

Part B Permit Closure Cost Calculations for EnergySolutions

I TREATMENT OF STORED WASTE

Maximum volume of waste allowed in storage 5,000 cy
 Assume that it will take 6 months to treat and that the maximum of waste allowed will need to be treated.
 Treat stored waste to LDR using permitted treatment processes.
 Of the 5,000 cy maximum, 4,000 cy is awaiting treatment.
 Maximum volume of waste in storage awaiting treatment 4,000 cy
 Formula Development for waste awaiting treatment:
 Assumed that there are 4 waste streams without existing formulas. This is not a compliance point for the surety because wastes may become designated for treatment or require new formulas due to information generated after a given waste arrives on site (HSWA Analysis).
 Quantity limitations for treatment waste are changed according to facility needs as long as overall treatment costs within the surety remain constant in accordance with Attachment II-7.
 The maximum quantity of waste in storage at the site, which is inclusive of all waste outside of permitted disposal areas, shall not exceed 5,000 cubic yards. Waste in storage is inclusive of all waste outside of permitted disposal areas. Within this 5,000 cubic yard limit, the quantity of untreated waste at the site shall not exceed 4,000 cubic yards including TD (Thermal Desorption) Condensate. These limits include waste that is generated both on site and off site and includes materials that when declared a waste would become an untreated hazardous waste, such as water within the surface impoundment, decontamination water within the 90-day tank at the wash bay, and laboratory chemicals.

II STAGING AREA

Assume closure is completed within 24 month period. Existing buildings will be demolished and temporary facilities brought in.
 Assume use of existing clean line and office facilities for half of closure period; trailers to be brought in for half
 Clean Line- Assume 50' x 12' trailer
 Field Office- Assume 50' x 12' trailer
 Trailer delivery - assume 150 miles round trip from Salt Lake City per trailer
 Temporary Decontamination facility- assume use of existing pads as long as possible; will need temporary pad for 2 months.

III STORAGE PADS AND MW TRUCK UNLOADING FACILITY

Assume all storage pads are excavated 0.5 ft deep; the pad base is 1 ft thick (above grade) throughout the site.

EXCAVATION

East Container Storage Area (includes 150' x 160' holding area at the south end of the pad)

Asphalt	500 ft l x	160 ft w x	4 in th	0.33 =	988 cy
	500 ft l x	160 ft w		=	8,889 sy
Asphalt Extension	22 ft l x	160 ft w		=	392 sy
	22 ft l x	160 ft w	4 in th	0.33 =	44 cy
Storage Pad Base	500 ft l x	160 ft w x	0.67 ft th	=	1,986 cy
Extension	22 ft l x	160 ft w x	0.67 ft th	=	88 cy
Soil Excavation	500 ft l x	160 ft w x	0.5 ft th	=	1,482 cy
Extension	22 ft l x	160 ft w x	0.5 ft th	=	66 cy
Southeast Container Storage Area (concrete upgrade October 2003; drawing 03023-C03)					
Concrete	70 ft l x	96 ft w x	10 in th	0.83 =	208 cy
	70 ft l x	96 ft w		=	6,720 sf
Storage Pad Base	70 ft l x	96 ft w x	0.67 ft th	=	167 cy
Soil Excavation	70 ft l x	96 ft w x	0.5 ft th	=	125 cy
South Container Storage Area (resurfacing upgrade September 2000; drawing 0013-01)					
Asphalt	383 ft l x	117 ft w x	4 in th	0.33 =	554 cy
	383 ft l x	117 ft w		=	4,979 sy
Storage Pad Base	383 ft l x	117 ft w x	1 ft th	=	1,660 cy
Soil Excavation	383 ft l x	117 ft w x	0.5 ft th	=	830 cy
Drainage Trough upgrade (2000)					
Concrete bottom	340 ft l x	3 ft w x	8 in th	0.67 =	26 cy
	340 ft l x	3 ft w		=	1,020 sf
Concrete sides	340 ft l x	4.5 ft ht x	6 in th	0.5 =	29 cy
	340 ft l x	4.5 ft w		=	1,530 sf
(Note: Two sides with width increasing from 0.5' to 4' as the trough slopes east to west; calculated as a single 4.5' wide wall)					
Central Container Storage Area					
Asphalt	300 ft l x	65 ft w x	4 in th	0.33 =	241 cy
	300 ft l x	65 ft w		=	2,167 sy
Storage Pad Base	300 ft l x	65 ft w x	0.67 ft th	=	484 cy
Soil Excavation	300 ft l x	65 ft w x	0.5 ft th	=	362 cy

Totals:

Debris Excavation	=	2,090 cy
Base & Soil Excavation	=	7,250 cy
Restoration of Grade (soil excavation volume only)	=	2,865 cy
Final Grade	=	17,174 sy

MW TRUCK UNLOADING FACILITY

This is the 'outside' dock located south of the East Container Storage Area; see drawing 9846-01.

Entire facility is maintained outside of the Restricted Area.

The Container Holding Pad (approx. 150' x 160') is included in calcs for the East Container Storage Area above.

DOCK

Retaining walls (2 each)	30 ft l x	3.33 ft ht x	8 in th	0.67 =	5 cy
	50 ft l x	3.33 ft ht x	8 in th	0.67 =	100 sf
					9 cy
					167 sf
Floor	50 ft l x	30 ft w x	8 in th	0.67 =	75 cy
					1,500 sf
Ramp	20 ft l x	10 ft w x	8 in th	0.67 =	10 cy
					200 sf
Footings (2 each)	30 ft l x	4 ft w x	12 in th	1 =	9 cy
					120 sf
	50 ft l x	4 ft w x	12 in th	1 =	15 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Retaining wall (between truck access paved asphalt area and East Container Storage Area)	200 sf
124 ft l x 3 ft ht x 12 in th 1 =	28 cy
	372 sf
Retaining wall footing	28 cy
	372 sf
Fencing and gates (assume)	2 cy
TRUCK ACCESS PAVED ASPHALT AREA	
Asphalt	1,120 sy
105 ft l x 96 ft w =	125 cy
105 ft l x 96 ft w 4 in th 0.33 =	
Haul volume	306 cy
Concrete 8" thick demolition area total	1,967 sf
Concrete 12" thick demolition area total	1,064 sf

IV PUMP HOUSE AND WATER TANK

Fig. 9317-M1

COST TO HAUL OFF SITE IS ASSUMED TO BE SAME AS SALVAGE VALUE FOR THE FOLLOWING:

Fire Pump
Water Pump
Water Tank

DEMOLITION

Pump House Steel Exterior

Wall Dimensions	North	20 ft l x	10 ft ht x	3 in th	0.25 =	2 cy
Wall Dimensions	South	20 ft l x	10 ft ht x	3 in th	0.25 =	2 cy
Wall Dimensions	East	14 ft l x	10 ft ht x	3 in th	0.25 =	2 cy
Wall Dimensions	West	14 ft l x	10 ft ht x	3 in th	0.25 =	2 cy
Roof Dimensions		23 ft l x	15 ft w x	3 in th	0.25 =	4 cy
Building Demolition Volume		20 ft l x	14 ft w x	10 ft ht	=	2,800 cf

Pump House

Floors		20 ft l x	14 ft w x	8 in th	0.67 =	7 cy
Flooring		20 ft l x	14 ft w		=	280 sf

Foundation (Pump House)

Stem Wall			68 ft l x	2 ft ht	=	136 sf
Footing Dimensions			68 ft l x	1 ft w	=	68 sf

Debris Volume Estimate

Stem Wall			136 sf x	6 in th	0.5 =	3 cy
Footing			68 sf x	2 ft w	=	6 cy

Total Debris volume

28 cy

EXCAVATION

None needed, outside of Restricted Area

Va MIXED WASTE STORAGE BUILDING

Figures 9517-1,9517-2,9517-3,9535-2,9535-3,

DECONTAMINATION

Sludge Tank #0275

Top Dimensions		25 ft l x	5 ft w x	0.25 in th	=	32 cf
Bottom Dimensions		25 ft l x	5 ft w x	0.25 in th	=	32 cf
Wall Dimensions		25 ft l x	8 ft w x	0.25 in th	=	50 cf
Wall Dimensions		25 ft l x	8 ft w x	0.25 in th	=	50 cf
Debris Volume (cy)						6 cy

Misc equipment decontamination (2 days)

DEMOLITION

Mixed Waste Storage building (building metal exterior)

Wall Dimensions	North	100 ft l x	20.25 ft ht x	3 in th	0.25 =	19 cy
Wall Dimensions	South	100 ft l x	20.25 ft ht x	3 in th	0.25 =	19 cy
Wall Dimensions	East	60 ft l x	22 ft ht x	3 in th	0.25 =	13 cy
Wall Dimensions	West	60 ft l x	22 ft ht x	3 in th	0.25 =	13 cy
Wall Dimensions	Interior	60 ft l x	22 ft ht x	3 in th	0.25 =	13 cy
Roof Dimensions		101 ft l x	60 ft ht x	3 in th	0.25 =	56 cy

Wall Dimensions
(Raised Roof Section)

	North	25 ft l x	6 ft ht x	3 in th	0.25 =	2 cy
	South	25 ft l	6 ft ht x	3 in th	0.25 =	2 cy
	East	60 ft l	6 ft ht x	3 in th	0.25 =	4 cy
	West	60 ft l	6 ft ht x	3 in th	0.25 =	4 cy

Building Demolition Volume		101 ft l x	60 ft w x	21 ft ht	=	126,945 cf
Debris Volume (cy)						151 cy

Mixed Waste Storage building (Observation Area)

Wall Dimensions	South	24 ft l x	12 ft ht x	3 in th	=	32 cy
	East	12 ft l x	12.5 ft ht x	3 in th	=	17 cy
	West	12 ft l x	12.5 ft ht x	3 in th	=	17 cy

Demolition Volume 1,782 cf

Foundation (Observation Area) Demolition

Stem Wall/Footing			68 lf x	2.5 ft ht	=	170 sf
Floor Slab			24 lf x	12 ft w	=	288 sf
Footing			24 lf		=	288 sf

Part B Permit Closure Cost Calculations for EnergySolutions

DEBRIS VOLUME

Foundation (Observation Area) Debris						
Wall Dimensions	South	24 ft l	x	12 ft ht	x	3 in th = 32 cy
	East	12 ft l		12.5 ft ht	x	3 in th = 17 cy
	West	12 ft l		12.5 ft ht	x	3 in th = 17 cy
Stem Wall/Footing		68 ft l		2.5 lf w	x	1 ft ht = 7 cy
Floor Slab		24 ft l		12 lf w	x	0.5 ft th = 6 cy
Debris Volume						79 cy

Mixed Waste Storage Building (Interior Wall)						
Wall Dimensions	Interior	12 lf l	x	12.5 ft ht	x	4 in th 0.33 = 2 cy
Debris Volume						2 cy

Foundation (Mixed Waste Storage Building)						
Stem Wall				322 lf	x	3 ft ht = 966 sf
Footing Dimensions				322 lf	x	3 ft w = 966 sf
Footing				322 lf		966 sf

Debris Volume Estimate (Mixed Waste Storage foundation)						
Floor Dimensions		100 ft l	x	60 ft w	x	12 in th 1 = 223 cy
Stem Wall				966 sf	x	8 in th 0.67 = 24 cy
Footing				966 sf	x	1 ft th = 36 cy
Floor Area		100 ft l	x	60 ft w		= 667 sy
Debris Volume						283 cy

Mixed Waste Storage Building Secondary Containment Vault						
Wall Dimensions	long wall	33 ft l	x	8 ft ht	x	8 in th 0.67 = 7 cy
Wall Dimensions	short wall	15 ft l	x	8 ft ht	x	8 in th 0.67 = 3 cy
Debris Area (sf)				176 sf	x	2 sides = 352 sf
Debris Volume (cy)				10 cy	x	2 sides = 20 cy
Cover Dimensions		35 ft l	x	17 ft w	x	8 in th 0.67 = 15 cy
Cover Area		35 ft l	x	17 ft w		= 595 sf
Floor Dimensions		33 ft l	x	15 ft w	x	10 in th 0.83 = 16 cy
Floor Area		33 ft l	x	15 ft w		= 55 sy
Debris Volume Total						51 cy

Secondary Containment Vault Footings						
Footing Dimensions				68 lf	x	3 ft w = 204 sf
Footing Dimensions				30 lf	x	3 ft w = 90 sf
Debris Volume				98 lf		
				294 sf	x	12 in w 1 = 11 cy

Foundation (Outside Wash Pad)						
Stem Wall	East and West			120 lf	x	6 in ht 0.5 = 60 sf
Stem Wall	South			30 lf	x	6 in ht 0.5 = 15 sf
Stem Wall	North			30 lf	x	6 in ht 0.5 = 15 sf
Sum of N and S						30 sf

Debris Volume Estimate (Outside Wash Pad)						
Floor Dimensions		60 ft l	x	30 ft w	x	12 in th 1 = 67 cy
Floor Area		60 ft l	x	30 ft w		= 200 sy
Stem Wall	East and West			60 ft l	x	6 in th 0.5 = 2 cy
Stem Wall				30 sf	x	12 in th 1 = 2 cy
Debris Volume						71 cy

Outside Dock Walls (dimensions of ht are halved to account for ramp)						
Wall Dimensions	N Ramp wall	67 ft l	x	2 ft ht	x	8 in th 0.67 = 2 cy
Wall Dimensions	S Ramp wall	67 ft l	x	2 ft ht	x	8 in th 0.67 = 2 cy
Wall Dimensions	E wall	26 ft l	x	4 ft ht	x	8 in th 0.67 = 3 cy
Wall Total (sf)						238 sf
Wall Total (cy)						7 cy
Floor Dimensions		67 ft l	x	26 ft w	x	8 in th 0.67 = 44 cy
Floor Area		67 ft l	x	26 ft w		= 1,742 sf
Debris Volume						51 cy

Outside Dock Footings						
Footing Dimensions		67 lf	x	2 ft w	x	12 in th 1 = 5 cy
Footing Dimensions		67 lf	x	2 ft w	x	12 in th 1 = 5 cy
Footing Dimensions		26 lf	x	2 ft w	x	12 in th 1 = 2 cy
Debris Volume						12 cy

Drive Pad (North of Building in restricted area)						
Asphalt		250 ft l	x	75 ft w	x	3 in th 0.25 = 174 cy
Debris Area Total (SY)						2,084 sy
Debris Volume Total						174 cy

Total Haul Volume Est 885 cy

EXCAVATION OUTSIDE OF RESTRICTED AREA

Parking lot

Part B Permit Closure Cost Calculations for EnergySolutions

Asphalt	200 ft l x	200 ft w		=	4,445 sy
	200 ft l x	200 ft w	3 in th	0.25 =	371 cy
Haul volume					371 cy
EXCAVATION					
Soil Excavation					
Drive Pad Base	250 ft l x	75 ft w x	12 in th	1 =	695 cy
Soil Excavation of Building	100 ft l x	60 ft w x	6 in th	0.5 =	112 cy
Soil Excavation Drive Pad	250 ft l x	75 ft w x	6 in th	0.5 =	348 cy
Soil Excavation of Outside Pad	60 ft l x	30 ft w x	6 in th	0.5 =	34 cy
Soil Excavation of 2nd Containment	33 ft l x	15 ft w x	6 in th	0.5 =	10 cy
Soil Excavation of Outside Dock	67 ft l x	26 ft w x	6 in th	0.5 =	33 cy
Total Soil					1,232 cy
Restoration of Grade					
Soil Restoration					
Soil Excavation Storage Building	100 ft l x	60 ft w x	6 in ht	0.5 =	112 cy
Soil Excavation Drive Pad	250 ft l x	75 ft w x	6 in th	0.5 =	348 cy
Soil Excavation Outside Pad	60 ft l x	30 ft w x	6 in th	0.5 =	34 cy
Secondary Containment	33 ft l x	15 ft w x	8 ft ht	=	147 cy
Outside dock	26 ft l x	67 ft w x	2 ft ht	=	130 cy
Total Grade Restoration Area					3,199 sy
Total Backfill Volume					771 cy
Total Debris Volume					
Mixed Waste Storage building (building metal exterior)					152 cy
Mixed Waste Storage building (Framing walls)					2 cy
Debris Volume Estimate (Mixed Waste Storage foundation)					283 cy
Secondary Containment Stem Wall and Floor)					51 cy
Secondary Containment Footings					11 cy
Outside Wash Pad					71 cy
Outside Dock Walls					51 cy
Outside Dock Footings					12 cy
Drive Pad (North of Building in restricted area)					174 cy
Total Debris Volume					807 cy
Soil Excavation					1,232 cy
Total Volume					2,039 cy
Vb THERMAL DESORPTION UNIT					
Costs are estimated for triple rinsing of the unit, decontamination, removal, and demolition.					
General assumption that debris volume is	34 cy			=	34 cy
Via MIXED WASTE TREATMENT BUILDING					
DEMOLITION					
Mixed Waste Treatment building					
Mixed Waste Treatment building (building metal exterior)					
Wall Dimensions	N Long	60 ft l x	30 ft ht x	3 in th	0.25 = 17 cy
Wall Dimensions	N Short	30 ft l x	30 ft ht x	3 in th	0.25 = 9 cy
Wall Dimensions	South	90 ft l x	30 ft ht x	3 in th	0.25 = 25 cy
Wall Dimensions	East	110 ft l x	30 ft ht x	3 in th	0.25 = 31 cy
Wall Dimensions	W Long	90 ft l x	30 ft ht x	3 in th	0.25 = 25 cy
Wall Dimensions	W Short	20 ft l x	30 ft ht x	3 in th	0.25 = 6 cy
Wall Dimensions	View W	20 ft l x	8 ft ht x	3 in th	0.25 = 2 cy
Wall Dimensions	View N	10 ft l x	8 ft ht x	3 in th	0.25 = 1 cy
Wall Dimensions	View S	10 ft l x	8 ft ht x	3 in th	0.25 = 1 cy
Roof Dimensions	View	21 ft l x	11 ft w x	3 in th	0.25 = 3 cy
Roof Dimensions	Long	95 ft l x	95 ft w x	3 in th	0.25 = 84 cy
Roof Dimensions	Short	62 ft l x	22 ft w x	3 in th	0.25 = 13 cy
Demolition Volume		90 ft l x	90 ft l x	30 ft ht	= 243,000 cf
Demolition Volume		60 ft l x	20 ft l x	30 ft ht	= 36,000 cf
Demolition Volume		20 ft l x	10 ft l x	8 ft ht	= 1,600 cf
Demolition Volume Total					280,600 cf
Debris Volume (cy)					217 cy
Foundation (Mixed Waste Treatment Building)					
Stem Wall (Main Building)		360 ft l x	8 ft ht	=	2,880 sf
Stem wall (Equipment Room)		100 ft l x	4 ft ht	=	400 sf
Stem Wall Total Area					3,280 sf
Footing Dimensions (Exterior N,S)	8 am x	10 ft l x	8 ft w	=	80 sf
Footing Dimensions (Exterior E,W)	12 am x	7 ft l x	7 ft w	=	49 sf
Footing Dimensions (Equip room)	7 am x	3 ft l x	3 ft w	=	9 sf
Footing					138 sf
Debris Volume Estimate (Mixed Waste Treatment foundation)					
Floor Dimensions	90 ft l x	90 ft w x	12 in th	1 =	300 cy
Area	90 ft l x	90 ft w		=	900 sy
Floor Equipment Area	60 ft l x	20 ft w x	8 in th	0.67 =	30 cy
Area	60 ft l x	20 ft w		=	1,200 sf
Floor View Area	20 ft l x	10 ft w x	6 in th	0.5 =	4 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Area	20 ft l	x	10 ft w	=	23 sy
Stem Wall			3,280 sf	x	12 in th
				=	122 cy
Footings			138 sf	x	2 ft th
				=	11 cy
Debris Volume					467 cy

