
AERIAL PHOTO

DRAWING NO. DT-001-AP-001-D

REV. A

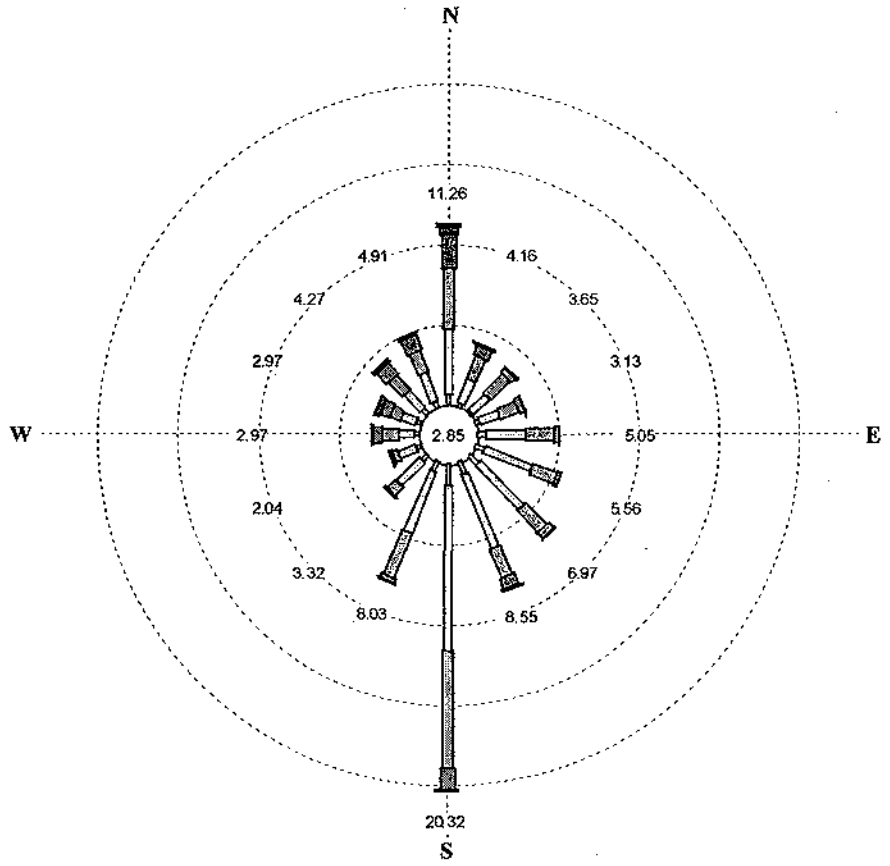
PERMIT ATTCHMENT 1

FIGURES 5

WIND ROSE

Joint Frequency Distribution

For Raw Data File C:\Downloads\co23062\23062-92\S2306292.DAT

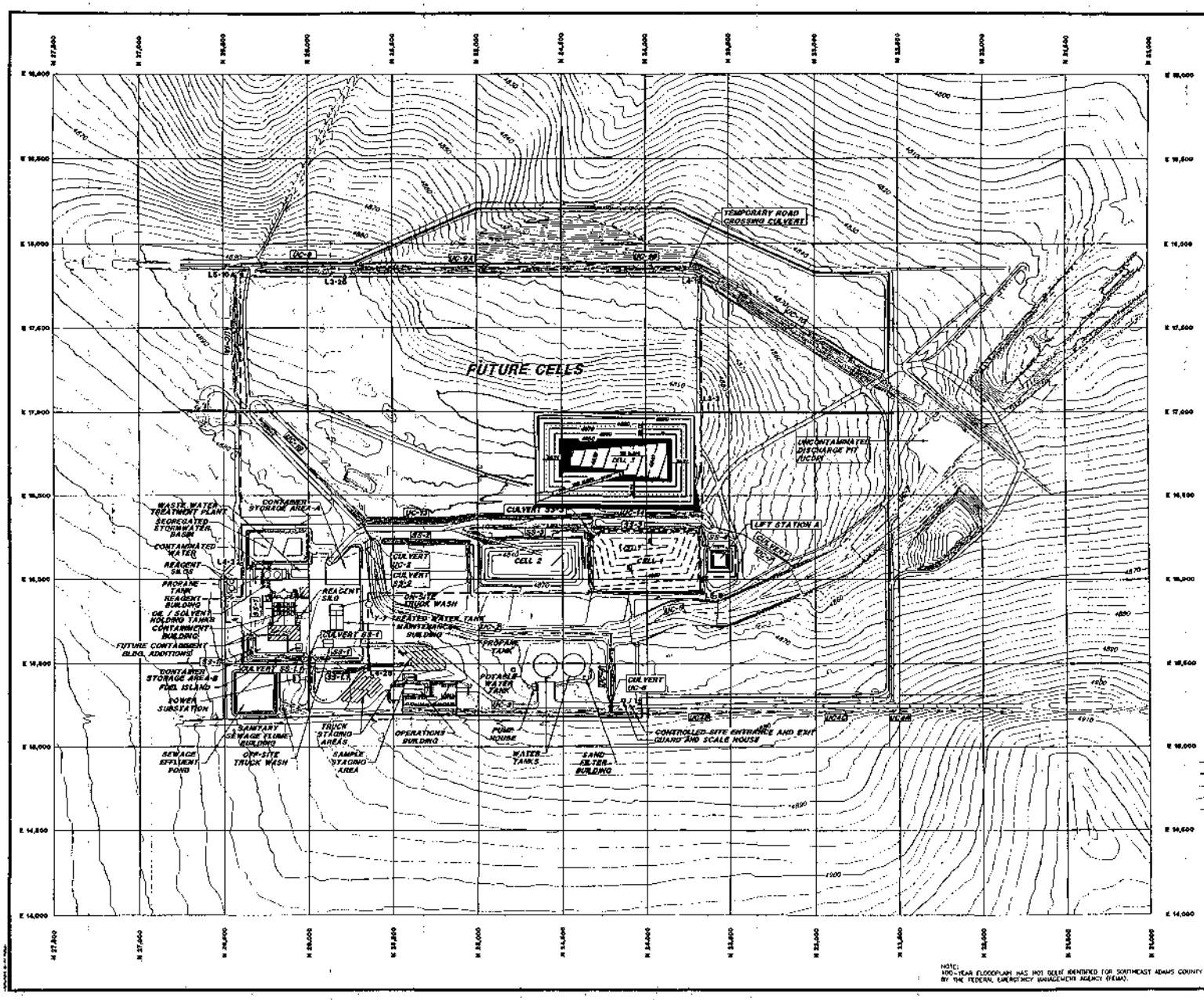


Calms included at center.
Rings drawn at 5% intervals.
Wind flow is FROM the directions shown.
No observations were missing.

PERMIT ATTCHMENT 1

FIGURES 6

FACILITY TOPOGRAPHIC MAP

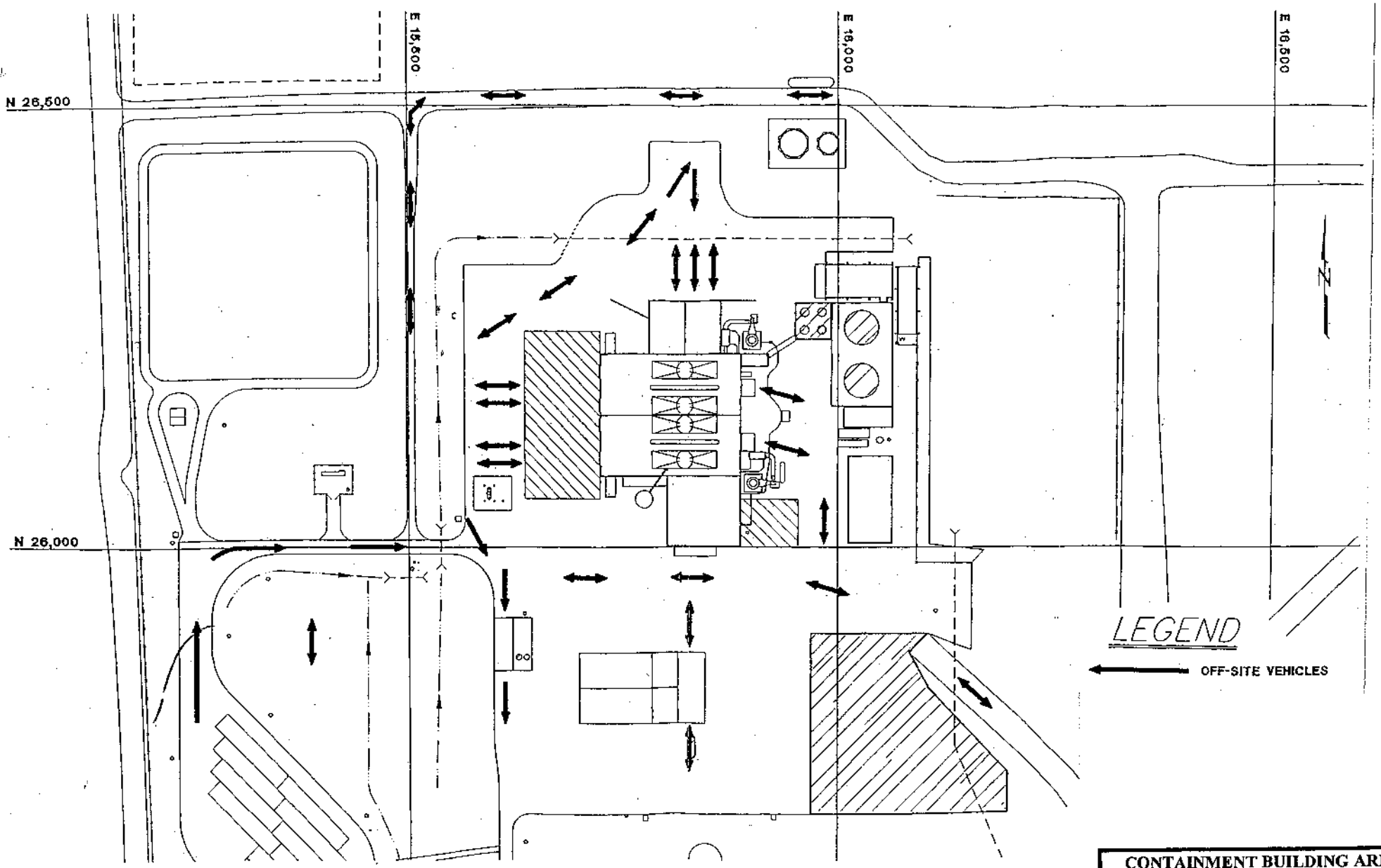

FUTURE CELLS
TEMPORARY ROAD CROSSING CULVERT
UNCONTAMINATED DISCHARGE PIT (UCDP)
LIFT STATION A
CELL 1
CELL 2
CELL 3
CULVERT SS-3
CULVERT UC-2
CULVERT SS-2
CULVERT SS-1
CULVERT UC-6
WASTE WATER TREATMENT PLANT
SEGREGATED STORMWATER BASIN
CONTAMINATED WATER
REAGENT SILOS
PROPANE TANK
REAGENT BUILDING
OIL / SOLVENT HOLDING TANKS
CONTAINMENT BUILDING
FUTURE CONTAINMENT BLDG. ADDITIONS
CONTAINER STORAGE AREA-A
CONTAINER STORAGE AREA-B
FUEL ISLAND
POWER SUBSTATION
SEWAGE EFFLUENT POND
SANITARY SEWAGE FLUME BUILDING
OFF-SITE TRUCK WASH
TRUCK STAGING AREAS
SAMPLE STAGING AREA
OPERATIONS BUILDING
ON-SITE TRUCK WASH
TREATED WATER TANK
MAINTENANCE BUILDING
PROPANE TANK
POTABLE WATER TANK
PUMP HOUSE
WATER TANKS
SAND FILTER BUILDING
CONTROLLED-SITE ENTRANCE AND EXIT GUARD AND SCALE HOUSE
LEGEND
FACILITY FENCE LINE
SURFACE WATER DRAINAGE
FENCE
ELEVATION OF EXISTING GRADE (FT)
COMPLIANCE BOUNDARY
BENCH MARK
CULVERT
SURROUNDING LAND USE IS PRIMARILY DRY FARMING (REF: ADAMS COUNTY ZONING DEPT.)
CleanHarbors
DEER TRAIL, LLC.
DRAWING TITLE:
FACILITY TOPOGRAPHIC MAP
NOTE:
100-YEAR FLOODPLAIN HAS NOT BEEN IDENTIFIED FOR SOUTHEAST ADAMS COUNTY BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
FILE NAME: DT TOPO MAP

PERMIT ATTCHMENT 1

FIGURES 7

TRAFFIC FLOW DIAGRAM

CONTAINMENT BUILDING AREA



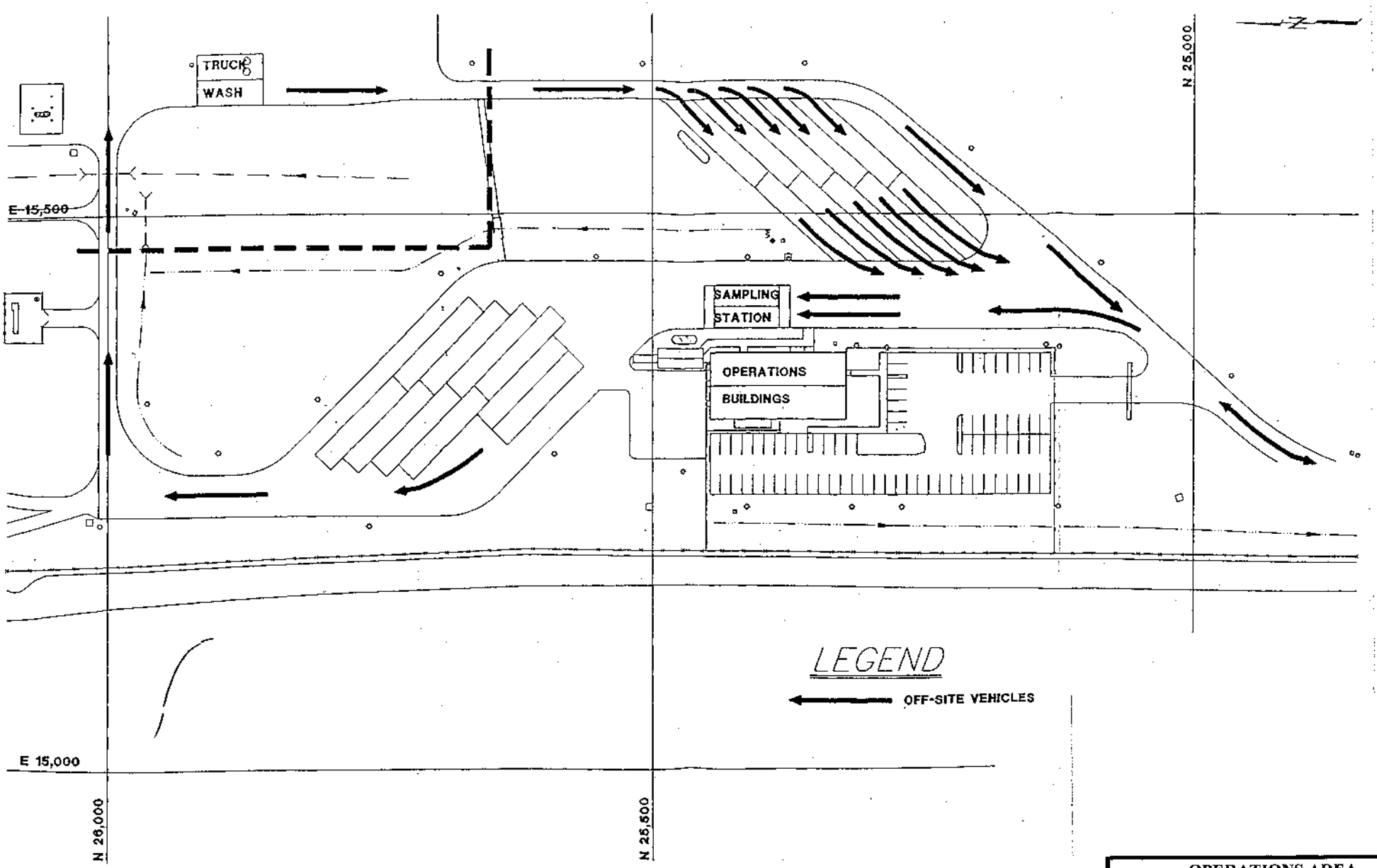
CONTAINMENT BUILDING AREA TRAFFIC FLOW DIAGRAM

PERMIT ATTCHMENT 1

FIGURES 8

TRAFFIC FLOW DIAGRAM

OPERATIONS AREA

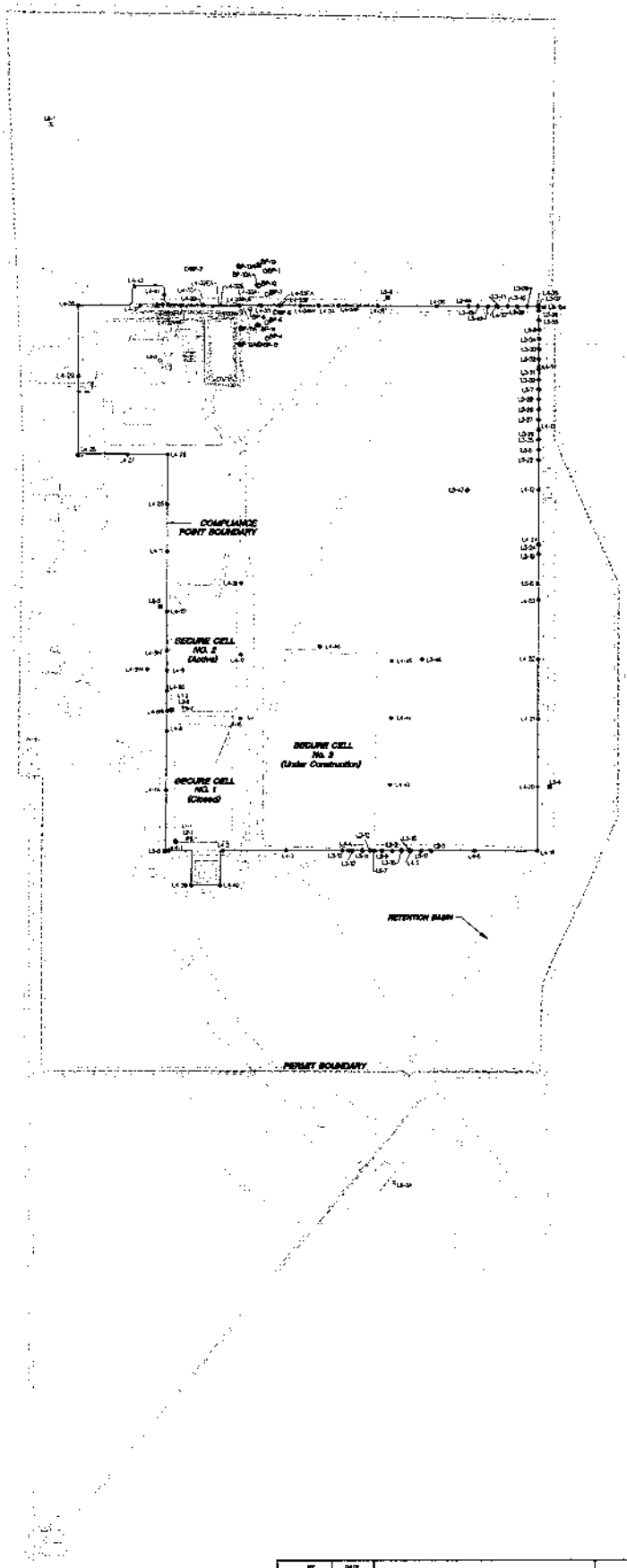


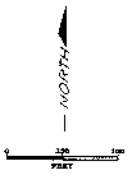
OPERATIONS AREA
TRAFFIC FLOW DIAGRAM

PERMIT ATTCHMENT 1

FIGURES 9

MONITORING WELL LOCATIONS





LEGEND

GROUNDWATER MONITORING WELLS

ZONE	WELL SYMBOL
L3	◆
L3-L	▲
L4	●
L5	■
L6	▼
BP WELLS	○

LEACHATE COLLECTION SYSTEM (or LEAK DETECTION SYSTEM) PERMANENT SUMP

BY	DATE
CJJ	8-12-02

CAMERON-COLE

FIGURE 1, ATTACHMENT B

CLEAN HARBORS DEER TRAIL, LLC

LOCATION MONITORING WELL AND MONITORING POINTS

SCALE: 1" = 250'

REPORT REF.

DWG. NO.: T100-08

ATTACHMENT TWO - WASTE ANALYSIS PLAN

A. DEFINITIONS AND SITE DESCRIPTION

A.1. Definitions

"Batch" refers to waste treated in the treatment basins. The contents of a treatment basin is considered a batch. A batch may consist of one or more different waste streams and may have one or many waste containers going into it. The contents of a batch are normally mixed together and then treated by the addition of various treatment chemicals and reagents. Even if the material is moved to several other containers for curing, it is still considered to be one batch.

" Campaign" refers to a series of batches containing similar wastes treated using similar treatment formulas. A campaign may be subject to different sampling frequency criteria than an individual batch, based upon statistical confidence in treatment effectiveness.

"Certification" means a written statement of professional opinion and intent signed by an authorized representative that acknowledges an owner's or operator's compliance with applicable LDR requirements. Certifications are required for waste analysis and record keeping provisions and are applicable to any person who generates, treats, stores or disposes hazardous waste. The information referenced by the certification must be true, accurate, and complete.

"Department" means the Colorado Department of Public Health and Environment (CDPHE)

"Dioxin and Furan" mean wastes containing one or more of the following constituents: tetra-, penta-, and hexachlorodibenzo-p-dioxins, and tetra-, penta-, and hexachlorodibenzofurans respectively.

"EPA Hazardous Waste Number or EPA Waste Code" means the number assigned by EPA to each hazardous waste listed in Part 261, Subpart D of the Colorado Hazardous Waste Regulations (CHWR), 6 CCR 1007-3, and to each characteristic identified in Part 261, Subpart C of the CHWR.

"Finger Print Analysis" is an abbreviated waste analysis conducted generally for parameters that will give information that can be used to verify that the waste received at the facility matches the expected characteristics of that waste.

"Lab pack" means an over packed container, usually a steel or fiber drum, containing small quantities of chemicals in containers which are hazardous wastes of the same hazard class.

"Land Disposal Restrictions" (LDR) means provisions of the Colorado Hazardous Waste Regulations, 6 CCR 1007-3 §268, that prohibits the land disposal of hazardous wastes into or on the land unless EPA has determined that it will not endanger human health and the environment. EPA has established levels or methods of treatment that wastes must meet before wastes are land disposed.

"Notification" means that when restricted wastes are being shipped off-site for treatment, storage or disposal, the generator must comply with a tracking system that requires that notifications be sent to the receiving facility. Notification requirements include the EPA hazardous waste number and manifest number.

"Prohibited wastes" mean a subset of restricted wastes (under the LDR regulations) that have established treatment standards, but do not meet the respective treatment standard, do not have a variance or waiver in effect and are, therefore, ineligible for land disposal.

"Restricted wastes" mean those RCRA hazardous wastes that are subject to the LDR program. A waste is restricted if EPA has established a treatment standard for it, or if it has been specifically designated by Congress as ineligible for land disposal.

"Similar waste streams" means waste streams which are generated from similar industry processes or from units which use feed products which are alike, but not necessarily identical, and are related in nature.

"Toxicity Characteristic Leaching Procedure" (TCLP) means Method 1311 of SW-846, Test Methods for Evaluating Solid Wastes. It is the testing procedure for determining if a waste exhibits the hazardous characteristic of toxicity. The TCLP is designed to determine the mobility of both inorganic and organic contaminants in liquid, solid and multiphase wastes.

"Universal Treatment Standards" means treatment standards for underlying hazardous constituents as defined in 6CCR 1007-3 §268.2(I), which may not be exceeded for land disposal. These standards are used to regulate most prohibited hazardous wastes with numerical limits. Compliance with these treatment standards is generally measured by an analysis of grab samples.

A.2. Facility Description

The following waste management activities occur at the Facility:

- Storage and/or accumulation of waste materials either for on-site treatment or disposal, or for subsequent shipment to other permitted treatment, storage or disposal facilities
- Treatment of liquid, sludges, solids, and debris
- Secure landfill disposal of non-liquid waste materials
- In transit staging of waste materials which are either being shipped to the facility or are being transported to other off-site waste treatment, storage or disposal facilities

Drawings showing the facility location and specific unit locations are shown in Permit Attachment 1 - Facility Location Maps and Figures. Specific unit operating conditions are contained in Parts III through VI of the Permit, and Permit Attachments 8 through 11.

B. GENERAL REQUIREMENTS

B.1. The Permittee shall maintain a copy of this Waste Analysis Plan (WAP) at the facility. [264.139(b)]

B.2. The Permittee may request, as a Class 1 Permit Modification, changes to test methods contained within this WAP to ensure that test methods are kept current. [100.63]

B.3. The Permittee shall update the required waste analysis to ensure that the information is accurate. [264.13(a)(3)]

B.3.1. The update or re-analysis will occur whenever the Permittee has reason to believe the process or operation generating the waste has changed. [264.13(a)(i)]

B.3.2. The update or re-analysis will occur whenever the on-site acceptance inspection indicates that the hazardous waste received at the facility does not match the waste designated on the accompanying manifest. [264.13(a)(3)(ii)]

B.3.3. At a minimum, the required analysis must be reviewed and/or updated annually. The review must include updating the brief description of the process which generates each waste for each generator sending waste to the facility. Documentation of the review, up-date, and/or re-analysis must be maintained in the operating record. [264.13(b)(4), 264.73(b)(3)]

B.4. The Permittee shall maintain copies of all waste analysis results as part of the operating record. These records shall be kept until closure of the Facility. [264.73(b)] The Facility shall maintain these records during the Post-Closure Period also.

B.5. The Permittee shall analyze unknown samples provided to the on-site laboratory by the Department. The results shall be provided within 90 days of submission of the sample, unless otherwise approved by the Department. Samples shall be analyzed within the correct holding times. Deficiencies identified to the Permittee from the analysis of an unknown, or identified on inspection shall be rectified by the Permittee. A report detailing measures used to rectify deficiencies shall be submitted to the Department within 20 days, along with an assessment of affected wastes, processes or other impacts such as compliance.

B.6. The Permittee shall obtain samples from any bulk shipment or other containerized waste selected by a Department inspector. On an annual basis, the number of samples shall not exceed one sample per 20 vehicles when averaged over a year.

B.6.1. The samples will be analyzed for the parameters requested by the Department inspector. The inspector will provide the Permittee the rationale for the parameters selected.

B.6.2. The results of these analyses shall be available in the operating record within 90 days of the request for sample acquisition.

B.6.3. The results of these analyses shall be evaluated according to the Waste Discrepancy Procedures contained in WAP-Appendix G.

B.6.4. If a discrepancy is found, and can not be resolved, then no further shipments of the subject waste stream from that Generator shall be accepted at the Facility without repeating formal acceptance review of the waste through the pre-acceptance procedures.

C. WASTE STREAM PRE-ACCEPTANCE REVIEW AND APPROVAL PROCESS

C.1. Analytical data required for the pre-acceptance evaluation may either be provided by the generator or by the Facility. The Facility shall perform verifying analysis if the facility has any reason to believe that the analytical data provided by the generator is inadequate.

C.1.1. When analytical data provided by the generator is used to comply with the analytical requirements of the pre-acceptance evaluation process, then the on-site analytical methods and quality control and quality assurance (QC/QA) shall be used to evaluate the acceptability of that data.

C.1.2. Exception to this procedure may be obtained from the Department on a case-by-case status.

C.2. Acceptable process knowledge may be used for the pre-acceptance evaluation. The operating record shall contain documentation that clearly demonstrates that the information relied upon is current and sufficient to identify the waste accurately and completely.

C.3. Waste Profile Sheet

C.3.1. The detailed waste characterization data necessary for Pre-Acceptance Review will be recorded on a Waste Profile Sheet and confirmed by the signature of an authorized representative of the generator. The generator must make a hazardous waste determination per 262.11 and the Waste Profile Sheet will document this determination. An example of a Waste Profile Sheet is contained in WAP-Appendix A.

C.4. Information Supplied by Generator

The generator will provide the following as part of the pre-acceptance review.

C.4.1. A representative sample

C.4.1.1. A representative sample is not required for the following waste streams:

C.4.1.1.1. Debris as defined by 6 CCR 1007-3 §268.2(g)

C.4.1.1.2. Lab packs which meet the requirements of 6 CCR 1007-3 §264.316

C.4.1.1.3. Emergency spill recovered material

C.4.1.1.4. Asbestos-containing material that does not contain hazardous waste

C.4.1.1.5. Wastes that contain P or U EPA Coded wastes only

C.4.1.1.6. Universal wastes

C.4.1.1.7. Empty containers as defined by 6 CCR 1007-3 §261.7

C.4.1.1.8. When sufficient information is available through knowledge of the waste or an MSDS

C.4.2. All applicable EPA Waste Codes

C.4.3. Reserved

C.4.4. Description of the process which generates the waste

C.4.5. Notation of the presence or absence of any of the following, which are prohibited from acceptance at the facility:

C.4.5.1. Wastes assigned the waste codes F020 - F023, F026 through F028, and F032 that do not meet the treatment standards specified in 6 CCR 1007-3 §268.40. Determination that wastes do meet the treatment standards must be based on analysis.

C.4.5.2. Compressed gases

C.4.5.3. Air Reactive Materials

- Shock Sensitive Materials

- Infectious Wastes
- Explosives
- PCBs > 50 ppm
- Radioactive > 116 uR/hr, or as approved by the Department

C.5. Data to be part of final Waste Profile Sheet

The data specified below must be part of the final Waste Profile Sheet:

C.5.1. Chemical analysis or generator knowledge is required for the parameters listed below, except for those waste codes and/or waste constituents specified in 40 CFR and/or 6 CCR 1007-3 §268.40 and/or §268.45 as being subject to technology based treatment standards or alternative treatment standards for debris. Wastes accepted for storage only are required to have LDR determinations. For those waste codes identified in III.D.2., the following data must be provided: Concentrations for those generator identified Land Disposal Restriction hazardous waste constituents listed in 40 CFR or 6 CCR 1007-3 §268.40 and/or §268.48 for each respective waste code identified by the generator.

C.5.2. The following parameters as applicable will be required to identify incompatible or reactive wastes that may need to be treated, segregated, and/or have specific health and safety precautions:

- pH
- Evolution of acid gases
- Evolution of sulfide gas with change in pH
- Evolution of cyanide gas with change in pH
- Evolution of ammonia gases with a change in pH
- Potentially incompatible waste as defined in WAP-Appendix I
- Oxidizers for D001 subcategory
- Flash point/Ignitability

C.5.3. The following parameters will be required to determine the wastes physical description:

- Bulk density or specific gravity as applicable
- Visual determination of the following:
- Number of phases
- Volume percent of sediment
- Color
- Physical state

C.5.4. The following parameters will be required to identify wastes that must be treated prior to disposal: (Analysis for these parameters is not required for wastes that are accepted for storage only):

- Free liquids
- Load Bearing
- Flash point (liquid only)

C.6. Pre-Acceptance Waste Characterization Review

C.6.1. Following completion of the Waste Profile form, the waste will be evaluated for management at the facility. This evaluation will ensure that receipt of the waste material will be in compliance with this Permit, and all applicable laws and regulations. This review will also ensure that the waste material can be adequately managed by the facility's treatment, storage and disposal capabilities and that the waste will be compatible with treatment reagents, other wastes with which it will come into contact, and with each unit's construction materials that the waste will be placed in. This evaluation will include the following:

- Documentation Review
- Management Capabilities Review
- Physical and Chemical Characteristics Review
- Waste Management By-Products
- General Prohibition Review (wastes which are prohibited from acceptance are listed in Section III.D.5)
- Land Disposal Restrictions (LDR) Analysis and Documentation Review

Documentation of this evaluation shall be maintained in the operating record.

C.6.2. In addition, the waste streams will be evaluated regarding unit specific restrictions:

C.6.2.1. Landfill

- Free liquids
- Land Disposal Restricted wastes that exceed the applicable treatment standards
- Wastes which are ignitable below 140°F
- Lab packs that do not meet the requirements of §268 of 6 CCR 1007-3
- Reactive waste: waste that release greater than 500 ppm sulfide or 250 ppm cyanide when subjected to a change in pH. Wastes that release greater than 20 ppm sulfide or greater than 10 ppm cyanide shall be segregated from other wastes which have a pH < 5.0.

C.6.2.2. Treatment in the Containment Building

- Solids which are ignitable between 100 °F and 140 °F require special handling in the treatment basins

- No ignitable (below 100 °F) or reactive wastes will be managed in the Staging Area of the Containment Building

C.6.2.3. Container Management Area

- Flammable Liquids: Containerized storage within the Class I or Class II area of the Container Management Building

- Solids Ignitable below 100 °F : Containerized storage only; ignitable solids must not include spontaneously combustible material

C.6.2.4. Container Storage Area

- Wastes containing free liquids and/or wastes carrying the EPA Waste Codes F020 - F023, F026 through F028, F032 which do not meet LDR standards are prohibited, except for microencapsulated debris

C.6.3. Pre-Acceptance Treatability Review: Waste which is to be treated to meet applicable permit conditions, 6 CCR 1007-3 and/or 40 CFR §268 shall be evaluated to verify that the waste can adequately be treated. This evaluation shall be documented in the Operating Record. Treatment capability verification will be made by analytical testing or application of knowledge based on previous treatment experience of similar waste streams. Knowledge from bench scale or full scale treatment batches of similar types of wastes may be used to determine treatability. Technical literature and waste treatment formulation and testing experience from other treatment facilities may also be used to determine treatability. Analytical testing for treatability verification will be performed by analyzing a treatment residual obtained from mixing a portion of the waste sample with proportions of reagents.

The pre-treatment formulations shall prescribe a ratio between the weight of each reagent used and the weight of the waste received.

C.6.4. The Permittee's pre-acceptance procedure, conducted pursuant to the WAP, will include dioxin and furan analyses to verify that the treatment standards applicable to F020, F021, F022, F023, F026, F027, F028 and/or F032 have been met. Highway 36 shall not accept any of these wastes for management until such analyses demonstrate that the LDR treatment standards are met for these waste codes, unless otherwise approved by the Department.

C.7. Waste Acceptance

C.7.1. The Permittee will use the waste stream Pre-Acceptance Review process to evaluate the acceptability of the waste. Approval of the waste will be acknowledged by the General Manager or his designee.

C.7.2. The Pre-Treatment and Disposal Recommendation Form (PDR) will document the approval of the waste stream and will be part of the operating record. Each approved waste stream will be assigned a unique identification number, which will be recorded on the PDR form.

C.7.3. An example of the PDR Form is contained in WAP-Appendix A. The PDR will at a minimum include the following information:

- Reference to the Waste Profile Sheet file for copies of all waste analysis and evaluation data;
- Volume percent phases (solid, aqueous, organic)
- Designated waste management methods;
- The pre-treatment formulations if the waste requires treatment;
- Potential incompatibilities, ignitability, and/or reactivity to be considered to safely manage the specific waste stream;
- Measures necessary to mitigate excessive dust; and
- Special health and safety or other handling precautions.

C.7.4. If a waste stream is not acceptable, the generator will be notified of the unacceptability and the reasons for the unacceptability.

D. ON-SITE ACCEPTANCE: INSPECTION, EVALUATION AND ANALYSIS

D.1. Document Verification

The following procedures will be used to verify that each waste stream shipment has the appropriate documentation for acceptance.

D.1.1. Each vehicle containing wastes for management at the facility will stop at the Guard/Scale house. The Permittee will perform the following:

- Have the driver of the vehicle sign the Facility log
- Obtain the gross weight of the shipment vehicle

D.1.2. The driver of the shipment will then present all shipping documents for review. The following documents will be reviewed:

D.1.2.1. Hazardous Waste Manifest:

- A manifest will accompany each hazardous waste shipment (except universal waste shipments)
- The generator and transporter portions of the manifest shall be reviewed for completeness, date, and signature

D.1.2.2. Land Disposal Restrictions:

- Waste shipment and pre-acceptance approval information that determine if the waste stream is subject to LDRs will be reviewed

D.1.2.3. A verification will be made that the Waste Profile Sheet, the PDR forms, the LDR notification are current for the waste shipment (i.e., annual waste determinations and one-time notifications are up to date, etc.)

D.1.2.4. Other Shipping Documents: All other shipping documents will be reviewed

D.1.3. Identification of Document Discrepancies

D.1.3.1. The following items will be considered significant discrepancies in the document verification process [§264.72(a)]:

- The weight of a bulk shipment varies with the weight indicated on the accompanying manifest by more than 10 percent;
- The piece count of a shipment varies with the piece count indicated on the accompanying manifest;
- Variations in the type of waste or waste constituents indicated on the accompanying manifest;
- The information contained in the generator or transporter portions of the manifest is incomplete or inconsistent with that expected based on the information contained on the Waste Profile;
- The generator and transporter portion of the manifest is unsigned or not dated;
- A Waste Profile Sheet and PDR form are not on file for the waste stream
- The notification/certification required for a waste subject to LDR has not been submitted or the notification/certification is incomplete.

D.1.3.2. If any of the discrepancies listed above are identified, the shipment will not be treated or disposed of until the discrepancy is resolved. Wastes may be stored (provided that the wastes meet the requirements for storage) while the discrepancy is resolved. .

D.1.3.2.1. Discrepancies that are resolved shall be recorded in the operating record with a concise explanation of how the discrepancy was resolved to allow acceptance of the waste.

D.1.3.2.2. If the discrepancy is not resolved within 15 days after receiving the waste, the Permittee must immediately submit to the Department a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue. [264.72(b)]

D.1.3.2.3. If no resolution is possible, the shipment will be returned to the generator.

D.2. On-Site Inspection and Sampling Procedures

Appropriately trained site personnel will conduct the following inspection and sampling procedures:

D.2.1. Site personnel will consult the PDR form and other applicable waste characterization data to identify proper personal protective equipment for shipment inspection and sampling.

Using appropriate personal protective equipment, site personnel will inspect the contents of the shipment for visual conformity with the waste described on the hazardous waste manifest. The contents of every container will be visually inspected for color and appearance.

D.2.2. Using an appropriate sampling method as described in WAP-Appendix B, site personnel will obtain a representative sample of each waste material contained in a shipment at the frequency indicated below. The following waste materials will not be subject to this sampling requirement:

- debris as defined by 6 CCR 1007-3 §268.2(g)
- shredded empty drums or containers
- lab packs
- asbestos containing wastes unless other listed hazardous waste constituents are identified by the generator as being present and/or suspect

D.2.2.1. In a given shipment of containerized waste, a representative sample shall be obtained from a minimum of 10 percent of the containers of each waste stream in the shipment. Each sample shall be analyzed for the required on-site acceptance parameters.

D.2.2.2. In a given shipment of bulk waste, a representative sample shall be obtained and analyzed for the required on-site acceptance parameters.

D.2.2.3. An exception to the requirement for sampling each load of bulk load shipments will be where multiple bulk loads of a single waste stream are received from a single source (e.g., a major site clean up of contaminated material or a large volume generator shipping over a short time period). In such cases, all loads will be inspected for physical appearance. A visual non-conformance will initiate actions to resolve the discrepancy. At least ten per cent of such loads, minimum one load per day, will be sampled and analyzed for incoming load parameters. Exception to this sampling frequency and parameters may be obtained from the Department on a case-by-case basis.

D.2.3. Required Analytical Parameters and Physical Characteristic Data for On-Site Acceptance Evaluation

D.2.3.1. The analytical and physical characteristic data specified below must be obtained for all samples obtained in accordance with Section IV.B.2. The results of these analyses shall be obtained and evaluated prior to commingling, treatment or disposal of the wastes.

- Reactivity (Water/Air);
- Radioactivity: A dual scintillation (gamma) detector will survey incoming waste loads at the gate. Additional radioactivity screening will be performed on the on-site acceptance sample;
- pH;
- Reactive Sulfide
- Reactive Cyanide
- Load Bearing (for direct bury only)
- Physical Description
- Bulk Density

- Physical State
- Color
- Free liquids - If free liquids are present in the shipment or free liquids are determined to be present based on the procedure in WAP-Appendix C, the following additional analyses will be performed on the free liquid phase:
- Physical description based on visual observation
- Number of phases
- Volume percent of aqueous liquid
- Volume percent of organic liquid
- Volume percent of sediment
- Flash point (liquid only)
- Presence of oxidizers (for wastes identified as D001 subcategory only and for all containerized wastes)
- Presence or potential for generation of acid or explosive gases
- Random Sample Program

D.2.3.2. Random Samples identified by CDPHE Inspectors will be analyzed for compliance with LDR constituents. The Random Sample Program, RSP is for the purpose of ensuring that waste disposed in the secure landfill cells meets all applicable LDR Treatment Standards. Because waste treated in the Treatment Building and waste being disposed of by direct landfill have different analytical requirements, the RSP is different for the two different types of wastes. Random samples will be selected at the frequency required by CDPHE Inspectors. The frequency will not exceed once per quarter.

D.2.3.2.1. RSP for Materials Treated in The Treatment Building.

Materials treated in the treatment building are normally analyzed for treated LDR constituents after treatment according to the sampling frequency identified in this WAP. The RSP is designed to ensure that LDR constituents present in waste that are certified by the generator to meet LDR standards do in fact meet those standards. Those constituents that are not certified to meet LDR standards are normally analyzed for compliance with these standards after treatment and are not subject to this RSP. Wastes that are not subject to sampling requirements in this WAP will not be sampled as part of the Random Sample Program. Random samples will be selected at the frequency required by CDPHE Inspectors. The frequency will not exceed once per quarter. These selected wastes will be sampled and analyzed for LDR constituents that are certified by the waste generator to meet LDR standards.

D.2.3.2.2. RSP for Direct Disposal Materials.

The RSP is designed to ensure that LDR constituents present in waste that are certified by the generator to meet LDR standards do in fact meet those standards. Wastes that are not

subject to sampling requirements in this WAP will not be sampled as part of the Random Sample Program. Random samples will be selected at the frequency required by CDPHE Inspectors. The frequency will not exceed once per quarter. These selected wastes will be sampled and analyzed for LDR constituents that are certified by the waste generator to meet LDR standards.

D.2.3.3. Special Analysis: In addition to the analysis above, wastes accepted for the following units shall be sampled and analyzed for the following additional parameters:

D.2.3.3.1. Treatment in the Treatment Building

D.2.3.3.2. Compatibility with treatment reagent: A sample of the waste shipment will be mixed with treatment reagent to determine waste-to-reagent and reagent-to-reagent compatibility

D.2.3.3.3. Compatibility with Commingled Waste: If a waste is to be mixed with other waste already on site, then a sample of the waste shipment shall be mixed with a sample of the wastes with which it is to be commingled. The waste-to-waste compatibility may be evaluated based on waste knowledge

D.2.3.4. Exemption to the required analysis may be obtained from the Department on a case-by-case basis.

D.3. The EPA Wastes F020 - F023, F026-F028, and F032 shall not be treated for other waste code constituents until documentation provided by the generator verifies the treatment standards specified in 40 CFR and/or 6 CCR 1007-3, §268.40 for F020, F021, F022, F023, F026, F027, F028 and/or F032 wastes have been met prior to shipment to the Facility.

D.4. Record Keeping for On-Site Acceptance

The analytical data for on-site acceptance, including the origin of the sample, the date sampled, the manifest number, the Highway 36 unique waste stream identification number, and the movement request number, shall be documented in the operating record and shall be traceable.

D.5. Procedures for Identification and Resolution of Waste Shipment Analytical Discrepancies

D.6. If any of the discrepancies listed in WAP-Appendix F are identified, the shipment will not be treated or disposed at the facility until the discrepancy is resolved. Wastes may be stored (provided that the wastes meet the requirements for storage) while the discrepancy is resolved.

D.6.1. Discrepancies which are resolved shall be recorded in the operating record with a concise explanation of how the discrepancy was resolved to allow acceptance of the waste.

D.6.2. If the discrepancy is not resolved within 15 days after receiving the waste, the Permittee must immediately submit to the Department a letter describing the discrepancy and attempts to reconcile it, and a copy of the manifest or shipping paper at issue.

D.6.3. If no resolution is possible, the shipment will be returned to the generator.

E. WASTE ACCEPTANCE AND DOCUMENTATION

If no discrepancies are identified, or following the resolution of any discrepancies, the following procedures will be used to accept and unload waste shipments:

E.1. The Waste Profile Sheet, the associated PDR form, and other available on-site characterization data will be used to prepare a Movement Request for the shipment. The Movement Request provides a set of written instructions for the unloading of the waste shipment, and the decontamination of the shipment transport vehicle. The Movement Request will document personnel protective equipment required for handling the waste. An example of the Movement Request is contained in WAP-AppendixA.

E.2. Following preparation of the Movement Request, the General Manager, or his designee, will sign the form. Subsequent signatures will be obtained as the waste is processed.

E.3. Signature on the form will indicate on-site personnel possess the necessary knowledge to safely unload and manage the waste.

E.4. Following unloading of the waste the exterior of the transport vehicle will be washed in accordance with the instructions on the Movement Request.

E.5. Following the truck wash, the Permittee shall inspect the truck for proper exterior truck washing.

E.6. The completed Movement Request and weight ticket shall become part of the operating record.

F. ON-SITE WASTE TRANSFER

F.1. Transfer of Treated Wastes to Secure Disposal Cell(s)

F.1.1. A grab sample from each treatment campaign will be obtained as follows:

F.1.1.1. For treatment in basins, a representative treatment verification sample shall be obtained from a grab sample from the basin.

F.1.2. Analytical Requirements

F.1.2.1. The parameters selected for treatment verification sample analysis will be dependent upon the constituents for which the waste was treated. The analysis performed on the treatment verification sample must verify that all aspects of the treatment were successful and must document that disposal of the waste will comply with all Permit and regulatory requirements. The analytical requirements do not apply to debris as defined by 6 CCR 1007-3, §268.2(g). The sample will be analyzed for any or all of the following as applicable:

- Free liquids
- Load bearing capacity
- pH
- Ignitability
- A positive test for ignition between the test temperatures of 100° and 140° will require special handling as described in Permit Attachments 10 and 11.
- Gas Evolution/Reaction with pH change

- Waste streams which evolve sulfide gas greater than 20 ppm or cyanide gas greater than 10 ppm, but less than 250 ppm of cyanide gas or 500 ppm sulfide gas shall be segregated in the Secure Disposal Cell from wastes with pH less than 5.0.

- Land Disposal Restrictions – specific constituents for which waste was treated

F.1.3. The analytical results obtained from the above analysis shall be evaluated to determine the success of the treatment. If analytical results indicate the failure of a treatment standard, the Permittee will either re-process the waste or the waste will be sent to an appropriate permitted treatment or disposal facility. The analytical results and the evaluation shall be documented in the operating record.

F.1.4. After statistical analysis and consideration of all other applicable aspects of the analytical data for verification of treatment of LDR wastes and approval of this analysis by the Department, the Permittee may implement the following frequency for testing the Treatment Batch samples:

F.1.4.1. If the test results from the treatment of three successive like treatment Batches demonstrate that all three treatment Batches meet the required treatment standards, then one verification sample in every 20 like treatment Batches will be performed. Like treatment Batches are those that treat the same constituents using the same treatment formulation.

F.1.4.2. If the analysis of the one in 20 verification sample demonstrates that the treatment of that campaign did not meet the applicable treatment standards, the specific treatment formulation will be re-evaluated, and if necessary, adjusted so the treated waste will meet the applicable treatment standards. The Permittee must again demonstrate three successive like treatment Batches meet the applicable treatment standards using the revised treatment formulation and obtain approval from the Department, prior to returning to the 1 in 20 frequency for testing.

F.1.4.3. The Permitee may utilize less frequent sampling than one in twenty for treatment of a particular waste stream with the permission of the department. The Permitee must demonstrate to the department that adequate statistical confidence in the treatment formula exists to justify less frequent sampling.

F.1.5. Record Keeping for Each Treatment Batch

F.1.5.1. Each treatment Batch will be assigned a unique number. The operating record will contain the following information regarding each treatment Batch:

- Waste stream number for each waste mixed into the Batch

- Work order number of each shipment mixed into the Batch

- Treatment formulation used (ratio of each reagent to waste)

- Basins used for the batch

- The verification sample results, including any failing results

- LDR Certifications

- Any other certifications or data

F.2. Transfer of Liquids to the Contaminated Water Tanks

F.2.1. General Analytical Requirements

Prior to transfer to the Contaminated Water Tanks, generator knowledge may be used to determine the properties of the waste or the waste will be analyzed for the following parameters and the results evaluated against the applicable restrictions:

- Flash point
- pH
- Gas Evolution or Reaction with change in pH
- Volume percent phases - must be aqueous liquids
- Compatibility with designated tank contents
- Specific gravity

F.2.2. Specific Analytical Requirements

In addition to those parameters above, liquids from the following specific sources will be analyzed for the following parameters prior to transfer to the contaminated water tanks:

Liquids and Units	Specific Analysis
Leachate from Secure Cell Leachate Collection Systems	Analyze for F039 constituents quarterly
Liquids from the Treatment Building Leak Detection System and Secure Cell Leak Detection Systems and Permanent Sumps	Analytical Requirements are detailed in Permit Attachment 8 - Groundwater Monitoring, Sampling and Analysis, and Statistical Evaluation Procedures
Non-reusable water from the off-site truck wash, packed scrubber column water, and liquids from the accumulation tanks	An evaluation will be made to determine if constituents in the water will exhibit concentrations above the characteristic level for the toxic characteristic waste codes listed in 6 CCR 1007-3, §261.24, Table 1. This evaluation may be based on knowledge to identify/eliminate constituents or by laboratory analysis to determine characteristic concentrations. Based on this evaluation, the appropriate waste code will be assigned to the transferred water.
Residual wash water and/or accumulated liquid waste from either the treatment process area or staging area of the treatment building	Wash water from these areas or from decontamination of debris shall be assigned the waste codes for the waste or debris that the water has contacted

F.3. On-site Transfer Activities

The following analytical requirements shall apply to the respective on-site transfer activities:

Transfer	Analytical Requirements
Transfer of on-site materials, spill contaminated materials and solids from accumulation tanks to treatment process area or secure disposal cell	Prior to the transfer of solids from accumulation tanks or on-site spill material or spill contaminated materials, the soil, absorbent or other materials will be sampled and analyzed to determine the characteristic waste code applicable to the material. Previous analysis or knowledge of the material may be used to meet this requirement. Debris that is exempt from a prohibition on land disposal will be treated using a specified technology in accordance with 6 CCR 1007-3, §268.42 or will be treated using the alternative treatment standards for debris specified in Table 1 of 6 CCR 1007-3, §268.5 and is not subject to the analytical requirements. Wastes destined for secure cell disposal will be analyzed for free liquids and load bearing capacity.
Transfer of collected baghouse dust to the treatment process area	Prior to transfer, the baghouse dust will be evaluated to determine the appropriate waste characterization. The evaluation will be based on laboratory analysis and/or process knowledge. The baghouse dust will also be sampled and analyzed in accordance with the On-site Acceptance Procedures in Section III. After the appropriate waste codes have been determined, any applicable LDR shall be identified.
Transfer of liquid from Contaminated Water Tanks to treatment process area	The appropriate waste codes for this waste will have been assigned during the transfer of waste into the tanks. Based on the waste codes assigned, the applicable LDR shall be determined. No further analysis for transfer of this waste is required.
Transfer of waste from the Container Management Building, Transfer Station, or Container Storage Area to the Treatment Process Area or a Secure Cell	Must be analyzed according to the Pre-acceptance and/or On-site Acceptance Procedures
Transfer of liquid from the contaminated water storage tanks to either the on-site waste water treatment system or an off-site treatment facility	No further analysis required
Transfer of recycled water from off-site truck wash to the contaminated water tanks	Must be transferred after washing a maximum of 100 trucks; no further analysis is required
Transfer of accumulated liquids from staging area or unloading area of the Treatment Building to Treatment Process Area	Prior to transfer, the liquids will be evaluated to make a hazardous waste determination.

