General

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August 17, 2007

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Mr. David Cobrain
State of New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building One
Santa Fe, New Mexico 87505-6303

Reference: Work Assignment No. 06280.170.0002; State of New Mexico Environment Department, Santa Fe, New Mexico; LANL Closure Cost Estimates, Task 2 Deliverable.

Dear Mr. Cobrain:

TechLaw has prepared closure cost estimates for container storage, cementation and open burn units within Technical Areas 3, 16, 50, 54 and 55, as requested by the New Mexico Environment Department (NMED). Costs were estimated using data from the Environmental Cost Handling Options and Solutions (ECHOS) unit cost book dated 2006, prepared by the Azimuth Group. The ECHOS costs were modified by applying a "localization factor" of 0.88 to the total estimate for each unit, after overhead is included.

Since the closure plans are somewhat indefinite as to the actual closure procedures that will be implemented, some assumptions had to be made to support the cost estimates. The assumptions included overhead costs, which were set at 200% of "bare" costs, applied to all tasks except sample chemical analyses, which were assumed to be performed by an off-site contract laboratory. Radiation surrogate sample analyses are costed as being performed on-site, and overhead is applied. This relatively high overhead estimate was based on the large organization and high security requirements in place at LANL. Overhead is accounted for in the estimate spreadsheets by multiplying the bare labor and equipment costs by 3.

Demolition of outdoor container storage areas, and clean closure of storage areas in buildings (no demolition) are suggested in the LANL closure plans, and the cost estimates reflect these general approaches. These assumptions may or may not apply to the actual closures, due to discovery of historical releases or other concerns.

Several cost assumptions were based on the draft permit language under development by NMED. Numbers of samples for decontamination verification and post-demolition confirmation were based on the draft permit requirements: one sample per 500 square feet for storage areas, one per 250 square feet for loading/unloading areas. Walls adjacent to storage areas are included in sampling, to 2 feet above the height of the stored waste containers. The estimates include initial samples surrounding burn units (samples from 3 and 5 feet depths, adjacent to each side and

corner of the unit). Indoor units or units with concrete floors are assumed to require concrete borings to allow collection of soil samples from beneath the unit. Soil beneath asphalt pads is assumed to be sampled with direct-push equipment.

Personal protective equipment costs were not included because these will depend on the contaminants found at each unit, and these costs are likely to be less substantial than the labor and equipment costs that are included in the estimates. All estimates assume that personnel can perform decontamination and demolition in Level D PPE.

A summary of the estimated closure costs is provided in the following table.

Area	Unit	Estimated Closure Cost	Pad Subtotals	TA Subtotals
TA-3	TA-3-29, Rm 9010 Indoor Container Storage Unit (CSU)	$23,536		
	TA-3-29, Rm 9020 CSU	$12,105		
	TA-3-29, Rm 9030 CSU	$12,105		
TA-3 Subtotal				$47,746
TA-16	TA-16-388 Flash Pad	$56,462		
	TA-16-399 HE Burn Tray	$31,055		
TA-16 Subtotal				$87,517
TA-50	TA-50-69 Indoor CSU	$32,091		
	TA-50-69 Outdoor CSU	$36,604		
TA-50 Subtotal				$68,695
TA-54 Area L Asphalt Pads	TA-54-215	$104,658		
	TA-54-216 Canopy	$40,682		
	Area L Within Fence Line	$347,540		
Area L Buildings	TA-54-31 Room 101	$21,247		
	TA-54-39 Room 101	$12,105		
	TA-54-68	$12,874		
	TA-54-69	$11,775		
	TA-54-70	$11,775		
Area L Outside CSUs	TA-54-32	$50,042		
	TA-54-35	$27,915		
	TA-54-36	$29,789		
	TA-54-58	$29,789		
	TA-54-39 Outside CSU	$69,385		

Area L Subtotal			$769,576	
Area G	TA-54-226 and Pad 1	$255,601		
	TA-54-412	$92,223		
Pad 1 Subtotal			$347,824	
	TA-54-48 Pad 3	$95,094		
Pad 3 Subtotal			$95,094	
	TA-54-49 and Pad 5	$212,351		
	TA-54-144	$7,330		
	TA-54-145	$7,330		
	TA-54-146	$7,330		
	TA-54-177	$7,330		
	TA-54-1027	$10,590		
	TA-54-1028	$10,590		
	TA-54-1029	$10,590		
	TA-54-1041	$10,590		
	TA-54-224	$53,743		
Pad 5 Subtotal			$337,774	
	TA-54-153 and Pad 6	$185,577.		
	TA-54-283 Pad 6	$89,478		
Pad 6 Subtotal			$275,055	
	TA-54-229 and Pad 9	$310,882		
	TA-54-230	$144,904		
	TA-54-231	$134,319		
	TA-54-232	$134,319		
Pad 9 Subtotal			$724,424	
	TA-54 Pad 10	$414,158		
Pad 10 Subtotal			$414,158	
	TA-54-375 Pad 11	$235,651		
Pad 11 Subtotal			$235,651	
	TA-54-8	$10,885		
	TA-54-33	$141,001		
54 West (TA-54-38)	High Bay	$53,997		
	Low Bay	$25,968		
	Outside Storage Pad and Loading Dock	$310,210	$542,061	
TA-54 Subtotal				$3,741,618
TA-55	TA-55-4 B40	$23,869		
	TA-55-4 B05	$19,413		
	TA-55-4 K13	$14,545		
	TA-55-4 B45	$14,308		
	TA-55-4 Vault	$23,272		

	TA-55 Outside Storage Pad NW of TA-55-4	$75,149		
	TA-55-185	$20,960		
	TA-55 Cementation Unit	$33,890		
	TA-55 Storage Tank System	$45,141		
TA-55 Subtotal				$270,547
	Total all units			$4,216,123

The cost estimates are formatted in Excel. The deliverable was emailed to you and Ms. Rebecca Kay on August 16, 2007 at dave.cobrain@nmenv.state.nm.us and kay.rebecca@nmenv.state.nm.us. A formalized hard (paper) copy of this deliverable will be sent via U.S. Mail. If you have any questions, please call me at (770) 752-7585, extension 105 or Greg Starkebaum at (303) 765-0815.

Sincerely,

Jasmine Schliesmann-Merkle

Jasmine Schliesmann-Merkle
Vice President

Enclosure
cc: Ms. Rebecca Kay, NMED
Mr. Greg Starkebaum, TechLaw

TA-3 BUILDING 29 ROOM 9030 TS-1

Facility Name: Los Alamos National Laboratory TA-3 Building 29 Room 9030

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Building 29 Room 9030 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5562.48
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process		3-A, 3-B and 3-	
4	Decontamination Waste Management	TS-3	C	1257.12
5	Decontamination Verification Samples	TS-3	3-E	390.78
6	Analyses	TS-4	4-A	2499.74
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**11227.16**
10	Certification of Closure	TS-4	4-D	2528.40
11				
12	**Subtotal (Add cost of certification to closure costs)**			**13755.56**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**12104.89**

TA-3 BUILDING 29 ROOM 9030 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-3 Building 29 was built in 1952 and is located on South Mesa on the northern side of LANL. It contains 3 interior storage areas in Rooms 9010, 9020 and 9030. The rooms store solid and liquid hazardous and mixed waste containers on self containment pallets. Room 9030 is is located in the basement of Wing 9 of the CMR Building.

1-A	Maximum permitted capacity (gallons) all 3 rooms			18,500
	Known Releases?			N/A
1-B	Dimensions of storage area in Room 9030	30	8	240
1-C	Materials	Concrete floor with epoxy coating		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

TA-3 BUILDING 29 ROOM 9030 TS-3

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 2A							**5562.48**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6573.84**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning the floor.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.60	3	340.80
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**419.04**	**3**	**1257.12**

TA-3 BUILDING 29 ROOM 9030 TS-3

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination	24	See crew above			
3-C	Demolition		NA			

TOTAL FOR STEP 3-A, 3-B, 3-C & 3-D	**1257.12**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe	2	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	2	1	43.42	43.42	3	130.26
	Soil Samples	None- assume no contamination found					

TOTAL FOR STEP 3-E	**390.78**
TOTAL FOR STEP 3	**1647.90**

TOTAL FOR TS-3 WORKSHEET	**8221.74**

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for closure are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals, SVOCs, VOCs	Water/Wipe	2	747.85	1495.70	NA	1495.70
	Radioactive elements	Wipe	2	167.34	334.68	3	1004.04
TOTAL FOR STEP 4-A			**4**				**2499.74**

		Labor Category	cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	NA					
4-D	Certification Report	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 4-B, 4-C and 4-D							**3034.08**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**5533.82**

TA-16-388 FLASH PAD

Facility Name: Los Alamos National Laboratory TA-16-388 Flash Pad

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**TA-16-388 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	8090.88
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A and 3-B	3556.32
5	Decontamination Verification Samples	TS-3	3-E	6638.64
6	Analyses	TS-4	4-A	25951.42
7	Sample Logbook	TS-4	4-B	1011.36
8	Demolition and Debris Disposal	TS-4	4-C	3254.37
9	**Subtotal of Closure Costs**			**53559.79**
10	Certification of Closure	TS-4	4-D	5056.80
11	Compressor and Jackhammer	TS-4	4-E	5545.20
12	**Subtotal (Add certification report to closure costs)**			**64161.79**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**56462.38**

TA-16-388 FLASH PAD

TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-16-388 Flash Pad is located at TA-16. TA-16 is located in the southwestern portion of LANL. It was stated in the Closure Plan (CP) that no waste needed to be removed from this area.

1-A	Maximum permitted capacity of the Flash Pad	N/A		
	Known Releases?			N/A
1-B	Dimensions of Flash Pad			
	Concrete pad (length ft x width ft)	22	22	484
1-C	Materials	12" thick concrete pad contained in a 45 mil Hypalon liner		
1-D	Maximum volume of waste to be removed from the Flash Pad	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.8	3	2528.40
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.6	3	5056.80
TOTAL FOR STEP 2A							**8090.88**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.6	3	5056.80

TOTAL FOR STEP 2	**13147.68**

3. DECONTAMINATION

The decontamination process will include pads and walls being pressure washed or steam cleaned. A portable berm will collect excess water and samples will be collected and analyzed. Equipment will be decontaminated as well. Drilling through the concrete pad and soil sampling around and below the pad will be required. Five wipe samples, and 21 soil verification samples will be collected around and under the Pad.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	8	32.94	263.52	3	790.56
Wash		Staff Engineer	8	28.40	227.2	3	681.60
		Project Scientist	8	24.29	194.32	3	582.96
		Staff Scientist	8	19.13	153.04	3	459.12
TOTAL FOR STEP 3-A			**8**	**104.76**	**838.08**	**3**	**2514.24**

3-B	Flash or Burn Treatment for Equipment	8	43.42	347.36	3	1042.08
	TOTAL FOR STEP 3-B	**8**	**43.42**	**347.36**	**3**	**1042.08**

TOTAL FOR STEPS 3-A and 3-B	**3556.32**

TA-16-388 FLASH PAD

TS-3

	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-E	Wipe	5	4	43.42	173.68	3	521.04
	Concrete Drill	5	6	224.08	1344.48	3	4033.44
	Soil Sampling 3 and 5' Around Concrete Pad	16	16	43.42	694.72	3	2084.16
TOTAL FOR STEP 3-E							**6638.64**
TOTAL FOR STEP 3							**10194.96**

TOTAL FOR TS-3 WORKSHEET	**18285.84**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section. The Closure Plan assumes clean closure, but demolition of the concrete pad and debris disposal is assumed to be required.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	TCLP/Total Metals, Mercury, VOCs and SVOCs, Explosives	Wipe	5	1101.29	5506.45	NA	5506.45
	TCLP/Total Metals, Mercury, VOCs and SVOCs, Explosives	Verification Soil	21	973.57	20444.97	NA	20444.97
TOTAL FOR STEP 4-A							**25951.42**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris Disposal	Front end loader and truck: remove 18 cy concrete	18	47.43	853.74	3	2561.22
4-D	Certification Report		40	42.14	1685.6	3	5056.80
4-E	Compressor and Jackhammer		8	231.05	1848.4	3	5545.20
TOTAL FOR STEP 4-B, 4-C, 4-D and 4-E							**14174.58**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**40126.00**

TA-16-399 High Explosives Burn Tray

Facility Name: Los Alamos National Laboratory TA-16-399 High Explosives Burn Tray

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**TA-16-399 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	8090.88
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A	1257.12
5	Decontamination Verification Samples	TS-3	3-E	2605.20
6	Analyses	TS-4	4-A	9366.20
7	Sample Logbook	TS-4	4-B	1011.36
8	Demolition and Debris Disposal	TS-4	4-C	2845.80
9	**Subtotal of Closure Costs**			**30233.36**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add certification report to closure costs)**			**35290.16**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**31055.34**

TA-16-399 High Explosives Burn Tray TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

The TA-16-399 Burn Tray Unit is located at TA-16 in the southwestern portion of LANL.

1-A	Maximum permitted capacity of Burn tray	N/A		
	Known Releases?			N/A
1-B	Dimensions of Burn tray (length ft x width ft)	16	4	64
	Total Area of Burn tray (sf)			64
1-C	Materials	The Burn Tray Unit is supported on 1.5 ft high legs and is lined with firebrick		
1-D	Maximum volume of waste to be removed from the Burn tray (bricks, sand, ash)	2 cy		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded costs
	Review	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**8090.88**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**13147.68**

3. DECONTAMINATION
The surfaces, structures and liners will be decontaminated and/or removed while the tray will be pressure washed or steam cleaned.

3-A	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded Costs
	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.40	113.60	3	340.80
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**4**	**104.76**	**419.04**	**3**	**1257.12**

TOTAL FOR STEPS 3-A	**1257.12**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded Costs
	Wipe	4	4	43.42	173.68	3	521.04
	Soil Verification	16	8	43.42	347.36	3	1042.08
	Confirmatory Soil Verification Sample	8	8	43.42	347.36	3	1042.08
TOTAL FOR STEP 3-E							**2605.20**
TOTAL FOR STEP 3							**3862.32**
TOTAL FOR TS-3 WORKSHEET							**17010.00**

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section. For demolition and debris disposal, this cost estimate assumes removal of the Burn Tray and 20 cy of contaminated soil from the TA-16-399 Burn Tray Area.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded Costs
	TCLP/Total Metals, VOCs, SVOCs, Explosives, Mercury	Wipe	4	1101.29	4405.16	NA	4405.16
	TCLP/Total Metals, VOCs, SVOCs, Explosives, Mercury	Verification Soil	16	973.57	15577.12	NA	4961.04
	TCLP/Total Metals, VOCs, SVOCs, Explosives, Mercury	Confirmatory Soil	8	973.57	7788.56	NA	7788.56
TOTAL FOR STEP 4-A							**9366.20**

		Labor Category and Description	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded Costs
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris Disposal	Front End Loader and Truck: 20 cy	20	47.43	948.60	3	2845.80
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 4-B, 4-C and 4-D							**8913.96**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**18280.16**

TA-50-69 INDOOR CSU

Facility Name: Los Alamos National Laboratory TA-50-69 Indoor CSU

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**TA-50-69 Indoor CSU Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	8090.88
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process	TS-3	3-A, 3-B AND 3-C	5028.48
4	Decontamination Waste Management			
5	Decontamination Verification Samples	TS-3	3-D	4252.08
6	Analyses	TS-4	4-A	7970.91
7	Sample Logbook	TS-4	4-B	1011.36
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**31410.51**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add cost of certification report to closure costs)**			**36467.31**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**32091.23**

TA-50-69 INDOOR CSU

TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-50-69 Indoor CSU is located in two areas: Room 102 is the Main Process Area and Room 103 is the Unloading Area.