Misc Walkways

Assume a standard for all machines					3 cy
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Outside slab footings

Footings Dimensions (Two Rollup Door)	54 lf	x	8 in w	0.67 =	36 sf
Footings Dimensions (Receiving Vault)	40 lf	x	8 in w	0.67 =	27 sf

Misc Footings Volume	63.0 sf	x	10.0 in th	0.83 =	2 cy
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Footings Dimensions (W. Sidewalk)	22 ft	x	6 in w	0.5 =	11 sf
Footings Dimensions (N. Sidewalk)	21 ft	x	6 in w	0.5 =	11 sf
Footings Dimensions (E. Sidewalk)	11 ft	x	6 in w	0.5 =	6 sf
Footings Dimensions (NE Sidewalk)	19 ft	x	6 in w	0.5 =	10 sf

Misc Footings Volume	38.0 sf	x	6.0 in th	0.5 =	1 cy
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Total volume of outside slab footings	1.9 cy	+	0.7 cy	=	3 cy
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Misc Slab of Concrete

Slab Dimensions (Two Rollup Door)	34 ft l	x	10 ft w	x	10 in th	0.83 =	11 cy
Area	34 ft l	x	10 ft w	=	38 sy		
Slab Dimensions (Receiving Vault)	20 ft l	x	10 ft w	x	10 in th	0.83 =	7 cy
Area	20 ft l	x	10 ft w	=	23 sy		
Slab Dimensions (W. Sidewalk)	14 ft l	x	4 ft w	x	6 in th	0.5 =	2 cy
Area	14 ft l	x	4 ft w	=	7 sy		
Slab Dimensions (N. Sidewalk)	7 ft l	x	7 ft w	x	6 in th	0.5 =	1 cy
Area	7 ft l	x	7 ft w	=	6 sy		
Slab Dimensions (E. Sidewalk)	5 ft l	x	3.33 ft w	x	6 in th	0.5 =	1 cy
Area	5 ft l	x	3.33 ft w	=	2 sy		
Slab Dimensions (NE Sidewalk)	9 ft l	x	5 ft w	x	6 in th	0.5 =	1 cy
Area	9 ft l	x	5 ft w	=	5 sy		
Slab Dimensions (Baghouse)	28 ft l	x	16 ft w	x	24 in th	2 =	34 cy
Area	28 ft l	x	16 ft w	=	50 sy		
Outside slab footings							3 cy
Ramp Dimensions	32 ft l	x	29 ft w	x	10 in th	0.83 =	29 cy
Area	32 ft l	x	29 ft w	=	104 sy		

Misc concrete volume					89 cy
Misc concrete area					235 sy

Interior Concrete (Tank walls and footings - see sections VIb-VIi for calculations)

Waste Receiving Tank #1					41 cy
Tank #4 & #5 and Wash Tank #6					58 cy
Interior concrete volume					99 cy

Summary of Debris Total

Building Volume					217 cy
Floor and Footing Volume (building)					467 cy
Misc Volume					89 cy
Interior Concrete					99 cy
Primary and Tertiary Shredder Steel					6 cy
Mixer Tank #8					2 cy
Dust Collection System					16 cy
Debris Total					896 cy

EXCAVATION OF MIXED WASTE TREATMENT BUILDING

Soil Main Area	90 ft l	x	90 ft w	x	6 in th	0.5 =	150 cy
Soil Equipment Room	60 ft l	x	20 ft w	x	6 in th	0.5 =	23 cy
Soil View Room	20 ft l	x	10 ft w	x	6 in th	0.5 =	4 cy
Soil Volume							177 cy

Exterior Soil Excavation

Soil Excavation Two Rollup Door	34 ft l		10 ft w	x	6 in th	0.5 =	7 cy
Soil Excavation (Receiving Vault)	20 ft l		10 ft w	x	6 in th	0.5 =	4 cy
Soil Excavation (W. Sidewalk)	14 ft l		4 ft w	x	6 in th	0.5 =	2 cy
Soil Excavation (N. Sidewalk)	7 ft l		7 ft w	x	6 in th	0.5 =	1 cy
Soil Excavation (E. Sidewalk)	5 ft l		3.33 ft w	x	6 in th	0.5 =	1 cy
Soil Excavation (NE Sidewalk)	9 ft l		5 ft w	x	6 in th	0.5 =	1 cy
Soil Excavation Bag House	28 ft l		16 ft w	x	6 in th	0.5 =	9 cy

Soil Totals

Total Soil							1,185 sy
Restoration of Grade (soil excavation volume)							25 cy
Total Soil							202 cy
Restoration of Grade (soil excavation volume)							202 cy

VIb WASTE RECEIVING TANK #1

DEMOLITION

Waste Receiver Tank #1 (fig. 9317-c5,c8)							
Walls	14 ft l	x	5 ft ht	x	1 ft th	=	3 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Walls	15 ft l x	8 ft ht x	1 ft th	=	5 cy
Debris Volume					8 cy
Area	14 ft l x	5 ft ht		=	8 sy
	15 ft l x	8 ft ht		=	14 sy
Foundation (Waste Receiver Tank #1)					
Footing Dimensions (south footing)		20 ft l x	13 ft w	=	260 sf
Footing Dimensions		28 ft l x	3 ft w	=	84 sf
Footing Dimensions		28 ft l x	3 ft w	=	84 sf
Footing		84 sf +	84 sf	=	168 sf
Area		168 sf +	260 sf	=	48 sy
Total Area	8 sy +	14 sy +	48 sy	=	70 sy
Debris Volume Estimate					
Footings		168 sf x	2 ft th	=	13 cy
Footing Dimensions (south footing)		260 sf x	2 ft th	=	20 cy
Walls				=	8 cy
Total Debris					41 cy
Vic LIQUID WASTE STORAGE TANKS					
DECONTAMINATION					
Triple Rinse					2 Days
DEMOLITION					
Tank steel					
Torch Cutting of each tank into fourths to size for disposal					
8 cuts per tank to account for double-walled tanks	15 ft l x	8 cuts x	2 tanks	=	232 lf
Cut pieces will be nested for disposal	15 ft l x	3 ft h x	3 ft th	=	5 cy
Micellaneous Piping Estimated Volume	3 cy			=	3 cy
Concrete					
Leveling Pad	14 ft l x	10 ft w x	0.667 ft th	=	4 cy
Tank Pad (26'L x 12'w overall), which for ease of volume calculations is subdivided into 3 sections					
	14 ft l x	10 ft w x	0.667 ft th	=	4 cy
	26 ft l x	12 ft w x	0.75 ft th	=	9 cy
	12 ft l x	12 ft w x	0.5 ft th	=	3 cy
Debris Total					
					20 cy
Area					
	14 ft l x	10 ft w		=	16 sy
	14 ft l x	10 ft w		=	16 sy
	26 ft l x	12 ft w		=	35 sy
	12 ft l x	12 ft w		=	16 sy
					83 sy
Sump Pump Vault					
Walls	5 ft l x	5 ft ht x	1 ft th	=	1 cy
Walls	6 ft l x	5 ft ht x	1 ft th	=	1 cy
Walls	5 ft l x	5 ft ht x	1 ft th	=	1 cy
Debris Total					
					4 cy
Area					
					9 sy
Foundation					
Footing Dimensions (south footing)		23 ft l x	2 ft w	=	46 sf
Footing Dimensions		3 ft l x	2 ft w	=	6 sf
Footing Dimensions		11 ft l x	2 ft w	=	22 sf
Footing Dimensions		11 ft l x	2 ft w	=	22 sf
Footing Dimensions		11 ft l x	5 ft w	=	55 sf
					151 sf
					17 sy
Debris Volume Estimate					
Steel Tanks		5 cy +	3 cy	=	8 cy
Concrete Tanks				=	20 cy
Footing Dimensions		151 sf x	2 ft th	=	12 cy
Sump Walls				=	4 cy
Total Debris					
					44 cy
Total Area					
					109 sy
Total Debris					
					44 cy
Vid PRIMARY & TERTIARY SHREDDERS, SIZING SCREEN TANK #4, AND TANK #5 & #6					
DECONTAMINATION					
Triple Rinse					2 Days
Radiological Decontamination					4 Days
DEMOLITION					
Sizing Tank #4, #5, #6					
Walls (North)	43 ft l x	9 ft ht x	1 ft th	=	15 cy
Walls (from East to West)					
Wall 1	13 ft l x	9 ft ht x	1 ft th	=	5 cy
Wall 2	13 ft l x	9 ft ht x	1 ft th	=	5 cy
Wall 3	13 ft l x	9 ft ht x	1 ft th	=	5 cy
Wall 4	13 ft l x	9 ft ht x	1 ft th	=	5 cy
Debris Total					
					35 cy
Area					
					52 sy
Foundation (Sizing Tank #4, #5, #6)					
Footing Dimensions (North footing)		43 ft l x	2 ft w	=	86 sf

Part B Permit Closure Cost Calculations for EnergySolutions

From East to West							
Footing Dimension #1	12 ft	l	x	3 ft	w	=	36 sf
Footing Dimension #2	12 ft	l	x	5 ft	w	=	60 sf
Footing Dimension #3	12 ft	l	x	5 ft	w	=	60 sf
Footing Dimension #4	12 ft	l	x	5 ft	w	=	60 sf
<hr/>							
Debris Total							302 sf
Area							34 sy
Debris Volume Estimate							
Footing Dimensions	302 sf		x	2 ft	th	=	23 cy
Walls							35 cy
<hr/>							
Total Debris							58 cy
Total Area							86 sy
Tertiary Shredder							
Tube Lengths	2 pc		x	10 ft	l	=	1 cy
Tube Lengths	2 pc		x	6 ft	l	=	1 cy
Tube Lengths	2 pc		x	5.5 ft	l	=	1 cy
Tube Lengths	2 pc		x	5 ft	l	=	1 cy
Tube Lengths	2 pc		x	4.5 ft	l	=	1 cy
Tube Lengths	8 pc		x	2.5 ft	l	=	1 cy
<hr/>							
Total Debris							6 cy

Vie MIXER TANK #8

DECONTAMINATION

Triple Rinse							2 Days
Radiological Decontamination							4 Days

DEMOLITION

Mixer Tank #8

Walls (East)	44 ft	l	x	6 in	ht	x	0.5 in	th	0.04	=	0.4 cy
Walls (from North to South)											
Wall 1	10 ft	l	x	1 ft	ht	x	0.5 in	th	0.04	=	0.0 cy
Wall 2	9 ft	l	x	1 ft	ht	x	0.5 in	th	0.04	=	0.0 cy
Wall 3	7 ft	l	x	1 ft	ht	x	0.5 in	th	0.04	=	0.0 cy
Wall 4	25 ft	l	x	1 ft	ht	x	0.5 in	th	0.04	=	0.0 cy
Wall 5	14 ft	l	x	1 ft	ht	x	0.5 in	th	0.04	=	0.0 cy
Floor	44 ft	l	x	14 ft	ht	x	0.75 in	th	0.06	=	1.4 cy

Debris Total 2 cy

Torch Cutting to Max dimension of 8ft

				46 ft	l	\	8 ft	sq	=	5 cuts
				16 ft	l	\	8 ft	sq	=	1 cuts
<hr/>										
				Total Cuts						6 cuts
5	Cuts	@		16 ft	l	=	80 lf			
1	Cut	@		46 ft	l	=	46 lf			
Total torch cutting length							126 lf			

Vif DUST COLLECTION SYSTEM

DEMOLITION

Removal of machinery (for both the original and supplemental baghouses) 6 days

NOTE: Slab is accounted for in bag house footings in Waste Treatment Building Section Via

Fans and Motors for Dust Collection

Fans	9 ft	l	x	5 ft	ht	x	4 ft	th	=	7 cy	
Motor	2 ft	l	x	2 ft	ht	x	2 ft	th	=	1 cy	
<hr/>											
Total Debris											8 cy

Supplemental baghouse (2002)

Assume debris volume three times the smaller primary baghouse

Total debris volume for dust collection systems 8 cy + 24 cy = 32 cy

Vig TURN AROUND AREA

Assume area will be excavated 0.5 ft deep

EXCAVATION

Asphalt	110 ft	l	x	170 ft	w				=	2,078 sy	
	110 ft	l	x	170 ft	w	x	0.25 ft	th	=	174 cy	
Base	110 ft	l	x	170 ft	w	x	0.67 ft	th	=	465 cy	
Soil Excavation	110 ft	l	x	170 ft	w	x	0.5 ft	th	=	347 cy	
Haul Volumes:											
Debris											174 cy
Soil											347 cy
Base											465 cy
<hr/>											
Total Haul Volume											986 cy

Restoration of Grade (soil excavation volume only) = 347 cy

Final Grade = 2,078 sy

VIIa MIXED WASTE OPERATIONS BUILDING

DECONTAMINATION

Assume 5 Days for misc equipment and furniture

DEMOLITION OF CONTAMINATED AREA

NOTE: All foundation and first floor concrete with building supports are considered in the contaminated area.

Operations Building (Exterior)

Mixed Waste Operation building (building metal exterior)