F.4. On-site Waste Transfer Documentation

F.4.1. Transfer of wastes on site is documented in Logbooks and Movement Requests. Transfer of wastes to the treatment basins and to the landfill cells requires movement requests authorized by the General Manager or his designee. Transfer of wastes from one storage areas to another, and transfer of leachate and waste water to storage tanks and to or from the wastewater treatment plant must be documented on movement requests, but these requests do not require authorization of the management. Typical movement request forms and other waste tracking documents are displayed in the attachments. The forms will be revised as needed.

F.4.2. All transfers to the Container Management Building, Container Storage Areas, Treatment Building Staging Area, Treatment Process Area, Contaminated Water Tanks, Oil and Solvent Tanks, or Secure Disposal Cells must be logged into the corresponding shipping and/or receiving log books. These logbooks tracked using the Movement Requests and the computerized waste tracking system. The Movement Requests are considered part of the operating record.

G. SPECIAL WASTE ANALYSIS

G.1. In-Process Analysis

The Permittee shall conduct treatment in-process sampling and analysis as needed. Analysis of grab samples may consist of pH, alkaline leach, or other appropriate analyses. These analyses may be conducted to verify that the waste treatment is proceeding as designed. These analyses must be conducted whenever the permittee has reason to believe that the waste treatment is not proceeding as designed. Documentation of these analyses will be maintained in the operating record.

WASTE ANALYSIS PLAN

APPENDIX A

FORMS

ENVIRONMENTAL SERVICES, INC.

Generator's Waste Material Profile Sheet

PROFILE INSTRUCTIONS

This form asks for information which allows Clean Harbors to transport and dispose of waste in a legal, safe, and environmentally sound manner. The information supplied to Clean Harbors will be kept strictly confidential. Please note that this form is three different pages, with a pressure sensitive copy for each page. Care should be taken when completing this form that only one pressure sensitive page is being written on at a time. Questions about completing this form can be directed to your sales or customer service representative, or can be phoned in to 1-617-PROFILE.

SECTION A. GENERAL INFORMATION

GENERATOR INFORMATION - List the name and address of the facility that will be listed on the manifest.
CUSTOMER INFORMATION – List the name and address of the company which Clean Harbors should invoice. If you have never done business with Clean Harbors, please contact your local sales representative.

SECTION B. WASTE DESCRIPTION

COMMON NAME OF WASTE – This is the name with which the generator refers to the waste. Note that this name will be referenced on quotations and invoices.
PROCESS GENERATING WASTE – Describe the specific steps that resulted in the production of the waste. This information is necessary to ensure that the proper EPA hazardous waste code number(s) have been applied. After describing the process in words, check off the boxes as instructed.

SECTION C. PHYSICAL PROPERTIES

PHASES/LAYERS - If waste is a liquid, indicate the number of liquid layers, and the approximate percentage of each layer. For a 50/50 oil and water mixture, the box would appear as follows:

NUMBER OF PHASES/LAYERS:
1 X 2 ____ 3 ,
% BY VOLUME:
TOP 50 ___ MIDDLE ___ BOTTOM 50 ___

VISCOSITY – Viscosity measures the resistance to flow of a liquid (i.e. how thick the liquid is). Examples are given.
BOILING POINT – If the waste is a liquid, indicate whether the boiling point is above or below 95 degrees Fahrenheit. This threshold is part of the criteria for determining DOT packing groups. References such as *The Condensed Chemical Dictionary*, or *The Handbook of Chemistry and Physics* can be helpful in estimating the Boiling point. Boiling points of some common materials are:

Water	212F
Methanol	140.1F
Gasoline	greater than 100F

MELTING POINTS – If the waste is a solid, indicate the melting point range. Most solids have melting points above 200 degrees Fahrenheit. Melting points of some common materials are:

Sodium hydroxide	604 F
Copper	1981 F

FLASH POINT – Flash point is the temperature at which a material gives off a vapor sufficient to form an ignitable mixture with air. The flash point can be determined by testing, but often can be estimated based on the constituents. Flash points of some common materials are:

Acetone	15 F
Gasoline	less than 73 F
Kerosene	100 F - 150 F

pH – pH is a measure of acid or alkaline strength. 7 is a neutral pH. Stronger acids have lower pH's, and stronger alkalines have higher pH's. If a material is a solid, the pH should be measured after preparing a 10% solution in water.
SPECIFIC GRAVITY – Specific gravity is related to the density. The more dense the material, the higher the specific gravity. Examples of some common specific gravities are given.
TOTAL ORGANIC CARBON
Total organic carbon (or TOC) is a measure of the organic content of a material. A waste stream can be tested for the organic carbon content or in most cases, it can be estimated. The TOC is necessary for liquids to determine if the waste is: (1) a wastewater or nonwastewater per EPA definition (2) a high or low TOC subcategory for land disposal restrictions. Examples of the three categories:

TOC less than 1% .....water with metals and no organics
TOC 1% -9% .....water with 5% alcohol
TOC greater than 10% .....gasoline or oil

BTU/LB - A BTU measures the heating value of a fuel. Some BTU/Lb values for common materials would be:

Gasoline	18,800
Diesel fuel	18,700
Methanol	8600
Paper	7700
1,1,1- Trichloroethane	3100
Water	0

VAPOR PRESSURE – Vapor pressure is a measure of a liquid's volatility. Some examples of common vapor pressures at 25C are:

Water	23.8 mmHg	Ethyl acetate	95 mmHg
MEK	100 mmHg	Motor Oil	< 10 mmHg
Methylene Chloride	465 mmHg	Hexane	148 mmHg
p-Dichlorobenzene	< 1 mmHg	Toluene	29 mmHg

FOR INTERNAL USE ONLY:
☐ Normal Profile ☐ X-Profile
☐ One Time Waste ☐ Repeat Waste
Fax X-Profiles only to 817-380-3591

Clean Harbors
ENVIRONMENTAL SERVICES, INC.

WASTE MATERIAL PROFILE SHEET

Profile Number CH 195764

A. GENERAL INFORMATION

GENERATOR EPA ID #_____
GENERATOR CODE (Assigned by Clean Harbors) _____ GENERATOR NAME: _____
ADDRESS _____ CITY _____ STATE_____ ZIP_____
GENERATOR TECHNICAL CONTACT: _____ PHONE:_____
CUSTOMER CODE (Assigned by Clean Harbors) _____ CUSTOMER NAME: _____
ADDRESS _____ CITY _____ STATE_____ ZIP_____

B. WASTE DESCRIPTION

Common Name of Waste: _____

Process Generating Waste: _____

Process Generating Waste:
(check one) If spill, origin of spilled material

- ☐ Unused chemical or product
- ☐ Lab Pack
- ☐ Spent halogenated solvents
- ☐ Spent non-halogenated solvents
- ☐ Wastewater treatment sludge from electroplating or etching operations
- ☐ Spent plating bath solutions or residues of plating, stripping and cleaning baths where cyanides are used in the process
- ☐ Wood preservation
- ☐ Inorganic pigment production
- ☐ Organic chemical production
- ☐ Inorganic chemical production
- ☐ Pesticide production
- ☐ Explosives production
- ☐ Petroleum refining
- ☐ Iron or steel production or finishing
- ☐ Primary copper production
- ☐ Primary lead production
- ☐ Primary zinc production
- ☐ Primary Aluminum production
- ☐ Ferro alloy production
- ☐ Secondary lead smelting
- ☐ Veterinary pharmaceutical production
- ☐ Ink formulation
- ☐ Coking
- ☐ Other_____
- ☐ Unknown

Source of Waste:
(check one)

- ☐ Unused Product or Chemical
- ☐ Waste by-product from process
- ☐ Spill clean up
- ☐ Lab Pack
- ☐ Planned site remediation
- ☐ Other:_____

Other Process Information:
(check all that apply)

- ☐ Still bottoms
- ☐ Process scrap
- ☐ Process development
- ☐ Out of date product
- ☐ Spent solvent waste
- ☐ Treatment residues
- ☐ Filter cake
- ☐ Degreasing
- ☐ Exempt recyclable material
- ☐ Packaged consumer goods
- ☐ Off-spec chemical product
- ☐ Zinc, Al, or tin plating
- ☐ Anodizing
- ☐ Cleaning/stripping
- ☐ Wastewater treatment sludges
- ☐ Washwaters
- ☐ Pot liners

Other Process Information:
(check all that apply)

- ☐ Electroplating
- ☐ Conversion coating
- ☐ Carbon steel plating
- ☐ Printed circuit mfg.
- ☐ Cyanide process
- ☐ Heat treating
- ☐ Separator sludge
- ☐ Oven residue
- ☐ Catalyst waste
- ☐ Centrifuged solids
- ☐ Condensate
- ☐ Air, steam, or vacuum stripping
- ☐ Emission control dust
- ☐ Acid leaching
- ☐ Dipping operations
- ☐ Chemical manufacturing
- ☐ Carbon adsorption
- ☐ Incineration or thermal treatment
- ☐ Refining
- ☐ Drug mfg.
- ☐ Distillation
- ☐ Pesticide mfg.
- ☐ Reclamation
- ☐ Etching of metals
- ☐ Bag house dust

Profile Number CH 195764

C. PHYSICAL PROPERTIES (at 25°C or 77°F)

PHYSICAL STATE
- ☐ SOLID WITHOUT FREE LIQUID
- ☐ POWDER
- ☐ MONOLITHIC SOLID
- ☐ LIQUID WITH NO SOLIDS
- ☐ LIQUID/SOLID MIXTURE
  - % FREE LIQUID _____
  - % SETTLED SOLID_____
  - % TOTAL SUSPENDED SOLID _____
- ☐ GAS/AEROSOL

NUMBER OF PHASES/LAYERS
☐ 1 ☐ 2 ☐ 3
% BY VOLUME (APPROX.)
TOP_____ MIDDLE_____ BOTTOM_____

VISCOSITY (if liquid present)
- ☐ LOW (e.g. WATER)
- ☐ MEDIUM (e.g. MOTOR OIL)
- ☐ HIGH (e.g. MOLASSES)

COLOR

ODOR
- ☐ NONE OR MILD
- ☐ STRONG

BOILING POINT (if liquid)
- ☐ ≤ 100°F
- ☐ > 100°F

MELTING POINT (for solids only)
- ☐ < 140°F
- ☐ 140-200°F
- ☐ > 200°F

FLASH POINT
- ☐ < 73°F
- ☐ 73-100°F
- ☐ 101-140°F
- ☐ 141-200°F
- ☐ > 200°F

pH
- ☐ ≤ 2
- ☐ 2.1 - 6.9
- ☐ 7 (neutral)
- ☐ 7.1 - 12.4
- ☐ ≥ 12.5

SPECIFIC GRAVITY
- ☐ < 0.8 (e.g. Gasoline)
- ☐ 0.8-1.0 (e.g. Ethanol)
- ☐ 1.0 (e.g. Water)
- ☐ 1.0-1.2 (e.g. Antifreeze)
- ☐ > 1.2 (e.g. Methylene Chloride)

TOTAL ORGANIC CARBON (if liquid)
- ☐ ≤ 1%
- ☐ 1-9%
- ☐ ≥ 10%

BTU/LB
- ☐ < 2,000
- ☐ 2,000-5,000
- ☐ 5,000-10,000
- ☐ > 10,000

VAPOR PRESSURE (for liquids only)_____ mm Hg

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Profile Number CH 195764

D. COMPOSITION (Must add up to at least 100%. Include inert materials and/or debris if applicable. Actual percent or range is acceptable.)

_____	_____	–	_____%	_____	_____	–	_____%
_____	_____	–	_____%	_____	_____	–	_____%
_____	_____	–	_____%	_____	_____	–	_____%
_____	_____	–	_____%	_____	_____	–	_____%
_____	_____	–	_____%	_____	_____	–	_____%

☐ Check if MSDS attached.

E. CONSTITUENTS — Attach any available analysis. Enter values or ranges where known. For TCLP values, BRL signifies below regulatory level. None, unknown, and present are also acceptable answers.

Are these values based on ☐ Knowledge or ☐ Testing?

INORGANIC

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL mg/l
D004	ARSENIC	5.0		
D005	BARIUM	100.0		
D006	CADMIUM	1.0		
D007	CHROMIUM	5.0		
D007	CHROMIUM CR+6			
D008	LEAD	5.0		
D009	MERCURY	0.2		
D010	SELENIUM	1.0		
D011	SILVER	5.0		

OTHER METALS	TOTAL
ALUMINUM	
ANTIMONY	
BERYLLIUM	
CALCIUM	
COPPER	
MAGNESIUM	
MOLYBDENUM	
NICKEL	
POTASSIUM	
SILICON	
SODIUM	
THALLIUM	
TIN	
VANADIUM	
ZINC	

NON-METALS	WT%
SULFUR	
BROMINE	
CHLORINE	
FLUORINE	
IODINE	
	PPM
AMMONIA	
REACTIVE SULFIDE	
CYANIDE-TOTAL	
CYANIDE AMENABLE	
CYANIDE REACTIVE	

ORGANIC

VOLATILE COMPOUNDS		REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL mg/l
D018	BENZENE	0.5		
D019	CARBON TETRACHLORIDE	0.5		
D021	CHLOROBENZENE	100.0		
D022	CHLOROFORM	6.0		
D028	1,2-DICHLOROETHANE	0.5		
D029	1,1-DICHLOROETHYLENE	0.7		
D035	METHYL ETHYL KETONE	200.0		
D039	TETRACHLOROETHYLENE	0.7		
D040	TRICHLOROETHYLENE	0.5		
D043	VINYL CHLORIDE	0.2		

SEMI-VOLATILE COMPOUNDS		REGULATORY LEVEL (mg/l)	TCLP	TOTAL
D023	o-CRESOL	200.0		
D024	m-CRESOL	200.0		
D025	p-CRESOL	200.0		
D026	CRESOL (TOTAL)	200.0		
D027	1,4-DICHLOROBENZENE	7.5		
D030	2,4-DINITROTOLUENE	0.13		
D032	HEXACHLOROBENZENE	0.13		
D033	HEXACHLOROBUTADIENE	0.5		
D034	HEXACHLOROETHANE	3.0		
D036	NITROBENZENE	2.0		
D037	PENTACHLOROPHENOL	100.0		
D038	PYRIDINE	5.0		
D041	2,4,5-TRICHLOROPHENOL	400.0		
D042	2,4,6-TRICHLOROPHENOL	2.0		

PESTICIDES AND HERBICIDES		REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL mg/l
D012	ENDRIN	0.02		
D013	LINDANE	0.4		
D014	METHOXYCHLOR	10.0		
D015	TOXAPHENE	0.5		
D016	2,4-D	10.0		
D017	2,4,5-TP (SILVEX)	1.0		
D020	CHLORDANE	0.03		
D031	HEPTACHLOR (AND ITS EPOXIDES)	0.008		

OTHER

PHENOL _____PPM

TOTAL PETROLEUM HYDROCARBONS (SOILS ONLY)_____ PPM

PCB'S
☐ NONE
☐ < 50 PPM
☐ ≥ 50 PPM

IF PCB'S ARE PRESENT <50 PPM, IS THE WASTE REGULATED BY TSCA 40 CFR 761?
☐ YES ☐ NO

HOC'S
☐ NONE
☐ < 1000 PPM
☐ ≥ 1000 PPM

OTHER HAZARDS	YES		YES		YES		YES
WATER REACTIVE	☐	PESTICIDE	☑	SHOCK SENSITIVE	☐	DEA REGULATED SUBSTANCE	☐
RADIOACTIVE	☐	HERBICIDE	☐	THERMALLY SENSITIVE	☐	OXIDIZER	☐
DIOXIN	☐	EXPLOSIVE	☐	INFECTIOUS, PATHOGENIC, OR ETIOLOGICAL AGENT	☐	REDUCING AGENT	☐
OSHA REGULATED CARCINOGENS	☐	SPONTANEOUSLY IGNITES WITH AIR	☐	ASBESTOS	☐	NONE OF THE ABOVE	☐

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED? YES ☐ NO ☐ (If yes, explain)

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Profile Number CH 195764

F. REGULATORY STATUS

Y N

☐ ☐ USEPA HAZARDOUS WASTE? (If Yes List codes.) _____

☐ ☐ DO ANY GENERATOR STATE WASTE CODES APPLY? IF YES, LIST STATE CODES. _____

LIST ANY FEDERAL OR STATE WASTE CODES WHICH MAY VARY FROM SHIPMENT TO SHIPMENT: _____

WILL THE DECISION TO VARY THESE WASTE CODES BE BASED ON ☐ KNOWLEDGE OR ☐ TESTING (check one).
IF KNOWLEDGE, DESCRIBE BASIS OF KNOWLEDGE: _____

☐ ☐ IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?
THIS WASTE IS A: ☐ WASTEWATER ☐ NON WASTEWATER PER USEPA DEFINITION IN 40 CFR 268.2.

☐ ☐ IF ANY WASTE CODES D001, D002, D003 (OTHER THAN REACTIVE CYANIDE OR REACTIVE SULFIDE), D004-D011, D012-D017 NON-WASTEWATERS, OR D018-D043 APPLY, ARE THERE ANY UNDERLYING HAZARDOUS CONSTITUENTS (UHC'S) PRESENT ABOVE UNIVERSAL TREATMENT STANDARDS (UTS)?

☐ ☐ DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

☐ ☐ IS THIS WASTE SUBJECT TO CATEGORICAL PRETREATMENT DISCHARGE STANDARDS?
IF YES, SPECIFY POINT SOURCE CATEGORY LISTED IN 40 CFR PART 401. _____

☐ ☐ IS THIS WASTE REGULATED UNDER THE BENZENE NESHAP RULES? (IS THIS WASTE FROM A CHEMICAL MANUFACTURING, COKE BY-PRODUCT RECOVERY, OR PETROLEUM REFINERY PROCESS?)

☐ ☐ DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS ≥ 500 PPM?

☐ ☐ DOES THIS WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE ≥ .3KPA (.044 psia)?

☐ ☐ DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE GREATER THAN 77 KPa (11.2psia)?

G. D.O.T. INFORMATION: List all shipping names that may be used. Attach additional page if necessary.

D.O.T. SHIPPING NAME _____

_____ DOT HAZARD CLASS: _____

UN/NA # _____ PACKING GROUP (Circle 1) I II III HAZARD ZONE (Circle 1) A B C D

WILL THIS SHIPPING NAME VARY? ☐ Y ☐ N IF YES, WILL ASSIGNMENT OF PROPER SHIPPING NAME BE BASED ON ☐ KNOWLEDGE OR ☐ TESTING? (check one) IF KNOWLEDGE, DESCRIBE BASIS OF KNOWLEDGE: _____

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY: ☐ ONE TIME ☐ WEEKLY ☐ SEMI-MONTHLY ☐ MONTHLY ☐ QUARTERLY ☐ OTHER _____

☐ BULK LIQUID

GALLONS/SHIPMENT: _____GAL.
_____FROM TANKS; TANK SIZE _____GAL.
_____FROM DRUMS
VEHICLE TYPE:
_____ VAC TRUCK
_____ TANK TRUCK
_____ RAILROAD TANK CAR
CHECK COMPATIBLE STORAGE MATERIALS:
_____ STEEL _____ STAINLESS STEEL (316)
_____ RUBBER LINED _____ FIBERGLASS LINED
_____ OTHER _____

☐ BULK SOLID

_____TON/YD PER SHIPMENT
STORAGE CAPACITY_____TON/YD
VEHICLE TYPE:
_____ DUMP TRAILER
_____ ROLL OFF BOX
_____ INTERMODAL ROLLOFF BOX
_____ CUSCO/MOTOR
_____ OTHER _____

☐ CONTAINERIZED

_____CONTAINERS/SHIPMENT
STORAGE CAPACITY: _____ CONTAINERS
CONTAINER TYPE:
_____ CUBIC YARD BOX
_____ PALLET
_____ TOTE TANK
_____ DRUM SIZE: _____
CONTAINER MATERIAL:
_____ STEEL
_____ FIBER
_____ PLASTIC
_____ OTHER _____

I. SAMPLE STATUS

REPRESENTATIVE SAMPLE HAS BEEN SUPPLIED. ☐ YES ☐ NO SAMPLED BY _____ DATE SAMPLED_____

J. SPECIFIC DISPOSAL RESTRICTIONS OR REQUESTS: _____

SPECIAL WASTE HANDLING REQUIREMENTS: _____

OTHER COMMENTS OR REQUESTS: _____

K. BIENNIAL/ANNUAL REPORTING INFORMATION.

SIC CODE _____ SOURCE CODE _____ FORM CODE _____ ORIGIN CODE _____

GENERATOR'S CERTIFICATION

I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE

FOR CLEAN HARBORS USE ONLY

CHI REPRESENTATIVE COMPLETING PROFILE: _____

CleanHarbors
ENVIRONMENTAL SERVICES, INC.

LDR NOTIFICATION FORM

Generator Name _____ **Manifest No.** _____

Pursuant to 40 CFR §268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268 Land Disposal Restrictions (LDR).

A. GENERAL WASTE NOTIFICATION

Form Line No.	CH Profile No.	EPA Waste Codes & LDR Subcategories (if any) *List codes or use Attachment 1*	NWW	WW	Waste Constituent Notification *Check the "None" box or List Legend Constituent # or use Attachment 2*
1		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used
2		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used
3		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used
4		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used
5		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used
6		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used

B. HAZARDOUS DEBRIS NOTIFICATION

☐ This hazardous debris, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.45.

The waste contains the following contaminants subject to treatment (check all that apply):

☐ Toxicity characteristic debris ☐ Debris contaminated with listed waste ☐ Cyanide reactive debris

C. CONTAMINATED SOIL NOTIFICATION & CERTIFICATION

☐ This contaminated soil, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.49(c).

Complete the following: "I certify under penalty of law that I personally have examined this contaminated soil & it [☐does / ☐does not] contain listed hazardous waste & [☐does / ☐does not] exhibit a characteristic of hazardous waste & [☐is subject to / ☐complies with] soil treatment standards as provided by §268.49(c) or the universal treatment standards". *Note: Constituents subject to treatment are any constituents listed in 40 CFR §268.48 Universal Treatment Standards that are reasonably expected to be present in any given volume of contaminated soil, except fluoride, selenium, sulfides, vanadium & zinc, & are present at concentrations greater than ten times the universal treatment standard.*

D. LAB PACK (INCINERATION) NOTIFICATION & CERTIFICATION

☐ This lab pack, as identified above on Line No(s). _____ is subject to the alternative treatment standards of 40 CFR §268.42(c).

"I certify under penalty of law that I personally have examined & am familiar with the waste & that the lab pack contains only wastes that have not been excluded under Appendix IV to 40 CFR Part 268 & that this lab pack will be sent to a combustion facility in compliance with the alternative treatment standards for lab packs at 40 CFR §268.42(c). I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment".

E. EXTENSIONS & VARIANCES

☐ This waste, as identified above on Line No(s). _____ is not prohibited from land disposal & is subject to a deadline extension or variance, e.g., treatability variance, case-by-case extension. *Describe below any extension or variance that applies to this waste & include applicable dates:*

_____ _____ ____ / ____ / _____

Generator's Authorized Signature | Name & Title (Printed or Typed) | Date

CleanHarbors®
ENVIRONMENTAL SERVICES, INC.

NOTIFICATION & CERTIFICATION: RESTRICTED WASTE MEETING TREATMENT STANDARDS

Generator Name **Manifest No.**

Pursuant to 40 CFR §268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268 Land Disposal Restrictions (LDR).
Basis for certification: Describe the knowledge upon which the certification is made and/or attach the most recent analytical data: Analytical data attached

A. GENERAL WASTE NOTIFICATION

Form Line No.	Profile No.	EPA Waste Codes & LDR Subcategories (if any) *List codes or use Attachment 1*	NWW	WW	Waste Constituent Notification *Check the "None" box or List Legend Constituent # or use Attachment 2*
1		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used
2		☐ Check if Attachment 1 has been used	☐	☐	☐ None ☐ Check if Attachment 2 has been used

B. GENERATOR WASTE CERTIFICATION

☐ *This certification applies to the waste identified above on Form Line No. _____.* "I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment".
☐ Check if this waste partially meets treatment standards & list the constituent(s) which require further treatment in section A above.

C. WASTE TREATMENT TECHNOLOGY & PROCESS CERTIFICATION

☐ *This certification applies to the waste identified above on Form Line No. _____.* "I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the treatment standards specified in 40 CFR §268.40 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment".
☐ Check if this waste partially meets treatment standards & list the constituent(s) which require further treatment in section A above.

D. CONTAMINATED SOIL TREATMENT TECHNOLOGY & PROCESS CERTIFICATION

☐ *This certification applies to the waste identified above on Form Line No. _____.* "I certify under penalty of law that I have personally examined & am familiar with the treatment technology & operation of the treatment process used to support this certification & believe that it has been maintained & operated properly so as to comply with treatment standards specified in 40 CFR §268.49 without impermissible dilution of the prohibited waste. I am aware there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment".

E. CONCENTRATION-BASED CERTIFICATION FOR INCINERATION/FUEL SUBSTITUTION RESIDUES

☐ *This certification applies to the waste identified above on Form Line No. _____.* "I certify under penalty of law that I have personally examined & am familiar with the treatment technology & operation of the treatment process used to support this certification. Based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the nonwastewater organic constituents have been treated by combustion units as specified in 40 CFR §268.42, Table 1. I have been unable to detect the nonwastewater organic constituents, despite having used best good faith efforts to analyze for such constituents. I am aware there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment". ☐ Check if this waste partially meets treatment standards & list the constituent(s) which require further treatment in section A above.

F. WASTE TREATED TO REMOVE CHARACTERISTICS (but not UHCs)

☐ *This certification applies to the waste identified above on Form Line No. _____. Note: I have identified the underlying hazardous constituents that require further treatment in Section A - Waste Constituent Notification of this form or in Attachment 2.* "I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR §268.40 or §268.49 to remove the hazardous characteristic. This decharacterized waste contains underlying hazardous constituents that require further treatment to meet treatment standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment".

G. WASTE TREATED TO REMOVE CHARACTERISTICS & UHCs

☐ *This certification applies to the waste identified above on Form Line No. _____.* "I certify under penalty of law that the waste has been treated in accordance with the requirements of 40 CFR §268.40 to remove the hazardous characteristic, & that underlying hazardous constituents, as defined in §268.2(i), have been treated on-site to meet the §268.48 Universal Treatment Standards. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment".

H. DEBRIS TREATED TO MEET ALTERNATIVE STANDARDS

☐ *This certification applies to the waste identified above on Form Line No. _____.* "I certify under penalty of law that the debris has been treated in accordance with the requirements of 40 CFR §268.45. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine & imprisonment".

Generator's Authorized Signature	Name & Title (Printed or Typed)	Date
		____ / ____ / ____

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
LAND DISPOSAL RESTRICTION FORM LDR-1 MANIFEST NO_____

THE HAZARDOUS WASTES IDENTIFIED ON THE HAZARDOUS WASTE MANIFEST IDENTIFIED ABOVE AND BEARING THE EPA HAZARDOUS WASTE CODES LISTED BELOW ARE RESTRICTED WASTES WHICH ARE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT UNDER THE LAND DISPOSAL RESTRICTIONS, 40 CFR PART 268 .7 (a)(2), AND RCRA SECTION 3004(D). IN ACCORDANCE WITH 40 CFR 268.7(a), THE EPA WASTE CODE, WASTE SUBCATEGORY, AND TREATABILITY GROUPS, AS APPLICABLE, ARE INCLUDED BELOW.

INSTRUCTIONS – COMPLETE ALL SECTIONS. REFER TO PAGE 3 OF THIS FORM FOR KEY TERMS/DEFINITIONS.
Column 1 - Line Item: Enter the manifest line item number (e.g., 11a) that corresponds to the waste code(s).
Column 2 - Waste Codes/Subcategory: Check off all applicable waste codes. For D001 through D043, also check applicable subcategory; for F001 through F005, check applicable constituents.
Column 3 - Wastewater/Non-wastewater: Check off "WW" for wastewater and "Non-WW" for non-wastewaters.
Column 4 - LDR Handling Code: Circle the appropriate handling code, as follows:

1 = The waste is a characteristic hazardous waste D001, D002, D003, D004-D011, or D018-43 which is intended for treatment/disposal in a CWA system, CWA-equivalent system, or Class I SDWA system. Underlying Hazardous Constituents (UHC's) are NOT required to be identified.

1A = The waste is a characteristic hazardous waste D001 High TOC Ignitable Liquids Subcategory (i.e., greater than or equal to 10% TOC). Pursuant to 40 CFR 268.40, the waste must be treated using organic recovery (RORGS) or combustion (CMBST) technology. UHC's are NOT required to be identified.

2 = The waste is a characteristic hazardous waste D001 (other than High TOC Ignitable Liquids), D002, D003 Explosive, Water Reactive or Other Reactive subcategory, D004-D011, D012-17 non-wastewater, or D018-43 which is intended for treatment/disposal in a non-CWA system, non-CWA-equivalent system, or non-Class I SDWA system located in the United States. All UHC's which are reasonably expected to be present must be identified, except for D001 waste that is intended to be treated using organic recovery (RORGS) or combustion (CMBST) technologies. Identify UHC's by completing Sections I and IV of CHI Form LDR-1 Addendum and attach completed Addendum to this form.

3 = The waste is a characteristic (i.e., D-code) or listed (i.e., F-, K-, U-, or P-code) hazardous waste which is intended for export and treatment/disposal at a facility located outside the United States. LDR treatment standards do not apply to hazardous waste treated/disposed in a foreign country, and per USEPA guidance, the identification of UHC's (if applicable) is not required for hazardous waste that is intended to be exported. Note however that if the exported waste is subsequently returned for treatment/disposal in the United States, all applicable LDR regulations would apply and a revised LDR notification would be required.

4 = The waste meets the definition of hazardous debris pursuant to 40 CFR 268.2(h) and is intended for treatment/ disposal in compliance with the alternate debris treatment technologies of 40 CFR 268.45. In accordance with the requirements of 40 CFR 268.7(a)(2) : the contaminants subject to treatment (CSTT's) must be identified as part of this notification. Identify CSTT's by completing Section III and IV of the CHI Form LDR-1 Addendum and attach completed Addendum to this form. These constituents are being treated to comply with 40 CFR 268.45.

5 = The waste is a characteristic waste D003 Reactive Sulfide, Reactive Cyanide, or Unexploded Ordnance subcategory, a characteristic waste D012- 17 wastewater, or a listed (i.e., F-, K-, U-, or P-code) hazardous waste. UHC's are NOT required to be identified.

6 = The waste is a lab pack that is intended for incineration using the alternative lab pack treatment standard under 40 CFR 268.42(c). UHC's are NOT required to be identified; however, the generator must complete and attach the lab pack certification statement on CHI Form LDR-LP. Note that in accordance with 40 CFR Part 268 Appendix IV, lab packs which contain waste codes D009, F019, K003, K004, K005, K006, K062, K071, K100, K106, P010, P011, P012, P076, P078, U134, and U151 are not eligible for alternative lab pack treatment standard.

*** **NOTE: IF THE WASTE IS A SOIL CONTAMINATED WITH A LISTED OR CHARACTERISTIC WASTE AND THE GENERATOR WANTS TO USE THE ALTERNATE TREATMENT STANDARD FOR SOILS, CONTACT CORPORATE COMPLIANCE FOR THE APPROPRIATE LDR NOTIFICATION FORM.**

SECTION I. CHARACTERISTIC WASTES D001 THROUGH D043

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
_____	[ ] D001 Ignitables, except High TOC subcategory	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D001 High TOC Ignitable Liquids Subcategory (Greater than or equal to 10% TOC)	[ ] Non-WW only	1A 3 6
_____	[ ] D002 Corrosives	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D003		
	[ ] Reactive Sulfide, per 261.23 (a)(5)	[ ] WW [ ] Non-WW	1 3 4 5 6
	[ ] Reactive Cyanide, per 261.23(a)(5)	[ ] WW [ ] Non-WW	1 3 4 5 6
	[ ] Explosive, per 261.23(a)(6), (7) & (8)	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Water Reactive, per 261.23(a)(2), (3) & (4)	[ ] Non-WW only	1 2 3 4 6
	[ ] Other Reactive, per 261.23(a)(1)	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Unexploded Ordnance, Emergency Response	[ ] WW [ ] Non-WW	1 3 4 5 6
_____	[ ] D004 Arsenic	[ ] WW [ ] Non-WW	1 3 4 5 6
_____	[ ] D005 Barium	[ ] WW [ ] Non-WW	1 3 4 5 6
_____	[ ] D006		
	[ ] Cadmium	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Cadmium Containing Batteries	[ ] Non-WW only	2 3 6
_____	[ ] D007 Chromium	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D008		
	[ ] Lead	[ ] WW [ ] Non-WW	1 2 3 4 6
	[ ] Lead Acid Batteries	[ ] Non-WW only	2 3 6

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
LAND DISPOSAL RESTRICTION FORM LDR-1

MANIFEST NO_____

SECTION I. CHARACTERISTIC WASTES D001-43 (CONTINUED)

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
_____	[ ] D009		
	[ ] Low Mercury, less than 260 mg/kg Mercury	[ ] WW [ ] Non-WW	1 2 3 4
	[ ] High Mercury Organic Subcategory	[ ] Non-WW only	2 3 4
	[ ] High Mercury Inorganic Subcategory	[ ] Non-WW only	2 3 4
_____	[ ] D010 Selenium	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D011 Silver	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D012 Endrin	[ ] WW [ ] Non-WW	2 3 4 5 6
_____	[ ] D013 Lindane	[ ] WW [ ] Non-WW	2 3 4 5 6
_____	[ ] D014 Methoxychlor	[ ] WW [ ] Non-WW	2 3 4 5 6
_____	[ ] D015 Toxaphene	[ ] WW [ ] Non-WW	2 3 4 5 6
_____	[ ] D016 2,4-D	[ ] WW [ ] Non-WW	2 3 4 5 6
_____	[ ] D017 2,4,5-TP (Silvex)	[ ] WW [ ] Non-WW	2 3 4 5 6
_____	[ ] D018 Benzene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D019 Carbon tetrachloride	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D020 Chlordane	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D021 Chlorobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D022 Chloroform	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D023 o-Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D024 m-Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D025 p-Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D026 Cresol	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D027 1,4-Dichlorobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D028 1,2-Dichloroethane	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D029 1,1-Dichloroethylene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D030 2,4-Dinitrotoluene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D031 Heptachlor (and its epoxide)	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D032 Hexachlorobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D033 Hexachlorobutadiene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D034 Hexachloroethane	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D035 Methyl ethyl ketone	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D036 Nitrobenzene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D037 Pentachlorophenol	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D038 Pyridine	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D039 Tetrachloroethylene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D040 Trichloroethylene	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D041 2,4,5-Trichlorophenol	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D042 2,4,6-Trichlorophenol	[ ] WW [ ] Non-WW	1 2 3 4 6
_____	[ ] D043 Vinyl Chloride	[ ] WW [ ] Non-WW	1 2 3 4 6

SECTION II. SPENT SOLVENT WASTES F001 THROUGH F005

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
_____	[ ] F001 [ ] F002 [ ] F003 [ ] F004 [ ] F005	[ ] WW [ ] Non-WW	3 4 5 6

_____ [ ] 1. ALL F001-F005
_____ [ ] 2. Acetone
_____ [ ] 3. Benzene
_____ [ ] 4. n-Butyl alcohol
_____ [ ] 5. Carbon disulfide
_____ [ ] 6. Carbon tetrachloride
_____ [ ] 7. Chlorobenzene
_____ [ ] 8. o-Cresol
_____ [ ] 9. m-Cresol (difficult to distinguish from p-cresol)
_____ [ ] 10. p-Cresol (difficult to distinguish from m-cresol)
_____ [ ] 11. Cresol - mixed isomers (sum of o-, m- and p-cresol)

_____ [ ] 12. Cyclohexanone
_____ [ ] 13. o-Dichlorobenzene
_____ [ ] 14. 2-Ethoxyethanol (F005 only)
_____ [ ] 15. Ethyl acetate
_____ [ ] 16. Ethyl benzene
_____ [ ] 17. Ethyl ether
_____ [ ] 18. Isobutyl alcohol
_____ [ ] 19. Methanol
_____ [ ] 20. Methylene chloride
_____ [ ] 21. Methyl ethyl ketone
_____ [ ] 22. Methyl isobutyl ketone
_____ [ ] 23. Nitrobenzene
_____ [ ] 24. 2-Nitropropane (F005 only)

_____ [ ] 25. Pyridine
_____ [ ] 26. Tetrachloroethylene
_____ [ ] 27. Toluene
_____ [ ] 28. 1,1,1-Trichloroethane
_____ [ ] 29. 1,1,2-Trichloroethane
_____ [ ] 30. Trichloroethylene
_____ [ ] 31. 1,1,2-Trichloro-1,2,2-trifluoroethane
_____ [ ] 32. Trichloromonofluoromethane
_____ [ ] 33. Xylene - mixed isomers (sum of o-, m-, and p-xylene)

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
LAND DISPOSAL RESTRICTION FORM LDR-1

MANIFEST NO._____

SECTION III. CALIFORNIA LIST WASTES

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
_____	Hazardous waste containing one or more of the following California List constituents:	[ ] WW [ ] Non-WW	1 2 3 4 6

[ ] ALL CALIFORNIA LIST CONSTITUENTS
[ ] Liquids with nickel greater than or equal to 134 mg/l
[ ] Liquids with thallium greater than or equal to 130 mg/l
[ ] Liquids with PCB's > or = 50 ppm
[ ] Waste containing HOC's > or = 1,000 mg/kg

SECTION IV. OTHER LISTED WASTES (F006-12, F019-F028, F037-38, F039, K-, U-, AND P-CODES)

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
_____	_____	[ ] WW [ ] Non-WW	3 4 5 6
_____	_____	[ ] WW [ ] Non-WW	3 4 5 6
_____	_____	[ ] WW [ ] Non-WW	3 4 5 6
_____	_____	[ ] WW [ ] Non-WW	3 4 5 6
_____	_____	[ ] WW [ ] Non-WW	3 4 5 6

[ ] CHECK HERE IF ADDITIONAL LISTED WASTE CODES ARE PRESENT. COMPLETE AND ATTACH LDR-1 CONTINUATION SHEET.
[ ] CHECK HERE IF WASTE CODE F039 (MULTISOURCE LEACHATE) IS PRESENT. IDENTIFY F039 CONSTITUENTS BY COMPLETING SECTIONS II AND IV OF CHI FORM LDR-1 ADDENDUM AND ATTACH COMPLETED ADDENDUM TO THIS FORM.

SECTION V. CONTACT NAME AND DATE

Print Name: _____ Date:_____

KEY TERMS/DEFINITIONS

CLASS I SDWA SYSTEM means a Class I deep well facility regulated under the Safe Drinking Water Act (SDWA).

CWA SYSTEM means a centralized wastewater treatment facility discharging under a Clean Water Act (CWA) permit. For example, a CWA facility would treat organic or inorganic aqueous wastes and discharge the treated effluent to the local sewer system. Examples of CWA treatment systems owned and operated by Clean Harbors include the wastewater treatment operations at Baltimore (including the CES system), Bristol, Chicago, Cincinnati and Cleveland.

CWA-EQUIVALENT SYSTEM means a "zero discharge system" that engages in "CWA-equivalent" treatment before land disposal. Zero-discharge facilities treat hazardous wastes using "CWA-equivalent" treatment methods, but do not discharge the treatment effluent to a sewer or water body (e.g., spray irrigation land farm). "CWA-equivalent" treatment methods means biological treatment for organics, alkaline chlorination, or ferrous sulfate precipitation for cyanide, precipitation/ sedimentation for metals, reduction of hexavalent chromium, or other treatment technology that can be demonstrated to perform equally or greater than these technologies.

HIGH TOC IGNITABLE LIQUIDS SUBCATEGORY means an ignitable liquid hazardous waste (waste code D001) which contains greater than or equal to 10% total organic carbon (TOC). Pursuant to 40 CFR 268.40, such wastes must be treated using organic recovery (RORGS) or combustion (CMBST) technology. Examples of RORGS technologies include the CES unit at Clean Harbors of Baltimore. Examples of CMBST technologies include hazardous waste fuel blending and subsequent reuse at a cement kiln, or destruction at a RCRA incinerator.

WASTEWATERS are wastes that contain less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS). [See 40 CFR 268.2(f)]

CLEAN HARBORS ENVIRONMENTAL SERVICES, INC.
LAND DISPOSAL RESTRICTION NOTIFICATION FORM LDR-1 ADDENDUM Manifest No._____

SECTION I. UNDERLYING HAZARDOUS CONSTITUENTS (UHC'S)

[ ] Check here if one or more of the constituents listed in Section IV below are reasonably expected to be present as an "Underlying Hazardous Constituent" in the waste. Then in Section IV, check off each constituent. Note that per the definition of UHC in 40 CFR 268.2, fluoride, selenium, sulfides, vanadium and zinc are NOT regulated as UHC's.

[ ] Check here if NONE of the UHC constituents listed in Section IV are expected to be present in the waste.

SECTION II. MULTI-SOURCE LEACHATE (WASTE CODE F039)

[ ] Check here if one or more of the constituents listed in Section IV are present as a constituent in the multi-source leachate (F039) waste. Then in Section IV below, check off each constituent. Note that constituents which are identified by an asterisk (*) are NOT regulated as F039 constituents.

[ ] Check here if NONE of the F039 constituents listed in Section IV are present in the waste.

SECTION III. HAZARDOUS DEBRIS CONTAMINANTS SUBJECT TO TREATMENT (CSTT)

[ ] Check here if one or more of the constituents listed in Section IV is a CSTT for hazardous debris that is intended for treatment using the alternate treatment technologies in 40 CFR 268.45. To identify CSTT's, refer to the "Regulated Hazardous Constituent" column in the Treatment Standard Table in 40 CFR 268.40. Then, in Section IV below, check off the constituents that appear for each waste code used to identify the debris.

[ ] Check here if the entry in the "Regulated Hazardous Constituent" column in the Treatment Standard Table in 40 CFR 268.40 is "Not Applicable" , i.e. D001, D002, and D003 (non-cyanides subcategories only).

SECTION IV. LIST OF CONSTITUENTS - INCLUDE MANIFEST LINE ITEM

34._____ [ ] Acenaphthylene
35._____ [ ] Acenaphthene
36._____ [ ] Acetone
37._____ [ ] Acetonitrile
38._____ [ ] Acetophenone
39._____ [ ] 2-Acetylaminofluorene
40._____ [ ] Acrolein
41._____ [ ] Acrylamide (*)
42._____ [ ] Acrylonitrile
251._____ [ ] Aldicarb sulfone (*)
43._____ [ ] Aldrin
44._____ [ ] 4-Aminobiphenyl
45._____ [ ] Aniline
46._____ [ ] Anthracene
47._____ [ ] Antimony
48._____ [ ] Aramite
49._____ [ ] Arsenic
50._____ [ ] alpha-BHC
51._____ [ ] beta-BHC
52._____ [ ] delta-BHC
53._____ [ ] gamma-BHC
252._____ [ ] Barban (*)
54._____ [ ] Barium
253._____ [ ] Bendiocarb (*)
255._____ [ ] Benomyl (*)
55._____ [ ] Benzene
56._____ [ ] Benz(a)anthracene
57._____ [ ] Benzal chloride (*)
58._____ [ ] Benzo(b)fluoranthene (difficult to distinguish from Benzo(k)fluoranthene)
59._____ [ ] Benzo(k)fluoranthene (difficult to distinguish from Benzo(b)fluoranthene)
60._____ [ ] Benzo(g,h,i)perylene
61._____ [ ] Benzo(a)pyrene
62._____ [ ] Beryllium
63._____ [ ] Bromodichloromethane
64._____ [ ] Bromomethane (Methyl bromide)
65._____ [ ] 4-Bromophenyl phenyl ether
66._____ [ ] n-Butyl alcohol
256._____ [ ] Butylate (*)
67._____ [ ] Butyl benzyl phthalate
68._____ [ ] 2-sec-Butyl-4,6-dinitrophenol (Dinoseb)
69._____ [ ] Cadmium
257._____ [ ] Carbaryl (*)
258._____ [ ] Carbendazim (*)
259._____ [ ] Carbofuran (*)
260._____ [ ] Carbofuran phenol (*)
70._____ [ ] Carbon disulfide
71._____ [ ] Carbon tetrachloride
261._____ [ ] Carbosulfan (*)
72._____ [ ] Chlordane (alpha and gamma isomers)
73._____ [ ] p-Chloroaniline
74._____ [ ] Chlorobenzene
75._____ [ ] Chlorobenzilate
76._____ [ ] 2-Chloro-1,3-butadiene
77._____ [ ] Chlorodibromomethane
78._____ [ ] Chloroethane
79._____ [ ] bis(2-Chloroethoxy)methane
80._____ [ ] bis(2-Chloroethyl)ether
81._____ [ ] Chloroform
82._____ [ ] bis(2-Chloroisopropyl)ether
83._____ [ ] p-Chloro-m-cresol
84._____ [ ] 2-Chloroethyl vinyl ether (*)
85._____ [ ] Chloromethane (Methyl Chloride)
86._____ [ ] 2-Chloronaphthalene
87._____ [ ] 2-Chlorophenol
88._____ [ ] 3-Chloropropylene
89._____ [ ] Chromium (Total)
90._____ [ ] Chrysene
91._____ [ ] o-Cresol
92._____ [ ] m-Cresol (difficult to distinguish from p-Cresol)
93._____ [ ] p-Cresol (difficult to distinguish from o-Cresol)
262._____ [ ] m-Cumenyl methylcarbamate (*)
94._____ [ ] Cyanides (Total)
95._____ [ ] Cyanides (Amenable)
263._____ [ ] Cycloate (*)
96._____ [ ] Cyclohexanone
97._____ [ ] 1,2-Dibromo-3-chloropropane
98._____ [ ] 1,2-Dibromoethane (Ethylene dibromide)
99._____ [ ] Dibromomethane
100._____ [ ] 2,4-Dichlorophenoxyacetic acid (2,4-D)
101._____ [ ] o,p'-DDD
102._____ [ ] p,p'-DDD
103._____ [ ] o,p'-DDE
104._____ [ ] p,p'-DDE
105._____ [ ] o,p'-DDT
106._____ [ ] p,p'-DDT
107._____ [ ] Dibenz(a,h)anthracene
108._____ [ ] Dibenzo(a,e)pyrene
109._____ [ ] m-Dichlorobenzene
110._____ [ ] o-Dichlorobenzene
111._____ [ ] p-Dichlorobenzene

112. _____ [ ] Dichlorodifluoromethane
113. _____ [ ] 1,1-Dichloroethane
114. _____ [ ] 1,2-Dichloroethane
115. _____ [ ] 1,1-Dichloroethylene
116. _____ [ ] trans-1,2-Dichloroethylene
117. _____ [ ] 2,4-Dichlorophenol
118. _____ [ ] 2,6-Dichlorophenol
119. _____ [ ] 1,2-Dichloropropane
120. _____ [ ] cis-1,3-Dichloropropylene
121. _____ [ ] trans-1,3-Dichloropropylene
122. _____ [ ] Dieldrin
123. _____ [ ] Diethyl phthalate
124. _____ [ ] 2,4-Dimethyl phenol
125. _____ [ ] Dimethyl phthalate
126. _____ [ ] Di-n-butyl phthalate
127. _____ [ ] 1,4-Dinitrobenzene
128. _____ [ ] 4,6-Dinitro-o-cresol
129. _____ [ ] 2,4-Dinitrophenol
130. _____ [ ] 2,4-Dinitrotoluene
131. _____ [ ] 2,6-Dinitrotoluene
132. _____ [ ] Di-n-octyl phthalate
133. _____ [ ] p-Dimethylaminoazobenzene (*)
134. _____ [ ] Di-n-propylnitrosoamine
135. _____ [ ] 1,4-Dioxane (*)
136. _____ [ ] Diphenylamine (difficult to distinguish from
137. _____ [ ] Diphenylnitrosamine (difficult to distinguish from
diphenylamine)
138. _____ [ ] 1,2-Diphenylhydrazine
139. _____ [ ] Disulfoton
266. _____ [ ] Dithiocarbamates (Total) (*)
140. _____ [ ] Endosulfan I
141. _____ [ ] Endosulfan II
142. _____ [ ] Endosulfan sulfate
143. _____ [ ] Endrin
144. _____ [ ] Endrin aldehyde
267. _____ [ ] EPTC (*)
145. _____ [ ] Ethyl acetate
146. _____ [ ] Ethyl cyanide (propanenitrile)
147. _____ [ ] Ethyl benzene
148. _____ [ ] Ethyl ether
149. _____ [ ] bis(2-Ethylhexyl)phthalate
150. _____ [ ] Ethyl methacrylate
151. _____ [ ] Ethylene oxide
152. _____ [ ] Famphur
153. _____ [ ] Fluoranthene
154. _____ [ ] Fluorene
155. _____ [ ] Fluoride
268. _____ [ ] Formetanate hydrochloride (*)
156. _____ [ ] Heptachlor
157. _____ [ ] Heptachlor epoxide
158. _____ [ ] Hexachlorobenzene
159. _____ [ ] Hexachlorobutadiene
160. _____ [ ] Hexachlorocyclopentadiene
161. _____ [ ] HxCDDs (All hexachlorodibenzo-p-dioxins)
162. _____ [ ] HxCDFs (All hexachlorodibenzo-furans)
163. _____ [ ] Hexachloroethane
164. _____ [ ] Hexachloropropylene
165. _____ [ ] Indeno (1,2,3-c,d)pyrene
270. _____ [ ] 3-Iodo-2-propynyl n-butylcarbamate (*)
166. _____ [ ] Iodomethane
167. _____ [ ] Isobutyl alcohol
168. _____ [ ] Isodrin
169. _____ [ ] Isosafrole
170. _____ [ ] Kepone
171. _____ [ ] Lead
172. _____ [ ] Mercury--Nonwastewater from Retort
173. _____ [ ] Mercury--All others
174. _____ [ ] Methacrylonitrile
175. _____ [ ] Methanol
176. _____ [ ] Methapyrilene
272. _____ [ ] Methiocarb (*)
273. _____ [ ] Methomyl (*)
177. _____ [ ] Methoxychlor
178. _____ [ ] 3-Methylcholanthrene
179. _____ [ ] 4,4-Methylene-bis(2-chloroaniline)
180. _____ [ ] Methylene chloride
181. _____ [ ] Methyl ethyl ketone
182. _____ [ ] Methyl isobutyl ketone
183. _____ [ ] Methyl methacrylate
184. _____ [ ] Methyl methansulfonate
185. _____ [ ] Methyl parathion
274. _____ [ ] Metolcarb (*)
275. _____ [ ] Mexacarbate (*)
276. _____ [ ] Molinate (*)
186. _____ [ ] Naphthalene
187. _____ [ ] 2-Naphthylamine
188. _____ [ ] Nickel
189. _____ [ ] o-Nitroaniline (*)
190. _____ [ ] p-Nitroaniline
191. _____ [ ] Nitrobenzene
192. _____ [ ] 5-Nitro-o-toluidine
193. _____ [ ] o-Nitrophenol (*)
diphenylnitrosamine)
194. _____ [ ] p-Nitrophenol
195. _____ [ ] N-Nitrosodiethylamine
196. _____ [ ] N-Nitrosodimethylamine
197. _____ [ ] N-Nitroso-di-n-butylamine
198. _____ [ ] N-Nitrosomethylethylamine
199. _____ [ ] N-Nitrosomorpholine
200. _____ [ ] N-Nitrosopiperidine
201. _____ [ ] N-Nitrosopyrrolidine
277. _____ [ ] Oxamyl (*)
202. _____ [ ] Parathion
203. _____ [ ] Total PCBs (sum of all PCB isomers, or all Arochlors)
278. _____ [ ] Pebulate (*)
204. _____ [ ] Pentachlorobenzene
205. _____ [ ] PeCDDs (All pentachlorodibenzo- p-dioxins)
206. _____ [ ] PeCDFs (All pentachlorodibenzofurans)
207. _____ [ ] Pentachloroethane (*)
208. _____ [ ] Pentachloronitrobenzene
209. _____ [ ] Pentachlorophenol
210. _____ [ ] Phenacetin
211. _____ [ ] Phenanthrene
212. _____ [ ] Phenol
213. _____ [ ] Phorate
214. _____ [ ] Phthalic acid (*)
215. _____ [ ] Phthalic anhydride
280. _____ [ ] Physostigmine (*)
281. _____ [ ] Physostigmine salicylate (*)
282. _____ [ ] Promecarb (*)
216. _____ [ ] Pronamide
283. _____ [ ] Propham (*)
284. _____ [ ] Propoxur (*)
285. _____ [ ] Prosulfocarb (*)
217. _____ [ ] Pyrene
218. _____ [ ] Pyridine
219. _____ [ ] Safrole
220. _____ [ ] Selenium
221. _____ [ ] Silver
222. _____ [ ] Silvex (2,4,5-TP)
223. _____ [ ] Sulfide
224. _____ [ ] 2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
225. _____ [ ] 1,2,4,5-Tetrachlorobenzene
226. _____ [ ] TCDDs (All tetrachlorodibenzo- p-dioxins)
227. _____ [ ] TCDFs (All tetrachlorodibenzofurans)
228. _____ [ ] 1,1,1,2-Tetrachloroethane
229. _____ [ ] 1,1,2,2-Tetrachloroethane
230. _____ [ ] Tetrachloroethylene

231. _____ [ ] 2,3,4,6-Tetrachlorophenol
232. _____ [ ] Thallium
286. _____ [ ] Thiodicarb (*)
287. _____ [ ] Thiophanate-methyl (*)
233. _____ [ ] Toluene
234. _____ [ ] Toxaphene
289. _____ [ ] Triallate (*)
235. _____ [ ] Tribromomethane (Bromoform)
236. _____ [ ] 1,2,4-Trichlorobenzene
237. _____ [ ] 1,1,1-Trichloroethane
238. _____ [ ] 1,1,2-Trichloroethane
239. _____ [ ] Trichloroethylene
240. _____ [ ] Trichloromonofluoromethane
241. _____ [ ] 2,4,5-Trichlorophenol
242. _____ [ ] 2,4,6-Trichlorophenol
243. _____ [ ] 1,2,3-Trichloropropane
244. _____ [ ] 1,1,2-Trichloro-1,2,2-trifluoroethane
290. _____ [ ] Triethylamine (*)
245. _____ [ ] tris-(2,3-Dibromopropyl)phosphate
246. _____ [ ] Vanadium (*)
291. _____ [ ] Vernolate (*)
247. _____ [ ] Vinyl chloride
248. _____ [ ] Xylenes–mixed isomers (sum of o-, m-, and p-xylene concentrations)
249. _____ [ ] Zinc (*)

KEY TERMS/DEFINITIONS

CONTAMINANTS SUBJECT TO TREATMENT (CSTT) are the specific constituents listed by waste code number in the Treatment Standard Table in §268.40. CSTT's must be identified for all hazardous debris wastes that are intended for treatment using one of the hazardous debris alternate treatment technologies described in §268.45.