1-A	Maximum permitted capacity of CSU			
	Known Releases?			N/A
1-B	Dimensions of CSU			
	Room 102 (length ft x width ft and total area)	45	52	2340
	Room 103 (length ft x width ft)	18	19	342
	Total Area of CSU (sf)			2682
1-C	Materials	Epoxy painted reinforced concrete floor		
1-D	Maximum volume of waste to be removed from the CSU	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.8	3	2528.4
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.6	3	5056.8
TOTAL FOR STEP 2A							**8090.88**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.6	3	5056.8

TOTAL FOR STEP 2	**13147.68**

3. DECONTAMINATION

The decontamination process will include floor and walls pressure washed or steam cleaned. A portable berm will collect excess water and samples will be collected and analyzed. Open drains flow to RLWTF in both rooms of this unit. Confirmatory samples will be collected beneath the two drains which will require drilling through the concrete floor.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	16	32.94	527.04	3	1581.12
		Staff Engineer	16	28.4	454.4	3	1363.2
		Project Scientist	16	24.29	388.64	3	1165.92
		Staff Scientist	16	19.13	306.08	3	918.24
TOTAL FOR STEP 3-A			**64**	**104.76**	**1676.16**	**3**	**5028.48**

TOTAL FOR STEPS 3-A AND 3-B	64	104.76	1676.16		5028.48

	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-E	Wipe	9	8	43.42	347.36	3	1042.08
	Soil (Below Drains)	2	4	43.42	173.68	3	521.04
Concrete Drill			4	224.08	896.32	3	2688.96
TOTAL FOR STEP 3-E							**4252.08**

TOTAL FOR STEP 3	**9280.56**

TOTAL FOR TS-3 WORKSHEET AND TOTAL FOR STEPS 2 & 3	**22428.24**

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section. The Closure Plan assumes clean closure and therefore no demolition and debris disposal is estimated.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals, VOCs, SVOCs	Wipe	9	747.85	6730.65	NA	6730.65
	Metals, VOCs, SVOCs	Confirmatory Soil	2	620.13	1240.26	NA	1240.26
TOTAL FOR STEP 4-A							**7970.91**

		Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris Disposal						NA
4-C	Certification Report	Sr. Engineer/Tech	40	42.14	1685.6	3	5056.8
TOTAL FOR STEP 4-B AND 4-D			**48**	**84.28**	**2022.72**		**6068.16**

TOTAL FOR TS-4 WORKSHEET AND TOTAL FOR STEP 4	**14039.07**

TA-50-69 OUTDOOR CSU

Facility Name: Los Alamos National Laboratory TA-50-69 Outdoor CSU

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**TA-50-69 Outdoor CSU Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	8090.88
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A	5028.48
5	Decontamination Verification Samples	TS-3	3-E	2084.16
6	Analyses	TS-4	4-A	9575.86
7	Sample Logbook	TS-4	4-B	1011.36
8	Demolition and Debris Disposal	TS-4	4-C	5691.60
9	**Subtotal of Closure Costs**			**36539.14**
10	Certification of Closure	TS-4	4D	5056.80
11				
12	**Subtotal (Add cost of certification report to closure costs)**			**41595.94**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**36604.43**

TA-50-69 OUTDOOR CSU

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Unit TA-50-69 Outdoor CSU is located at the southwest corner of TA-50.

1-A	Maximum permitted capacity of CSU			528,000 gallons
	Known Releases?			N/A
1-B	Dimensions of CSU			
	Asphalt and concrete (length ft x width ft)	24	90	2160
	Asphalt (length ft x width ft)	12	90	1080
	Total Area of CSU (sf)			3240
1-C	Materials	Asphalt and Concrete: 4 inches thick, Volume=1080 cf = 40 cy		
1-D	Maximum volume of waste to be removed from the CSU	None. Demolition of pad accounted for in worksheet TS-4		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D		

DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.8	3	2528.4
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.6	3	5056.8
TOTAL FOR STEP 2-A							**8090.88**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.6	3	5056.8

TOTAL FOR STEP 2	**13147.68**

3. DECONTAMINATION
The decontamination process will include sampling.

3-A	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	4	Project Engineer	16	32.94	527.04	3	1581.12
		Staff Engineer	16	28.4	454.4	3	1363.2
		Project Scientist	16	24.29	388.64	3	1165.92
		Staff Scientist	16	19.13	306.08	3	918.24
TOTAL FOR STEP 3-A			**64**	**104.76**	**1676.16**	**3**	**5028.48**

	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-E	Wipe (1 per 500 sf)	7	8	43.42	347.36	3	1042.08
	Confirmatory Samples	7	8	43.42	347.36	3	1042.08
TOTAL FOR STEP 3-E			**16**	**86.84**	**694.72**	**3**	**2084.16**

TOTAL FOR STEP 3	**7112.64**

TOTAL FOR TS-3 WORKSHEET	**20260.32**

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section. For demolition and debris disposal, this cost estimate assumes removal of the entire pad.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded Costs
	TCLP Metals, VOCs, SVOCs	Water/Wipe	7	747.85	5234.95	NA	5234.95
	TCLP Metals, VOCs, SVOCs	Confirmatory Soil	7	620.13	4340.91	NA	4340.91
TOTAL FOR STEP 4-A			**14**				**9575.86**

		Labor Category and Description	Hours or Cubic Yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded Costs
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris Disposal	Front End Loader and Truck: remove 40 cy	40	47.43	1897.20	3	5691.60
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 4-B, 4-C and 4-D			**88**				**11759.76**

TOTAL FOR TS-4 WORKSHEET AND TOTAL FOR STEP 4	**21335.62**

TA-54 AREA G STORAGE SHED 8 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Storage Shed 8

SUMMARY WORKSHEET				
	Activity	Worksheet Number	Step	Shed 8 Cost ($)
1	Pre-Closure and Structural Assessment	TS-3	2-A	4045.44
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A	1257.12
5	Decontamination Verification Samples	TS-3	3-E	521.04
6	Analyses	TS-4	4-A	2499.74
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0
9	**Subtotal of Closure Costs**			**9840.38**
10	Certification of Closure	TS-4	4-D	2528.40
11				
12	**Subtotal (Add cost of certification report to closure costs)**			**12368.78**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**10884.53**

TA-54 AREA G STORAGE SHED 8 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54 Area G Storage Shed 8 is located on the north-central side of Area G and was constructed in 1979. The steel shed includes a concrete foundation and stores solid type mixed waste. The shed has a 6-inch high curb around the perimeter that provides secondary containment.

	Maximum permitted capacity for Shed 8 (gallons)	11,880		
	Known Releases?	N/A		
	Dimensions of the Shed 8 length (ft) x width (ft) and sf	40	16	640
1-C	Materials	Constructed with steel beams and galvanized siding on a concrete foundation		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	20	42.14	842.8	3	2528.4
TOTAL FOR STEP 2A							**4045.44**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**5056.8**

3. DECONTAMINATION

The decontamination process includes the decontamination of equipment as well as the decontamination of the floors and walls of the shed. The walls of this unit will be washed up to a height of two feet above the highest level of waste previously stored. The wash water will be transferred to clean containers for further characterization and review. Several wash cycles may be prescribed for the surfaces of the unit.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.6	3	340.8
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**419.04**	**3**	**1257.12**

TOTAL FOR STEP 3-A	**1257.12**

TA-54 AREA G STORAGE SHED 8 TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe	2	2	43.42	86.84	3	260.52
	Radioactive Wipe Sample	2	2	43.42	86.84	3	260.52
TOTAL FOR STEP 3-E							**521.04**
TOTAL FOR STEP 3							**1778.16**

TOTAL FOR TS-3 WORKSHEET	**6834.96**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section. Analysis for this unit will include both stages of sampling: determination and verification.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals	Water/Wipe	2	747.85	1495.70	NA	1495.70
	SVOCs	Water/Wipe					
	VOCs	Water/Wipe					
	Radionuclides		2	167.34	334.68	3	1004.04
TOTAL FOR STEP 4-A			**4**				**2499.74**

		Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	NA					
4-D	Certification Report	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-E							
TOTAL FOR STEP 4-B and 4-D							**3034.08**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**5533.82**

TA-54 Area G Building TA-54-33 TS-1

Facility Name: Los Alamos National Laboratory (LANL) TA-54 Area G Building 33

SUMMARY WORKSHEET				
	Activity	Worksheet Number	Step	TA-54 Building 33 Cost ($)
1	Pre-Closure and Structural Assessment	TS-3	2-A	19721.52
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A and 3-B	7542.72
5	Decontamination Verification Samples	TS-3	3-E	3517.02
6	Analyses	TS-4	4-A	19229.35
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	95047.50
9	**Subtotal of Closure Costs**			**152643.31**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add cost of certification report to closure costs)**			**160228.51**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**141001.09**

TA-54 Area G Building TA-54-33 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Unit Building TA-54-33 is located in the north-central portion of Area G and consists of a dome attached to a concrete-block building with a concrete foundation and sump. The structure was built in 1994 and stores solid and liquid type mixed waste.

1-A	Maximum permitted capacity for Building TA-54-33 (gallons)				108,240
	Known Releases?				N/A
1-B	Dimensions of the Building TA-54-33 length (ft) x width (ft) and sf	Dome	157	50	7,850
		Building	40	34	1,360
1-C	Materials		Dome is constructed with aluminum beams and tensioned fabric. A concrete floor 8 inches thick underlies both the dome and block building. A 6 inch curb surrounds the dome floor. A central drainage trench in the dome collects liquids, with 2 branch trenches and a pipe drain from the building. A steel sump at the east end of the dome is 14 feet by 6.5 feet and 5 feet deep, within a concrete basin. Two tanks in concrete basins are associated with the sump.		
1-D	Maximum volume of waste to be removed		None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)		Will depend upon the physical hazards and radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	60	42.14	2528.4	3	7585.2
	Inspection	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Report	Sr Engineer/Tech	80	42.14	3371.2	3	10113.6
TOTAL FOR STEP 2A							**19721.52**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.6	3	5056.8

TOTAL FOR STEP 2	**24778.32**

3. DECONTAMINATION
The decontamination process includes the decontamination of equipment as well as the decontamination of the floors and walls of the shed. The walls of this unit will be washed up to a height of two feet above the highest level of waste previously stored. The wash water will be transferred to clean containers for further characterization and review. Several wash cycles may be prescribed for the surfaces of the unit.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	24	32.94	790.56	3	2371.68
		Staff Engineer	24	28.4	681.6	3	2044.8
		Project Scientist	24	24.29	582.96	3	1748.88
		Staff Scientist	24	19.13	459.12	3	1377.36
TOTAL FOR STEP 3-A			**96**	**104.76**	**2514.24**	**3**	**7542.72**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Decontamination	24	See crew above			

TOTAL FOR STEP 3-A - 3B	**7542.72**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipes	19	12	43.42	521.04	3	1563.12
	Radioactive Wipe	10	5	43.42	217.1	3	651.3
	Soil beneath drain trench, pipe, sump	10	10	43.42	434.2	3	1302.6
TOTAL FOR STEP 3-E							**3517.02**
TOTAL FOR STEP 3							**11059.74**

TOTAL FOR TS-3 WORKSHEET	**35838.06**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals SVOCs VOCs	Wipe	19	747.85	14209.15	NA	14209.15
	Metals, SVOC, VOCs	Soil	10	620.13	6201.3	NA	6201.30
	Radionuclides	Wipe	10	167.34	1673.4	3	5020.20
TOTAL FOR STEP 4-A			**39**				**19229.35**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.8	3	2528.40
4-C	Unreinforced dome floor concrete demolition and debris removal (Building not demolished)	Demolition crew, air and heavy equipment. Est 250 cy	250	126.73	31682.5	3	95047.50
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.4	3	7585.20
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**105161.10**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**124390.45**

TA-54 AREA G PAD 1 AND STORAGE DOME 226 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 1 and Storage Dome 226

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 1 and Dome 226 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11124.96
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-C	
4	Decontamination Waste Management	TS-3	and 3-D	26700.24
5	Decontamination Verification Samples	TS-3	3-E	9639.24
6	Analyses	TS-4	4-A	91255.21
7	Sample Logbook	TS-4	4-B	5056.80
8	Demolition and Debris Disposal	TS-4	4-C	134037.18
9	**Subtotal of Closure Costs**			**282870.43**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add cost of certification to closure costs)**			**290455.63**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**255600.95**

TA-54 AREA G PAD 1 AND STORAGE DOME 226 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Pad 1 includes TA-54-412 and Storage Dome 226 in the northeastern portion of Area G. The dome was erected in 1995 and is used to store solid type mixed waste which include corrosive liquids, sludge, debris, equipment and chemical waste containing metals and volatile and semi-volatile organic hazardous constituents.

1-A	Maximum permitted capacity (gallons)			411,840
	Known Releases?			N/A
1-B	Dimensions of the Dome 226 length (ft) x width (ft) and sf (demolition included in this cost estimate)	286	89	25454
	Dimensions of Pad 1 length (ft) x width (ft) and sf	358	213	76254
1-C	Materials	Dome is constructed of tensioned-fabric membranes and aluminum beams. The interior floor is surrounded with a mimumum six inch high ring wall. The asphaltic concrete pad is four to six inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

Pad 1	76254	
Dome 226	25454	51 soil samples
TA-54-412	13200	
Pad 1 outside structures	37600	Divide by 500 = 75.2 or 76 samples

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11124.96**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16181.76**

3. DECONTAMINATION

The decontamination process will involve inspection and sampling soil below the pad, and pressure washing or steam cleaning equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	60	32.94	1976.40	3	5929.20
		Staff Engineer	60	28.4	1704.00	3	5112.00
		Project Scientist	60	24.29	1457.40	3	4372.20
		Staff Scientist	60	19.13	1147.80	3	3443.40
TOTAL FOR STEP 3-A			**240**	**104.76**	**6285.60**	**3**	**18856.80**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Water/Wipe	10	747.85	7478.50	NA	7478.50
	Metals, SVOCs, VOCs	Soil	127	620.13	78756.51	NA	78756.51
	Radioactive elements	Wipe	10	167.34	1673.40	3	5020.20
TOTAL FOR STEP 4-A			**147**	**1535.32**	**87908.41**	**3**	**91255.21**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
4-C	Demolition and Debris Disposal (entire Pad 1)	Remove 942 cy asphalt	942	47.43	44679.06	3	134037.18
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
TOTAL FOR STEP 4-B, 4-C and 4-D							**146679.18**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**237934.39**

TA-54 Area G Building TA-54-412 TS-1

Facility Name: Los Alamos National Laboratory (LANL) TA-54 Area G Building 412

SUMMARY WORKSHEET				
	Activity	Worksheet Number	Step	Cost ($)
1	Pre-Closure and Structural Assessment	TS-3	2-A	22249.92
2	Sampling and Analysis Plan	TS-3	2-B	10113.6
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A	12571.2
5	Decontamination Verification Samples	TS-3	3-E	4689.36
6	Analyses	TS-4	4-A	26228.05
7	Sample Logbook	TS-4	4-B	5056.80
8	Demolition and Debris Disposal	TS-4	4-C	0
9	**Subtotal of Closure Costs**			**80908.93**
10	Certification of Closure	TS-4	4-D	10113.60
11	Concrete drill rig and sample collection	TS-4	4-E	13776.00
12	**Subtotal (Add cost of certification report and drill rig to closure costs)**			**104798.53**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**92222.71**

TA-54 Area G Building TA-54-412 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Building TA-54-412 is located on Pad 1 in the northeastern portion of Area G and stores solid and liquid type mixed waste. It was constructed in 1999. The building encloses the primary containment structure for the DVRS. All waste handling occurs inside the primary containment structure.

1-A	Maximum permitted capacity for Building TA-54-412 (gallons)	91,080		
	Known Releases?	N/A		
1-B	Dimensions of the Building TA-54-412 length (ft) x width (ft) and sf	220	60	13,200
1-C	Materials	Primary containment dimensions 150 x 50 ft, constructed with steel and gypsum board panels on a concrete foundation. Exterior unknown.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	80	42.14	3371.2	3	10113.60
	Inspection	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Report	Sr Engineer/Tech	80	42.14	3371.2	3	10113.60
TOTAL FOR STEP 2A							**22249.92**

***Assumption: The time estimated for this unit was based on the total acreage of the Unit and was porportioned to previous closure cost estimates.**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	80	42.14	3371.2	3	10113.60

TOTAL FOR STEP 2	**32363.52**

3. DECONTAMINATION
The decontamination process includes pressure washing or steam cleaning equipment, floors and walls.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	40	32.94	1317.6	3	3952.80
		Staff Engineer	40	28.4	1136	3	3408.00
		Project Scientist	40	24.29	971.6	3	2914.80
		Staff Scientist	40	19.13	765.2	3	2295.60
TOTAL FOR STEP 3-A			**160**	**104.76**	**4190.4**	**3**	**12571.20**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Floor, wall and equipment decontamination	40	See crew above			

TOTAL FOR STEP 3-A	**12571.20**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Wipes	19	16	43.42	694.72	3	2084.16
	Radioactive Sample (includes equipment and surfaces)	19	12	43.42	521.04	3	1563.12
	Verification Soil Sample below sump and drainage path	4	8	43.42	347.36	3	1042.08
TOTAL FOR STEP 3-E							**4689.36**
TOTAL FOR STEP 3							**17260.56**

TOTAL FOR TS-3 WORKSHEET	**49624.08**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals	Wipe	19	747.85	14209.15	NA	14209.15
	SVOCs	Wipe					
	VOCs	Wipe					
	Metals, SVOCs, VOCs	Soil	4	620.13	2480.52	NA	2480.52
	Radionuclides	Wipe	19	167.34	3179.46	3	9538.38
TOTAL FOR STEP 4-A			**42**				**26228.05**

		Labor Category	Hours or days	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
4-C	Demolition and Debris Disposal	NA	Assume no demolition				
4-D	Certification Report	Sr. Engineer/Tech	80	42.14	3371.20	3	10113.60
4-E	Concrete drilling and soil core samples	Drill rig and crew, 2 days	2	2296.00	4592.00	3	13776.00
TOTAL FOR STEP 4-B, 4-D and 4-E							**28946.40**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**55174.45**

TA-54 AREA G PAD 3 including STORAGE DOME 48 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 3 including Storage Dome 48

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 3 and Dome 48 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11124.96
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-	
4	Decontamination Waste Management	TS-3	C and 3-D	11267.58
5	Decontamination Verification Samples	TS-3	3-E	7034.04
6	Analyses	TS-4	4-A	33583.12
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	29880.90
9	**Subtotal of Closure Costs**			**100475.80**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs)**			**108061.00**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**95093.68**

TA-54 AREA G PAD 3 including STORAGE DOME 48 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Unit TA-54 Area G Pad 3 including Storage Dome 48 are located in the eastern end of Area G. The dome has been in operation since 1980. The dome is used to store solid type mixed waste on pallets and liquid waste containers in secondary containment pallets.