Wall Dimensions	NE	30 ft	l	x	27 ft	ht	x	3 in	th	0.25	=	8 cy
Wall Dimensions	East Short	20 ft	l	x	27 ft	ht	x	3 in	th	0.25	=	5 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Wall Dimensions	East Long	145 ft l x	25 ft ht x	3 in th	0.25 =	34 cy
Wall Dimensions	NW	88 ft l x	27 ft ht x	3 in th	0.25 =	22 cy
Wall Dimensions	South	88 ft l x	27 ft ht x	3 in th	0.25 =	22 cy
Wall Dimensions	West	175 ft l x	25 ft ht x	3 in th	0.25 =	41 cy
Roof Dimensions	Long	180 ft l x	95 ft w x	3 in th	0.25 =	159 cy
Roof Dimensions	Short	60 ft l x	30 ft w x	3 in th	0.25 =	17 cy
Demolition Volume		175 ft l x	88 ft w x	27 ft ht	=	415,800 cf
Demolition Volume		145 ft l x	30 ft w x	25 ft ht	=	108,750 cf
Demolition Volume Total						524,550 cf
Building Debris Subtotal						308 cy
Interior Walls						
Fire Wall Process area		90 ft l x	25 ft ht	6 in th	0.5 =	42 cy
Fire Wall Office area		145 ft l x	25 ft ht	6 in th	0.5 =	68 cy
Office area		756 lf l x	10 ft ht	6 in th	0.5 =	140 cy
Building Debris Subtotal (Interior Walls)						250 cy
Adjustment Building Debris Subtotal (Interior Walls)	50% reduction for hollow space betten studs and wallboard.					125 cy
Foundation (Operations Building)						
Stem Wall		584 ft l x	2 ft ht		=	1,168 sf
		584 ft l x	2 ft ht	6 in w	0.5 =	22 cy
Footing Dimensions		16 am x	10 ft l x	8 ft w	=	80 sf
Footing Dimensions		14 am x	6 ft l x	6 ft w	=	36 sf
Footing Dimensions		12 am x	4 ft l x	3 ft w	=	12 sf
Footing		80 sf +	36 sf +	12.0 sf	=	128 sf
Footings Subtotal			128 sf x	2.0 ft th	=	10 cy
Door Footing Dimensions						
Footing Dimensions One Man Door		18 am	3.5 ft l x	6 in w	0.5 =	32 sf
Footing Dimensions One Man Door		8 am	4 ft l x	6 in w	0.5 =	16 sf
Footing Dimensions Two Man Door		2 am	3.5 ft l x	6 in w	0.5 =	4 sf
Footing Dimensions Two Man Door		1 am	7.33 ft l x	7 ft w	=	52 sf
Footings Subtotal			104 sf x	10.0 in th	0.83 =	4 cy
Footing Dimensions Roll Up Door		12 am	9 ft l x	12 in w	1 =	108 sf
Footing Dimensions Roll Up Door		6 am	14 ft l x	12 in w	1 =	84 sf
Footing						192 sf
Footings Subtotal			192.0 sf x	3.0 in th	0.25 =	2 cy
Footing Debris Volume						16 cy
Secondary Containment						
Bracing		150 lf x	3 ft ht	1 ft th	=	17 cy
Bracing		30 lf x	3 ft ht	1 ft th	=	4 cy
Concrete (Drainage Trench)		129 lf x	3 ft w x	1 ft th	=	15 cy
Subtotal Debris						36 cy
Second Floor Dimensions						
Second Floor Dimensions		96 ft l x	29 ft w x	6.0 in th	0.5 =	5 cy
First Floor Dimensions		175 ft l x	90 ft w x	10.0 in th	0.83 =	487 cy
First Floor Dimensions(Office lab area)		148 ft l x	30 ft w x	6.0 in th	0.5 =	83 cy
Floor Subtotal						575 cy
Door Floor Dimensions						
Slab Dimensions (Baghouse)		28 ft l	16 ft w x	24 in th	2 =	34 cy
Roll Up Door		14 ft l	9 ft w x	10 in w	0.83 =	4 cy
One Man Door	9 am	4 ft l	3.5 ft w x	3 in th	0.25 =	14 cy
Two Man Door		8 ft l	3.5 ft l x	3 in th	0.25 =	1 cy
Floors Subtotal						53 cy
Floor Total						628 cy
Total Demolition Debris						
Operations Building						308 cy
Interior Walls						125 cy
Footing Total						16 cy
Secondary Containment Footing Systems						36 cy
Floor Dimensions						628 cy
HDPE Liner		145 ft l x	90 ft w x	0.28 in th	0.02 =	12 cy
Drum Mixer						1 cy
Drum Compactor						2 cy
Micro Extruder and Crusher						7 cy
Kinetic Mixer						2 cy
Dust collection						10 cy
Building Volume Debris Total						1,147 cy
EXCAVATION OF SECONDARY CONTAINMENT PROCESS AREA						
Pea Gravel Main Area		145 ft l x	90 ft w x	1 ft th	=	484 cy
Soil Excavation Main Area		175 ft l x	90 ft w x	6 in th	0.5 =	292 cy
Area		175 ft l x	90 ft w		=	1,750 sy
Soil Excavation East Area		148 ft l x	30 ft w x	6 in th	0.5 =	83 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Area	148 ft l	x	30 ft w	=	494 sy
Total Contaminated Soil					375 cy
Backfill volume = sum of pea gravel and soil excavation volumes					859 cy
Restoration of Grade (soil excavation area only)				=	2,244 sy
Total Excavation Debris					
Total Pea Gravel					484 cy
Total Contaminated Soil					375 cy
EXCAVATION OUTSIDE OF RESTRICTED AREA					
Parking lot					
Asphalt	150 ft l	x	15 ft w		250 sy
Asphalt	150 ft l	x	15 ft w	x	3 in th
				0.25 =	21 cy
Haul volume					21 cy
VIIb SMALL-SCALE MIXER #1					
DECONTAMINATION					
Assume one day decontamination					
Total Estimated Debris Volume					1 cy
VIIc RESERVED					
VIIId DRUM COMPACTOR					
Debris (estimated)					2 cy
VIIe Gray Water Tank					
DECONTAMINATION					
Triple Rinse					1 Days
DEMOLITION					
Tank steel					
Torch Cutting of each tank into fourths to size for disposal					
8 cuts per tank to account for double-walled tanks					
	11 ft l	x	8 cuts		88 lf
Cut pieces will be nested for disposal	11 ft l	x	3 ft h	x	3 ft th
					= 4 cy
Micellaneous Piping Estimated Volume	2 cy				= 2 cy
Concrete					
Tank Pad	8'L x 8'w overall				
	8 ft l	x	8 w		= 8 sy
	8 ft l	x	8 ft w	x	1 ft th
					= 3 cy
Debris Total					9 cy
VIIIf MICROENCAPSULATION EXTRUDER and CRUSHER					
DECONTAMINATION					
Debris Volumes					
Extruder	10 ft l	x	3 ft w	x	5 ft ht
					= 6 cy
Crusher (Estimated)					1 cy
TOTAL volume					7 cy
VIIg KINETIC MIXER					
DECONTAMINATION					
Two days					
Debris Volume (Estimated)					2 cy
VIIh [RESERVED]					
Box hopper and elevator have been removed.					
VIIi DUST COLLECTION SYSTEM					
DEMOLITION					
NOTE: Slab is accounted for in bag house footings in Section VIIa					
Fans and Motors for Dust Collection					
Fans	9 ft l	x	5 ft ht	x	4 ft th
					= 7 cy
Motor	2 ft l	x	2 ft ht	x	2 ft th
					= 1 cy
Total Debris					8 cy
Assume Debris Volume Estimated at					10 cy
VIII RAIL CAR UNLOADING FACILITY					
DEMOLITION					
Railroad Pad					
Retaining walls	30 ft l	x	4 ft ht	x	1 ft th
					= 5 cy
Retaining walls	30 ft l	x	4 ft ht	x	1 ft th
					= 5 cy
Retaining walls	15 ft l	x	4 ft ht	x	1 ft th
					= 3 cy
Retaining walls	15 ft l	x	4 ft ht	x	1 ft th
					= 3 cy
					16 cy
Area	30 ft l	x	4 ft ht	x	2 am
					= 240 sf
Area	15 ft l	x	4 ft ht	x	2 am
					= 120 sf
					360 sf
Floor concrete	15 ft l	x	30 ft w	x	1 ft th
					= 17 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Footing Dimension #2	30 ft l x	2 ft w x	1 ft th	=	3 cy
Footing Dimension #3	15 ft l x	2 ft w x	1 ft th	=	2 cy
Footing Dimension #4	15 ft l x	2 ft w x	1 ft th	=	2 cy
Debris Total					10 cy
Footing length	30 ft l +	15 ft l x	2 ea	=	90 lf
Total Volume of Debris	16 cy +	17 cy +	10 cy	=	43 cy
EXCAVATION					
Soil excavation	30 ft l x	15 ft w x	6 in th	0.5 =	9 cy
Earthen Ramp	15 ft l x	8 ft w x	2 ft ht	240	9 cy
Took Half of cy to account for slope					
Pad Fill	15 ft l x	30 ft w x	4 ft ht	=	67 cy
Total soil volume					85 cy
Backfill volume	30 ft l x	15 ft w x	6 in th	0.5 =	9 cy
Restoration of Grade	30 ft l x	15 ft w		=	50 cy

IX RAILROADS INSIDE RESTRICTED AREA

This item includes the removal of all railroad track and bed within the Restricted Area and removal of the Rail Digging Facility.

This Surety item includes demolition and disposal of the rail ties and track as well as the excavation and disposal of the ballast and base soils.

Defined as the entire length of rail within the Restricted Area

DEMOLITION

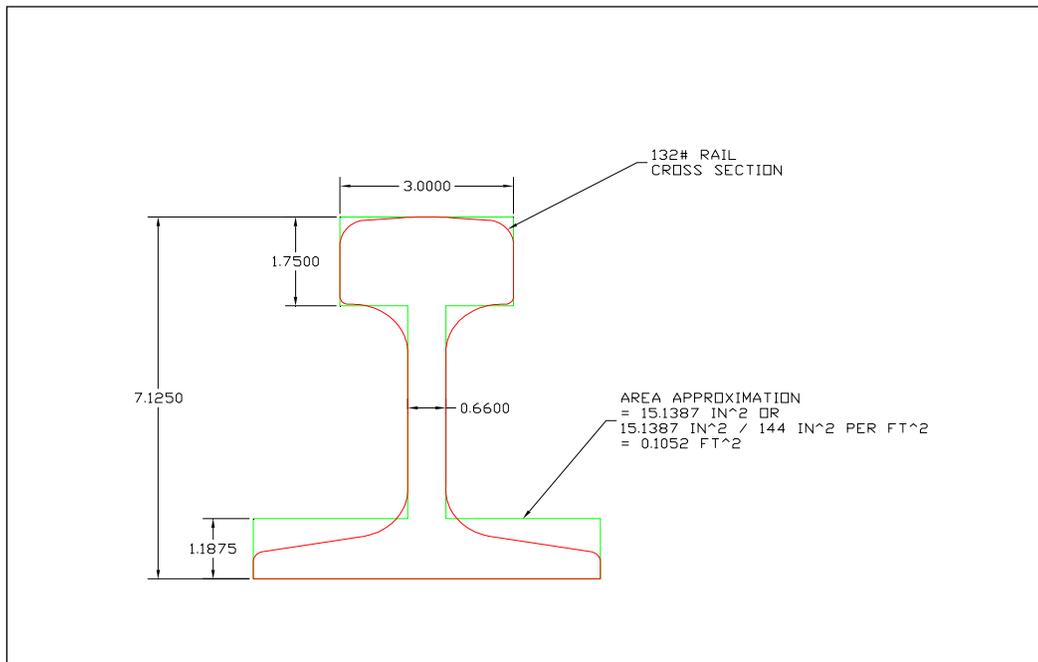
Ties, Track - (Figure 9416-1); typical spacing is shown below from visual inspection and Figure 9315-1)

Ties at 1.5 feet c.c.

Ties are 9 ft x 0.58333333 ft x 0.75 ft = 0.15 cy/Ea

Track cross section area is 0.1052ft²

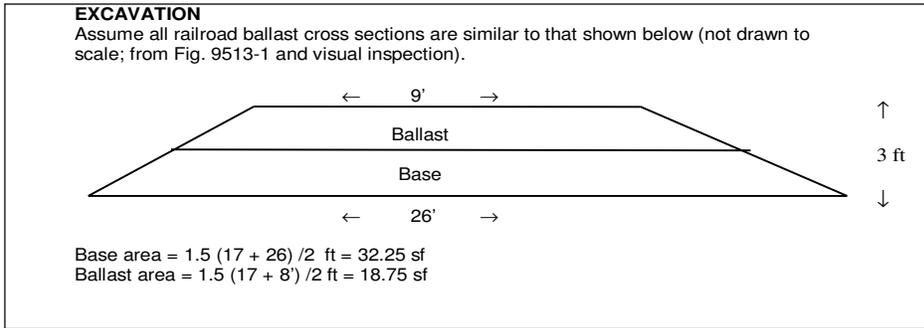
Most of the rail within the restricted are is 110# to 115#. Conservative assumption is 132# rail with an approximate area of 15.1387 in² or 0.1052 ft² as shown in the figure below.



Calculations

Debris Volume - ties	1,750 ft divide by	1.5 ft		1,167 ft
	1,167.0 Ea x	0.1500 cy/ea		176 cy
Debris Volume - rails	2 Ea x	1,750 ft x	0.1052 sf	369 cy
Debris Volume - hardware	1,750 ft x	0.5 ft di	100	9 cy
Total Debris	176 cy +	369 cy +	9 cy	554 cy
Debris per linear foot	1,750 lf divide by	554 cy =	3.16 LF/CY	

Part B Permit Closure Cost Calculations for EnergySolutions



EXCAVATION

Excavate and dispose of ballast and base material				
Ballast	18.75 sf	x	1,750 ft	1,216 cy
Base	32.25 sf	x	1,750 ft	2,091 cy
Total Soil for Disposal	1216 cy	+	2091 cy	3,307 cy
Preliminary excavation along railbed	1,750 lf	x	50 ft w	87,500 sf
LESS Area for Railbed	1,750 lf	x	26 ft w	45,500 sf
Total Preliminary Excavation Volume	87,500 sf	-	45,500 sf	42,000 sf
Haul Volume	42,000 sf	x	0.5 ft	778 cy
Assume that half of the rail has an average distance to the embankment of 1 mile and that half has an average distance to the embankment of 0.5 mile for hauling purposes				
	3307 cy	+	778 cy	4,085 cy
Restoration of grade (preliminary excavation only)				
Final grade	1,750 lf	x	50 ft	9,723 sy

Xa ROADS INSIDE RESTRICTED AREA

NOTE: All roads are assumed to be 25 feet wide and to be excavated at a 6 inch depth of native soil excavation.

EXCAVATION

Asphalt Chips	3,449 lf	x	25 ft w	x	8 in th	=	2,130 cy
Road Base	3,449 lf	x	25 ft w	x	12 in th	1 =	3,194 cy
Soil	3,449 lf	x	25 ft w	x	6 in th	0.5 =	1,597 cy
Total Excavation							6,921 cy
Backfill = soil excavation volume							1,597 cy
Final Grade			3,449 lf	x	25 ft w	=	9,581 sy

Xb RESERVED

Xc RESERVED

Xd ASPHALT PAD INTERMODAL TRANSFER AREA

EXCAVATION

Asphalt Pad							
Asphalt	100 ft l	x	26 ft w				290 sy
Asphalt	100 ft l	x	26 ft w	x	3 in th	0.25 =	25 cy
Asphalt	62 ft l	x	35.7 ft w				248 sy
Asphalt	62 ft l	x	35.7 ft w	x	3 in th	0.25 =	21 cy
Asphalt	145 ft l	x	70 ft w				1,128 sy
Asphalt	145 ft l	x	70 ft w	x	3 in th	0.25 =	94 cy
Asphalt	90 ft l	x	55 ft w	x			550 sy
Asphalt	90 ft l	x	55 ft w	x	3 in th	0.25 =	46 cy
Asphalt Total							2,216 sy
Final Grade							2,216 sy

XI REAGENT DELIVERY SILOS

DISMANTLEMENT

Assume 3 days

DEMOLITION

Concrete Pad	25 ft l	x	25 ft w	x	24 in th	2 =	47 cy
Estimated Debris			5 cy	x	2 ea	=	10 cy
Total debris							57 cy

XIIa EVAPORATION POND

DEMOLITION

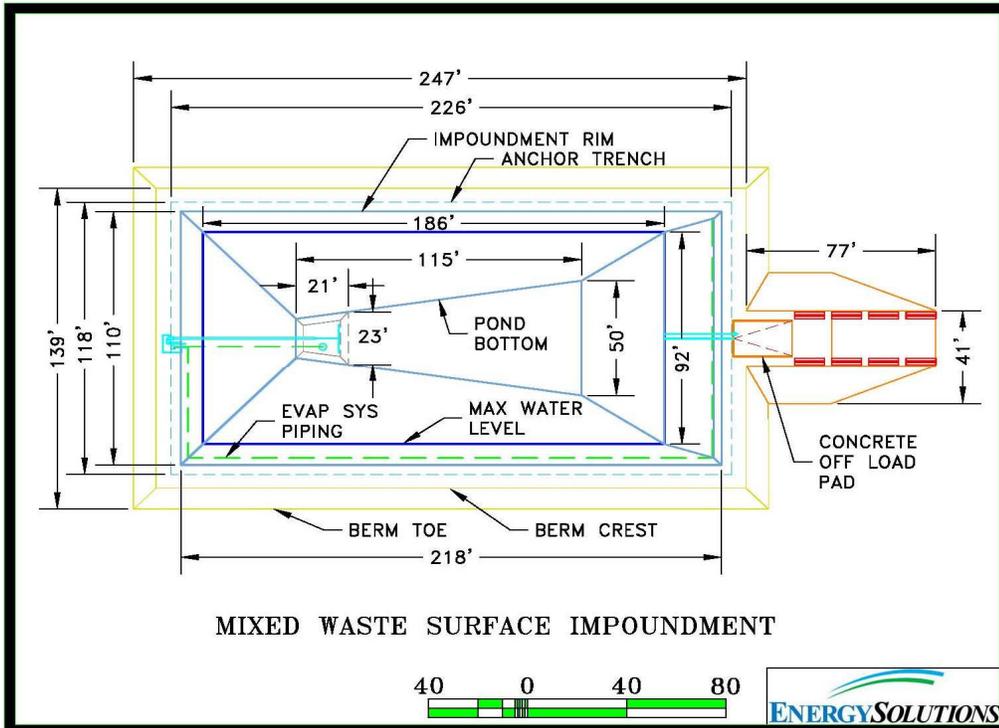
Pond Size	250 ft l	x	150 ft w	x	7 ft dp	=	9,723 cy
HDPE Liner	250 ft l	x	150 ft w	x	0.28 in th	0.02 =	33 cy

EXCAVATION

Sludge removal	250 ft l	x	150 ft w	x	6 in th	0.5 =	695 cy
Soil Excavation	250 ft l	x	150 ft w	x	6 in th	0.5 =	695 cy
Restoration of Grade	250 ft l	x	150 ft w	x	6 in th	0.5 =	695 cy
Add Pond Depth	250 ft l	x	150 ft w	x	7 ft dp	=	9,723 cy
Haul volume							1,423 cy
Backfill							10,418 cy
Final grade	250 ft l	x	150 ft w			=	4,167 sy

XIib MIXED WASTE SURFACE IMPOUNDMENT

This item includes the demolition and disposal of the offloading pad, MW surface impoundment, berms, and sedimentation basin; as well as excavation of contaminated soils. This is the area from the south edge of the Impoundment offloading pad to the northern berm; and from the Impoundment's west berm edge to the east berm edge.