REASONABLY EXPECTED TO BE PRESENT means that the generator is relying on knowledge of the raw materials used, the process, and potential reaction products, or on the results of a one-time analysis for the entire list of UHC's that may be present in the untreated hazardous waste. If a one-time analysis of the entire list of UHC's is conducted, subsequent analyses are required for only those pollutants which would reasonably be expected to be present in the waste as generated, based on the previous sampling and analysis results.

UNDERLYING HAZARDOUS CONSTITUENT (UHC) means any constituent listed in §268.48 Table UTS - Universal Treatment Standards (except fluoride, selenium, sulfides, vanadium and zinc) which can reasonably be expected to be present at the point of generation of the hazardous waste, at a concentration above the constituent-specific UTS treatment standard. [See 40 CFR 268.2]

Clean Harbors Deer Trail, LLC
Cell Movement Request

CleanHarbors ENVIRONMENTAL SERVICES, INC.

Movement Request #	04-	Site #	Date:
From:		To:	

Generator(s):	
Manifest number(s):	
Waste Stream(s):	
EPA Codes:	
Number of Containers	
Container Type(s):	
Container Number(s):	
Container Size:	
otal Weight on Request:	

Known Hazards:	
PPE Requirements	
Special Handling:	
Monitoring:	
Spill Response:	
Fire Fighting:	
Washout Requirements:	

Landfill Loads	Tier	Alph	Num	Initials	Time/Date
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

I am capable of loading/unloading the shipment in accordance with the above instructions. Any variation from these instructions, or failure to utilize all the required personal protective clothing and equipment and observe all safety precautions will constitute grounds for dismissal, or refusal of future admittance to the site.

Printed by: _____ Date: _____

Authorized by: _____ Date: _____

Receiving/Transfer Tech: _____ Date: _____

Printed On: 9/24/2004

Clean Harbors Deer Trail, LLC
Movement Request

CleanHarbors ENVIRONMENTAL SERVICES, INC.

Movement Request # **04-**	Site # Date:
From:	To:
Generator(s):	
Manifest number(s):	
Waste Stream(s):	
EPA Codes:	
Number of Containers	
Container Type(s):	
Container Number(s):	
Container Size:	
Total Weight on Request:	
Known Hazards:	
PPE Requirements	
Special Handling:	
Monitoring:	
Spill Response:	
Fire Fighting:	
Washout Requirements:	
Comments:	

I am capable of loading/unloading the shipment in accordance with the above instructions. Any variation from these instructions, or failure to utilize all the required personal protective clothing and equipment and observe all safety precautions will constitute grounds for dismissal, or refusal of future admittance to the site.

Printed by: _____ Date: _____

Authorized by: _____ Date: _____

Receiving/Transfer Tech: _____ Date: _____

Printed On:

Clean Harbors Deer Trail, LLC
Non-Authorized Movement Request

CleanHarbors® ENVIRONMENTAL SERVICES, INC.

Movement Request #	04-	Site #	Date:
From:		To:	

Generator(s):	
Manifest number(s):	
Waste Stream(s):	
EPA Codes:	
Number of Containers	
Container Type(s):	
Container Number(s):	
Container Size:	
Total Volume on Request:	
Total Weight on Request:	
Known Hazards:	
PPE Requirements	
Special Handling:	
Monitoring:	
Spill Response:	
Fire Fighting:	
Washout Requirements:	
Comments:	

I am capable of loading/unloading the shipment in accordance with the above instructions. Any variation from these instructions, or failure to utilize all the required personal protective clothing and equipment and observe all safety precautions will constitute grounds for dismissal, or refusal of future admittance to the site.

Printed by: _____ Date: _____

Receiving/Transfer Tech: _____ Date: _____

Printed On:

CleanHarbors
ENVIRONMENTAL SERVICES, INC.

Clean Harbors Deer Trail, LLC

Pretreatment and Disposal Recommendation

Profile # **Generator**

Profile Review:

Documentation is complete?	Y	N	
The site has the capabilities to manage the waste?	Y	N	
Physical and chemical characteristics reviewed?	Y	N	
Waste management byproducts reviewed?	Y	N	
Waste is not prohibited?	Y	N	
LDR status and documentation complete?	Y	N	

Required LDR documentation:

Waste management method:

EPA Waste Codes

EPA Handling Codes:

Incompatability and special handling:

Physical Properties:

Physical State: Color

Density: pH

% Solids: %Aqueous Liquids: % Organic Liquids

Other:

Safety Precautions:

Required PPE:

Monitoring:

Fire Fighting:

Equipment Needed:

Washout Requirements:

Other Comments:

Laboratory and Treatment Instructions

Incoming Lab Analysis

Annual Verification Testing

Post Treatment Analaysis

Treatment Formula and Instructions

Approvals:

General Manager or Designee: Date:

Lab Manager Date:

Environmental Health and Safety Manager Date:

WASTE ANALYSIS PLAN

APPENDIX B

WASTE SAMPLING PROCEDURES

WASTE ANALYSIS PLAN

WASTE SAMPLING GUIDELINES

APPENDIX B

I. INTRODUCTION

An important consideration in the development of a waste-specific characterization program is the methodologies employed with waste sampling. It is imperative that the sample be as representative of the waste stream as possible, since the reliability of all subsequent analytical and evaluation efforts will be limited by this factor. Procedures and general guidelines for obtaining representative samples of wastes from drums, bulk loads, tanks, and impoundments are discussed in the following sections.

A Sampling Log Book will be used as a tool by samplers to document the waste sampling. The Sample Log Book shall be maintained as part of the Operating Record.

Sampling devises are schematically illustrated in SW-846.

Prior to taking a sample, the Waste Profile Sheet and the PDR forms will be reviewed and safety procedures will be implemented.

II. DRUM SAMPLING

Drums or other approved waste containers are likely to contain materials of varying in form and consistency, such as liquids, sludges, or dry solids, all generated either separately and/or in mixtures. The sampling methodologies employed will generally depend upon the specific form and type of waste contained in a drum. Sampling must be representative of the material in the drums and account for any Layering or stratification that may occur for any wastes having various liquid/liquid or liquid/solid phases. Containers will be sampled in such a manner as to obtain a vertical profile of the material, unless the physical properties prohibit penetration of the sampling devises.

A. Sampling Liquids in Drums:

Liquids should be sampled using a clean glass or plastic "thief'. A thief is a hollow glass or plastic tube approximately 3/8" internal diameter and greater than a drum in Length. After the sample is obtained, replace the bung on the drum and tighten. The use of a dedicated thief for each drum sampled eliminates the need for cleaning and the possibility of cross-contamination and/or incompatible mixing of wastes.

Many references (including EPA 600/2-80-018, January 1980, Samplers and Sampling Procedures for Hazardous Waste streams) cite the use of a composite liquid waste sampler or Coliwasa. This device may be of some use in some situations, but there are drawbacks to its use. The device is very difficult to clean between samples, and this may result in cross-contamination. Additionally, the Coliwasa will not obtain a representative sample of the drum contents if a sludge layer is present on the drum bottom.

B. Sampling Sludges in Drums:

Sludges in drums range in consistency from slurries to near-solid materials. The sampling device employed will be dependent upon the consistency of the sludge material. Loose slurry material will be sampled using a thief. A material which will not enter the thief will need to be sampled by other means. If the sludge contains a large amount of coarse or compacted material, it will be sampled with a core

sampler. Semi-solids in open-top drums containing a low concentration of moisture will be sampled as a solid.

1. Core Samplers:

Samples of sludges in drums can be collected using various types of core samplers, such as sampling triers or soil augers. A typical sampling trier is long tube with an open slot extending nearly the entire length. The tip and edges of the slot are sharp and allow the trier to cut a core of waste material to be sampled when inserted and rotated in the material. Sampling triers usually have a stainless steel tube and a wooden handle. They are usually 24 to 40 inches in length and 1h to I inch in diameter.

The sampling trier can be used to obtain soft or loosened soil samples to a depth of 40 inches.

2. Sampling Solids in Drums:

Solids generally arrive in open-top drums. Waste solids can easily be sampled with a core sampler (i.e. sampling trier or soil auger) through the open top. Sampling trowels can be used in some cases when sampling dry, granular or powdered materials from drums. A sampling trowel (ordinarily zinc-plated) is small tool with a pointed, scoop-shaped blade having a plastic or wooden handle. The sharp-tipped blade measures approximately 3 " X 5

III. SAMPLING OF TANKS

A. Contaminated Water Storage Tanks

The contents of the contaminated water storage tanks will typically be sampled from sample valves. Alternatively, samples may be taken from the top of the tanks using a Coliwasa, weighted bottle, or sampling bailer.

B. Sumps/Wastewater Treatment System/Scrubber System

These units will be sampled from sample ports. In addition, a sample may be collected from the manway entrance using a Coliwasa, weighted bottle, or dipper.

IV. SAMPLING SOILS AND SEDIMENTS

Samples of contaminated soil/sediment may be collected using trowels, shovels or soil augers. Specific locations will be sampled by taking surface and subsurface grab samples. If an area is to be systematically investigated to determine the extent of contamination, or to map a contaminant plume, a formal sampling plan will be prepared.

V. SAMPLING OF BULK SOLID WASTES

Bulk solid wastes generally arrive in end-dump or roll-off boxes. End-dump and roll-off boxes containing solids and sludges will be sampled with trowels, shovels or other sampling devices with extended handles. Specific locations will be sampled by taking surface and subsurface grab samples. At least one grab sample location per 10 yd^3 of waste is required. The grab samples will be composited in order to provide a representative sample of the shipment.

VI.BULK TANKERS

Each tanker will be sampled via the manhole entrance port on the top of the tankers or through a sampling valve located on the bottom-rear of the tanker.

The tanker contents will be sampled using a pond sampler or dipper. If necessary, a weighted bottle or equivalent sampling device will be utilized.

In the process of collecting a sample from the sample valve, one to two gallons of the liquid will first be permitted to flow through the valve and properly disposed of before collecting the representative sample. This is done to ensure the valve orifice is free of particulates and/or contaminants that may have accumulated during transportation. This procedure also applies to oil/solvent wastes containing variable concentrations of settleable/suspended solids.

VI. DECONTAMINATION OF SAMPLING EQUIPMENT

When practical, disposable sampling equipment will be used and dipsosed of in the same container from which the sample was taken. All reuseable equipment will be washed, rinsed, and visually inspected for residues prior to the reuse of such equipment. .

VII. SELECTION OF SAMPLE CONTAINERS

The factors to consider when choosing containers for hazardous waste samples are compatibility, resistance to breakage, volume, cost and analytical requirements. Containers must not distort, rupture, or leak as a result of chemical reactions with the constituents of waste samples. It is therefore important to have some knowledge of the properties and composition of the waste being sampled. Containers must have adequate wall thickness to withstand handling during sample collection and storage. Containers with wide mouths are desirable to facilitate transfer of samples from sampling devices to containers. The containers must also be thoroughly clean to prevent contamination, and large enough to contain the necessary sample volumes.

The following table will assist the sampler in choosing the appropriate sample container and sample preservation appropriate for the analytical requirements:

Table 2.1

Required Containers, Preservation, and Holding Times

Login Code	Analyte(s)	Matrix[4]	Minimum Amount Required	Holding Times	Preferred Container Type and Quantity[5]
ACN	Amenable Cyanide	Water Solid Other	400 mL 20 g 20 g	14 days	(1) 1 L HDPE (1) 125 mL SJ (1) 125 mL SJ
AL	Alkaline Leach(Metals)	Liquid Solid	20 mL 20 g	Not specified	(1) 500 mL SJ (1) 500 mL SJ
ALK	Total Alkalinity	Water Solid	50 mL 5 g	14 day[3]	(1) 250 mL HDPE (1) 125 mL SJ
ALKS	Carbonate & Bicarbonate Alkalinity	Water Solid	50 mL 5 g	14 day[3]	(1) 250 mL HDPE (1) 125 mL SJ
ASB	Asbestos	Water Solid	500 mL 20 g	Not Specified	(1) 1 L Amber glass (1) 125 mL SJ
ASTM	ASTM Leach (Preparation)	Solid	40 g	Not Specified	(1) 125 mL SJ
BNA	Semi-Volatile Organics	Water Solid Other	1 L 30 g 5 g	7 days 14 days 40 day anal.[2]	(1) 2 L Amber glass (1) 250 mL VOA glass (1) 40 mL VOA glass
BOD	Biochemical Oxygen Demand	Water	400 mL	48 hours	(1) 500 mL HDPE
BTU	British Thermal Units	Solid Other	5 g 5 g	Not Specified	(1) 1 L Amber glass (1) 1 L Amber glass
CRB PESTS	Carbarmate Pesticides	Water	40 mL	28 days	(2) 40 mL VOA glass

Login Code	Analyte(s)	Matrix[4]	Minimum Amount Required	Holding Times	Preferred Container Type and Quantity[5]
CL	Chloride	Water Solid	5 mL 10 g	28 days[3]	(1) 250 mL HDPE (1) 125 mL SJ
CON	Specific Conductance	Water	100 mL	28 days	(1) 500 mL HDPE
DIGF	Furnace Metals Digestion Procedure	Water Solid Other	200 mL 4 g 200 g	Analysis w/in 180 days	(1) 1 L glass (1) 125 mL SJ (1) 1 L glass
DIGHG	Mercury Preparation Procedure	Water Solid Other	200 mL 4 g 200 g	Analysis w/in 180 days	(1) 1 L glass (1) 125 mL SJ (1) 1 L glass
DIGMS	ICP/MS Metals Digestion Procedure	Water Solid Other	200 mL 4 g 200 g	Analysis w/in 180 days	(1) 1 L glass (1) 125 mL SJ (1) 1 L glass
DIGP	ICP Metals Degestion Procedure	Water Solid Other	200 mL 4 g 200 g	Analysis w/in 180 days	(1) 1 L glass (1) 125 mL SJ (1) 1 L glass
DIOX	Polychlorinated Dioxins/Furans	Water Solid Other	1 L 30 g 5 g	7 day extr. 14 day extr. 40 days anal.	(1) 2 L Amber glass (1) 250 mL SJ (1) 40 mL VOA glass
DO	Dissolved Oxygen	Water	400 mL	24 hours (ASAP)	(1) BOD bottle or equivalent
FCF	Fecal Coliform	Water	100 mL	6 hours	(1) 250 mL SJ
FF	Free Fluoride	Water Solid	10 mL 10 g	28 days[3]	(1) 250 mL HDPE
FIL	Sample Filtration	Water	50 mL	24 hours	(1) 250 mL HDPE

Login Code	Analyte(s)	Matrix[4]	Minimum Amount Required	Holding Times	Preferred Container Type and Quantity[5]
				(ASAP)	
FLP	Flashpoint	Liquid Solid	10 mL 10 g	Not Specified	(1) 250 mL SJ (1) 125 mL SJ
HAR	Hardness by Calculation	Water	200 mL	180 days	(1) 1 L glass
HCR	Hexavalent Chromium	Water Solid	50 mL 10 g	24 hours[3]	(1) 250 mL HDPE (1) 125 mL SJ
HERB	Chlorinated Herbicides	Water Solid Other	1 L 30 g 5 g	7 days 14 days 40 day anal[2]	(1) 2 L Amber glass (1) 250 mL SJ (1) 40 mL VOA glass
HRD	Hardness by Titration	Water	100 mL	180 days	(1) 1 L HDPE
METALS	Total Metals Dissolved Metals	Water Solid Other	200 mL 10 g 200 g	180 days Hg: 28 days	(1) 1 L glass (1) 125 mL SJ (1) 1 L glass
NH_3	Ammonia Nitrogen	Water Solid	5 mL 10 g	28 days	(1) 250 mL HDPE (1) 125 mL SJ
$N0_2$	Nitrite Nitrogen	Water Solid	10 mL 10 g	48 hours[3]	(1) 250 mL HDPE (1) 125 mL SJ
NO_3	Nitrate Nitrogen	Water Solid	NA	48 hours[3]	(1) 250 mL HDPE (1) 125 mL SJ
NPN	Nitrate plus Nitrite Nitrogen	Water Solid	10 mL 10 g	28 days[3]	(1) 250 mL HDPE (1) 125 mL SJ
OP PESTS	Organo-Phosphorus Pesticides	Water Solid Other	1 L 30 g 5 g	7 days 14 days 40 day anal[2]	(1) 2 L Amber glass (1) 250 mL SJ (1) 40 ML VOA glass

Login Code	Analyte(s)	Matrix[4]	Minimum Amount Required	Holding Times	Preferred Container Type and Quantity[5]
PCB	PCB	Water	1 L	7 days	(1) 2 L Amber glass
		Solid	30 g	14 day	(1) 250 mL SJ
		Other	5 g	40 day anal[2]	(1) 40 ML VOA glass
PESTS /PCBs	Organochlorine Pesticides & PCBs	Water	1 L	7 days	(1) 2 L Amber glass
		Solid	30 g	14 days	(1) 250 mL SJ
		Other	5 g	40 day anal[2]	(1) 40 ML VOA glass
PFT	Paint Filter Test	Water	50 mL	Not Specified	(1) 250 mL HDPE
		Solid	50 g		(1) 125 mL SJ
		Other	50 g		(1) 250 mL SJ
pH	pH	Water	1 L	24 hours	(1) 250 mL HDPE
		Solid	30 g	(ASAP)	(1) 125 mL SJ
		Other	5 g		(1) 250 mL HDPE
PHN	Total Phenolics	Water	200 mL	28 days	(1) 1 L Amber glass
		Solid	10 g		(1) 125 mL SJ
POC	Purgeable Organic Carbon	Water	40 ML	28 days	(2) 40 ML VOA glass
POX	Purgeable Organic Halides	Water	40 ML	28 days	(2) 40 ML VOA glass
RADS	Alpha, Beta, Gamma Radiation	Water	250 ML	180 days	(1) 1 L HDPE
		Solid	10 g		(1) 125 ML SJ
		Other	250 g		(1) 1 L HDPE
RCN	Reactive Cyanide	Liquid	20 ML	Not Specified	(1) 250 ML SJ
		Solid	20 g		(1) 125 ML SJ
RNH_3	Reactive Ammonia	Liquid	20 ML	Not Specified	(1) 250 ML SJ
		Solid	20 g		(1) 125 ML SJ

Login Code	Analyte(s)	Matrix[4]	Minimum Amount Required	Holding Times	Preferred Container Type and Quantity[5]
ROH	Alcohols	Water Solid Other	40 ML 5 g 5 g	14 days	(2) 40 ML VOA glass (1) 125 ML SJ (2) 40 ML VOA glass
RS2	Reactive Sulfide	Liquid Solid	20 ML 20 g	Not Specified	(1) 250 ML SJ (1) 125 ML SJ
S2	Sulfide	Water Solid Other	100 mL 10 g 100 g	7 days[3]	(1) 250 mL HDPE (1) 125 mL SJ (1) 250 mL HDPE
SO_4	Sulfate	Water Solid	100 mL 10 g	28 days[3]	(1) 250 mL HDPE (1) 125 mL SJ
TCF	Total Coliform	Water	100 mL	6 hours	(1) 250 mL SJ
TCLP	TCLP (Metals)	Water Solid Other	200 mL 55 g 200 g	180 days Hg: 28 days	(1) 1 L HDPE (1) 250 mL SJ (1) 1 L HDPE
TCLP	TCLP (Organics)	Water Solid Other	500 mL 125 g 500 g	14 days	(1) 1 L Amber glass (1) 500 mL SJ (1) 1 L Amber glass
TCN	Total Cyanide (includes Free Cyanide)	Water Solid Other	200 mL 10 g 200 g	14 days	(1) 1 L HDPE (1) 125 mL SJ (1) 1 L HDPE
TDS	Total Dissolved Solids	Water	100 mL	7 days	(1) 250 mL HDPE
TF	Total Fluoride	Water Solid	200 mL 10 g	28 days Not Specified	(1) 1 L HDPE (1) 125 mL SJ
TIC	Total Inorganic Carbon	Water	40 mL	28 days	(2) 40 mL VOA glass

Login Code	Analyte(s)	Matrix[4]	Minimum Amount Required	Holding Times	Preferred Container Type and Quantity[5]
TKN	Total Kjeldahl Nitrogen	Water Solid	150 mL 100 g	28 days Not Specified	(1) 500 mL HDPE (1) 500 mL SJ
TOC	Total Organic Carbon	Water Solid Other	40 mL 10 g 10 g	28 days Not Specified Not Specified	(2) 40 mL VOA glass (1) 40 mL VOA glass (1) 40 mL VOA glass
TOX	Total Organic Halides	Water Solid Other	200 mL 5 g 5 g	28 days	(1) 250 mL Amber glass (1) 125 mL SJ (1) 40 mL VOA glass
TRB	Turbidity	Water	100 mL	48 hours	(1) 250 mL SJ
TS	Percent Total Solids	Solid	15 g	7 days	(1) 125 mL SJ
TSS	Total Suspended Solids	Water	100 mL	7 days	(1) 500 mL HDPE
VOAs	Volatile Organics	Water Solid Other	40 mL 10 g 10 g	14 days	(2) 40 mL VOA glass (1) 125 mL SJ (2) 40 mL VOA glass
ZHE	Zero Headspace Extraction (TCLP)	Water Solid Other	125 mL 25 g 125 g	14 days	(1) 1 L Amber glass (1) 500 ml SJ (1) 1 L Amber Glass

NOTES:

(1) If high levels of chlorine are suspected, the aqueous sample should also be treated with ascorbic acid to remove free chlorine.

(2) Analytical holding time for all matrices is the time allowed from extraction date/time.

(3) Analytical holding time for solids is the time allowed from extraction date/time.

[4] Matrix: "Water" refers to aqueous samples. TCLP extracts are also generally handled as water samples where applicable. "Other" refers to other non-aqueous or semisolid matrices. This may include oils or organic solvents.

[5] Preferred Container Type and Quantity: The "container type" refers to the volume, style, and/or material of the container (i.e. glass, HDPE). The "quantity" of each container is indicated in parentheses. It is preferred that the indicated container(s) are completely filled to capacity. For organic analytes, care should be taken to eliminate as much headspace in the container as possible.

Abbreviations:

125 ml SJ: 4 oz. glass sample jar

250 ml SJ: 8 oz. glass sample jar

500 ml HDPE: 16 oz. high density polyethylene

REFERENCES:

Methods for Chemical Analysis of Water and Wastes, March 1983, USEPA, 600/4-79-020 and additions thereto.

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, September 1986, Third Edition, USEPA, SW-846 or latest Edition.

Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act, Environmental Protection Agency, Code of Federal Regulations (CFR) Title 40, Part 136.

WASTE ANALYSIS PLAN

APPENDIX C

ANALYTICAL TEST METHODS

WASTE ANALYSIS PLAN
ANALYTICAL METHODS
APPENDIX C

I. METALLIC ANALYTES

A. Sample Preparation Methods (Reference: SW-846[1])

Method 3005: Acid Digestion of Water for Total Recoverable or Dissolved Metals for Analysis by Flame Atomic Absorption (FLAA), Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), or Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Method 3010: Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Flame Atomic Absorption (FLAA), Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), or Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Method 3015: Microwave Assisted Acid Digestion of Aqueous Samples and Extracts for Analysis by Flame Atomic Absorption (FLAA), Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), or Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Method 3020: Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Graphite Furnace Atomic Absorption Spectroscopy (GFAA) or Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Method 3031: Acid Digestion of Oils for Metals Analysis by Flame Atomic Absorption (FLAA) or Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES)

Method 3040: Dissolution Procedure for Oils, Greases, or Waxes

Method 3050: Acid Digestion of Sediments, Sludges, and Soils for Analysis by Flame Atomic Absorption (FLAA), Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), or Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Method 3051: Microwave Assisted Acid Digestion of Sediments, Sludges and Oils for Analysis by Flame Atomic Absorption (FLAA), Inductively Coupled Plasma-Atomic Emission Spectroscopy (ICP-AES), or Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)

Method 3052: Microwave Assisted Acid Digestion of Siliceous and Organically Based Matrices

Method 3060: Alkaline Digestion for Hexavalent Chromium by SW-846 Methods 7196 (Colorimetric) or 7199 (Ion Chromatography)

B. Methods for Determination of Metals (Ref: USEPA SW-846[1])

Method 6010: Inductively Coupled Plasma Atomic Emission Spectroscopy (ICP-AES)
Method 6020: Inductively Coupled Plasma Mass Spectroscopy (ICP-MS)
Method 7000: Atomic Absorption Methods
Method 7020: Aluminum (AA, Direct Aspiration)
Method 7040: Antimony (AA, Direct Aspiration)
Method 7041: Antimony (AA, Furnace Technique)
Method 7060: Arsenic (AA, Furnace Technique)
Method 7061: Arsenic (AA Gaseous Hydride)
Method 7080: Barium (AA, Direct Aspiration)
Method 7090: Beryllium (AA, Direct Aspiration)
Method 7091: Beryllium (AA, Furnace Technique)
Method 7130: Cadmium (AA, Direct Aspiration)
Method 7131: Cadmium (AA, Furnace Technique)
Method 7140: Calcium (AA, Direct Aspiration)
Method 7190: Chromium (AA, Direct Aspiration)
Method 7191: Chromium (AA, Furnace Technique)
Method 7195: Chromium, Hexavalent (Coprecipitation)
Method 7196: Chromium, Hexavalent (Colorimetric)
Method 7197: Chromium, Hexavalent (Chelation/Extraction)
Method 7199: Chromium, Hexavalent (Ion Chromatography)
Method 7200: Cobalt (AA, Direct Aspiration)
Method 7201: Cobalt (AA, Furnace Technique)
Method 7210: Copper (AA, Direct Aspiration)
Method 7211: Copper (AA, Furnace Technique)
Method 7380: Iron (AA, Direct Aspiration)
Method 7420: Lead (AA, Direct Aspiration)
Method 7421: Lead (AA, Furnace Technique)
Method 7430: Lithium (AA, Direct Aspiration)
Method 7450: Magnesium (AA, Direct Aspiration)
Method 7460: Manganese (AA, Direct Aspiration)
Method 7470: Mercury in Liquid Waste (Manual Cold-Vapor Technique)
Method 7471: Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique)
Method 7480: Molybdenum (AA, Direct Aspiration)
Method 7481: Molybdenum (AA, Furnace Technique)
Method 7520: Nickel (AA, Direct Aspiration)
Method 7550: Osmium (AA, Direct Aspiration)
Method 7610: Potassium (AA, Direct Aspiration)

Method 7740: Selenium (AA, Furnace Technique)
Method 7741: Selenium (AA, Gaseous Hydride)
Method 7760: Silver (AA, Direct Aspiration)
Method 7761: Silver (AA, Furnace Technique)
Method 7770: Sodium (AA, Direct Aspiration)
Method 7780: Stromium (AA, Direct Aspiration)
Method 7840: Thallium (AA, Direct Aspiration)
Method 7841: Thallium (AA, Furnace Technique)
Method 7870: Tin (AA, Direct Aspiration)
Method 7910: Vanadium (AA, Direct Aspiration)
Method 7911: Vanadium (AA, Furnace Technique)
Method 7950: Zinc (AA, Direct Aspiration)
Method 7951: Zinc (AA, Furnace Technique)

H. ORGANIC ANALYTES (Ref. USEPA SW-846[1])

A Extractions and Preparations

Method 3500: Organic Extraction and Sample Preparation
Method 3510: Separatory Funnel Liquid-Liquid Extraction
Method 3520: Continuous Liquid-Liquid Extraction
Method 3535: Solid-Phase Extraction (SPE)
Method 3540: Soxhlet Extraction
Method 3541: Automated Soxhlet Extraction
Method 3545: Accelerated Solvent Extraction
Method 3550: Ultrasonic Extraction
Method 3580: Waste Dilution (Solvent Dilution Prior to Cleanup)
Method 5030: Purge-and-Trap
Method 5035: Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples

B. Cleanup Methods

Method 3600: Cleanup
Method 3610: Alumina Column Cleanup
Method 3611: Alumina Column Cleanup and Separation of Petroleum Wastes
Method 3620: Florisil Column Cleanup
Method 3630: Silica Gel Cleanup
Method 3640: Gel-Permeation Cleanup
Method 3650: Acid-Base Partition Cleanup
Method 3660: Sulfur Cleanup
Method 3665: Sulfuric Acid/Permanganate Cleanup

C. Gas Chromatographic(GC)Methods

Method 8000:	Gas Chromatography
Method 8015:	Nonhalogenated Volatile Organics (Includes Alcohols)
Method 8021:	Halogenated Volatile Using Photoionization and Electrolytic Conductivity Detectors in series: Capillary Column Technique
Method 8031:	Acrylonitrile
Method 8032:	Acrylamide
Method 8061:	Phthalate Esters, Capillary Column with ECD
Method 8070:	Nitrosamines
Method 8080:	Organochlorine Pesticides and PCBs
Method 8081:	Organochlorine Pesticides and PCBs as Aroclors: Capillary Column Technique
Method 8082:	Polychlorinated Biphenyls (PCBs): Capillary Column Technique
Method 8100:	Polynuclear Aromatic Hydrocarbons
Method 8121:	Chlorinated Hydrocarbons: Capillary Column Technique
Method 8140:	Organophosphorus Compounds
Method 8141:	Organophosphorus Compounds: Capillary Column Technique
Method 8150:	Chlorinated Herbicides
Method 8151:	Chlorinated Herbicides using Methylation or Pentafluorobenzylation Derivatization: Capillary Column Technique

D. Gas Chromatographic/Mass Spectrometry (GC/MS) Methods

Method 8260:	Volatile Organic Compounds: Capillary Column Technique
Method 8270:	Semivolatile Organic Compounds: Capillary Column Technique
Method 8280:	The Analysis of Polychlorinated Dibenzo-P-Dioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) Appendix A: Signal-to-Noise Determination Methods Appendix B: Recommended Safety and Handling Procedures for PCDDs/PCDFs
Method 8290:	Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by High-Resolution Gas Chromatography/High Resolution Mass Spectrometry (HRGC/HRMS)

E. High Performance Liquid Chromatographic (HPLC) Methods

Method 8315:	Determination of Carbonyl Compounds
Method 8316:	Acrylamide, Acrylonitrile and Acrolein
Method 8318:	N-Methylcarbamates
Method 8330:	Nitroaromatics and Nitramines
Method 8331:	Tetrazene, Reverse Phase

F. Miscellaneous Screening Methods

Method 3810: Headspace
Method 3820: Hexadecane Extraction and Screening of Purgeable Organics
Method 8275: Semivolatile Organic Compounds (PAHs and PCBs) in Soils/Sludges and Solid Wastes Using Thermal Extraction/Gas Chromatography/Mass Spectrometry (TE/GC/MS) for Screening
Method 9078: Screening Method for Polychlorinated Biphenyls in Soil
Method 9079: Screening Method for Polychlorinated Biphenyls in Transformer Oils

III. MISCELLANEOUS ANALYTICAL METHODS

A. USEPA SW-846[1] Methods

Method 1010: Pensky-Martens Closed-Cup Method for Determining Ignitability
Method 1020: Setaflash Closed-Cup Method for Determining Ignitability
Method 111O: Corrosivity Toward Steel

Method 1310: Extraction Procedure EP Toxicity Test
Method 1311: Toxicity Characteristic Leaching Procedure (TCLP)
Method 1312: Synthetic Precipitation Leaching Procedure
Method 1320: Multiple Extraction Procedure
Method 1330: Extraction Procedure for Oily Wastes
Method 9010: Total and Amenable Cyanide[5] (Colorimetric, Manual)
Method 9012: Total and Amenable Cyanide[5] (Colorimetric, Automated)
Method 9013: Cyanide Extraction Procedure for Solids and Oils[5]
Method 9020: Total Organic Halides (TOX)
Method 9021: Purgeable Organic Halides (POX)
Method 9022: Total Organic Halides (TOX) by Neutron Activation Analysis
Method 9023: Extractable Organic Halides (EOX) in Solids
Method 9030: Sulfides
Method 9035: Sulfate (Colorimetric, Automated, Chloranilate)
Method 9036: Sulfate (Colorimetric, Automated, Methylthymol Blue)
Method 9038: Sulfate (Turbidimetric)
Method 9040: pH Electrometric Measurement
Method 9041: pH Paper Method
Method 9045: Soil pH
Method 9050: Specific Conductance
Method 9056: Determination of Inorganic Anions by Ion Chromatography
Method 9060: Total Organic Carbon (TOC)
Method 9065: Phenolics (Spectrophotometric, Manual 4-AAP with Distillation)
Method 9066: Phenolics (Colorimetric, Automated 4-AAP with Distillation)
Method 9070: Total Recoverable Oil and Grease (Gravimetric, Separatory Funnel Extraction)
Method 9071: Oil and Grease Extraction Method for Sludge Samples

Method 9080:	Cation-Exchange Capacity of Soils (Ammonium Acetate)
Method 9081:	Cation-Exchange Capacity of Soils (Sodium Acetate)
Method 9090:	Compatibility Test for Wastes and Membrane Liners
Method 9095:	Paint Filter Liquids Test
Method 9100:	Saturated Hydraulic Conductivity, Saturated Leachate Conductivity, and Intrinsic Permeability
Method 9131:	Total Coliform: Multiple Tube Fermentation Technique
Method 9132:	Total Coliform: Membrane Filter Technique
Method 9212:	Chloride (Potentiometric, Ion Selective Electrode)
Method 9213:	Cyanide (Potentiometric, Ion Selective Electrode)
Method 9214:	Fluoride (Potentiometric, Ion Selective Electrode)
Method 9215:	Sulfide (Potentiometric, Ion Selective Electrode)
Method 9250:	Chloride (Colorimetric, Automated Ferricyanide AAI)
Method 9251:	Chloride (Colorimetric, Automated Ferricyanide AAII)
Method 9252:	Chloride (Titrimetric, Mercuric Nitrate)
Method 9253:	Chloride (Titrimetric, Nitrate)
Method 9310:	Gross Alpha and Gross Beta Radioactive Isotopes
Method 9315:	Alpha-Emitting Radium Isotopes
Method 9320:	Radium ^{228}

Chapter 7- USEPA SW-846[1]

Section 7.1:	Ignitability
Section 7.2:	Corrosivity
Section 7.3.3.2:	Test Method to Determine Hydrogen Cyanide Release from Wastes
Section 7.3.4.1:	Test Method to Determine Hydrogen Sulfide Release from Wastes

B. ASTM[3] Methods

Method ASTM D850	Boiling Point
Method ASTM D4981-82	Determination of the Presence of Oxidizers
Method ASTM E680-79	Determination of Drop Weight Impact Sensitivity of Solid-Phase Hazardous Materials, Modified
Method ASTM D240	BTU Value
Method ASTM DI 29	Sulfur Content
Method ASTM D3120-82	Sulfur Content
Method ASTM D323	Vapor Pressure
Method ASTM D2709-68	Water and Sediment in Distillate Fuels by Centrifuge
Method ASTM DI 557	Bulk Density/Specific Gravity
Method ASTM D4978-89	Sulfides in Waste
Method ASTM D4980-89	pH
Method ASTM D4982-89	Flammability Potential

Method ASTM D2887	Boiling Point of Petroleum Products and Fractions by Gas Chromatography, Modified
Method ASTM D3987	Shake Extraction (Leaching) of Solid Waste and Water

IV. WATER METHODS (Ref. USEPA 600/4-79-020[2])

A. Series 100 Methods - Physical Properties

Method 120.1:	Specific Conductance
Method 130.1:	Hardness, Colorimetric, Automated EDTA
Method 130.2:	Hardness, Titrimetric EDTA
Method 150.1:	pH, Electrometric Measurement
Method 160.1:	Total Dissolved Solids
Method 160.2:	Total Suspended Solids
Method 160.3:	Total Solids
Method 160.4:	Total Volatile Solids (Ash)

B. Series 200 Methods - Metals

Method 200.0:	Atomic Absorption Methods
Method 200.7:	Inductively Coupled Plasma (ICP) Methods – Atomic Emission Spectrometric Method for Trace Element Analysis
Method 200.8:	Inductively Coupled Plasma-Mass Spectrometry (ICP-MS)Methods - for Trace Element Analysis
Method 202.1:	Aluminum (Atomic Absorption, Direct Aspiration)
Method 204.1:	Antimony (Atomic Absorption, Direct Aspiration)
Method 204.2:	Antimony (Atomic Absorption, Furnace Technique)
Method 206.2:	Arsenic (Atomic Absorption, Furnace Technique)
Method 206.3:	Arsenic (Atomic Absorption, Direct Aspiration)
Method 208.1:	Barium (Atomic Absorption, Direct Aspiration)
Method 208.2:	Barium (Atomic Absorption, Furnace Technique)
Method 210.1:	Beryllium (Atomic Absorption, Direct Aspiration)
Method 210.2:	Beryllium (Atomic Absorption, Furnace Technique)
Method 213.1:	Cadmium (Atomic Absorption, Direct Aspiration)
Method 213.2:	Cadmium (Atomic Absorption, Furnace Technique)
Method 215.1:	Calcium (Atomic Absorption, Furnace Technique)
Method 215.2:	Calcium (Titrimetric, EDTA)
Method 218.1:	Chromium (Atomic Absorption, Direct Aspiration)
Method 218.2:	Chromium (Atomic Absorption, Furnace Technique)
Method 218.3:	Chromium (Chelation-Extraction)
Method 218.4:	Chromium, Hexavalent (Atomic Absorption, Chelation-Extraction)
Method 218.5:	Chromium, Hexavalent (Atomic Absorption, Furnace Technique)

Method 219.1:	Cobalt (Atomic Absorption, Direct Aspiration)
Method 219.2:	Cobalt (Atomic Absorption, Furnace Technique)
Method 220.1:	Copper (Atomic Absorption, Direct Aspiration)
Method 220.2:	Copper (Atomic Absorption, Furnace Technique)
Method 236.1:	Iron (Atomic Absorption, Direct Aspiration)
Method 239.1:	Lead (Atomic Absorption, Direct Aspiration)
Method 239.2:	Lead (Atomic Absorption, Furnace Technique)
Method 242.1:	Magnesium (Atomic Absorption, Direct Aspiration)
Method 243.1:	Manganese (Atomic Absorption, Direct Aspiration)
Method 243.2:	Manganese (Atomic Absorption, Furnace Technique)
Method 245.1:	Mercury (Manual Cold-Vapor Technique)
Method 245.2:	Mercury (Automated Cold-Vapor Technique)
Method 249.1	Nickel (Atomic Absorption, Direct Aspiration)
Method 249.2:	Nickel (Atomic Absorption, Furnace Technique)
Method 258.1:	Potassium (Atomic Absorption, Direct Aspiration)
Method 270.2:	Selenium (Atomic Absorption, Furnace Technique)
Method 270.3:	Selenium (Atomic Absorption, Gaseous Hydride)
Method 272.1:	Silver (Atomic Absorption, Direct Aspiration)
Method 272.2:	Silver (Atomic Absorption, Furnace Technique)
Method 273.1:	Sodium (Atomic Absorption, Direct Aspiration)
Method 279.1:	Thallium (Atomic Absorption, Direct Aspiration)
Method 279.2:	Thallium (Atomic Absorption, Furnace Technique)
Method 282.1:	Tin (Atomic Absorption, Direct Aspiration)
Method 282.2:	Tin (Atomic Absorption, Furnace Technique)
Method 286.1:	Vanadium (Atomic Absorption, Direct Aspiration)
Method 286.2:	Vanadium (Atomic Absorption, Furnace Technique)
Method 289.1:	Zinc (Atomic Absorption, Direct Aspiration)
Method 289.2:	Zinc (Atomic Absorption, Furnace Technique)

C. Series 300 Methods - Inorganic Non-Metals

Method 300.0:	Determination of Various Anions by Ion Chromatography
Method 310.1:	Alkalinity (Titrimetric pH 4.5)
Method 325.2:	Chloride(Colorimetric, Automated Ferricyanide)
Method 335.1:	Cyanide (Amenable to Chlorination Titrimetric, Spectrophotometric)
Method 335.2:	Cyanide (Total, Titrimetric, Spectrophotometric)
Method 335.3:	Cyanide (Total, Colorimetric, Automated UV)
Method 340.2:	Fluoride (Potentiometric Ion Selective Electrode)
Method 340.3:	Fluoride (Colorimetric, Automated Complexone)
Method 350.1:	Nitrogen (Ammonia, Colorimetric, Automated Phenate)
Method 350.3:	Nitrogen (Ammonia, Potentiometric, Ion Selective Electrode)
Method 351.1:	Nitrogen (Kjeldahl, Total, Colorimetric, Automated Phenate)
Method 351.2:	Nitrogen (Kjeldahl, Total, Colorimetric, Semi-Automated Block Digester AAII)

Method 351.4:	Nitrogen (Kjeldahl, Total, Potentiometric, Ion Selective Electrode)
Method 352.1:	Nitrate (Colorimetric, Brucine)
Method 353.2:	Nitrate-Nitrite (Colorimetric, Automated Cadmium Reduction)
Method 353.3:	Nitrate-Nitrite (Colorimetric, Manual Cadmium Reduction)
Method 354.1:	Nitrite (Spectrophotometric)
Method 360.1:	Oxygen (Dissolved, Membrane Electrode)
Method 360.2:	Oxygen (Dissolved, Modified Winkler [Full Bottle Technique)
Method 375.1:	Sulfate (Colormetric, Automated Chloranilate)
Method 375.4:	Sulfate (Turbidimetric)
Method 376.1:	Sulfide (Titrimetric, Iodine)
Method 376.2:	Sulfide (Colorimetric, Methylene Blue)

D. Series 400 Methods - Organics

Method 405.1:	Biochemical Oxygen Demand (BOD), 5 Day
Method 415.1:	Total Organic Carbon (TOC), Combustion or Oxidation
Method 415.2:	Total Organic Carbon (TOC), UV Promoted, Persulfate Oxidation
Method 420.2:	Phenolics, Total (Colorimetric, Automated 4-AAP with Distillation)

E. Series 500 Methods - Organic Compounds in Drinking Water

Method 531.1:	Determination of N-Methylcarbamoyloximes and N-Methylcarbamates in water by high Pressure Liquid Chromatography

F. Series 600 Methods - Organic Compounds in Waste Water

Method 608:	Determination of Organochlorine Pesticides and PCB's by Gas Chromatography (GC)
Method 613:	Determination of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin by Gas Chromatography-Mass Spectrometry (GC-MS)
Method 614:	Determination of Organophosphorous Pesticides by Gas Chromatography (GC)
Method 615:	Determination of Phenoxy Acid Herbicides by Gas Chromatography (GC)
Method 624:	Determination of Purgeable Volatile Organics by Capillary Gas Chromatography-Mass Spectrometry (GC-MS)
Method 625:	Determination of Semivolatile Organics by Capillary Gas Chromatography-Mass Spectrometry (GC-MS)

WASTE ANALYSIS PLAN

APPENDIX D

APPROVED WASTE CODES

The following table lists the approved waste codes for storage in containers in Container Management Building A and Container Storage Areas A and B:

D Codes	F Codes	K Codes	P Codes	U Codes
D001 – D043	F001 thru F012 F019 - F028 F032 F034, F035 F037 thru F039	K001 thru K052 K060 thru K062 K064 thru K066 K069, K071 K073 K083 thru K088 K090, K091 K093 thru K118 K123 thru K126 K131, K132 K136, K140 K141 thru K145 K147 thru K151 K156 thru K161 K169 thru K172 K176thruK178	P001 thru P018 P020 thru P031 P033 thru P051 P054 P056 thru P060 P062 thru P078 P081, P082 P084, P085 P087 thru P089 P092 thru P099 P101 thru P016 P127, P128 P185 P188 thru P192 P194 P196 thru P199 P201 thru P205	U001 thru U012 U014 thru U223 U225 thru U249 U271 U277 thru U280 U328, U353, U359 U364 thru U367 U372, U373 U375 thru U379 U381 thru U387 U389 thru U396 U400 thru U404 U407, U408 U409, U410, U411

The following table lists the approved waste codes for treatment and/or storage in the Treatment Building:

D Codes	F Codes	K Codes	P Codes	U Codes
D001 – D043	F001 thru F012 F019 - F028 F032 F034, F035 F037 thru F039	K001 thru K052 K060 thru K062 K064 thru K066 K069, K071 K073 K083 thru K088 K090, K091 K093 thru K118 K123 thru K126 K131, K132 K136, K140 K141 thru K145 K147 thru K151 K156 thru K161 K169 thru K172 K176thruK178	P001 thru P018 P020 thru P031 P033 thru P051 P054 P056 thru P060 P062 thru P078 P081, P082 P084, P085 P087 thru P089 P092 thru P099 P101 thru P016 P127, P128 P185 P188 thru P192 P194 P196 thru P199 P201 thru P205	U001 thru U012 U014 thru U223 U225 thru U249 U271 U277 thru U280 U328, U353, U359 U364 thru U367 U372, U373 U375 thru U379 U381 thru U387 U389 thru U396 U400 thru U404 U407, U408 U409, U410, U411

The following table lists the approved waste codes for disposal in the secure landfill cells, provided the waste meets the applicable Land Disposal Restrictions specified in 6 CCR 1007-3 §268:

D Codes	F Codes	K Codes	P Codes	U Codes
D001 – D043	F001 thru F012 F019 - F028 F032 F034, F035 F037 thru F039	K001 thru K052 K060 thru K062 K064 thru K066 K069, K071 K073 K083 thru K088 K090, K091 K093 thru K118 K123 thru K126 K131, K132 K136, K140 K141 thru K145 K147 thru K151 K156 thru K161 K169 thru K172 K176thruK178	P001 thru P018 P020 thru P031 P033 thru P051 P054 P056 thru P060 P062 thru P078 P081, P082 P084, P085 P087 thru P089 P092 thru P099 P101 thru P016 P127, P128 P185 P188 thru P192 P194 P196 thru P199 P201 thru P205	U001 thru U012 U014 thru U223 U225 thru U249 U271 U277 thru U280 U328, U353, U359 U364 thru U367 U372, U373 U375 thru U379 U381 thru U387 U389 thru U396 U400 thru U404 U407, U408 U409, U410, U411

WASTE ANALYSIS PLAN

APPENDIX E

REFERENCES FOR HDPE INCOMPATIBLE CONSTITUENTS

The following references may be used as reference for HDPE incompatible constituents:

1. Poly-Flex, Inc. *"An Engineering Approach to Groundwater Monitoring"* Reference Manual

WASTE ANALYSIS PLAN

APPENDIX F

REFERENCES FOR AIR or WATER REACTIVE, EXPLOSIVE and SHOCK SENSITIVE MATERIALS

The following references may be used to define and characterize air or water reactive, explosive, and shock sensitive materials:

1. Material Safety Data Sheet (MSDS)

2. 49 CFR (Code of Federal Register), § 172. 101 Hazardous Materials Table.