1-A	Maximum permitted capacity (gallons)			213,840
	Known Releases?			N/A
1-B	Dimensions of the dome length (ft) x width (ft) and sf (underlying and surrounding pad demolition included in estimate)	285	50	14250
	Dimensions of Pad 3 length (ft) x width (ft) and sf	339	50	16950
1-C	Materials	Dome is constructed with tensioned-fabric membranes and aluminum beams. The interior floor perimeter is surrounded with a six inch high asphalt curb or ring wall. The asphalt pad is four inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and levels of radiological and chemical contamination detected- assume D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11124.96**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16181.76**

TA-54 AREA G PAD 3 including STORAGE DOME 48 TS-3

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning adjacent dome walls and equipment, inspection of the pad, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	16	32.94	527.04	3	1581.12
		Staff Engineer	16	28.4	454.40	3	1363.20
		Project Scientist	16	24.29	388.64	3	1165.92
		Staff Scientist	16	19.13	306.08	3	918.24
TOTAL FOR STEP 3-A			**64**	**104.76**	**1676.16**	**3**	**5028.48**

	Activity	Hours days	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Dome wall and equipment decontamination	16	See crew above			
3-C	Mechanical removal of asphalt under dome and surrounding pad		See worksheet TS-4			
3-D	Direct-push sampling rig and crew, $594 mobe and demobe plus $178 per day	5	178	2079.70	3	6239.10

TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D	**11267.58**

TA-54 AREA G PAD 3 including STORAGE DOME 48 TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	10	8	43.42	347.36	3	1042.08
	Radioactive Swipe Sample	10	6	43.42	260.52	3	781.56
	Soil verification	34	40	43.42	1736.80	3	5210.40
TOTAL FOR STEP 3-E							**7034.04**
TOTAL FOR STEP 3							**18301.62**

TOTAL FOR TS-3 WORKSHEET	**34483.38**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	10	747.85	7478.50	NA	7478.50
	Metals SVOCs	Soil	34	620.13	21084.42	NA	21084.42
	VOCs						
	Radioactive elements	Wipe	10	167.34	1673.40	3	5020.20
TOTAL FOR STEP 4-A			**54**	**1535.32**	**30236.32**	**3**	**33583.12**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and Debris Disposal- 210 cy	Front end loader and truck	210	47.43	9960.30	3	29880.90
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
TOTAL FOR STEP 4-B, 4-C and 4-D							**39994.50**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**73577.62**

TA-54 AREA G PAD 5 AND STORAGE DOME 49 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 5 including Storage Dome 49

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 5 and Dome 49 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11630.64
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-C and 3-D	
4	Decontamination Waste Management	TS-3		20414.64
5	Decontamination Verification Samples	TS-3	3-E	11593.14
6	Analyses	TS-4	4-A	86913.30
7	Sample Logbook	TS-4	4-B	5056.80
8	Demolition and Debris Disposal	TS-4	4-C	93057.66
9	**Subtotal of Closure Costs**			**233722.98**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs)**			**241308.18**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**212351.20**

TA-54 AREA G PAD 5 AND STORAGE DOME 49 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54 Area G Pad 5 including Storage Dome 49 are located in the south-central portion of Area G. The dome was built in 1986, and is located on Pad 5. Dome 49 stores solid type mixed waste and liquid mixed waste on secondary containment pallets. Pad 5 also includes Dome 224 (on former Pad 8) and Sheds 144, 145, 146, 177, 1027, 1028, 1029 and 1041 (on former Pad 7). Costs for closure at each of these units was estimated separately, but the overall Pad 5 assessment, sampling and demolition costs are included in this worksheet.

1-A	Maximum permitted capacity for Dome 49 (gallons)			520,080
	Known Releases?			N/A
1-B	Dimensions of Dome 49 length (ft) x width (ft) and sf (pad demolition assumed- see worksheet TS-4)	440	60	26400
	Dimensions of Pad 5 length (ft) x width (ft) and sf	500	65	32500
	Dimensions of Pad 7 length (ft) x width (ft) and sf	200	64	12,800
	Dimensions of Pad 8 length (ft) x width (ft) and sf	150	95	14,250
1-C	Materials	The domes are constructed with tensioned-fabric membranes and aluminum beams. The floor is surrounded with a mimumum six-inch high curb or ring wall. The asphalt pad is approximately four inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.6	3	5056.80
	Inspection	Sr Engineer/Tech	12	42.14	505.68	3	1517.04
	Report	Sr Engineer/Tech	40	42.14	1685.6	3	5056.80
TOTAL FOR STEP 2A							**11630.64**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.6	3	5056.80

TOTAL FOR STEP 2	**16687.44**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment and structures, inspection of the pad, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	40	32.94	1317.6	3	3952.80
		Staff Engineer	40	28.4	1136	3	3408.00
		Project Scientist	40	24.29	971.6	3	2914.80
		Staff Scientist	40	19.13	765.2	3	2295.60
TOTAL FOR STEP 3-A			**160**	**104.76**	**4190.4**	**3**	**12571.20**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment & structure decontamination	40	See above crew			
3-C	Mechanical removal of asphalt		See worksheet TS-4			
3-D	Direct-push sampling rig and crew- $594 mobe and demobe plus $178 per day	64	178	2614.48	3	7843.44
TOTAL FOR STEP 3-B, 3-C and 3-D						**20414.64**

TA-54 AREA G PAD 5 AND STORAGE DOME 49 TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Verification Water/Wipe Dome 49 and surrounding Pad 5 (including former Pads 7 and 8) except 224	10	24	43.42	1042.08	3	3126.24
	Soil Verification	120	60	43.42	2605.2	3	7815.60
	Radioactive Swipe Dome 49	10	5	43.42	217.1	3	651.30
TOTAL FOR STEP 3-E							**11593.14**

TOTAL FOR TS-3 WORKSHEET	**40851.78**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS

The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Radioactive elements	Wipe	10	167.34	1673.40	3	5020.20
	Metals, SVOCs VOCs	Soil	120	620.13	74415.60	NA	74414.60
	Toxic Metals, SVOCs, VOCs	Water/Wipe	10	747.85	7478.50	NA	7478.50
TOTAL FOR STEP 4-A			**140**	**1535.32**	**83567.5**	**3**	**86913.30**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
4-C	Demolition and Debris removal	FE loader & trucks for asphalt removal 654 cy	654	47.43	31019.22	3	93057.66
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**105699.66**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**192612.96**

TA-54 AREA G PAD 5 AND STORAGE DOME 224 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 5 and Storage Dome 224

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 5 and Dome 224 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11630.64
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-C and 3	
4	Decontamination Waste Management	TS-3	D	6614.22
5	Decontamination Verification Samples	TS-3	3-E	2214.42
6	Analyses	TS-4	4-A	17313.55
7	Sample Logbook	TS-4	4-B	1517.04
8	Demolition and Debris Disposal	TS-4	4-C	11667.78
9	**Subtotal of Closure Costs**			**56014.45**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs)**			**61071.25**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**53742.70**

TA-54 AREA G PAD 5 AND STORAGE DOME 224 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54 Area G Storage Dome 224 is located in the south-central portion of Area G on Pad 5. The pad unit consists of three adjacent smaller pads; Pads 5, 8 and 7, now consolidated as Pad 5. Dome 224 was constructed in 1989, and is designed for secondary containment of liquids with a concrete collection sump in the center of the dome and a plastic liner underneath the asphalt pad. Costs for inspection, sampling and demolition of Pad 5 are in the worksheet for Dome 49.

1-A	Maximum permitted capacity for Dome 224 (gallons)			95,040
	Known Releases?			N/A
1-B	Dimensions of Dome 224 length (ft) x width (ft) and sf (pad demolition assumed- see worksheet TS-4)	110	60	6600
	Dimensions of Pad 5 length (ft) x width (ft) and sf	150	95	14250
1-C	Materials	The dome is constructed with tensioned-fabric membranes and aluminum beams. The floor is surrounded with a mimumum six inch high curb or ring wall. The asphalt pad is approximately four inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	12	42.14	505.68	3	1517.04
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11630.64**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16687.44**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment and walls, inspection, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	8	32.94	263.52	3	790.56
		Staff Engineer	8	28.40	227.20	3	681.60
		Project Scientist	8	24.29	194.32	3	582.96
		Staff Scientist	8	19.13	153.04	3	459.12
TOTAL FOR STEP 3-A			**32**	**104.76**	**838.08**	**3**	**2514.24**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment decontamination, inspection and sampling	8	See above crew			
3-C	Mechanical removal of asphalt		See worksheet TS-4			
3-D	Direct-push sampling rig and crew $594 mobe and demobe plus $178 per day	1	178	1366.66	3	4099.98
TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D						**6614.22**

TA-54 AREA G PAD 5 AND STORAGE DOME 224 TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Soil below sump	1	1	43.42	43.42	3	130.26
	Verification Water/Wipe	4	4	43.42	173.68	3	521.04
	Soil below asphalt	14	8	43.42	347.36	3	1042.08
	Radioactive Swipe Dome 224	10	5	43.42	217.10	3	651.30
TOTAL FOR STEP 3-E							**2214.42**
TOTAL FOR STEP 3							**8828.64**

TOTAL FOR TS-3 WORKSHEET	**25516.08**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS

The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Radioactive elements	Wipe	10	167.34	1673.40	3	5020.20
	Toxic Metals, SVOCs, VOCs	Wipe	4	747.85	2991.40	NA	2991.40
	Metals, SVOCs, VOCs	Soil	15	620.13	9301.95	NA	9301.95
TOTAL FOR STEP 4-A			**29**	**1535.32**	**13966.75**	**3**	**17313.55**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	12	42.14	505.68	3	1517.04
4-C	Demolition and Debris Disposal	FE loader & truck for asphalt removal 82 cy	82	47.43	3889.26	3	11667.78
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**18241.62**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**35555.17**

TA-54 AREA G PAD 6 AND STORAGE DOME 153 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 6 and Storage Dome 153

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 6 and Dome 153 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11630.64
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-	
4	Decontamination Waste Management	TS-3	C and 3-D	18810.30
5	Decontamination Verification Samples	TS-3	3-E	6903.78
6	Analyses	TS-4	4-A	72031.18
7	Sample Logbook	TS-4	4-B	5056.80
8	Demolition and Debris Disposal	TS-4	4-C	83808.81
9	**Subtotal of Closure Costs**			**203298.31**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add certification of closure to closure costs)**			**210883.51**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**185577.49**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area G Pad 6 including Storage Dome153 are located in the north-central portion of Area G. Dome 153 stores solid type mixed waste, including large fiberglass-reinforced boxes containing contaminated equipment. Liquid mixed wastes are also stored on secondary containment pallets. This worksheet includes sampling and demolition of the surrounding pad.

1-A	Maximum permitted capacity for Dome 153 of Pad 6 (gallons)			316,140
	Known Releases?			N/A
1-B	Dimensions of the Dome 153 length (ft) x width (ft) and sf	326	60	19,560
	Dimensions of Pad 6 length (ft) x width (ft) and sf	633	99	62,667
1-C	Materials	The dome is manufactured with tensioned-fabric membranes and aluminum beams. The interior floor perimeter of the dome is surrounded with a mimumum six inch high asphalt curb or ring wall. The asphalt pad is approximately four inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D.		

Note: Demolition of pad under Dome 283 is accounted separately

Total area minus Dome 283 (15,000 sf) = 47,667 sf

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	12	42.14	505.68	3	1517.04
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11630.64**

***Assumption: The time estimated for this unit was based on the total acreage of the Unit and was porportioned to previous closure cost estimates.**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16687.44**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment, inspection, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
3-A	4	Project Engineer	40	32.94	1317.60	3	3952.80
		Staff Engineer	40	28.4	1136.00	3	3408.00
		Project Scientist	40	24.29	971.60	3	2914.80
		Staff Scientist	40	19.13	765.20	3	2295.60
TOTAL FOR STEP 3-A			**160**	**104.76**	**4190.40**	**3**	**12571.20**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment decontamination, inspection and sampling	24	See crew above			
3-C	Mechanical removal of asphalt layers		See worksheet TS-4			
3-D	Direct-push sampling rig and crew, $594 mobe and demobe plus $178 per day	40	178	2079.7	3	6239.10

TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D	**18810.30**

TA-54 AREA G PAD 6 AND STORAGE DOME 153 TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Wipe	10	8	43.42	347.36	3	1042.08
	Radioactive Sample	10	5	43.42	217.10	3	651.30
	Soil Verification	96	40	43.42	1736.80	3	5210.40
TOTAL FOR STEP 3-E							**6903.78**
TOTAL FOR STEP 3							**25714.08**

TOTAL FOR TS-3 WORKSHEET	**42401.52**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals SVOCs VOCs	Wipe	10	747.85	7478.50	NA	7478.50
	Metals, SVOCs VOCs	Soil	96	620.13	59532.48	NA	59532.48
	Radioactive	Wipe	10	167.34	1673.40	3	5020.20
TOTAL FOR STEP 4-A			**116**	**167.34**	**19411.44**	**3**	**72031.18**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
4-C	Demolition and Debris Disposal	FE loader & truck for asphalt- 589 cy	589	47.43	27936.27	3	83808.81
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**96450.81**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**168481.99**

TA-54 AREA G PAD 6 AND STORAGE DOME 283 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 6 Storage and Dome 283

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 6 and Dome 283 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11630.64
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-C and 3-D	
4	Decontamination Waste Management	TS-3		12712.26
5	Decontamination Verification Samples	TS-3	3-E	5861.70
6	Analyses	TS-4	4-A	31102.60
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	26465.94
9	**Subtotal of Closure Costs**			**95358.34**
10	Certification of Closure	TS-4	4-D	6321.00
11				
12	**Subtotal (Add certification report to closure costs)**			**101679.34**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**89477.82**

TA-54 AREA G PAD 6 AND STORAGE DOME 283 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area G Pad 6, including Storage Dome 283 is located in the north-central portion of Area G. Dome 283 stores solid type mixed waste, including large fiberglass-reinforced boxes containing contaminated equipment. Liquid mixed wastes are also stored on secondary containment pallets.

1-A	Maximum permitted capacity for Dome 283 of Pad 6 (gallons)			281,160
	Known Releases?			N/A
1-B	Dimensions of the Dome 283 length (ft) x width (ft) and sf	250	60	15,000
	Dimensions of Pad 6 length (ft) x width (ft) and sf	633	99	62,667
	Sampling and demolition costs for surrounding Pad 6 are accounted in Dome 153 worksheet			
1-C	Materials	The dome is constructed with tensioned-fabric membranes and aluminum beams. The interior floor perimeter of the dome is surrounded with a mimumum six inch high asphalt curb or ring wall. The asphalt pad is approximately four inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	12	42.14	505.68	3	1517.04
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11630.64**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16687.44**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment, inspection, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	24	32.94	790.56	3	2371.68
		Staff Engineer	24	28.4	681.60	3	2044.80
		Project Scientist	24	24.29	582.96	3	1748.88
		Staff Scientist	24	19.13	459.12		459.12
TOTAL FOR STEP 3-A			**96**	**104.76**	**2514.24**	**3**	**7542.72**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
3-B	Equipment decontamination, inspection	24	See crew above			
3-C	Mechanical removal of asphalt		See worksheet TS-4			
3-D	Direct-push sampling rig and crew, $594 mobe and demobe plus $178 per day	24	178	1723.18	3	5169.54

TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D	**12712.26**

TA-54 AREA G PAD 6 AND STORAGE DOME 283 TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Wipe	10	16	43.42	694.72	3	2084.16
	Radioactive Wipe	10	5	43.42	217.10	3	651.30
	Soil	30	24	43.42	1042.08	3	3126.24
TOTAL FOR STEP 3-E							**5861.70**
TOTAL FOR STEP 3							**18573.96**

TOTAL FOR TS-3 WORKSHEET	**35261.40**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals SVOCs VOCs	Wipe	10	747.85	7478.50	NA	7478.50
	Metals, SVOCs VOCs	Soil	30	620.13	18603.90	NA	18603.90
	Radioactive	Wipe	10	167.34	1673.40	3	5020.20
TOTAL FOR STEP 4-A			**50**	**1535.32**	**27755.80**	**3**	**31102.60**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and Debris Disposal	FE loader & truck for asphalt- 186 cy	186	47.43	8821.98	3	26465.94
4-D	Certification Report	Sr. Engineer/Tech	50	42.14	2107.00	3	6321.00
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**35315.34**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**66417.94**

TA-54 AREA G PAD 9 AND STORAGE DOME 229 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 9 and Storage Dome 229

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 9 and Dome 229 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	14664.72
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-C	
4	Decontamination Waste Management	TS-3	and 3-D	18810.30
5	Decontamination Verification Samples	TS-3	3-E	10420.80
6	Analyses	TS-4	4-A	132851.97
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	161356.86
9	**Subtotal of Closure Costs**			**345689.85**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add certification report to closure costs)**			**353275.05**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**310882.04**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Unit TA-54 Area G Storage Dome 229 is located at the east end of Area G on Pad 9. The dome was built in 1994 and 1995 and stores solid type mixed waste only. This worksheet also includes sampling and demolition of Pad 9, minus the area of 230, 231 and 232.