Impoundment Size	236 ft	x	110 ft	w x	3.99 ft	dp	=	3,835 cy
DEMOLITION								
Debris								
Pump Station	1 ea	x	10 cy				=	10 cy
Primary Pond Liner (estimated)	256 ft	x	130 ft	w x	0.08 in	th	=	9 cy
Secondary Pond Liner (estimated)	256 ft	x	130 ft	w x	0.08 in	th	=	9 cy
Pond Liner Drainage Net (estimated)	256 ft	x	130 ft	w x	0.08 in	th	=	9 cy
Pad Piping	20 ft	x	4.5 in	dia x	2 ea		=	0.2 cy
Evaporation System Piping	446 ft	x	1 in	dia			=	0.1 cy
Evaporation System Equipment	8 cf						=	0.3 cy
Leak Detection System Piping	85 ft	x	10 in	dia			=	2 cy
Leak Detection System Equipment	8 cf						=	1 cy
Debris Total							=	<u>37 cy</u>
Concrete								
Offload Pad								
Concrete Pad	16 ft	x	24 ft	w x	8 in	th	=	10 cy
Concrete Pad Curbing	62 ft	x	8 in	w x	8 in	th	=	2 cy
Leak Detection System								
Pipe Support Concrete Anchor	11 ft	x	5.50 ft	w x	0.5 ft	th	=	2 cy
Concrete Containment Pad Curbing	2 ft	x	3.33 ft	w x	3.00 ft	th	=	1 cy
Concrete Total							=	<u>12 cy</u>
Berms (includes gravel)								
North Berm (clean; use as fill)	130 ft	x	19 ft	w x	3 ft	h	=	275 cy
South Berm (clean; use as fill)	130 ft	x	19 ft	w x	3 ft	h	=	275 cy
East Berm (clean, use as fill)	256 ft	x	19 ft	w x	3 ft	h	=	541 cy
West Berm (clean, use as fill)	256 ft	x	19 ft	w x	3 ft	h	=	541 cy
Offload Ramp (clean; use as fill)	32 ft	x	22 ft	w x	4 ft	h	=	105 cy
Berm Soil Total							=	<u>1,735 cy</u>
EXCAVATION								
Sludge removal	236 ft	x	110 ft	w x	6 in	dp	=	481 cy
Granular Fill Excavation (sump)	15 ft	x	20 ft	w x	1 ft	dp	=	12 cy
Impoundment Soil Excavation (under HDPE)	236 ft	x	110 ft	w x	6 in	th	=	481 cy
Restoration of Grade	236 ft	x	110 ft	w x	6 in	th	=	481 cy
Available clean fill							=	1,735 cy
Backfill Required for Impoundment	236 ft	x	110 ft	w x	4 ft	dp	=	<u>3,835 cy</u>
Excavation Total							=	<u>974 cy</u>

Part B Permit Closure Cost Calculations for EnergySolutions

Borrow required to backfill impoundment		=	2,100 cy
Contaminated haul volume		=	1,023 cy
Placement haul volume		=	1,023 cy
Compaction Volume		=	1,023 cy
Final Grade	254 ft x 128 ft w	=	1,806 sy

XIII EVAPORATION TANKS (4)

DEMOLITION

Tank #125, #150, #175, #200,
Evaporation Tanks Pads (2)

Stem Wall (sf)	100 lf x	1 ft ht x	2 ea	=	200 sf
Stem Wall	100 lf x	1 ft ht x	6.0 in w	0.5 =	2 cy
Floor	30 ft l x	20 ft w x	1 ft th	=	23 cy
Area	30 ft l x	20 ft w		=	67 sy
Wash Pad	30 ft l x	12 ft w x	1 ft th	=	14 cy
Area	30 ft l x	12 ft w		=	40 sy
Footing Dimensions	100 ft l x	2 ft w x	1 ft th	=	8 cy
Area	100 ft l x	2 ft w		=	23 sy
Tank steel	15 ft l x	8 ft w x	2 in th	0.17 =	cy/each
Tank debris		1 cy x	4 am	=	4 cy
Subtotal Debris		51 cy x	2 ea	=	102 cy
Stem Wall Total (sf)				=	400 sf
Footing/pad total area		130 sy x	2 ea	=	260 sy
Footing/pad total volume				=	90 cy
Total debris for all tanks			102 cy	=	102 cy
Soil Excavation Tanks	2 am x	30 ft l x	20 ft w x	6 in dp	0.5 = 12 cy
Total in (sy)					67 sy
Total Soil					12 cy
Haul volume = debris + soil		102 cy +	12 cy	=	114 cy
Backfill = soil excavation volume				=	12 cy
Final grade = soil excavation area				=	67 sy

XIV ON SITE OPEN AREAS

Includes anything not covered by other sections and will include heavy machinery, power poles, fencing, utilities, etc.

DEMOLITION

Propane Tanks Pad	30 ft l	6 ft w	4 in th	0.33 =	3 cy
Cement Exchange Ramp					
Holding Tank	2 Sides x	20 ft ht x	3.14 pi x	5 ft rd	25 = 3 cy
			3.14 pi x	10 ft di	= 3 cy
Tank Total					6 cy
Tank Volume	20 ft ht x	3.14 pi x	5 ft rd	25 =	59 cy
Retaining Wall	8 ft l x	10 ft ht x	1 ft th	=	3 cy
Retaining Wall	8 ft l x	10 ft ht x	1 ft th	=	3 cy
Retaining Wall	15 ft l x	10 ft ht x	1 ft th	=	6 cy
Debris (sf)					310 sf
Debris Total					12 cy
B-25 Equivalents					
Each container is estimated at	6 lf x	2000 containers		=	12,000 lf
Each container is estimated at	1 cy x	2000 containers		=	2,000 cy
Debris Total					2,000 cy
Assume B-25 container torch cut, assume \$106.66 per B-25 equivalent; adjusted annually for inflation					
Power Poles					
Assume 1 ft diameter. Cut into pieces less than 8' x 10". Dispose of all poles in embankment.					
Assume 1 cy / pole and wire					
Total Poles Assume 2 days	14 am x	1 cy x		=	14 cy
Misc debris Assume 5 days				=	14 cy
Fencing	6514 lf l x	6 ft ht x	1 in	0.08 =	272 cy
Total debris					300 cy

EXCAVATION

Cement Exchange Ramp	30 ft l x	10 ft ht x	15 ft w	=	167 cy
Tank Volume					167 cy
Debris Subtotal					59 cy
Ramp Soil Subtotal					226 cy
Section Between Earthen Ramp and MW Treatment Building					108 cy
	200 ft l x	75 ft w x	6 in dp	0.5 =	278 cy
Section Between MW Operations Building and Cell south to MW Treatment building					
	525 ft l x	100 ft w x	6 in dp	0.5 =	973 cy
Section of Land West of Cell to Evaporation Pond (Section Xa & XIII is accounted for in 25 ft less actual measurement)					
	1,000 ft l x	100 ft w x	6 in dp	0.5 =	1,852 cy
Section Along South of cell to storage pad					
	750 ft l x	75 ft w x	6 in dp	0.5 =	1,042 cy
Berm	3,200 lf x	10 ft w x	4 ft ht	=	4,741 cy
soil	3,200 lf x	10 ft w x	6 in dp	0.5 =	1,334 cy
Total Haul Soil					10,328 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Haul Volumes	
Poles	14 cy
B-25 Equivalent Containers	2,000 cy
Misc Debris	14 cy
Fencing	272 cy
Cement Exchange Ramp	300 cy
Debris Total	2,600 cy
Soil Total	10,328 cy
Total Volume	12,928 cy

XV HEALTH PHYSICS STAFF AND RADIATION SURVEY EQUIPMENT

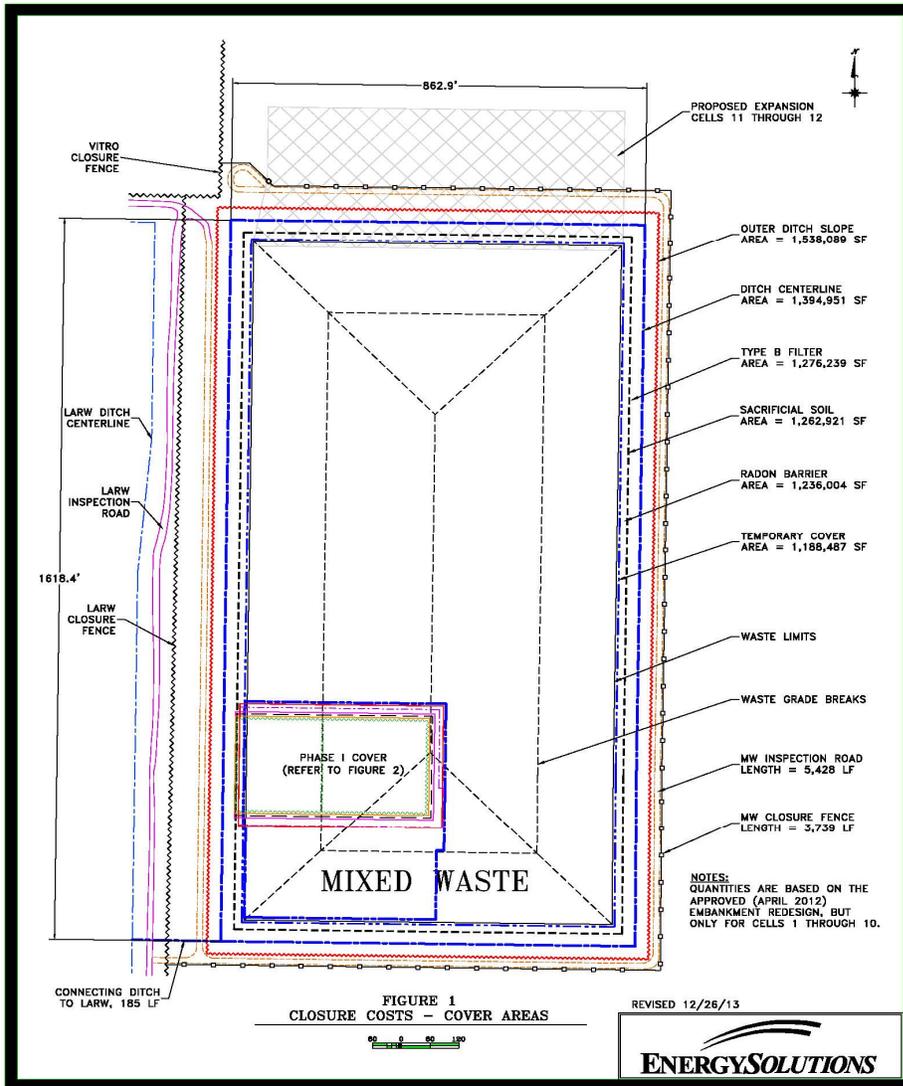
Assume HP support is needed for 18 months to account for pre-closure site preparation and post-closure shut down. Fully fund HP staff for radiation survey, hazardous waste survey, and construction monitoring activities. Fully fund PPE survey equipment, badging, and QC confirmatory analytical analysis; take no credit for existing equipment at the site. The entire site will be monitored to determine the spread of contamination, if any. If contamination is found near the boundaries, off site monitoring will also be performed.

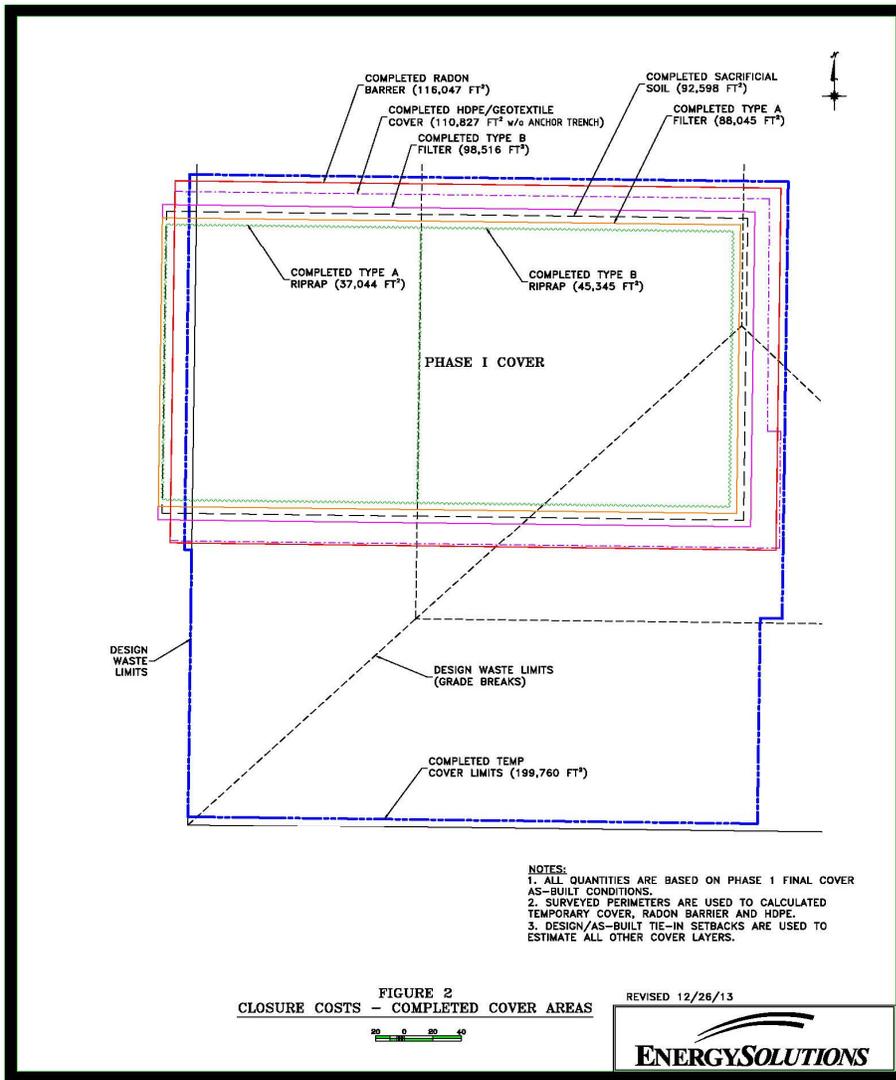
NOTE: Left column reflects original estimated cost; right column incorporates adjustment for inflation.

Equipment: assume	
PPE and Misc Supplies (Lump Sum)	13,524
In-situ gamma spectrometer (2)	75,035
Badging	20,286
QUAI Confirmatory Analysis	107,600
400 samples x \$ 269.00 ea updated annually for inflation	
Personnel: assume 18 months for all staff	
Senior Health Physicist (per hour)	86.57
Senior HP Technician (per hour)	53.90
HP Technicians (3) (per hour)	44.92
Closure Report: Estimated cost	67,227
Monuments: Assume 2	3,318

XVI CELL CLOSURE

This item includes the construction of the final cover, roads around the embankments, drainage structures around the embankments, and permanent fencing. The final cover design is assumed to be consistent with approved plan drawings of the Groundwater Quality Discharge Permit. The assumed maximum quantities of stored waste and waste from site reclamation should bring the embankment up to final grade in preparation for construction of the final cover; no clean fill will be added to achieve the final grade. If the maximum quantities of waste are not on site, and clean fill is needed, the costs associated with the disposal of the assumed maximum waste volume would more than account for the excavation of clean fill and the reclamation of the clean fill areas. Reclamation of the pits, used for erosion barrier and filter material, is covered under a bond with the BLM. The embankment closure design is shown below. All cover calculations are based on this drawing.





TEMPORARY Cover

Temporary Cover

Volume	988,727 sf	x	1 ft	=	36,620 cy
Remove Overburden	36,620 cy	x	0.11	=	4,029 cy

FINAL Cover - Assume uniform cover design; construct ~1,276,243 sf of cover; 11% of mined volume is overburden

Radon Barrier

Radon Barrier Volume	1,119,957 sf	x	2 ft	=	82,960 cy
Radon Barrier Stockpiled (w/ deflocculant)	3,900 cy			=	3,900 cy
Remove Overburden	79,060 cy	x	0.11	=	8,697 cy

Deflocculant (STPP)

Applied at a rate of 3.5 lbs STPP per 50 cf of radon barrier clay.	2,134,620 cf	x	0.07 lbs/cf	=	149,424 lbs
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Geosynthetics (HDPE & Textiles, includes material in anchor trench)

1,153,518 sf		=	128,169 sy
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Erosion Barrier

Assume 1.25 cy excavation per cy product (riprap + filter + sac soil) => Excavation Factor of 2.15
 Filter Zone material cost is covered by this excavation and screening

Erosion Barrier Volume (top slope+side slope to ditch CL)	1,394,951 sf	x	1.50 ft	=	77,498 cy
Erosion Barrier Volume (ditch centerline to ditch outside)	143,138 sf	x	1.00 ft	=	5,302 cy
Total Erosion Barrier Volume	77,498 cy	+	5,302.00 cy	=	82,800 cy

Part B Permit Closure Cost Calculations for EnergySolutions

Total Erosion Barrier Borrow Volume Required	82,800 cy	x	2.15 cy/cy	=	178,020 cy
Erosion Barrier Volume Excavated & Hauled (Stockpiled on Section 5)				=	178,020 cy
Erosion Barrier Borrow Volume (Excavate, Load & Haul)	178,020 cy	-	178,020 cy	=	0 cy
Erosion Barrier Placed (Completed Final Cover)	2,058 cy	+	2,519 cy	=	4,577 cy
Placement: Assume 1.6 tons/cy	78,223 cy	x	1.60 tons/cy	=	125,157 tons
Type A & B Riprap (Erosion Barrier) Volume Stockpiled	16,842 cy	+	981.00 cy	=	17,823 cy

Screening Plant

Approved Screened Material, All Cover Types	10,546 cy	+	23,943 cy	=	34,489 cy
Processing Hours: Assume 280 cy/hr can be processed	143,531 cy	/	280 cy/hr	=	513 hrs
Processing Days: Assume 7 hrs production/day	513 hrs	/	7 hrs/day	=	74 days
Processing Months: Assume 992 hrs is equal to 6 months (plant rental)	513 hrs	/	992 hrs/6 months	=	3.2 months

Sacrificial Soil (produced from erosion borrow material--included in the 2.15 excavation factor)

Sacrificial Soil Volume	1,170,323 sf	x	1.00 ft	=	43,346 cy
Sacrificial Soil Stockpiled	6,120 cy			=	6,120 cy

Filter Zone

Type A Filter Zone Volume (includes ditch centerline to outer slope)	1,450,044 sf	x	0.50 ft	=	26,853 cy		
Type B Filter Zone Volume	1,177,723 sf	x	0.50 ft	=	21,810 cy		
Total Filter Zone Material Volume (including ditch)	26,853 cy	+	21,810 cy	=	48,663 cy		
Type A Filter Zone Volume Stockpiled	4,870 cy			=	4,870 cy		
Type B Filter Zone Volume Stockpiled	5,676 cy			=	5,676 cy		
Total Filter Zone Volume to Process Type A + B	48663 cy	-	4,870 cy	-	5,676 cy	=	38,117 cy
Total Filter Zone Volume to Place (Type A + B)				=	48,663 cy		

ROAD AROUND EMBANKMENT

Roads (As shown in Figure 1)	5,428 ft			=	5,428 lf
<hr/>					
Total Roads				=	5,428 lf
Roads-Grading	5,428 lf	x	15.00 ft w	=	9,047 sy
Roads-Roadbase	81,420 sf	x	1.00 ft th	=	3,016 cy

DRAINAGE

Ditch Length (East)	1618.4 lf			=	1,619 lf
Ditch Length (West)	1618.4 lf			=	1,619 lf
Ditch Length (North)	862.9 lf			=	863 lf
Ditch Length (South)	862.9 lf			=	863 lf
Ditch Length (connector)	185 lf			=	185 lf
<hr/>					
Excavation of Ditches	5149 lf	x	22.5 ft w x 4.5 ft dp	=	19,309 cy
Note: Ditch dimensions updated to those in drawing 11009-W02, Rev 0 & 11009-W04, Rev 0.					
Note: Ditch filter and erosion barrier materials and placement are included in the Erosion Barrier and Filter Zone calculations above.					