3. Hawley's Condensed Chemical Dictionary, 7" Edition, Revised by N. Irving Sax and Richard J. Lewis, Sr., Van Nostrand Reinhold Company.

4. Hazardous Chemicals Desk Reference, 2nd Edition, Richard J. Lewis, Sr., Van Nostrand Reinhold Company.

5. The Merck Index, 11th Edition, Merck & CO Inc.

WASTE ANALYSIS PLAN

APPENDIX G

DISCREPANCY CRITERIA

ON-SITE WASTE ACCEPTANCE DATA

WASTE ANALYSIS PLAN
DISCREPANCY CRITERIA FOR ON-SITE
WASTE ACCEPTANCE EVALUATION
APPENDIX G

The criteria itemized below define respective discrepancies with regard to a comparison of analytical data from either Department requested sampling and/or on-site analysis with the information listed on a Waste Profile.

On Site Acceptance Discrepancies

- Any determination which identifies or characterizes the material as:
  - Pyrophoric (air reactive)
  - Explosive
  - Shock Sensitive
  - PCB (in excess of 50 mg/Kg)
  - Dioxin/furan constituent in excess of Part 268.40 treatment standards
  - Radioactive, exhibiting a radiation reading greater than 116 uR/hr.
  - Infectious
  - Compressed Gas

- Any analytical result which leads to a change of characterization for the following parameters:
  - Reaction with change in pH resulting in release of gas
  - Ignitability
  - Free Liquids
  - Load Bearing
  - Treatment Reagent Compatibility

- Any analytical result which deviates from the values specified on the Waste Profile by an amount or percentage greater than the limits set below will be considered a discrepancy.

- Any analytical result which indicates the presence of a hazardous waste constituent not previously specified on the Waste Profile at a concentration 1,000 mg/L or greater will be considered a discrepancy. Any analytical result from a Department requested sample which indicates the presence of a new compound not previously specified on the Waste Profile at a concentration greater than 500

mg/L and less than 1000 mg/L will be reported to the Department, but will not be considered a discrepancy.

- Any analytical result which indicates waste constituent concentrations for Land Disposal Restricted wastes which would indicate inconsistencies with Generator's certifications made in accordance with 40 CFR or 6 CCR 1007-3, Part 268.7

- Hazardous constituent concentration Differences of twenty-five percent (25 %) or greater of specified value (differences must be at least 1,000 mg/L to be considered a discrepancy.

- pH $\geq$ 2.0 units (negative log of Hydrogen ion concentration difference).

- Specific gravity of Liquids Differences of ten percent (10%) or greater of specified value.

- Flashpoint Differences of ten percent (10%) or more from specified value measured in degrees Fahrenheit.

- Any distinctly different characteristic for each of the following parameters:

  - Color
  - Number of Phases
  - Physical State
  - Volume percent sediment, aqueous liquid and organic liquid having a difference in excess of twenty-five percent (25 %)
  - Odor.

WASTE ANALYSIS PLAN

APPENDIX H

STANDARD OPERATING PROCEDURES

1. PROCEDURES for SCREENING for the EVOLUTION OF CYANIDE, SULFIDE, and AMMONIA in WASTE SHIPMENTS

2. LOAD BEARING CAPACITY CALCULATION for SECURE CELL OPERATIONS

PROCEDURE FOR SCREENING FOR THE EVOLUTION OF CYANIDE, SULFIDE, AND AMMONIA GAS IN WASTE SHIPMENTS
Appendix H

1. SCOPE

This test method was developed by the Lab to enable the rapid and simple determination of the amount of cyanide, sulfide, or ammonia gas evolved with change in pH from a chemical or industrial waste. The test is also applicable to determine the concentration of various gases emitted when materials are exposed to aqueous pH environments of 2.0 or 12.5.

II. SIGNIFICANCE AND USE

This method is used for screening wastes. If concentrations found using this method are below the listed levels, no further testing is required:

- Cyanide < 250 ppm
- Sulfide < 500 ppm
- Ammonia < 500 ppm

A. If cyanide and sulfide screening levels are each below 250 ppm and 500 ppm respectively, the waste may be accepted at the Facility for treatment or disposal. If cyanide or sulfide levels determined in the screening process are found to be greater than these limits, test methods from SW-846 will be utilized.

B. Screening methods are adequate for most wastes, but have shown false positive results due to interfering compounds. Methods described in SW-846 will aid in separating wastes with true cyanide and sulfide hazards from those wastes showing false positive cyanide hazards.

III. APPARATUS

Suggested equipment or equivalent.

1. Beaker, plastic, disposable, 400 ml. (EconoScientific).
2. Funnel, 8 cm., plastic (NALGE).
3. Jack stand.
4. Ring stand and clamps.
5. Gas detector pump, 0-100 cc. (Matheson-Kitagawa Model 8014).
6. Gas detector tubes (Matheson-Kitagawa or Bendix Gastec)
   a. H_2S - Bendix, No. 4L (1-240 ppm)
      M-K, No. 120 Sb (1 - 150 ppm)
   b. HCN - Bendix, No. 12L (2.5-120 ppm)
      M-K, No. 112 Sb (0.5-100 Ppm)
   c. NH_3 - Bendix, No. 3M (10-1,000 ppm)
      Bendix, No. 3L (1-60 ppm)
      M-K, No. 105 Sb (50-900 ppm)
      M-K, No. 105 Sc (5-130 ppm)
7. Magnetic stirrer apparatus.
8. Magnetic stirring bar.

IV. REAGENTS

1. pH 2 buffered solution - commercially available.

2. pH 12.5 buffered solution - commercially available.

3. Lead acetate strips.

V. PRECAUTIONS

Standard laboratory hygiene practices should be followed when conducting the test. All tests must be performed in a hood equipped with an exhaust intake along the front edge of the work area to collect any heavier than air vapors generated.

VI. PROCEDURE

Assemble the testing apparatus. Twenty grams of the material to be tested is placed in the 400 ml. beaker. If the sample is solid, it should be crushed into particles passing through a 9.5 mm (3/8 inch) sieve. About 50 ml. of the buffer solution is then added, and a small stirring bar inserted. The beaker is then placed on the magnetic stirrer, the stirrer and beaker raised by means of the lab jack to a point at which the funnel just fits down inside the beaker opening. The gas detector tube with the pump attached should be directly positioned thru the small opening of the funnel, with the tip of the tube about mid-way in the funnel area. The magnetic stiffer is started and the pump activated by pulling out the handle to draw in 100 cc of atmosphere. The reaction of the gas with the components in the detector tube causes a color stain which varies in length according to the concentration of the gas to be measured in the vapor. The length of strain is read against the concentration scale printed on the detector tube or against a calibration chart provided, At least one minute should elapse after activating the pump before reading the detector tube.

Read the detector tube and record the concentration of gas in the atmosphere.

NOTE: The pH 2.0 buffered solution is to be used when determining the reactivity of cyanide or sulfide containing wastes. The pH 12.5 buffered solution may be used to determine the amount of gases liberated, such as ammonia, when waste is exposed to an alkaline medium.

Method Detection Limits - One (1) pump stroke -

- Hydrogen Cyanide 2 ppm
- Hydrogen Sulfide 5 ppm
- Ammonia 10 ppm

To reduce interfering levels of hydrogen sulfide to enable the detection of hydrogen cyanide in 5-10 ppm range, add 1-2 ml. of a saturated lead acetate solution to the test mixture prior to addition of the pH 2 buffered solution.

WASTE ANALYSIS PLAN
LOAD BEARING CAPACITY DETERMINATION
FOR SECURE LANDFILL OPERATIONS
Appendix H

This Permit requires the load bearing capacity (unconfined compressive strength) of solidified wastes prior to transfer to a secure cell to be at least 0.33 tons per square foot (TSF). A fairly accurate estimation of the load bearing capacity can be obtained with either a Pocket Penetrometer or a Torvane Shear Device.

The undrained, shear strength is equal to one half the unconfined compressive strength. The Pocket Penetrometer measures directly the unconfined compressive strength whereas the Toryane Shear Devic measures the undrained shear strength from which the unconfined compressive strength can be calculated.

POCKET PENETROMETER TEST PROCEDURE

1. Obtain a representative sample of the material to be tested. Approximately 100 ml is required.

2. Place the sample into a 100 or 500 ml beaker and tamp the sample down so the top is smooth. DO NOT compact the sample any further.

3. Move the indicator sleeve on the penetrometer handle to the lowest reading on the scale. When the indicator sleeve is properly located, it should rest against the lower edge of the instrument handle.

4. Grip the handle of the penetrometer and, with steady pressure, push the piston into the sample up to the calibration groove on the piston located 1/4" from the end.

5. Read and record the unconfined compressive strength in TSF directly from the low-load side of the indicator sleeve. The indicator sleeve holds its position after the piston is released.

6. Obtain four separate readings spaced evenly over the surface of the sample by repeating steps 3, 4, and 5 above.

7. Record the average of the four separate readings. An average value greater than or equal to 0.33 TSF concludes that the sample material has sufficient load bearing capacity to be transferred to a secure cell.

TORVANE SHEAR DEVICE TEST PROCEDURE

1. Obtain a representative sample of the material to be tested. Approximately 500 ml is required.

2. Divide the sample evenly into four separate 500 ml or larger beakers and tamp the sample down in each so the top is smooth. DO NOT compact the sample any further. The beakers used should have a minimum diameter of two inches.

3. Select the standard size vane (I inch diameter) and fit it to the vane driver.

4. Make sure the zero on the dial is aligned with the index mark on the knob. A counter-clockwise rotation of the dial face brings the zero back to the index mark.

5. Carefully press the torvane into the test sample to the depth of the blades. Maintain a constant vertical load using finger pressure and slowly turn the knob at a constant rate. A rate of rotation such that failure develops in five to ten seconds is recommended.

6. After failure develops, release the remaining spring tension slowly and the index mark on the knob will indicate the maximum shear value in kg/cm^2. Record this value.

7. Repeat steps 4, 5, and 6 for the sample portions placed in the other three beakers.

8. Calculate the average shear value in kg/cm' for the four test samples.

9. Multiply the average shear value in kg/cm' by 1.0243 to convert the average shear value to TSF.

10. Multiply the average shear value in TSF by two to obtain the average unconfined compressive strength.

11. Record the average unconfined compressive strength. An average value greater than or equal to 0.33 TSF concludes that the sample material has sufficient load bearing capacity to be transferred to a secure cell.

WASTE ANALYSIS PLAN
POTENTIAL INCOMPATIBLE GROUP DESIGNATIONS
Appendix I

Group 1-A	Group 1 -B
Acetylene sludge Alkaline caustic liquids Alkaline cleaner Alkaline corrosive liquids Alkaline corrosive battery fluid Caustic wastewater Lime sludge and other corrosive alkalies Lime wasteater Lime and water Spent caustic	Acid Sludge Acid and water Battery acid Chemical cleaners Electrolyte, acid Etching acid liquid or solvent Pickling liquor and other corrosive acids Spent acid Spent mixed acid Spent sulfuric acid
Potential consequences: Heat generation, violent reaction	

Group 2-A	Group 2-B
Aluminum Beryllium Calcium Lithium Magnesium Potassium Sodium Zinc Powder Other reactive metals and metal hydrides	Any Waste in Group I -A or I -B
Potential consequences: Fire or explosion; generations of flammable hydrogen gas	

Group 3-A	Group 3-B
Alcohols Water	Any concentrated waste in Groups 1-A or 1-B Calcium Lithium Metal hydrides Potassium SO_2Cl_2,, $SOCl_2$, PCl_3, CH_3SiCl_3 Other water-reactive waste
Potential consequences: Fire, explosion, or heat generations; generation of flammable or toxic gases.	

Group 4-A	Group 4-B
Alcohols Aldehydes Halogenated hydrocarbons Nitrated hydrocarbons Other reactive organic compounds and solvents	Concentrated Groups I-A or I-B wastes Group 2-A wastes
Potential consequences: Fire, explosion, or violent reaction.	

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group I-B wastes
Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas.	

Group 6-A	Group 6-B
Chlorates Chlorines Chlorites Chromic acid Hyprochlorites Nitrates Nitric acid, fuming Perchlorates Permanganates Peroxides Other strong oxidizers	Acetic acid and other organic acids Concentrated mineral acids Group 2-A wastes Group 4-A wastes Other flammable and combustible wastes
Potential consequences: Fire, explosion, or violent reaction.	

WASTE ANALYSIS PLAN

APPENDIX J

DIOXIN WASTE MANAGEMENT PLAN

WASTE ANALYSIS PLAN
DIOXIN AND FURAN WASTE MANAGEMENT PLAN
APPENDIX J

This plan is to be implemented when managing wastes identified by the waste codes F020, F021, F022, F023, F026, F027, F028 and/or F032. The particulate dispersion control requirements of the plan will be implemented when managing any incinerator ash wastes. This plan is implemented per the requirements of 40 CFR and/or 6 CCR 1007-3, §264.317.

I. WASTE ANALYSIS REQUIREMENTS

A. PRE-ACCEPTANCE: The Permittee's pre-acceptance procedure, conducted pursuant to the WAP, will include dioxin and furan analyses to verify that the treatment standards applicable to F020, F021, F022, F023, F026, F027, F028 and/or F032 have been met. The Permittee shall not accept any of these wastes for management until such analyses demonstrate that the LDR treatment standard are met unless otherwise approved by the Division.

B. ON-SITE ACCEPTANCE: These wastes shall not be treated for other waste code constituents at the Facility until documentation provided by the generator for each individual shipment verifies the treatment standards specified in 40 CFR and/or 6 CCR 1007-3, §268.40 for F020, F021, F022, F023, F026, F027, F028 and/or F032 wastes have been met prior to shipment to the Facility. This requirement ensures that no individual dioxin constituent at concentrations in excess of 1 ppb will be accept at the Facility.

II. WASTE RECEIVING AND HANDLING

A. Waste containers will be kept closed or tarped except during the process of waste sampling and waste unloading into either the unloading area of the treatment basins or the landfill.

B. Dioxin and furan wastes may be treated to meet other treatment standards, such characteristic metals, load bearing, reduction of dust generations potential, free-liquids criteria or other treatment without approval by the Division.

C. For wastes which require treatment prior to secure cell disposal, the following unloading procedures at the Treatment Building will be followed to minimize particulate dispersion:

1. Untarping of bulk loads and/or opening of containers will occur only at the time of unloading. No load will be untarped or opened prior to positioning the truck and/or container inside the Treatment building.

2. Bulk loads will be checked prior to commencing unloading to determine if the addition of water is required to minimize dust generation. Water will be applied to dry waste material during unloading inside the Treatment Building to minimize dust.

Unloading at the secure cell will be in accordance with the following to minimize particulate dispersion:

3. Trucks or containers will not be uncovered until they are in the unloading position in the landfill.

4. Dioxin and furan waste placed in the landfill must be covered as soon as transfer and placement activities for that waste are completed. If a campaign or batch is only partially transferred and placed in the cell and a break in the transfer or placement process is necessary, then the waste must be covered.

III. CO-DISPOSAL COMIPATIBILITY

The waste addressed by this management plan shall not be received at the Highway 36 facility unless the residual dioxin and furan constituent concentrations meet the treatment standard established in 40 CFR and/or 6 CCR 1007-3, §268.40. This requirement combined with the waste compatibility review procedures outlined in the WAP will ensure these wastes are compatible with co-disposed waste in the cell.

IV. ENVIRONMENTAL MONITORING, AND SECURE DISPOSAL CELL INSPECTION

Secure Disposal Cell Operations include scheduled inspections to verify that the physical integrity of the cell liner systems is maintained. The inspection requirements are outlined in Inspection Plan, Attachment 3. The inspection, sampling and analysis of collected liquids from the Leachate Collection System and the Leak Detection System will be performed as described by the Inspection Plan.

Waste Analysis Plan Appendix K
Waste Analysis Plan for NORM/TENORM, and Exempt Waste

I. Definitions.

A. Radioactive: means emitting alpha rays, beta rays, gamma rays, high-energy neutrons or protons, or other high-level radioactive particles. The term "radioactive" does not include material in which the estimated specific activity is not greater than .002 microcuries per gram of material, and in which the radioactivity is essentially uniformly distributed (C.R.S. § 25-11-201).

B. TENORM or (Technologically Enhanced Naturally Occurring Radioactive Material) : means naturally occurring radioactive (material) whose radionuclide concentrations are increased by or as a result of past or present human practices. "TENORM" does not include:

1. Background radiation or the natural radioactivity of rocks or soils;
2. "Byproduct material" or "source material," as defined by Colorado statute or rule; or
3. Enriched or depleted uranium as defined by Colorado or federal statute or rule (C.R.S. § 25-11-201).

II. Waste Acceptance Criteria for NORM/TENORM and exempt waste

A. The Permitee may not accept radioactive material as defined in C.R.S § 25-11-201, unless otherwise exempted. Total activity from all sources (α,β,γ) must be less than .002 μCi/g, and must be essentially uniformly distributed throughout the waste, unless otherwise exempted or as described in Table 1.

B. Acceptable waste forms will consist of bulk solid materials, debris type wastes, monolithic materials and drums or other containerized wastes. Liquids and sludge may be accepted for treatment and landfill as well.

C. $Radium^{226}$ content must be less than or equal to 400 pCi/g essentially uniformly dispersed throughout the waste.

D. Certain materials, such as smoke detectors, exempted from License requirements under the Colorado Code of Regulations, may be accepted for disposal. Some of these exemptions are detailed in Table 1.

E. Waste must contain less than 500 parts per million (ppm) "Source Material" (total uranium and thorium) unless it is otherwise exempted or listed in Table 1.

F. Waste shipments must have a dose rate of less than 116 μR per hour as measured by the portal monitors at the entrance to the facility or other instrumentation.

III. Waste Stream Pre-Acceptance Review and Approval Process

A. Generator will submit a Waste Material Sheet for review per standard WAP (Waste Analysis Plan) procedures. If the generator indicates that the waste contains TENORM materials, then additional review steps listed in this appendix will be undertaken.

B. Generator will be requested to supply information regarding the TENORM radionuclides present, their specific activity, and the dose rate at the surface of the waste. If the waste is an exempt manufactured object, manufacturers specifications may be used in place of specific activity data and dose rate at the surface.

C. Generator will be required to supply outside lab analysis that will encompass: total α, total Radium, β spectrum, and γ spectrum. If the waste is an exempt manufactured object, manufacturers specifications may be used in place of lab analysis.

D. Exempt manufactured objects will have specific activity and dose rate calculated from references in the scientific literature.

E. Waste will be evaluated to determine that it meets the Waste Acceptance Criteria for NORM, TENORM, and exempt material. Generator supplied radiological information and off site radiological analysis will become part of the waste material profile.

F. Waste must meet all other acceptance requirements in the WAP (Waste Analysis Plan).

IV. On-Site Acceptance: Inspection, Evaluation and Analysis

A. All waste shipments will be screened for dose rate at the surface of the package either using the portal monitors at the entrance of the facility, or using hand held probes. Waste shipments must have a dose rate of less than 116 μR per hour as measured by the portal monitors at the entrance to the facility, or using hand held instruments. Procedures for use of the portal monitors and hand held detectors are detailed in SOPs kept on file at the CHDT facility. If waste does not meet these dose rate requirements, it will be rejected to the waste generator.

B. All other WAP procedures will be followed as applicable. Leftover sample materials will be disposed of with the waste shipment whenever possible.

C. Exempt manufactured objects listed in Table 1 will be subject to a visual inspection.

V. References

6 CCR 1007-1

C.R.C. Title 25, Article 11, *Radiation Control*, Part 1, *General Provisions*, § 101, *Definitions.*

C.R.C. Title 25, Article 11, *Radiation Control*, Part 2, *Radioactive Waste Disposal*, § 201, *Definitions.*

Table 1
(Excerpted from 6 CCR 1007-1, PART 3)
Exemptions From The Regulatory Requirements

3.2.1 Any person is exempt from this part to the extent that such person receives, possesses, uses, owns, or transfers source material in any chemical mixture, compound, solution, or alloy in which the source material is by weight less than 1/20 of 1 percent (0.05 percent) of the mixture, compound, solution, or alloy.
3.2.2 Any person is exempt from this part to the extent that such person receives, possesses, uses, or transfers unrefined and unprocessed ore containing source material; provided that, except as authorized in a specific license, such person shall not refine or process such ore.
3.2.3 Any person is exempt from this part to the extent that such person receives, possesses,
uses, or transfers:

- 3.2.3.1 any quantities of thorium contained in
  - 3.2.3.1.1 incandescent gas mantles,
  - 3.2.3.1.2 vacuum tubes,
  - 3.2.3.1.3 welding rods,
  - 3.2.3.1.4 electric lamps for illuminating purposes provided that each lamp does not contain more than 50 milligrams of thorium,
  - 3.2.3.1.5 germicidal lamps, sunlamps, and lamps for outdoor or industrial lighting provided that each lamp does not contain more than 2 grams of thorium,
  - 3.2.3.1.6 rare earth metals and compounds, mixtures, and products containing not more than 0.25 percent by weight thorium, uranium, or any combination of these, or
  - 3.2.3.1.7 personnel neutron dosimeters, provided that each dosimeter does not contain more than 50 milligrams of thorium;
- 3.2.3.2 source material contained in the following products:
  - 3.2.3.2.1 glazed ceramic tableware, provided that the glaze contains not more than 20 percent by weight source material,
  - 3.2.3.2.2 glassware containing not more than 10 percent by weight source material, but not including commercially manufactured glass brick, pane glass, ceramic tile or other glass or ceramic used in construction,
  - 3.2.3.2.3 glass enamel or glass enamel frit containing not more than 10 percent by weight source material imported or ordered for importation into the United States, or initially distributed by manufacturers in the United States, before July 25, 1983, or
  - 3.2.3.2.4 piezoelectric ceramic containing not more than 2 percent by weight source material;
- 3.2.3.3 photographic film, negatives, and prints containing uranium or thorium;
- 3.2.3.4 any finished product or part fabricated of, or containing, tungsten-thorium or magnesium-thorium alloys, provided that the thorium content of the alloy does not exceed 4 percent by weight and that this exemption shall not be deemed to authorize the chemical, physical, or metallurgical treatment or processing of any such product or part;
- 3.2.3.5 uranium contained in counterweights installed in aircraft, rockets, projectiles, and missiles, or stored or handled in connection with installation or removal of such counterweights, provided that
  - 3.2.3.5.1 the counterweights are manufactured in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission, ~~authorizing~~ distribution by the licensee pursuant to 10 CFR Part 40,
  - 3.2.3.5.2 each counterweight has been impressed with the following legend clearly legible through any plating or other covering: "DEPLETED URANIUM",1/
  - 3.2.3.5.3 each counterweight is durably and legibly labeled or marked with the identification of the manufacturer and the statement: "UNAUTHORIZED ALTERATIONS PROHIBITED",1/ and
  - 3.2.3.5.4 this exemption shall not be deemed to authorize the chemical, physical, or metallurgical treatment or processing of any such counterweights other than repair or restoration of any plating or other covering;
- 3.2.3.6 natural or depleted uranium used as shielding constituting part of any shipping container, provided that:
  - 3.2.3.6.1 the shipping container is conspicuously and legibly impressed with the legend "CAUTION - RADIOACTIVE SHIELDING - URANIUM" and
  - 3.2.3.6.2 the uranium metal is encased in mild steel or equally fire resistant metal of minimum wall thickness of 1/8 inch (3.2 mm).
- 3.2.3.7 thorium contained in finished optical lenses, provided that each lens does not contain more than 30 percent by weight of thorium, and that this exemption shall not be deemed to authorize either
  - 3.2.3.7.1 the shaping, grinding, or polishing of such lens or manufacturing processes other than the assembly of such lens into optical systems and devices without any alteration of the lens, or
  - 3.2.3.7.2 the receipt, possession, use, or transfer of thorium contained in contact lenses, or in spectacles, or in eyepieces in binoculars or other optical instruments;
- 3.2.3.8 uranium contained in detector heads for use in fire detection units, provided that each detector head contains not more than 185 Bq (0.005 μCi) of uranium; or
- 3.2.3.9 thorium contained in any finished aircraft engine part containing nickel-thoria alloy, provided that
  - 3.2.3.9.1 the thorium is dispersed in the nickel-thoria alloy in the form of finely divided thoria (thorium dioxide), and
  - 3.2.3.9.2 the thorium content in the nickel-thoria alloy does not exceed 4 percent by weight.

3.3.3 Exempt Items.

- 3.3.3.3 Gas and Aerosol Detectors Containing Radioactive Material.
  - 3.3.3.3.1 Except for persons who manufacture, process, or produce gas and aerosol detectors containing radioactive material, any person is exempt from these regulations to the extent that such person receives, possesses, uses, transfers, owns, or acquires radioactive material in gas and aerosol detectors designed to protect life or property from fires and airborne hazards provided that detectors containing radioactive material shall have been manufactured, imported, or transferred in accordance with a specific license issued by the U.S. Nuclear Regulatory Commission 2/ pursuant to Section 32.26 of 10 CFR Part 32; or a Licensing State pursuant to RH 3.12.3, which authorizes the transfer of the detectors to persons who are exempt from regulatory requirements.
  - 3.3.3.3.2 Gas and aerosol detectors previously manufactured and distributed to general licensees in accordance with a specific license issued by an Agreement State shall be considered exempt under RH 3.3.3.3.1, provided that the device is labeled in

accordance with the specific license authorizing distribution of the generally licensed device, and provided further that they meet the requirements of RH 3.12.3.

3.3.3.3.3 Gas and aerosol detectors containing NARM previously manufactured and distributed in accordance with a specific license issued by a Licensing State shall be considered exempt under RH 3.3.3.3.1, provided that the device is labeled in accordance with the specific license authorizing distribution, and provided further that they meet the requirements of RH 3.12.3.

PERMIT ATTACHMENT 3

INSPECTION PLAN CHECKLIST

TABLE OF CONTENTS:

SECTION A – NON-OPERATIONAL DAY

SECTION B – OPERATIONAL DAYS

SECTION C – WEEKLY

SECTIION D – MONTHLY

SECTION E – QUARTERLY

SECTION F – ANNUAL

SECTION G – FIVE YEAR

SECTION H - SPECIAL

SECTION A – NON-OPERATIONAL DAY

DAILY INSPECTION CHECKLIST FOR NON-OPERATIONAL DAYS

The following inspections shall be conducted on non-operational days. Non-operational days are defined as those days on which waste management activities do not occur. For purposes of this definition, laboratory operations and operation of the wastewater treatment system do not constitute waste management activities.

Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Precipitation and Wind Readings

1) Precipitation

Time recorded: _____

Amount and type since last inspection to the nearest 0.1 inch:_____

Gauge working: Yes ☐ No ☐

2) Wind Readings

Recorder working: Yes ☐ No ☐

Paper changed: Yes ☐ No ☐

3) Leachate Pipe

Will leachate be pumped through the pipe? Yes☐ No☐
(If yes, then continue to the following inspection prior to pumping)

	Problem
Leaks	Yes☐ No☐
Deterioration (pipes, joints, valves, etc.)	Yes☐ No☐

4) Security Fences and Gates

Time inspected: _____

	Problem
a) Unauthorized Entry	Yes☐ No☐
b) General Condition	Yes☐ No☐

5) Roadways, Access Ramps, Loading/Unloading Areas

Time inspected: _____

	Problem
a) Spills	Yes☐ No☐
b) Ponding	Yes☐ No☐
c) General Condition	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

6) Sampling Station

Time inspected: _____

	Problem
a) Spills	Yes☐ No☐
b) Leaks	Yes☐ No☐
c) Unauthorized discharges	Yes☐ No☐

7) Container Management Building

Time inspected: _____

	Problem
a) Spills	Yes☐ No☐
b) Ponding	Yes☐ No☐
c) Fumes, smoke, mists, fires, or explosions	Yes☐ No☐

8) Treatment Building

Time inspected: _____

	Problem
a) Spills	Yes☐ No☐
b) Ponding	Yes☐ No☐
c) Fumes, smoke, mists, fires, or explosions	Yes☐ No☐

9) Container Storage Area

Time inspected: _____

	Problem
a) Spills	Yes☐ No☐
b) Open Containers	Yes☐ No☐
c) Fumes, smoke, mists, fires, or explosions	Yes☐ No☐

10) Contaminated Water Tanks

Time inspected: _____

	Problem
a) Tanks show evidence of leaks	Yes☐ No☐
b) Containment structure shows evidence of leaks	Yes☐ No☐

11) Active Secure Cell(s)

Time inspected: _____

	Problem
a) Perimeter shows evidence of spills and windblown debris	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

SECTION B – OPERATIONAL DAYS

DAILY INSPECTION CHECKLIST - OPERATIONAL DAYS

Inspections shall be conducted once every operational day. An operational day is defined as a day in which waste management activities occur at the site. For purposes of this definition, laboratory operations and operation of the Wastewater Treatment System do not constitute an operational day.

Measurements of liquid level readings for Leak Detection Systems, Leachate Collection Systems and collection tanks shall be maintained on file at the Facility. Only the indication of a problem for each system shall be noted and recorded on the inspection checklist.

Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Precipitation and Wind Readings

1) Precipitation

Time recorded: _____

Amount and type since last inspection to the nearest 0.1 inch:_____

Gauge working: Yes ☐ No ☐

2) Wind Readings

Time recorded: _____

Wind direction: _____

Wind speed in mph: _____

Recorder working: Yes ☐ No ☐

3) Wind Socks

Time inspected: _____

	Problem
Treatment Bldg	Yes☐ No☐
Truck Wash	Yes☐ No☐
Potable Water Tank	Yes☐ No☐

4) Leachate Pipe

Will leachate be pumped through the pipe? Yes☐ No☐
(If yes, then continue to the following inspection prior to pumping)

	Problem
Leaks	Yes☐ No☐
Deterioration (pipes, joints, valves, etc.)	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

General Site

1) Drainage Ditches

Time inspected: _____

	Problem
Erosion	Yes☐ No☐
Obstructions	Yes☐ No☐
Overflow or imminent overflow	Yes☐ No☐
Runoff present	Yes☐ No☐
Windblown Debris	Yes☐ No☐
Spill Present	Yes☐ No☐
Ditches Checked:	
UC6	Yes☐ No☐
UC7	Yes☐ No☐
SS4	Yes☐ No☐
SS1	Yes☐ No☐
SS-1-1	Yes☐ No☐

2) Security Fences and Gates

Time inspected: _____

	Problem
a) Unauthorized Entry	Yes☐ No☐
b) General Condition	Yes☐ No☐

3) General Inspections for Spilling and Ponding

Time inspected: _____

Spill or ponding on:

	Problem
a) Roadways	Yes☐ No☐
b) Access Ramps	Yes☐ No☐
c) Loading/Unloading Areas	Yes☐ No☐

General Condition:

	Problem
d) Roadways	Yes☐ No☐
e) Access Ramps	Yes☐ No☐
f) Loading/Unloading Areas	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

4) Sampling Station

Time inspected: _____

	Problem
a) Spills, leaks or unauthorized discharges	Yes☐ No☐
b) Obstruction in floor collection trenches	Yes☐ No☐

Hazardous Waste Management Units

1) Operations Building Tanks

Time inspected: _____

	Problem
a) Leaks or corrosion in area surrounding tanks	Yes☐ No☐
b) Obstructions in trench drain pipes	Yes☐ No☐
c) Tank lift station inspected for leaks or Malfunction of level indicators an valves	Yes☐ No☐ (not in service)
d) Liquid level exceeds the high level set point	Yes☐ No☐

If yes, pump tank and record gallons pumped_____

2) Maintenance Building Tanks

Time inspected: _____

	Problem
a) Leaks or corrosion in area surrounding tanks	Yes☐ No☐
b) Obstructions in trench drain pipes	Yes☐ No☐
c) Tank lift station inspected for leaks or Malfunction of level indicators an valves	Yes☐ No☐ (not in service)
d) Liquid level exceeds the high level set point	Yes☐ No☐

If yes, pump tank and record gallons pumped_____

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Container Storage Areas

3) Container Storage Area A

Time inspected: _____

	Problem
a) Containers:	
i) Spills	Yes☐ No☐
ii) Deterioration	Yes☐ No☐
iii) Corrosion which affects structural Integrity or containment capability	Yes☐ No☐
iv) Incompatibility with content	Yes☐ No☐
b) Open containers at time of inspection While not involved in sampling	Yes☐ No☐
c) Aisle space less than 10 feet	Yes☐ No☐
d) Compatibility group designation on containers (40 CFR 264, Appendix V)	Yes☐ No☐
e) Incompatible waste in the same segregation area, segregation < 8 feet	Yes☐ No☐
f) Presence of liquids or solids in CSA (remove in same work shift)	Yes☐ No☐

4) Container Storage Area B

Time inspected: _____

	Problem
a) Containers:	
i) Spills	Yes☐ No☐
ii) Deterioration	Yes☐ No☐
iii) Corrosion which affects structural Integrity or containment capability	Yes☐ No☐
iv) Incompatibility with content	Yes☐ No☐
b) Open containers at time of inspection While not involved in sampling	Yes☐ No☐
c) Aisle space less than 10 feet	Yes☐ No☐
d) Compatibility group designation on containers (40 CFR 264, Appendix V)	Yes☐ No☐
e) Incompatible waste in the same segregation area, segregation < 8 feet	Yes☐ No☐
f) Presence of liquids or solids in CSA (remove in same work shift)	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

5) Container Management Building

Time inspected: _____

	Problem
a) Drums	
i) Leaks	Yes☐ No☐
ii) Deterioration	Yes☐ No☐
iii) Corrosion	Yes☐ No☐
iv) Incompatibility with content	Yes☐ No☐
b) Open containers at time of inspection while not engaged in waste handling activities	Yes☐ No☐
c) Aisle Space	
i) Rows less than 2 drums wide	Yes☐ No☐
ii) Lack of pallets for stacked drums	Yes☐ No☐
iii) Aisle space less than 2 feet	Yes☐ No☐
iv) Less than 12" from major aisle	Yes☐ No☐
v) Inadequate aisle space for drums >55 g.	Yes☐ No☐
vi) Major aisle space less than 4 feet	Yes☐ No☐
d) Compatibility group designation on drums (40 CFR 264; Appendix V)	Yes☐ No☐
e) Presence of liquids or solids in spill Containment trenches (24 hours)	Yes☐ No☐
f) Incompatible waste in the same segregation area	Yes☐ No☐
g) Unreadable or no signs posting PPE requirements at entry doors	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

5) Segregated Storm Water Retention Basin (SSRB)

Time inspected: _____

	Problem
a) Basin overflowing	Yes☐ No☐
b) Liner of LDS shows evidence of failure	Yes☐ No☐
c) Sever erosion of dikes	Yes☐ No☐
d) Malfunction or leaks of fittings and valves Pumps, flow meters or above grade piping The SSRB to the WWTS	Yes☐ No☐
e) Spills or accidental discharges to the SSRB	Yes☐ No☐

7) Tanker and Truck Unloading Area

Time inspected: _____

	Problem
a) Entry Areas and overhead structures	
i) Spills	Yes☐ No☐
ii) Deterioration	Yes☐ No☐
iii) Cracking	Yes☐ No☐
iv) Corrosion	Yes☐ No☐
b) Collection Basins	
i) Spills	Yes☐ No☐
ii) Deterioration	Yes☐ No☐
iii) Cracking	Yes☐ No☐
iv) Corrosion	Yes☐ No☐
c) Piping and transfer equipment	
i) Leaks	Yes☐ No☐
ii) Cracks	Yes☐ No☐
Loose fittings	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

8) Contaminated Water Storage Tanks

Time inspected: _____

	Problem
a) Leaks or spills in the area around	
i) CWST A	Yes☐ No☐
ii) CWST B	Yes☐ No☐
b) Excessive exterior corrosion in	
i) CWST A	Yes☐ No☐
ii) CWST B	Yes☐ No☐
c) Leaking from	
i) CWST A	Yes☐ No☐
ii) CWST B	Yes☐ No☐
d) Leaking from ancillary equipment of	
i) CWST A	Yes☐ No☐
ii) CWST B	Yes☐ No☐
e) Liquid in secondary containment (remove ,14 days)	
i) CWST A	Yes☐ No☐
ii) CWST B	Yes☐ No☐
f) Level of liquid	
i) CWST A	_____
ii) CWST B	_____
g) Level of freeboard (maintain minimum of 2')	
i) CWST A	_____
ii) CWST B	_____

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

9) Treatment Building

Time inspected: _____ .

	Problem
a) Inspection of basins and processing equipment for any unknown or unintended violent, or heat, fume or gas producing reactions or excessive dust generation	Yes☐ No☐
b) Posted sign to the Treatment Building that denotes the protection level and cartridge type is missing or unreadable	Yes☐ No☐
c) Spills or ponding on the Process area floor	Yes☐ No☐
d) Spill or leaks in or around air scrubbers	Yes☐ No☐
e) Spills or ponding on curing area floor	Yes☐ No☐
f) Drum shredder system	
i) Worn hoses or pipes	Yes☐ No☐
ii) Loose fittings	Yes☐ No☐
iii) Hydraulic leaks	Yes☐ No☐
g) Note which Treatment Mixing Basin has a freeboard (if it contains liquids) of less than 2 feet _____	Yes☐ No☐

10) Treatment Building LDS

Time inspected: _____

	Problem
a) Inspection performed because liquids were removed the previous operational day or a precipitation event of 0.2" has occurred.	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

11) Active Secure Disposal Cell(s)
Secure Cell No. 2 (a separate checklist will be completed for each active cell)

Time inspected: _____

		Problem
a)	Sub cell clay liner less than 2'	Yes☐ No☐
b)	Inadequate select fill clay for sub cell clay liner	Yes☐ No☐
c)	Spills, discharges, leaks and/or wind blown debris around perimeter	Yes☐ No☐
d)	Ponding of liquids inside cell	Yes☐ No☐
e)	Approx. < one foot of buffer material protecting sideslope cover	Yes☐ No☐
f)	Adequate buffer extending up side slopes for the most recently completed waste layer	Yes☐ No☐
g)	Liquid present in the LDS, liquid level above 0.67 feet	Yes☐ No☐
h)	Water on haul roads adequate to control dust	Yes☐ No☐
i)	Effective use of daily cover	Yes☐ No☐
j)	Liquid present in the LCS > 0.67 feet Container #	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

12) Treatment Building

Time inspected: _____

	Problem
a) Additional, separate inspection of the Treatment Mixing Basins and processing equipment conducted by supervisory level individual, qualified and knowledgeable of all treatment processes, to determine if any unknown or unintended violent, or heat, fume or gas producing reactions are occurring or have occurred in the basins since the last daily inspection.	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

SECTION C – WEEKLY

WEEKLY INSPECTION CHECKLIST

The recording of liquid level readings for Leak Detection Systems, Leachate Collection Systems, collection tanks and freeboard shall be maintained in Facility logbooks. Only the indication of a problem for each system shall be noted and recorded on the inspection checklist.

The following inspections shall be conducted once a week. Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Contaminated Water Storage Tanks

1) Foundations

	Problem
a) Corrosion	Yes☐ No☐
b) Deterioration	Yes☐ No☐

2) Concrete Secondary Containment Strucure

	Problem
a) Cracks	Yes☐ No☐
b) Leaks	Yes☐ No☐
c) Erosion	Yes☐ No☐
d) Structural Deterioration	Yes☐ No☐

3) High Level Indicators and Alarms

	Problem
a) Malfunction of high level indicators	Yes☐ No☐
b) Malfunction of high level alarms	Yes☐ No☐
c) Presences of liquids or solids	Yes☐ No☐

Container Storage Area

1) Process Area Berms

a) Structural defects Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Maintenance Building Collection Tank

1) Hydrostatic Tank Monitors

	Problem
a) Indication of leak in the annulus	Yes☐ No☐

2) Collection Trenches and Foundations

	Problem
a) Collection Trench	
i) Cracks	Yes☐ No☐
ii) Leaks	Yes☐ No☐
iii) Spalling	Yes☐ No☐
iv) Structural Deterioration	Yes☐ No☐

Operation Building Collection Tank

1) Hydrostatic Tank Monitors

	Problem
a) Indication of leak in the annulus	Yes☐ No☐

2) Collection Trenches and Foundations

	Problem
a) Collection Trench	
i) Cracks	Yes☐ No☐
ii) Leaks	Yes☐ No☐
iii) Spalling	Yes☐ No☐
iv) Structural Deterioration	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Secure Disposal Cell Leachate Collection System and Surface Impoundment Leak Detection Sumps

1) Leak Detection Systems

	Problem
a) Secure Cell No. 1	
i) LDS liquid level present	Yes☐ No☐
ii) Level > 0.67 feet	Yes☐ No☐
iii) Permanent Sump liquid level present	Yes☐ No☐
iv) Level > 0.67 feet	Yes☐ No☐
b) Secure Cell No. 2	
i) LDS liquid level present	Yes☐ No☐
ii) Level > 0.67 feet	Yes☐ No☐
iii) Permanent Sump liquid level present	Yes☐ No☐
iv) Level > 0.67 feet	Yes☐ No☐
c) Treatment Building	
i) LDS liquid level present	Yes☐ No☐
ii) Level > 0.67 feet	Yes☐ No☐

2) Leachate Collection Systems

	Problem
a) Secure Cell No. 1, liquid level > 0.67 feet	Yes☐ No☐
b) Secure Cell No. 2, liquid level > 0.67 feet	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Treatment Building

1) Vehicle Security Barriers

	Problem
a) Structural Deterioration	Yes☐ No☐

2) Foundation and Approach Ramps

	Problem
a) Cracks	Yes☐ No☐
b) Spalling	Yes☐ No☐
c) Deterioration	Yes☐ No☐
d) Settling	Yes☐ No☐
e) Structural Deficiency	Yes☐ No☐

3) Treatment Mixing Basin Steel Liners

a) Which basin's steel liner shows evidence of corrosion or deterioration.
(note basin # _____)

(1) Corrosion	Yes☐ No☐
(2) Deterioration	Yes☐ No☐

4) Treatment Mixing Basin Annulus Mixing System

a) Liquid level above 0.67 feet in annulus monitoring system of which basin.
(note basin # _____)

(1) Liquid level > 0.67 feet Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

General Site

2) Air Horns and Fire Extinguishers

	Problem
a) Air horns and fire extinguishers are on all facility landfill vehicles	Yes☐ No☐

3) Portable and Stationary Eyewash Stations and Safety Showers

	Problem
a) Inspected for proper operation	Yes☐ No☐
b) Stationary Units not located in:	
i) Decon room	Yes☐ No☐
ii) Maintenance Bldg.	Yes☐ No☐
iii) Lab/Sampling Station	Yes☐ No☐
iv) CWST's	Yes☐ No☐
c) Portable Units not located in:	
i) Active Cell area	Yes☐ No☐
ii) On-Site response vehicle	Yes☐ No☐

4) Emergency Communications Systems

	Problem
a) Intercom/Public address system not operational	Yes☐ No☐
b) Facility air horns not operational	Yes☐ No☐
c) Two-way radios not operational	Yes☐ No☐
d) Portable units in vehicles not operational	Yes☐ No☐

5) Fire Detection and Emergency Alarms

	Problem
a) Fire detection alarms not operational	Yes☐ No☐
b) Emergency alarms not operational	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

6) Emergency Exits, Aisle Spaces and Fire Lanes

	Problem
a) Less than 4-foot aisle space to firestand pipe system	Yes☐ No☐
b) Parked vehicles in fire lanes.	Yes☐ No☐
c) Less than 15-foot fire lane at:	
i) Sampling Station	Yes☐ No☐
ii) CWST's	Yes☐ No☐
iii) Truck Wash	Yes☐ No☐
iv) Maintenance Building	Yes☐ No☐
v) Operations Building	Yes☐ No☐
vi) Active Cell	Yes☐ No☐

7) Signs

a) Missing signs for:	
i) No smoking area	Yes☐ No☐
ii) First aid areas	Yes☐ No☐
iii) Emergency equipment	Yes☐ No☐
iv) Emergency exits	Yes☐ No☐
v) Restricted areas	Yes☐ No☐

8) First aid

a) First aid and protective equipment inspected And inventoried	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

9) Fire Water Storage Tank and Construction Water Storage Tank Capacities

a) Fire water storage tank
< 48,000 gallons — Yes☐ No☐

b) Construction water storage tank
< 180,000 gallons — Yes☐ No☐

10) Above-Grade Piping and valves for Fire Water Storage Tanks and Construction Water Storage Tanks

	Problem
a) Fire water storage tank	
i) Leaks	Yes☐ No☐
ii) Faulty operation	Yes☐ No☐
iii) Need of maintenance	Yes☐ No☐
b) Construction water storage tank	
i) Leaks	Yes☐ No☐
ii) Faulty operation	Yes☐ No☐
iii) Need of maintenance	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

11) Laboratory- inspection by qualified laboratory personel

	Problem
a) Record keeping function of laboratory accurate and up to date	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

1) Inactive or Units not in Service

a) Off-Site Vehicle Truck Wash Facility

Time inspected: _____

	Problem
i) Leaks	Yes☐ No☐
ii) Corrosion	Yes☐ No☐
iii) Spills	Yes☐ No☐
iv) Leak Detection System	
(1) Presence of liquid in the annular Space of the double wall tank	Yes☐ No☐

b) Oil and Solvent Tanks

Time inspected: _____

	Problem
i) Leaks	Yes☐ No☐
ii) Corrosion	Yes☐ No☐
iii) Spills	Yes☐ No☐

c) Lift Station

Time inspected: _____

	Problem
i) Sever erosion of Lift Station dikes	Yes☐ No☐
ii) Spills or accidental discharges into the lift station	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

SECTIION D – MONTHLY

MONTHLY INSPECTION CHECKLIST

The following inspections shall be conducted once a month. Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

1. Firefighting Equipment

	Problem
a. Inventory of pumps, hoses, and emergency lights not available or not operational	Yes☐ No☐

2. Fire Extinguishers

a. Improper pressure	Yes☐ No☐
b. Hose and cone deterioration	Yes☐ No☐
c. Canister deterioration	Yes☐ No☐
d. Recharging or missing	Yes☐ No☐

3. Foam Equipment and Supplies

a. Improper placement or deterioration of foam eductor units, or wheeled extinguishers	Yes☐ No☐

4. Self-Contained breathing Apparatus

a. In adequate air reserve	Yes☐ No☐
b. Malfunctioning pressure gauges	Yes☐ No☐
c. Inadequate air delivery system	Yes☐ No☐
d. Inadequate air flow through regulators	Yes☐ No☐

5. Firefighting Turnout Gear

a. Rips, holes or signs of deterioration	Yes☐ No☐

6. Spill Control Equipment

a. Pumps, hoses 55-gallon and 85-gallon overpack drums, absorbents, booms, shovels, rakes, air packs, treatment reagent and heavy duty sorbent boom are not available in good condition	Yes☐ No☐

7. Laboratory

a. Inspection conducted by qualified lab personnel: Proper maintenance of analytical monitoring	
1) and sampling equipment	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

SECTION E – QUARTERLY

QUARTERLY INSPECTION CHECKLIST

The recording of the liquid level reading of the Permanent Sump shall be maintained in a Facility logbook. Only the indication of a problem for that system shall be noted and recorded on the inspection checklist. Coupon monitoring results shall be recorded in a Facility logbook.

The following inspections shall be conducted once each quarter. Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Coupon Testing

1. Contaminated Water Storage Tanks

		Problem
a.	CWST A	
	i. Corrosion rate over 20 mils / year	Yes☐ No☐
	ii. Change in weight greater than 1.5%	Yes☐ No☐
b.	CWST B	
	i. Corrosion rate over 20 mils / year	Yes☐ No☐
	ii. Change in weight greater than 1.5%	Yes☐ No☐
c.	Collection sumps	
	i. Corrosion rate over 20 mils / year	Yes☐ No☐
	ii. Change in weight greater than 1.5%	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Active Secure Cell (complete one inspection for each active secure cell)

Active Secure Cell #2

	Problem
1) Leachate Collection System Access Pipes	
a) Deteriorating riser pipes	Yes☐ No☐
b) Improper operation	Yes☐ No☐
c) Note Elevation _____	
2) Leak Detection Riser Pipes	
a) Deterioration	Yes☐ No☐
b) Locked	Yes☐ No☐
3) Permanent Sump Riser Pipes	
a) Deterioration	Yes☐ No☐
b) Locked	Yes☐ No☐
4) Permanent Sump	
a) Level of liquid greater than 0.67 feet If yes, note liquid level _____	Yes☐ No☐
5) Run-On and Run-Off Drainage Control System	
a) Inadequate run-on and run-off drainage control system	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Closed Secure Disposal Cell (complete one inspection for each closed secure disposal cell)

Closed Secure Disposal Cell #1

	Problem
1) Leachate Collection System	
a) Deteriorating surface access pipes	Yes☐ No☐
b) Unsecured security devices	Yes☐ No☐
c) Deteriorating standpipe grouting	Yes☐ No☐
d) LCS clogged	Yes☐ No☐
2) Leak Detection System	
a) Deteriorating surface access pipes	Yes☐ No☐
b) Unsecured security devices	Yes☐ No☐
c) Deteriorating standpipe grouting	Yes☐ No☐
d) LDS clogged	Yes☐ No☐
e) Note location by survey monument reference _____	
3) Permanent Sump Riser Pipes	
a) Deteriorating surface access pipes	Yes☐ No☐
b) Unsecured security devices	Yes☐ No☐
c) Deteriorating standpipe grouting	Yes☐ No☐
d) PS clogged	Yes☐ No☐
e) Note location by survey monument reference _____	
4) Survey Monuments	
a) Monuments exhibit settling	Yes☐ No☐
5) Cell Cap	
a) Settlement	Yes☐ No☐
b) Ponding	Yes☐ No☐
c) Erosion	Yes☐ No☐
d) Cracking	Yes☐ No☐
e) Deteriorating vegetation	Yes☐ No☐
f) Burrowing animals	Yes☐ No☐
6) Cell Drainage	
a) Inadequate run-on/run-off drainage control system	Yes☐ No☐
b) Eroding drainage ditches	Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

SECTION F – ANNUAL

ANNUAL INSPECTION CHECKLIST

The following inspections shall be conducted once each year. Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

	Problem
1. Survey Monuments	
a. Locations and elevations verified by survey	Yes☐ No☐
2. Flow Test on Fire Control System	
a. Fire control system conforms with NFPA Standards	Yes☐ No☐
3. Industrial Hygiene Survey	
a. Industrial Hygiene Survey review	Yes☐ No☐
b.	

