



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
2405 GUN SHED ROAD
JOINT BASE SAN ANTONIO FORT SAM HOUSTON, TX 78234-1223

February 9, 2016

Document Control
US Nuclear Regulatory Commission
Attention: Amy Snyder, Senior Project Manager, Materials Decommissioning Branch
Division of Decommissioning, Uranium Recovery and Waste Programs
Office of Nuclear Material Safety and Safeguards
MS T8F5
11545 Rockville Pike
Rockville, MD 20852

Dear Deputy Director:

Reference our June 1, 2015 letter, which is our application to amend the source materials license for depleted uranium from Davy Crockett M101 munitions (SUC-1593, Docket No. 40-09083), and subsequent correspondence to date between your staff and us.

In response to your requests for clarifications, we made corrections and added clarifying text to "US Army Decommissioning Funding Plan for License Number SUC-1593." We enclose the revised version, dated 9 February 2016p.

You may reach me at (210) 466-0368 or robert.n.cherry.civ@mail.mil.

Sincerely,

Robert N. Cherry
License Radiation Safety Officer

Enclosure

NM55012

US Army Decommissioning Funding Plan for License Number SUC-1593

9 February 2016

Introduction

The purpose of this document is to provide updated costs associated with the decommissioning of the possession-only Source Material License No. SUC-1593 (ML13259A062, 10OCT2013). Originally, License No. SUC-1593 authorized the possession of up to 125 kg of depleted uranium (DU) at Schofield Barracks HI and at Pohakuloa Training Area HI. A condition of this license also required the Army to seek license amendments to include other Army sites containing DU related Davey Crockett M101 spotting rounds.

As the Army has increased its knowledge of Army sites containing or suspected of containing DU related to Davy Crockett M101 spotting rounds, the Army is requesting an amendment to this license. Further, a license condition requires the Army to "... submit an updated site/installation specific decommissioning cost estimate and financial assurance instrument for each Army installation listed in License Condition 10 on a tri-annual basis, by December 31 of each year or, if applicable, in accordance with the requirements of 10 CFR 40.36(c)5." Therefore, the Army is updating the Decommissioning Funding Plan (DFP) to reflect changes in the number of sites and the amount of DU licensed. License Number SUC-1593, as amended (Date), will authorize the US Army to possess up to 5700 kg of DU located at multiple US Army training sites. These locations include the following:

- Donnelly Training Area, Fort Wainwright AK (formerly Fort Greely AK)
- Fort Benning GA
- Fort Bragg NC
- Fort Campbell KY
- Fort Carson CO
- Fort Gordon GA
- Fort Hood TX
- Fort Hunter Liggett CA
- Fort Jackson SC
- Fort Knox KY
- Fort Polk LA
- Fort Riley KS
- Fort Sill OK
- Joint Base Lewis-McChord/Yakima Training Center WA
- Joint Base McGuire-Dix-Lakehurst NJ
- Schofield Barracks/Pohakuloa Training Area HI (original license)

A cost estimate for all phases of the decommissioning of License Number SUC-1593 follows. Cost estimates are primarily based on analyses performed using RACER 11.2™,¹ which draws primarily from the Unit Price Book (UPB) developed by the Tri-Services Cost Engineering Group. The estimate is itemized by each of the major decommissioning tasks and activities. It

¹ The Remedial Action Cost Engineering and Requirements (RACER™) software is a Microsoft Windows-based environmental remediation/corrective action cost-estimating system. RACER™ is commercial off-the-shelf software developed and maintained by AECOM.

distinguishes between labor and non-labor costs as described in Appendix A of NUREG-1757 Volume 3. This cost estimate also explicitly incorporates a 25 percent contingency factor per section A.3.1.2.3, NUREG-1757 Volume 3.