FENCES

Installation of permanent Fencing (As shown in Figure 1)	3739 lf			=	3,739 lf
Signs	3739 lf	1 per	1	100 ft	= 37 ea

XVII GENERAL CLOSURE OF SECTION

Revegetation Total Restricted Area Less Mixed Waste Cell
Fig 9301-4

Removal of signs Assume 2 days

Restoration of Grade Fill in any depressions not filled in previous sections:

HAUL TO LANDFILL

Debris Loading, hauling, and Disposal - assume 50 cy not covered previously; 100 miles round trip.

ROTARY DUMP PCB DECONTAMINATION AND VERIFICATION

(Only necessary if PCBs have been off-loaded in the Facility)

Standard Wipe Test Samples (five total each round; assume two rounds of sampling)

10

Decontamination and sampling (assume 2 laborers; one week)

80 hrs

CLEANUP OF VARIOUS ITEMS

NOTE: equipment quantities derive in part from Approval Order by the Utah Division of Air Quality

Heavy Equipment - misc.					3 ea
Small Equipment					6 ea
6-Wheel Trucks - assume 3 days each to decontaminate					4 ea
Bulldozers - assume 2 days each to decontaminate					4 ea
Front-end Loaders - assume 1.5 days each to decontaminate					3 ea
Backhoe - assume 1.5 days each to decontaminate					7 ea
Compactors - assume wash 1/ day					0 ea
Water Trucks - assume 2 days each to decontaminate					1 ea
Graders - assume wash 1/ day					0 ea

John Deer Tractors - assume wash 1 / day					1 ea
Pickup - assume wash 4 / day					2 ea
Rail Cars - 0 max - 1.5 days / car					0 ea
JCB's - Assume 3 days each to decontaminate					4 ea
Forklifts - Assume 1 day each to decontaminate					8 ea
Other - Assume 3 days each to decontaminate					0 ea

NOTE: time to clean equipment for 2 laborers

Heavy Equipment - misc.	1	days	24	hours
Small Equipment	1	days	48	hours
6-Wheel Trucks - assume 3 days each to decontaminate	3	days	96	hours
Bulldozers - assume 2 days each to decontaminate	2	days	64	hours
Front-end Loaders - assume 1.5 days each to decontaminate	2	days	36	hours

Part B Permit Closure Cost Calculations for EnergySolutions

Backhoe - assume 1.5 days each to decontaminate	2	days	84	hours
Compactors - assume wash 1/ day	1	days	0	hours
Water Trucks - assume 2 days each to decontaminate	2	days	16	hours
Graders - assume wash 1/ day	1	days	0	hours
John Deer Tractors - assume wash 1 / day	1	days	8	hours
Pickup - assume wash 4 / day	4	days	64	hours
Rail Cars - 0 max - 1.5 days / car	2	days	0	hours
JCB's - Assume 3 days each to decontaminate	3	days	96	hours
Forklifts - Assume 1 day each to decontaminate	1	days	64	hours
Other - Assume 3 days each to decontaminate	3	days	0	hours

XXVIII STOCKPILE OF CLOSURE ASSETS

EnergySolutions takes credit for material stockpiled temporarily for active cover construction projects.

XXIX MOBILIZATION

Assume 4% of direct costs for mobilization and 1.86% for demobilization

XX CONTINGENCY

Assume 11% of direct costs

XXI ENGINEERING AND REDESIGN

If the cell is to be closed prior to completion, the only major change will be to cell, adjusting footprints, etc. The cover design will remain the same. Assume 2.25% of direct cost.

XXII WORKING CONDITIONS

Assume 5.5% of direct cost

XXIII PROFIT AND OVERHEAD

Assume 19% of direct cost

XXIV MANAGEMENT FEE AND LEGAL EXPENSES

Assume 4% of direct cost for management and legal expense

XXV DEQ OVERSIGHT OF PROJECT

Assume 4% of direct costs

XXVI POST OPERATIONAL MONITORING AND MAINTENANCE

Required for 100 years of post-closure period.				
Travel	2 hours/ day for 1 week		10 hours per week	
Off site Features			4 hours per year	
Access road Maintenance - Assume no maintenance needed for first five years; after that a dozer or grader is needed for 1 day		10 hr /		5 yrs
2	Hours of equipment	0.25		
4	Hours of inspection			
2	Hours average per year.			
Fence Maintenance - Fence is essentially maintenance free; assume some vandalism or broken wires.				
4	Hour of inspection			
2	Hours repair per year			
Gates - assume some vandalism	2 Gate	Every		5 Years
4	Hours of inspection			
Signs	2 Sign	Every		10 Years
4	Hours of inspection			
Monuments	2 Mon.	Every		100 Years
4	Hours of inspection			
Wells	2 Well	Every		10 Years
Surface Completion per year		\$100		
4	Hours of inspection			
\$ 490.14	Average well replacement per year.			
\$100.00	Average surface completion			
\$ 590.14	Total average per year.			
Slopes - largely maintenance free.	10 cy	\$ 134	Every	5 Years
No other material needed.				
2	Hours inspection			
2	Hours of equipment	8 hr day	0.25	
2	cy of riprap per year			
\$ 26.88	Average cost per year			
Cell Structure - Riprap	10 cy	\$ 134	Every	5 Years
Equipment	10 hr	\$ 436.96	Every	5 Years
2	cy of riprap per year			
2	Average hours of equipment per year			
2	Hours of Inspection and vegetation control			
Diversion Channels - inspect, remove vegetation, regrade				
2	Hours of inspection/ labor per year.			
2	Hours of equipment	8 hr day	0.25	
Written report of inspection and Maintenance activities for regulators				

XXVII WATER SAMPLES -- RADIOLOGICAL (years 1-100)

Part B Permit Closure Cost Calculations for EnergySolutions

Number of wells - Ground Water Quality Discharge Permit total is
 14 Monitoring wells (Module VI)
 Frequency - annual for 100 years post-closure monitoring period. Frequency 1
 Sampling - assume two field technicians for two days:
 2 Days per year total
 Analysis - radiologic parameters specified by Condition I.F.5 of GWQDP
 Average cost per sample to EnergySolutions .
 14 Radiologic parameters
 Report - included in cost of analysis.

XXVIII WATER SAMPLES -- RCRA (years 1-30)

Number of wells - State-issued Part B Permit total is
 14 Monitoring wells (Module VI)
 Frequency - annual for 30 years post-closure monitoring period. Frequency 1
 Sampling - assume two field technicians for two days:
 2 Days per year total
 Analysis - all field and radiologic parameters specified by State-issued Part B Permit
 Average cost per sample to EnergySolutions .
 14 RCRA parameters
 Report - included in cost of analysis.

XXIX EMBANKMENT SURVEY (years 1-30)

Fund for 30 year post-closure monitoring period.
 Aerial survey of Mixed Waste embankment: cost estimated on current cost of site-wide aerial survey

XXX AIRBORNE PARTICULATE MONITORING

To be performed only in the first year of post-closure 52 weekly visits.

GROSS ALPHA

9 Samples
 52 Weeks (1 year) frequency
 2 Personnel required for all required sampling
 2 Days total
 Analysis cost estimate from Testamerica

ISOTOPIC ANALYSIS

6 Samples
 1 Frequency
 Analysis cost estimate from Testamerica

XXXI SOIL SAMPLING

ALPHA

45 Samples
 1 Frequency
 Analysis cost estimate from Testamerica

ISOTOPIC ANALYSIS

6 Samples
 1 Frequency
 Analysis cost estimate from Testamerica

XXXII VEGETATION SAMPLING

Information from 1994 Trust and Table 7.2 of Radiological Monitoring Program (mar 1995)
 4 Samples
 1 Frequency
 Analysis cost estimate from Testamerica

XXXIII GAMMA EXPOSURE MONITORING

8 Samples
 4 Frequency
 Equipment - assume use "electret" reader owned by EnergySolutions
 Analysis cost estimate from Testamerica

XXXIV RADON EXPOSURE MONITORING

8 Samples
 4 Frequency
 Analysis cost estimate from Testamerica

Section	Item	Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
I	Treatment of Stored Waste						
	Formula Development	Each	4	\$ 27,219.36	\$ 108,877.44		Note: EnergySolutions minimizes acceptance of waste without formula. Formula development costs re-evaluated as of 2009. Estimated at \$25,000 per waste Stream. Reduced to 4
	Treatment	CY	4,000	\$ 292.20	\$ 1,168,802.49		From Attachment II-7-1 Reduced from 4,435 cy. The maximum quantity of waste at the site, which is inclusive of all waste outside of permitted disposal areas, shall not exceed 5,000 cubic yards. Within these 5,000 cubic yards, the quantity of untreated waste at the site shall not exceed 4,000 cubic yards including VTD Condensate, liquids in the Evaporation Tanks and MW Liquid Storage Tanks, liquid, waste in the Decontamination Tanks, and water managed in the Mixed Waste Surface Impoundment. These limits include waste that was generated both on site and off site and includes materials that when declared a waste would become an untreated hazardous waste, such as the decontamination water within the 90-day tanks at the wash bay and laboratory chemicals.
	Verification Analytical	Each	80	\$ 2,976.00	\$ 238,079.80		Reduced from 158 for 8,000 cy with initial calculation to 138 for 6,935 cy. Reduced to 80 for 4,000 cy
	Haul Volume	CY	5,000	\$ 1.87	\$ 9,350.00	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT. Volume reduced from 12,000 cy.
	Place in Cell	CY	5,000	\$ 1.85	\$ 9,250.00	312323170020	place soil in cell w/dozer
	Compaction in Cell	CY	5,000	\$ 1,600.00	\$ 8,000.00	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
				Total	\$ 1,535,959.72		
II	Staging Area						Assume total decommissioning time is 24 months; existing facilities used for half this time.
	Trailer	Months	24	\$ 340.00	\$ 8,160.00	015213200550	Field office - 50' x 12' trailer - 2 units for 12 months each
	Trailer delivery	Miles	300	\$ 10.60	\$ 3,180.00	015213200800	Trailer delivery and demobilization -- 150 miles round trip per trailer
	Temporary Decon Facility	Months	2	\$ 2,745.38	\$ 5,490.77		Cost to rent/operate mobile pad (inc. steam cleaner), use existing pad for first 22 months
				Total	\$ 16,830.77		
III	Storage Pads and MW Truck Unloading Facility						
	East Container Storage Area						
	Asphalt	SY	9,281	\$ 6.90	\$ 64,038.90	024113175050	Pavement Removal 4" to 6" thick
	Storage Pad Base	CY	2,074	\$ 2.70	\$ 5,589.43	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Soil Excavation	CY	1,548	\$ 2.70	\$ 4,171.86	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Southeast Container Storage Area						
	Concrete	SF	6,720	\$ 13.84	\$ 93,004.80	024116172440	Concrete plain 10" thick
	Storage Pad Base	CY	167	\$ 2.70	\$ 450.07	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Soil Excavation	CY	125	\$ 2.70	\$ 336.88	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Sump Removal	EA	1	\$ 325.00	\$ 325.00	024113330020	Remove Catch Basin
	South Container Storage Area						
	Asphalt	SY	4,979	\$ 6.90	\$ 34,355.10	024113175050	Pavement Removal 4" to 6" thick
	Storage Pad Base	CY	1,660	\$ 2.70	\$ 4,473.70	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Soil Excavation	CY	830	\$ 2.70	\$ 2,236.85	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Drainage Trough upgrade						
	Concrete sides	SF	1,530	\$ 11.41	\$ 17,452.71	024116172400	Cost reflects a 6" thick wall with a 10 % addition for reinforcing bars
	Concrete bottom	SF	1,020	\$ 13.06	\$ 13,318.14	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
	Central Container Storage Area						
	Asphalt	SY	2,167	\$ 6.90	\$ 14,952.30	024113175050	Pavement Removal 4" to 6" thick
	Storage Pad Base	CY	484	\$ 2.70	\$ 1,304.38	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
38				Soil Excavation			CY	362	\$ 2.70	\$ 975.59	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
39				Haul Volumes			CY	9,340	\$ 1.87	\$ 17,465.80	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
40				Place Material in cell								
41				Debris			CY	2,090	\$ 3.70	\$ 7,733.00	312323170020	place, w/ dozer (200% soil costs)
42				soil			CY	7,250	\$ 1.85	\$ 13,412.50	312323170020	place soil in cell w/dozer
43				Compaction of Material in Cell			CY	9,340	\$ 0.32	\$ 2,988.80	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
44				Restoration of Grade								
45				Backfill			CY	2,865	\$ 3.58	\$ 10,256.70	312316502300	Common Earth hauling
46				Final Grade			SY	17,174	\$ 0.15	\$ 2,576.10	312216103300	Final Grade Disturbed Area
47				MW Truck Unloading Facility (outside Restricted Area)								
48				Retaining Walls			SF	1,967	\$ 13.06	\$ 25,683.12	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
49				Footings			SF	1,064	\$ 18.28	\$ 19,452.05	024116172500	Concrete removal 12" reinforced
50				Asphalt			SY	1,120	\$ 6.90	\$ 7,728.00	024113175050	Assume truck parking area is similar to 6" of asphalt pavement
51				Haul to Landfill								
52				Debris Loading			CY	306	\$ 16.75	\$ 5,125.50	024119193080	Rubbish handling, loading
53				Haul			CY	306	\$ 0.64	\$ 195.84	024119195100	2 Mile RT, rubbish handling, over 8 CY truck to Class A cell
54				Place Material in cell								Calculated with placement and compaction costs for LLRW Disposal
55				Debris			CY	306	\$ 3.70	\$ 1,132.20	312323170020	place, w/ dozer (200% soil costs)
56				soil			CY	306	\$ 1.85	\$ 566.10	312323170020	place soil in cell w/dozer
57				Compaction in Cell			CY	306	\$ 0.32	\$ 97.92	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
58												
59												
60	IV	Pump House and Water Tank										
61				Pump House building			CF	2,800	\$ 0.29	\$ 812.00	024116130700	Building demolition of a small metal building
62				Foundation								
63				Stem Wall			SF	136	\$ 13.06	\$ 1,775.75	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
64				Footing			LF	68	\$ 12.01	\$ 816.68	024116171000	Footings 1' wide x 2' thick
65				Flooring			SF	280	\$ 13.06	\$ 3,655.96	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
66				Haul to Landfill								
67				Debris Loading			CY	28	\$ 16.75	\$ 469.00	024119193080	Rubbish handling, loading
68				Haul			CY	28	\$ 3.41	\$ 95.48	312323200018	8 CY truck to Class A cell 2 miles RT
69				Place Material in cell								Calculated with placement and compaction costs for LLRW Disposal
70				Debris			CY	28	\$ 3.70	\$ 103.60	312323170020	place, w/ dozer (200% soil costs)
71				soil			CY	28	\$ 1.85	\$ 51.80	312323170020	place soil in cell w/dozer
72				Compaction in Cell			CY	28	\$ 0.32	\$ 8.96	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
73												
74												
75	Va	Mixed Waste Storage Building										
76				DECONTAMINATION								
77				Tank #0275								
78				Triple Rinse to RCRA Clean			Days	1	\$ 542.02	\$ 542.02		Assume 1 day per tank
79				Miscellaneous Equipment			Days	2	\$ 542.02	\$ 1,084.04		Triple Rinsing of miscellaneous equipment
80				DEMOLITION								
81				Mixed Waste Storage Building			CF	128,727	\$ 0.29	\$ 37,330.83	024116130700	building demolition of a small metal building
82				Foundation								
83				Stem Wall								
84				Mixed Waste Storage Building			SF	966	\$ 13.06	\$ 12,613.06	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
85				Secondary Containment			SF	352	\$ 13.06	\$ 4,596.06	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
86				Outside Wash pad (east/west)			SF	60	\$ 13.06	\$ 783.42	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
87				Outside wash pad (north/south)			SF	30	\$ 13.06	\$ 391.71	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
88				Outside Dock Walls			SF	238	\$ 13.06	\$ 3,107.57	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
89												
90				Footing								
91				Mixed Waste Storage Building			LF	322	\$ 12.01	\$ 3,867.22	024116171000	Footings 1' wide x 2' thick
92				Outside Dock Footing			LF	160	\$ 12.01	\$ 1,921.60	024116171000	Footings 1' wide x 2' thick
93				Secondary Containment			SF	294	\$ 12.01	\$ 3,530.94	024116171000	Footings 1' wide x 2' thick. Footing is adjusted to account for odd size footings