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

SECTION G – FIVE YEAR

FIVE YEAR INSPECTION CHECKLIST

The following inspections shall be conducted once every five years. Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

1. **Internal Tank Inspections**	**Problem**
a. Internal inspection of steel tanks reveals deterioration on the liner or tank interior	Yes☐ No☐
note which tanks need repair _____	
b. Internal inspection of fiberglass tanks reveals deterioration on the liner or tank interior	Yes☐ No☐
note which tanks need repair _____	

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

SECTION H - SPECIAL

SPECIAL INSPECTION CHECKLIST

The following inspections shall be conducted for the particular unit or special conditions as detailed in this checklist. Frequency of inspection depends on the unit and conditions. Inspectors are required to date, record the time of the inspection and sign their names on the Inspection Checklist that they complete. All items shall be responded to by indicating that an item is either a problem or is not a problem. If an item is not inspected, the Inspector shall respond by writing "NI" in the Problem column with an explanation of why it was not inspected. In the event the Inspector cannot complete a checklist, the new Inspector shall continue with the same inspection and shall date and sign his/her name to that checklist.

Deficiencies noted during inspections will be noted on the form. If the deficiency can be corrected in the same day the correction will be noted on the form. If the deficiency cannot be corrected with in the same day then an Inspection Corrective Action Report shall be initiated and distributed by the Inspector. The remediator will retain the original copy until the item has been corrected. A second copy will be given to management and the third copy will remain with the Inspector. The signed original will then be filed with the originating checklist upon completion.

Reviewed by Compliance Manager or General Manager	*Date:*

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Daily / Hourly Inspections

1) Nearly Full Secure Cell

Time recorded: _____ **Problem**

a) The nearly full secure cell, which has not been covered by 2' of compacted clay, does not have adequate empty volume to contain a 100-year precipitation event and run-off from adjacent waste fill which may be placed at the final elevation to allow for 2' freeboard — Yes☐ No☐

b) After the empty volume limit specified in 1.a. above is surpassed and until completion of the lower clay component of the cell cover, regional weather forecasts shall be closely monitored — Yes☐ No☐

c) In the event a significant precipitation event is predicted or occurring, special inspections shall be made of the cell and incomplete cover areas — Yes☐ No☐

d) Immediate repairs, regrading of runoff flow paths or other emergency measures needed to prevent overflow of runoff out of the nearly full cell or runoff from areas of the fill not covered by the lower clay component of the cell cover which cannot be contained in the segregated stormwater drainage ditches are needed — Yes☐ No☐

e) Segregated stormwater drainage ditches need to be cleared of debris — Yes☐ No☐

f) Lift Station pumps are not functioning properly — Yes☐ No☐

g) Before the clay component of the cell cover is completed and when a storm is producing runoff, hourly inspections shall be conducted. Two pairs of samples shall be taken of the overflow and runoff at each hourly inspected

_____@_____
_____@_____
_____@_____
_____@_____
_____@_____
_____@_____
_____@_____
_____@_____

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

2) Segregated Storm Water Retention Basin

Time recorded: _____ **Problem**

a) Basin overflowing Yes☐ No☐
b) Liner of LDS shows evidence of failure Yes☐ No☐
c) Sever erosion of dikes Yes☐ No☐
d) Spills or accidental discharges into the SSRB Yes☐ No☐
e) Malfunction or leaks of fittings and valves of pumps from the SSRB to the Waste Water Treatment System Yes☐ No☐

3) Lift Station

Time recorded: _____ **Problem**

a) Basin overflowing Yes☐ No☐
b) Liner of LDS shows evidence of failure Yes☐ No☐
c) Sever erosion of lift station dikes Yes☐ No☐
d) Spills or accidental discharges into the lift station Yes☐ No☐
e) Malfunction or leaks of fittings and valves of pumps, flow meters and above grade piping from the lift station to the SSRB Yes☐ No☐
f) Malfunction of lift station water level indicator Yes☐ No☐

4) Treatment Building

Time recorded: _____ **Problem**

a) Additional, separate inspection of the Treatment Mixing Basins and waste processing equipment conducted by supervisory level individual, qualified and knowledgeable of all treatment processes, to determine if any unknown or unintended violent, or heat, fume or gas producing reactions are occurring or have occurred in the basins in the time period since the last daily inspection Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Weekly Inspection

1) Segregated Storm Water Retention Basin

Time recorded: _____ **Problem**

a) Drainage system not operating properly Yes☐ No☐

2) Lift Station

Time recorded: _____ **Problem**

b) Drainage system not operating properly Yes☐ No☐

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

Event Triggered Inspections

1) Segregated Storm Water Retention Basin Leak Detection

Time recorded: _____ **Problem**

a) Inspection performed because liquids were removed the previous Operational day or a precipitation event of > 0.2" occurred:
   (1) Liquid level present Yes☐ No☐
   (2) Liquid level present Yes☐ No☐

2) Lift Station Leak Detection

Time recorded: _____

a) Inspection performed because liquids were removed the previous Operational day or a precipitation event of > 0.2" occurred:
   (1) Liquid level present Yes☐ No☐
   (2) Liquid level present Yes☐ No☐

3) Treatment Building Leak Detection

Time recorded: _____

a) Inspection performed because liquids were removed the previous Operational day or a precipitation event of > 0.2" occurred:
   (1) Liquid level present Yes☐ No☐
   (2) Liquid level present Yes☐ No☐

4) Ultrasonic Tank Test

Time recorded: _____

a) Ultrasonic tank testing performed because coupon testing Indicates that it is necessary: Yes☐ No☐

Note which tank

If any of the above items are checked "yes" and are part of an ongoing corrective action, circle the item and write the originating date beside the item.

Inspector's Signature:

Date of Inspection:

CONTINGENCY PLAN

1) PURPOSE AND GENERAL INFORMATION

a) General

Procedures within this Contingency Plan outline appropriate response actions that will be taken by Facility personnel in the event of a unexpected or uncontrolled fire/explosion, unplanned sudden release of hazardous waste or hazardous constituents to air, soil, or surface water, and for actions taken for non-sudden events. This plan is reviewed as a part of the personnel-training program, and the personnel specified in the personnel-training program are required to be familiar with its content.

Copies of this Contingency Plan will be maintained on-site and will be submitted to the Adams County Mutual Aid Trust and to fire departments, hospitals and state and local emergency response agencies that may be called upon to respond in an emergency.

Verbal or voice mail notification to the Department will be made within 24 hours after implementation of the Contingency Plan. Details of the incident requiring implementation will be documented in the Operating Record. Within 5 business days after the incident a written report describing the incident and response actions will be submitted to the Department

b) Amendments

Amendments will be made to the Contingency Plan whenever

- The facility permit is revised;
- The plan is found to be deficient during an emergency;
- The facility changes its design, construction, operation, and/or its management policies and procedures relative to the maintenance of this plan;
- The Emergency Coordinator(s) changes; or
- The list of emergency equipment changes.

The Director of the Colorado Department of Health will review and approve any modifications to the Contingency Plan prior to the amended plan taking effect.

c) Site Description

The Facility is located in Adams County Colorado on U.S. Highway 36. The permit area of the facility is surrounded by an eight-foot chain link fence topped with barbed wire. A 0.8 mile access road which connects U.S. Highway 36 to the southwest corner of the site leads to a main access gate. A west contractor's gate is located 1380 feet south of the northwest corner of the Permit Boundary Fence. An access/emergency exit gate is centrally located along the eastern Permit Boundary Fence. The facility shall control entry at all times through fences, gates, doors and entrances to the faciity.

The Facility will offer the following industrial waste handling services:

- Treatment of hazardous waste;
- Secure landfill disposal of solid wastes and previously solidified materials meeting land disposal restrictions;

- Container management

d) Emergency Equipment and Alarm Systems

Appendix 1 to the Contingency Plan lists the emergency equipment that is available at the Facility for implementation of the responses required by the Contingency Plan. This appendix also lists the location of the equipment and the area of usage.

e) Arrangements with local authorities

Local emergency response units will be contacted to assist in responding to a response situation at the discretion of the Emergency Coordinator and/or the General Manager. Otherwise on-site emergency response personnel will respond to the incident.

The local cooperating agencies that could potentially be involved in a response at the Facility are listed in Appendix 2. Arrangements specify that individuals providing services must be properly trained to respond to a hazardous waste incident and will comply with proper decontamination procedures. Any injured personnel will be decontaminated to the extent practicable at the Facility before being transported for medical care.

Cooperating agencies will be provided with the opportunity to become familiar with the Facility layout, properties of the waste handled at the Facility and associated hazards; emergency equipment and operation; and evacuation plans and routes. An annual tour of the Facility is offered to cooperating agencies, and they are invited to attend applicable training sessions conducted at the Facility to train personnel in techniques for handling hazardous materials, spill response, clean-up and safety procedures.

In the event of an emergency, the Facility will notify the appropriate cooperating agencies if their assistance is needed. These agencies will be briefed periodically to ensure a knowledgeable working relationship in the event of an emergency.

2) IMPLEMENTING CONDITIONS

a) **Sudden events**: Applicable action(s) specified in this Contingency Plan will be implemented under the following circumstances:

i) <u>Fire</u>

(1) A fire which results in release of a reportable quantity 40 CFR, Parts 117, 302, and 355 of hazardous substances to the environment.

(2) Fire threatening an explosion.

(3) Fire that could spread beyond the Facility fence.

(4) Fire in which the water and/or chemical suppressant or other fire fighting material used could result in contaminated runoff to surface waters or infiltration to groundwater.

ii) **<u>Explosion</u>.** Any unexpected or uncontrolled explosion involving hazardous material or waste.

iii) **Spill or Release of Material or Waste**

(1) Any spill or release of a reportable quantity of hazardous material as defined in 40 CFR, Parts 117, 302, and 355.

(2) A spill which could result in the release of flammable or ignitable liquids, fumes or vapors which have the potential of causing a fire or explosion.

(3) A spill which has the potential of reaching uncontaminated runoff drainage ditches or groundwater.

(4) Any spill or release of wastes or segregated stormwater runoff not contained within the boundary demarcated by the facility fence.

(5) Any leak, seepage or release of runoff from the segregated stormwater drainage ditches, lift station or the pipeline from the lift station to the Segregated Stormwater Retention Basin.

iv) **Floods or precipitation events.** Any flood or precipitation event that results in wastes being exposed to precipitation at any location where runoff is not contained.

v) Unknown or Uncontrolled Reactions. The Contingency Plan will be implemented whenever wastes are reacting violently and the reaction cannot be safely controlled or stopped.

vi) **Loss of Electrical Power**. The Contingency Plan will be implemented whenever a loss of electrical power could result in the accumulation or release of toxic vapors or fumes that threaten human health or the environment or could result in a fire or explosion.

b) **Non-Sudden events**: Responses specified within Section V of this Contingency Plan will be implemented for the following non-sudden events:

i) An exceedance in the Facility's groundwater inspection monitoring data as defined within the Groundwater Protection Program. This includes discovery of hazardous waste constituents or Secure Cell leachate constituents in a Secure Cell or Treatment Building Leak Detection Sump, and/or in a Permanent Sump.

ii) Discovery of contaminated groundwater within or outside the Facility compliance boundary.

iii) The Response Leakage Rate for Secure Cell 1 or the Action Leakage Rate (ALR) for Secure Cells 2 through 7 for liquids removed from the leak detection system listed below are exceeded during the active life, closure or post closure periods. The rate of removal of water from the Leak Detection Systems will be determined in accordance with procedures in the Inspection Plan.

SECURE CELL	CELL AREA (acres)	ACTION LEAKAGE RATE		RESPONSE LEAKAGE RATE (GPD)
		Gallons Per Acre Per Day	Gallons Per Day	
1	N/A	N/A	N/A	600
2	5	480	2,400	N/A
3-7	10	240	2,400	N/A
Treatment Building	3.5	500	1,750	N/A

3) SUDDEN EVENT RESPONSE ACTIVITIES

In event of an incident requiring implementation of the Contingency Plan as defined in Section II.A above, a specially trained Emergency Response Team will respond to the situation with the necessary equipment to control the incident as quickly as possible. The response procedures for various categories of events are described below:

a) Fire/Explosion. If a fire or explosion occurs at the facility in any area, the following will occur:

i) The person first noting the incident will immediately activate the alarm system.

ii) The immediate area will be evacuated of all personnel not involved with emergency response procedures.

iii) The Emergency Coordinator will be notified. The Emergency Coordinator shall be provided or shall identify the character, source, and volume of material involved and/or released in the incident.

iv) The Emergency Coordinator will provide adequate protection of the emergency personnel based on the severity of the fire and the wastes involved.

v) The Emergency Coordinator will shutdown operations within the area, if necessary.

vi) The response team will extinguish the fire.

vii) After the fire is out, a damage report will be prepared and remedial work initiated, if required.

viii) All fire fighting equipment used during the emergency will be cleaned and any used supplies will be replenished (e.g., fire extinguishers, kiln dust, fly ash, water).

ix) The Emergency Coordinator will ensure water used to fight the fire is properly handled and disposed.

b) Spills. General spill response procedures include the following:

i) Isolate the spill area, evacuating all non-essential personnel from the immediate area of the release. Prevent surface waters from flowing from or into the area of the release.

ii) Remove any injured personnel from the hazardous area.

iii) The Emergency Coordinator will be notified. The Emergency Coordinator shall be provided or shall identify the character, source, and volume of material involved and/or released in the incident.

iv) Prevent spilled liquids from spreading along roadways or draining into ditches or streams by means of temporary dams, trenches, booms or dikes.

v) Cover released powdered material to prevent wind dispersal.

vi) Manage spilled liquids by absorbing, adsorbing or pumping into drums, the treatment mixing basins, or available tanks.

vii) Place spilled solid materials into drums or other containers.

viii) Clean the spill area by removing the clean-up agents, waste materials and any contaminated soils. Contaminated soils, clean-up agents and spilled materials will be managed in accordance with the Waste Analysis Plan.

ix) If a spill involves surface water management systems, analyze the water prior to removing the contents.

x) Clean all equipment, tools, or re-useable clothing that came in contact with the released material to prepare them for use in other operations.

xi) Restock any response equipment and supplies depleted during the response.

xii) Complete an investigation of the incident that includes recommendations and process modifications that are to be implemented as necessary.

c) Unknown or Uncontrolled Reactions. If wastes are reacting violently, such as producing vapors, and the reaction cannot be immediately and safely stopped or controlled, the following procedures will be followed:

i) The first person noting the incident will immediately activate the alarm system.

ii) The immediate area will be evacuated of all personnel not involved in the response procedures.

iii) The Emergency Coordinator will be notified. The Emergency Coordinator shall be provided or shall identify the character, source, and volume of material involved and/or released in the incident

iv) Operations within the area of the incident will cease while the Emergency Coordinator assesses the situation.

v) The Emergency Coordinator will establish actions to be taken to control the reaction.

vi) If a reaction results in the release of uncontrolled air emissions, then to the extent possible, concentrations at the perimeter of the area will be monitored to assess any impact on human health.

vii) When a reaction has been controlled, an investigation of the waste reaction will be conducted and documented in the operating record.

d) Flood/Precipitation Events.

If waste is exposed to precipitation at locations where runoff is not contained, then appropriate procedures for responses to spills specified above shall be implemented.

e) Loss of Electrical Power.

In the event of power outages or electrical failure, the mobile telephone system will be used. Waste receipts shall be routed to the staging area until power is restored. In the event of a power outage, receipts into the Containment Building will be stopped until power is restored.

4) RESPONSIBILITIES OF THE EMERGENCY COORDINATOR

At all times, there will be at least one employee either on the Facility premises or on call (i.e., available to be notified and respond to emergency by reaching the Facility within a 1.5 hour) with the responsibility for coordinating all emergency response measures related to sudden event categories identified in Section III of this Contingency Plan. The emergency coordinator will be thoroughly familiar with all aspects of the Contingency Plan, all operations and activities at the Facility, the location and characteristics of waste handled, the locations of records at the Facility, and the Facility layout. The Emergency Coordinator will have the authority to commit the resources needed to carry out the elements of this Contingency Plan. A list of Facility Emergency Coordinators is in Appendix 4. The specific responsibilities of the Emergency Coordinator are discussed below:

a) Identify Character, Source and Amount of Released Material

In the event of a release, fire or explosion, the Emergency Coordinator identifies the character, source, volume and extent of release of the discharged materials by observation or review of facility records and manifests. The Facility laboratory may be used to further identify the characteristics of the waste.

b) Assess Hazards to Human Health or the Environment

The Emergency Coordinator assesses imminent hazards to human health or the environment that may result from a release, fire or explosion. This assessment will consider both direct and indirect efforts of the release, fire or explosion. Examples of circumstances that may represent imminent hazards include:

- Unconfined fire and/or explosion;
- A fire that releases toxic vapors;

- A fire that spreads and could ignite materials at other locations on-site or could cause heat-induced explosions;
- A fire that could spread to off-site areas;
- There is imminent danger that an explosion could occur;
- There is imminent danger that an explosion could ignite other hazardous waste at the Facility;
- Unconfined spills or release of waste materials;
- A spill that could result in a release of flammable liquids or vapors, thus causing a fire or gas explosion hazard; and
- A spill that releases toxic liquid or vapors.
- A release to surface waters

As part of the above assessment the Emergency Coordinator will determine if evacuation of the Facility is necessary. If evacuation is required the following procedures will be implemented.

i) Emergency signal codes.

The emergency signal code for evacuation is 1 long continuous horn blast. The primary and secondary evacuation routes from the Facility are shown in Appendix 5. Alternate evacuation routes are included in the event the primary evacuation routes are not useable. It is the responsibility of the Emergency Coordinator to announce the evacuation route for personnel to use and when to begin evacuating.

ii) Evacuation routes.

Primary and secondary evacuation routes are provided in Appendix 5 for the following:

- Containment Building/Container Management Building
- Off-Site Vehicle Truck Wash Facility
- Operations Building
- Maintenance Building
- Wastewater Treatment Plant

c) Sudden event notification/reporting requirements.

If the Emergency Coordinator determines that a sudden event defined in Section II.A that could threaten human health or the environment outside the facility, the Emergency Coordinator will implement the following notification procedures:

i) Notify agencies identified in Appendix 3 for the indicated category of sudden events.

ii) At the time of initial notification of specific agencies, the following information will be provided:

(1) Location and type of incident.

(2) Amount and identification of material involved.

(3) If any wastes or known potentially contaminated runoff reached surface water drainages outside the fenced facility boundary.

(4) If evacuation of the Facility has taken place.

(5) Extent of injuries and exposures to on-site personnel and an assessment of public exposure to released wastes and other materials.

iii) Will clearly specify to the agency being notified whether a response is requested. In addition, the Emergency Coordinator or his/her designee will inform the agency being contacted if specific arrangements need to be implemented.

iv) Advise the agency if the emergency at the Facility presents a potential threat to surrounding areas. The Emergency Coordinator will be prepared to assist authorities in making the final determination relative to evacuation of areas proximate to the site. This assessment will consider the effects of toxic, irritation or asphyxiating gases, hazardous surface run-off due to water or chemical agents used to control fire, etc. The final decision to evacuate the areas proximate to the site will be the responsibility of the local agencies. The evacuation routes for areas in proximity to the site are shown on Appendix 5.

5) NON-SUDDEN EVENTS RESPONSE ACTIVITIES

This section outlines actions to be taken by facility personnel in the event of a non-sudden Contingency Plan event as defined in Section II.B. In the event of an incident requiring implementation of this section, the Facility management will ensure the applicable response procedures described below are implemented.

a) Exceedances in Groundwater Inspection Monitoring Data

When a confirmed exceedance (as determined by the procedures within the Groundwater Monitoring Plan and Part VII of this Permit) occurs in a groundwater inspection-monitoring well, the following procedures will be implemented:

i) When the well or sump has recovered sufficiently to produce a complete set of aliquots, the Permittee shall immediately resample the affected monitoring wells or sumps and as follows:

(1) Re-sample inspection-monitoring wells that are located adjacent to a Secure Disposal Cell(s) and within 100 ft from any interior well that has experienced any concentration increase. Analyze these samples for the background parameters listed in the Groundwater Monitoring Program, Table VII-1, and for any known Secure Cell leachate constituents that are not on that list.

(2) Re-sample inspection monitoring wells outside the Compliance Boundary that have previously experienced any concentration increase over background and also those wells closest to the wells that show any increase, whether interior or Compliance Boundary wells. Analyze these samples from those wells for the parameters found in the Groundwater Monitoring Program, Table VII-1 and other known Secure Disposal Cell leachate constituents.

ii) As soon as possible within receipt of the analyses required by (1.a.) above, the Permittee shall provide written data to the Department with a preliminary interpretation of the data and all available information regarding possible sources of the groundwater contaminants. The results shall in no case be submitted more that 45 days after collection.

iii) Submit within 60 days after receipt of the analyses required by (1.a.) above, an interpretive report to the Department that describes the most recent groundwater sample analyses in the context of all known hydro-geologic information concerning the site, including comparison with all previous surface and groundwater analyses, Secure Cell leachate, and Leak Detection Systems sample analyses.

(1) Submit the interpretive report even if the most recent analyses do not confirm the initial indication that hazardous waste constituents may have been released into groundwater. In this case, the report must focus on explaining the initial false positive indication of groundwater contamination, including complete review of sampling, shipping, and analytical methods used for all of the Permittee's sampling campaigns.

iv) If the analyses required above confirm that a release has occurred, submit a proposal to the Department outlining how the facility will investigate the source and extent of the release. The report will be submitted at the same time that the interpretive report is submitted. This investigation proposal must address the suitability and accuracy of the following strategies to determine the source and extent of the apparent release:

(1) Installation of additional monitoring well(s) and groundwater sampling, including new wells installed in accordance with procedures within the Groundwater Monitoring Plan;

(2) Soil vapor collection and analysis, both at ground surface and in boreholes;

(3) Soil moisture content determination by sampling from boreholes in the vicinity of a potential contaminant plume;

(4) Unsaturated soil/core sampling and analysis for the parameters required for groundwater;

(5) Angle boring under edges of a Secure Cell or impoundment to provide water, vapor or soil samples from locations below the outside edge of the floor of the cell or impoundment adjacent to any well which contains contaminated groundwater.

(6) The proposal must choose one or more of these methods or other more suitable methods and include a time schedule for all activities to be implemented upon receipt of written authorization from the Department to proceed.

v) Upon completion of the investigation, the following shall be documented: a) the actual activities of the investigation, b) analytical results, c) new well or borehole completion details, d) the location of any contaminant source(s) found, and e) the vertical and horizontal extent of migration of contaminants from that source.

(1) The conclusion of the investigation report must contain a summary statement identifying any source or plume areas that have not yet been fully defined and make recommendations concerning remedial containment, repair, and cleanup required to prevent release of hazardous wastes or hazardous waste constituents from the Facility.

(2) Alternatives considered in the summary must include partial excavation and remediation of hazardous wastes or hazardous waste constituents.

vi) If an active Secure Cell is determined to be the most likely source of released wastes, either before or after review of the report of investigation, disposal of waste in that cell will stop. Disposal operations may not resume in that cell until all necessary repairs are completed and approved by the Department.

vii) If it is determined that partial or complete excavation of a cell is necessary to permanently stop releases of wastes or constituents, the Facility shall notify the Department of activities that may include such excavation, repair or removal, and any resulting changes in or additions to the Facility treatment, storage or disposal units or their operation, or the Closure Plan. Activities shall be incorporated into this Permit through a Modification Request.

b) Exceedance of Response Leakage Rate (RLR) for Secure Cell 1 or Action Leakage Rate (ALR) for Secure Cells 2 through 7. If the Response Leakage Rate for Secure Cell 1 or the ALR is exceeded for any of the Secure Cells 2 through 7, The Permittee will:

i) Notify the Department in writing within seven days of the determination that the ALR or RLR has been exceeded;

ii) Submit a preliminary written assessment to the Department within 14 days of determination, that the ALR or RLR was exceeded. The report will include the amounts of liquids; likely sources of liquids; possible location, size, and cause of any leaks; and short-term actions that were taken; and any planned actions.

iii) Determine, to the extent practicable, the location, size, and cause of any leak;

iv) Determine whether waste receipts should cease or be curtailed; whether any waste should be removed from the unit for inspection, repairs, or controls; and whether or not the unit should be closed;

v) Determine short-term and long-term actions to be taken to mitigate or stop any leaks;

vi) Submit the results of the determinations described above, the results of the actions taken and a description of the actions planned to the Department within 30 days after the notification that the action leakage rate has been exceeded.

vii) Submit monthly, as long as the action leakage rate continues to be exceeded, a report to the Department summarizing the results of any remedial actions taken and planned; and

viii) In making the determinations described in this plan either conduct the following investigations or document why such an investigation is not needed:

(1) Assess the source and amount of liquid from each source collected in the system,

(2) Conduct a hazardous constituent analysis of the liquid collected in the sump and use the results to help identify the source(s) of the liquid and possible location of any leaks as well as the potential hazard associated with the liquid and its mobility.

(3) Assess the seriousness of any leaks in terms of potential for escaping into the environment.

I. EMERGENCY EQUIPMENT LIST

The Facility is equipped with the emergency equipment listed in Table A1.1 that may be utilized for implementation of response actions required by the Contingency Plan. Table A1.1 also presents the location of the equipment, the equipment applicability and areas of intended use.

In addition to the equipment listed in Table A1.1, the Facility has on-site heavy equipment that may be utilized for responses. The equipment is listed in Table A1.2.

A brief discussion of the major elements of the compliment of emergency response and communication equipment is presented below.

A. Signs

Signs will be placed where needed at the site to specify safety requirements, mark restricted areas and exit routes, describe areas containing first aid equipment, and identify locations for emergency and safety equipment.

B. Emergency Communication Equipment

The Facility maintains an emergency communication network consisting of an intercom/public address system, alarm system, telephones, and 2-way radios. These devices are described below.

1. Intercom/Public Address System

   At a minimum, all of the following buildings will be equipped with an intercom/public address system:

   - Operations Building
   - Maintenance Building

2. Horns

   An electrically activated system and/or sound alarms will be audible throughout the following areas:

   - Operations Building
   - Containment Building/Container Management Building
   - Sampling Station
   - Active Secure Cell Area
   - Off-Site Vehicle Truck Wash Area
   - Contaminated Water Storage Tank Area
   - Oil and Solvent Storage Tank Area
   - Guardhouse

3. Two-Way Radios

The Facility will utilize 2-way radios as the primary means of communication throughout the facility. When any employee is located in a remote area of the facility away from visual or voice contact with other employees, the employee will have immediate access to a device, such as a telephone or hand-held two-way radio capable of summoning emergency assistance.

4. Telephone

The Facility has a telephone system to contact off-site emergency response authorities and uses mobile telephones as a back-up.

C. On-Site Emergency Response Vehicle

The Emergency Response Vehicle is equipped with the following emergency equipment: positive pressure self-contained breathing apparatus, fire fighters' turnout clothing, fully encapsulated and flash protection suits, chemical resistant gloves, boots and face shields, 30 gallons of aqueous film forming foam concentrate, foam educators and 300 ft of industrial grade 1-1/2 inch fire hose with appropriate foam eductor and nozzles. This unit is equipped with spill control and absorbent materials and other clean up tools.

D. Fire Extinguishers

The following 2 types of fire extinguishers are used at the Facility:

- multiple purpose dry-chemical type, Portable ABC; and
- aqueous film forming foam extinguishers (AFFF).

The aqueous film forming foam extinguishers shall be placed in all areas classified as High Hazard. Portable type ABC extinguishers will be placed in all other buildings and areas, such as on the heavy equipment used in the Containment Building and active Secure Cell and site vehicles.

Areas of access to fire extinguishers and hydrants will be identified and kept unobstructed. All extinguishers shall be inspected and maintained in accordance with NFPA #10 standards. All site personnel will be familiar with the location of extinguishers and trained in the proper operation of fire extinguishers.

E. Fire Fighting Water System

A water pressure system was designed and constructed for fighting fires. The system consists of the following:

- One 48,000 gallon underground fiberglass water storage tank;

- Yard water distribution system with 2-1/2 inch hydrants connected to fire hose cabinet stations designed to meet NFPA Standard #24. Each hydrant cabinet will be equipped with the capability to induct AFFF directly into the fire hose streams;

- Two fire pumps each capable of providing a flow value of 500 gpm for the first hydrant and 250 gpm for all subsequent hydrants at 65 psi. Total flow rate will be 1,500 gpm at 65 psi residual pressure;

- An automatic fire alarm and detection system that has remote heat sensing thermostats positioned at strategic locations in the buildings;

- The primary pump is electrically driven. The second pump will be diesel operated and turned on automatically at the time of loss of power from the utility company, and;

- The contents of the 1 million gallon construction water storage tank will be piped to the 48,000 gallon fiberglass tank. The combined volume of water for fire fighting available from the fiberglass tank and the construction water tank shall be a minimum of 228,000 gallons.

A static pressure of 90 psi is maintained in the system by a jockey pump. When the water nozzle is turned on in the hose cabinet and the system pressure drops, a pressure sensor turns on 1 of the water pumps that maintains a 65 psi residual pressure at 1,500 gpm flow rate. If the pressure drops below 65 psi, the second pump will be turned on automatically. When the water flow is turned off and the pressure returns to 90 psi, the pump(s) shut off automatically.

The location of the water storage tanks is illustrated in Appendix 5. This diagram also depicts the location of the hydrants equipped with hose valves for fire fighting purposes, as well as their ranges. The Permittee shall maintain 48,000 gallons of water in the fire tank and shall maintain an additional 180,000 gallons of water in the construction water tanks for fire fighting.

F. **Fire Detection and Alarm Systems**

The Facility is equipped with fire detection, alarm systems and closures. Both systems are activated by heat and are installed in accordance with NFPA 72a and 72e.

G. **Spill Control Equipment**

Equipment is maintained for on/off-site containment, decontamination and clean-up of hazardous materials in the event of a release. This equipment consists of vacuum equipment, adsorbents, backhoes, dump trucks and loaders. Additional support equipment is listed below:

- Portable Pumps
- Suction Hose
- Discharge Hose
- 55 gallon open-head drums with gaskets and covers
- Recovery Drums
- Shovels
- Rakes
- Air Packs
- Solidification Reagent
- Heavy Duty Sorbent Boom

H. Emergency Electrical Generator

The Facility shall either maintain an emergency electrical generator capable of supplying electricity sufficient to maintain ventilation in the process building or shall stop receipts to the process building until such time electrical power is restored.

I. Aisle Space

Adequate aisle space will be maintained at The Facility to provide unobstructed access to and movement of stationary communication systems, fire response equipment, spill response equipment, safety equipment and first aid supplies. In addition, the following specific aisle spaces must be maintained for emergency personnel and fire protection equipment.

1. A minimum 4 ft aisle space will be maintained to provide complete access to all fire hydrant systems. The location of these units is described in Appendix 5.

2. A 15 ft fire lane will be maintained to provide access to the following locations:

    - Oil and Solvent Storage Tank Area
    - Sampling Station
    - Contaminated Water Storage Tank Area
    - Off-Site Vehicle Truck Wash Facility
    - Maintenance Building
    - Operations Building
    - Active Secure Disposal Cell

The fire lanes will be immediately accessible to emergency vehicles and equipment and will be clearly labeled or posted as fire lanes. Unattended or parked vehicles are not allowed in any area designated as a fire lane.

II. EMERGENCY RESPONSE PERSONNEL

A. General

In the event of a fire, explosion or release of hazardous material or waste, a specially trained Emergency Response Team will respond to the incident. The Emergency Response Team includes the Emergency Coordinator and will be present on the facility during operating hours. After operating hours, a response team will be available to respond to emergency situations.

B. Emergency Response Team Responsibilities

The Emergency Response Team has the responsibility for ensuring that all necessary equipment and supplies are transported to the scene of a fire, explosion or spill, as well as respond to the incident using training and experience gained through team membership.

C. Emergency Response Team Staffing

The Emergency Response Team shall be staffed from a volunteer crew of facility personnel, including the Emergency Coordinator and alternates. The team is under the supervision of the Emergency Coordinator. The minimum number of team members is three.

Team members will consist of multiple skilled Facility personnel. If required to respond to an emergency, the Emergency Response Team will have individuals capable of operating heavy equipment, an individual capable of operating the Vacuum Truck, and individuals capable of providing general labor.

D. **Training**

All members of the Emergency Response Team will be trained in accordance with the personnel-training plan.

CONTINGENCY PLAN
TABLE A1.1
EMERGENCY EQUIPMENT

ITEM	QUANTITY	APPLICABILITY	LOCATION	COVERAGE AREA
1. Fire Extinguishers	Approximately 130	Extinguish small to medium fires	All buildings, Tank Farms, Fuel Island, Secure Cell, Heavy Equipment, On-site Emergency Response Vehicle	Through-out the site
2. Fire Hydrants (Standpipes)	7	Water supply	See Map	See Map
3. On-site Emergency Response Vehicle	1	Assist in emergency response	Varies	Entire site
4. Off-site Emergency Response Vehicle	1	Carries emergency response equipment	In the operational area	Entire site and off-site
5. Adsorbents and Booms	varies	On-site emergency response vehicle and the 22 orange drums	Throughout the site	Throughout the site
6. Two-way Radios	Sufficient to equip all site personnel and visitors	Personnel communications	Available to all site personnel	Throughout the site
7. First Aid Kits/Equipment	Distributed throughout the facility	Accidents and emergency response	On-site Emergency Response Vehicle, All Main Buildings, Secure Cell, Most Vehicles	Through-out the site
8. Spare AFFF Supplies	50 gallons minimum	Maintenance and replacement of AFFF extinguisher foam	On-site Emergency Response Vehicle, storage	Throughout the site
9. SCBAs and Spare Bottles	12 units, 24 one-hour bottles	Provide supplied air for hazardous area entry	On-site Emergency	Throughout the site

ITEM	QUANTITY	APPLICABILITY	LOCATION	COVERAGE AREA
10. Mobile Units Wheeled AFFF and / or dry chemical fire extinguishers	8	Extinguish fires	Container Management Area, Maintenance, Containment Building (2), Sampling Station, Fuel Island, Guard House, Pump House	Throughout the site
11. Eye Washes Stationary and Portable	Approx. 20	Accident and emergency response	In main buildings, Secure Cell, available for on-site Emergency Response Vehicle	Throughout the site IAW 29 CFR 1910.151
12. Safety Showers	Approx. 10	Accident and emergency response	All main buildings	Throughout the site IAW 29 CFR 1910.151
13. Monitoring Equipment	More than 10 of various types	Hazardous or potentially hazardous area monitoring	Operations Building (battery operated equipment)	Throughout the site
14. Decontamination Equipment/ Materials	Varies	Decontamination of hazardous areas, materials and equipment.	Maintenance, Operations, and Containment Building, On-site Emergency Response Vehicle	Throughout the site
15. Fire Fighting Equipment	Varies	Assist in extinguishing fires	On-site Emergency Response Vehicle	Throughout the site

CONTINGENCY PLAN
TABLE A1.1 (continued)
EMERGENCY EQUIPMENT

TABLE A1.2
LIST OF HEAVY EQUIPMENT

No.	Type
1	Dump Truck
1	Loader
1	Motor Grader
1	Vacuum Truck
1	Water Truck
1	Fork Lift
1	Fuel Truck
1	Dozer
1	Excavator
1	Sweeper Truck

CONTINGENCY PLAN
EMERGENCY RESPONSE AGENCIES
APPENDIX 2

Adams County Mutual Aid Trust
- ADCOM (24-hour number) ..... (303) 288-1535

AMI Presbyterian Hospital (Aurora)
- Emergency Room ..... (303) 360-3133
- General ..... (303) 363-7200
- Air Life ..... (303) 360-3400

Ambulance Service
- Deer Trail Rescue Squad ..... (303) 769-4545
- Byers Rescue Squad ..... (303) 822-5353

Fort Morgan Medical Center
- Emergency and General Number ..... (970) 867-3391

Southwest Washington County Fire Department ..... (970) 386-2235

CONTINGENCY PLAN
LIST OF EMERGENCY CONTACTS AND NOTIFICATION AUTHORITIES
APPENDIX 3

When notification of outside agencies is required in accordance with Section IV.C of the Contingency Plan, the Emergency Coordinator or his designee will notify the Federal, State and local agencies and authorities identified for the categories of events listed below:

1. **Contained Spills and/or Fires On-Site**

Colorado Department of Public Health and the Environment
Hazardous Materials and Waste Management Division
Emergency Number:
(303) 692-3300 Office Hours (8 a.m. to 5 p.m.) and
(303) 756-4455 After Hours

NOTE: The CDPHE may require additional notifications based on the magnitude of the problem.

2. **Uncontained Spills or Fires and/or Uncontrolled Releases Events**

a. Adams County Mutual Aid Trust
ADCOM - 24-hour number: (303) 288-1535

b. Tri-County Health Department

M-F, 8:30 to 5:00, (303) 288-6816
Non-operating hours call: (303) 230-7993 or (303) 230-9987

c. Arapahoe County Sheriff's Department
Sheriff - 24 hour number: (303) 795-4711

d. Washington County Sheriff's Department
24 hour Emergency Number: (970) 345-2244

e. Colorado Department of Public Health and Environment
Hazardous Materials Waste Management Division
Emergency Numbers: (303) 692-3355 Office Hours or
(303) 756-4455 After Hours

f. Northeast Colorado Health Department
Emergency Number: (970) 522-3741

g. U.S. Environmental Protection Agency
Emergency Response Branch - Region VIII
Emergency Response Number 24 Hours: (303) 293-1788

h. RCRA National Response Center (only for reportable quantities)
Number: (800) 424-8802

i. Emergency Medical Air Service
AMI Presbyterian Hospital, 700 Potomac, Aurora, CO
Emergency Number: (303) 360-3133 or
General: (303) 363-7200
Air Life: (303) 360-3400

j. Ambulance Service
Deer Trail Rescue Squad: (303) 769-4545
Byers Rescue Squad: (303) 822-5353

k. Community Hospital
Fort Morgan Medical Center, 1000 Lincoln, Fort Morgan Emergency/General: (970) 867-3391

l. Concerned Citizens of Eastern Colorado
Chairperson - Pam Wheldon
(970) 386-2278

CONTINGENCY PLAN
LIST OF EMERGENCY COORDINATORS
APPENDIX 4

Primary: Ismeal Hernandez
Home Address: 604 Carson Street
Brush, CO 80723
Home Phone: (970) 842-9736
Cell Phone: (617) 823-9427

Alternate: Randy Musgrave
Home Address: 620 S. Sherman
Fort Morgan, CO 80136
Home Phone: (970) 867-3198

Alternate: Dan O'Brien
Home Address: 901 Edison
Brush, CO 80723
Home Phone: (303) 842- 0962
Cell Phone: (617) 823-9397

Alternate: Joe Sanchez
Home Address: 310 Clifton Street
Brush, CO 80723
Home Phone: (970) 842-9998

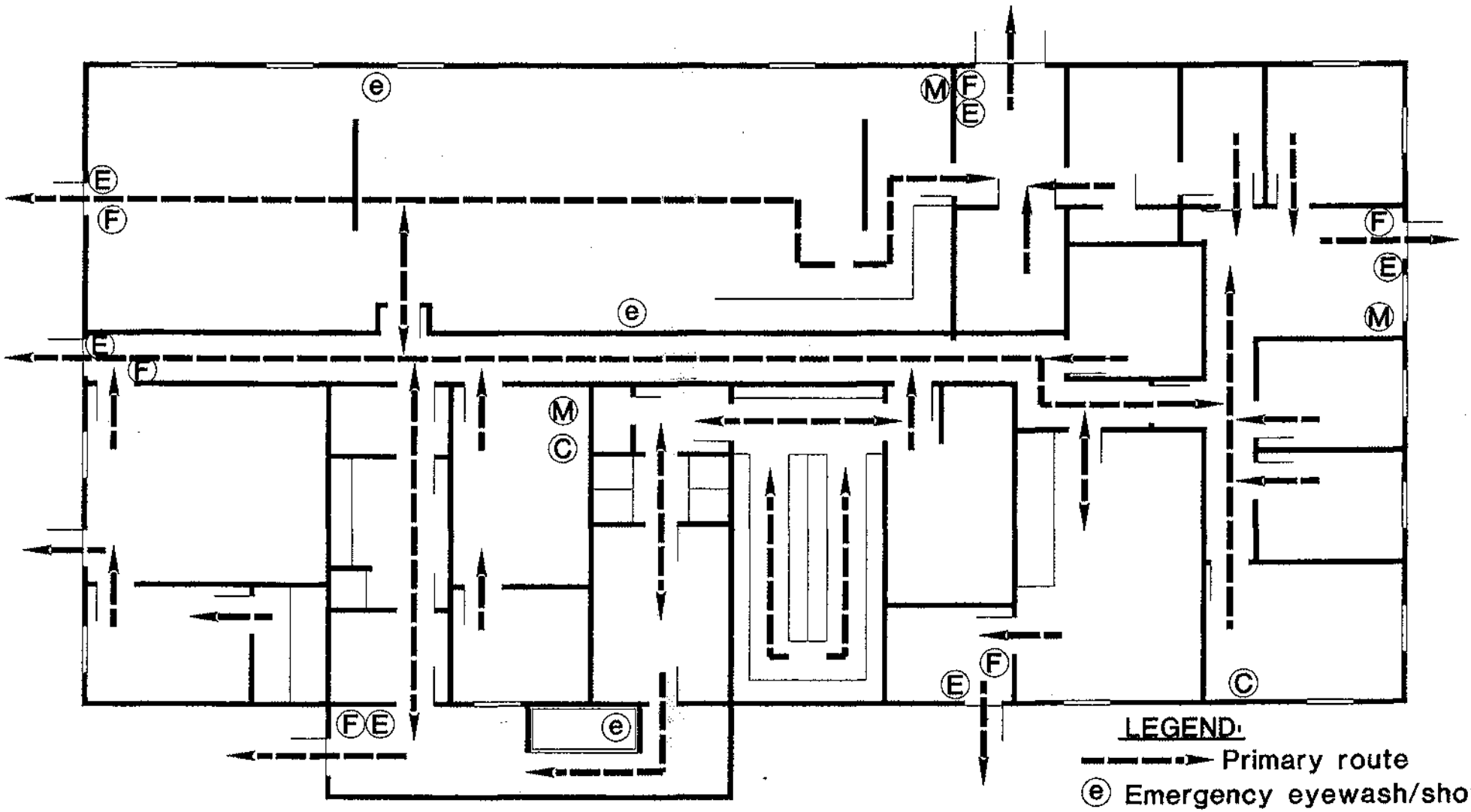
Alternate: Jack Kehoe
Home Address: 5252 South Genoa Way
Centennial, CO 80015
Home Phone: (303) 627-0296
Cell Phone: (617) 823-9432

Alternate: Mike Webb
Home Address: 15400 County Road L
Woodrow, CO 80757
Home Phone: (970) 386-2090