1-A	Maximum permitted capacity for Dome 229 of Pad 9 (gallons)			330,000
	Known Releases?			N/A
1-B	Dimensions of Dome 229 length (ft) x width (ft) and sf	246	88	21,648
	Dimensions of Pad 9 length (ft) x width (ft) and sf	570	275	156,750
1-C	Materials	Dome is constructed with tensioned-fabric membranes and aluminum beams. The interior floor perimeter of the dome is surrounded with a mimumum six inch high asphalt curb or ring wall. The asphalt pad is four to six inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D.		

Pad 9 Area	156,750
Dome 230	21,648
Dome 231	21,648
Dome 232	21,648
Total area included in this worksheet	91,806

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Report	Sr Engineer/Tech	60	42.14	2528.40	3	7585.20
TOTAL FOR STEP 2A							**14664.72**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**19721.52**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment, inspection, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	40	32.94	1317.60	3	3952.80
		Staff Engineer	40	28.4	1136.00	3	3408.00
		Project Scientist	40	24.29	971.60	3	2914.80
		Staff Scientist	40	19.13	765.20	3	2295.60
TOTAL FOR STEP 3-A			**160**	**104.76**	**4190.40**	**3**	**12571.20**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment decontamination, inspection and sampling of asphalt surface	40	See crew above			
3-C	Mechanical removal of asphalt		See worksheet TS-4			
3-D	Direct-push sampling rig and crew, $594 mobe and demobe plus $178 per day	40	178	2079.70	3	6239.10

TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D	**18810.30**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	15	12	43.42	521.04	3	1563.12
	Radioactive Wipe	15	8	43.42	347.36	3	1042.08
	Soil	184	60	43.42	2605.20	3	7815.60
TOTAL FOR STEP 3-E							**10420.80**
TOTAL FOR STEP 3							**29231.10**

TOTAL FOR TS-3 WORKSHEET	**48952.62**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cos ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	15	747.85	11217.75	NA	11217.75
	Metals, SVOCs, VOCs	Soil	184	620.13	114103.92	NA	114103.92
	Radionuclides	Wipe	15	167.34	2510.10	3	7530.30
TOTAL FOR STEP 4-A			**214**	**1535.32**	**127831.77**	**3**	**132851.97**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and Debris Disposal	FE loader & trucks to remove asphalt-1,134 cy	1134	47.43	53785.62	3	161356.86
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**171470.46**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**304322.43**

TA-54 AREA G PAD 9 AND STORAGE DOME 230 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 9 and Storage Dome 230

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 9 and Dome 230 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	14664.72
2	Sampling and Analysis Plan	TS-3	2-B	7585.20
3	Decontamination Process		3-A, 3-B, 3-C,	
4	Decontamination Waste Management	TS-3	3-D and 3-E	12712.26
5	Decontamination Verification Samples	TS-3	3-E	6122.22
6	Analyses	TS-4	4-A	49134.42
7	Sample Logbook	TS-4	4-B	2528.40
8	Asphalt Demolition and Debris Removal	TS-4	4-C	57058.29
9	**Subtotal of Closure Costs**			**149805.51**
10	Certification of Closure	TS-4	4-D	6321.00
11	Sump & liner demolition & removal	TS-4	4-E	8537.40
12	**Subtotal (Add certification report to closure costs)**			**164663.91**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**144904.24**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area G Storage Dome 230 is located at the east end of Area G on Pad 9. The dome was built in 1994 and 1995. Dome 230 stores liquid and solid type mixed waste and has a plastic liner underneath the asphalt portion of the dome floor with an additional concrete sump at the east end of the dome for secondary containment.

1-A	Maximum permitted capacity for Dome 230 of Pad 9 (gallons)			330,000
	Known Releases?			N/A
1-B	Dimensions of Dome 230 length (ft) x width (ft) and sf	246	88	21,648
	Dimensions of Pad 9 length (ft) x width (ft) and sf	570	275	156,750
1-C	Materials	Dome is constructed with tensioned-fabric membranes and aluminum beams. The interior floor perimeter of the dome is surrounded with a mimumum six inch high asphalt curb or ring wall. The asphalt pad is four to six inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Report	Sr Engineer/Tech	60	42.14	2528.40	3	7585.20
TOTAL FOR STEP 2A							**14664.72**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	60	42.14	2528.40	3	7585.20

TOTAL FOR STEP 2	**22249.92**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment, inspection, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	24	32.94	790.56	3	2371.68
		Staff Engineer	24	28.4	681.60	3	2044.80
		Project Scientist	24	24.29	582.96	3	1748.88
		Staff Scientist	24	19.13	459.12	3	1377.36
TOTAL FOR STEP 3-A			**96**	**104.76**	**2514.24**	**3**	**7542.72**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment decontamination, asphalt inspection and sampling	24	See crew above			
3-C	Mechanical removal of asphalt-		See worksheet TS-4			
3-D	Sump removal		See worksheet TS-4			
3-E	Direct-push sampling rig with crew, $594 mobe and demobe plus $178 per day	24	178	1723.18	3	5169.54

TOTAL FOR STEP 3-A, 3-B, 3-C, 3-D and 3-E	**12712.26**

3-F	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	15	12	43.42	521.04	3	1563.12
	Radioactive Sample	15	8	43.42	347.36	3	1042.08
	Soil below trench and sump	5	3	43.42	130.26	3	390.78
	Soil below asphalt pad	44	24	43.42	1042.08	3	3126.24
TOTAL FOR STEP 3-F							**6122.22**
TOTAL FOR STEP 3							**18834.48**

TOTAL FOR TS-3 WORKSHEET	**41084.40**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Toxic Metals	Wipe	15	747.85	11217.75	NA	11217.75
	SVOCs						
	VOCs						
	Metals	Sump area soil	5				
	SVOCs	Soil under Pad	44				
	VOCs	Total	49	620.13	30386.37	NA	30386.37
	Radionuclides	Wipe	15	167.34	2510.10	3	7530.30
TOTAL FOR STEP 4-A			**79**	**1535.32**	**44114.22**	**3**	**49134.42**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and Debris Disposal	FE loader & truck for asphalt- 401 cy	401	47.43	19019.43	3	57058.29
4-D	Certification Report	Sr. Engineer/Tech	50	42.14	2107.00	3	6321.00
4-E	Sump & liner demolition and removal	Concrete demolition- 20 cy Liner-40 cy	60	47.43	2845.80	3	8537.40
TOTAL FOR STEP 4-B, 4-C, 4-D and 4-E							**74445.09**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**123579.51**

TA-54 AREA G PAD 9 AND STORAGE DOME 231 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 9 and Storage Dome 231

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 9 and Dome 231 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	14664.72
2	Sampling and Analysis Plan	TS-3	2-B	7585.20
3	Decontamination Process		3-A, 3-B, 3-C	
4	Decontamination Waste Management	TS-3	and 3-D	12712.26
5	Decontamination Verification Samples	TS-3	3-E	5731.44
6	Analyses	TS-4	4-A	46033.77
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	57058.29
9	**Subtotal of Closure Costs**			**146314.08**
10	Certification of Closure	TS-4	4-D	6321.00
11				
12	**Subtotal (Add certification report to closure costs)**			**152635.08**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**134318.87**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Unit TA-54 Area G Storage Dome 231 is located at the east end of Area G on Pad 9. The dome was built in 1994 and 1995 and stores solid mixed waste only.

1-A	Maximum permitted capacity for Dome 231 of Pad 9 (gallons)			393,360
	Known Releases?			N/A
1-B	Dimensions of Dome 231 length (ft) x width (ft) and sf	246	88	21,648
	Dimensions of Pad 9 length (ft) x width (ft) and sf	570	275	156,750
1-C	Materials	Dome is constructed with tensioned-fabric membranes and aluminum beams. The floor is surrounded with a mimumum six inch high asphalt curb or ring wall. The asphalt pad is four to six inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Report	Sr Engineer/Tech	60	42.14	2528.40	3	7585.20
TOTAL FOR STEP 2A							**14664.72**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	60	42.14	2528.40	3	7585.20

TOTAL FOR STEP 2	**22249.92**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment, inspection and sampling of the asphalt surface.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	24	32.94	790.56	3	2371.68
		Staff Engineer	24	28.4	681.60	3	2044.80
		Project Scientist	24	24.29	582.96	3	1748.88
		Staff Scientist	24	19.13	459.12	3	1377.36
TOTAL FOR STEP 3-A			**96**	**104.76**	**2514.24**	**3**	**7542.72**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment decontamination, inspection	24	See crew above			
3-C	Mechanical removal of asphalt		See worksheet TS-4			
3-D	Direct-push sampling rig with crew, $594 mobe and demobe plus $178 per day	24	178	1723.18	3	5169.54

TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D	**12712.26**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	15	12	43.42	521.04	3	1563.12
	Radioactive Wipe	15	8	43.42	347.36	3	1042.08
	Soil	44	24	43.42	1042.08	3	3126.24
TOTAL FOR STEP 3-E							**5731.44**
TOTAL FOR STEP 3							**18443.70**

TOTAL FOR TS-3 WORKSHEET	**40693.62**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section. .

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	15	747.85	11217.75	NA	11217.75
	Metals, SVOCs, VOCs	Soil	44	620.13	27285.72	NA	27285.72
	Radionuclides	Wipe	15	167.34	2510.10	3	7530.30
TOTAL FOR STEP 4-A			**74**	**1535.32**	**41013.57**	**3**	**46033.77**

		Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and Debris Disposal	FE loader & truck for asphalt- 401 cy	401	47.43	19019.43	3	57058.29
4-D	Certification Report	Sr. Engineer/Tech	50	42.14	2107.00	3	6321.00
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**65907.69**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**111941.46**

TA-54 AREA G PAD 9 AND STORAGE DOME 232 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 9 and Storage Dome 232

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 9 and Dome 232 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	14664.72
2	Sampling and Analysis Plan	TS-3	2-B	7585.20
3	Decontamination Process		3-A, 3-B, 3-C	
4	Decontamination Waste Management	TS-3	and 3-D	12712.26
5	Decontamination Verification Samples	TS-3	3-E	5731.44
6	Analyses	TS-4	4-A	46033.77
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	57058.29
9	**Subtotal of Closure Costs**			**146314.08**
10	Certification of Closure	TS-4	4-D	6321.00
11				
12	**Subtotal (Add certification report to closure costs)**			**152635.08**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**134318.87**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Unit TA-54 Area G Storage Dome 232 is located at the east end of Area G on Pad 9. The dome was built in 1994 and 1995 and stores solid mixed waste only.

1-A	Maximum permitted capacity for Dome 232 of Pad 9 (gallons)			393,360
	Known Releases?			N/A
1-B	Dimensions of the Dome 232 length (ft) x width (ft) and sf	246	88	21,648
	Dimensions of Pad 9 length (ft) x width (ft) and sf	570	275	156,750
1-C	Materials	Dome is constructed with tensioned-fabric membranes and aluminum beams. The floor is surrounded with a mimumum six inch high asphalt curb or ring wall. The asphalt pad is four to six inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D.		

TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D	**12712.26**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Determination Wipe	15	12	43.42	521.04	3	1563.12
	Radioactive Wipe	15	8	43.42	347.36	3	1042.08
	Soil	44	24	43.42	1042.08	3	3126.24
TOTAL FOR STEP 3-E							**5731.44**
TOTAL FOR STEP 3							**18443.70**

TOTAL FOR TS-3 WORKSHEET	**40693.62**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	15	747.85	11217.75	NA	11217.75
	Metals, SVOCs, VOCs	Soil	44	620.13	27285.72	NA	27285.72
	Radionuclides	Wipe	15	167.34	2510.10	3	7530.30
TOTAL FOR STEP 4-A			**74**	**1535.32**	**41013.57**	**3**	**46033.77**

		Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and debris Disposal	FE loader & truck for asphalt- 401 cy	401	47.43	19019.43	3	57058.29
4-D	Certification Report	Sr. Engineer/Tech	50	42.14	2107.00	3	6321.00
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**65907.69**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**111941.46**

TA-54 AREA G STORAGE PAD 10 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 10

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 10 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	21997.08
2	Sampling and Analysis Plan	TS-3	2-B	12642.00
3	Decontamination Process		3-A, 3-B, 3-	
4	Decontamination Waste Management	TS-3	C and 3-D	26700.24
5	Decontamination Verification Samples	TS-3	3-E	12504.96
6	Analyses	TS-4	4-A	148580.75
7	Sample Logbook	TS-4	4-B	7585.20
8	Demolition and Debris Disposal	TS-4	4-C	230509.80
9	**Subtotal of Closure Costs**			**460520.03**
10	Certification of Closure	TS-4	4-D	10113.60
11				
12	**Subtotal (Add certification report to closure costs)**			**470633.63**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**414157.59**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area G Storage Pad 10 is in the eastern portion of Area G and consolidates the units previously identified as Pad 2 and Pad 4. Pad 10 was built in 2002 and does not support any dome structures. The pad is used to store solid type mixed waste containers with liquid waste containers in secondary containment pallets.

1-A	Maximum permitted capacity for Pad 10 (gallons) from 2006 Closure Plan	159,770		
	Known Releases?	N/A		
1-B	Dimensions of Pad 10 (from 2003 Part B App., Section G.3.4.4)	350	250	87500
1-C	Materials	Asphalt pad thickness unknown, assumed 6 inches thick		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	70	42.14	2949.80	3	8849.40
	Inspection	Sr Engineer/Tech	14	42.14	589.96	3	1769.88
	Report	Sr Engineer/Tech	90	42.14	3792.60	3	11377.80
TOTAL FOR STEP 2A							**21997.08**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	100	42.14	4214.00	3	12642.00

TOTAL FOR STEP 2	**34639.08**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment, inspection, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	60	32.94	1976.40	3	5929.20
		Staff Engineer	60	28.40	1704.00	3	5112.00
		Project Scientist	60	24.29	1457.40	3	4372.20
		Staff Scientist	60	19.13	1147.80	3	3443.40
TOTAL FOR STEP 3-A			**240**	**104.76**	**6285.60**	**3**	**18856.80**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment decontamination, inspection and sampling	60	See crew above			
3-C	Mechanical removal of asphalt		See worksheet TS-4			
3-D	Direct-push sampling rig with crew, $594 mobe and demobe plus $178 per day	60	178	2614.48	3	7843.44

TOTAL FOR STEPS 3-A, 3-B, 3-C AND 3-D	**26700.24**

TA-54 AREA G STORAGE PAD 10 TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	20	16	43.42	694.72	3	2084.16
	Radioactive Swipe Sample	50	20	43.42	868.40	3	2605.20
	Soil	175	60	43.42	2605.20	3	7815.60
TOTAL FOR STEP 3-E							**12504.96**
TOTAL FOR STEP 3							**39205.20**

TOTAL FOR TS-3 WORKSHEET	**73844.28**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	20	747.85	14957	NA	14957.00
	Metals, SVOCs, VOCs	Soil	175	620.13	108522.75	NA	108522.75
	Radioactive elements	Wipe	50	167.34	8367.00	3	25101.00
TOTAL FOR STEP 4-A			**245**	**1535.32**	**131846.75**	**3**	**148580.75**

		Labor Category	Hours or cy	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
4-C	Demolition and debris Disposal	FE loader & truck for asphalt removal-1620 cy	1620	47.43	76836.60	3	230509.80
4-D	Certification Report	Sr. Engineer/Tech	80	42.14	3371.20	3	10113.60
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**248208.60**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**396789.35**

TA-54 AREA G PAD 11 AND STORAGE DOME 375 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area G Pad 11 and Storage Dome 375

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 11 and Dome 375 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11124.96
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-C	
4	Decontamination Waste Management	TS-3	and 3-D	18810.30
5	Decontamination Verification Samples	TS-3	3-E	7034.04
6	Analyses	TS-4	4-A	93735.73
7	Sample Logbook	TS-4	4-B	5056.80
8	Demolition and Debris Disposal	TS-4	4-C	119381.31
9	**Subtotal of Closure Costs**			**260199.94**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add cost of certification to closure costs)**			**267785.14**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**235650.92**

TA-54 AREA G PAD 11 AND STORAGE DOME 375 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54 Area G Storage Dome 375 is located on Pad 11 in the western portion of Area G. The dome was erected in 2002 and is used to store hazardous, MLLW and MTRU wastes on pallets or other supports.

