TABLE 1

List of Storage Units

Description	Activity	Dimensions/Capacity
Building 4022		
Main Area	Storage	55.5’ X 66.5’ X 48.5’
Vaults		
Vault 1	Storage	25’ X 15’ X 11.5’
Vault 2	Storage	25’ X 17.5’ X 12.5’
Vault 3	Storage	25’ X 6’ X 12.5’
Vault 4	Storage	25’ X 7’ X 20’
Vault 5	Storage	25’ X 12’ X 20.5’
Vault 6	Storage	25’ X 12’ X 20.5’
Vault 7	Storage	24.5’ 7.5’ 12.5’
Building 4021		
Packaging Room	Storage/Treatment	30’ X 30’ X 14’
Decontamination Room	Storage/Treatment	30’ X 49.75’ X 14’
Building 4621		
	Storage	20’ X 32’ X 10’
Outside Mixed Waste Storage Yard		
	Storage	approx 7500sf (0.2 acre)

Table 2

Summary of Waste Management Information

EPA Waste Codes	California Waste Codes	Quantity	Physical State	Principal Hazardous Characteristics
Building 4022				
D001, D002, D004, D006, D007, D008, D009, F002 F003, F005	181, 792, 221	50 cubic yard storage on average, but up to 200 cubic yards stored	Solids and Liquids	Toxicity characteristic metals, corrosivity characteristic, listed solvent containing wastes, used oils.
Building 4021				
D001, D002, D004, D006, D007, D008, D009, F003, F005	181, 792, 221	1 cubic yard treated per day on average, but up to 20 cubic yards treated per day	Solids and Liquids	Toxicity characteristic metals, corrosivity characteristic, listed solvent containing wastes, used oils.
Building 4621				
D001, D002, D004, D006, D007, D008, D009, F003, F005	181, 792, 221	50 cubic yard storage on average, but up to 200 cubic yards stored	Solids and Liquids	Toxicity characteristic metals, corrosivity characteristic, listed solvent containing wastes, used oils.
Outside Mixed Waste Storage Yard				
D001, D002, D004, D006, D007, D008, D009, F003, F005	181, 792, 221	50 cubic yard storage on average, but up to 200 cubic yards stored	Solids Only	Toxicity characteristic metals, corrosivity characteristic, listed solvent containing wastes, used oils.

TABLE 3

Typical Waste Streams Stored and Treated in the RMHF

Waste Stream	EPA Waste Codes	California Waste Codes	Hazard Characteristics	Physical State	Hazardous Waste Constituents
Paint Chips	D006, D007, D008	181	Toxic	Solid	Lead, Cadmium, Chromium
	D004		Toxic	Solid	Arsenic
Paint and Solvents	F003, F005		Listed	Liquid/Solid	Non-halogenated solvents
Ignitable Solvents	D001		Ignitable	Liquid/Solid	Mineral spirits, Stoddard solvent, Isopropyl alcohol
Corrosive Wastes	D002		Corrosive	Liquid/Solid	Acids/Bases for neutralization
Chrome Salt Cores	D007	181	Toxic	Solid	Chromium
Drain Line Debris	D009	181	Toxic	Solid, Sludge	Mercury
Lead Glass/Lead	D008	181	Toxic	Solid	Lead
Sediments containing Mercury	D006, D008, D009	181	Toxic	Liquid, Sludge	Heavy Metals
Solidified Oil with Solvents	F002	351	Toxic, Listed	Solid	Solvents
Evaporator Sludge	D008	181	Toxic	Sludge	Lead
HEPA Filter Elements	D008	181	Toxic	Solid	Lead
Contaminated Concrete	D006	181	Varies	Solid	Cadmium
Oil	N/A	221	Toxic	Liquid	Oil
Contaminated Soil	D007,D008,D009	611	Toxic	Solid	Varies
Asbestos	N/A	151	Toxic	Solid	Asbestos

TABLE 4
List of Treatment Equipment

Equipment	Purpose	Size
Cement Mixer	Stabilization	3 cubic feet
Drum Mixer	Stabilization	55 gallons
Fume Hood (Decontamination Room)	Used during neutralization of acids	3’ X 3’ X 6’
Fume Hood (Packaging Room)	Used during neutralization of acids	3’ X 3’ X 6”
Laboratory Ball Mill	Crushing/pulverizing	Bench Scale
Electric drill	Neutralization & Stabilization	Powered hand tool
Beakers*	Bench-scale neutralization	2-liter capacity
Graduated burettes*	Bench-scale neutralization	200 milliliters each
Magnetic stirring stand	Bench-scale neutralization	Bench-scale

* Glassware used during bench-scale neutralization was disposed of with the neutralized waste.