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
94					Observation Area Stem Wall/Footing		SF	170	\$ 12.01	\$ 2,041.70	024116171000	Footings 1' wide x 2' thick
95			Concrete									
96				1st Floor Flooring			SY	667	\$ 14.50	\$ 9,671.50	024113175300	cost is the same as a concrete driveway 6" thick reinforced
97				Secondary Containment			SY	55	\$ 14.50	\$ 797.50	024113175300	cost is the same as a concrete driveway 6" thick reinforced
98				Outside Wash Pad			SY	200	\$ 14.50	\$ 2,900.00	024113175300	cost is the same as a concrete driveway 6" thick reinforced
99				Outside Dock			SF	1,742	\$ 13.06	\$ 22,745.29	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement
100				Observation Area Floor Slab			SF	288	\$ 14.50	\$ 4,176.00	024113175300	cost is the same as a concrete driveway 6" thick reinforced
101												
102												
103			Asphalt				SY	2,084	\$ 4.20	\$ 8,752.80	024113175010	Pavement removal, bituminous roads; 3" thick
104				Cover Of 2nd Containment			SF	595	\$ 3.19	\$ 1,898.19	090505203820	2x8 flooring demolition: Added 200% for metal roofing
105			Utilities									
106				Septic Tanks			Each	1	\$ 327.10	\$ 327.10		
107				Soil Excavation			CY	1,232	\$ 2.70	\$ 3,320.24	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
108				Hauling Volume			CY	2,039	\$ 1.87	\$ 3,812.93	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
109				Place Material in cell								
110				Debris			CY	886	\$ 3.70	\$ 3,278.20	312323170020	place, w/ dozer (200% soil costs)
111				soil			CY	1,232	\$ 1.85	\$ 2,279.20	312323170020	place soil in cell w/dozer
112				Compaction			CY	2,039	\$ 0.32	\$ 652.48	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
113				Restoration of Grade								
114				Backfill			CY	771	\$ 3.58	\$ 2,760.18	312316502300	Common Earth hauling
115				Final Grade			SY	3,199	\$ 0.15	\$ 479.85	312216103300	Final Grade Disturbed Area
116				Asphalt Parking Lot (outside Restricted Area)								
117				Asphalt			SY	4,445	\$ 4.20	\$ 18,669.00	024113175010	Pavement removal, bituminous roads; 3" thick
118				Haul to Landfill								
119				Debris Loading			CY	371	\$ 16.75	\$ 6,214.25	024119193080	Rubbish handling, loading
120				Haul			CY	371	\$ 3.41	\$ 1,265.11	312323200018	8 CY truck to Class A cell 2 miles RT
121				Place Material in cell								Calculated with placement and compaction costs for LLRW Disposal
122				Debris			CY	371	\$ 3.70	\$ 1,372.70	312323170020	place, w/ dozer (200% soil costs)
123				soil			CY	371	\$ 1.85	\$ 686.35	312323170020	place soil in cell w/dozer
124				Compaction in Cell			CY	371	\$ 0.32	\$ 118.72	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
125												
126	Vb	Thermal Desorption Unit										Macro extruder moved to VIIC.
127												
128				Removal			Days	2	\$ 542.02	\$ 1,084.04		Estimated
129				Triple Rinse			Days	1	\$ 542.02	\$ 542.02		Estimated
130				Decontamination			Days	2	\$ 542.02	\$ 1,084.04		Estimated
131												
132				Haul Volume			CY	34	\$ 1.87	\$ 63.58	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
133				Disposal in Cell								
134				Placement			CY	34	\$ 3.70	\$ 125.80	312323170020	place, w/ dozer (200% soil costs)
135				Compaction			CY	34	\$ 0.32	\$ 10.88	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
136								Total	\$	170,898.15		
137												
138	Via	Mixed Waste Treatment Building										
139		(all cement is included in MW Treatment Building)										
140		DEMOLITION										
141				Mixed Waste Treatment Building			CF	280,600	\$ 0.29	\$ 81,374.00	024116130700	Building demolition of a small metal building
142				Foundation								
143				Stem Wall			SF	3,280	\$ 19.94	\$ 65,416.32	024116172500	Cost reflects a 12" thick wall with a 20% addition for reinforcing bars
144				Footing			CY	11	\$ 120.50	\$ 1,325.50	024113175500	24" thick reinforced concrete
145				Interior Concrete (Tank walls and footings)			CY	99	\$ 120.50	\$ 11,929.50	024113175500	24" thick reinforced concrete
146				Flooring in Viewing Area 6" thick			SY	23	\$ 14.50	\$ 333.50	024113175300	6" thick rod reinforced concrete
147				Flooring in Storage Area 8" thick			SF	1,200	\$ 13.06	\$ 15,668.40	024116172420	Remove 8" thick concrete wall; add 10% for heavy reinforcement

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
148		Flooring in Main building					SY	900	\$ 14.50	\$ 13,050.00	024113175300	reinforced concrete
149		Misc. Conc Slabs					SY	235	\$ 14.50	\$ 3,407.50	024113175300	reinforced concrete
150		Soil Excavation										
151		Mixed Waste Treatment Building					CY	177	\$ 2.70	\$ 477.02	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
152		Concrete Pads					CY	25	\$ 2.70	\$ 67.38	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
153		Haul Volumes					CY	1,098	\$ 1.87	\$ 2,053.26	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
154		Place into cell										
155		Debris					CY	896	\$ 3.70	\$ 3,315.20	312323170020	place, w/ dozer (200% soil costs)
156		Soil					CY	202	\$ 1.85	\$ 373.70	312323170020	place soil in cell w/dozer
157		Compaction					CY	1,098	\$ 0.32	\$ 351.36	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
158		Restoration of Grade										
159		Backfill					CY	202	\$ 3.58	\$ 723.16	312316502300	Common Earth hauling
160		Final Grade					SY	1,185	\$ 0.15	\$ 177.75	312216103300	Final Grade Disturbed Area
161												
162												
163	Vib	Waste Receiving Tank										Cement tank; all demolition, hauling, and disposal accounted for in section VIa.
164												
165	Vic	Liquid Waste Storage Tanks										
166		DECONTAMINATION										
167		Triple Rinse (RCRA Clean)					Days	2	\$ 542.02	\$ 1,084.04		Time needed to Triple rinse steel to RCRA Clean
168		DEMOLITION										
169		Steel Tanks										
170		Torch Cutting					lf	232	\$ 1.75	\$ 406.00	050521100100	Torch cutting steel 1/2" thick
171		Leveling Pad					SY	16	\$ 11.87	\$ 189.92	024116172420	Concrete plain 8" thick
172		Tank Pad										
173							SY	16	\$ 11.87	\$ 189.92	024116172420	Concrete plain 8" thick
174							SY	35	\$ 13.84	\$ 484.40	024116172440	Concrete plain 10" thick
175							SY	16	\$ 11.41	\$ 182.51	024116172400	Remove 6" thick reinforced
176		Footings					LF	59	\$ 12.01	\$ 708.59	024116171000	Footings 1' wide x 2' thick
177		Haul Volumes					CY	44	\$ 1.87	\$ 82.28	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
178		Placement										
179		Debris					CY	44	\$ 3.70	\$ 162.80	312323170020	place, w/ dozer (200% soil costs)
180		Compaction of Material in Cell					CY	44	\$ 0.32	\$ 14.08	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
181												
182	Vid	Primary & Tertiary Shredders										Concrete demolition, hauling, and disposal accounted for in section VIa
183		Removal of machinery					Days	2	\$ 338.78	\$ 677.55		Time needed to take machinery down from platforms
184		Triple Rinse (RCRA Clean)					Days	2	\$ 542.02	\$ 1,084.04		Time needed to Triple rinse steel to RCRA Clean
185												
186	Vie	Mixer Tank										Concrete demolition, hauling, and disposal accounted for in section VIa
187		Removal of machinery					Days	2	\$ 542.02	\$ 1,084.04		Time needed to take machinery down from platforms
188		Triple Rinse (RCRA Clean)					Days	2	\$ 542.02	\$ 1,084.04		Time needed to Triple rinse steel to RCRA Clean
189		Tank Cutting					LF	126	\$ 1.17	\$ 147.42	024119270020	Estimated cutting required to meet max permissible disposal size
190												
191	Vif	Dust Collection System										Concrete demolition, hauling, and disposal accounted for in section VIa
192		Removal of Duct (in Building Debris vol)										Duct demolition included in building demolition above.
193		Removal of machinery					Days	6	\$ 542.02	\$ 3,252.13		Time needed to take machinery down from platforms
194												
195	Vig	Turn Around Area										
196		Asphalt					SY	2,078	\$ 6.90	\$ 14,338.20	024113175050	Pavement Removal 4" to 6" thick
197		Pad Base					CY	465	\$ 2.70	\$ 1,253.18	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
198		Soil Excavation					CY	347	\$ 2.70	\$ 935.17	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
199		Haul Volumes					CY	986	\$ 1.87	\$ 1,843.82	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
200		Place material in cell										
201		Debris					CY	174	\$ 3.70	\$ 643.80	312323170020	place, w/ dozer (200% soil costs)

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
202				Soil			CY	812	\$ 1.85	\$ 1,502.20	312323170020	place soil in cell w/dozer
203			Compaction of Material in Cell				CY	986	\$ 0.32	\$ 315.52	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
204			Restoration of Grade									
205				Backfill			CY	347	\$ 3.58	\$ 1,242.26	312316502300	Common Earth Hauling
206				Final Grade			SY	2,078	\$ 0.15	\$ 311.70	312216103300	Final Grade Disturbed Area
207									Total	\$ 233,263.17		
208												
209	VIIa	Mixed Waste Operations Building										
210		DECONTAMINATION										
211			Misc equipment and furniture				Days	5	\$ 542.02	\$ 2,710.11		Estimated decon time for Misc furniture and equipment
212		DEMOLITION										
213			Operations Building				CF	524,550	\$ 0.29	\$ 152,119.50	024116130700	Building demolition of a small metal building
214			Foundation									
215				Stem Wall			SF	1,168	\$ 14.24	\$ 16,636.99	024116172420	Cost reflects a 8" thick wall with a 20 % addition for reinforcing bars
216				Footing			CY	10	\$ 120.50	\$ 1,205.00	024113175500	7" to 24" thick reinforced concrete
217			Concrete Floor				CY	628	\$ 120.50	\$ 75,674.00	024113175500	7" to 24" thick reinforced concrete
218			Secondary Containment				CY	36	\$ 120.50	\$ 4,338.00	024113175500	7" to 24" thick reinforced concrete
219			Utilities									
220				Septic Tanks			Each	2	\$ 327.10	\$ 654.20		
221			Liner Shredding				Days	1	\$ 1,598.91	\$ 1,598.91		Estimated time to shred (shredder plus personnel) the liner under concrete flooring
222			Soil Excavation									
223				Pea Gravel			CY	484	\$ 2.70	\$ 1,304.38	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
224				Soils Excavation			CY	375	\$ 2.70	\$ 1,010.63	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
225			Haul Volumes				CY	2,490	\$ 1.87	\$ 4,656.30	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
226			Place into cell									
227				Debris			CY	1,147	\$ 3.70	\$ 4,243.90	312323170020	place, w/ dozer (200% soil costs)
228				Soil			CY	859	\$ 1.85	\$ 1,589.15	312323170020	place soil in cell w/dozer
229			Compaction of Material in Cell				CY	2,490	\$ 0.32	\$ 796.80	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
230			Restoration of Grade									
231				Backfill			CY	859	\$ 3.58	\$ 3,075.22	312316502300	Common Earth hauling
232				Final Grade			SY	2,244	\$ 0.15	\$ 336.60	312216103300	Final Grade Disturbed Area
233			Outside Restricted Area									
234			Asphalt Parking Lot				SY	250	\$ 4.20	\$ 1,050.00	024113175010	Pavement removal, bituminous roads; 3" thick
235			Haul to Landfill									
236				Debris Loading			CY	21	\$ 16.75	\$ 351.75	024119193080	Rubbish handling, loading
237				Haul			CY	21	\$ 3.41	\$ 71.61	312323200018	8 CY truck to Class A cell 2 miles RT
238			Place Material in cell									Calculated with placement and compaction costs for LLRW Disposal
239				Debris			CY	21	\$ 3.70	\$ 77.70	312323170020	place, w/ dozer (200% soil costs)
240				soil			CY	21	\$ 1.85	\$ 38.85	312323170020	place soil in cell w/dozer
241			Compaction of Material in Cell				CY	21	\$ 0.32	\$ 6.72	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
242	VIIb	Small-Scale Mixer #1										Hauling and disposal accounted for in section VIIa.
243			Removal of machinery				Days	2	\$ 542.02	\$ 1,084.04		
244			Triple Rinse (RCRA Clean)				Days	1	\$ 542.02	\$ 542.02		Time needed to Triple rinse steel to RCRA Clean
245												
246	VIIc	RESERVED										
247												
248	VIIId	Drum Compactor										Hauling and disposal accounted for in section VIIa.
249			Triple Rinse (RCRA Clean)				Days	1	\$ 542.02	\$ 542.02		Time needed to Triple rinse steel to RCRA Clean
250												
251	VIIe	Gray Water Tank										
252			Triple Rinse					1	\$ 542.02	\$ 542.02		Time needed to Triple rinse steel to RCRA Clean
253		DEMOLITION										
254			Steel Tanks									
255				Torch Cutting			lf	88	\$ 1.75	\$ 154.00	050521100100	Torch cutting steel 1/2" thick
256			Tank Pad									
257							SY	8	\$ 120.50	\$ 964.00	024113175500	Demolition of reinforced concrete 7" to 24" thick
258			Haul Volumes				CY	9	\$ 1.87	\$ 16.83	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
259			Placement									

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
260				Debris			CY	9	\$ 3.70	\$ 33.30	312323170020	place, w/ dozer (200% soil costs)
261				Compaction of Material in Cell			CY	9	\$ 0.32	\$ 2.88	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
262												
263	VIf	Microencapsulation Extruder and Crusher										Hauling and disposal accounted for in section VIIa.
264				Removal of machinery			Days	6	\$ 542.02	\$ 3,252.13		
265				Triple Rinse (RCRA Clean)			Days	3	\$ 542.02	\$ 1,626.07		Time needed to Triple rinse steel to RCRA Clean
266												
267	VIfg	Kinetic Mixer										Hauling and disposal accounted for in section VIIa.
268				Removal of machinery			Days	2	\$ 542.02	\$ 1,084.04		
269				Triple Rinse (RCRA Clean)			Days	1	\$ 542.02	\$ 542.02		Time needed to Triple rinse steel to RCRA Clean
270												
271	VIfh	Reserved -- Box hopper and elevator have been removed										
272												
273	VIfi	Dust Collection System										
274				(all cement is included in Section VIIa)								
275				Removal of Duct (in Building Debris vol)								Duct demolition included in building demolition above.
276				Removal of machinery			Days	2	\$ 542.02	\$ 1,084.04		Time needed to take machinery down from platforms
277									Total	\$ 285,015.75		
278												
279	VIII	Rail Car Unloading Facility										
280				DEMOLITION								
281				Floor concrete			CY	17	\$ 120.50	\$ 2,048.50	024113175500	24" thick reinforced concrete
282				Footing			LF	90	\$ 12.01	\$ 1,080.90	024116171000	Footings 1' wide x 2' thick
283				Retaining walls			SF	360	\$ 19.94	\$ 7,179.84	024116172500	Cost reflects a 12" thick wall with a 20% addition for reinforcing bars
284				Earthen Ramp			CY	9	\$ 2.70	\$ 24.26	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
285				Soil Excavation			CY	85	\$ 2.70	\$ 229.08	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
286				Haul volumes			CY	128	\$ 1.87	\$ 239.36	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
287				Place Material in cell								
288				Debris			CY	43	\$ 3.70	\$ 159.10	312323170020	place, w/ dozer (200% soil costs)
289				Soil			CY	85	\$ 1.85	\$ 157.25	312323170020	place soil in cell w/dozer
290				Compaction of material in cell			CY	128	\$ 0.32	\$ 40.96	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
291				Restoration of Grade								
292				Backfill			CY	9	\$ 3.58	\$ 32.22	312316502300	Common Earth hauling
293				Final Grade			SY	50	\$ 0.15	\$ 7.50	312216103300	Final Grade Disturbed Area
294									Total	\$ 11,198.96		
295												
296	IX	Railroads Inside Restricted Area										
297				DEMOLITION								
298				Ties , track			LF	1,750	\$ 8.76	\$ 15,330.00	024113333500	Site demolition - railroad removal, ties and track
299				Ballast excavation			CY	1,216	\$ 4.33	\$ 5,265.28	024113333600	Excavate all ballast
300				Base excavation			CY	2,091	\$ 2.70	\$ 5,635.25	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
301				Soil excavation			CY	778	\$ 2.70	\$ 2,096.71	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
302				Haul volumes			CY	4,261	\$ 1.87	\$ 7,968.07	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
303				Placement in Cell								
304				Debris			CY	176	\$ 3.70	\$ 651.20	312323170020	place, w/ dozer (200% soil costs)
305				Soil			CY	4,085	\$ 1.85	\$ 7,557.25	312323170020	place soil in cell w/dozer
306				Compaction in Cell			CY	4,261	\$ 0.32	\$ 1,363.52	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
307				Restoration of Grade								
308				Backfill			CY	778	\$ 3.58	\$ 2,785.24	312316502300	Common Earth hauling
309				final Grade			SY	9,723	\$ 0.15	\$ 1,458.45	312216103300	Final Grade Disturbed Area
310									Total	\$ 50,110.97		
311												
312	Xa	Roads Inside Restricted Area										
313				EXCAVATION								
314				Soil excavation			CY	6,921	\$ 2.70	\$ 18,652.10	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
315				Soil hauling			CY	6,921	\$ 1.87	\$ 12,942.27	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
316		Soil placement					CY	6,921	\$ 1.85	\$ 12,803.85	312323170020	place soil in cell w/dozer
317		Soil compaction					CY	6,921	\$ 0.32	\$ 2,214.72	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
318		Restoration of Grade										
319		Backfill					CY	1,597	\$ 3.58	\$ 5,717.26	312316502300	Common Earth hauling
320		Final grade					SY	9,581	\$ 0.15	\$ 1,437.15	312216103300	Final Grade Disturbed Area
321								Total		\$ 53,767.35		
322												
323	Xb	RESERVED										
324												
325	Xc	RESERVED										
326												
327	Xd	Asphalt Pad Intermodal Transfer Area										
328		Asphalt					SY	2,216	\$ 4.20	\$ 9,307.20	024113175010	Pavement removal, bituminous roads; 3" thick
329		Haul to Landfill										
330		Debris Loading					CY	186	\$ 16.75	\$ 3,115.50	024119193080	Rubbish handling, loading
331		Haul					CY	186	\$ 3.41	\$ 634.26	312323200018	8 CY truck to Class A cell 2 miles RT
332		Place Material in LLRW cell										Calculated with placement and compaction costs for LLRW Disposal
333		Debris					CY	186	\$ 3.70	\$ 688.20	312323170020	place, w/ dozer (200% soil costs)
334		soil					CY	186	\$ 1.85	\$ 344.10	312323170020	place soil in cell w/dozer
335		Compaction in Cell					CY	372	\$ 0.32	\$ 119.04	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
336		Restoration of Grade										
337		final Grade					SY	2,216	\$ 0.15	\$ 332.40	312216103300	Final Grade Disturbed Area
338								Total		\$ 14,540.70		
339												
340	XI	Reagent Delivery Silos										
341		Dismantle					Days	3	\$ 338.79	\$ 1,016.36		
342		Hauling					CY	10	\$ 1.87	\$ 18.70	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
343		Concrete Pad					CY	47	\$ 120.50	\$ 5,663.50	024113175500	24" thick reinforced concrete
344		Haul to Landfill										
345		Debris Loading					CY	57	\$ 16.75	\$ 954.75	024119193080	Rubbish handling, loading
346		Haul					CY	57	\$ 3.41	\$ 194.37	312323200018	8 CY truck to Class A cell 2 miles RT
347		Place Material in LLRW cell										Calculated with placement and compaction costs for LLRW Disposal
348		Debris					CY	57	\$ 3.70	\$ 210.90	312323170020	place, w/ dozer (200% soil costs)
349		soil					CY	57	\$ 1.85	\$ 105.45	312323170020	place soil in cell w/dozer
350		Compaction in Cell					CY	114	\$ 0.32	\$ 36.48	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
351								Total		\$ 8,200.51		
352												
353	XIIa	Evaporation Pond										
354		Sludge removal					CY	695	\$ 2.70	\$ 1,873.03	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
355		Liner Shredding					Days	2	\$ 1,626.10	\$ 3,252.20		Estimated time to shred (shredder plus personnel) the liner for the 275' x 150' pond
356		Soil excavation					CY	695	\$ 2.70	\$ 1,873.03	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
357		Haul volumes					CY	1,423	\$ 1.87	\$ 2,661.01	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
358		Place into cell										
359		Debris					CY	33	\$ 3.70	\$ 122.10	312323170020	place, w/ dozer (200% soil costs)
360		Soil					CY	1,390	\$ 1.85	\$ 2,571.50	312323170020	place soil in cell w/dozer
361		Compaction in Cell					CY	1,423	\$ 0.32	\$ 455.36	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
362		Restoration of Grade										
363		Backfill					CY	10,418	\$ 3.58	\$ 37,296.44	312316502300	Common Earth hauling
364		Final grade					SY	4,167	\$ 0.15	\$ 625.05	312216103300	Final Grade Disturbed Area
365								Total		\$ 50,729.71		
366												
367	XIIb	Mixed Waste Surface Impoundment										
368		DEMOLITION										
369		Debris										
370		Pump Station					ea	1	\$ 1,363.25	\$ 1,363.25		Cost of remove pump station. 12012011 - 2011 LLRW Annual Surety Final.xls (costsheet I173)
371		Liner Shredding					days	8	\$ 1,623.79	\$ 12,990.33		Estimated time to shred (shredder plus personnel) the liner for the embankment. 12012011 - 2011 LLRW Annual Surety FINAL.xls (COST SHEET I185)