1-A	Maximum permitted capacity (gallons)			682,440
	Known Releases?			N/A
1-B	Dimensions of the Dome 375 length (ft) x width (ft) and sf	300	100	30000
	Dimensions of Pad 11 length (ft) x width (ft) and sf	478	137	65486
	(demolition included in this cost estimate)			
1-C	Materials	Dome is constructed of tensioned-fabric membranes and aluminum beams. The interior floor is surrounded with a mimumum six-inch high concrete ring wall. The asphaltic concrete pad is four inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11124.96**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16181.76**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning equipment, inspection, and sampling soil below the asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	40	32.94	1317.60	3	3952.80
		Staff Engineer	40	28.4	1136.00	3	3408.00
		Project Scientist	40	24.29	971.60	3	2914.80
		Staff Scientist	40	19.13	765.20	3	2295.60
TOTAL FOR STEP 3-A			**160**	**104.76**	**4190.40**	**3**	**12571.20**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
3-B	Equipment decontamination, inspection and sampling	40	See crew above			
3-C	Mechanical removal of asphalt beneath dome and surrounding pad		See worksheet TS-4			
3-D	Direct-push sampling rig with crew, $594 mobe and demobe plus $178 per day	40	178	2079.70	3	6239.10

TOTAL FOR STEPS 3-A, 3-B, 3-C AND 3-D	**18810.30**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	10	8	43.42	347.36	3	1042.08
	Radioactive Swipe Sample	10	6	43.42	260.52	3	781.56
	Soil Samples	131	40	43.42	1736.80	3	5210.40
TOTAL FOR STEP 3-E							**7034.04**
TOTAL FOR STEP 3							**25844.34**

TOTAL FOR TS-3 WORKSHEET	**42026.10**

TA-54 AREA G PAD 11 including STORAGE DOME 375 TS-4

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Water/Wipe	10	747.85	7478.50	NA	7478.50
	Metals, SVOCs, VOCs	Soil	131	620.13	81237.03	NA	81237.03
	Radioactive elements	Wipe	10	167.34	1673.40	3	5020.20
TOTAL FOR STEP 4-A			**151**	**1535.32**	**90388.93**	**3**	**93735.73**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
4-C	Demolition and debris Disposal (entire Pad 11)	Remove 809 cy asphalt and 30 cy concrete	839	47.43	39793.77	3	119381.31
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
TOTAL FOR STEP 4-B, 4-C and 4-D							**132023.31**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**225759.04**

TA-54 WEST OUTSIDE STORAGE PAD AND LOADING DOCK TS-1

Facility Name: Los Alamos National Laboratory TA-54 West Outside Storage Pad and Loading Dock

SUMMARY WORKSHEET				
	Activity	Worksheet Number	Step	OSP and Dock Cost ($)
1	Pre-Closure and Structural Assessment	TS-3	2-A	11124.96
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process	TS-3	3-A, 3-B, 3-C and 3-D	18810.30
4	Decontamination Waste Management			
5	Decontamination Verification Samples	TS-3	3-E	11723.40
6	Analyses	TS-4	4-A	225993.40
7	Sample Logbook	TS-4	4-B	5056.80
8	Demolition and Debris Disposal	TS-4	4-C	67160.88
9	**Subtotal of Closure Costs**			**344926.54**
10	Certification of Closure	TS-4	4-D	7585.20
11				
12	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs)**			**352511.74**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**310210.33**

TA-54 WEST OUTSIDE STORAGE PAD AND LOADING DOCK TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54 West Outside Storage Pad (OSP) is located on the north, east and south sides of Building TA-54-38. It stores primarily solid type mixed waste undergoing waste characterization and packaging activities for shipment to the Waste Isolation Pilot Plant (WIPP). The pad became operational in 1998. This unit includes the Loading Dock on the northeast side of TA-54-38. Pending renewal of the LANL Hazardous Waste Facility Permit, this area may be increased to include the entire asphalt area within the fence line of TA-54 West.

1-A	Maximum permitted capacity for OSP (gallons)			7,920
	Known Releases?			N/A
1-B	Dimensions of OSP length (ft) x width (ft) and sf	unknown	unknown	37,248
	(From 2003 Part B Application, Table 2-5)			
	Dimensions of Loading Dock length (ft) x width (ft) and sf	38'-10"	16	616
1-C	Materials	OSP is an asphalt pad four inches thick, loading dock is concrete six inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and radiological and/or chemical contamination detected. Assume D.		

TA-54 WEST OUTSIDE STORAGE PAD AND LOADING DOCK TS-3

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11124.96**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16181.76**

TA-54 WEST OUTSIDE STORAGE PAD AND LOADING DOCK TS-3

3. DECONTAMINATION
The decontamination process will involve the pressure washing or steam cleaning the Loading Dock, and inspection and sampling of the OSP asphalt.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	40	32.94	1317.60	3	3952.80
		Staff Engineer	40	28.40	1136.00	3	3408.00
		Project Scientist	40	24.29	971.60	3	2914.80
		Staff Scientist	40	19.13	765.20		765.20
TOTAL FOR STEP 3-A			**160**	**104.76**	**4190.40**	**3**	**12571.20**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and loading dock decontamination	40	See crew above			
3-C	Mechanical removal of asphalt		See worksheet TS-4			
3-D	Direct-push sampling rig with crew, $594 mobe and demobe plus $178 per day	40	178	2079.70	3	6239.10

TOTAL FOR STEP 3-A, 3-B, 3-C AND 3-D	**18810.30**

TA-54 WEST OUTSIDE STORAGE PAD AND LOADING DOCK TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Determination Wipe	10	40	43.42	1736.80	3	5210.40
	Radioactive Sample	10	10	43.42	434.20	3	1302.60
	Soil	75	40	43.42	1736.80	3	5210.40
TOTAL FOR STEP 3-E							**11723.40**
TOTAL FOR STEP 3							**30533.70**

TOTAL FOR TS-3 WORKSHEET	**46715.46**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals SVOCs, VOCs	Water/Wipe	10	747.85	7478.50	NA	7478.50
	Metals, SVOCs, VOCs	Soil	75	620.13	46509.75	NA	46509.75
	Radionuclides		10	167.34	1673.40	3	5020.20
TOTAL FOR STEP 4-A			**95**	**1535.32**	**55661.65**	**3**	**225993.40**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
4-C	Demolition and debris Disposal	FE loader & truck remove 460 cy asphalt, 12 cy concrete	472	47.43	22386.96	3	67160.88
4-D	Certification Report	Sr. Engineer/Tech	60	42.14	2528.40	3	7585.20
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**79802.88**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**305796.28**

Facility Name: Los Alamos National Laboratory TA-54-38 54 West High Bay

SUMMARY WORKSHEET				
	Activity	Worksheet Number	Step	West High Bay Cost ($)
1	Pre-Closure and Structural Assessment	TS-3	2-A	11124.96
2	Sampling and Analysis Plan	TS-3	2-B	3371.20
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A and , 3-B	7542.72
5	Decontamination Verification Samples	TS-3	3-E	2474.94
6	Analyses	TS-4	4-A	14221.01
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**41263.23**
10	Certification of Closure	TS-4	4-D	6321.00
11	Concrete drill and soil sample rig	TS-4	4-E	13776.00
12	**Subtotal (Add cost of certification report to closure costs)**			**61360.23**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**53997.00**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54-38 includes two storage areas; High Bay and Low Bay. The building was constructed in 1993. The High Bay stores solid type mixed waste while shipping packages for transport to WIPP are prepared.

1-A	Maximum permitted capacity for High Bay (gallons)			2,200
	Known Releases?			N/A
1-B	Dimensions of the High Bay length (ft) x width (ft) and sf	40	80	3,200
1-C	Materials	Constructed with precast concrete panels on a 6 inch unpainted concrete slab with a central drainage trench and sump.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11124.96**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	2	3371.20

TOTAL FOR STEP 2	**14496.16**

3. DECONTAMINATION
The decontamination process includes pressure washing or steam cleaning of equipment, floors and walls.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	24	32.94	790.56	3	2371.68
		Staff Engineer	24	28.4	681.60	3	2044.80
		Project Scientist	24	24.29	582.96	3	1748.88
		Staff Scientist	24	19.13	459.12	3	1377.36
TOTAL FOR STEP 3-A			**96**	**104.76**	**2514.24**	**3**	**7542.72**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Decontamination	24	See crew above			0.00

TOTAL FOR STEP 3-A	**7542.72**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Wipes	11	6	43.42	260.52	3	781.56
	Radioactive Sample (includes equipment and surfaces)	7	5	43.42	217.10	3	651.30
	Verification Soil Sample below sump & drain path	4	8	43.42	347.36	3	1042.08
TOTAL FOR STEP 3-E							**2474.94**
TOTAL FOR STEP 3							**10017.66**

TOTAL FOR TS-3 WORKSHEET	**24513.82**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals	Water/Wipe	11	747.85	8226.35	NA	8226.35
	SVOCs	Water/Wipe					
	VOCs	Water/Wipe					
	Metals, SVOC, VOC	Soil	4	620.13	2480.52	NA	2480.52
	Radionuclides		7	167.34	1171.38	3	3514.14
TOTAL FOR STEP 4-A			**22**				**14221.01**

		Labor Category	Hours or days	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and debris Disposal	NA					
4-D	Certification Report	Sr. Engineer/Tech	50	42.14	2107.00	3	6321.00
4-E	Concrete drilling and soil samples beneath sump and trench	Drill rig and crew, 2 days	2	2296	4592.00	3	13776.00
TOTAL FOR STEP 4-B, 4-C, 4-D and 4-E							**22625.40**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**36846.41**

Facility Name: Los Alamos National Laboratory TA-54 West Low Bay

SUMMARY WORKSHEET				
	Activity	Worksheet Number	Step	West Low Bay Cost ($)
1	Pre-Closure and Structural Assessment	TS-3	2-A	9102.24
2	Sampling and Analysis Plan	TS-3	2-B	3034.08
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A and 3-B	3771.36
5	Decontamination Verification Samples	TS-3	3-E	781.56
6	Analyses	TS-4	4-A	5993.16
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**23188.08**
10	Certification of Closure	TS-4	4-D	6321.00
11				0.00
12	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs)**			**29509.08**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**25967.99**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54-38 West includes two storage areas; High Bay and Low Bay, and several offices. The building was constructed in 1993. The Low Bay is used for storage and staging mixed solid MLLW and MTRUW while radioassay waste characterization activites are performed.

1-A	Maximum permitted capacity for Low Bay (gallons)			880
	Known Releases?			N/A
1-B	Dimensions of the Building TA-54-33 length (ft) x width (ft) and sf	40	34	1,360
1-C	Materials	Constructed with precast concrete panels on an enamel-painted concrete slab.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and radiological and/or chemical contamination detected. Assume D.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	24	42.14	1011.36	3	3034.08
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**9102.24**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	24	42.14	1011.36	3	3034.08

TOTAL FOR STEP 2	**12136.32**

3. DECONTAMINATION
The decontamination process includes pressure washing or steam cleaning of equipment, floors and walls.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	12	32.94	395.28	3	1185.84
		Staff Engineer	12	28.4	340.80	3	1022.40
		Project Scientist	12	24.29	291.48	3	874.44
		Staff Scientist	12	19.13	229.56	3	688.68
TOTAL FOR STEP 3-A			**48**	**104.76**	**1257.12**	**3**	**3771.36**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Decontamination	12	See crew above			0.00

TOTAL FOR STEP 3-A	**3771.36**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipes	6	4	43.42	173.68	3	521.04
	Radioactive Sample (includes equipment and surfaces)	3	2	43.42	86.84	3	260.52

TOTAL FOR STEP 3-E	**781.56**
TOTAL FOR STEP 3	**4552.92**

TOTAL FOR TS-3 WORKSHEET	**16689.24**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals SVOCs VOCs	Wipe	6	747.85	4487.10	NA	4487.10
	Radionuclides		3	167.34	502.02	3	1506.06
TOTAL FOR STEP 4-A			**9**				**5993.16**

		Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and debris Disposal	NA					0.00
4-D	Certification Report	Sr. Engineer/Tech	50	42.14	2107.00	3	6321.00
4-E							
TOTAL FOR STEP 4-B, 4-C and 4-D							**6826.68**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**12819.84**

TA-54 AREA L WITHIN FENCE LINE TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Within Fence Line

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Area L Within Fence Line Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	13147.68
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B,	
4	Decontamination Waste Management	TS-3	and 3-C	15085.44
5	Decontamination Verification Samples	TS-3	3-D	11462.88
6	Analyses	TS-4	4-A	115440.28
7	Sample Logbook	TS-4	4-B	6068.16
8	Demolition and Debris Disposal	TS-4	4-C	218557.44
9	**Subtotal of Closure Costs**			**384818.68**
10	Certification of Closure	TS-4	4-D	10113.60
11				
12	**Subtotal (Add certification report to closure costs)**			**394932.28**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**347540.41**

TA-54 AREA L WITHIN FENCE LINE TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area L Within Fence Line is constructed in a similar fashion as the Domes for Area G. Most of the area was used for storage of solid type hazardous waste with temporary storage of mixed waste in 1995 and 1996 when Dome 215 was erected. Pending renewal of the LANL Hazardous Waste Facility Permit, additional outside storage of solid type hazardous and mixed waste may occur in the area. (NOTE: Area costed for closure in this worksheet is derived by subtracting subunits except portables in Area L from the total 2.58 acres provided in the Part B application.)

1-A	Maximum permitted capacity for Area Within Fence Line (gallons) from 2006 Closure Plan			407,880
	Known Releases?			N/A
1-B	Estimated area of TA-54 Area L (from 2003 Part B) minus other concrete-based units and 215 and 216, within fence	---	---	82,951
1-C	Materials	Asphaltic concrete assumed 6 inches thick		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D.		

Area Determination	Sq Ft
Total Area L 2.58 acres	112,384
Dome 215	15,960
Canopy 216	3,960
TA-54-31 (Prefab shed on concrete foundation)	182
TA-54-32 (concrete pad)	1,856
TA-54-35 (concrete pad)	992
TA-54-36 (concrete pad)	1,023
TA-54-39 Inside (Overall building 40 x 40 ft)	1600
TA-54-39 Outside	2837
TA-54-58 (concrete pad)	1,023
TA-54-68 (prefab shed on pad- asphalt beneath)	0
TA-54-69 (prefab shed)	0
TA-54-70 (prefab shed)	0
Total Area of discrete units except portable structures	29,433
Area L Pad outside discrete units	**82951**

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Review	Sr Engineer/Tech	60	42.14	2528.40	2	5056.80
	Inspection	Sr Engineer/Tech	16	42.14	674.24	2	1348.48
	Report	Sr Engineer/Tech	80	42.14	3371.20	2	6742.40
TOTAL FOR STEP 2A							**13147.68**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	60	42.14	2528.40	2	5056.80

TOTAL FOR STEP 2	**18204.48**

3. DECONTAMINATION
The decontamination process will involve inspection, sampling soil below the pad, and cleaning equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	48	32.94	1581.12	3	4743.36
		Staff Engineer	48	28.4	1363.20	3	4089.60
		Project Scientist	48	24.29	1165.92	3	3497.76
		Staff Scientist	48	19.13	918.24	3	2754.72
TOTAL FOR STEP 3-A			**192**	**104.76**	**5028.48**	**3**	**15085.44**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decon inspection and sampling	48	See crew above and sampler below			
3-C	Mechanical removal of asphalt		See worksheet TS-4			

3-D	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe (Determination)	10	8	43.42	347.36	3	1042.08
	Soil	166	60	43.42	2605.20	3	7815.60
	Radioactive Swipe Sample	10	20	43.42	868.40	3	2605.20
TOTAL FOR STEP 3-D							**11462.88**
TOTAL FOR STEP 3							**26548.32**

TOTAL FOR TS-3 WORKSHEET	**44752.80**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis, demolition, and certification costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	10	747.85	7478.50	NA	7478.50
	Metals, SVOCs, VOCs	Soil	166	620.13	102941.58	NA	102941.58
	Radioactive elements	Wipe	10	167.34	1673.40	3	5020.20
TOTAL FOR STEP 4-A			**186**	**1535.32**	**112093.48**	**3**	**115440.28**

		Labor Category	Hours or cy	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	48	42.14	2022.72	3	6068.16
4-C	Demolition and Debris Disposal	FE loader & truck for asphalt removal-1536 cy	1536	47.43	72852.48	3	218557.44
4-D	Certification Report	Sr. Engineer/Tech	80	42.14	3371.20	3	10113.60
TOTAL FOR STEP 4-B, 4-C and 4-D							**234739.20**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**350179.48**

TA-54 AREA L BUILDING 31 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Building 31

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Bldg 39 Room 101 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5562.48
2	Sampling and Analysis Plan	TS-3	2-B	1517.04
3	Decontamination Process		3-A, 3-B, and 3-C	
4	Decontamination Waste Management	TS-3		1257.12
5	Decontamination Verification Samples	TS-3	3-E	781.56
6	Analyses	TS-4	4-A	5610.00
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**15233.88**
10	Certification of Closure	TS-4	4-D	2022.72
11	Concrete drill rig and crew	TS-4	4-E	6888.00
12	**Subtotal (Add cost of certification to closure costs)**			**24144.60**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**21247.25**

TA-54 AREA L BUILDING 31 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54 Area L Building 31 was built in 1979 and is located on the southwest side of Area L. The room will store liquid and solid hazardous waste containers pending renewal of the LANL RCRA Hazardous Waste Facility Permit.