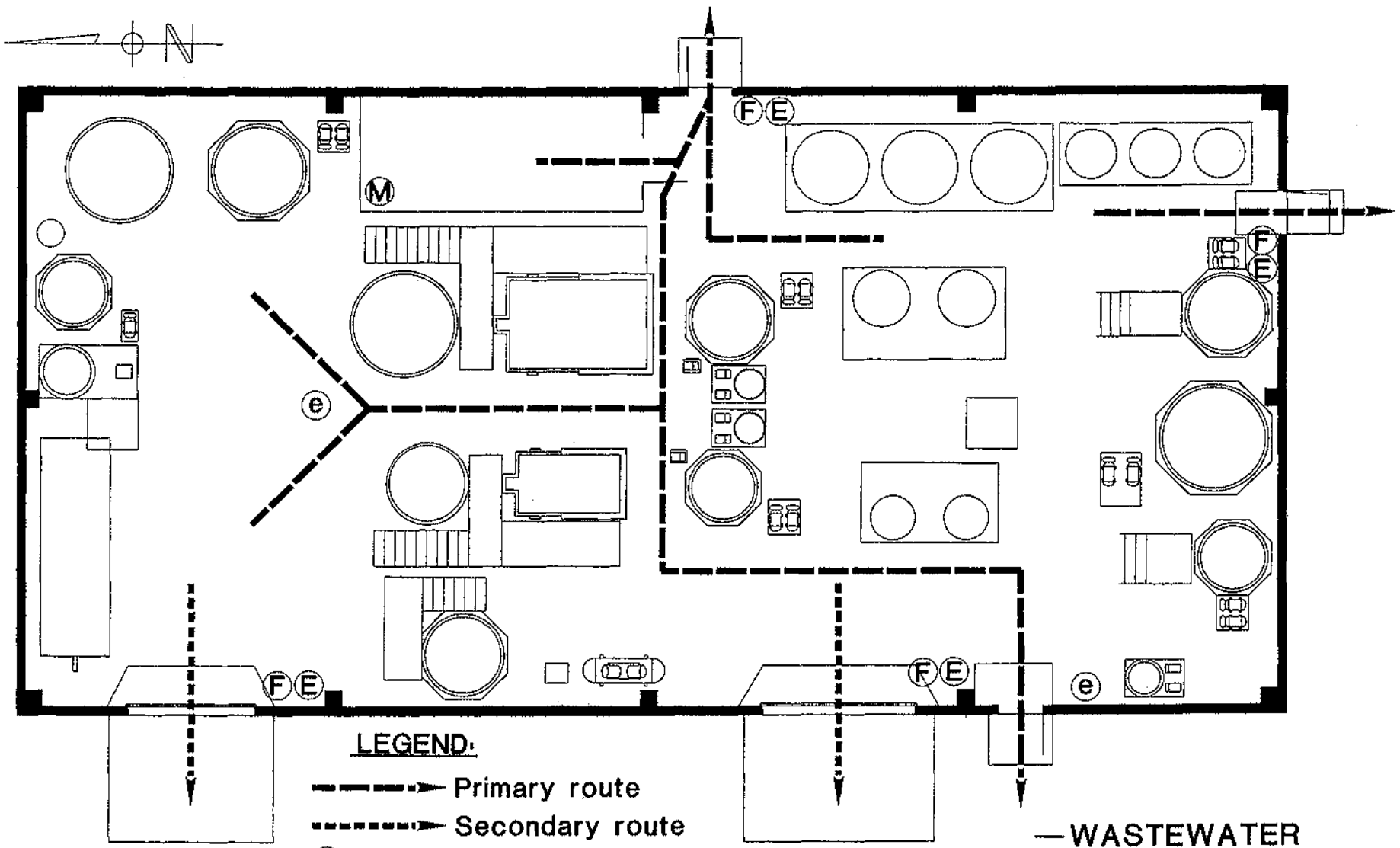
CONTINGENCY PLAN

APPENDIX 5

Site Evacuation and Fire Suppression System Maps



EVACUATION ROUTES


N
F E
M
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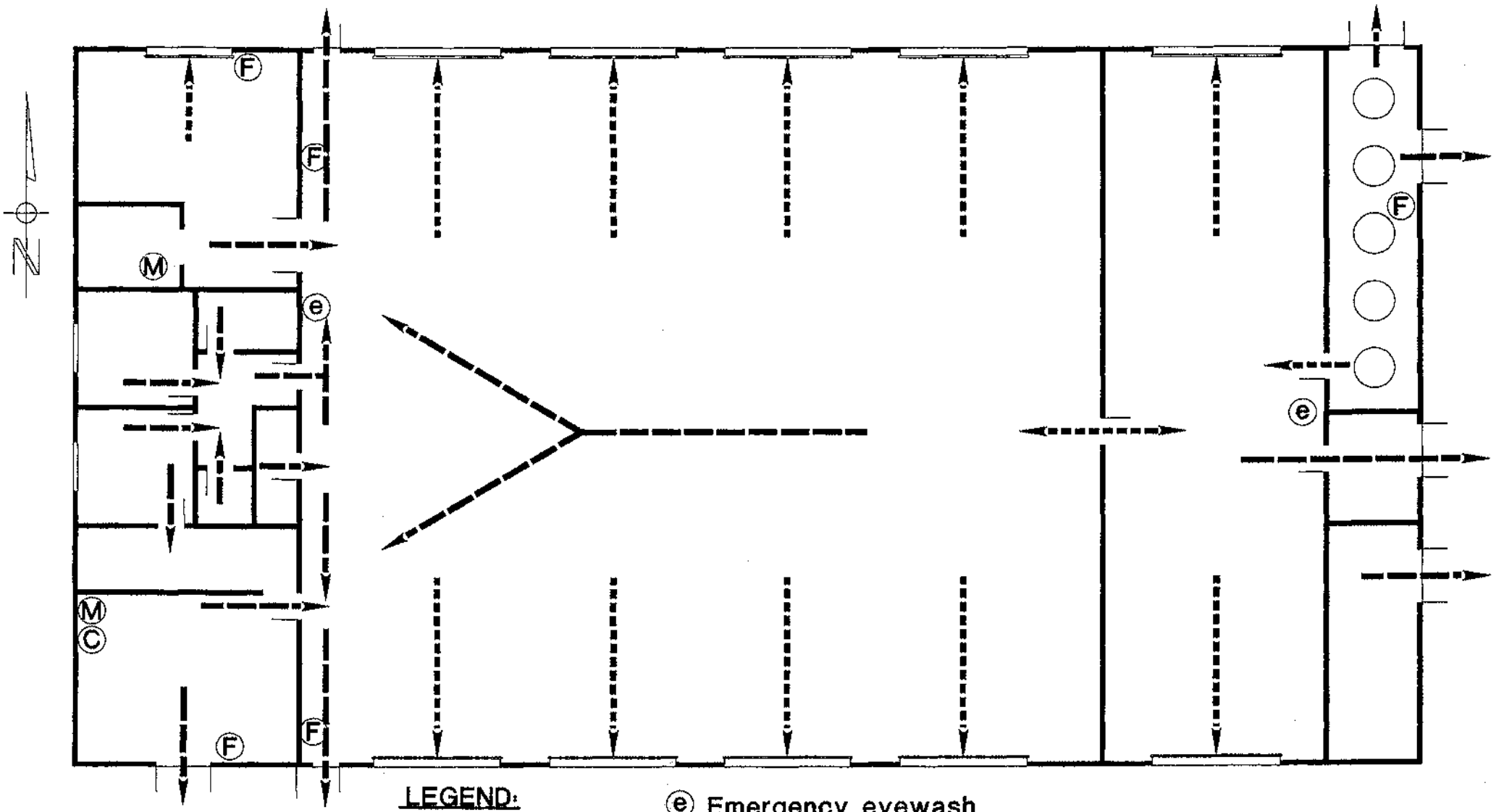
e
F E
F E
e
LEGEND:
Primary route
Secondary route
e Emergency eyewash/shower
E Evacuation alarm
F Fire alarm
M MSDS Catalog and Health & Safety Program
—WASTEWATER TREATMENT PLANT—
EVACUATION ROUTES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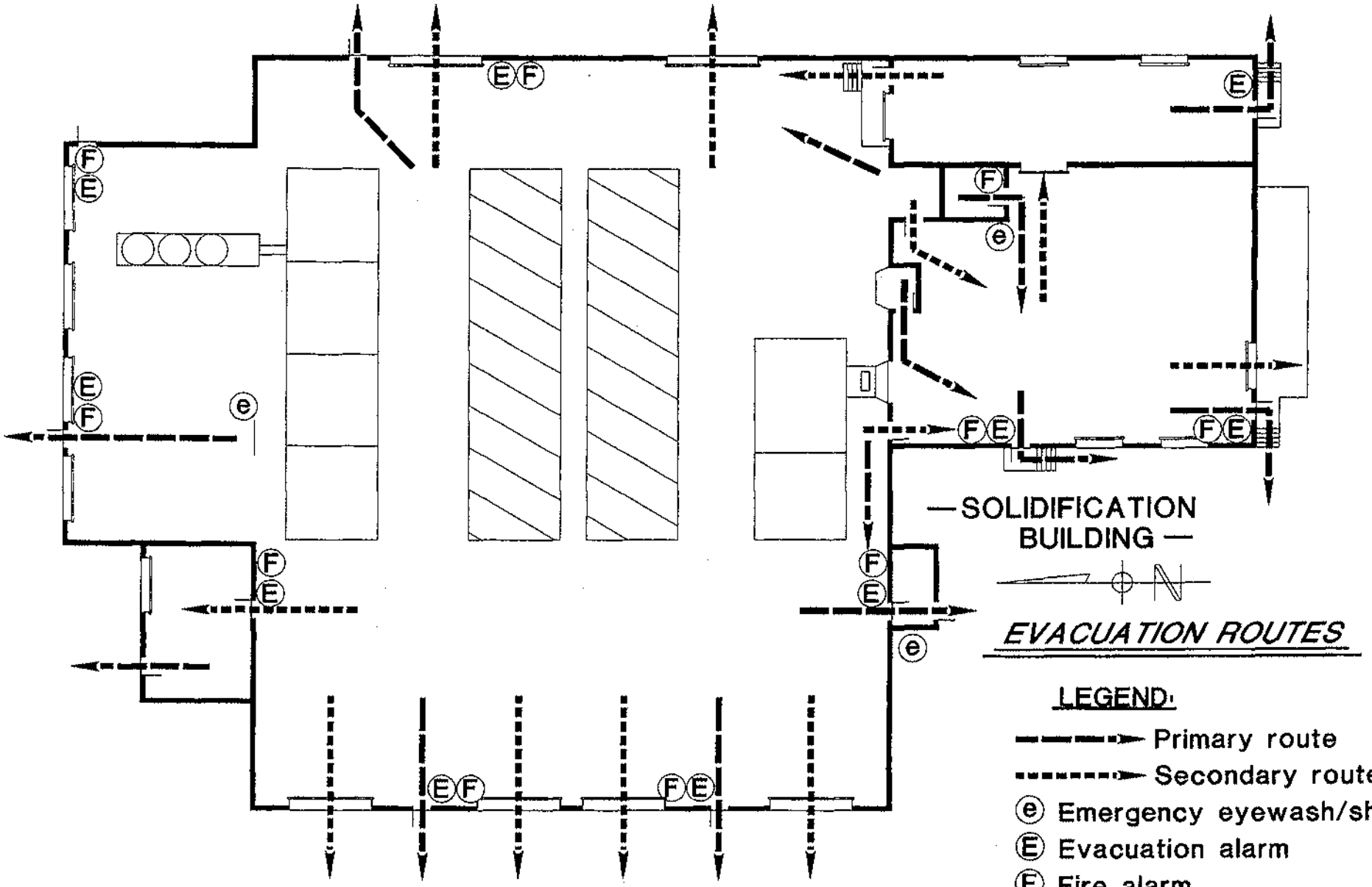
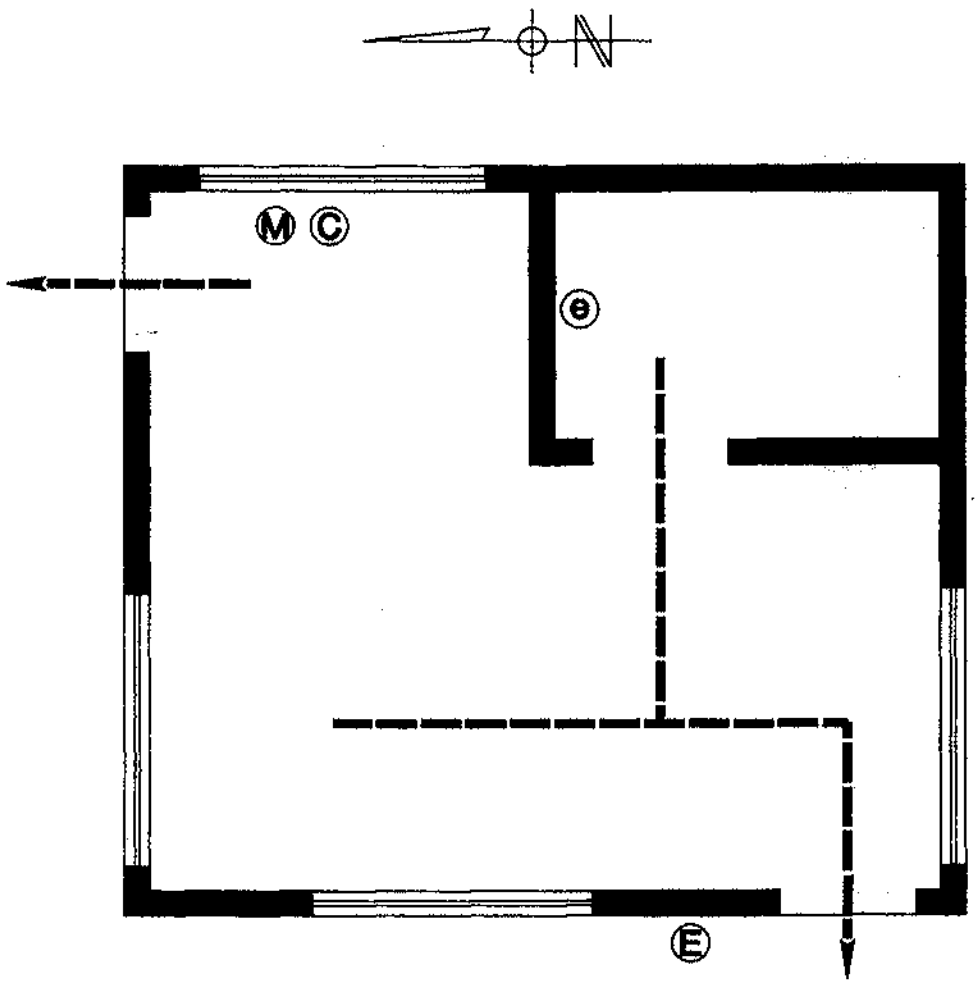
LEGEND:
Primary route
Secondary route
e Emergency eyewash
F Fire alarm
M MSDS Catalog and Health & Safety Program
C Site Contingency Plan
—MAINTENANCE BUILDING—
EVACUATION ROUTES


—SOLIDIFICATION BUILDING—
N
EVACUATION ROUTES
LEGEND:
Primary route
Secondary route
Ⓔ Evacuation alarm
Ⓕ Fire alarm
ⓔ Emergency eyewash/shower

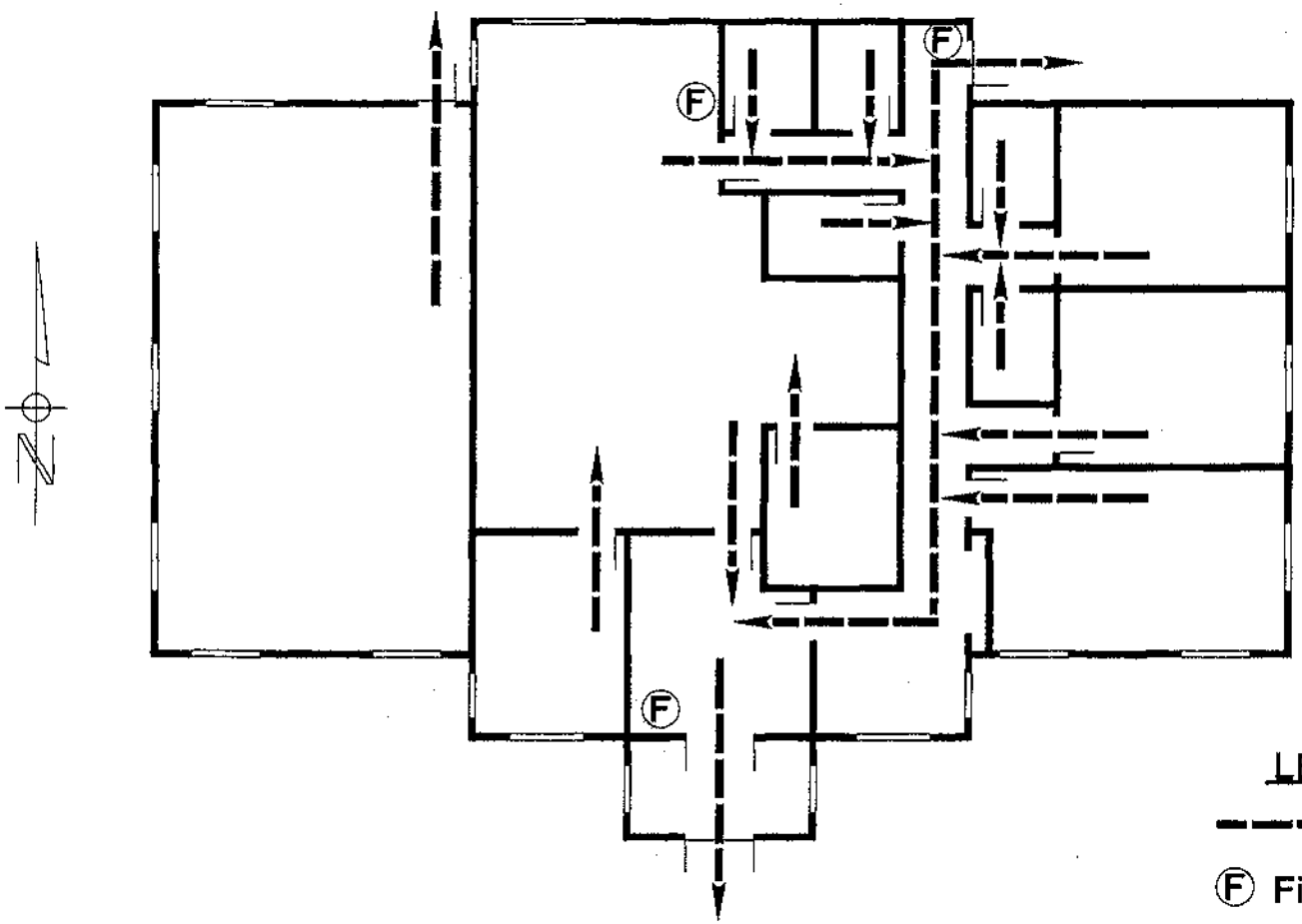


LEGEND:

- Primary route
- ⓔ Emergency eyewash
- Ⓔ Evacuation alarm
- Ⓕ Fire alarm
- Ⓜ MSDS Catalog and Health & Safety Program
- Ⓒ Site Contingency Plan

—GUARD HOUSE—

EVACUATION ROUTES



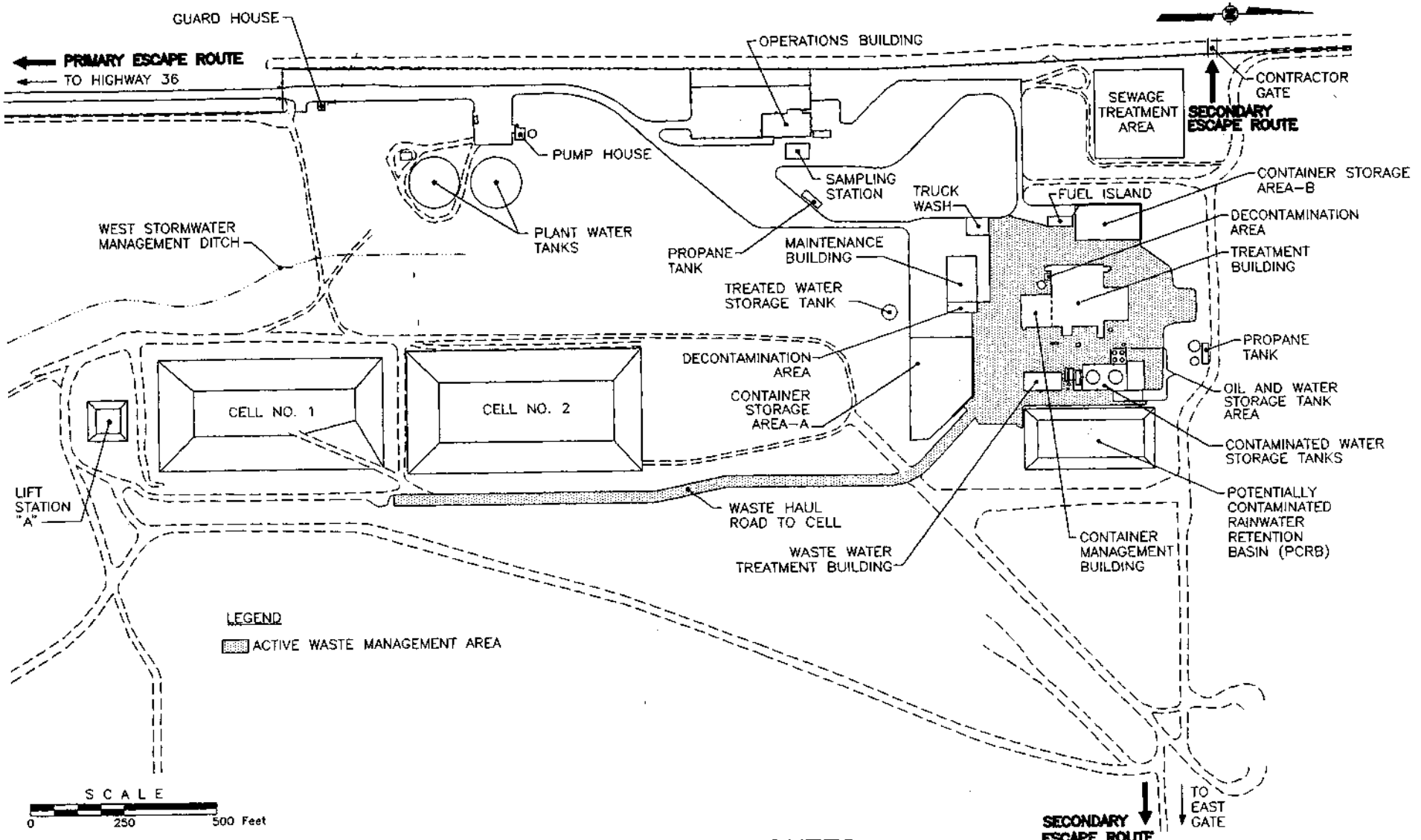
LEGEND:

Primary route

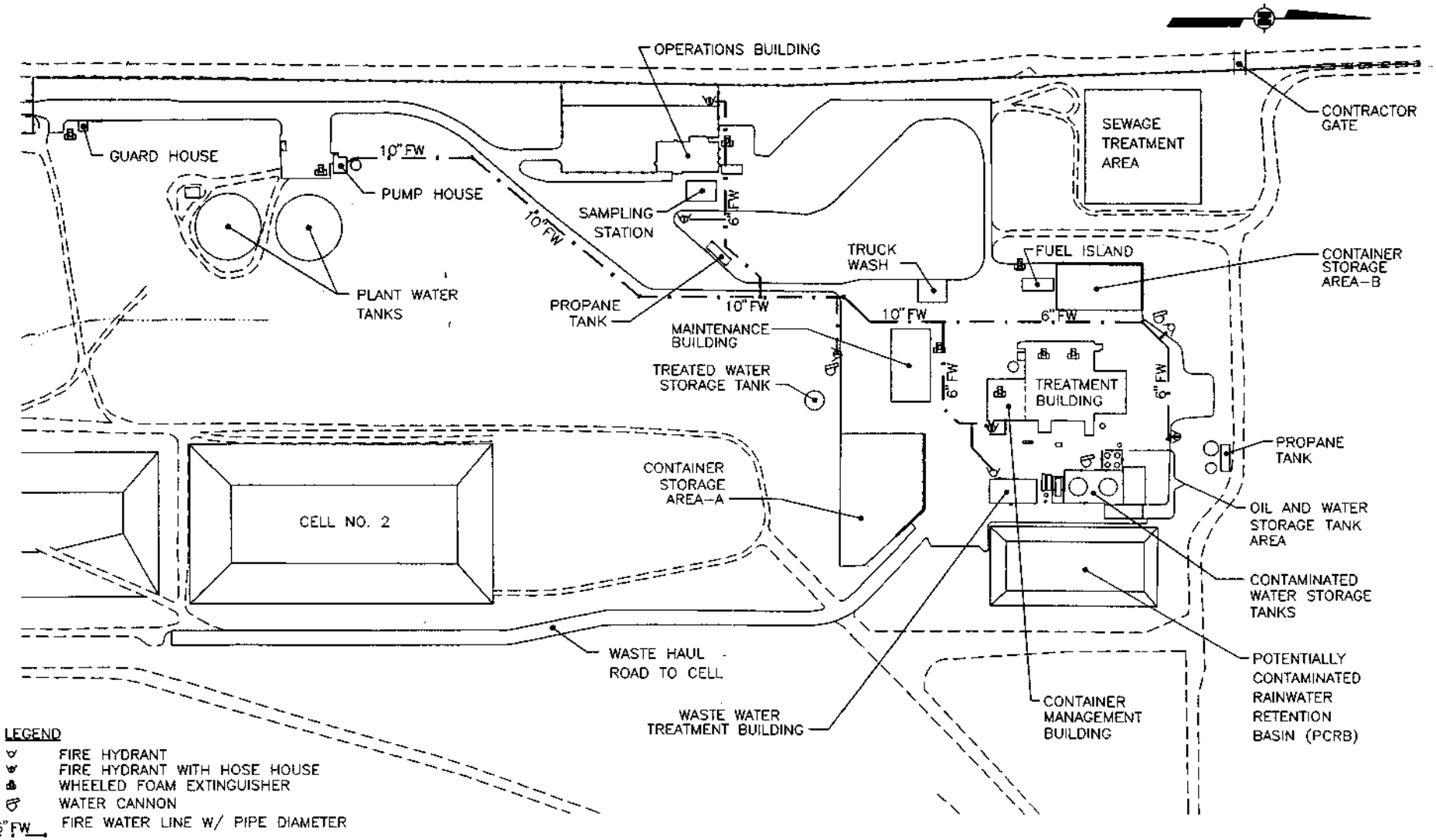
Ⓕ Fire alarm

—ADMINISTRATION BUILDING—

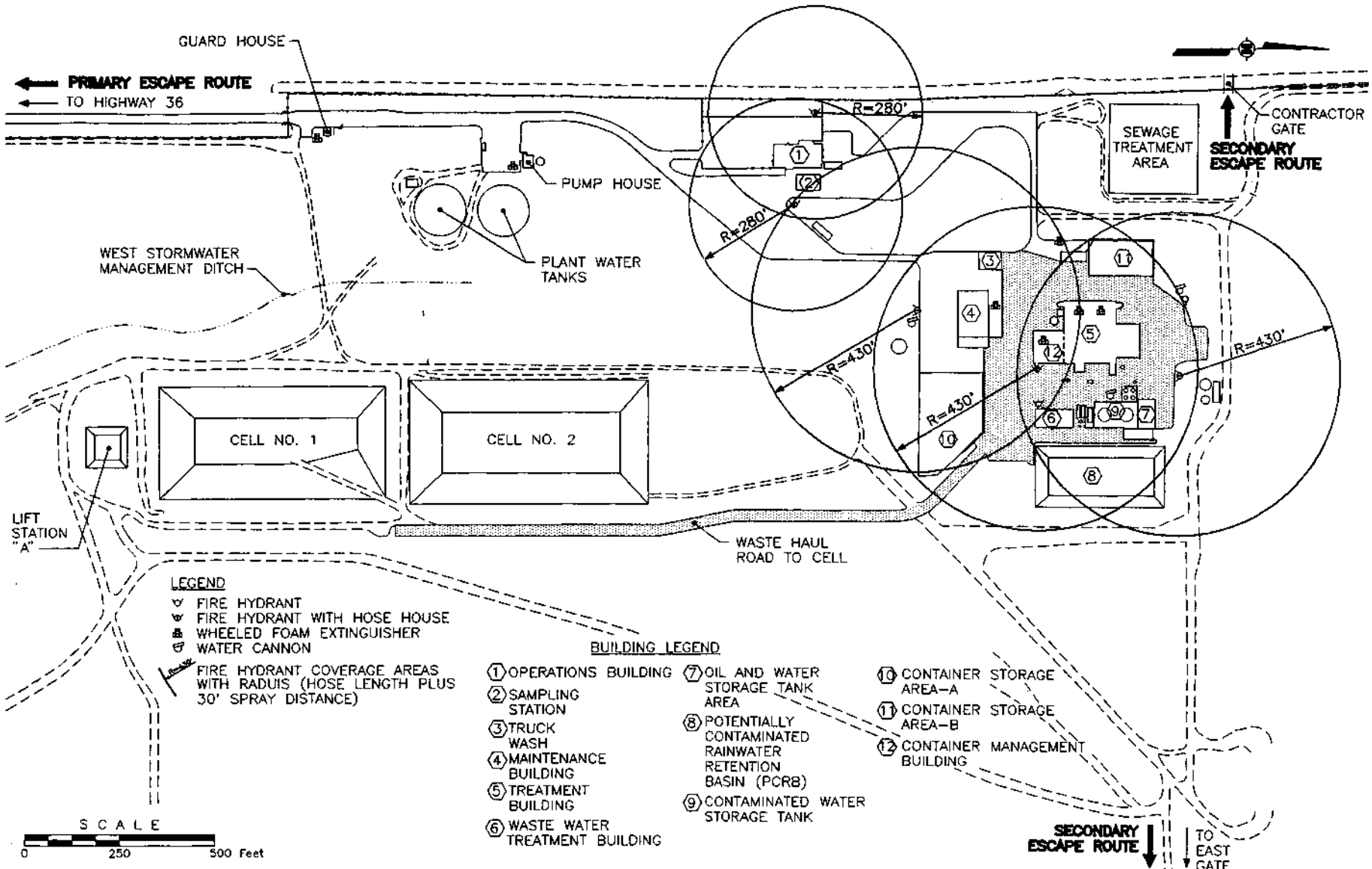
EVACUATION ROUTES



SITE EVACUATION ROUTES



FIRE WATER SYSTEM PLAN



FIRE HYDRANT COVERAGE RANGES

I. PERSONNEL TRAINING

The Facility shall conduct comprehensive training that is designed to equip The Facility employees with the skills necessary to perform their duties effectively and safely.

A. General Provisions

Personnel will be trained on hazardous waste management procedures and elements of the Contingency Plan to ensure the facility is operated safely and emergencies are effectively alleviated. The Facility employees shall be trained in the positions in which they are working. Documentation of training provided and training reviews will be a part of the operating record.

The Facility shall maintain on file at the facility a detailed written personnel training program, a written job description for each current position; a current organization chart; and a record of individuals presently working in each position at The Facility. Job descriptions must include requisite skills, education or other qualifications, and duties of employees assigned to each position.

Objectives of the personnel training program will include:

1. Training each employee to properly accomplish their job duties; and

2. Ensuring all designated employees can effectively implement proper emergency procedures, should the need arise.

Primary elements of The Facility's personnel training are Formal Training, OJT and Annual Refresher Training.

B. Formal Training

All Facility personnel will receive formal training. The Facility will maintain on file documentation of all formal training completed by each individual. The formal training program consists of many different parts. Initial training for staff includes OSHA required HAZWOPER training; training in the use of personel proytective equipment, training in facility operations including the contingency plan and site safety requirements and annual refresher training in HAZWOPER and the facility contingency plan.

Additional formal training is used for new job skills and for specific job tasks and activities. Formal training also includes job hazard analyses and job safety briefings, which are conducted prior to undertaking new or different facility operations. Additional formal training will be conducted as applicable.

These formal training courses take place in classroom settings, on computer or may be written training courses.

Emergency response team members, the emergency coordinator, and back-up emergency coordinators shall receive additional training as described in 29 CFR 1910.120 Subpart L. This formal training will also be documented on an affidavit or with certificates.

C. On-the-Job Training (OJT)

The Facility shall conduct OJT to familiarize new employees and employees transferring into new positions with their duties including hazards associated with the job; personal protective equipment required, general training in emergency procedures; and environmental protection. The Facility shall maintain on file at the facility documentation of OJT received by personnel.

OJT training will be based on tasks and managed through a training roster or comparable mechanism. Trainee proficiency will be authenticated by the OJT trainer (senior manager, area supervisor, or foreman) via an operating test (performance/ written), verbal test, or other performance demonstration. Final assignment will be contingent upon satisfactory completion of OJT.

1. OJT shall be conducted by a line-supervisor or an experienced co-worker in the same job classification.

D. Annual Refresher Training

The Facility shall provide annual refresher training to employees within 400 days from the date of his/her initial training or his/her last annual refresher training. This training will provide a review and update of the formal training lessons as they pertain to individual employee job descriptions. This training may take the form of monthly training sessions.

E. Documentation

Written documentation that training required by this Permit has been given to and completed by the appropriate personnel shall be maintained until closure of the Facility for current employees and for 3 years from the date the employee last worked at the Facility for former employees.

F. Review of Training Plan

The Health and Safety Administrator and the Manager of Environmental Affairs and Regulatory Compliance, along with appropriate facility management personnel will, at a minimum, annually review personnel training plan requirements and modify the plan as necessary. Records of the review shall specify the contents of each evaluation including such topics as:

1. Changes in types or quantities of wastes accepted and receipt, treatment, storage or disposal processes;

2. Changes or revisions to permit requirements, emergency coordinators and general operations;

3. Any incident requiring implementation of the contingency plan, notification requirements.

After the annual training program review, required modifications will be made to each affected training segment and will be incorporated into the subsequent training cycle. Every 6 months, The Facility will review each employee's personnel file against that person's job description and training requirements, to verify that the frequency and type of training required for that job is being provided.

OUTLINE OF FORMAL TRAINING MODULES

Module No.	Subject and Description
F1	Reserved
F2	Reserved
F3	Overview Site Safety: Discussion of safety and health procedures that enhance personnel safety. Safety procedures for Highway 36 Hazardous Waste Treatment, Storage, and Disposal (TSD) (identified as the Facility throughout the rest of this document) will be addressed.
F4	Individual Contingency Plan: Contingency training topics include the general plan; emergency equipment by type including communications, fire/explosion control, spill control, safety, and first aid location, use and care; emergency procedures, emergency coordinators, and emergency response agencies; emergency response communication, assembly, job duties for special teams, evacuation, and reporting; emergency recovery, disposal, decontamination, and shutdown or resumption of normal operations.
F5	Regulatory Requirements: A review of state and federal RCRA regulations; Facility requirements; transporter and generator requirements. Essentials of the Facility's RCRA TSD Permit, that apply to an employee's job function, is presented. Highway 36 Policies and procedures to comply with these regulations and permit requirements are also discussed.
F6	Hazard Communication: This module satisfies requirements of 29 CFR 1910.1200. Information addressed includes MSDSs; chemical labeling, hazards, and inventory; hazard recognition; etc. Additional hazard communication training is provided when new hazardous chemicals are added to the Facility inventory.
F7	Introduction to Personal Protective Equipment (PPE): The various types of PPE that are available and the locations where specific PPE is required at the Facility is presented.
F8	Introduction to the Respiratory Protection: This module discusses requirements of 29 CFR 1910.134 and how Highway 36 complies with them. Selection, use, limitations, and storage of respiratory protective equipment is discussed. The module includes a fit test on his/her assigned respirator and having the employee demonstrate they know how to check for leaks.
F9	Advanced Respirator Protection: Proper maintenance of respirators and SCBA's (inspection, cleaning, repair, and storage) is discussed in this module.
F10	Introduction to Use and Maintenance of Fire Protection Equipment: Employees are trained to properly use the portable, dry chemical fire extinguishers located in all buildings at the Facility.
F11	Reserved.
F12	First Aid: Personnel are trained on basic first aid procedures by instructors qualified through the American Red Cross (ARC) or the American Heart Association (AHA). Possession of a current Emergency Medical Technician (EMT) Certificate satisfies this requirement.
F13	CPR: Personnel are trained on cardio-pulmonary rescusitation (CPR) by instructors qualified through the ARC or the AHA. Possession of a current EMT Certificate satisfies this requirement.

F14 Heat/Cold Stress: Information and procedures to manage heat and cold stress in the work environment is presented.

F15 Hearing Conservation: Instruction meeting the requirements of 29 CFR 1910.95 is presented including the effects of noise on hearing, purpose of hearing protectors, and other procedures and controls.

F16 Heavy Equipment Operator Safety Training: A discussion of proper procedures to operate equipment on-site, including inspecting vehicles, traffic patterns and control devices on-site, and equipment malfunctions.

F17 Skid Steer Loader, Fork Lift, Drum Lift: Instruction of employees on the safe use and maintenance of site-specific material hauling equipment.

F18 Basic Chemical Concepts: Instruction on the general principles of chemistry that make substances hazardous, or flammable, or reactive. Characteristics of a fire and handling procedures for flammable materials are discussed as are procedures for proper chemical handling and handling of reactive materials. Includes a brief discussion of chemical reactions and factors which influence reaction rates, such as temperature, physical state, exposed surface area, catalysts and spontaneous reactions. Certain chemical groups which undergo reactions are identified.

F19 Basic Toxicological Concepts: Principles governing an individual's physiologic response to toxic materials and the risks associated with each class of toxic chemicals are presented.

F20 Laboratory QA/QC Safety: Instruction on safety procedures in the lab and sampling station. Includes demonstrating sampling techniques, handling of samples and required forms, use of PPE, and storage and handling of laboratory supplies.

F21 Confined Space Entry: A discussion to accomplish the requirements of 29 CFR 1910.146 and the Facility's Health and Safety Program and includes atmospheric and work place monitoring, PPE, permit procedures, "Buddy" or standby observer system, and communications.

F22 Lock out/Tag out Procedure: A discussion to accomplish the requirements of 29 CFR 1910.147 and the Facility Health and Safety Program.

F23 Asbestos Training: Procedures and specific job task requirements for the safe handling of asbestos-containing materials is presented.

F24 Hot Work Procedures: A presentation that fulfills the requirements of 29 CFR 1910.252 and the Facility Health and Safety Program.

F25 Electrical Grounding and Bonding: Specific job task requirements to control the effect of static electricity during flammable liquid storage and transfer is presented.

F26 Safe Drum Handling: Employees involved in drum storage and transfer are instructed in correct and safe handling procedures of them.

F27 Placards, Labels, and Manifests: Information is presented on the manifest system, how to complete a manifest, and distribution of a manifest to generators, transporters, disposers and regulatory agencies. Training on documents for the Facility as a generator will be presented. Discusses the DOT system for identifying hazardous materials and vehicles which transport them.

F28 Train the Trainer: Methods and techniques for preparing and presenting formal training activities are taught.

F29 Reserved

F30 Emergency Response: Initial training consists of classroom and field instruction to prepare employees to respond efficiently as team members to fires, explosions, and spills of hazardous material. Training includes proficiency training at first responder awareness level, first responder operations level, and hazardous material technician level.

F31 OSHA-24: This 24-hour module satisfies the requirements of 29 CFR 1910.120 and will be provided to employees as required.

F32 Annual Site Specific Refresher Training: This annual refresher training reviews each employee's pertinent formal training modules.

F33 Advanced Use of Fire Protection and Spill Response Equipment: Personnel are trained to properly use all fire protection and spill response equipment throughout the site. Personnel are also instructed on the types of fire and spills envisioned and applicable response equipment. Hands-on fire response demonstrations or critiques of actual spills or fire incidents are conducted with Emergency Response Team Members.

F34 OSHA-8 Hour Update: This 8-hour module satisfies the requirements of 29 CFR 1910.120 for an annual review. It is also provides familiarization instruction for employees who are not involved in waste management processes.

OUTLINE OF ON-THE-JOB TRAINING (OJT) TOPICS

Module No.	Subject and Description
J1	Proper sampling methods In-Accordance-With (IAW) EPA SW-846 and the Waste Analysis Plan, the Groundwater Sampling and Analysis Plan, National Institute for Occupational Safety and Health (NIOSH) methods, or 29 CFR 1910.
J2	Proper analytical methods IAW EPA SW-846, the Waste Analysis Plan, the Groundwater Sampling and Analysis Plan, or NIOSH analytical methods.
J3	Calibration of laboratory, environmental monitoring equipment, or industrial hygiene monitoring equipment.
J4	Review of waste management documents as a TSD and as a generator. Review of incident investigation procedures and documents.
J5	Purpose, operation, and limitations of monitoring equipment and mechanisms (i.e., sumps, trenches, high level alarms, leak detection systems, wind gauge, rain gauge, flammable gas detectors, organic vapor analyzers, oxygen meters, etc.).
J6	Waste inspection, sampling, and verification procedures IAW the Waste Analysis Plan.
J7	Proper use of the on-site inspection checklist and Facility inspection procedures.
J8	Segregation of incompatible materials.
J9	Use of portable, hand-held, fire extinguishers.
J10	Safe and proper use of heavy equipment (trucks >5 ton, road graders, crawler tractors, track hoes, scoop loaders, etc).
J11	Safe and proper use of power tools and power equipment.
J12	Safe and proper use of hand tools with emphasis on safe use in hazardous areas.
J13	Safe handling of drums/containers.
J14	Proper grounding of electrical equipment, tools, and containers. Proper use of ground-fault interrupters (GFIs).
J15	Safe manual lifting, ergonomics, and appropriate work station design.
J16	Safe lifting with drum handling equipment.
J17	Loading/unloading waste into treatment basins, truck/container purging, loading wastes into trucks inside the treatment building, filling and emptying the vacuum truck, and depositing waste into the secure disposal cell.
J18	Operation of the truck wash.
J19	Use of emergency spill response equipment.

J20	Fire fighting procedures.
J21	Safe and proper use of Personal Protective Equipment (PPE).
J22	Use of SCBAs, maintenance, cleaning.
J23	Use of foam, water, and other fire extinguishing systems.
J24	Hand signals for emergency communication, when personnel are in Level A, B, or C protective equipment.
J25	Use of communications equipment.
J26	Response to emergencies involving spills, fires, and other incidents that compel implementation of the Contingency Plan to include proper waste sampling and verification procedures as specified in the Waste Analysis Plan.
J27	Purpose, location, operation, and limitations of treatment building, container storage area, oil and solvent tank, and secure disposal cell monitoring and emergency cut-off systems.
J28	Inspection of waste containers and waste transfer tickets prior to discharging waste into treatment mixing basins.
J29	Purpose, operation, and limitations of emergency, monitoring, alarm, and communication systems and equipment.
J30	Purpose, operation, and limitations of emergency systems, waste feed cut-off systems, and emergency shut down procedures for all operable units.
J31	General Safety Meetings: Procedures for maintaining the health and safety of workers on the Facility will be discussed. Provides a forum for training on subjects that include safe handling and proper PPE for specific waste streams, requirements for atypical shipments, and reviewing policies and procedures.

PERMIT ATTACHMENT 8
GROUND WATER SAMPLING PLAN AND STANDARD OPERATING PROCEDURES

I. INTRODUCTION 2

II. SAMPLING FREQUENCIES 2

III. ANALYTICAL PARAMETERS, METHODS, AND SAMPLE CONTAINERS 2

IV. WELL INSPECTION 3

IV A. EQUIPMENT REQUIRED: 3
IV B. ORGANIC VAPOR MEASUREMENTS 3
IV C. DEPTH TO WATER MEASUREMENTS 3
IV D. WELL TOTAL DEPTH MEASUREMENTS 4

V. WELL EVACUATION 6

V A. EQUIPMENT: 6
V B. WELL EVACUATION 6
V C. NON-DEDICATED EQUIPMENT 8
V D. REMOVAL OF DEDICATED EQUIPMENT 9
V E. PURGE WATER MANAGEMENT 9

VI. MONITOR WELL SAMPLING 9

VI A. EQUIPMENT: 9

VII. FIELD QUALITY ASSURANCE SAMPLES 11

VII A. TRIP BLANKS 11
VII B. FIELD DUPLICATES 11
VII C. EQUIPMENT BLANKS 11
VII D. FIELD BLANKS 12
VII E. BOTTLE BLANKS 12

VIII. DECONTAMINATION OF NON-DEDICATED EVACUATION AND SAMPLING EQUIPMENT AND NON-LABORATORY SUPPLIED OR NON-CERTIFIED CLEAN SAMPLING EQUIPMENT 12

IX. FIELD DOCUMENTATION 12

IX A. FIELD DATA SHEETS 12
IX.A.1. General Information:: *12*
IX.A.2. Well Inspection Data: *12*
IX.A.3. Evacuation Data: *13*
IX.A.4. Sampling Data *13*
IX B. SAMPLE LABELS 14
IX C. CHAIN-OF-CUSTODY 14

X. LABORATORY REQUIREMENTS 15

I. INTRODUCTION

This section presents the procedures and techniques for collecting, handling, and analyzing samples collected from the leachate collection sumps, leak detection sumps, permanent sumps, and groundwater monitoring wells at the Deer Trail Facility. The goal is to provide for efficient, accurate and representative sampling of the monitoring network at the facility. The plan outlines the procedures for the following tasks:

- Groundwater Sampling Frequencies,
- Analytical Methods and Sample Containers,
- Well Inspections,
- Fluid Level Measurements,
- Well Evacuation,
- Well Sampling,
- Field Quality Assurance Samples,
- Field Activities and Sample Documentation,
- Decontamination, and
- Equipment Problems and Pump Removal.

II. SAMPLING FREQUENCIES

The frequency of data collection of the various sumps and wells is summarized in Table VII-1.

III. ANALYTICAL PARAMETERS, METHODS, AND SAMPLE CONTAINERS

The analytical parameters to be analyzed for in groundwater samples collected at the facility are given in Part VII - Groundwater Protection Program, Tables VII-2, VII-3 and VII-4. Listed are each parameter and their respective typical analytical methods. Minimum Detection Limits are identified in Appendix 2 of this attachment. pH, specific conductance and turbidity will be determined in the field. The first four quarters that a well is sampled, the samples are analyzed for the constituents found in Table VII-2, Appendix 2. The samples from all of the other wells are to be analyzed for the constituents found in Tables VII-3 and VII-4, Appendix 2. Equipment blank samples are analyzed for the same constituents as the well in which the equipment is used.

Sample containers will be as specified for the method for which the sample is being obtained. Volatile Organic Compounds (VOC) will be collected using the preservation methods specified in the *State of Colorado Groundwater VOC Sample Preservation Policy* dated June 22, 1998.Current requirements including method, sample size, number of containers per analysis, container type, holding time, preservation method, and sample volume are listed in Appendix 1 of this Attachment. A current list of requirements or a statement that the list has not changed will be obtained from the analytical lab that will perform the analysis prior to each sampling event.

The sample containers will generally be supplied by the analytical laboratory. If requested, the laboratory will provide documentation certifying containers are in compliance with the USEPA specifications and guidance for contaminant free sample containers. If sample containers require additional cleaning, the laboratory will provide documentation that the containers have been cleaned in accordance with all applicable laboratory quality assurance protocols. The laboratory may pre-preserve the bottles or they may be preserved in the field as part of the sampling event. Vials used for VOC samples will not be preserved. Prior to sampling, a complete sample suite will be poured at the laboratory using reagent-grade deionized water as a Quality Assurance/Quality Control check on the sample containers.

If the sample locations and tests are known prior to collection, the container labels may be partially completed before sampling.

The Laboratory will generally supply sample shuttle kits (each) consisting of an insulated cooler, precleaned containers, labels, seals, and Chain-of-Custody, field log, and shipping forms. Refrigerant (wet or blue ice) will be supplied by the sampling crew at the time of sampling.

IV. WELL INSPECTION

The monitoring wells shall be inspected prior to each groundwater sampling event. During the well inspection, water levels will be measured to determine which wells contain water and wells are dry. In addition, organic vapor concentrations will be measured for each well where organic detections in the sample collected during the previous sampling event.

IV A. Equipment Required:

- Water Level Indicator,
- Gloves,
- Hydrocarbon Iinterface Probe,
- Deionized Water,
- Paper Towels,
- Buckets and Decontamination Water Container
- Calibrated OVM, and
- Inspection Log.

IV B. Organic Vapor Measurements

Prior to the well inspection, the analytical results from the previous monitoring event will be reviewed to determine which wells had organic constituents detected in the groundwater. Organic vapor concentrations will be measured at these locations immediately after removal of the well casing cap, and prior to taking water level measurements . The OVM measurement will be recorded on the Well Inspection Log. The organic vapor reading will be taken using a properly calibrated Organic Vapor Meter (OVM). The OVM will be calibrated in accordance with the manufacturer specifications using the recommended calibration gas at a minimum of once per day prior to sample collection. All calibration information will be recorded in a calibration logbook that will be kept at the facility with field documentation.

IV C. Depth to Water Measurements

For each well where organic detections occurred during the previous sampling event, fluid level measurements will be collected using a water-hydrocarbon interface probe to determine if an immiscible layer is present. If no organic detections occurred during the previous event, fluid level measurements may be collected using calibrated water level indicator. Gloves will be worn during all fluid level measurements to prevent contamination. Following the organic vapor measurement the depth to water measurement will be collected using the procedure described below:

- The calibrated water level indicator (or hydrocarbon interface probe if organics were detected in samples collected during the previous sampling event) will be rinsed and wiped with deionized/distilled water.

- The probe will be slowly lowered in the well until the meter indicates that water has been reached.
- The depth at which the groundwater is encountered will be measured from the marked reference point at the top of the well casing and recorded. An elevation/location reference point shall be established in relation to mean sea level by a licensed surveyor for each well, the marker is typically located on the concrete well pad. The reference point shall be established in relation to mean sea level and the survey shall also note the well location coordinates. Appendix 9 shows mean sea level elevations for the reference points at each well
- The water level indicator will be read to the nearest 0.01 ft and shall be calibrated annually with any correction factors noted on the meter. The factor, if any, will be applied to the water level depth measurement.
- The probe will be raised until it is no longer in the water and then lowed again until the meter indicates that water has been reached and both measurements recorded on the field data sheet.
- If the values do not agree within 0.02 ft., repeat steps as above until the two readings agree within 0.02 ft. (record all measurements)
- The probe will be raised from the well, cleaning the immersed portion of the cable and rinsing the probe thoroughly with deionized/distilled water.

All data from the well inspection shall be recorded on the form provided in Appendix 4. Should organic vapors be detected during the inspection, the headspace shall be re-tested for organic vapors prior to purging during the sampling event. Personnel will also note well conditions, as appropriate, on this form.

IV D. Well Total Depth Measurements

Total depth measurements will be done at a minimum once per year, or when dedicated equipment is removed from the well for maintenance, or if there is indication the well is not functioning properly (ie. high turbidty measurements, changes in general groundwater chemistry) Total depth readings are measured for each well using a hydrocarbon interface probe. This procedure will not be performed during the actual sampling event. The depth readings will be taken in concert with review of each well, as per the following order of activities:

- After arrival at the well, note and record all general environmental and site information on a field data sheet.

- Unlock the well and proceed as follows:

- If the well contains a pump, grasp the PVC cap with both hands and gently remove the cap and lift upwards. Since the pump and tubing are attached to the lid, the pump will be removed as the lid is raised.

- If the well contains a dedicated bailer, remove cap, bailer and string,

- Carefully coil the dedicated equipment and place into a large, clean, plastic, disposable bag. Close and seal the top of the disposable bag. Care must be taken to not let the lid, tubing, pump, bailer or other dedicated sampling and purging equipment touch anything other than the inside of the bag while being

placed in the bag.

- Carefully rinse and wipe the hydrocarbon interface probe before well measurements are taken with deionized water. Slowly lower the into the well until it contacts the water or an immiscible layer is contacted.

- Record Depth to water measurement on field data sheet.

- Continue to lower the probe until it gently touches the bottom of the well.

- Record the depth when tension in the cable is relieved as the probe touches the bottom of the well. Raise the probe above the bottom and then lower it again to the bottom to take a second reading. The readings taken are recorded to the nearest 0.01 ft. as measured from a surveyed datum.

- If a LNAPL or DNAPL is encountered, record the occurrence of such phases. Arrangements will be made to sample the well after notification to the Executive Secretary.

- Slowly remove the probe from the well, being careful to rinse and wipe both the immersed portion of the cable and probe with deionized/distilled water as it is removed, being sure the wire or probe never touches the ground or anything outside of the well. If a LNAPL or DNAPL were encountered the decontamination procedure would include a laboratory detergent rinse (ie. Alconox®) followed by deionized/distilled water.

- Remove the dedicated equipment from the bag and thoroughly rinse both the pump/bailer and the first few feet of tubing/string with deionized/distilled water.

- After rinsing, insert the pump/bailer and first few feet of tubing/string back into the well.

- As the pump/bailer is reinserted, the remaining tubing/string, shall be rinsed with deionized/distilled water or wiped with disposable wipes.

- Gently lower the pump/bailer back into the well. Abrupt actions could separate pump components. Securely push the cap back onto the well stem making sure that the cap is flush with the top of the PVC casing. Record the condition of the pump/bailer and any other observations on the field data sheet or in the log book.

- Minor maintenance and cleaning on the pump may be undertaken while the assembly is accessible on the surface. Extensive maintenance or cleaning may require additional servicing or replacement.

- Secure the well cap and proceed to the next well in the circuit.

V. WELL EVACUATION

V A. Equipment:

- Water Level Indicator/Hydrocarbon Interface Probe,
- Purge Water Containers,
- Gloves,
- Field Data Sheet (Attachment ??),
- Pump Controller if Dedicated Pump,
- Reel and Filament if Bailers are used,
- Calibrated Organic Vapor Meter,
- Paper Towels, and
- Deionized Water.

V B. Well Evacuation

Prior to purging the well in preparation for sampling, the groundwater personnel will perform the following tasks:

- For each well where organic vapors were detected during well inspection, the headspace will be re-tested immediately prior to purging by a calibrated OVM as specified in Section IV.A

- Samples collected for the analysis of volatile organic constituents will be collected from the immisicble layer if such a layer is determined to exist during the well inspection. Sampling of immiscible layer(s) shall precede well evacuation procedures. Immiscible layers, if present, will be sampled using a device constructed of the same material as the well casing, stainless steel, or Teflon. Care will be taken to gently lower the sampling device to avoid, as much as possible, disturbing the interface between the hydrocarbon layer and water.

- Depth to Water measurements will be done to determine the volume of purge water required to be evacuated.

The requirements for evacuation of a well are as follows:

> 6 CCR 1007-3 264.97 (a)(2) requires that groundwater samples must represent the quality of water passing the point of compliance to ensure that the water sampled is not stagnant and therefore representative of the surrounding groundwater conditions.

Wells will be purged based on their recovery and yields as described below.

Rapid Recovering Wells - Rapidly recovering wells are defined as those wells which recover at least 90% of one well volume in less than 12 hours.

- Rapidly recovering wells shall have approximately three well volumes removed prior to sampling.

- Sampling of these wells shall be completed within 24 hours from the time that the last well volume is purged.

Slow Recovering Wells - Low yield or slowly recovering wells are those wells which take longer than 12 hours but less than 48 hours to recover at least 90% of one well volume of water.

- Low yield wells shall be totally evacuated (to the extent practicable) only one time prior to sampling.

- Low yield wells shall be inspected within 24 hours of the well evacuation. If a sufficient amount of water is available, a sample shall be collected at this time for analysis of volatiles if performing background sampling or semi-volatile organic compounds if performing detection monitoring sampling and metals analysis if possible.

- Low yield wells where one or both samples were not collected within 24 hours shall be inspected within 48 hours of the well evacuation. If sufficient amount of water is available, a sample shall be collected at this time for the remaining analysis.

- If a sufficient amount of water is not obtainable for any analysis the well will be considered dry for that sampling event.

- Attempted sampling of these wells shall be completed within 48 hours of the well evacuation.

No Yield - No yield or dry wells are defined as a well that has not recovered at least 90 percent of a well volume within 36 to 48 hours. These wells shall not be sampled.

The volume of water to be evacuated from the well for purging can be calculated from the following formula:

Purge Volume (gallons) = $3.14 * h * r^2 / 0.134$

Where r = inside well casing radius in feet.
Where h = (Total Well Depth (ft) – Depth to Water (ft))
(To convert gallons to liter multiply by 3.785)

Record the calculated well volume on the field data sheet.

During each sampling event each previously dry well shall have been checked during the well inspection procedure to determine if water is present in the well. If water is present it shall be purged as described above and sampled as described in Section VI.

During the first sampling event aninspection or detection monitoring well contains water, it shall be classified as a rapidly recovering, low yield or no-yield well.

First sampling event classification and measurement of well recovery data shall be recorded on the form in Appendix 5. The Appendix 5 form presents a protocol for classifying the wells relative to recovery. The results of this well recovery classification shall be included in the next Semi-Annual Monitoring Report.

During subsequent sampling events each well will be evacuated and sampled in accordance with the procedures applicable to that well's recovery classification which was determined in the first sampling event. Well evacuation procedures and data for those semi-annual events will be recorded on the form presented in Appendix 6.

If a well reclassification is needed, the basis for the change shall be documented on the form in Appendix 5.