A.3.4 Facility Description Summary

<p><u>NRC license numbers and types (i.e., Parts 30, 40, 70, and 72)</u></p> <p>License number: SUC-1593 License type: Part 40</p>
<p><u>Types and quantities of materials authorized under the licenses listed above</u></p> <p>Material type: depleted uranium Material quantity: 5700 kg (pending)</p>
<p><u>Description of how licensed materials are used</u></p> <p>Possession only</p>
<p><u>Description of facility, including buildings, rooms, grounds, and description of where particular types of materials are used</u></p> <p>A separate document in the license amendment application shows the location of each M101 spotting round impact area. The number of impact areas is 29 on the 16 installations listed above. The impact areas are on Army training ranges. Army training ranges are open areas with no habitable structures but may contain training materials, such as targets and associated supporting materials.</p> <p>Unexploded ordnance (UXO) may be present in the impact areas at all ranges. Because of the presence of UXO, ordnance and explosives safety staff support may be required for activities within the impact areas.</p>
<p><u>Quantities of materials or waste accumulated before shipping or disposal</u></p> <p>Generally, each garrison will accumulate no materials or waste before shipping or disposal. Occasionally, an M101 spotting round or two may be picked up by happenstance on a range and held for disposal in accordance with the Radiation Safety Plan.</p> <p>The Department of Defense (DOD) Executive Agency for Low-Level Radioactive Waste (LLRW) Disposal has primary responsibility for DOD LLRW disposal. The Agency conducts periodic waste removals from installations worldwide. If the Army collects any DU, the Army will secure and hold it for the next scheduled pick up. The Executive Agency will properly dispose of it in accordance with all applicable Federal and DOD regulations and with all disposal site conditions.</p>
<p><u>Volume of contaminated material, including that in the subsurface, containing residual radioactivity that will require remediation</u></p> <p>In preparing this DFP, the Army estimated that 4191.7 m³ of Davy Crockett rounds, fragments and contaminated soil will require disposal. The Army estimates that an additional 176 m³ of contaminated Personal Protective Equipment (PPE) and other items will require disposal. The sum of these values is 4367.7 m³.</p>

Labor Costs (A.3.1.2.1)

Planning and Preparation

Cost assumptions are presented in Table A.3.1.2.1.a (labor hours) and Table A.3.1.2.1.g (labor cost schedule). We assume that these costs are the same for each site.

Decontamination or dismantling of Radioactive Facility Components

Cost assumptions are presented in Table A.3.1.2.1.b (labor hours) and Table A.3.1.2.1.g (labor cost schedule). We assume that these costs are the same for each site.

Restoration of Contaminated Areas on Facility Grounds

Cost assumptions are presented in Table A.3.1.2.1.c (labor hours) and 3.1.2.1.g (labor cost schedule). We assume that these costs are the same for each site.

Final Radiation Survey

Cost assumptions are presented in Tables A.3.1.2.1.d (labor hours) and A.3.1.2.1.g (labor cost schedule) for a 1 km² site. We assume that these costs scale linearly with the area for each site.

Site Stabilization and Long-term Surveillance

Cost assumptions are presented in Tables A.3.1.2.1.e (labor) and A.3.1.2.1.g (labor cost schedule) for a 1-km² site. We assume that these costs scale linearly with the area for each site.

Non-Labor Costs (A.3.1.2.2)

Packing Materials

Cost assumptions are presented in Table A.3.1.2.2.a.1 and Table A.3.1.2.2.a.2. We assume that these costs scale linearly to volume of DU contaminated material at each site.

Shipping Costs

Cost assumptions are presented in Table A.3.1.2.2.b. Unit costs were evaluated separately for each site and linearly scaled to the volume of DU contaminated material at each site. Costs were derived from shipping cost schedules evaluated within RACER. Transportation miles were estimated from Google Maps (<https://www.google.com/maps/>).

Waste Disposal Costs

Cost assumptions are presented in Table A.3.1.2.2.c. These costs are scaled to match the amount of material at each site.

Equipment and Supplies Costs

Cost assumptions are presented in Table A.3.1.2.2.d. These costs are assumed the same for each of the range training sites.

Laboratory Costs

Cost assumptions are presented in Table A.3.1.2.2.e. These costs are assumed to scale linearly to volume of DU contaminated material at each site.

Contingency Factor (A.3.1.2.3)

The Army includes a 25 percent contingency factor applied to all estimated costs associated with decommissioning.

Total Cost

The total estimated cost, including contingency costs, to decommission Source Material License No SUC-1593 at all sites is \$347.6 million.

Key Assumptions (A.3.1.3)

This cost estimate does not take credit for any salvage value that the Army might realize from the sale of potential assets (for example, recovered materials or decontaminated equipment) during or after decommissioning.