1-A	Maximum permitted capacity (gallons)			1,320
	Known Releases?			N/A
1-B	Dimensions of the building length (ft) x width (ft) and sf (demolition included in this cost estimate)	14	13	182
1-C	Materials	Steel building on concrete floor with a epoxy coating and a 6" high interior curb and 3 recessed sumps for secondary containment		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 2A							**5562.48**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	12	42.14	505.68	3	1517.04

TOTAL FOR STEP 2	**7079.52**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning the floors and adjacent walls as well as equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.60	3	340.80
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**419.04**	**3**	**1257.12**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination with wash water solution	4	See crew above			
3-C	Drilling through concrete sumps to obtain soil samples		See worksheet TS-4			

TOTAL FOR STEP 3-A	**1257.12**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe	3	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	3	1	43.42	43.42	3	130.26
	Soil Samples	3 below sumps	3	43.42	130.26	3	390.78
TOTAL FOR STEP 3-E							**781.56**
TOTAL FOR STEP 3							**2038.68**

TOTAL FOR TS-3 WORKSHEET	**9118.20**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Water/Wipe	3	747.85	2243.55	NA	2243.55
	Radioactive elements	Wipe	3	167.34	502.02	3	1506.06
	Metals, SVOCs, VOCs	Soil	3	620.13	1860.39	NA	1860.39
TOTAL FOR STEP 4-A			**6**				**5610.00**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	NA					0.00
4-D	Certification Report	Sr. Engineer/Tech	16	42.14	674.24	3	2022.72
4-E	Concrete drilling to obtain samples below sumps	Concrete core drill and crew, 1 day	1	2296	2296.00	3	6888.00
TOTAL FOR STEP 4-B, 4-C, 4-D and 4-E							**9416.40**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**15026.40**

Facility Name: Los Alamos National Laboratory TA-54 Area L TA-54-32 Pad

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**TA-54-32 Pad Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	9102.24
2	Sampling and Analysis Plan	TS-3	2-B	2022.72
3	Decontamination Process		3-A, 3-B, 3-	
4	Decontamination Waste Management	TS-3	C and 3-D	3771.36
5	Decontamination Verification Samples	TS-3	3-E	1302.60
6	Analyses	TS-4	4-A	6712.18
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	30415.20
9	**Subtotal of Closure Costs**			**53831.98**
10	Certification of Closure	TS-4	4-D	3034.08
11				
12	**Subtotal (Add certification report to closure costs)**			**56866.06**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**50042.13**

TA-54 AREA L TA-54-32 PAD

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54-32 Pad is located in the south central part of Area L and was built in 1986. It is covered by a steel canopy and divided into six containment cells by minimum six-inch high concrete curbs. The pad is grated and stores various types of solid and liquid hazardous waste. Each cell has a sump.

1-A	Maximum permitted capacity for TA-54-32 Pad (gallons) from 2006 closure plan	17,160		
	Known Releases?	N/A		
1-B	Dimensions of Pad 32- length (ft) x width (ft) and sf	116	16	1856
1-C	Materials	Concrete pad thickness is assumed to be 6 inches. Epoxy sealed/painted.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	24	42.14	1011.36	3	3034.08
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**9102.24**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	24	42.14	1011.36	2	2022.72

TOTAL FOR STEP 2	**11124.96**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning of the pad and equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	12	32.94	395.28	3	1185.84
		Staff Engineer	12	28.4	340.80	3	1022.40
		Project Scientist	12	24.29	291.48	3	874.44
		Staff Scientist	12	19.13	229.56	3	688.68
TOTAL FOR STEP 3-A			**48**	**104.76**	**1257.12**	**3**	**3771.36**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination with wash water solution	12	See crew above			
3-C	Demolition		See worksheet TS-4			

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	4	4	43.42	173.68	3	521.04
	Soil below each sump	6	6	43.42	260.52	3	781.56
TOTAL FOR STEP 3-E							**1302.60**
TOTAL FOR STEP 3							**5073.96**

TOTAL FOR TS-3 WORKSHEET	**16198.92**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	4	747.85	2991.40	NA	2991.40
	Toxic Metals, SVOCs, VOCs	Soil below sumps	6	620.13	3720.78	NA	3720.78
TOTAL FOR STEP 4-A			**10**				**6712.18**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Concrete and steel demolition and debris removal	Crew to remove roof, support beams, partitions, grates (40 cy) and 40 cy concrete	80	126.73	10138.40	3	30415.20
4-D	Certification Report	Sr. Engineer/Tech	24	42.14	1011.36	3	3034.08
TOTAL FOR STEP 4-B, 4-C and 4-D							**33954.96**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**40667.14**

Facility Name: Los Alamos National Laboratory TA-54 Area L Pad 35

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Pad 35 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5056.80
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process		3-A, 3-B, 3-	
4	Decontamination Waste Management	TS-3	C and 3-D	2514.24
5	Decontamination Verification Samples	TS-3	3-E	651.30
6	Analyses	TS-4	4-A	3740.00
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	15207.60
9	**Subtotal of Closure Costs**			**28686.98**
10	Certification of Closure	TS-4	4-D	3034.08
11				
12	**Subtotal (Add certification report to closure costs)**			**31721.06**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**27914.53**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area L TA-54-35 is a concrete pad located in the west-central portion of Area L. This pad and Pads 36 and 58 are covered by one large steel canopy. All three pads were constructed in 1986. This unit supported the barium sands treatment and storage waste management tanks.

1-A	Maximum permitted capacity for TA-54-35 (gallons) from 2006 closure plan			15,840
	Known Releases?			N/A
1-B	Dimensions of TA-54-35 (from 2003 Part B app. Section G.2.4.1) length (ft) x width (ft) = sf	31.5	31.5	992.25
1-C	Materials	Concrete pad thickness is assumed to be 6 inches. A concrete containment curb around the perimeter is 8 inches high, 29.5 ft long and 24.5 ft wide.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	12	42.14	505.68	3	1517.04
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	24	42.14	1011.36	3	3034.08
TOTAL FOR STEP 2A							**5056.80**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6068.16**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning the pad and equipment. Soil verification samples will be collected after demolition.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	8	32.94	263.52	3	790.56
		Staff Engineer	8	28.4	227.20	3	681.60
		Project Scientist	8	24.29	194.32	3	582.96
		Staff Scientist	8	19.13	153.04	3	459.12
TOTAL FOR STEP 3-A			**32**	**104.76**	**838.08**	**3**	**2514.24**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination	8	See crew above			0.00
3-C	Mechanical removal of concrete pad and steel canopy		See worksheet TS-4			0.00
3-D						0.00

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe (Determination)	2	2	43.42	86.84	3	260.52
	Soil	2	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	2	1	43.42	43.42	3	130.26
TOTAL FOR STEP 3-E							**651.30**
TOTAL FOR STEP 3							**3165.54**

TOTAL FOR TS-3 WORKSHEET	**9233.70**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Water/Wipe	2	747.85	1495.70	NA	1495.70
	Metals, SVOCs, VOCs	Soil	2	620.13	1240.26	NA	1240.26
	Radioactive elements	Wipe	2	167.34	334.68	3	1004.04
TOTAL FOR STEP 4-A			**6**				**3740.00**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Concrete and steel demolition and debris removal	Air and heavy equipment crew for demolition, including 1/3 of the steel canopy, 40 cy	40	126.73	5069.20	3	15207.60
4-D	Certification Report	Sr. Engineer/Tech	24	42.14	1011.36	3	3034.08
TOTAL FOR STEP 4-B, 4-C and 4-D							**18747.36**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**22487.36**

Facility Name: Los Alamos National Laboratory TA-54 Area L Pad 36

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Area L Pad 36 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5056.80
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process		3-A, 3-B, 3-	
4	Decontamination Waste Management	TS-3	C and 3-D	2514.24
5	Decontamination Verification Samples	TS-3	3-E	911.82
6	Analyses	TS-4	4-A	5610.00
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	15207.60
9	**Subtotal of Closure Costs**			**30817.50**
10	Certification of Closure	TS-4	4-D	3034.08
11				
12	**Subtotal (Add certification report to closure costs)**			**33851.58**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**29789.39**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54-36 is a concrete pad located in the west-central portion of Area L. This pad and Pads 35 and 58 are covered by one large steel canopy. All three pads were constructed in 1986. This unit stores mixed waste while waste characterization studies are performed in a temporary structure placed on the pad.

1-A	Maximum permitted capacity for TA-54-35 (gallons) from 2006 closure plan	13,200		
	Known Releases?	N/A		
1-B	Dimensions of TA-54-35 (from 2003 Part B app. Section G.2.4.1)	33	31	1023
1-C	Materials	Concrete pad thickness is assumed to be 6 inches. A concrete containment curb around the perimeter is 6 inches high.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	12	42.14	505.68	3	1517.04
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	24	42.14	1011.36	3	3034.08
TOTAL FOR STEP 2A							**5056.80**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6068.16**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning of the pad and equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	8	32.94	263.52	3	790.56
		Staff Engineer	8	28.4	227.20	3	681.60
		Project Scientist	8	24.29	194.32	3	582.96
		Staff Scientist	8	19.13	153.04	3	459.12
TOTAL FOR STEP 3-A			**32**	**104.76**	**838.08**	**3**	**2514.24**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination	8	See crew above			0.00
3-C	Mechanical removal of concrete pad and steel canopy		See worksheet TS-4			0.00
3-D						0.00

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe	3	2	43.42	86.84	3	260.52
	Soil	3	3	43.42	130.26	3	390.78
	Radioactive Swipe Sample	3	2	43.42	86.84	3	260.52
TOTAL FOR STEP 3-E							**911.82**
TOTAL FOR STEP 3							**3426.06**

TOTAL FOR TS-3 WORKSHEET	**9494.22**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Water/Wipe	3	747.85	2243.55	NA	2243.55
	Toxic Metals, SVOCs, VOCs	Soil	3	620.13	1860.39	NA	1860.39
	Radioactive elements	Wipe	3	167.34	502.02	3	1506.06
TOTAL FOR STEP 4-A			**9**				**5610.00**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Concrete and steel demolition and debris removal	Air and heavy equipment crew for demolition, including 1/3 of the steel canopy, 40 cy	40	126.73	5069.20	3	15207.60
4-D	Certification Report	Sr. Engineer/Tech	24	42.14	1011.36	3	3034.08
TOTAL FOR STEP 4-B, 4-C and 4-D							**18747.36**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**24357.36**

TA-54 AREA L BUILDING 39 Room 101 TS-1

Facility Name: Los Alamos National Labortory TA-54 Area L Building 39 Room 101

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Bldg 39 Room 101 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5562.48
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process		3-A, 3-B, and 3-	
4	Decontamination Waste Management	TS-3	C	1257.12
5	Decontamination Verification Samples	TS-3	3-E	390.78
6	Analyses	TS-4	4-A	2499.74
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**11227.16**
10	Certification of Closure	TS-4	4-D	2528.40
11				
12	**Subtotal (Add cost of certification to closure costs)**			**13755.56**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**12104.89**

TA-54 AREA L BUILDING 39 Room 101 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54 Area L Building 39 was built in 1979 and is located on the south-east side of Area L. It contains an interior storage area in Room 101. The room will store liquid and solid hazardous waste containers pending renewal of the LANL RCRA Hazardous Waste Facility Permit.

1-A	Maximum permitted capacity (gallons)			9,900
	Known Releases?			N/A
1-B	Dimensions of Room 101 are irregular (Figure G-10 in 2003 Part B) length (ft) x width(ft) and sf	---	---	878
1-C	Materials	Concrete floor with a epoxy coating and a 6-inch high interior curb for secondary containment		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 2A							**5562.48**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6573.84**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning the floors and adjacent walls as well as equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.60	3	340.80
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**419.04**	**3**	**1257.12**

TA-54 AREA L BUILDING 39 Room 101 TS-3

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination	24	See crew above			
3-C	Demolition		NA			

TOTAL FOR STEP 3-A	**1257.12**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe	2	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	2	1	43.42	43.42	3	130.26
	Soil Samples	None- assume no contamination found					

TOTAL FOR STEP 3-E	**390.78**
TOTAL FOR STEP 3	**1647.90**

TOTAL FOR TS-3 WORKSHEET	**8221.74**

TA-54 AREA L BUILDING 39 Room 101 TS-4

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Water/Wipe	2	747.85	1495.70	NA	1495.70
	Radioactive elements	Wipe	2	167.34	334.68	3	1004.04
TOTAL FOR STEP 4-A			**4**				**2499.74**

		Labor Category	cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	NA					
4-D	Certification Report	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 4-B, 4-C and 4-D							**3034.08**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**5533.82**

TA-54 AREA L BUILDING 39 OUTSIDE CSU TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Building 39 Outside CSU

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Building Outside CSU Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	9102.24
2	Sampling and Analysis Plan	TS-3	2-B	2022.72
3	Decontamination Process		3-A, 3-B, 3-	
4	Decontamination Waste Management	TS-3	C and 3-D	9663.24
5	Decontamination Verification Samples	TS-3	3-E	3256.50
6	Analyses	TS-4	4-A	11220.00
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	38019.00
9	**Subtotal of Closure Costs**			**73789.38**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add certification report to closure costs)**			**78846.18**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**69384.64**

TA-54 AREA L BUILDING 39 OUTSIDE CSU TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54-39 Outside CSU is an asphalt (eastern section) and concrete (western section) pad located in the southeast portion of Area L. Pending the renewal opf the LANL Hazardous Waste Facility Permit, this unit will store hazardous waste. The concrete portion of the unit is surrounded by a 12 inch high concrete curb for secondary containment.

1-A	Maximum permitted capacity for TA-54-39 (gallons) from 2006 closure plan				15,180
	Known Releases?				N/A
1-B	Dimensions of TA-54-39 Outside (from 2003 Part B app. Section G.2.4.1)	Concrete	58	16	928
		Asphalt	83	23	1909
1-C	Materials		Concrete and asphalt pad thickness assumed to be 6 inches. A steel canopy covers the entire unit.		
1-D	Maximum volume of waste to be removed		None For demolition costs see TS-4		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)		D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	24	42.14	1011.36	3	3034.08
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**9102.24**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	16	42.14	674.24	3	2022.72

TOTAL FOR STEP 2	**11124.96**

3. DECONTAMINATION
The decontamination process will involve pressure washing or steam cleaning the concrete pad and equipment, and sampling soil below the asphalt and concrete.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	16	32.94	527.04	3	1581.12
		Staff Engineer	16	28.4	454.40	3	1363.20
		Project Scientist	16	24.29	388.64	3	1165.92
		Staff Scientist	16	19.13	306.08	3	918.24
TOTAL FOR STEP 3-A			**64**	**104.76**	**1676.16**	**3**	**5028.48**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination	16	See crew above			
3-C	Demolition of pad and canopy		See worksheet TS-4			
3-D	Direct-push sampling rig and crew, $594 mobe and demobe plus $178 per day	16	178	1544.92	3	4634.76
TOTAL FOR STEP 3-A, 3-B, 3-C AND 3-D						**9663.24**

TA-54 AREA L BUILDING 39 OUTSIDE CSU TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	6	6	43.42	260.52	3	781.56
	Soil	6	16	43.42	694.72	3	2084.16
	Radioactive Swipe Sample	6	3	43.42	130.26	3	390.78
TOTAL FOR STEP 3-E							**3256.50**
TOTAL FOR STEP 3							**12919.74**

TOTAL FOR TS-3 WORKSHEET	**24044.70**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The costs for documentation and analysis, demolition, and certification are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	6	747.85	4487.10	NA	4487.10
	Metals, SVOCs, VOCs	Soil	6	620.13	3720.78	NA	3720.78
	Radioactive elements	Wipe	6	167.34	1004.04	3	3012.12
TOTAL FOR STEP 4-A			**18**	**1535.32**	**9211.92**	**3**	**11220.00**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	Air and heavy equipment demolition crew, 100 cy	100	126.73	12673.00	3	38019.00
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 4-B, 4-C and 4-D							**43581.48**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**54801.48**

TA-54 AREA L PAD 58 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Pad 58

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Area L Pad 58 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5056.80
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process		3-A, 3-B,	
4	Decontamination Waste Management	TS-3	and 3-C	2514.24
5	Decontamination Verification Samples	TS-3	3-E	911.82
6	Analyses	TS-4	4-A	5610.00
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	15207.60
9	**Subtotal of Closure Costs**			**30817.50**
10	Certification of Closure	TS-4	4-D	3034.08
11				
12	**Subtotal (Add certification report to closure costs)**			**33851.58**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**29789.39**

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

TA-54-58 is a concrete pad located in the west-central portion of Area L. This pad and Pads 35 and 36 are covered by one large steel canopy. All three pads were constructed in 1986. This unit stores mixed waste.