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
372				Piping			days	1	\$ 1,031.00	\$ 1,031.00	Crew B-11c	Assume 1 day with backhoe
373			Concrete				cy	12	\$ 103.70	\$ 1,244.40	030505100060	Demolition of reinforced concrete
374			Berms				cy	1,735	\$ 2.41	\$ 4,181.35	312316464040	Assumes berms are clean and used as backfill for impoundment
375			Haul Volume				cy	49	\$ 3.29	\$ 161.21	312323201016	Haul material using 12 CY dump truck @ 1 mile RT
376			Placement of Material				cy	49	\$ 3.70	\$ 181.30	312323170020	Place w/dozer (200% soil costs)
377			Compaction of Material				cy	49	\$ 0.70	\$ 34.30	312323235600	Sheepsfoot, 6" lift, 2 passes compaction
378			EXCAVATION									
379			Sludge excavation				cy	481	\$ 2.70	\$ 1,296.30	312316420260	Add 75% to excavation cost to account for heavy soil and loading into trucks
380			Granular Fill Excavation				cy	12	\$ 2.70	\$ 32.34	312316420260	Add 75% to excavation cost to account for heavy soil and loading into trucks
381			Impoundment Soil Excavation				cy	481	\$ 2.70	\$ 1,296.30	312316420260	Add 75% to excavation cost to account for heavy soil and loading into trucks
382			Contaminated soil hauling				cy	1,023	\$ 3.29	\$ 3,365.67	312323201016	Haul material using 12 CY dump truck @ 1 mile RT
383			Contaminated soil placement				cy	1,023	\$ 1.85	\$ 1,892.55	312323170020	Place w/dozer
384			Contaminated soil compaction				cy	1,023	\$ 0.70	\$ 716.10	312323235600	Sheepsfoot, 6" lift, 2 passes compaction
385			Restoration of Grade									
386			Backfill				cy	3,835	\$ 4.91	\$ 18,829.85	312316502200	Clean berm material is pushed back into impoundment
387			Final Grade				sy	1,806	\$ 0.15	\$ 270.90	312216103300	Final grade disturbed area
388			Clean soil hauling/stockpiling				cy	2,100	\$ 3.29	\$ 6,909.00	312323201016	Haul material using 12 CY dump truck @ 1 mile RT
389									Total	\$ 55,796.14		
390												
391	XIII	Evaporation Tanks (4)										
392		DECONTAMINATION										
393			Triple Rinse (RCRA Clean)				Days	4.0	\$ 542.02	\$ 2,168.09		Time needed to Triple rinse steel to RCRA Clean
394		DEMOLITION										
395			Foundation									
396			Stem Wall				SF	400	\$ 2.00	\$ 801.60	024116172040	Cost reflects a 6" thick wall with a 20 % addition for reinforcing bars
397			Footing/pad				SY	260	\$ 14.50	\$ 3,770.00	024113175300	reinforced concrete
398			Soil excavation				CY	12	\$ 2.70	\$ 32.34	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
399			Haul volumes				CY	114	\$ 1.87	\$ 213.18	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
400			Place into cell									
401			Debris				CY	102	\$ 3.70	\$ 377.40	312323170020	place, w/ dozer (200% soil costs)
402			Soil				CY	12	\$ 1.85	\$ 22.20	312323170020	place soil in cell w/dozer
403			Compaction in Cell				CY	114	\$ 0.32	\$ 36.48	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
404			Restoration of Grade									
405			Backfill				CY	12	\$ 3.58	\$ 42.96	312316502300	Common Earth hauling
406			Final grade				SY	67	\$ 0.15	\$ 10.05	312216103300	Final Grade Disturbed Area
407									Total	\$ 7,474.30		
408												
409	XIV	On Site Open Area										
410		DEMOLITION										
411			Removal of power poles									
412			remove wire				days	2	\$ 1,031.00	\$ 2,062.00	Crew B-11C	
413			cut up poles				Ea	14	\$ 72.41	\$ 1,013.75		Estimated
414			Torch cut B25 Containers				Ea	2,000	\$ 132.98	\$ 265,950.72		torch cut of B25 containers
415			Remove chainlink fence				LF	6,514	\$ 2.93	\$ 19,086.02	024113601700	Site demolition-chain link fence
416			Remove misc. debris				days	5	\$ 1,031.00	\$ 5,155.00	Crew B-11C	
417			Haul volumes				CY	12,928	\$ 1.87	\$ 24,175.36	312323204014	Haul material using a 20 CY dump truck @ 0.25 mile RT
418			Place into cell									
419			Debris				CY	2,600	\$ 2.93	\$ 7,618.00	024113601700	place, w/ dozer (200% soil costs)
420			Soil				CY	10,328	\$ 1.85	\$ 19,106.80	312323170020	place soil in cell w/dozer
421			Compaction of Material in Cell				CY	12,928	\$ 0.32	\$ 4,136.96	312323235680	excav/backfill/compact - compaction , sheepsfoot, 12" lift, 2 passes
422			Restoration of grade									
423			Backfill				CY	1,334	\$ 3.58	\$ 4,775.72	312316502300	Common Earth hauling
424			Final Grade				SY	4,002	\$ 0.15	\$ 600.30	312216103300	Final Grade Disturbed Area
425			Place Material in cell (LLRW)									
426			Debris				CY	226	\$ 3.70	\$ 836.20	312323170020	place, w/ dozer (200% soil costs)
427			soil				CY	226	\$ 1.85	\$ 418.10	312323170020	place soil in cell w/dozer
428									Total	\$ 354,934.93		

	A	B	C	D	E	F	G	I	J	L	N	O	
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes	
429													
430	XV	Health Physics Staff and Radiation Survey Equipment									\$ 45.25		
431		NOTE: assume HP support is needed for 24 months to account for pre-closure preparation and post-closure shutdown											
432		HEALTH PHYSICS AND SURVEY EQUIPMENT											
433		PPE & misc. supplies					Each	1	\$ 13,524.19	\$ 13,524.19		assumed one time cost	
434		In-situ gamma spectrometer					Each	2	\$ 75,035.02	\$ 150,070.03		Third Party Estimate	
435		Badging					LS	1	\$ 20,286.28	\$ 20,286.28		estimated cost	
436		Analytical costs					LS	1	\$ 118,089.34	\$ 118,089.34		assume 400 QC samples at \$269.00 each; adjusted annually for inflation	
437		HEALTH PHYSICS PERSONNEL											
438		Senior health physicist					Days	360	\$ 692.57	\$ 249,323.84		Average Salary and Benefits	
439		Senior HP technician					Days	360	\$ 431.22	\$ 155,239.95		Average Salary and Benefits	
440		HP technicians (3)					Days	1,080	\$ 359.35	\$ 388,101.77		Average Salaries and Benefits	
441		CLOSURE REPORT						Each	1	\$ 67,226.64	\$ 67,226.64		520 hours of engineer reporting at a benefit-loaded rate of \$129.28/hr, inflated from 2008
442		MONUMENTS						Each	2	\$ 3,318.01	\$ 6,636.03		
443									Total	\$ 1,168,498.08			
444													
445													
446	XVI	Cell Closure											Updated to Rev. 0 dimensions July 2011
447		Cover											
448		Temporary Cover (Clay)											
449		Remove Overburden					CY	4,029	\$ 1.54	\$ 6,204.66	312316420260	Assume remove top 1' of 10' Unit 4 layer (11% of cover volume is overburden)	
450		Excavation of Material					CY	36,620	\$ 2.70	\$ 98,690.90	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks	
451		Haul Volumes					CY	36,620	\$ 3.29	\$ 120,479.80	312323201016	Haul material using 12 CY dump truck @ 1 mile RT	
452		Place material in cell					CY	36,620	\$ 1.85	\$ 67,747.00	312323170020	Place soil in cell w/dozer	
453		Compaction of material in cell					CY	36,620	\$ 0.64	\$ 23,436.80	312323235720	Sheepsfoot, 6" lifts, 4 passes	
454													
455		Radon Barrier											
456		Remove Overburden					CY	8,697	\$ 1.54	\$ 13,393.38	312316420260	Assume remove top 1' of 10' Unit 4 layer (11% of cover volume is overburden)	
457		Excavation of Material					CY	79,060	\$ 2.70	\$ 213,066.70	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks	
458		Haul Volumes					CY	79,060	\$ 3.29	\$ 260,107.40	312323201016	Haul material using 12 CY dump truck @ 1 mile RT	
459		Decolloculant (STTP)					LBS	149,424	\$ 1.41	\$ 210,126.72		Cost estimated by EnergySolutions, adjusted annually for inflation	
460		Mixing					CY	79,060	\$ 1.82	\$ 144,025.67		Cost estimated by EnergySolutions, adjusted annually for inflation	
461		Place Material in Cell					CY	82,960	\$ 1.85	\$ 153,476.00	312323170020	place soil in cell w/dozer	
462		Compaction of Material in Cell					CY	82,960	\$ 0.64	\$ 53,094.40	312323235720	Sheepsfoot, 6" lifts, 4 passes	
463		Geosynthetic Liner (HDPE & Geotextile)					SY	128,169	\$ 4.99	\$ 639,022.05		Based on 2009 costs (material and installation)	
464		Erosion Barrier (ditch material is included)											
465		Excavation of Material					CY	-	\$ 5.00	\$ -	312316465400	Assume need of 1.25 cy for 1 cy of sand/riprap (50% each), multiply needed volume by (2) (1.25)	
466		Material Cost					CY	-	\$ 0.55	\$ -	BLM Contract	Assume cost is current contract with BLM	
467		Screening Plant Rental/Ops Costs					Months	3.2	\$ 40,652.35	\$ 130,087.53		Cost estimated by EnergySolutions; Powergrid screen at 280 cy/hour, adjusted annually for inflation.	
468		FEL and Crew					Days	74	\$ 1,490.59	\$ 110,303.41		Crew feeds hopper and moves/loads material	
469		Material Processing					CY	143,531	\$ 3.33	\$ 478,604.79		Estimated cost to prepare rock and filter layers to meet gradation requirements	
470		Haul Volumes					CY	-	\$ 9.51	\$ -		Use a 20 cy dump trailer with 40 miles RT	
471		Placement of Material					Tons	125,157	\$ 2.85	\$ 356,697.45	313713100350	Cost for labor/equipment to place 100 lb riprap; material costs addressed above.	
472		Sacrificial Soil											
473		Placement of Material					CY	43,346	\$ 1.85	\$ 80,190.10	312323170020	Spread dumped material by dozer, no compaction	
474		Filter Zone (ditch material is included)											
475		Placement of Material					CY	48,663	\$ 1.85	\$ 90,026.55	312323170020	place soil in cell w/dozer	
476									Total	\$ 3,248,781.31			
477													
478		Roads Around the Cell											
479		Grading					SY	9,047	\$ 0.39	\$ 3,528.33	312216100200	Final grade subgrade for roads	

Section	Item	Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
	Road Base						
	Material	CY	3,016	\$ 9.14	\$ 27,568.02		Estimated
	Placement	CY	3,016	\$ 0.46	\$ 1,381.61		Estimated Walk/rd/parking paving- fine grade granular subbase
	Drainage						
	Excavation of Ditches		19,309	\$ 2.70	\$ 52,037.76	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Ditch erosion protection materials are included with the costs for Erosion Barrier and Filter Zone costs above.						
	Fences		-				
	Installation of Permanent Fencing	LF	3,739	\$ 18.60	\$ 69,545.40	024113601750	Fencing-6' high with barbed wire
	Signs	EA	38	\$ 20.34	\$ 772.82		Estimated, adjusted annually for inflation
				Total	\$ 154,833.94		
XVII	General Closure of Section						
	ADDITIONAL FILL MATERIAL						
	Excavate	CY	5,648	\$ 2.70	\$ 15,221.36	312316420260	add 75% to excavation cost to account for heavy soil and loading into trucks
	Haul	CY	5,648	\$ 3.29	\$ 18,581.92	312323201016	Haul material using 12 CY dump truck @ 1 mile RT
	Place	CY	5,648	\$ 1.85	\$ 10,448.80	312323170020	place soil in cell w/dozer
	HAUL TO LANDFILL						
	Debris loading	CY	50	\$ 16.75	\$ 837.50	024119193080	Rubbish handling, loading
	Haul	CY	50	\$ 3.41	\$ 170.50	312323200018	8 CY truck to Class A cell 2 miles RT
	Place Material in cell						Calculated with placement and compaction costs for LLRW Disposal
	Debris	CY	50	\$ 3.70	\$ 185.00	312323170020	place, w/ dozer (200% soil costs)
	soil	CY	50	\$ 1.85	\$ 92.50	312323170020	place soil in cell w/dozer
	RAIL ROLLOVER / ROTARY DUMP PCB DECONTAMINATION AND VERIFICATION						
			1	\$ 2,711.25	\$ 2,711.25		Assume 5 days of decon/sampling, or \$2,174.57; adjusted annually for inflation
			10	\$ 85.39	\$ 853.95		GEL Pricing for Wipe Test from Rev. 19 agreement dated 5/5/11 (includes a 3% data package fee).
	CLEAN UP OF VARIOUS ITEMS						
	Heavy Equipment	LS	5	\$ 2,711.25	\$ 13,556.25		Assume 5 days of decon, or \$2,174.57; adjusted annually for inflation
	Small Equipment	LS	6	\$ 553.94	\$ 3,323.66		Assume decon requires 1 day each, unit cost adjusted annually for inflation
	6 wheel trucks	Each	2	\$ 1,626.10	\$ 3,252.20		Assume decon requires 3 days each, or \$1,304.22; adjusted annually for inflation
	Bulldozer	Each	3	\$ 1,084.05	\$ 3,252.16		Assume decon requires 2 days each, or \$869.48; adjusted annually for inflation
	Front-end loader	Each	2	\$ 813.05	\$ 1,626.11		Assume decon requires 1.5 days each, or \$652.11; adjusted annually for inflation
	Backhoe	Each	2	\$ 813.05	\$ 1,626.11		Assume decon requires 1.5 days each, or \$652.11; adjusted annually for inflation
	Compactors	Each	1	\$ 542.02	\$ 542.02		Assume decon requires 1 day each, or \$434.74; adjusted annually for inflation
	Water Trucks	Each	3	\$ 1,084.05	\$ 3,252.16		Assume decon requires 2 days each, or \$869.48; adjusted annually for inflation
	Graders	Each	1	\$ 542.02	\$ 542.02		Assume decon requires 1 day each, or \$434.74; adjusted annually for inflation
	John Deer Tractors	Each	2	\$ 542.02	\$ 1,084.04		Assume decon requires 1 day each, or \$434.74; adjusted annually for inflation
	Pickup trucks	Each	4	\$ 135.51	\$ 542.04		Assume decon 4 per day, or \$108.68 each; adjusted annually for inflation
	JCB's	Each	4	\$ 2,711.51	\$ 10,846.03		Assume decon requires 3 days each, or \$1,304.22; adjusted annually for inflation
	Forklifts	Each	9	\$ 542.02	\$ 4,878.20		Assume decon requires 1 day each, or \$434.74; adjusted annually for inflation
	Other containers	LS	5	\$ 1,626.10	\$ 8,130.49		Assume decon requires 3 days each, or \$1,304.22; adjusted annually for inflation
				Total	\$ 105,556.28		
XVIII	Stockpile of Closure Assets						