This cost estimate represents the cost to the Army if all decommissioning activities were performed by an independent contractor.

This cost estimate assumes that during the decommissioning of individual sites, training operations would be suspended at decommissioning sites to ensure the safe and timely completion of decommissioning activities.

Sites operated under License SUC-1593 reside within operational training areas and have currently existing institutional controls. These controls are in place to prevent unauthorized access to Army training (live fire training, military equipment exercises and UXO). Institutional controls include security fences, signage (UXO, live fire and radioactive material), as well as monitored access control for training range entry. It is assumed that if license decommissioning with restrictions occurs, institutional controls will remain in place for safety related to Army training activities, ensuring that annual dose to the average member of the critical group will not exceed 0.25 mSv (25 mrem).

An average volume of contaminated soil and fragments requiring removal and remediation is estimated to be 0.138 m³ per Davy Crockett M101 spotting round. This estimate is based on the following assumptions.

- The DU containing portion the Davy Crockett M101 spotting round is estimated to be 8.255 cm in length and 2 cm in diameter.
- High density and subsequent low spatial mobility of Davy Crockett M101 spotting DU fragments and DU weathered components result in material localization near the original impact sites.
- As a conservative but lower bounding volume per M101 spotting round, it is assumed that for intact, deformed or nearly intact M101 spotting rounds, DU fragments and DU contaminated soil requiring remediation would be located within 10 cm of the original impact site. A cylindrical volume of 0.011 m³ of material is thus assumed as a lower bounding volume, based on a 22 cm diameter, 28.255 cm length cylinder.
- As a conservative but upper bounding volume per M101 spotting round, it is assumed that the Davy Crockett M101 spotting round is significantly fragmented and extensively oxidized from weathering and the DU fragments and DU contaminated soil requiring remediation would be located within 0.75 m of the original impact site. However, because the M101 spotting round was not penetrator-type munitions and was unlikely to have pierced the ground surface to a large depth, it is assumed that M101 spotting

round, fragments and contaminated soils generally lay within the top 15 cm of the surface. A cylindrical volume of 0.265 m³ is thus assumed as an upper bounding volume, based on a 1.5 m diameter, 15 cm height cylinder.

- Experience at multiple Army training sites has shown that M101 spotting rounds exist in a wide array of conditions ranging from intact with little degradation to highly fragmented and corroded, an average of the upper (0.265 m³) and lower (0.011 m³) volumes is assumed to be a reasonable estimate of the volume of DU fragments and soil requiring remediation for each Davy Crockett M101 spotting round. The average of this volume is 0.138 m³.

In estimating shipping cost, distances to disposal sites were estimated as follows, assuming waste is less than five percent by weight DU.

- The US Ecology site at Richland, WA is the disposal site for Donnelly Training Area, Fort Wainwright; Fort Carson; and Joint Base Lewis-McChord/Yakima Training Center only.
- The EnergySolutions site at Barnwell, SC is the disposal site for Fort Jackson only.
- The EnergySolutions site at Clive, UT is the disposal site for all other installations.

As simplifying but conservative assumption, this cost estimate assumes that sites containing M101 spotting rounds have been previously used as ranges for artillery, grenades, high explosive bombs, medium caliber munitions (20mm, 25mm, and 30mm), large caliber munitions (37mm and larger), mortars, and other small arms. This assumption requires the presence of UXO safety staff during site operations, which would not otherwise be required.

As a simplifying but conservative assumption, this cost estimate assumes that sites containing M101 spotting rounds have a vegetative cover that is predominantly heavy scrubs and small trees. This assumption results in increased time (and labor) estimates for Davy Crockett M101 spotting round recovery.

Adjusting the Cost Estimate (A.3.2)

The following is a description of the means the Army will use to adjust the site-specific cost estimates and associated funding levels periodically over the life of the facilities.

The Army will follow the regulatory guidance in NUREG-1757, Volume 3. On a three-year cycle or when the amount or types of materials substantially change, the Army will evaluate and adjust the decommissioning cost estimates to ensure costs accurately reflect changes in material inventory and possession limits, soil or groundwater contamination, facility modifications, remediation costs, and disposal costs. Additionally, the Army will ensure that financial assurance for revised decommissioning costs are updated to account for inflation, for other changes in the prices of goods and services, for changes in facility conditions or operations, and for changes in expected decommissioning procedures.