1-A	Maximum permitted capacity for TA-54-58 (gallons) from 2006 closure plan	15,840		
	Known Releases?	N/A		
1-B	Dimensions of TA-54-35 (from 2003 Part B app. Section G.2.4.1) length(ft) x width (ft) and sf	33	31	1023
1-C	Materials	Concrete pad thickness is assumed to be 6 inches. A concrete containment curb around the perimeter is 6 inches high.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards and the levels of radiological and/or chemical contamination detected. Assume D		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	12	42.14	505.68	3	1517.04
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	24	42.14	1011.36	3	3034.08
TOTAL FOR STEP 2A							**5056.80**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6068.16**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning of the pad and equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	8	32.94	263.52	3	790.56
		Staff Engineer	8	28.4	227.20	3	681.60
		Project Scientist	8	24.29	194.32	3	582.96
		Staff Scientist	8	19.13	153.04	3	459.12
TOTAL FOR STEP 3-A			**32**	**104.76**	**838.08**	**3**	**2514.24**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination	8	See crew above			
3-C	Mechanical removal of concrete pad and steel canopy		See worksheet TS-4			
3-D						

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe (Determination)	3	2	43.42	86.84	3	260.52
	Soil	3	3	43.42	130.26	3	390.78
	Radioactive Swipe Sample	3	2	43.42	86.84	3	260.52
TOTAL FOR STEP 3-E							**911.82**
TOTAL FOR STEP 3							**3426.06**

TOTAL FOR TS-3 WORKSHEET	**9494.22**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Water/Wipe	3	747.85	2243.55	NA	2243.55
	Toxic Metals, SVOCs, VOCs	Soil	3	620.13	1860.39	NA	1860.39
	Radioactive elements	Wipe	3	167.34	502.02	3	1506.06
TOTAL FOR STEP 4-A			**9**				**5610.00**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Concrete and steel demolition and debris removal	Air and heavy equipment crew for demolition, including 1/3 of the steel canopy, 40 cy	40	126.73	5069.20	3	15207.60
4-D	Certification Report	Sr. Engineer/Tech	24	42.14	1011.36	3	3034.08
TOTAL FOR STEP 4-B, 4-C and 4-D							**18747.36**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**24357.36**

TA-54 AREA L STORAGE DOME 215 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Storage Dome 215

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Dome 215 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	11124.96
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B, 3-C	
4	Decontamination Waste Management	TS-3	and 3-D	9663.24
5	Decontamination Verification Samples	TS-3	3-E	4428.84
6	Analyses	TS-4	4-A	35443.51
7	Sample Logbook	TS-4	4-B	2528.40
8	Demolition and Debris Disposal	TS-4	4-C	42117.84
9	**Subtotal of Closure Costs**			**110363.59**
10	Certification of Closure	TS-4	4-D	6321.00
11	Tank Removal	TS-4	4-E	2244.96
12	**Subtotal (Add cost of certification to closure costs)**			**118929.55**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**104658.00**

TA-54 AREA L STORAGE DOME 215 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area L Storage Dome 215, constructed in 1995, is located on the north side of Area L. The dome includes an external double-walled holding tank for any liquid accumulation that exceeds the dome's ring wall capactiy. The dome stores containers wtih both liquid and solid type mixed waste.

1-A	Maximum permitted capacity (gallons)	261,360			
	Known Releases?	N/A			
1-B	Dimensions of the dome length (ft) x width (ft) and sf (demolition included in this cost estimate)	266	60		15960
1-C	Materials	Dome is constructed of tensioned-fabric membranes and aluminum beams. The interior floor is surrounded with a mimumum six-inch high asphalt curb or ring wall. The asphaltic concrete pad is four to six inches thick.			
1-D	Maximum volume of waste to be removed	None			
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.			

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
	Inspection	Sr Engineer/Tech	8	42.14	337.12	3	1011.36
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**11124.96**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**16181.76**

3. DECONTAMINATION
The decontamination process will involve inspecting and wipe sampling the floors and pressure washing or steam cleaning equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	16	32.94	527.04	3	1581.12
		Staff Engineer	16	28.4	454.40	3	1363.20
		Project Scientist	16	24.29	388.64	3	1165.92
		Staff Scientist	16	19.13	306.08	3	918.24
TOTAL FOR STEP 3-A			**64**	**104.76**	**1676.16**	**3**	**5028.48**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
3-B	Equipment decontamination, pad inspection and sampling	16	See crew above, sampler below			0.00
3-C	Direct-push sampling rig with crew, $594 mobe and demobe plus $178 per day	16	178	1544.92	3	4634.76
3-D	Mechanical removal of asphalt beneath dome		See worksheet TS-4			0.00

TOTAL FOR STEP 3-A, 3-B, 3-C and 3-D	**9663.24**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	10	8	43.42	347.36	3	1042.08
	Soil below asphalt	32	16	43.42	694.72	3	2084.16
	Radioactive Swipe Sample	10	6	43.42	260.52	3	781.56
	Soil Samples @ tank and under drain line	5	4	43.42	173.68	3	521.04
TOTAL FOR STEP 3-E							**4428.84**
TOTAL FOR STEP 3							**14092.08**

TOTAL FOR TS-3 WORKSHEET	**30273.84**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	10	747.85	7478.50	NA	7478.50
	Radioactive elements	Wipe	10	167.34	1673.40	3	5020.20
	Metals, SVOCs, VOCs	Soil	37	620.13	22944.81	NA	22944.81
TOTAL FOR STEP 4-A			**57**	**1535.32**	**32096.71**	**3**	**35443.51**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
4-C	Demolition and Debris Disposal (under dome only)	Remove 296 cy asphalt under dome	296	47.43	14039.28	3	42117.84
4-D	Certification Report	Sr. Engineer/Tech	50	42.14	2107.00	3	6321.00
4-E	Tank removal	Backhoe and crew (5k gal)		748.32	748.32	3	2244.96
TOTAL FOR STEP 4-B, 4-C, 4-D and 4-E							**53212.20**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**88655.71**

TA-54 AREA L STORAGE DOME 216 CANOPY TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Storage Dome 216 Canopy

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Dome 216 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	8090.88
2	Sampling and Analysis Plan	TS-3	2-B	2528.40
3	Decontamination Process		3-A, 3-B, 3-C	
4	Decontamination Waste Management	TS-3	and 3-D	6614.22
5	Decontamination Verification Samples	TS-3	3-E	1693.38
6	Analyses	TS-4	4-A	11210.39
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	10529.46
9	**Subtotal of Closure Costs**			**41172.41**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add cost of certification to closure costs)**			**46229.21**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**40681.70**

TA-54 AREA L STORAGE DOME 216 CANOPY TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY

Unit TA-54 Area L Storage Dome 216, constructed in 1993, is located on the southeast side of Area L. The canopy fabric has been rolled up into the aluminum dome framework on three sides. The canopy stores hazardous and mixed waste gas cyclinders in individual containment structures and is anchored directly to the underlying asphalt pad without a ring wall.

1-A	Maximum permitted capacity (gallons)			36,960
	Known Releases?			N/A
1-B	Dimensions of the dome length (ft) x width (ft) and sf (pad demolition included in this cost estimate)	120	33	3960
1-C	Materials	Dome is constructed of tensioned-fabric membranes and aluminum beams. The asphaltic concrete pad is assumed to be six inches thick.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**8090.88**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	20	42.14	842.80	3	2528.40

TOTAL FOR STEP 2	**10619.28**

3. DECONTAMINATION
The decontamination process will involve inspecting the pad, sampling soil below the asphalt, and pressure washing or steam cleaning equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	8	32.94	263.52	3	790.56
		Staff Engineer	8	28.4	227.20	3	681.60
		Project Scientist	8	24.29	194.32	3	582.96
		Staff Scientist	8	19.13	153.04	3	459.12
TOTAL FOR STEP 3-A			**32**	**104.76**	**838.08**	**3**	**2514.24**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
3-B	Equipment decontamination, pad inspection and sampling	8	See crew above			0.00
3-C	Direct-push sampling rig with crew, $594 mobe and demobe plus $178 per day	8	178	1366.66	3	4099.98
3-D	Mechanical removal of asphalt beneath dome		See worksheet TS-4			0.00

TOTAL FOR STEP 3-A, 3-B, 3-C AND 3-D	**6614.22**

TA-54 AREA L STORAGE DOME 216 CANOPY TS-3

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe	5	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	5	3	43.42	130.26	3	390.78
	Soil Samples	8	8	43.42	347.36	3	1042.08
TOTAL FOR STEP 3-E							**1693.38**
TOTAL FOR STEP 3							**8307.60**

TOTAL FOR TS-3 WORKSHEET	**18926.88**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The costs for documentation and analysis for samples collected during the decontamination process, debris removal, and certification are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, SVOCs, VOCs	Wipe	5	747.85	3739.25	NA	3739.25
	Metals, SVOCs, VOCs	Soil	8	620.13	4961.04	NA	4961.04
	Radioactive elements	Wipe	5	167.34	836.70	3	2510.10
TOTAL FOR STEP 4-A			**18**	**1535.32**	**9536.99**	**3**	**11210.39**

		Labor Category	cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal (under dome only)	Remove 74 cy asphalt under dome	74	47.43	3509.82	3	10529.46
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 4-B, 4-C and 4-D							**16091.94**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**27302.33**

TA-54 AREA L STORAGE SHED 68 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Storage Shed 68

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Storage Shed 68 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5056.80
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A and 3-B	1257.12
5	Decontamination Verification Samples	TS-3	3-E	521.04
6	Analyses	TS-4	4-A	3749.61
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**12101.61**
10	Certification of Closure	TS-4	4-D	2528.40
11				
12	**Subtotal (Add cost of certification to closure costs)**			**14630.01**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**12874.41**

TA-54 AREA L STORAGE SHED 68 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
TA-54 Area L Storage Sheds 68, 69 and 70 are located in the north central area of Area L. Each is constructed with integral liquid containment sumps.

1-A	Maximum permitted capacity (gallons)			1,760
	Known Releases?			N/A
1-B	Dimensions of the building length (ft) x width (ft) and sf	23	9	207
1-C	Materials	Pre-fabricated steel shed with painted 10 gauge steel sumps and grates over 3 sumps.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 2A							**5056.80**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6068.16**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning the floors and adjacent walls as well as equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.60	3	340.80
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**419.04**	**3**	**1257.12**

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination with wash water solution	4	See crew above			
3-C	Demolition		NA			

TOTAL FOR STEP 3-A and 3-B	**1257.12**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	3 (3 sumps)	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	3	2	43.42	86.84	3	260.52
	Soil Samples	NA					

TOTAL FOR STEP 3-E	**521.04**
TOTAL FOR STEP 3	**1778.16**

TOTAL FOR TS-3 WORKSHEET	**7846.32**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section. Analysis for this unit will include both stages of sampling: determination and verification.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals, SVOCs, VOCs	Wipe	3	747.85	2243.55	NA	2243.55
	Radioactive elements	Wipe	3	167.34	502.02	3	1506.06
TOTAL FOR STEP 4-A			**6**				**3749.61**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	NA					
4-D	Certification Report	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 4-B, 4-C and 4-D							**3034.08**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**6783.69**

TA-54 AREA L STORAGE SHED 69 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Storage Shed 69

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Storage Shed 69 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5056.80
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A and 3-B	1257.12
5	Decontamination Verification Samples	TS-3	3-E	521.04
6	Analyses	TS-4	4-A	2499.74
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**10851.74**
10	Certification of Closure	TS-4	4-D	2528.40
11				
12	**Subtotal (Add cost of certification to closure costs)**			**13380.14**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**11774.52**

TA-54 AREA L STORAGE SHED 69 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
TA-54 Area L Storage Shed 69 is portable and located in the north central area of Area L. It is constructed with 2 integral liquid containment sumps.

1-A	Maximum permitted capacity (gallons)			1,760
	Known Releases?			N/A
1-B	Dimensions of the building length (ft) x width (ft) and sf	23	9	207
1-C	Materials	Pre-fabricated steel shed with painted 10 gauge steel sumps and grates over 2 sumps.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 2A							**5056.80**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6068.16**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning the floors and adjacent walls as well as equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.60	3	340.80
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**419.04**	**3**	**1257.12**

TA-54 AREA L STORAGE SHED 69 TS-3

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination with wash water solution	4	See crew above			
3-C	Demolition		NA			

TOTAL FOR STEP 3-A and 3-B	**1257.12**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Water/Wipe	2 (2 sumps)	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	2	2	43.42	86.84	3	260.52
	Soil Samples	NA					

TOTAL FOR STEP 3-E	**521.04**
TOTAL FOR STEP 3	**1778.16**

TOTAL FOR TS-3 WORKSHEET	**7846.32**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals, SVOCs, VOCs	Water/Wipe	2	747.85	1495.70	NA	1495.70
	Radioactive elements	Wipe	2	167.34	334.68	3	1004.04
TOTAL FOR STEP 4-A			**4**				**2499.74**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	NA					
4-D	Certification Report	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 4-B, 4-C and 4-D							**3034.08**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**5533.82**

TA-54 AREA L STORAGE SHED 70 TS-1

Facility Name: Los Alamos National Laboratory TA-54 Area L Storage Shed 70

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Storage Shed 70 Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5056.80
2	Sampling and Analysis Plan	TS-3	2-B	1011.36
3	Decontamination Process			
4	Decontamination Waste Management	TS-3	3-A and 3-B	1257.12
5	Decontamination Verification Samples	TS-3	3-E	521.04
6	Analyses	TS-4	4-A	2499.74
7	Sample Logbook	TS-4	4-B	505.68
8	Demolition and Debris Disposal	TS-4	4-C	0.00
9	**Subtotal of Closure Costs**			**10851.74**
10	Certification of Closure	TS-4	4-D	2528.40
11				
12	**Subtotal (Add cost of certification to closure costs)**			**13380.14**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**11774.52**

TA-54 AREA L STORAGE SHED 70 TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
TA-54 Area L Storage Shed 70 is portable and located in the south central area of Area L. It is constructed with 2 integral liquid containment sumps.

1-A	Maximum permitted capacity (gallons)			1,760
	Known Releases?			N/A
1-B	Dimensions of the building length (ft) x width (ft) and sf	23	9	207
1-C	Materials	Pre-fabricated steel shed with painted 10 gauge steel sumps and grates over 2 sumps.		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Will depend upon the physical hazards present and the levels of radiological and/or chemical contamination detected. Assume D for this estimate.		

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 2A							**5056.80**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	8	42.14	337.12	3	1011.36

TOTAL FOR STEP 2	**6068.16**

3. DECONTAMINATION

The decontamination process will involve pressure washing or steam cleaning the floors and adjacent walls as well as equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.60	3	340.80
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**419.04**	**3**	**1257.12**

TA-54 AREA L STORAGE SHED 70 TS-3

	Activity	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-B	Equipment and pad decontamination with wash water solution	4	\			
3-C	Demolition		NA			

TOTAL FOR STEP 3-A and 3-B	**1257.12**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	2 (2 sumps)	2	43.42	86.84	3	260.52
	Radioactive Swipe Sample	2	2	43.42	86.84	3	260.52
	Soil Samples	NA					

TOTAL FOR STEP 3-E	**521.04**
TOTAL FOR STEP 3	**1778.16**

TOTAL FOR TS-3 WORKSHEET	**7846.32**

TA-54 AREA L STORAGE SHED 70 TS-4

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Metals, SVOCs, VOCs	Water/Wipe	2	747.85	1495.70	NA	1495.70
	Radioactive elements	Wipe	2	167.34	334.68	3	1004.04
TOTAL FOR STEP 4-A			**4**				**2499.74**

		Labor Category	Hours or cubic yards (cy)	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	4	42.14	168.56	3	505.68
4-C	Demolition and Debris Disposal	NA					
4-D	Certification Report	Sr. Engineer/Tech	20	42.14	842.80	3	2528.40
TOTAL FOR STEP 4-B, 4-C and 4-D							**3034.08**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**5533.82**

TA-55 CONTAINER STORAGE UNITS (CSU)

Facility Name: Los Alamos National Laboratory TA-55-4 and 185 Container Storage Units

SUMMARY WORKSHEET									
	Activity	Worksheet Number	Step	B40 Cost ($)	B05 Cost ($)	K13 Cost ($)	B45 Cost ($)	Vault Cost ($)	185 Cost ($)
1	Pre-Closure and Structural Assessment	TS-3	2-A	5393.92	5393.92	5393.92	5393.92	5393.92	5393.92
2	Sampling and Analysis Plan	TS-3	2-B	3371.20	3371.2	3371.2	3371.2	3371.2	3371.2
3	Decontamination Process		3-A, 3-B						
4	Decontamination Waste Management	TS-3	AND 3-C	5028.48	5028.48	5028.48	5028.48	5028.48	5028.48
5	Decontamination Verification Samples	TS-3	3-D	521.04	130.26	130.26	260.52	1042.08	521.04
6	Analyses	TS-4	4-A	11003.00	6730.65	1199.22	669.36	9292.03	7707.00
7	Sample Logbook	TS-4	4-B	1011.36	1011.36	1011.36	1011.36	1011.36	1011.36
8	Demolition and Debris Disposal	TS-4	4-C	0.00	$0.00	$0.00	$0.00	$0.00	$0.00
9	**Subtotal of Closure Costs**			**26329.00**	**21665.87**	**16134.44**	**15734.84**	**25139.07**	**23033**
10	Certification of Closure	TS-4	4-D	4045.44	4045.44	4045.44	4045.44	4045.44	4045.44
11									
12	**Subtotal (Add cost of certification report to closure costs)**			**30374.44**	**25711.31**	**20179.88**	**19780.28**	**29184.51**	**27078.44**
13	Localization factor			0.88	0.88	0.88	0.88	0.88	0.88
TOTAL COST OF CLOSURE				**26729.51**	**22625.95**	**17758.29**	**17406.65**	**25682.37**	**23829.03**

TA-55 CONTAINER STORAGE UNITS (CSU) TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
Unit TA-55-Container Storage Units (CSU) consist of six units: TA-55-B40 (B40), TA-55-B05 (B05), TA-55-K13 (K13), TA-55-B45 (B45), TA-55-185 and Vault TA-55-4. With the exception of Unit TA-55-185, the location of these units is in the basement of building TA-55-4. Building TA-55-185 is located west of building TA-55-4.