In order to prevent well contamination, dedicated sampling equipment will be used when possible. (Note: Currently all groundwater wells at the Facility, except the dry wells, utilize dedicated purging and sampling equipment.) If dedicated equipment is not used, decontamination of all sampling equipment will be done prior evacuating each well. Gloves will be worn during the entire well evacuation procedure when any equipment is contacted. Following sample collection the equipment shall be cleaned and stored per the procedure outline in Section??? Based on dedicated equipment present or other equipment required if non-dedicated equipment is used one of the following well purging procedures will be utilized:

Dedicated Pumps - A dedicated system composed of either an electrically powered submersible pump, a gas operated positive displacement (bladder or piston) pump, or a gas lift purge pump may be used. The pump intake will be located approximately a foot above the bottom of the screened area to minimize the potential for electrically powered submersible pumps to burn-out upon total evacuation. Electrically powered submersible pumps will not be operated when the water level in the well drops below the pump intake.

Currently all wells sampled at the facility contain dedicated bladder pumps. These pumps are positioned approximately one-foot above the bottom of the screened area. After the well has been unlocked and organic vapor readings are collected from those wells with prior organic detections (Section IV.A) the pump control unit will be connected to the well and started. The purge water will be collected in an appropriate container so that volumes can be determined. All purging activities and volumes will be recorded on the field data sheet.

Dedicated Bailers - A dedicated bailer, constructed of either the same material as the well casing, or Teflon7, or stainless steel.

- All dedicated bailers will be inspected at the time of well purging for cleanliness and functionality,

- The bailers will be attached to a a single strand of stainless steel wire or a monofilament line.,. If necessary, a reel may used that will be mounted on a tripod and set directly above the well opening. As much as possible, the bailer and cable should be in limited contact with the internal well casing.

- Following well evacuations, the monofilament line will be wiped with a clean towel moistened with de-ionized water . The purge water will be collected in an appropriate container so that volumes can be determined. All purging activities and volumes will be recorded on the field data sheet.

V C. Non-Dedicated Equipment

If non-dedicated equipment is used during well purging, that equipment will be cleaned before using per the procedure outline in Section VIII.

V D. Removal Of Dedicated Equipment

All dedicated equipment temporarily removed from a well for repair (i.e. Maintenance Building or Off-site) shall be decontaminated as described in Section VI prior to returning it to service. Equipment blank samples shall be taken on all dedicated equipment that has been temporarily removed from the well for repairs in Maintenance Building or Off-site after it has been decontaminated and prior to returning it to service. The samples shall be analyzed for the same constituents as the well water being drawn with that equipment less the general chemistry analysis.

V E. Purge Water Management

All purge water shall be collected in a calibrated container to determine evacuation rate and volume. Well water not used for sampling will be placed in containers and either stored until laboratory results for that well have been received, used as water in a stabilization batch or placed into tanks that are pumped to the contaminated water tanks. If stored until analysis is received and the analysis shows the water to be non-RCRA regulated, the water may be disposed by letting it evaporate, spraying it on the ground away from wells, placing it in a culinary drain or used as water in a stabilization batch or placed into tanks that are pumped to the contaminated water tanks.

VI. MONITOR WELL SAMPLING

After the wells have been evacuated (described in Section V) , the containers and sampling equipment shall be prepared and the information recorded on the Field Data Sheet.

VI A. Equipment:

- Ground Cloths,
- Calibrated Field Instruments (pH, specific conductance, and turbididty),
- Calibration Check Standards,
- Gloves,
- Field Data Sheets,
- Water Level Indicator,
- Sample Containers,
- Preservatives (if preservation is done in the field)
- Ice,
- Pump Controller (if dedicted pump)
- Reel and Filiment (if dedicated bailer),
- Deiornized water,
- Paper Towels,
- Appropriate containers for waste water,

Those wells that meet the recovery criteria specified in Section V.A. shall be sampled as follows:

- Remeasure the water level depth to the nearest 0.01-foot and record on the sampling portion of the Field Data Sheet (Appendix 7).

- If non-dedicated equipment is used to sample the well (e.g., bailer, funnel, etc.) it must be cleaned and stored per the procedures outlined in Section VI.

- If the well is equipped with a dedicated submersible pump, it will be used to sample the well. Wells not equipped with a pump system or If the dedicated pump is non-operational, the well

will be sampled utilizing a bailer. The bailers will be constructed of stainless steel, Teflon7 or of the same material as the well casing, attached to a reel with a clean single strand stainless steel wire or a monofilament line. The reel will be mounted on a tripod if necessary and set directly above the well opening. Except as specified elsewhere in this attachment the first bailer-full collected shall be used to rinse the bailer and managed as described in paragraph III.F., if the well has recharged sufficiently to collect all samples required. If the well contains insufficient water to generate the necessary aliquots, then the first bailer-full may be used to collect the sample, rather than discarding it as rinse water. Samples will be transferred, with as little agitation as possible, from the bailer to the sample containers and immediately preserved if not prepreserved by the laboratory according to the specific method requirements (see Appendix 1).

- Wells shall be sampled within the time periods specified in Section III. Samples collected for field measurements of pH, specific conductance, and turbidity will be collected first, with the rest of the containers filled in the order of volatility. When collecting samples for the analyses of volatile constituents, such as volatile organics, total organic carbon (TOC) or total organic halide (TOX), pumping rates shall be minimized within the limits of the pumping equipment available.

- All samples collected for transport to the Laboratory shall be chemically preserved (if applicable) and immediately placed on wet or blue ice. The samples collected for VOCs will be preserved in accordance with the State of Colorado Policy See Appendix 1, for specific requirements.

- All containers containing samples to be analyzed for volatile constituents, will be filled to the top, inverted and checked to ensure that no air bubbles are present. If not resampled to provide a sample zero headspace, records shall include notation of the presence of headspace at the time of collection and upon receipt at the laboratory and VOA septum vials shall be transported inverted.

- All other containers will be filled to the level specified in Appendix 1.

- The following determinations will be made in the field at the time of sampling and recorded on the field data sheets:

- - pH - Specific Conductance - Calibration checks - Turbidity

- Field monitoring instruments including pH and specific conductance, , shall be calibrated each day of sample collection prior to sampling. Turbidity meters shall be calibrated at a minimum prior to each event or more often according to manufacturer specification. All calibrations of these instruments shall be verified using certified standards prior to the sampling of each well and recorded on the field data sheet.. If required, Section II., wells will be monitored for organic vapors using a calibrated OVA/OVM instrument as part of the well purging procedure. Organic vapor readings will be recorded on the Field Data Sheet.

- Sample Shipment - Samples will be under chain of custody by either lab or Facility personnel in insulated shipping containers, ice chests or coolers. If shipped via an overnight carrier, the shipping containers will be chain of custody sealed and the chain of custody will be in the container. All samples for organic analysis (and many other parameters) should arrive at the laboratory with wet ice in place or packaged refrigerant ("blue ice") still frozen. . The

receiving laboratory shall record and report the internal temperature of the shipping container at the time of receipt at the laboratory.

VII. FIELD QUALITY ASSURANCE SAMPLES

Field quality control (QC) samples will be collected during the event to check the analytical accuracy and precision as well as to identify possible alternate sources of contamination other than the groundwater should any constituents be identified in groundwater samples above background concentrations. Field QC samples will be submitted to the laboratory and will be analyzed as original field samples. Field QC samples will include:

- Trip blanks
- Field duplicates,
- Equipment blanks,
- Field blanks, and
- Bottle blanks.

VII A. Trip Blanks

Trip Blanks: one set of trip blank sample aliquots for the analysis of volatile organic compounds shall be prepared for each groundwater sampling event that volatile organic constituents are sampled for. The trip blank sample aliquots will be prepared in the laboratory by filling the appropriate clean sample bottles, with "analyte-free" reagent-grade water, adding the appropriate preservatives, as indicated in Appendix 1. These sample containers will be labeled "Trip Blank" with the analyses to be performed indicated on each. The sample containers will be placed in the sample shuttle cooler(s) used for sample transport to the field and back to the Laboratory. The Trip Blank will be used to document any contamination that may be attributable to the containers, the coolers, the cleaning operations, and the chemical preservatives.

VII B. Field Duplicates

One well field duplicate will be obtained for 20 wells (batch) in each scheduled sampling event. Duplicated sampling of wells will be determined by the random sampling method discussed in Appendix 8 of this plan. Only those wells that have traditionally produced a sufficient volume of water to fill a complete Background Parameters (Table VII-2) or Detection Monitoring (Table VII-3 and VII-4) bottle set, which ever is required, will be included as potential duplicate well candidates.

VII C. Equipment Blanks

Equipment blanks are rinsate blanks collected in the field from non-dedicated equipment used to collect fluid level measurements or groundwater samples from the wells. During each groundwater monitoring event an equipment blank will be collected from the water level indicator and analyzed for volatile organic constituents, and if filters are used in the field for dissolved metals analysis one sample will be collected through a clean unsued filter and submitted for analysis of dissolved metals. These blanks provide information on the effectiveness of decontamination and to confirm that filters do not contribute to the natural dissolved metal concentrations. After decontamination has been performed on a piece of non-dedicated sampling equipment, and prior to its use, a deionized water rinsate will be collected from the piece of equipment.

VII D. Field Blanks

A field blank is collected when reagent grade deionized water is transferred from its original container to a sample container in the field. These blanks are used to determine if possible analyte detections observed in the well samples are a result of ambient contaminants. Field blanks will be collected only when groundwater samples are being collected. The frequency of field blank collection will be one per event. A field blank will consist of all parameters that are being sampled for during that specific event.

VII E. Bottle Blanks

Bottle blanks are poured in a laboratory setting from containers of reagent grade deionized water into the same containers that will be used during the sampling event. These blanks are poured prior to sample container shipment to determine if all sample containers are analyte free. Prior to each groundwater sampling event, one bottle blank will be poured at the laboratory or in another controlled setting for all parameters being sampled during that event.

VIII. DECONTAMINATION OF NON-DEDICATED EVACUATION AND SAMPLING EQUIPMENT AND NON-LABORATORY SUPPLIED OR NON-CERTIFIED CLEAN SAMPLING EQUIPMENT

The following procedure is to minimize the possibility of cross contamination of wells and samples.

- Bottles and lids to contain samples for metals or conventional analyses must be hand washed with a liquid hand dishwashing detergent, rinsed in hot tap water, rinsed with chemically pure or reagent grade nitric acid, rinsed at least four times with tap water and four times with distilled or deionized water and allowed to air dry.

- All non-dedicated equipment used to bail or sample a well must be cleaned in the same manner prescribed for cleaning the bottles and lids for conventional analysis described in A. above, and stored in a clean and dry environment. Clean bailers must be wrapped in new aluminum foil with the bright side out, or high grade paper for storage.

IX. FIELD DOCUMENTATION

IX A. Field Data Sheets

A field data sheet will be completed for each well sampled. The field data sheets are composed of four sections as follows:

IX.A.1. General Information::

- Site and Location,
- Event and Year,

IX.A.2. Well Inspection Data:

The following data shall be determined and recorded upon the inspection of each well scheduled to be sampled:

- Inspector Name,

- Organic vapor concentrations and meter calibration information (if organic constituents were detected during the previous sampling event),
- Depth to immiscible layers (if organic constituents were detected in the previous event), and
- Depth to groundwater.

IX.A.3. Evacuation Data:

Evacuation data for each well shall be maintained to record all pertinent information regarding the evacuation and sampling of monitor wells. This information will be recorded on the evacuation portion of the field data form. Sample forms are presented as Appendices 5. The form in Appendix 5 will be utilized during the first sampling event for classifying wells or subsequent sampling events for reclassifying wells according to their recovery characteristics. The form in Appendix 6 will be utilized for all other sampling events. This recorded information is necessary to maintain well sampling data and becomes part of the analytical report. The sample collector shall sign and date each page of the field log (see Section VII and Appendix 7). The following data shall be determined and recorded upon the evacuation of each well:

- Time that evacuation was initiated and completed.
- If applicable, organic vapors measured in the well head in accordance with Section II or III.
- Well Depth - Record information retrieved from site database
- Water Level Depth -
- When this measurement is required, Section II of this attachment, (Class 1 Permit Mod May 2, 2000) depth to any light or dense immiscible layer(s), and thickness of each layer - Measure from the marked measurement reference point at the top of the well casing to the immiscible layer(s) (to a maximum depth of 200 feet) utilizing a water-hydrocarbon interface probe. If immiscible layers are present, document the method of collection and identification of immiscible layer samples.
- Record well casing inside diameter to the nearest 0.1 inch.
- Record the amount of water in gallons occupying the well prior to purging as described in Section ??:
- Record total gallons evacuated - Well yield
- Record water level (in feet) following evacuation.
- Record method of evacuation - type of bailer, pump, etc. including description.
- Comments - Any deviation from standard sampling procedures, unusual conditions, damage or problems encountered at each well should be recorded completely, clearly and concisely.

IX.A.4. Sampling Data

It is most important to maintain an accurate and thorough field log in case one is required to recall particular detailed information concerning the evacuation and sampling of a monitor well. As mentioned earlier, these logs become part of the analytical report. In addition to the information recorded during the purging process (Section VII A), the following information will be also be recorded on the field data sheet at the time of sampling (See Appendix 7):

- Sample collector's name, date and time of sampling.

- Water Level Depth - Measure from the reference point at the top of casing to the water surface to the nearest 0.01 foot with a calibrated water level indicator.
- Reason for sampling - e.g., semi-annual sampling, special problem (define), initiator requesting the well sampling.
- Sample identification number for each set of samples taken from a single sample source.
- Field measurements of pH, specific conductance and turbidity, and calibration documentation (See Section IV.G.).
- Method of sample collection - type of bailer, pump, etc.
- Sample characteristics - color, odor, sediment, surface oil, etc.
- Sample volume, containers, preservatives. Analysis Method to be performed on each sample (if known).
- Weather conditions at the time of sampling.
- Sample sequence number - Order in which well was sampled with respect to other wells onsite. If more than one sampler or sampling team are participating in the sampling event, each sampler or team shall record the sequence or order in which each well was sampled with respect to the other wells they have sampled.
- Any additional field observations, comments or recommendations - e.g., split sampling (with whom), re-sampling, equipment failures, condition of the well, etc.

IX B. Sample Labels

Prepare a sample label for each sample container employing a waterproof pen and adhesive label. The following is to be indicated on the label -

- and Date and time of sample collection
- Project Name
- Sample identification number.
- Preservation Method
- Method/Analysis to be performed on the sample

IX C. Chain-Of-Custody

Chain-of-Custody records will be used to insure the integrity of the sampling event and the analyses.

A Chain-of-Custody record (Appendix 3 contains the minimum requirements) shall be completed by the sample collector for all monitoring well samples.

The sample collector will retain a copy of the Chain-of-Custody record, and forward the original with the sample to the laboratory performing the analyses.

Upon receipt of the samples, the laboratory manager or representative will complete the Chain-of-Custody record, make a copy for his or her files, and return the original with the analytical data.

The samples must be sealed to protect their value when out of the direct control of the sample collector and/or laboratory personnel. If the sample shuttle kit (cooler) is not being transported by the Facility or the laboratory that will do the analysis and the shuttle kit does not employ a tamper proof seal, the collector is to date, sign and identify each sample on a seal and attach it to each sample container and lid. A waterproof adhesive seal and pen must be used.

X. LABORATORY REQUIREMENTS

The results of the analysis of the blanks should not be used to correct the ground water data. If contaminants are found in the blanks, the source of the contamination must be identified and corrective action, including re-sampling, must be initiated. Other quality control samples (e.g., standards, spikes, performance evaluation samples) must be prepared and analyzed as part of the laboratory operation.

The laboratory shall have the capabilities to analyze for the required parameters. The laboratory may be subcontract to another independent commercial laboratory for those parameters that they are not able to reach the permitted method detection limit. Each laboratory performing analysis on groundwater samples shall be NELAP certified for the analyses performed. Any samples submitted to the Lab must be properly preserved, accompanied with completed Chain-of-Custody records (Appendix 3). If an independent, subcontracted laboratory is utilized, the procedures recommended for sample preservation will be followed, Chain-of-Custody records, and a completed Sample Analysis Request form (may be combined with the chain of custody form) will accompany the samples.

GROUNDWATER PROTECTION PROGRAM

List of Appendices

1. Recommended Sample Containerization, Sample Preservation, Analytical Methods
2. Analytes and Detection Limits
3. Chain of Custody or Equivalent
4. Quarterly Well Inspection Log
5. Monitoring Well Field Log - Evacuation, First Sampling Event of a New Well
6. Monitoring Well Field Log - Evacuation, Subsequent Sampling Events
7. Monitoring Field Log - Sampling
8. Random Sampling Method
9. Table of Monitoring Well Elevations

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 1

Recommended Containerization and Preservation of Samples, Analytical Methods and Detection Limits

SW-846 Hazardous Waste Method (1) (2) (5)	EPA Water Method (1) (2) (4)	ASTM Method (1) (2) (6)	Parameter Type	Minimum Sample Size, ml (3)	Number of Containers	Container Type	Maximum Holding Time, days	Preservation Method	Fill Sample Bottle to:
	310.1		Total Alkalinity	100	1	Plastic or Glass	14	Cool to 4 C	Shoulder
	350.1 or 350.2		Ammonia	200	1	Plastic or Glass	28	Cool to 4C add H2SO4 to pH < 2	Shoulder
		D-596-83	Cations	Analysis uses Method 6010 Metals Sample					Shoulder
9010B fb 9014 or 9012, 9012A	335.2		Cyanide	250	1	Plastic or Glass	14	Cool to 4 C, add NaOH to pH >12	Shoulder
8280			Dioxins	1000	1	Amber Glass	7/40	Cool to 4C	Shoulder
	130.2		Hardness	100	1	Plastic or Glass	181	HNO3 or H2SO4 to pH < 2	Shoulder
8151A			Herbicides	1000	1	Amber Glass	7/40	Cool to 4 C	Shoulder
	300.0		Inorganics	25	1	Plastic or Glass	28	Cool to 4 C	Shoulder
	300.0, 353.2		Inorganics - Nitrate-IC	25	1	Plastic or Glass	2	Cool to 4 C	Shoulder
	300.0, 353.2		Inorganics - Nitrite	25	1	Plastic or Glass	2	Cool to 4 C	Shoulder
	325.3		Chloride	150 ml	1	Plastic	28 days	Cool to 4 C	Shoulder
	340.2		Fluoride	300 mL	1	Plastic	28 days	Cool to 4 C	Shoulder
	375.4		Sulfate	250 mL	1	Plastic	28 days	Cool to 4 C	Shoulder
	300.0		Inorganics - Ortho Phosphate, IC	25	1	Plastic or Glass	2	Cool to 4 C	Shoulder
7470A	245.1		Metals - Mercury	500	1	Plastic or Glass	28	HNO3 to pH < 2	Shoulder
6010B	200.7		Metals	500	1	Plastic or Glass	180	HNO3 to pH < 2	Shoulder
7060A	206.2		Metals - Arsenic	500	1	Plastic or Glass	28	HNO3 to pH < 2	Shoulder
7131	213.2		Metals - Cadmium	500	1	Plastic or Glass	180	HNO3 to pH < 2	Shoulder
7421	239.2		Metals - Lead	500	1	Plastic or Glass	180	HNO3 to pH < 2	Shoulder
7740	270.2		Metals - Selinium	500	1	Plastic or Glass	180	HNO3 to pH < 2	Shoulder
8141A			Organophospate Pesticides	1000	1	Glass	7/40	Cool to 4C	Shoulder
8082			PCBs	1000	1	Glass	7/40	Cool to 4C	Shoulder
8081			Organochlorine Pesticides	1000	1	Amber Glass	7/40	Cool to 4C	Shoulder
	150.1		pH	25	1	Plastic or Glass	2	Cool to 4C or run immediately	Shoulder
9065	420.1		Phenols	1000	1	Glass	28	Cool to 4C add H2SO4	Shoulder

SW-846 Hazardous Waste Method (1) (2) (5)	EPA Water Method (1) (2) (4)	ASTM Method (1) (2) (6)	Parameter Type	Minimum Sample Size, ml (3)	Number of Containers	Container Type	Maximum Holding Time, days	Preservation Method	Fill Sample Bottle to:
								to pH < 4	
8270C			Semi-Volatile Organic Compounds	1000	1	Amber Glass	7/40	Cool to 4C	Shoulder
9050	120.1		Specific Conductance	100	1	Plastic or Glass	28	Cool to 4C	Shoulder
	376.1		Sulfide	500	1	Plastic or Glass	7	Cool to 4 C, add Zinc Acetate | NaOH to pH > 9	Shoulder
	160.1		TDS	100	1	Plastic or Glass	7	Cool to 4 C	Shoulder
9060	415.1		TOC	25	1	Glass	28	Cool to 4C add H2SO4 or HCL to pH < 2	Zero Headspace (ZHS)
9020B	450.1		TOX	500	1	Amber Glass	28	Cool to 4C add H2SO4 or HN03 to pH < 2	ZHS
	160.2		TSS	200	1			Cool to 4 C	Shoulder
8260B			Volatile Organic Compounds	40	3	Glass septa vial	14	Cool to 4C add H2SO4 or HCL OR NaHS04 to pH < 2	ZHS
	351.3		Nitrogen - Total Kjeldahl	300	1	Plastic or Glass	28	Cool to 4C add H2SO4 to pH < 2	Shoulder
9070	413.1		Oil/Grease	1000	1	Glass	28	Cool to 4C add H2SO4 or HCL to pH < 2	Shoulder
	365.2		Phosphorus, Total	125	1	Plastic or Glass	28	Cool to 4C add H2SO4 to pH < 2	Shoulder

(1) Up to and including latest published revision may be used.

(2) Any analysis needing to be done may be done using any applicable and current SW-846, EPA or ASTM method.

(3) Parameters with the same preservatives may be combined, (i.e. Metals), resulting in a final volume of less than the sum individually. (Minimum Sample Size, ml)

REFERENCES:

(4). *Methods for Chemical Analysis of Water and Wastes*, March 1983, USEPA, 600/4-79-020 and additions thereto.

(5) *Test Methods for Evaluating Solid Waste, Physical/Chemical Method*, September 1986, Third Edition, USEPA, SW-846 and additions thereto.

(6) American Society for Testing and Materials

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 2

Analytes and Detection Limits

BACKGROUND MONITORING PARAMETERS
(TABLE VII-2)

ANALYTE	CAS Number	Minimum Detection Limit	Units	Analysis Method *
PHYSICAL PROPERTIES				
pH	N/A	N/A	N/A	Field
Specific Conductance	N/A	1	umhos/cm	Field
Turbidity	N/A	1.0	NTU	Field
Total Dissolved Solids	n/a	21	mg/l	EPA 160.1
INORGANIC, NON-METALLICS				
Total alkalinity	71-52-3	5	mg/l	EPA 310.1
Chloride	16887-00-6	3	mg/l	EPA 325.2
Fluoride, Free	16984-48-8	0.1	mg/l	EPA 340.2
Nitrogen, Ammonia	N/A	0.1	mg/l	EPA 350.1
Nitrogen, Nitrate-Nitrite	N/A	1.0	mg/l	EPA 353.2
Sulfate	14808-79-8	5.0	mg/l	EPA 375.4
Radium	7440-14-4	3	pCi/l	EPA 903 or SW-846 9320
Gross Alpha, Gross Beta	N/A	3	pCi/l	EPA 900 or SW-846 9310
ORGANICS				
Total Organic Carbon (TOC)	N/A	1.0	mg/l	EPA 415.1
Total Organic Halides (TOX)	N/A	10	ug/l	SW846 9020

ANALYTE	CAS Number	App. IX PQL (ug/L)	Minimum Detection Limit** (ug/L)	Analysis Method *
METALS				
Antimony	7440-36-0	300	10	SW846 6010
Arsenic	7440-38-2	500	15	SW846 6010
Barium	7440-39-3	20	50	SW846 6010
Beryllium	7440-41-7	3	50	SW846 6010
Cadmium	7440-43-9	40	10	SW846 6010
Chromium	7440-47-3	70	50	SW846 6010
Copper	7440-50-8	60	50	SW846 6010
Iron	7439-89-6	N/A	100	SW846 6010
Lead	7439-92-1	40	20	SW846 6010
Manganese	7439-96-5	N/A	50	SW846 6010
Mercury	7439-97-6	2	0.5	SW846 7470
Nickel	7440-02-0	50	50	SW846 6010
Selenium	7782-49-2	750	15	SW846 6010
Silver	7440-22-4	70	50	SW846 6010
Sodium	7440-23-5	N/A	1,000	SW846 6010
Thallium	7440-28-0	400	50	SW846 6010
Zinc	7440-66-6	20	50	SW846 6010

ANALYTE	CAS Number	App. IX PQL (ug/L)	Reporting Limit** (ug/L)	Analysis Method *
VOLATILE ORGANICS				
Benzene	71-43-2	5	5	SW-846 8260
Bromodichloromethane	75-27-4	5	5	SW-846 8260
Bromoform (Tribromomethane)	75-25-2	5	5	SW-846 8260
Bromomethane	74-83-9	10	10	SW-846 8260
Carbon tetrachloride	56-23-5	5	5	SW-846 8260
Chlorobenzene	108-90-7	5	5	SW-846 8260
Chloroethane	75-00-3	10	10	SW-846 8260
2-Chloroethyl vinyl ether	110-75-3	n/a	10	SW-846 8260
Chloroform	67-66-3	5	5	SW-846 8260
Chloromethane	74-87-3	10	10	SW-846 8260
Dibromochloromethane	124-48-1	5	5	SW-846 8260
1,1-Dichloroethane	75-34-3	5	5	SW-846 8260
1,2-Dichloroethane	107-06-2	5	5	SW-846 8260
trans-1,2-Dichloroethene	156-60-5	5	5	SW-846 8260
1,1-Dichloroethene	75-35-4	5	5	SW-846 8260
1,2-Dichloropropane	78-87-5	5	5	SW-846 8260
cis-1,3-Dichloropropene	10061-01-5	5	5	SW-846 8260
trans-1,3-Dichloropropene	10061-02-6	5	5	SW-846 8260
Ethylbenzene	100-41-4	5	5	SW-846 8260
Methylene chloride (Dichloromethane)	75-09-2	5	10	SW-846 8260
1,1,2,2-Tetrachloroethane	79-34-5	5	5	SW-846 8260
Tetrachloroethene	127-18-4	5	5	SW-846 8260
Toluene	108-88-3	5	5	SW-846 8260
1,1,1-Trichloroethane	71-55-6	5	5	SW-846 8260
1,1,2-Trichloroethane	79-00-5	5	5	SW-846 8260
Trichloroethene	79-01-6	5	5	SW-846 8260
Trichlorofluoromethane	75-69-4	5	10	SW-846 8260
Vinyl chloride	75-01-4	10	10	SW-846 8260
SEMIVOLATILE COMPOUNDS (ACID/BASE/NEUTRAL EXTRACTABLES)				
Acenaphthene	83-32-9	10	10	SW-846 8270
Acenaphthylene	208-96-8	10	10	SW-846 8270
Anthracene	120-12-7	10	10	SW-846 8270
Benzidine	92-87-5	n/a	100	SW-846 8270
Benzo(a)anthracene	56-55-3	10	10	SW-846 8270
Benzo(a)pyrene	50-32-8	10	10	SW-846 8270
Benzo(b)fluoranthene	205-99-2	10	10	SW-846 8270
Benzo(g,h,i)perylene	191-24-2	10	10	SW-846 8270
Benzo(k)fluoranthene	207-08-9	10	10	SW-846 8270
bis(2-Chloroethoxy)methane	111-91-1	10	10	SW-846 8270
bis(2-Chloroethyl) ether	111-44-4	10	10	SW-846 8270
bis(2-Chloroisopropyl) ether (2,2'-oxybis(1-Chloropropane))	108-60-1	10	10	SW-846 8270
bis(2-Ethylhexyl) phthalate	117-81-7	10	10	SW-846 8270
4-Bromophenyl phenyl ether	101-55-3	10	10	SW-846 8270
Butyl benzyl phthalate	85-68-7	10	10	SW-846 8270
4-Chloro-3-methylphenol (p-	59-50-7	20	20	SW-846 8270

ANALYTE	CAS Number	App. IX PQL (ug/L)	Reporting Limit** (ug/L)	Analysis Method *
Chloro-m-cresol)				
2-Chloronaphthalene	91-58-7	10	10	SW-846 8270
2-Chlorophenol	95-57-8	10	10	SW-846 8270
4-Chlorophenyl phenyl ether	7005-72-3	10	10	SW-846 8270
Chrysene	218-01-9	10	10	SW-846 8270
Dibenz(a,h)anthracene	53-70-3	10	10	SW-846 8270
Di-n-butyl phthalate	84-74-2	10	10	SW-846 8270
1,2-Dichlorobenzene (o-Dichlorobenzene)	95-50-1	10	10	SW-846 8270
1,3-Dichlorobenzene (m-Dichlorobenzene)	541-73-1	10	10	SW-846 8270
1,4-Dichlorobenzene (p-Dichlorobenzene)	106-46-7	10	10	SW-846 8270
3,3'-Dichlorobenzidine	91-94-1	20	50	SW-846 8270
2,4-Dichlorophenol	120-83-2	10	10	SW-846 8270
Diethyl phthalate	84-66-2	10	10	SW-846 8270
2,4-Dimethylphenol	105-67-9	10	10	SW-846 8270
Dimethyl phthalate	131-11-3	10	10	SW-846 8270
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol) (2-methyl-4,6-dinitrophenol)	534-52-1	50	50	SW-846 8270
2,4-Dinitrophenol	51-28-5	50	50	SW-846 8270
2,4-Dinitrotoluene	121-14-2	10	10	SW-846 8270
2,6-Dinitrotoluene	606-20-2	10	10	SW-846 8270
Di-n-octyl phthalate	117-84-0	10	10	SW-846 8270
1,2-Diphenylhydrazine	122-66-7	N/A	10	SW-846 8270
Fluoranthene	206-44-0	10	10	SW-846 8270
Fluorene	86-73-7	10	10	SW-846 8270
Hexachlorobenzene	118-74-1	10	10	SW-846 8270
Hexachlorobutadiene	87-68-3	10	10	SW-846 8270
Hexachlorocyclopentadiene	77-47-4	10	50	SW-846 8270
Hexachloroethane	67-72-1	10	10	SW-846 8270
Indeno(1,2,3-cd)pyrene	193-39-5	10	10	SW-846 8270
Isophorone	78-59-1	10	10	SW-846 8270
Naphthalene	91-20-3	10	10	SW-846 8270
Nitrobenzene	98-95-3	10	10	SW-846 8270
4-Nitrophenol (p-Nitrophenol) 50	100-02-7	10	50	SW-846 8270
N-Nitroso-di-n-propylamine	621-64-7	10	10	SW-846 8270
N-Nitrosodimethylamine	62-75-9	10	10	SW-846 8270
N-Nitrosodiphenylamine	86-30-6	10	10	SW-846 8270
Pentachlorophenol	87-86-5	50	50	SW-846 8270
Phenanthrene	85-01-8	10	10	SW-846 8270
Phenol	108-95-2	10	10	SW-846 8270
Pyrene	129-00-0	10	10	SW-846 8270
1,2,4-Trichlorobenzene	120-82-1	10	10	SW-846 8270
2,4,6-Trichlorophenol	88-06-2	10	10	SW-846 8270
ORGANOCHLORINE PESTICIDES				
Aldrin	309-00-2	0.05	0.05	SW-846 8081
Hexachlorocyclohexane alpha-BHC	319-84-6	0.05	0.05	SW-846 8081
Hexachlorocyclohexane beta-BHC	319-85-7	0.05	0.05	SW-846 8081
Hexachlorocyclohexane delta-BHC	319-86-8	0.1	0.05	SW-846 8081
Hexachlorocyclohexane gamma-BHC (Lindane)	58-89-9	0.05	0.05	SW-846 8081

ANALYTE	CAS Number	App. IX PQL (ug/L)	Reporting Limit** (ug/L)	Analysis Method *
Chlordane	57-74-9	0.1	0.50	SW-846 8081
4,4'-DDD	72-54-8	0.1	0.10	SW-846 8081
4,4'-DDE	72-55-9	0.1	0.10	SW-846 8081
4,4'-DDT	50-29-3	0.1	0.20	SW-846 8081
Dieldrin	60-57-1	0.05	0.10	SW-846 8081
Endosulfan I	959-98-8	0.1	0.05	SW-846 8081
Endosulfan II	33213-65-9	0.05	0.10	SW-846 8081
Endosulfan Sulfate	1031-07-8	0.5	0.10	SW-846 8081
Endrin	72-20-8	0.1	0.1	SW-846 8081
Endrin Aldehyde	7421-93-4	0.02	0.10	SW-846 8081
Heptachlor	76-44-8	0.05	0.05	SW-846 8081
Heptachlor epoxide	1024-57-3	I	0.05	SW-846 8081
Methoxychlor	72-43-5	2	0.50	SW-846 8081
Toxaphene	8001-35-2	2	5.0	SW-846 8081
PCBs				
PCB-1016	12674-11-2	50	1.0	SW-846 8082
PCB-1221	11104-28-2	50	1.0	SW-846 8082
PCB-1232	11141-16-5	50	1.0	SW-846 8082
PCB-1242	53469-21-9	50	1.0	SW-846 8082
PCB-1248	12672-29-6	50	1.0	SW-846 8082
PCB-1254	11097-69-1	50	1.0	SW-846 8082
PCB-1260	11096-82-5	50	1.0	SW-846 8082
PCB-1262 0.5	37324-23-5	N/A	1.0	SW-846 8082
PCB- 1268 0.5	11100-14-4	N/A	1.0	SW-846 8082
CHLORINATED HERBICIDES				
2,4-Dichlorophenoxy acetic acid (2,4-D)	94-75-7	10	4	SW-846 8151
2,4,5-T	93-76-5	2	1	SW-846 8151
2,4,5-TP (Silvex)	93-72-1	2	1	SW-846 8151
ORGANOPHOSPHORUS PESTICIDES				
Bolstar (Sulprofos)	35400432	N/A	0.5	SW-846 8141
Chloropyrifos methyl (Methyl Dursban, Reldan) 2921882	5598130	N/A	1.0	SW-846 8141
Diazinon	33-41-5	N/A	0.5	SW-846 8141
Disulfoton	298-04-4	2	0.5	SW-846 8141
Ethoprop (Mocap)	13194484	N/A	0.5	SW-846 8141
Fenthion (Baytex, Tiguvon)	55-38-9	N/A	0.5	SW-846 8141
Malathion (Cythion)	121-75-5	N/A	1.2	SW-846 8141
Methyl parathion	298-00-0	0.5	0.5	SW-846 8141
Phorate	298-02-2	2	0.5	SW-846 8141
Ronnel 0.3	299843	N/A	10	SW-846 8141
Sulfotepp	3689-24-5	10	0.5	SW-846 8141
Parathion (Ethyl parathion)	56-38-2	10	0.5	SW-846 8141
EPN (o-ethyl-o,p-nitrophenyl phenylphosphorothioate)	2104-64-5	N/A	0.5	SW-846 8141

* Typical Analytical Method. Any EPA or ASTM method may be used if necessary to achieve the minimum detection limit.
** If the Laboratory Quantitation Limit is higher than the Minimum Detection Limit or Reporting Limit, the Laboratory Quantitiation limit may be used instead.

DETECTION MONITORING AND GENERAL GROUNDWATER QUALITY PARAMETERS (TABLES VII-3 & VII-4)

ANALYTE	CAS Number	Minimum Detection Limit**	Units	Analysis Method *
PHYSICAL PROPERTIES				
pH	N/A	N/A	N/A	Field
Specific Conductance	N/A	1	umhos/cm	Field
Turbidity	N/A	1.0	NTU	Field
Total Dissolved Solids	n/a	21	mg/l	EPA 160.1
INORGANIC, NON-METALLICS				
Total alkalinity	71-52-3	5	mg/l	EPA 310.1
Chloride	16887-00-6	3	mg/l	EPA 325.2
Nitrogen, Nitrate-Nitrite		0.1	mg/l	EPA 353.2
Sulfate	14808-79-8	5.0	mg/l	EPA 375.4
ORGANICS				
Total Organic Carbon (TOC)	N/A	1.0	mg/l	EPA 415.1

ANALYTE	CAS Number	App. IX PQL (ug/L)	Minimum Detection Limit** (ug/L)	Analysis Method *
METALS				
Arsenic	7440-38-2	500	15	SW846 6010
Iron	7439-89-6	N/A	100	SW846 6010
Manganese	7439-96-5	N/A	50	SW846 6010
Sodium	7440-23-5	N/A	1,000	SW-846 6010
Zinc	7440-66-6	20	20	SW846 6010

ANALYTE	CAS Number	App. IX PQL (ug/L)	Reporting** Limit (ug/L)	Analysis Method *
VOLATILE ORGANICS				
Cyclohexanone (LDS Only)	108-94-1	N/A	20	SW-846 8260
4-Methyl-2-pentanone (LDS Only)	108-10-1	50	50	SW-846 8260
2-Butanone (MEK) (LDS only)	78-93-3	100	100	SW-846 8260
Toluene (LDS Only)	108-88-3	5	5	SW-846 8260
Xylenes, Total (LDS Only)	1330-20-7	5	5	SW-846 8260
SEMIVOLATILE COMPOUNDS (ACID/BASE/NEUTRAL EXTRACTABLES)				
4-Chloro-3-methylphenol (p-Chloro-m-cresol)	59-50-7	20	10	SW-846 8270
2-Chlorophenol	95-57-8	10	10	SW-846 8270
2,4-Dichlorophenol	120-83-2	10	10	SW-846 8270
2,6-Dichlorophenol (LDS ONLY)	87-65-0	10	10	SW-846 8270
2,4-Dimethylphenol	105-67-9	10	10	SW-846 8270
4,6-Dinitro-2-methylphenol (4,6-Dinitro-o-cresol) (2-methyl-4,6-dinitrophenol)	534-52-1	50	50	SW-846 8270
2,4-Dinitrophenol	51-28-5	50	50	SW-846 8270

ANALYTE	CAS Number	App. IX PQL (ug/L)	Reporting** Limit (ug/L)	Analysis Method *
4-Nitrophenol (p-Nitrophenol)	100-02-7	10	50	SW-846 8270
Pentachlorophenol	87-86-5	50	50	SW-846 8270
Phenol	108-95-2	10	10	SW-846 8270
2,4,6-Trichlorophenol	88-06-2	10	10	SW-846 8270
ORGANOCHLORINE PESTICIDES & PCBs				
Aldrin	309-00-2	0.05	0.05	SW-846 8081
Hexachlorocyclohexane alpha-BHC	319-84-6	0.05	0.05	SW-846 8081
Hexachlorocyclohexane beta-BHC	319-85-7	0.05	0.05	SW-846 8081
Hexachlorocyclohexane delta-BHC	319-86-8	0.1	0.05	SW-846 8081
Hexachlorocyclohexane gamma-BHC (Lindane)	58-89-9	0.05	0.05	SW-846 8081
Chlordane	57-74-9	0.1	0.50	SW-846 8081
4,4'-DDD	72-54-8	0.1	0.10	SW-846 8081
4,4'-DDE	72-55-9	0.1	0.10	SW-846 8081
4,4'-DDT	50-29-3	0.1	0.1	SW-846 8081
Dieldrin	60-57-1	0.05	0.1	SW-846 8081
Endosulfan I	959-98-8	0.1	0.05	SW-846 8081
Endosulfan II	33213-65-9	0.05	0.10	SW-846 8081
Endosulfan Sulfate	1031-07-8	0.5	0.10	SW-846 8081
Endrin	72-20-8	0.1	0.1	SW-846 8081
Endrin Aldehyde	7421-93-4	0.02	0.1	SW-846 8081
Heptachlor	76-44-8	0.05	0.05	SW-846 8081
Heptachlor epoxide	1024-57-3	1	0.05	SW-846 8081
Methoxychlor	72-43-5	2	0.50	SW-846 8081
Toxaphene	8001-35-2	2	5	SW-846 8081
CHLORINATED HERBICIDES				
2,4-Dichlorophenoxy acetic acid (2,4-D)	94-75-7	10	4	SW-846 8151
2,4,5-T	93-76-5	2	1.0	SW-846 8151
2,4,5-TP (Silvex)	93-72-1	2	1.0	SW-846 8151

* Typical Analytical Method. Any EPA or ASTM method may be used if necessary to achieve the minimum detection limit.
** If the Laboratory Quantitation Limit is higher than the Minimum Detection Limit or Reporting Limit, the Laboratory Quantitiation limit may be used instead.

REFERENCES:

1. Methods for Chemical Analysis of Water and Wastes, March 1983, USEPA, 600/4-79-020 and additions thereto.

2. Test Methods for Evaluating Solid Waste, Physical/Chemical Method, September 1986, Third Edition, Update II, USEPA, SW-846 and additions thereto.

3. Prescribed Procedure for Measurement of Radioactivity in Drinking Water, USEPA, EPA-600/4-80-032, August 1980.

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 3

Chain of Custody Minimum Requirements

CHAIN OF CUSTODY
MINIMUM REQUIREMENTS

The chain-of-custody record shall include but is not limited to the following:

- Sampler Signature
- Date Sampled
- Sample ID
- Type of sample, i.e. composite or grab
- Number of Containers
- A place for comments
- Blocks for the person relinquishing the sample to sign, print his/her name, and put the date and time the sample was relinquished.
- Blocks for the person receiving the sample to sign, print his/her name, and put the date and time the sample was received.

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 4

Quarterly Well Inspection Log

CLEAN HARBORS (DEER TRAIL), LLC.
MONITORING WELL FIELD LOG - SAMPLING

Event #_____ Year_____ Well Identification_____

SAMPLING:

Date_____Time_____ Collector/Operator_____

Sample Sequence_____

Water Level Depth, Ft._____

Method of Collection_____

Method of Filtration_____

Completed(date)_____(time)_____

Reason for Sampling_____

*Field Sample Analysis

Analysis	Instrumentation	Calibration Information		Sample Values
Specific Conductance @25°C (μmhos/cm)		std.	det.	
pH (S.U.)		std.	det.	
Temperature (°C)				
Turbidity (NTU)		std.	det.	

GENERAL INFORMATION

Weather Conditions at time of sampling: _____

_____

Sample Characteristics _____

_____

Sample Information (Container, volume, preservatives, test): _____

_____

Comments and Observations _____

_____

Temp. of shuttle when shipped:_____Temp. of shuttle when received at Lab_____

Certification: _____

Sample received by Lab: _____

Certification: _____

Sample received by Lab: _____

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 5

Monitoring Well Field Log - Evacuation
First Sampling Event

CLEAN HARBORS (DEER TRAIL), LLC.

MONITORING WELL FIELD LOG - EVACUATION AND RECOVERY CLASSIFICATION
(to be utilized during First Sampling Event)

Well Identification_____

Event #__1__ Year_____ Sample Collector/Operator_____

PRE-EVACUATION:

Organic Vapor Detected (Measured required only if detected during well inspection) ☐ Yes ☐ No ☐ Not Required

Method of Detection_____

Concentration, ppm_____as_____

Calibration, ppm Std._____ppm Det._____

Immiscible Layer Detected ☐ Yes ☐ No

Sample Collected ☐ Yes ☐ No ☐ N/A

Depth (Measured from Casing Reference Point)

to Top of layer(s), Ft._____(to 0.01)

to Bottom of layer, Ft._____(to 0.01)

Method of Sample Collection_____

Sample Reference #_____

EVACUATION:

Method of Evacuation_____

Before Evacuation:

a. Water Level Depth, Ft._____(to 0.01)

b. Well Depth, Ft._____(to 0.01)

c. Inside Well Casing Dia._____(inches)

Calculate Well Volume, Gal.: (Casing 6" Dia.) 1.33 x (b - a) = _____Gallons (A)

(Casing 4" Dia.) 0.65 x (b - a) = _____Gallons (A)

Initial Well Volume:

- Evacuate One Well Volume (to the extent practible)
  Volume evacuated_____gallons Time Completed_____(TI)
- Measure water Level within 12 to 24 hours of initial completed evacuation.
  _____Ft. (0.01) Time of measurement_____
- Calculate recovered well volume_____gallons (B)

Classify Well: (Check applicable box and follow the indicate directions.

☐ Rapid Recover Well: Recorded Well Volume (B) is 90% or more of original Well Volume (A)
If a Rapid Recovery Well, sample within 24 hours.

☐ Low Yield Well: Recorded Well Volume (B) is less than 90% of original Well Volume (A).
Remeasure the water level after 24 hours of initial well evacuation.
_____Ft. (0.01) Time of measurement_____
Remeasure the water level within 48 hours of initial well evacuation.
_____Ft. (0.01) Time of measurement_____

- Calculate recovered well volume_____gallons (B)

Check the applicable box:

☐ The recovered well volume (C) is at least 90% of the initial well volume (A). Sample the well within 48 hours of the initial well evacuation time (TI).

☐ The recovered well volume (C) is less than 90% of the initial well volume (A) do not sample and classify the well as non-recoverable.

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 6

Monitoring Well Field Log – Evacuation
Second Sampling Event

CLEAN HARBORS (DEER TRAIL), LLC.

MONITORING WELL FIELD LOG - EVACUATION AND RECOVERY CLASSIFICATION
(to be utilized during Second Sampling Event)

Well Identification_____

Event #_____ Year_____ Sample Collector/Operator_____

PRE-EVACUATION:

Organic Vapor Detected (Measured required only if detecting during well inspection) ☐ Yes ☐ No ☐ Not Required

Method of Detection_____

Concentration, ppm_____as_____

Calibration, ppm Std._____ppm Det._____

Immiscible Layer Detected ☐ Yes ☐ No

Sample Collected ☐ Yes ☐ No ☐ N/A

Depth (Measured from Casing Reference Point)

to Top of layer(s), Ft._____(to 0.01)

to Bottom of layer, Ft._____(to 0.01)

Method of Sample Collection_____

Sample Reference #_____

EVACUATION:

Method of Evacuation_____

Before Evacuation:

a. Water Level Depth, Ft._____(to 0.01)

b. Well Depth, Ft._____(to 0.01)

c. Inside Well Casing Dia._____(inches)

Calculate Well Volume, Gal.: (Casing 6" Dia.) 1.33 x (b - a) = _____Gallons (A)

(Casing 4" Dia.) 0.65 x (b - a) = _____Gallons (A)

For Rapid Yield Well: Evacuate completely (to the extent practical) three times prior to sampling.

Evacuation:

Volume evacuated_____gallons Time Completed_____

Sample within 24 hours.

For Low Yield Well: Evacuate completely (to the extent practical).

One time:

Volume evacuated_____gallons Time Completed_____(A)

Sample within 48 hours of time (A).

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 8

Random Sample Selection Methodology

RANDOM NUMBER GENERATOR

INSTRUCTIONS FOR THE USE OF TABLE OF RANDOM NUMBERS TO SELECT DUPLICATE SAMPLE LOCATIONS:

1. Number the "eligible" wells to be sampled consecutively, starting with number 1. An eligible well is defined as a well that produces sufficient volume of water to fill a full set of sample bottles.

2. Decide on how many field duplicate samples to take based on the Quality Control sampling frequency requirements discussed in the Groundwater Sampling and Analyses Plan.

3. Using the set of random numbers, choose any number as a starting point.

4. From this number, go down the column, then to the next column to the right, or go in any predetermined direction until you have selected the appropriate amount of numbers between 01 and the total number of eligible samples with no repetitions. Numbers larger than the total number of eligible samples are ineligible.

   Example: Assume that 20 eligible wells will be sampled and that duplicate samples will be collected from five wells. If you were to choose 19 as the starting point on column four, the next eligible numbers as you go down this column are 12 and 04. So far you have chosen only three eligible numbers. Proceed to the next column to the right. Going down and starting from the top of this column, the next eligible numbers are 12 and 13. But 12 is already chosen. Proceeding to sixth column, the next eligible numbers is 16. Your five random numbers, therefore, are 19, 12, 04, 13, and 16. Thus the wells with corresponding numbers must have duplicate samples taken from them.

RANDOM NUMBERS

03	47	43	73	86	36	96	47	36	61	46	98	63	71	62
97	74	24	67	62	42	81	14	57	20	42	53	32	37	32
16	76	62	27	66	56	50	26	71	07	32	90	79	78	53
12	56	85	99	26	96	96	68	27	31	05	03	72	93	15
55	59	56	35	64	38	54	82	46	22	31	62	43	09	90
16	22	77	94	39	49	54	43	54	82	17	37	93	23	78
84	42	17	53	31	57	24	55	06	88	77	04	74	47	67
63	01	63	78	59	16	95	55	67	19	98	10	50	71	75
33	21	12	34	29	78	64	56	07	82	52	42	07	44	38
57	60	86	32	44	09	47	27	96	54	49	17	46	09	62
18	18	07	92	46	44	17	16	58	09	79	83	86	19	62
26	62	38	97	75	84	16	07	44	99	83	11	46	32	24
23	42	40	64	74	82	97	77	77	81	07	45	42	14	08
52	36	28	19	95	50	92	26	11	97	00	56	76	31	38
37	85	94	35	12	83	39	50	08	30	42	34	07	96	88
70	29	17	12	13	40	33	20	38	26	13	89	51	03	74
56	62	18	37	35	96	83	50	87	75	97	12	25	93	47
99	49	57	22	77	88	42	95	45	72	16	64	36	16	00
16	08	15	04	72	33	27	14	34	09	45	59	34	68	49
31	16	93	32	43	50	27	89	87	19	20	15	37	00	49

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 9

Table of Monitoring Well Elevations

The following table shows mean sea level (MSL) elevations as surveyed at the well riser pipe (Top of PVC Casing) and to the Top of Surface (Steel Protective) Casing.

Water levels and well depths are measured from the PVC-Riser Pipe point of reference (Top of PVC Casing).