The Army has no plans to change facility conditions or operations at the M101 spotting round impact in a way that would require a license amendment.

Submitting the Required Documentation (A.3.3)

In accordance with NRC financial assurance regulations (10 CFR 40.36(d)), the Army submits, as a Federal Agency, the following to the NRC.

- A detailed site-specific cost estimate for decommissioning (see Tables below)

- A description of the means that will be used to adjust the site specific cost estimate and associated funding levels periodically over the life of the facility (The Army will continue to use updated versions of RACER™.)
- A Statement of Intent and proof of authority to commit funds (previously provided in statement dated June 1, 2015 and signed by LTG Halverson, which continues to cover the total amount for decommissioning; see last two pages of ML1516A458 on NRC ADAMS)

US Army Decommissioning Funding Plan for License Number SUC-1593

Table A.1 Total Estimated Cost

Garrison	Range/Target Zones/Impact Areas	Estimated Area (km ²)	Estimated Cost	
Previously Submitted (estimate includes 25 percent contingency)				
Hawaii	Pohakuloa Training Area: Areas 1, 2, 3, and 4	8.9	\$66,864,608	
	Schofield Barracks: M101 Impact Area	3.7	\$42,470,781	
Generic (estimate includes 25 percent contingency)				
Generic 1 km ² area proportional cost		1.0	\$3,280,749	
Specific M101 DU Impact Areas (estimate includes 25 percent contingency)				
Training Area	Range Name	Area (km ²)	Cost	Shipping and Disposal Costs
Donnelly Training Area, Fort Wainwright	Georgia	1.0	\$3,280,749	\$657,123
Fort Benning	Hook	1.0	\$3,280,749	\$36,826,178
	Patton	1.0	\$3,280,749	
	Buchanan	1.0	\$3,280,749	
	Coolidge	1.0	\$3,280,749	
	Brann	1.0	\$3,280,749	
	Z-4 (Lae Field)	1.0	\$3,280,749	
	K-18	1.0	\$3,280,749	
	K-15	1.0	\$3,280,749	
	Burma Hill	0.073	\$3,280,749 ²	
Fort Bragg	OP-5	1.0	\$3,280,749	\$16,185,326
Fort Campbell	OP2/OP3	1.0	\$3,280,749	\$2,859,269
Fort Carson	141	1.0	\$3,280,749	\$5,556,470
	Battalion Field Training Area	1.0	\$3,280,749	
Fort Gordon	E	1.0	\$3,280,749	\$808,668
Fort Hood	Davy Crockett	1.0	\$3,280,749	\$15,429,839
Fort Hunter Liggett	C8	1.0	\$3,280,749	\$801,403
	B11	1.0	\$3,280,749	
	B13	1.0	\$3,280,749	
Fort Jackson	Range 62	1.0	\$3,280,749	\$797,161
Fort Knox	Arms Knob (two overlapping ranges)	1.8	\$5,905,348	\$15,261,799
	O'Brein	1.0	\$3,280,749	
Fort Polk	33 & 34A (two ranges)	2.0	\$6,561,498	\$10,152,710
Fort Riley	[27A and 27B] and 29 (two ranges)	2.0	\$6,561,498	\$692,381
Fort Sill	FP 182/West	1.0	\$3,280,749	\$2,488,258
Joint Base Lewis-McChord	Fort Lewis 52, OP8 and OP9 (three ranges)	3.0	\$9,842,246	\$6,828,345
	Yakima Training Center 14, 17, and 20 (three ranges)	3.0	\$9,842,246	
Joint Base McGuire-Dix-Lakehurst	Frankford Arsenal Range	1.0	\$3,280,749	\$494,728
Subtotal			\$114,170,063	\$115,839,658
Total (without Hawaii sites)			\$230,009,721	
Total			\$339,345,110	

² Used cost for 1 km².