1-A	Maximum permitted capacity (gallons) of B40			21,500
	Maximum permitted capacity (gallons) of B05			3,600
	Maximum permitted capacity (gallons) of K13			2,500
	Maximum permitted capacity (gallons) of B45			1,100
	Maximum permitted capacity (gallons) of Vault TA-55-4			4,000
	Maximum permitted capacity (gallons) of TA-55-185			30,000
	Known Releases?			N/A
1-B	Dimensions of B40 length (ft) x width (ft) and sf *(L-shaped)*	61.5 30.1	24.6 20.7	2136
	Dimensions of B05 length (ft) x width (ft) and sf	26	10	260
	Dimensions of K13 length (ft) x width (ft) and sf	16	13	208
	Dimensions of KB45 length (ft) x width (ft) and sf	45	17.5	787.5
	Dimensions of Vault length (ft) x width (ft) and sf	79.5	50.5	4014.75
	Dimensions of TA-55-185 length (ft) x width (ft) and sf	60	40	2400
	Note: Drums are stacked 2 high in TA-55-4, according to Part B. Sampling is therefore based on wall height of 96 inches = 2 feet above 2 drums on 4" pallets			
1-C	Materials TA-55-4	Concrete floor in basement		
	Materials TA-55-185	Steel building, concrete floor		
1-D	Maximum volume of waste to be removed	None		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D		

TA-55 CONTAINER STORAGE UNITS (CSU) TS-3

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT for each of the 6 units

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Overhead (100%)	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.8	2	1685.6
	Inspection	Sr Engineer/Tech	4	42.14	168.56	2	337.12
	Report	Sr Engineer/Tech	40	42.14	1685.6	2	3371.2
TOTAL FOR STEP 2A							**5393.92**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.6	2	3371.2

TOTAL FOR STEP 2	**8765.12**

3. DECONTAMINATION for each of the units in TA-55-4, and TA-55-185
The decontamination process will involve pressure washing or steam cleaning the floors and adjacent walls as well as equipment.

	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-A	4	Project Engineer	4	32.94	131.76	3	395.28
		Staff Engineer	4	28.4	113.6	3	340.8
		Project Scientist	4	24.29	97.16	3	291.48
		Staff Scientist	4	19.13	76.52	3	229.56
TOTAL FOR STEP 3-A			**16**	**104.76**	**1676.16**	**3**	**5028.48**

3-B	Equipment pressure wash or steam clean	1	Labor hours accounted above			
3-C	Pressure wash or steam clean floors and walls	3	Wash water to RLWTF			

TA-55 CONTAINER STORAGE UNITS (CSU) TS-3

	Type of Sample	Number of Samples		Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
3-E	(1 sample per 500sf, including walls)	B40	8	4	43.42	173.68	3	521.04
		B05	3	1	43.42	43.42	3	130.26
		K13	2	1	43.42	43.42	3	130.26
		B45	4	2	43.42	86.84	3	260.52
		Vault	13	8	43.42	347.36	3	1042.08
		185	8	4	43.42	173.68	3	521.04
	Radioactive Swipe Sample	B40	10	4	43.42	173.68	3	521.04
		B05	2	1	43.42	43.42	3	130.26
		K13	2	1	43.42	43.42	3	130.26
		B45	4	2	43.42	86.84	3	260.52
		Vault	18	8	43.42	347.36	3	1042.08
		185	10	4	43.42	173.68	3	521.04

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS

The documentation and analyses required for samples collected during the decontamination process as well as the associated costs are described in this section. The Closure Plan assumes clean closure and therefore no demolition and debris disposal is assumed.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
TA-55-B40	Toxic Metals	Wipe					0.00
	VOC	Wipe					0.00
	SVOC	Wipe	8	747.85	5982.80	NA	5982.80
	Rad		10	167.34	1673.40	3	5020.20
	Total cost B40						11003.00
TA-55-B05	Toxic Metals	Wipe					0.00
	VOC	Wipe					0.00
	SVOC	Wipe	3	747.85	2243.55	NA	2243.55
	Rad		2	167.34	1495.70	3	4487.10
	Total cost B05						6730.65
TA-55-4-K13	Ignitable	Wipe		28.60	28.60	NA	28.60
	Corrosive	Wipe		7.15	7.15	NA	7.15
	Reactive	Wipe		80.94	80.94	NA	80.94
	Toxic Metals	Wipe					0.00
	VOC	Wipe					0.00
	SVOC	Wipe	2	747.85	747.85	NA	747.85
	Rad		2	167.34	334.68	3	334.68
	Total cost K13						**1199.22**
TA-55-4-B45	Toxic Metals	Wipe					0.00
	VOC	Wipe					0.00
	SVOC	Wipe	4	747.85	2991.40	NA	1495.70
	Rad		4	167.34	669.36	3	669.36
	Total cost B45						**2165.06**
TA-55-4 Vault Unit	Toxic Metals	Wipe	13	335.85	4366.05	NA	4366.05
	VOC	Wipe	13	147.22	1913.86	NA	1913.86
	Rad		18	167.34	3012.12	3	3012.12
	Total cost 4 Vault						**9292.03**
TA-55-185	Toxic Metals	Wipe	8	335.85	2686.80	NA	2686.80
	Rad		10	167.34	1673.40	3	5020.20
	Total cost 185						**7707.00**

TA-55 CONTAINER STORAGE UNITS (CSU) TS-4

	Documentation for each of the 6 units	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris Disposal	NA	---	---	---	---	---
4-D	Certification Report	Sr. Engineer/Tech	32	42.14	1348.48	3	4045.44
	Total						**5056.80**

TA-55 STORAGE TANK SYSTEM

Facility Name: Los Alamos National Labortory (LANL) TA-55 Storage Tank System

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**TA-55 STS Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	7458.78
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B	
4	Decontamination Waste Management	TS-3	AND 3-C	5028.48
5	Decontamination Verification Samples	TS-3	3-D	8134.11
6	Analyses	TS-4	4-A	12007.04
7	Sample Logbook	TS-4	4-B	1011.36
8	Demolition and Debris Disposal	TS-4	4-C	7542.72
9	**Subtotal of Closure Costs**			**46239.29**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs)**			**51296.09**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**45140.56**

TA-55 STORAGE TANK SYSTEM TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
The storage tank system at TA-55 is located in Room 401 of TA-55-4. This tank system is comprised of 16 tanks in three component systems; the Evaporator Glovebox Tank, Cementation Unit Pencil Tanks and Pencil Tanks.

1-A	Maximum permitted capacity (gallons) of the Evaporator Glovebox Tank			71
	Maximum permitted capacity (gallons) of the Cementation Unit Pencil Tanks			65
	Maximum permitted capacity (gallons) of the Pencil Tanks			130
	Known Releases?			N/A
1-B	Dimensions length (ft) x width (ft) and sf (Rm 401)	51.2	44.8	1859
1-C	Materials	Chemical-resistant epoxy primer and paint on steel, reinforced concrete floor		
1-D	Maximum volume of waste to be removed	None (deconstruction and removal of glovebox and tanks, piping, etc. accounted for in worksheet TS-4)		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D		

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	15	42.14	632.1	3	1896.30
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.6	3	5056.80
TOTAL FOR STEP 2A							**7458.78**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.6	3	5056.80

TOTAL FOR STEP 2	**12515.58**

3. DECONTAMINATION

The surfaces of equipment and other areas adjacent to the Storage Tank Systems will be pressure washed or steam cleaned. A portable berm will be used to collect excess water from the decontamination process.

3-A	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	4	Project Engineer	16	32.94	527.04	3	1581.12
		Staff Engineer	16	28.40	454.4	3	1363.20
		Project Scientist	16	24.29	388.64	3	1165.92
		Staff Scientist	16	19.13	306.08	3	918.24
TOTAL FOR STEP 3-A			**64**	**104.76**	**1676.16**	**3**	**5028.48**

3-B	Decontamination of Ancillary Equipment (surface, interior and exterior)	8	Labor hours accounted above	Wash water to RLWTF		0.00
3-C	Decontamination of Areas Adjacent to the Storage Tank System	8	Labor hours accounted above			0.00
TOTAL FOR STEPS 3-B AND 3-C		**16**				

TOTAL FOR STEPS 3-A, 3-B AND 3-C	**5028.48**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	8	4	43.42	173.68	3	7541.19
	Radioactive Swipe Sample	12	6	32.94	197.64	3	592.92
TOTAL FOR STEP 3-E							**8134.11**

TOTAL FOR TASK 3	**13162.59**

TOTAL FOR TS-3 WORKSHEET	**25678.17**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, VOCs and SVOCs	Wipe	8	747.85	5982.8	NA	5982.8
	Radioactive Elements	Wipe	12	167.34	2008.08	3	6024.24
TOTAL FOR STEP 4-A							**12007.04**

		Labor Category and Description	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris Disposal	4 man crew as for decon	24	104.76	2514.24	3	7542.72
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.6	3	5056.8
TOTAL FOR STEP 4-B, 4-C AND 4-D							**13610.88**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**25617.92**

TA-55-4 CEMENTATION UNIT

Facility Name: Los Alamos National Laboratory TA-55 Cementation Unit

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**Cementation Unit Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	7585.20
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B	
4	Decontamination Waste Management	TS-3	AND 3-C	5028.48
5	Decontamination Verification Samples	TS-3	3-E	728.70
6	Analyses	TS-4	4-A	9015.64
7	Sample Logbook	TS-4	4-B	1011.36
8	Demolition and Debris Removal	TS-4	4-C	5028.48
9	**Subtotal of Closure Costs**			**33454.66**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add engineering expenses and cost of certification of closure to closure costs)**			**38511.46**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**33890.08**

TA-55-4 CEMENTATION UNIT TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
The Cementation Unit is located at TA-55-4, Room 401 and consists of a pH column, vacuum trap, two motor-driven mixers, four impellers, and piping inside a glovebox.

1-A	Maximum permitted capacity (gallons)			150
	Known Releases?			N/A
1-B	Dimensions length (ft) x width (ft) and sf	51.2	44.8	1859
1-C	Materials	Chemical-resistant epoxy primer and paint on steel, reinforced concrete floor.		
1-D	Maximum volume of waste to be removed	None except wash water to be disposed at RLWTF. Demolition of unit accounted for in TS-4.		
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D		

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	16	42.14	674.24	3	2022.72
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**7585.20**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**12642.00**

3. DECONTAMINATION

The surfaces of the glovebox, equipment and areas adjacent to the Cementation Unit will be decontaminated by pressure washing or steam cleaning. A portable berm will be used to collect excess water from the decontamination process.

3-A	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	4	Project Engineer	16	32.94	527.04	3	1581.12
		Staff Engineer	16	28.40	454.40	3	1363.20
		Project Scientist	16	24.29	388.64	3	1165.92
		Staff Scientist	16	19.13	306.08	3	918.24
TOTAL FOR STEP 3-A			**64**	**104.76**	**1676.16**	**3**	**5028.48**

3-B	Decontamination of Cementation Unit Equipment and Glovebox	4	Labor hours accounted above	Decon solution to RLWTF		0.00
3-C	Decontamination of Ancillary Equipment	6	Labor hours accounted above			0.00
3-D	Decontamination of Areas Adjacent to the Cementation Unit Glovebox	6	Labor hours accounted above			0.00
TOTAL FOR STEP 3						**5028.48**

TOTAL FOR STEPS 3-A, 3-B, 3-C AND 3-D	**5028.48**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe	4	4	24.29	97.16	3	291.48
	Radioactive Swipe Sample	12	6	24.29	145.74	3	437.22
TOTAL FOR STEP 3-E							**728.70**

TOTAL FOR TASK 3	**5757.18**

TOTAL FOR TS-3 WORKSHEET	**18399.18**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Samples	Number of Samples	ECHOS Unit Cost	Bare Task Cost	Add Overhead	Loaded $
	Toxic Metals, VOCs and SVOCs	Water/Wipe	4	747.85	2991.40	NA	2991.40
	Radioactive Elements	Wipe	12	167.34	2008.08	3	6024.24
TOTAL FOR STEP 4-A							**9015.64**

		Labor Category and Description	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris removal	4 man crew as for decon	16	104.76	1676.16	3	5028.48
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 4-B, 4-C AND 4-D							**11096.64**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**20112.28**

TA-55 OUTSIDE STORAGE PAD CSU

Facility Name: Los Alamos National Laboratory TA-55 Outside Storage Pad CSU

SUMMARY WORKSHEET				
	Activity	**Worksheet Number**	**Step**	**TA-55 Outside Storage Pad CSU Cost ($)**
1	Pre-Closure and Structural Assessment	TS-3	2-A	5562.48
2	Sampling and Analysis Plan	TS-3	2-B	5056.80
3	Decontamination Process		3-A, 3-B	
4	Decontamination Waste Management	TS-3	AND 3-C	5509.44
5	Decontamination Verification Samples	TS-3	3-E	2084.16
6	Analyses	TS-4	4-A	17948.40
7	Sample Logbook	TS-4	4-B	1011.36
8	Demolition and Debris Disposal	TS-4	4-C	25896.78
9	**Subtotal of Closure Costs**			**63069.42**
10	Certification of Closure	TS-4	4-D	5056.80
11				
12	**Subtotal (Add cost of certification of closure to closure costs)**			**68126.22**
13	Localization factor			0.88
TOTAL COST OF CLOSURE				**59951.07**

TA-55 OUTSIDE STORAGE PAD CSU TS-2

INVENTORY

1. UNIT DESCRIPTION AND MAXIMUM PERMITTED CAPACITY
The TA-55 Outside Storage Pad CSU is located northwest of TA-55-4.

1-A	Maximum permitted capacity (gallons) of the Storage Pad	135000
	Known Releases?	N/A
1-B	Dimensions: trapezoid Total area = 11,794 sf	102 x 86 x 156 x 105 + 70 x 10 rectangle
1-C	Materials	Asphalt 4 to 6 inches thick
1-D	Maximum volume of waste to be removed	None (demolition of pad accounted for in worksheet TS-4)
1-E	Level of PPE assumed for this activity (protection level D, C, or B)	Level D

TA-55 OUTSIDE STORAGE PAD CSU TS-3

PRE-CLOSURE AND STRUCTURAL ASSESSMENT AND DECONTAMINATION

2. PRE-CLOSURE AND STRUCTURAL ASSESSMENT

2-A	Pre-Closure Process	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Review	Sr Engineer/Tech	20	42.14	842.80	3	2528.40
	Inspection	Sr Engineer/Tech	4	42.14	168.56	3	505.68
	Report	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 2A							**5562.48**

2-B	Sampling and Analysis Plan	Sr Engineer/Tech	40	42.14	1685.60	3	5056.80

TOTAL FOR STEP 2	**8090.88**

3. DECONTAMINATION

Equipment will be pressure washed or steam cleaned, and the Storage Pad will be inspected and sampled.

3-A	Number of crew members	Labor Category	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	4	Project Engineer	24	32.94	790.56	3	2371.68
		Staff Engineer	24	28.40	681.60	3	2044.80
		Project Scientist	24	24.29	582.96	3	1748.88
		Staff Scientist	24	19.13	459.12	3	1377.36
TOTAL FOR STEP 3-A			**96**	**104.76**	**1836.48**	**3**	**5509.44**

3-B	Decontamination of Equipment	24	Crew labor accounted above			0.00
3-C	Decontamination of the Storage Pad will first be assessed and should there be evidence of leaks through the asphalt pad, soil samples will be collected and analyzed.		Assumed no contamination for this estimate			0.00
3-D	Removal of the contaminated soil will be processed during the decontamination stage					0.00
TOTAL FOR STEPS 3-B, 3-C AND 3-D						**5509.44**

TOTAL FOR STEPS 3-A, 3-B, 3-C AND 3-D	**5509.44**

3-E	Type of Sample	Number of Samples	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Wipe samples for decontamination verification	24	16	43.42	694.72	3	2084.16
	Soil Verification Samples	NA					
TOTAL FOR STEP 3-E							**2084.16**

TOTAL FOR TASK 3	**7593.60**

TOTAL FOR TS-3 WORKSHEET	**13103.04**

DOCUMENTATION

4. DOCUMENTATION AND ANALYSIS
The documentation and analysis required for each of the samples collected during the decontamination process as well as the associated costs are described in this section.

4-A	Analysis	Type of Sample	Number of Samples	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
	Toxic Metals, VOCs and SVOCs	Wipe	24	747.85	17948.40	NA	17948.40
TOTAL FOR STEP 4-A							**17948.40**

		Labor Category and Description	Hours	ECHOS Unit Cost ($)	Bare Task Cost ($)	Add Overhead	Loaded $
4-B	Sample Logbook	Sr. Engineer/Tech	8	42.14	337.12	3	1011.36
4-C	Demolition and Debris Disposal	Front End Loader and 2 Trucks, 182 cy		47.43	8632.26	3	25896.78
4-D	Certification Report	Sr. Engineer/Tech	40	42.14	1685.60	3	5056.80
TOTAL FOR STEP 4-B, 4-C AND 4-D							**31964.94**

TOTAL FOR TS-4 WORKSHEET and TOTAL FOR STEP 4	**49913.34**