Level 3 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L3-1	Abandoned	XX	--	XX
L3-2	Dry	4892.7	25'	4893.4
L3-3	Dry	4884.3	10'	4886.2
L3-4	Abandoned	XX	--	XX
L3-5	Abandoned	XX	--	XX
L3-6	Dry	4891.3	27'	4892.0
L3-7	Dry	4894.0	35'	4894.6
L3-8	Dry	4894.3	30.5"	4895.0
L3-9	Dry	4892.5	27'	4893.1
L3-10	Dry	4892.2	24'	4893.0
L3-11	Dry	4892.1	24.5'	4892.8
L3-12	Dry	4890.4	23.5'	4891.2
L3-13	Dry	4889.1	23'	4889.7
L3-14	Abandoned	XX	--	XX
L3-15	Dry	4891.6	26.5'	4892.5
L3-16	Dry	4890.6	26'	4891.2
L3-17	Dry	4888.1	22'	4888.6
L3-18	Abandoned	XX	--	XX

Level 3 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L3-19	Dry	4868.1	33'	4868.8
L3-20	Abandoned	XX	--	XX
L3-21	Abandoned	XX	--	XX
L3-22	Dry	4889.8	28.5'	4890.6
L3-23	Abandoned	XX	--	XX
L3-24	Dry	4870.22	32'	4870.9
L3-25	Dry	4892.4	29'	4893.0
L3-26	Dry	4893.6	29'	4894.3
L3-27	Dry	4894.1	29.5'	4894.7
L3-28	Dry	4894.6	31.5'	4895.1
L3-29	Dry	4894.8	34.5'	4895.4
L3-30	Dry	4894.6	35'	4895.2
L3-31	Dry	4895.0	36.5'	4895.6
L3-32	Dry	4894.6	34'	4895.2
L3-33	Dry	4894.8	33.5'	4895.5
L3-34	Dry	4894.8	34'	4895.3
L3-35	Dry	4894.4	35'	4895.0
L3-36	Dry	4895.2	32'	4895.8
L3-37	Dry	4895.5	34.5'	4896.1
L3-38	Dry	4895.9	34.5'	4896.5

Level 3 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L3-39	Dry	4896.3	36'	4896.9
L3-40	Dry	4896.7	37'	4897.3
L3-41	Dry	4896.8	35'	4897.4
L3-42	Dry	4896.7	38.5'	4897.3
L3-43	Dry	4895.9	31.5'	4896.5
L3-44	Dry	4895.0	29'	4895.7
L3-45	Abandoned	XX		XX
L3-46	Dry	4888.6	32.50'	4889.2
L3-47	Dry	4893.2	24.70'	4893.8

Level 4 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L4-1	Dry	4870.6	51.5'	4871.2
L4-2	Dry	4875.2	50'	4875.8
L4-3	Dry	4881.4	48'	4882.2
L4-4	Dry	4889.7	55.5'	4890.4
L4-5	Dry	4888.9	58'	4889.7
L4-6	Dry	4870.8	55.5'	4871.4
L4-7	Dry	4870.5	45.5'	4871.5
L4-8	Dry	4873.0	48'	4873.7
L4-8N	Water	4875.10	46.5'	4873.75 Cement Pad
L4-9	Dry	4074.3	50'	4875.0
L4-9S	Water	4875.11	50'	4873.16
L4-9N	Water	4874.84	50'	4873.04
L4-9W	Water	4875.09	50'	4873.13
L4-10	Dry	4876.1	50'	4876.7
L4-11	Dry	4881.3	52.5'	4881.9
L4-12	Dry	4882.4	67.5'	4883.0
L4-13	Dry	4892.8	65'	4893.5

Level 4 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L4-14	Dry	4893.9	58.5'	4894.6
L4-15	Dry	4877.7	46.5'	4878.5
L4-16	Dry	4877.0	47'	4877.8
L4-17	Dry	4879.5	45'	4880.3
L4-18	Dry	4884.1	47.5'	4885.0
L4-19	Dry	4851.1	56'	4858.6
L4-20	Dry	4860.3	50.5'	4860.9
L4-21	Dry	4853.0	46.5'	4853.5
L4-22	Dry	4852.9	50'	4853.6
L4-23	Dry	4855.8	50'	4857.1
L4-24	Dry	4869.6	60.5'	4870.3
L4-25	Dry	4883.4	56.5'	4884.0
L4-26	Dry	4882.8	54.5'	4883.5
L4-27	Dry	4882.3	51.5'	4882.9
L4-28	Dry	4882.2	50'	4882.8
L4-29	Dry	4877.7	48.5'	4879.0
L4-30	Dry	4872.1	45.5'	4872.9
L4-31	Dry	4872.5	46'	4873.2

Level 4 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L4-32	Water	4874.8	46'	4875.5
L4-32A	Water	4875.5	21.5'	4876.1
L4-32E	Water	4876.4	46'	4877.1
L4-32EA	Water	4876.3	21'	4876.6
L4-32W	Water	4874.6	45'	4875.2
L4-32WA	Water	4874.4	20'	4875.3
L4-33	Water	4878.4	46.5'	4879.2
L4-33A	Water	4878.7	22'	4879.3
L4-33E	Water	4878.9	49'	4879.4
L4-33EA	Water	4879.1	21'	4879.5
L4-33W	Water	4876.95	47'	4877.5
L4-33WA	Water	4876.8	21'	4877.1
L4-34	Dry	4880.8	54'	4881.4
L4-34W	Dry	4880.9	48.5'	4881.5
L4-34E	Dry	4882.5	50.5'	4883.1
L4-35	Dry	4884.5	56'	4885.2
L4-36	Dry	4891.3	58'	4890.6
L4-37	Dry	4896.2	58.3'	4896.9

Level 4 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L4-38	Dry	4895.3	58'	4895.9
L4-39	Dry	4872.4	51.7'	4872.9
L4-40	Dry	4874.3	55.2'	4874.7
L4-41	Water	4875.38	40.0'	4874.07 Cement Pad
L4-42	Dry	4874.04	42.0'	4872.69 Cement Pad

Level 5 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
WW-1	Abandoned	XX	--	XX
WW-2	Abandoned	XX	--	XX
L5-3 (WW-3)	Water	4876.3	280'	4876.8
L5-4 (WW-4)	Water	4884.7	303'	4884.7
L5-5 (WW-5)	Water	4857.6	398'	4857.6
L5-6 (WW-6)	Water	4860.6	257'	4861.3
L5-7 (WW-7)	Water	4891.7	322'	4892.4
L5-8 (WW-8)	Water	4870.4	270'	4871.2
L5-9 (WW-9)	Water	4874.4	285'	4874.9
L5-10A (WW-10A)	Water	4895.2	385'	4896.1
WW-10	Abandoned	4895.2	--	4896.2

Level 6 Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
L6-1	Water	4849.8	23'	4850.4
L6-2	Water	4784.5	53'	4785.0
L6-3	Abandoned	4835.1	25'	4835.8
L6-3A	Water	4827.4	38.5'	4828.4

Brine Pond Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
BP-1	Water	4876.95	49'	4876.06
BP-2	Water	4872.56	44'	4871.18
BP-3	Abandoned	XX	--	XX
BP-4	Water	4879.86	49'	4879.56
BP-5	Water	4879.3	17'	4877.0 Ground Level
BP-6	Water	4880.0	18'	4877.5 Ground Level
BP-7	Water	4878.5	22'	4876.2 Ground Level
BP-8	Water	4878.5	18.5'	4876.2 Ground Level
BP-9	Abandoned	XX	--	XX
BP-10	Water	4877.55	51'	4878.1
BP-10A	Water	4877.4	21.5'	4877.9
BP-11	Water	4879.1	47.5'	4880.2
BP-11A	Water	4879.15	21'	4879.5
BP-12	Water	4880.4	48'	4880.7
BP-12A	Water	4880.3	21'	4880.7

Brine Pond Wells Well Number	Water/Dry or Abandoned	Top of PVC Casing Elevation (feet MSL)	Approximate Well Depth (feet below ground level)	Top of Surface Casing Elevation (feet MSL)
BP-13	Water	4876.35	51'	4877.0
BP-13A	Water	4876.7	21'	4877.3

GROUND WATER SAMPLING AND ANALYSIS PLAN

Appendix 9
DATA VALIDATION PROCEDURE

Introduction

The data validation procedures used to evaluate groundwater analytical data fulfill requirements of Section VII.C.2 of the Groundwater Protection Program for the Facility. The data validation procedures are used to evaluate the data for completeness, analytical and data transfer errors, data variability, and overall quality assurance/quality control (QA/QC), and are performed prior to statistical analyses.

Some data validation procedures are performed through automated means, while others are performed manually. The review process consisted of an evaluation of the field and laboratory QA/QC sample results. Control limits for the QA/QC calculations are based on Permit requirements, SW-846 method requirements, and published EPA guidelines applicable to the analysis of groundwater samples from Facility wells. Samples that fail to pass all of the data evaluation criteria may require resampling and/or re-analysis prior to inclusion in the Facility environmental database and subsequent data analyses.

The elements of the data validation procedure include:

- sample holding time evaluation,
- outlier evaluation,
- field duplicate (as applicable) evaluation,
- trip blank analysis (as applicable),
- equipment blank analysis (as applicable),
- field blank analysis (as applicable),
- method blank analysis,
- matrix spike analysis,
- surrogate spike analysis, and
- laboratory control sample analysis.

Sample Holding Time Evaluation

Sample holding time limits describe the time allowed between sample collection and sample analysis when the required sample preservation and storage procedures are followed (SW-846). The time interval from sample collection to sample analysis for each sample is evaluated to determine if the required holding time has been exceeded. Samples with missed holding times are identified for possible resampling and reanalysis.

Outlier Evaluation

The objective of this evaluation is to screen the analytical data for potentially erroneous values prior to incorporation into the background database. Data values identified as outliers are scrutinized for possible data entry errors, transcription and transmittal errors, etc. Where potential outlier data are not revised through this process, samples may be re-analyzed by the laboratory, preferably within the recommended holding times. Re-analyzed sample concentrations are compared to the original sample concentrations using the relative percent difference (RPD) method for duplicate analyses (see Section 4.3.1 for an explanation of this evaluation procedure). Re-analyzed samples that exceeded the RPD control limit of $\pm$20 percent for duplicate analyses are accepted as true values and the laboratory reports may be revised accordingly. The original concentration values are retained for cases in which the RPD control limit of $\pm$20 percent is not exceeded. The RPD method is also applied to sample concentrations that are re-analyzed as a result of field duplicate RPD exceedances.

Outlier tests are performed on an intra-well basis. The new data values for each well and constituent are compared to historical results. The distribution of the historical data is determined through tests of

normality. If the historical data is found to better fit a lognormal distribution, the data is transformed so the resulting data set fits a normal distribution. In this case, the new data value would also be transformed to perform the outlier tests.

The parametric outlier tests used for this evaluation attempted to accept or reject the hypothesis that the new data value came from the same population (a normal distribution) as the historical data. The new data value is first screened using a box and whisker plot approach. The upper (Qu) and lower (Ql) quartiles (75th and 25th percentiles, respectively) of the historical data set are calculated. The inner quartile range (IQR) is then calculated as the difference between Qu and Ql. The inner fences of the box plot are the values one and half times the IQR plus Qu and minus Ql. If the new data value lies above the upper inner fence or below the lower inner fence, the new data value may be in question and a more rigorous outlier test is required. If the new data value is the most extreme value (either greatest or least) relative to the historical data set, then the recommended approach is one that compared the new values distance away from the mean of the entire data set in standard deviation units to a critical value (ASTM E178-94). If the new data value fell within the range of the historical data set, one of two outlier tests are used. Dixon's test is used when the number of data points is less than 25, otherwise Rosner's test is used. Both test are documented as acceptable measures for detecting outlying observations in environmental data (Gilbert, 1994).

If the outlier test used rejected the assumption that the new data value came from the same distribution as the historical data, the new data value is deemed a potential outlier. Additional graphical analysis of the data may also be performed. Time series plots, "box and whisker" plots, probability plots, and histograms may be used to better assess the data distribution and to confirm the outlier test results.

Field Quality Assurance/Quality Control Data

Field QA/QC samples are required for collection during the semi-annual (second and fourth quarter) groundwater sampling events.

Field Duplicate (RPD) Analysis

Field duplicates include two separate samples collected from the same source, at approximately the same time, stored in separate sample containers, and analyzed independently (USEPA, 1990). Each duplicate sample is collected and handled in a manner identical to the original sample.

Field duplicate samples are useful in documenting the combined field and laboratory precision. The duplicate analytical data are evaluated by calculating the RPD between the pairs of data as follows:

$$RPD = \frac{|D1 - D2|}{(D1 + D2)/2} x100\ \%$$

where: D1 = original sample value; and
D2 = duplicate sample value.

Field duplicate results are recognized to have more variability than laboratory replicates, which only measures laboratory performance. An RPD control limit of $\pm$30 percent is used for comparison of field duplicate water sample values.

Trip Blank Analysis

A trip blank is defined as a sample of analyte-free media originating at the laboratory, shipped to the sampling site and returned to the laboratory unopened (USEPA, 1990). The objective of a trip blank sample is to document contamination associated with sample shipping procedures, field and laboratory handling procedures, or other contamination associated with deionized water from the laboratory. Trip blank samples are particularly useful in documenting volatile organic contamination from outside sources.

Equipment Blank Analysis

Equipment blanks are collected by passing deionized water through a new, unused disposable 0.45 µ in-line filter and associated disposable tubing if filtered samples are collected or over a piece of non-dedicated equipment used during the sampling process. The objective of an equipment blank is to document that the equipment (e.g., filter and tubing) does not contribute to the natural dissolved metal concentrations of the sample or that decontamination procedures were effective. Equipment blank results are not used to correct sample results.

Laboratory Quality Assurance/Quality Control Data

The laboratory QA/QC program included evaluation of method blanks, matrix spike samples, laboratory control samples, and surrogate spike samples. QA/QC sample results are evaluated using the guidelines specified in SW-846, published EPA guidance, and in the STL Quality Assurance Manual.

Method Blank Analysis

The method blank is analyte-free media to which all reagents are added in the same volumes and proportions as used in sample processing. The method blank must be carried through the complete sample preparation and analytical procedure (USEPA, 1990).

The objective of the method blank analyses is to determine the existence and magnitude of contamination problems associated with laboratory methodologies for inorganic and organic parameters. Method blanks are expected to report all analytes, except the common laboratory contaminants of methylene chloride, acetone, and toluene, at concentrations below respective quantitation limits. Consistently high method blank values (above respective quantitation limits) would result in the assessment of laboratory glassware and reagents for contamination, and potentially halting further analyses until the contaminant source is located and the problem corrected. Method blank analyses are performed by the laboratory for each sample batch analyzed.

Matrix Spike Analysis

A matrix spike (MS) is defined as an aliquot of sample spiked with a known concentration of a target analyte. A matrix duplicate (MD) is an intra-laboratory split sample. Matrix spike duplicates (MSD) are intra-laboratory split samples spiked with identical concentrations of target analytes. The spiking occurs prior to sample preparation and analysis. The purpose of the MS, MD, and MSD analyses is to assess the effect of the sample matrices on laboratory accuracy and precision for inorganic and organic parameters. Sample accuracy is assessed by calculating the percent recovery (%R) of a known amount of each analyte that is added or "spiked" to each sample. Spike recoveries are calculated as follows:

$$\% R = \frac{(SSR - SR)}{SA} x100 \%$$

where: SSR = spiked sample concentration;
SR = sample concentration prior to adding the spike; and
SA = spike added.

Degrees of accuracy for the laboratory instruments are determined according to SW-846 requirements and the STL QA manual.

The effects of sample matrices on laboratory precision are assessed by comparing the results of the MS with that of the MSD using the relative percent difference (RPD). The expression for calculating the RPD is as follows:

$$RPD = \frac{|MS - MSD|}{(MS + MSD)/2} x100\%$$

where: MS = matrix spike sample value; and
MSD = matrix spike duplicate value.

If the calculated RPD for any of the MS compounds is greater than 20 percent, the analyst will note the possibility of a matrix effect.

Organic MS recoveries are considered advisory, with no action taken if the recoveries are outside QC limits. Poor recovery in MS samples do not necessarily represent an error in the analytical system. It is possible that unavoidable interferences from the sample preclude efficient recoveries. Therefore, the organic MS/MSD data are used in conjunction with other QA/QC data to determine the overall usability of the data.

Laboratory Control Sample Evaluation

A laboratory control sample is a known matrix spiked with compounds representative of the target analytes. Laboratory control samples are used for assessing the accuracy of a method (including any preparation steps) in a control matrix for inorganic and organic parameters. They are applicable to any analytical method in which the analyte(s) of interest can be fortified into the control matrix. A laboratory control sample that meets recovery criteria provides evidence that the method, exclusive of sample matrix considerations, is in control.

The referenced analytical method may specify the percent recovery control limits for the fortified target analytes at a given spike level. When limits are not specified or do not apply to the matrix type (e.g. groundwater), internal control limits will be generated. If a statistically significant number of recovery values from historical data does not exist at the time of implementation of the laboratory control sample, the percent recovery windows would generally default to 80 percent to 120 percent for inorganic analyses, and 50 percent to 150 percent for organic analyses until such time as they can be generated. Laboratory control sample accuracy is assessed by calculating the percent recovery (%R) of a known amount of each analyte that is added or "spiked" to each sample. Spike recoveries are calculated as follows:

$$\% R = \frac{(SSR - SR)}{SA} x100 \%$$

where: SSR = spiked sample concentration;
SR = sample concentration prior to adding the spike; and
SA = spike added.

Corrective action is dependent upon the volume or weight remaining of samples extracted with the laboratory control sample.

Surrogate Spike Analysis

A surrogate is an organic compound which is similar to the target analyte in chemical composition and behavior in the analytical process, but which is not normally found in groundwater samples. Unlike the MS, which evaluates the effect of the sample matrix upon the analytical methodology, the objective of surrogate spikes is to evaluate the accuracy of the entire analytical process, including sample preparation for organic parameters. For organic analyses, each sample and blank is typically spiked with three surrogate compounds prior to preparatory procedures such as purging or extraction. These surrogate standards are chosen based on their properties similar to the sample analytes of interest, but are also most likely absent from the natural samples. This procedure is used to evaluate the ability of the analytical procedures to recover the true amount of a known compound. The accuracy of the sample preparation and analytical processes are evaluated by calculating the percent recovery (%R) of each standard added (spiked) to the samples as follows:

$$\%R = \frac{QD}{QS} x100\%$$

where: QD = quantity determined by analysis; and
QS = quantity added to sample.

The percent recovery for surrogate compounds should be within the laboratory control limits as determined for each surrogate compound. If all laboratory measures (i.e., instrument recalibration, sample repurge, and re-analysis, etc.) fail to correct a problem with sample surrogate analyses, the deficiency is probably due to sample interferences and not due to any procedural or mechanical problems in the laboratory. Therefore, the surrogate spike recovery data and the sample data from both extractions are usually reported.

Six of the 436 surrogate recoveries for field samples and laboratory QC samples are outside the acceptable recovery windows, resulting in a 98.6 percent success rate. Table 5 summarizes the surrogate recovery data, including the number of analyses performed (including laboratory QC samples) and the number of analyses outside the acceptable recovery window for each laboratory lot number.

Data Usability

Data validation has been defined by EPA as a systematic process, consisting of data editing, screening, checking, auditing, verification, certification, and review, for comparing data to established criteria in order to provide assurance that the data are adequate for their intended use (EPA, 1980). This data validation process determines compliance of the groundwater analytical data with the established method criteria and groundwater monitoring program. Once data are determined to be acceptable based upon field and laboratory QA/QC evaluation, the data can be included in the Facility's database and further statistical analyses.

The Truck Wash and Truck Wash Recycle System shall be operated and maintained according to the following procedures.

I. HOW THE SYSTEM WORKS

The Off-Site Vehicle Wash System is controlled by an electrical system designed for maximum efficiency utilizing components to protect the system from damage and to eliminate the waste of detergent and water.

Each operation of the system is individually controlled by a sonic control system using a sound beam to activate the systems.

Each operation is also monitored by a maximum and delay timer. Both types of timers are adjustable to fit the needs of each system. The maximum timer (0-12 minutes) cycle starts as soon as the system is activated. The delay timer (0-60 seconds) cycle starts as soon as the sound beam remakes behind the vehicle. The system will shut off as time expires on either the maximum or delay timer, whichever comes first.

In other words, if a vehicle enters the system, interrupting the sound beam, then stalls, the system will shut off as soon as time expires on the maximum timer. However, if the vehicle continues to move through the system and the sound beam remakes behind the vehicle, then the system will shut off at the expiration of time on either the maximum or delay timer, whichever comes first.

High and low level switches are used on the water tanks and in the sump pit. The purpose of these switches is to protect the tanks from overfilling and the pumps from running dry.

The water low level switch will stop the operation of the pump in the event the water tank is emptied. When the tank is refilled, the water high level switch will close, allowing the cycle to continue.

There are also reclamation/make-up high level switches on the tanks and in the sump pit. These switches replenish/transfer water in the tanks and sump pit (See Reclamation Operation).

A. Entrance Door Operation

The vehicle operator stops the vehicle in front of the entrance so that the vehicle interrupts the first sound beam. The door will automatically open. The traffic signal light will change from red to green when the door is completely open. The vehicle can now proceed forward into the washer.

B. Underwash Operation

The vehicle interrupts the second sound beam and the maximum timer, wash supply actuated valve, and wash pump motor starter are activated. Water is sprayed onto the undercarriage and sides of the vehicle. As the sound beam remakes behind the vehicle, a delay timer and entrance door close timer are activated. The wash operation is completed

at the expiration of the time set on either the maximum or delay timers, whichever comes first. The entrance door will close at the expiration of the time set on the door close timer.

C. **Final Rinse Operation**

The vehicle interrupts the third sound beam and the maximum timer and final rinse pump motor starter are activated. The undercarriage and sides of the vehicle are flooded with fresh water as it passes through the final rinse tower. The exit door will automatically open. The traffic signal light will change from red to green when the door is completely open. The vehicle can now proceed forward out of the washer. As the sound beam remakes behind the vehicle, a delay timer is actuated. The final rinse operation is completed at the expiration of the time set on either the maximum or delay timers, whichever comes first.

D. **Exit Door Operation**

The exit door is opened when the third sound beam is interrupted. The vehicle interrupts the fourth sound beam as it exits the washer. As the sound beam remakes behind the vehicle, an exit door close delay timer is activated. The door will close at the expiration of the time set on the timer.

II. RECLAMATION OPERATION

The reclamation system has two water supply modes, Reclaimed and Fresh. In each mode the water will be pumped from the in-floor sump (maximum capacity 7,000 gallons) through the cyclone separator and into Tank No. 1. (Reference Permit Attachment 1, Truck Wash Facility Engineering Drawings of Vehicle Wash Equipment).

A. **Reclaimed Water Mode**

In the Reclaimed Mode the valve between Tank No. 1 (approximately 1,700 gallons capacity) and Tank No. 2 (approximately 1,700 gallons capacity) is opened. The fresh water make-up solenoid valve on Tank No. 2 is disabled and shall remain closed in this mode. When the washer is in operation, the level in the two tanks will drop together. The reclamation high level switch in Tank No. 1 will signal the reclamation pump to start. Water is pumped from the sump through the cyclone separator where suspended solids drop out. The reclaimed water then flows into Tank No. 1, filling both Tanks No. 1 and No. 2. When the tanks are full, the reclamation high level switch activates the reclamation timer. This allows the system to cycle for one hour after the last wash. Water will overflow the tanks and back into the sump pit, where the reclamation pump picks it up and pumps it through the cyclone separator for further filtration. Should the water level in the sump pit rise, the sump pit high alarm switch will start the transfer pump. The transfer pump empties Tanks No. 1 and No. 2. When the level drops in Tank No. 1, the reclamation high level switch will start the reclamation pump.

B. **Fresh Water Mode**

In the Fresh Water Mode, the valve between Tank No. 1 and Tank No. 2 is closed. When the washer is in operation, the level in Tank No. 2 will drop. The make-up high level switch in Tank No. 2 will open the make-up solenoid valve, filling Tank No. 2. The make-up solenoid valve will remain open until Tank No. 2 is full. The make-up high level switch will then close the make-up solenoid valve. When the sump pit becomes full, the pit high alarm switch will signal the transfer pump to start. The transfer pump empties Tank No. 1. The reclamation high level switch in Tank No. 1 will signal the reclamation pump to start. Water is pumped from the sump through the cyclone separator where suspended solids drop out. The reclaimed water then flows into Tank No. 1. When the level in the sump pit drops to an acceptable level, the sump pit reclamation high level switch signals the transfer pump to stop. Tank No. 1 is filled. The reclamation high level switch activates the reclamation timer. This allows the system to cycle for one hour after the last wash. Water will overflow Tank No. 1 and back into the sump pit.

III. CONTROLS

The selector switches are located on the door of the washer motor control panel. There are four three-position switches that select either HAND, OFF, or AUTO modes for the underwasher, final rinse, transfer pump, and reclamation.

All of the above switches should be in the AUTO position for normal operation. The OFF and HAND positions are for maintenance and troubleshooting purposes.

There are two (2) two-position switches. One selects either Reclaim or Fresh Water Supply Modes of the reclamation system. The other selects either Winter (ON) or Summer (OFF) modes of the door control system.

There is also a panel mounted printer to log run times and alarm conditions. The printer output should be checked and/or removed from the computer enclosure every 24 hours.

IV. SAFETY PROCEDURES AND PREVENTATIVE MAINTENANCE

Safety procedures shall follow facility health and safety procedures. Preventative maintenance shall be performed as required by the system manufacturer and at a frequency that ensures proper operation and function of the system.

V. WASTE MANAGEMENT

Transfer of waste water and sediment from the off-site vehicle wash system shall be in accordance with the Waste Analysis Plan, Permit Attachment 2.

INTRODUCTION/APPROVAL

The NORM/TENORM protection program at the Clean Harbors Deer Trail, LLC RCRA Subtitle C landfill is designed to protect employees, as well as the public and the environment from the harmful effects of exposure to ionizing radiation from Naturally Occurring Radioactive Material (NORM) and Technologically Enhanced Radioactive Material (TENORM) disposed in accordance with its permit limits. Clean Harbors is committed to meeting all applicable regulatory requirements imposed by the State of Colorado and the U.S. government and to keeping doses from NORM/TENORM material As Low As Reasonably Achievable (ALARA) - social, technological and economic factors taken into account.

As part of Clean Harbor's NORM/TENORM Protection Program, the Company provides:

- Personal instruction in radiation safety, as given by safety staff and field supervisors,
- Relevant manuals, installation and test instructions, and Standard Operating Procedures (SOPs) for equipment and activities at the Deer Trail landfill,
- Radiation safety seminars,
- A personal monitoring system, as required (thermoluminescent [TLD] dosimeters),
- Gate monitors, radiation monitors, air sampling, and portable radiation survey meters when required, and
- This NORM/TENORM Protection Plan

This Plan has been approved by the Clean Harbors Deer Trail, LLC corporate staff and Deer Trail Landfill General Manager

Corporate Officer (Title/Name)	Signature	Date

General Manager (Name)	Signature	Date

TABLE OF CONTENTS

Introduction/Approval i
1.0 Purpose and Scope 1
2.0 Organization and Responsibilities 1
3.0 Control and Limitation of Radiation Exposures 3
4.0 Radiation Dosimetry 4
5.0 Radiation Surveys and Instrumentation 6
6.0 Training 7
7.0 Incidents and Emergencies 8
8.0 Record Keeping 8
9.0 Glossary of Terms 9

REFERENCED STANDARD OPERATING PROCEDURES

Standard Operating Procedure on Individual Dosimetry
Standard Operating Procedure on Air Sampling
Standard Operating Procedure on Estimating Inhalation Doses
Standard Operating Procedure on Radiation Surveys
Standard Operating Procedure on Use of the Gate Monitoring System
Standard Operating Procedure on Radiation Safety Training
Standard Operating Procedure on Radiation Record

Standard Operating Procedures (SOPs) referenced in this plan require approval by the Colorado Department of Public Health and Environment (CDPHE) prior to use or change.

1.0 PURPOSE AND SCOPE

The purpose of this NORM/TENORM protection plan is to establish all necessary precautions, procedures, and plans to be observed when working directly with NORM/TENORM materials during disposal operations. This plan and supporting policies and standard operating procedures should be read and all procedures set forth strictly adhered to by each and every designated employee who works with and around ionizing radiation from NORM/TENORM material. It is the responsibility of the Deer Trail General Manager to ensure that all employees have read, understand and will comply with the procedures and conditions defined in this NORM/TENORM Protection Plan. No Deer Trail employee shall be allowed to work unsupervised with NORM/TENORM material until they complete appropriate radiation safety training (Section 6). The General Manager or his designees will maintain a file containing signature sheets acknowledging that the appropriate radiation safety training has been given to any and all new employees within 10 days of employment. No other types or forms of radioactive material shall be accepted for disposal beyond NORM/TENORM materials, and other radioactive materials that have been exempted, excluded, or cleared for unrestricted use by the public by federal or state agencies.

For exposure to NORM/TENORM waste, Deer Trail workers will be considered as members of the public and radiation exposures will be limited to 100 mrem/y, plus ALARA, with a goal of 25 mrem/y or less. If it is determined from worker dosimetry results that selected worker doses could exceed 25 mrem/y, an assessment will be conducted of the potential for other man-made exposures for these workers to assure that maximum individual doses from man-made sources will not exceed 100 mrem/y. This assessment will consider real individuals working at Deer Trail, not hypothetical members of the public.

As stated in the Deer Trail RCRA permit, the waste acceptance criteria are set at 400 pCi/g of ^{226}Ra, measured on a per shipment basis. If applied as a peak value for purposes of setting the gate monitor alarms, it is recognized that the average concentrations received will be less (likely about 10% of the peak concentration), and therefore the average doses to workers will be also be less (likely about 10 mrem/y), consistent with ALARA. This limit is equated to a gate monitor alarm set point of 100 μR/h above background. Given that background is about 16 μR/h, the alarm set point is 116 μR/h. This alarm set point is about seven times the background level. Finally, the total activity of NORM/TENORM waste, including the alpha and beta emitting radionuclides in the uranium and thorium decay chains, will be enforced to the limit of 0.002 μCi/g (2,000 pCi/g) used to define radioactive waste in Colorado, as long as the radium concentration limit of 400 pCi/g per shipment is also maintained.

2.0 ORGANIZATION AND RESPONSIBILITIES

The responsibilities for maintaining radiation safety at the Deer Trail landfill are assigned to: 1) The General Manager and his designees, and 2) Deer Trail employees. The duties and responsibilities of these individuals are described below.

General Manager

The General Manager is charged by Clean Harbors Deer Trail, LLC to direct the Facility NORM/TENORM protection program. The General Manager will designate staff to assist in administering the program. Specifically, the General Manager and his designees shall:

1. Direct the operations of the staff;
2. Be empowered to impose conditions of work, restrictions on work, and termination of work involving NORM/TENORM as necessary to protect Company personnel, the public, or the environment or to ensure regulatory compliance;
3. Review the NORM/TENORM protection program at least annually;
4. Serve as the Company's point of contact with state and federal regulatory agencies on all matters related to radiation safety;
5. Maintain a personnel dosimetry program, including evaluation of the need for issuance of dosimetry, maintain a contract for commercial dosimetry services, maintain dose records, and provide reports to individuals consistent with Colorado Regulations 6 CCR 1007-1, § 4.56 (Reports of Individual Monitoring);
6. Maintain radiation protection records including approved procedures, amendments, revisions and renewals consistent with Colorado Regulations 6 CCR 1007-1, § 4.40, 4.41, 4.42, 4.44, 4.47, and 4.50;
7. Provide radiation safety training for Company personnel;
8 Provide information and consultation on matters related to radiation safety.

Deer Trail Employees

Each Clean Harbors Deer Trail, LLC employee who works with NORM/TENORM material as outlined in this plan must take responsibility for his or her own protection and for reporting any condition, which, in the individual's opinion, constitutes unsafe or improper working conditions. Each individual is responsible for:

1. Maintaining their own exposures to radiation from NORM/TENORM materials ALARA;
2. Following procedures and accepted safe work practices so as not to endanger himself or herself, the public, or the environment;
3. Reporting any unsafe working conditions, violations of the rules prescribed in this document, or violations of the applicable regulations of the state to their supervisor and/or to the Deer Trail General Manager and;
4. Employees who may serve as visitor escorts must point out any hazardous area that a visitor may be entering and must ensure that all Company radiation safety rules and precautions are observed.

3.0 CONTROL AND LIMITATION OF RADIATION EXPOSURES

State and federal regulations establish a system of radiation dose **justification, limitation** and **optimization**. Individual doses are **limited** to ensure that deterministic effects (such as radiation burns, or skin *erythema*) are avoided and that total lifetime risks of stochastic effects (such as cancer and hereditary effects) do not exceed overall health risks for those persons working in

safe industries. However, regulations also require that licensees further **optimize** radiation doses to individuals and to groups of individuals to the extent practical, social, economic and technological factors taken into account. This concept or philosophy is given the special name ALARA, which is an acronym for As Low As is Reasonably Achievable.

Radiation Dose Limits For exposure to TENORM waste, Deer Trail workers will be considered as members of the public and radiation exposures will be limited to 100 mrem/y, plus ALARA, with a goal of 25 mrem/y or less. If it is determined from worker dosimetry results that selected worker doses could exceed 25 mrem/y, an assessment will be conducted of the potential for other man-made exposures for those workers to assure that maximum individual doses from man-made sources will not exceed 100 mrem/y. This assessment will consider real workers at Deer Trail, not hypothetical members of the public.

Routes of Exposure Exposures from NORM/TENORM materials may be received from radiation fields that are external to the body (external exposure) or from radioactive materials that are inside the body (internal exposure following inhalation) or both. Inhalation of dust particles is one of the primary routes of internal exposure.

Means of Exposure Control Common external exposure controls include the use of time, distance, and shielding to minimize radiation doses. These concepts are thoroughly presented in Deer Trail radiation safety training courses but should also be continually reinforced by field personnel through daily or weekly radiation safety briefings. Common control measures to reduce inhalation exposures include the use of protective equipment and engineering controls. Protective equipment includes the use of full-face masks that filter airborne particulate materials. These masks are required under the Deer Trail Health and Safety Plan for in-cell disposal operations, waste sampling operations, and all operations in the treatment building. These masks are required protective equipment for the non-NORM/TENORM wastes handled at the facility, but this equipment is also effective at removal of NORM/TENORM particulate matter. Disposable coveralls, gloves, and boot covers provide protection against skin contamination. Required Protective equipment used in these operations is detailed in the Deer Trail Facility Health and Safety Plan. Engineering controls utilized to control exposure include dust control measures in the landfill cell, and the air filtration system in the treatment building.

Minors Minor visitors to the facility must be escorted within the site and will not be allowed in restricted areas. Minors are not employed at the Clean Harbors Deer Trail Facility.

4.0 RADIATION DOSIMETRY

The purpose of the radiation dosimetry program is to measure radiation dose equivalent received by Deer Trail employees during the handling and disposal of NORM/TENORM materials. The results serve to verify and document compliance with the applicable dose limits (see Section 3) and to identify problems and monitor the effectiveness of radiation safety controls.

Radiation doses may be received in two ways: 1) from radioactive materials that are external to the body (external dose) or 2) from radioactive materials that are inside of the body (internal dose). These doses shall be monitored when required by regulation as described below:

External Radiation Dosimetry

1. Radiation dosimeters shall be issued by the Deer Trail General Manager or designee and worn by individual workers who routinely come into contact or are in the proximity of NORM/TENORM material being disposed, consistent with the Deer Trail **Standard Operating Procedure on Individual Dosimetry**.
2. Any Deer Trail employee shall immediately notify the Deer Trail General Manager of changes in radiation fields from NORM/TENORM material that could significantly increase or decrease radiation doses to personnel or which could otherwise affect the need for external dosimetry.
3. Personal radiation dosimeters shall not be issued for greater than 3 months.
4. Radiation dosimeters shall not be deceptively exposed.
   a. Dosimeters are issued to only one person. Dosimeters shall not be shared.
   b. Dosimeters in storage and not being worn shall not be stored near sources of radiation.
   c. Dosimeters should not be exposed to high heat, chemical or physical insults, or washed in a washing machine.
   d. No person shall wear dosimeters issued by the Deer Trail General Manager while working for another employer or institution. Employees shall notify the Deer Trail General Manager if they are concurrently working for another (non-Deer Trail) employer and working with man-made sources of ionizing radiation.
   e. Dosimeters shall not be worn during medical or dental x-ray examinations.
   f. Dosimeters shall not be worn after medical administration of radioactive materials (thyroid ablation therapy, cardiac stress tests, diagnostic nuclear medicine tests, etc.) until approved by the Deer Trail General Manager.
   g. Employees shall notify the Deer Trail General Manager immediately upon learning of possible deceptive exposures of dosimeters.
   h. Intentional deceptive exposures of dosimeters are forbidden and may result in reprimands or termination of employment.
5. Lost or damaged dosimeters shall be reported to the Deer Trail General Manager as soon as possible.
6. Persons who have lost or damaged their dosimeters shall be required to provide documentation of work activities and radioactive material uses as necessary for the Deer Trail General Manager to assess doses.
7. Individual dosimeters shall be worn at the location on the body likely to receive the highest dose, consistent with manufacturer specifications.
8. Employees shall return used dosimeters to the Deer Trail General Manager promptly after receiving replacement dosimeters at the beginning of a new wear period.
9. Any person who handles or disposes of NORM/TENORM material on behalf of Deer Trail may request a copy of their dosimetry records at any time. These records are maintained by and are available from the Deer Trail General Manager upon written request. All contact with the radiation badge service company is to be made through the Deer Trail General Manager or his designee.
10. After termination of employment, a dose report (termination report) shall be provided to all persons who received doses exceeding 10% of the public radiation dose limit in the applicable reporting period.

Internal Radiation Dose Assessment

Consistent with the Colorado Regulations 6 CCR 1007-1, § 4.9 (Determination of Internal Exposure), for purposes of assessing internal radiation doses from the inhalation of airborne NORM/TENORM material, suitable and timely measurements of the concentrations of airborne materials in workplace air will be made and recorded. Airborne concentrations will be estimated consistent with the **Standard Operating Procedure on Air Sampling**. These airborne concentrations, in combination with estimates of the duration of exposure and the impact of respiratory controls (as appropriate), with assumptions about the physical and chemical nature of the airborne NORM/TENORM material, will be used to assess internal dose to workers from inhalation, in accordance with the **Standard Operating Procedure on Estimating Inhalation Doses**.

Records

All records of exposure, internal and external, are legal and personal and must be controlled to preclude release of personnel information to non-authorized personnel. All radiation protection records including individual worker records, approved procedures, amendments, revisions and renewals will be maintained consistent with the Colorado Regulations 6 CCR 1007-1, § 4.40, 4.41, 4.42, 4.44, 4.47, and 4.50.

5.0 RADIATION SURVEYS AND INSTRUMENTATION

Radiation surveys are used to identify and quantify radiological hazards and to document regulatory compliance. The General Manager and all field personnel must work together to ensure safety in the workplace and to protect both the public and the environment from the harmful effects of radiation.

Types of Surveys

1. Radiation surveys - may be performed to measure exposure or dose rates from NORM/TENORM material received for disposal and to record ambient background levels of radiation. Surveys shall be conducted as necessary to prevent exposures from exceeding limits outlined in Section 3, consistent with the Deer Trail **Standard Operating Procedure on Radiation Surveys**.
2. Exposure and dose rate calculations may be substituted for actual radiation surveys if based on reliable scientific, peer-reviewed assumptions/historical data.
3. Surveys of each waste shipment will be conducted and recorded using monitors positioned at the gate of the facility prior to the weight station, consistent with the Deer Trail **Standard Operating Procedure on Use of the Gate Monitor System**. The gate monitors consist of two Ludlum Model 3502 Gate Monitors; one positioned about 0.76 m (2.5 feet) from each side of the truck. Each monitor consists of a 5 x 5 cm (2 x 2 inch) sodium iodide crystal scintillation detector, with readout provided in the waste receipt/weight station. This limit is equated to a gate monitor alarm set point of 100 μR/h above background based on the waste acceptance criteria for ^{226}Ra of 400 pCi/g. Given that background is about 16 μR/h, the alarm set point is 116 μR/h. This alarm set point is about seven times the background level, will still permit the detection of lost radiation sources in a

waste shipment. Alternatively, hand held survey equipment will be utilized for this purpose.

4. Surveys will be conducted on all vehicles leaving contaminated areas such as the landfill cells or the treatment building in order ensure that no NORM/TENORM waste leaves the facility. Release criteria for vehicles will depend upon whether the vehicle is in exclusive or non-exclusive use for the transport of NORM/TENORM waste.

Requirements on Maintaining Radiation Detection Instrumentation

1. The Deer Trail General Manager or his designees must possess radiation detection equipment that is appropriate for detecting the types of radiations emitted by the NORM/TENORM material received for disposal.
2. Portable radiation detectors and the gate monitor shall be calibrated or response checked, as appropriate for the use of the instrument, at least annually or after repair of the instrument, to the manufacturer's specifications. Battery replacement is not cause for performing a calibration. The Deer Trail General Manager or his designee will perform such routine calibrations and response checks at the request of any Deer Trail employee.

6.0 TRAINING

All Deer Trail employees who work with or near NORM/TENORM material are required to complete radiation safety training, as described in the **Standard Operating Procedure on Radiation Safety Training**. The depth of the training must be commensurate with the level of hazard to which the individual is exposed. **All training must be documented.** No individual shall be allowed to work unsupervised until that person completes appropriate NORM/TENORM radiation safety training.

Basic Radiation Safety Training

1. All individuals who work with NORM/TENORM wastes are required to satisfactorily complete appropriate radiation safety training course offered by or at the direction of the Deer Trail General Manager and/or demonstrate competence on that subject matter by scoring at least 70% on a test administered or directed by the Deer Trail General Manager.
2. This training shall address, as applicable for NORM/TENORM material:
   a. Special operating schedules and techniques that will minimize exposures when receiving and disposing NORM/TENORM material,
   b. Availability of protective equipment and clothing,
   c. Biological Effects of ionizing radiation,
   d. Concepts and philosophy of ALARA,
   e. Methods to maintain doses ALARA, and
   f. Types and uses of radiation detection equipment.
3. Deer Trail General Manager-provided refresher training shall be conducted at least once each year for all individuals who work with NORM/TENORM materials.
4. All training shall be documented and maintained on file by the Deer Trail General Manager or his designee. Training documentation shall include

a. Content of the training (outline, course description, etc.),
b. Instructor name,
c. Date and duration of training,
d. Printed name of trainee(s), and
e. Signature or initials of trainee(s).

5. Copies of individual employee training records are available from the Deer Trail General Manager.
6. Visitors who work with NORM/TENORM wastes will be required to complete training similar to that of employees. Visitors who will not be working with NORM/TENORM materials but who will enter restricted areas will be required to undergo basic training commensurate with the level of exposure they will undergo.

Hazard Communication Program

1. The Clean Harbors Deer Trail Facility has a hazard communication program as part of the Facility Health and Safety Plan. The hazard communication program utilizes waste profiles, MSDS's, labels and formal training to inform employees of any hazards of the waste materials with which they will be working. The hazard communication program will be utilized to convey information on the specific hazards of NORM/TENORM waste handled at the facility.

7.0 INCIDENTS AND EMERGENCIES

General procedures for dealing with emergency situations such as spills or accidents are detailed in the Deer Trail RCRA Permit Attachment 4, "Contingency Plan". The Contingency Plan contains procedures for spill cleanup, notification of authorities, and other responses. It also provides a description of the equipment and staff available to deal with such situations. In the event of a radiological incident, such as a spill of NORM/TENORM material, or other emergency potentially involving NORM/TENORM material, the Deer Trail General Manager must be notified immediately. In instances where there is doubt about whether such notification is necessary, contact should be made to allow the Deer Trail General Manager to assess the situation and initiate the appropriate response. If appropriate, the measures described in the Contingency Plan will be implemented.

What Constitutes an Incident or Emergency?

1. Loss, theft, or misuse of any NORM/TENORM material.
2. High or potentially high radiation exposure to an individual or to a member of the public; for example greater than 10 mrem to any offsite member of the public.
3. Intake or potential intake of radioactive materials by inhalation, ingestion, or injection through skin or wound.
4. Deceptive or potentially deceptive exposure of a dosimeter.
5. Personnel contamination that cannot be completely removed after two washes with only soap and water.
6. Any personnel injuries that may involve radioactive contamination or radiation exposure.

8.0 RECORD KEEPING

Record keeping requirements vary and are maintained along with actual records by the Deer Trail General Manager consistent with Colorado Regulations 6 CCR 1007-1, § 4.40, 4.41, 4.42, 4.44, 4.47, and 4.50. Records keeping requirements are provided in the **Standard Operating Procedure on Radiation Records.**

General Record-Keeping Requirements

1. The Deer Trail General Manager shall maintain the following records in a clear, concise and orderly format. Retention periods are included in parentheses.
   a. Radiation surveys, as required (3 years)
      i. Radiation field surveys in areas in proximity to NORM/TENORM material for disposal, and
      ii. Ambient radiation field surveys in unaffected areas.
   b. Survey instrument calibrations, as required by the manufacturer (3 years)
   c. Personnel records (1 year)
      i. Worker/user lists, and
      ii. Training records
   d. Operating and emergency procedures (current)
   e. Procedure manuals from Deer Trail General Manager (current)
2. In addition to maintaining duplicates of all records in step 1, the Deer Trail General Manager shall maintain the following records, which are available for review during normal office hours.
   a. Copies of current state regulations relating to NORM/TENORM material,
   b. Inspection reports and copies of all "Notices of Violation" issued by state regulatory agencies and the Deer Trail responses to those Notices,
   c. Current version of all policy manuals and standard operating procedure manuals,
   d. Dosimetry records, and
   e. Survey instrument calibrations records.

Information Required on Specific Records

1. Radiation surveys
   a. Records shall be in units of dpm, Ci, μCi, mR/h, mrem/h, etc., as appropriate. Units of "cpm" or "counts" are not acceptable for quantitative surveys records,
   b. Records shall uniquely identify the source of the radiation,
   c. Records shall clearly indicate the areas surveyed,
   d. Records shall indicate the person performing the survey and date of survey, and
   e. Records shall uniquely identify the survey instrument used, i.e., serial number, or other unique description.
2. Training records are specified in Section 6.

9.0 GLOSSARY OF TERMS

"Absorbed dose" means the energy imparted by ionizing radiation per unit mass of irradiated material. The unit of absorbed dose is the rad.

"Activity" means the rate of disintegration or transformation or decay of radioactive material. The units of activity are "disintegrations per second (or minute)" (dps or dpm) and curie (Ci). 1 Ci = 37,000,000,000 dps (3.7×10^{10} dps)
1 Ci = 2,220,000,000,000 dpm (2.22×10^{12} dpm)

"Airborne radioactive material" means any radioactive material dispersed in the air in the form of dusts, fumes, particles, mists, vapors, or gases.

"As low as is reasonably achievable (ALARA)" means making every reasonable effort to maintain exposures to radiation as far below regulatory dose limits as is practical, consistent with the purpose for which the licensed or registered activity is undertaken, taking into account the state of technology, the economics of improvements in relation to benefits to public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of ionizing radiation and licensed sources of radiation in the public interest.

"Background radiation" means radiation from cosmic sources; non-technologically enhanced naturally occurring radioactive material, including radon, except as a decay product of source or special nuclear material, and including global fallout as it exists in the environment from the testing of nuclear explosive devices. "Background radiation" does not include sources of radiation from radioactive materials regulated by the State of Colorado.

"Committed dose equivalent ($H_{T,50}$ or CDE)" means the dose equivalent to organs or tissues of reference (T) that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

"Committed effective dose equivalent ($H_{E,50}$ or CEDE)" means the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to each of these organs or tissues ($H_{E,50} = \Sigma W_T, H_{T,50}$).

"Curie (Ci)" means a unit of measurement of activity. One curie (Ci) is that quantity of radioactive material that decays at the rate of 3.7×10^{10} disintegrations per second (dps). Commonly used sub-multiples of the curie are the millicurie and the microcurie. One millicurie (mCi) = 1×10^{-3} curie = 3.7×10^{7} dps. One microcurie (μCi.) = 1×10^{-6} curie = 3.7×10^{4} dps. One nanocurie (nCi) = 1×10^{-9} curie = 3.7×10^{1} dps. One picocurie (pCi) = 1×10^{-12} curie = 3.7×10^{-2} dps.

"Dose" is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, total organ dose equivalent, or total effective dose equivalent.

"Dose equivalent (H_T)" means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are rem or mrem.

"Dosimeter" means devices designed to be worn by a single individual for the assessment of dose equivalent. Examples of individual monitoring devices are film badges, thermoluminescent dosimeters (TLDs), and pocket ionization chambers.

"Effective dose equivalent (H_E)" means the sum of the products of the dose equivalent to each organ or tissue (H_T) and the weighting factor (W_T) applicable to each of the body organs or tissues that are irradiated ($H_E = \Sigma W_T H_T$).

"Exposure rate" means the exposure per unit of time, typically milliroentgen per hour (mR/h) or microroentgen per hour (μR/h).

"External dose" means that portion of the dose equivalent received from any source of radiation outside the body.

"General Manager" is an individual, designated by the Company, who has knowledge of, and the authority and responsibility to apply appropriate NORM/TENORM radiation protection rules standards, and practices, and who must be specifically trained in such standards.

"Internal dose" means that portion of the dose equivalent received from radioactive material taken into the body.

"Ionizing radiation" means any electromagnetic or particulate radiation capable of producing ions, directly or indirectly, in its passage through matter. Ionizing radiation includes gamma rays and x rays, alpha and beta particles, high-speed electrons, neutrons, and other nuclear particles.

"Lost or missing source of radiation" means a source of radiation whose location is unknown. This definition includes licensed material that has been shipped but has not reached its planned destination and whose location cannot be readily traced in the transportation system, and sources that may be detected and recovered by the Deer Trail gate monitors.

"Natural radioactivity" means radioactivity of naturally occurring nuclides whose location and chemical and physical form have not been altered by man.

"Quality factor (Q)" means the modifying factor that is used to derive dose equivalent from absorbed dose.

Radiation	Quality Factor
beta	1
gamma	1
x-ray	1
alpha	20
neutron	varies from 3 - 10

"Rad" means the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs per gram.

"Radiation" means one or more of the following:

(1) gamma and x rays; alpha and beta particles and other atomic or nuclear particles or rays; or
(2) stimulated emission of radiation from any electronic device to such energy density levels as to reasonably cause bodily harm.

"Rem" means the special unit of any the quantities expressed as dose equivalent. The dose equivalent in rem is equal to the absorbed dose in rad multiplied by the quality factor.

"Roentgen (R)" means the special unit of exposure. One roentgen (R) equals 2.58×10^{-4} coulombs/kilogram of air.

"Sealed source" means radioactive material that is permanently bonded or fixed in a capsule or matrix designed to prevent release and dispersal of the radioactive material under the most severe conditions that are likely to be encountered in normal use and handling.

"Survey" means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, and/or presence of sources of radiation. When appropriate, such evaluation includes, but is not limited to, tests, physical examination of location of materials and equipment, and measurements of levels of radiation or concentration of radioactive material present.

"Technologically Enhanced Naturally Occurring Radioactive Material (or TENORM)" means naturally occurring radioactive whose radionuclide concentrations are increased by or as a result of past or present human practices. "TENORM" does not include:

(a) Background radiation or the natural radioactivity of rocks or soils;
(b) "Byproduct material" or "source material," as defined by Colorado statute or rule; or
(c) Enriched or depleted uranium as defined by Colorado or federal statute or rule

"Total effective dose equivalent (TEDE)" means the sum of the deep dose equivalent for external exposures and the committed effective dose equivalent for internal exposures.

TEDE = DDE + CEDE

"Whole body" means for purposes of external exposure, head, trunk (including male gonads), arms above the elbow, or legs above the knees.