US Army Decommissioning Funding Plan for License Number SUC-1593

Table A.3.1.2 Estimated Decommission Costs (per km²)

Task/Component	Cost
Planning and Preparation (From Table A.3.1.2.1)	\$221,229
Decontamination and/or Dismantling of Radioactive Facility Components (From Table A.3.1.2.1 (b))	\$159,900
Restoration of Contaminated Areas on Facility Grounds (From Table A.3.1.2.1(c))	\$-
Final Radiation Survey (From Table A.3.1.2.1 (d))	\$1,026,363
Site Stabilization and Long-Term Surveillance (From Table A.3.1.2.1(e))	\$36,505
Laboratory Costs (TOTAL from Table A.3.1.2.2(e))	\$701,190
Miscellaneous Costs (TOTAL from Table A.3.1.2.2 (f))	\$479,412
SUBTOTAL	\$2,624,599
25% Contingency	\$656,150
TOTAL	\$3,280,749

Table A.3.1.2.1 Total Labor Costs by Major Decommissioning Task (per km²)

Task	IMCOM RSSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety/UXO	Field HP Tech	Field UXO Tech	Laborer
Planning and Preparation	\$41,726	\$4,764	\$36,921	\$13,044	\$11,556	\$35,232	\$44,032	\$5,275	\$5,364	\$5,136	\$4,680	\$3,708	\$4,479	\$3,312	\$1000	\$1000	\$-
Decontamination or Dismantling of Radioactive Facility Components	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$50,000	\$50,000	\$59,900
Restoration of Contaminated Areas on Facility Grounds	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Final Radiation Survey	\$32,304	\$5,955	\$47,640	\$43,480	\$6,420	\$9,909	\$23,392	\$5,275	\$3,576	\$5,136	\$31,980	\$44,496	\$53,748	\$79,488	\$306,000	\$306,000	\$21,564
Site Stabilization and Long-Term Surveillance	\$6,730	\$5,955	\$23,820	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-	\$-
Total	\$80,760	\$16,674	\$108,381	\$56,524	\$17,976	\$45,141	\$67,424	\$10,550	\$8,940	\$10,272	\$36,660	\$48,204	\$58,227	\$82,800	\$357,000	\$357,000	\$81,464

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Table A.3.1.2.1 (a) Planning and Preparation (Work Days and per km²)

	IMCOM RSSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety UXO	Field HP Tech	Field UXO Tech	Laborer
Preparation of Documentation for Regulatory Agencies	10	1	10	5	2				5								
Submittal of Decommissioning Plan to NRC when required by 10 CFR 30.36(g)(1), 40.42(g)(1), 70.38(g)(1), or 72.54(g)	10	1	10	1	5	20	20	2	2	1	2	1	1	1			
Development of Work Plans	10	2	10	6		10	10	2	2	1	4	1	1	1			
Procurement of Special Equipment					1	2	1			1							
Staff Training	1		1		1		1	1		1		1	1	1	1	1	
Characterization of Radiological Condition of the Facility (including sampling, soil and tailings analysis, or groundwater analysis, if applicable)																	
Other (specify)																	
TOTALS	31	4	31	12	9	32	32	5	9	4	6	3	3	3	1	1	0

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Table A.3.1.2.1 (b) Decontamination or Dismantling of Radioactive Facility Components (Work Days and per km²)

	IMCOM RSSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety/UXO	Field HP Tech	Field UXO Tech	Laborer
Glove Boxes																	
Fume Hoods																	
Lab Benches																	
Sinks																	
Drains																	
Floors																	
Walls																	
Ceilings																	
Ventilation/ Ductwork																	
Hot Cells																	
Equipment/ Materials																	
Soil Plots (field management in FSS)															50	50	100
Storage Tanks																	
Storage Areas																	
Radioactive Waste Areas																	
Scrap Recovery Areas																	
Maintenance Shop																	
Equipment Decontamination Areas																	
Other (specify)																	
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	100

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Table A.3.1.2.1 (c) Restoration of Contaminated Areas on Facility Grounds (Work Days and per km²)

Activity	IMCOM RSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety/UXO	Field HP Tech	Field UXO Tech	Laborer
Backfill and Restore Site	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Table A.3.1.2.1 (d) Final Radiation Survey (Work Days and per km²)