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
525		EnergySolutions occasionally mines and stockpiles materials for various contingent future needs, credit is taken for materials specifically mined and processed in support of EnergySolutions active mixed waste cell cov										
526		construction project and would have been used in such had the construction time period been sufficiently long to allow continued construction. This material was mined and processed according to the approved Quality										
527		Assurance requirements. Additionally, the Division routinely observed EnergySolutions' mining and processing of the same. Therefore, since this material will not be used for any other construction activities and since										
528		the mixed waste cover construction activities will again begin, as soon as weather allows, it is appropriate for the credit to be taken in the Closure Cost estimate.										
529												
530										\$ 7,905,579.29		
531												
532	XIX	Mobilization							Total	\$ 463,266.95		Assume 5.86% of direct costs for mobilization and demobilization
533												
534	XX	Contingency							Total	\$ 869,613.72		Assume 11% of direct costs
535												
536	XXI	Engineering and Redesign							Total	\$ 177,875.53		Assume 2.25% of direct costs
537												
538	XXII	Working Conditions							Total	\$ 434,806.86		Assume 5.5% of direct costs
539												
540	XXIII	Profit and Overhead							Total	\$ 1,502,060.06		Assume 19% of direct costs
541												
542	XXIV	Management Fee and Legal Expense							Total	\$ 316,223.17		Assume 4% of direct costs for Management and legal expenses
543												
544	XXV	DEQ Oversight of Project							Total	\$ 316,223.17		Assume 4% of direct costs
545												
546	XXVI	Post Operational Monitoring and Maintenance (Year 1-100)										
547		Travel										
548		Labor				Hours	10	\$ 26.08	\$ 260.77			Travel time, 5 days at two hours per day
549		Mileage				Miles	750	\$ 0.56	\$ 416.25			5 trips at 150 miles per roundtrip from government mileage reimbursement rates
550		Off Site features										
551		Labor				Hours	4	\$ 26.08	\$ 104.31			Average Salary and Benefits
552		Access road maintenance										
553		equipment				Day	1	\$ 450.43	\$ 450.43			Fraction of the entire day (8 hours) the hoe is rented
554		labor				Hour	4	\$ 26.08	\$ 104.31			Average Salary and Benefits
555		Fence maintenance										
556		labor				Hour	6	\$ 26.08	\$ 156.46			Average Salary and Benefits
557		Gates (2)										
558		materials				Each	1	\$ 403.36	\$ 403.36			Estimated
559		labor				Hour	2	\$ 25.88	\$ 51.75			Average Salary and Benefits
560		Signs (2)										
561		materials				Each	1	\$ 67.23	\$ 67.23			Estimated
562		labor				Hour	2	\$ 26.08	\$ 52.15			Average Salary and Benefits
563		Monuments (2)										
564		materials				Each	1	\$ 62.56	\$ 62.56			Estimated
565		labor				Hour	2	\$ 26.08	\$ 52.15			Average Salary and Benefits
566		Wells (2)										
567		materials				Each	1	\$ 590.14	\$ 590.14			Estimated
568		labor				Hour	4	\$ 26.08	\$ 104.31			Average Salary and Benefits
569		Slopes (2)										
570		materials				CY	2	\$ 26.88	\$ 53.76			Estimated
571		equipment				Day	1	\$ 436.96	\$ 436.96			Fraction of the entire day (8 hours) the hoe is rented
572		labor				Hour	2	\$ 26.08	\$ 52.15			Average Salary and Benefits
573		Cell structure (2)										
574		materials				CY	2	\$ 134.46	\$ 268.91			Estimated
575		equipment				Day	2	\$ 436.96	\$ 873.92			Fraction of the entire day (8 hours) the hoe is rented
576		labor				Hour	2	\$ 26.08	\$ 52.15			Average Salary and Benefits
577		Diversion channels (2)										
578		equipment				Day	1	\$ 437.07	\$ 437.07			Fraction of the entire day (8 hours) the hoe is rented
579		labor				Hour	2	\$ 26.08	\$ 52.15			Average Salary and Benefits
580		Written report to regulators				Each	1	\$ 134.46	\$ 134.46			Cost estimated on 2 hours to write; does not require an extra trip to the site Updated 2013
581									Total	\$ 5,237.73		
582												
583	XXVII	Water Samples -- Radiological (Year 1-100)										
584		Sample parameters according to Condition I.F of GWQDP										

Section	Item	Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
	Number of wells	Each	14				
	Frequency	Annual	1				
	Labor, sampling	Days	2	\$ 417.29	\$ 834.58		Average Salary and Benefits
	Analysis						
	Radiologic parameters	Each	14	\$ 1,140.28	\$ 15,963.97		Average cost per well to EnergySolutions from TestAmerica
	Report	Each	1				Cost of report is included in sample analysis costs above
				Total	\$ 16,798.55		
XXVIII	Water Samples -- RCRA (Year 1-30)						
	Sample parameters according to Module VI of the RCRA Permit						
	Number of wells	Each	14				
	Frequency	Annual	1				
	Labor, sampling	Days	2	\$ 417.29	\$ 834.58		Average Salary and Benefits
	Analysis						
	RCRA parameters	Each	14	\$ 1,487.74	\$ 20,828.40		Average cost per well to EnergySolutions AWAL
	Report	Each	1	\$ -	\$ -		Cost of report is included in sample analysis costs above
				Total	\$ 21,662.98		
XXIX	Embankment Survey (Year 1-30)						
	Survey of Mixed Waste Embankment						
		Each	1	\$ 2,087.98	\$ 2,087.98		Cost estimated by EnergySolutions on historical cost for aerial survey of entire Section 32
				Total	\$ 2,087.98		
XXX	Airborne Particulate Monitoring (Year 1)						
	(all following sampling activities will be performed during the weekly sampling visit)						
	Gross Alpha						
	Number of samplings per day	Num	9				
	Sampling	Days	52	\$ 417.29	\$ 21,699.09		Average Salary and Benefits
	Analysis (Gross alpha and beta)	Each	468	\$ 72.43	\$ 33,898.30		From GEL
	Isotopic analysis						
	Number of Alpha samples collected quarterly	Num	6				
	Analysis (total U, Ra, Th, Pb)	Each	24	\$ 295.23	\$ 7,085.43		From GEL
				Total	\$ 62,682.82		
XXXI	Soil Sampling (Year 1)						
	(sampling labor is part of XXVIII)						
	Gross Alpha						
	Analysis (gamma spectrum)	Each	45	\$ 115.89	\$ 5,214.93		From GEL
	Isotopic analysis						
	Analysis (Th-230,Th-232, and total U)	Each	6	\$ 207.64	\$ 1,245.87		From GEL
				Total	\$ 6,460.80		
XXXII	Vegetation Sampling (Year 1)						
	(sampling labor is part of XXVIII)						
	Radionuclide Sampling						
	Analysis (gamma, Th, Po, Pb, total U)	Each	4	\$ 336.82	\$ 1,347.27		From GEL
				Total	\$ 1,347.27		
XXXIII	Gamma Exposure Monitoring (Year 1)						
	(samples are collected Quarterly for the first year, the "electret" reader currently owned by EnergySolutions will be used)						
	Frequency	Num	4				
	Sampling	Num	8				
	Radionuclide Sampling						
	e-perm chamber	Each	32	\$ 34.21	\$ 1,094.66		Estimated costs from EnergySolutions
	electret	Each	32	\$ 20.52	\$ 656.59		Estimated costs from EnergySolutions
	Time to read electret	Days	1	\$ 208.64	\$ 208.64		Average Salary and Benefits
				Total	\$ 1,959.88		
XXXIV	Radon Exposure Monitoring (Year 1)						
	(samples are collected Quarterly for the first year, the "electret" reader currently owned by EnergySolutions will be used)						

	A	B	C	D	E	F	G	I	J	L	N	O
1	Section	Item					Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
646		Frequency					Num	4				
647		Sampling					Num	8				
648		Radionuclide Sampling										
649		e-perm chamber					Each	32	\$ 34.21	\$ 1,094.66		Estimated costs from EnergySolutions
650		electret					Each	32	\$ 20.52	\$ 656.59		Estimated costs from EnergySolutions
651		Time to read electret					Days	1	\$ 208.64	\$ 208.64		Average Salary and Benefits
652									Total	\$ 1,959.88		
653												
654	XXXV	Unadjusted Total for Cell Closure							Total	\$ 11,985,648.75		
655		Summary of Cell Closure (Items I-XXV)							Total	\$ 11,985,648.75		
656		Total cost for Year 1 Items XXVI-XXXIV (5% contingency)								\$ 126,207.79		
657		Cost per year for years 2-30 Items XXVI-XXIX (5% contingency)								\$ 47,200.29		
658		Cost per year for years 31-100 Items XXVI-XXVII (5% contingency)								\$ 23,138.10		
659												
660		Inflation vs Interest Analysis							1.00% Real return			
661		Costs are in 2013 dollars, Year 2 -100 activities are converted into 2012 dollars using Future (F) to Present (P) factor.										
662			Year		Future Cost	Year	Present Cost	Future Cost				
663			1	\$ 126,207.79	\$ 124,958.20	26	\$ 47,200.29	\$ 36,440.89				
664			2	\$ 47,200.29	\$ 46,270.26	27	\$ 47,200.29	\$ 36,080.09				
665			3	\$ 47,200.29	\$ 45,812.14	28	\$ 47,200.29	\$ 35,722.86				
666			4	\$ 47,200.29	\$ 45,358.55	29	\$ 47,200.29	\$ 35,369.17				
667			5	\$ 47,200.29	\$ 44,909.46	30	\$ 47,200.29	\$ 35,018.98				
668			6	\$ 47,200.29	\$ 44,464.81	31	\$ 23,138.10	\$ 16,996.72				
669			7	\$ 47,200.29	\$ 44,024.57	32	\$ 23,138.10	\$ 16,828.43				
670			8	\$ 47,200.29	\$ 43,588.68	33	\$ 23,138.10	\$ 16,661.81				
671			9	\$ 47,200.29	\$ 43,157.11	34	\$ 23,138.10	\$ 16,496.85				
672			10	\$ 47,200.29	\$ 42,729.81	35	\$ 23,138.10	\$ 16,333.51				
673			11	\$ 47,200.29	\$ 42,306.74	36	\$ 23,138.10	\$ 16,171.79				
674			12	\$ 47,200.29	\$ 41,887.86	37	\$ 23,138.10	\$ 16,011.68				
675			13	\$ 47,200.29	\$ 41,473.13	38	\$ 23,138.10	\$ 15,853.15				
676			14	\$ 47,200.29	\$ 41,062.51	39	\$ 23,138.10	\$ 15,696.18				
677			15	\$ 47,200.29	\$ 40,655.95	40	\$ 23,138.10	\$ 15,540.78				
678			16	\$ 47,200.29	\$ 40,253.41	41	\$ 23,138.10	\$ 15,386.91				
679			17	\$ 47,200.29	\$ 39,854.87	42	\$ 23,138.10	\$ 15,234.56				
680			18	\$ 47,200.29	\$ 39,460.26	43	\$ 23,138.10	\$ 15,083.72				
681			19	\$ 47,200.29	\$ 39,069.57	44	\$ 23,138.10	\$ 14,934.38				
682			20	\$ 47,200.29	\$ 38,682.74	45	\$ 23,138.10	\$ 14,786.51				
683			21	\$ 47,200.29	\$ 38,299.74	46	\$ 23,138.10	\$ 14,640.11				
684			22	\$ 47,200.29	\$ 37,920.54	47	\$ 23,138.10	\$ 14,495.16				
685			23	\$ 47,200.29	\$ 37,545.09	48	\$ 23,138.10	\$ 14,351.65				
686			24	\$ 47,200.29	\$ 37,173.35	49	\$ 23,138.10	\$ 14,209.55				
687			25	\$ 47,200.29	\$ 36,805.30	50	\$ 23,138.10	\$ 14,068.86				
688								First 50Years	\$ 1,606,138.97			
689												
690			Year		Future Cost	Year	Present Cost	Future Cost				
691			51	\$ 23,138.10	\$ 13,929.57	76	\$ 23,138.10	\$ 10,861.84				
692			52	\$ 23,138.10	\$ 13,791.65	77	\$ 23,138.10	\$ 10,754.29				
693			53	\$ 23,138.10	\$ 13,655.10	78	\$ 23,138.10	\$ 10,647.81				
694			54	\$ 23,138.10	\$ 13,519.90	79	\$ 23,138.10	\$ 10,542.39				
695			55	\$ 23,138.10	\$ 13,386.04	80	\$ 23,138.10	\$ 10,438.01				
696			56	\$ 23,138.10	\$ 13,253.50	81	\$ 23,138.10	\$ 10,334.66				
697			57	\$ 23,138.10	\$ 13,122.28	82	\$ 23,138.10	\$ 10,232.34				
698			58	\$ 23,138.10	\$ 12,992.36	83	\$ 23,138.10	\$ 10,131.03				
699			59	\$ 23,138.10	\$ 12,863.72	84	\$ 23,138.10	\$ 10,030.72				
700			60	\$ 23,138.10	\$ 12,736.36	85	\$ 23,138.10	\$ 9,931.41				
701			61	\$ 23,138.10	\$ 12,610.25	86	\$ 23,138.10	\$ 9,833.08				
702			62	\$ 23,138.10	\$ 12,485.40	87	\$ 23,138.10	\$ 9,735.72				
703			63	\$ 23,138.10	\$ 12,361.78	88	\$ 23,138.10	\$ 9,639.33				
704			64	\$ 23,138.10	\$ 12,239.39	89	\$ 23,138.10	\$ 9,543.89				
705			65	\$ 23,138.10	\$ 12,118.21	90	\$ 23,138.10	\$ 9,449.39				
706			66	\$ 23,138.10	\$ 11,998.22	91	\$ 23,138.10	\$ 9,355.84				
707			67	\$ 23,138.10	\$ 11,879.43	92	\$ 23,138.10	\$ 9,263.20				

Section	Item			E	F	G	I	J	L	N	O
						Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
708			68	\$ 23,138.10	\$ 11,761.81	93	\$ 23,138.10	\$ 9,171.49			
709			69	\$ 23,138.10	\$ 11,645.36	94	\$ 23,138.10	\$ 9,080.68			
710			70	\$ 23,138.10	\$ 11,530.06	95	\$ 23,138.10	\$ 8,990.77			
711			71	\$ 23,138.10	\$ 11,415.90	96	\$ 23,138.10	\$ 8,901.76			
712			72	\$ 23,138.10	\$ 11,302.87	97	\$ 23,138.10	\$ 8,813.62			
713			73	\$ 23,138.10	\$ 11,190.96	98	\$ 23,138.10	\$ 8,726.36			
714			74	\$ 23,138.10	\$ 11,080.16	99	\$ 23,138.10	\$ 8,639.96			
715			75	\$ 23,138.10	\$ 10,970.45	100	\$ 23,138.10	\$ 8,554.41			
716							Second 50 Years	\$ 551,444.74			
717											
718	XXXVI	Total Cell Closure									
719		Closure Costs						\$ 11,985,648.75			
720		Post Closure Costs (Year 1-50)						\$ 1,606,138.97			
721		Post Closure Costs (Year 51-100)						\$ 551,444.74			
722											
723		SUBTOTAL OF PROPOSED AMOUNT OF TRUST FUND IS						\$ 14,143,232			
724											
725											
726											
727											
728											
729											
730	XXXVII	VTD Condensate Costs									
731	Section	Item				Units	Quantity	2013 Unit Cost	Total Cost	Means Reference #	Notes
732											
733		Treatment of Stored Waste									
734		Treatment of VTD Condensate				CY	34	\$ 8,365.78	\$ 284,436.45		Based on actual VTD Condensate Disposal Costs for 2011 of \$40.05 per gallon, 200 gal per cubic yard = \$8009.76 per cubic yard.
735		Total						Total	\$ 284,436.45		
736		Adders (list and percentage below)						Subtotal with Adders	\$ 347,012.46		
737		Mobilization			0.01						
738		Contingency			0.03						
739		Engineering and Redesign			0.03						
740		Reserved									
741		Profit and Overhead			0.07						
742		Management Fee and Legal Expense			0.05						
743		DEQ Oversight of Project			0.03						
744					0.22						
745											
746											
747		CLOSURE COST TOTAL REQUIRED FOR LETTER OF CREDIT						\$ 14,490,244.93			
748											
749											
750											
751											
752											
753											
754											
755											
756		Total D&D Reserve (LLRW)			2,490	cy					
757		Total D&D Reserve (MW)									
758		Debris			13,282	cy					
759		Soil			34,198	cy					
760		Required Soil			39,846	cy					
761		Additional Fill Required			5,648	cy					
762											
763		Required Reserve Vol(MW)			53,128	cy					
764		Required Reserve Vol (LLRW)			2,490	cy					
765											
766											