Table 5
Estimated Waste from Closure of the RMHF Interim Status Units

Bldg	Concrete (cubic feet)			Steel (lbs)		
	LLW	DW	Total Concrete	LLW	DW	Total Steel
4022	4630	20724	25354		189059	189059
4021	2313		2313	46493		46493
4621 and Yard	813		813	4494		4494
Totals	7756	20724	28480	50987	189059	240046

Total	Concrete LLW:	7756 cu ft	(287 cu yds),	Steel:	92757 lbs	Other: 100,000 lbs
Total	Concrete DW:	20724 cu. ft	(767 cu yds),	Steel:	189059 ibs	
Total MW	200 cu yds (D008)*					

Revised 9 October 2006

*Conservative Estimate

Table 6
Designated Disposal Facilities

Facility Name	Location	Permit/License Numbers	Estimated Distance from RMHF	Wastes to be Sent to the Facility
CWM-Kettleman Hills Facility	Kettleman Hills, CA	EPA ID – CAT 000 646 117	175 Miles	Non-hazardous, non-radioactive waste and non-hazardous, "decommissioned materials" and "decommissioned materials" containing regulated hazardous waste.
Envirocare, Inc.	Tooele County, Utah	EPA ID - UTD 982 598 898 RML – UT2300249	725 Miles	Solid and liquid mixed wastes
Nevada Test Site	65 Miles north of Las Vegas	N/A	370 Miles	Radioactive waste and debris not regulated as hazardous waste

Table 7
Analytical Methods for
RMHF Closure

Analyte	Matrix	Analytical Method	Container	Preservative	Holding Time
Volatile Organic Compounds (VOCs)	Soil	Prep - EPA Method 5030B Analysis – EPA Method 8260B	1 x 8 oz glass or sleeve	4°C	Analysis within 14 days
	Aqueous		3-40 ml glass vials	4°C, HCl; pH<2	Analysis within 14 days
Low VOCs in soil	Soil	Prep - EPA Method 5035 Analysis – EPA Method 8260B	Encore. Add Sodium Bisulfate within 48 hours of sample collection	4°C	Analysis within 14 days of sample collection
Semi-Volatile Organic Compounds	Soil	EPA Method 8270C	8 oz glass or sleeve	4°C	~~**Aq = Extraction within 7 days**~~ Analysis within 40 days ~~**Soil = Extraction within 14 days**~~ Analysis within 40 days
	Aqueous		2-1 liter amber glass		
Title 22 Metals	Soil	Digestion - EPA Method 3050B(soil) & EPA Method 3005A (Aq) Analysis – EPA Method 6010B/	8 oz glass or sleeve	~~4°C~~ Aq - Nitric acid; pH < 2	Within 180 days
	Aqueous		1-500 ml poly		
Hexavalent Chromium	Soil	Digestion – EPA Method 3060A (soil) Analysis – EPA Method 7199 (soil) & 218.6 (water)	8 oz glass or sleeve	4°C	Soil = Prep within 30 days Analysis within 7 days
	Aqueous		1-125 ml poly	4°C	*Aq = Prep/Analysis within 24 hours*

Table 7
Analytical Methods for
RMHF Closure

Mercury (part of the Title 22 Metals list)	Soil Aqueous	EPA Method 7471A (soil) EPA Method 7470A (water)	8 oz glass or sleeve 1-500 ml poly or glass	4°C Aqueous- 4°C, Nitric acid; pH<2	Within 28 days
Total Petroleum Hydrocarbons (TPH-volatile)	Soil Aqueous	EPA Method 5030B Modified Aqueous- EPA Method 8015M	8 oz glass or sleeve 3-40 ml glass vials	4°C 4°C HCl; pH<2	Within 14 days
Note: Method Reporting Limits are presented in Appendix E					

TABLE 8
DATA QUALITY OBJECTIVES
for Closure of the RMHF

Problem Statement	Achieve clean closure of the RMHF by demonstrating that hazardous waste and hazardous constituent residues have been removed or are left in place at levels that are protective of public health and the environment.	
Decision Questions	1. Is the soil beneath the RMHF impacted with organic constituents?	2. Is the soil beneath the RMHF impacted with inorganic (metals) constituents above background levels?
Data Inputs	1. Presence of visibly stained soil 2. Depth discrete soil matrix samples 3. Depth discrete soil vapor samples 4. Subsurface soil lithology	1. Presence of visibly stained soil 2. Depth discrete soil matrix samples 3. Subsurface soil lithology
Study Boundaries	Soil, sediments, and fill beneath: Building 4021, Building 4022, Building 4621, and the mixed waste storage yard.	
Decision Rules	If organic constituents ARE NOT detected above laboratory MDLs in soil beneath RMHF, request clean closure of the RMHF. If organic constituents ARE detected above laboratory MDLs in soil beneath RMHF, conduct additional characterization, remediation, and/or risk assessment to ensure that levels left in place are protective of public health and the environment.	If inorganic constituents ARE NOT detected above background levels[1] in soil beneath RMHF, request clean closure of the RMHF. If inorganic constituents ARE detected above background levels[1] in soil beneath RMHF, conduct additional characterization, remediation, and/or risk assessment to ensure that levels left in place are protective of public health and the environment.
Limits on Decision Errors	The largest uncertainty will likely be due to subsurface heterogeneities and how representative sampling locations are of local conditions. This uncertainty will be limited by a robust data set and careful placement of sampling locations. The sampling plan will be biased with a higher number of samples in areas with the greatest likelihood of soil impacts. Soil matrix and soil vapor samples will be co-located, creating a redundant data set for VOCs that will reduce the likelihood of missing VOC impacts in soil.	

1. Background levels as defined in the finalized Standardized Risk Assessment Methodology.
RMHF = Radioactive Materials Handling Facility
VOCs = Volatile organic compounds
MDLs = Method detection limits

TABLE 9 - GENERALIZED STORAGE TREATMENT UNIT CLOSURE SCHEDULE FOR THE RMHF