	IMCOM RSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety/UXO	Field HP Tech	Field UXO Tech	Laborer
First Pass Gamma Walkover															165	165	33
Re-survey of Decontaminated Areas															17	17	3
Sample Collection															124	124	0
Field Effort Oversight and Management	4	4	36	36	4	4	7	4	4	4	36	36	36	72			
Reporting	20	1	4	4	1	5	10	1	2		5						
TOTALS	24	5	40	40	5	9	17	5	6	4	41	36	36	72	306	306	36

Table A.3.1.2.1 (e) Site Stabilization and Long-term Surveillance (Work Days and per km²)

	IMCOM RSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety/UXO	Field HP Tech	Field UXO Tech	Laborer
Five year review	5	5	20														
TOTALS	5	5	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table A.3.1.2.1 (f) Total Work Days by Labor Category (per km²)

	IMCOM RSSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety/UXO	Field HP Tech	Field UXO Tech	Laborer
Planning and Preparation (TOTALS from Table A.3.6)	31	4	31	12	9	32	32	5	9	4	6	3	3	3	1	1	0
Decontamination and/or Dismantling of Radioactive Facility Components (Sum of TOTALS from all copies of Table A.3.7)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	100
Restoration of Contaminated Areas on Facility Grounds (TOTALS from Table A.3.8)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Final Radiation Survey (TOTALS from Table A.3.9)	24	5	40	40	5	9	17	5	6	4	41	36	36	72	306	306	36
Site Stabilization and Long-Term Surveillance (TOTALS from Table A.3.10)	5	5	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0

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Table A.3.1.2.1 (g) Worker Unit Cost Schedule (per km²)

Labor Cost Component	IMCOM RSO	Installation RSO	Army Oversight HP	Army Oversight Safety	Project Manager	Project Engineer	Project CHP	Project Safety	Clerical	Project UXO	CADD	Field Supervisor	Field HP	Field Safety/UXO	Field HP Tech	Field UXO Tech	Laborer
Salary & Fringe (\$/year)	\$137,800	\$121,900	\$121,900	\$111,300	\$148,400	\$127,200	\$159,000	\$121,900	\$68,900	\$148,400	\$90,100	\$142,835	\$213,325	\$157,675	\$142,835	\$142,835	\$85,701
Overhead Rate (%)	154%	154%	154%	154%	125%	125%	125%	125%	125%	125%	125%	125%	82%	82%	82%	82%	82%
Total Cost Per Year	\$350,012	\$309,626	\$309,626	\$282,702	\$333,900	\$286,200	\$337,500	\$274,275	\$155,025	\$333,900	\$202,725	\$321,379	\$388,252	\$286,969	\$259,960	\$259,960	\$155,976
Total Cost Per Work Day*	\$1,346	\$1,191	\$1,191	\$1,087	\$1,284	\$1,101	\$1,376	\$1,055	\$596	\$1,284	\$780	\$1,236	\$1,493	\$1,104	\$1000	\$1000	\$599

Notes: * Based on 260 workdays per year (e.g., 260 days). Field personnel salary based on 60 hour work weeks.

US Army Decommissioning Funding Plan for License Number SUC-1593

Table A.3.1.2.2 Total Non-labor Costs (per km²)

Category	Cost
Equipment/Supplies	\$174,000
Laboratory	\$661,500
Miscellaneous	\$993,457
TOTAL	\$1,828,957

Table A.3.1.2.2 Total Non-labor Costs (Packaging, Shipping, and Disposal)

Category	Cost
Packaging Material	\$2,132,100
Shipping	\$1,141,710
Disposal	\$91,865,827
TOTAL	\$95,139,637

Table A.3.1.2.2.a.1 Packing Materials for Spotter Rounds, Fragments and Contaminated Soil

Location	Volume (m ³)	Number of containers	Type of Container	Unit Cost of Container	Total Packaging Costs
Donnelly Training Area, Fort Wainwright	12.8	65	55 gallon drum	\$100	\$6,500
Fort Benning	1338.6	6,693	55 gallon drum	\$100	\$669,300
Fort Bragg	581.3	2,906	55 gallon drum	\$100	\$290,600
Fort Campbell	94.0	470	55 gallon drum	\$100	\$47,000
Fort Carson	193.8	969	55 gallon drum	\$100	\$96,900
Fort Gordon	18.6	93	55 gallon drum	\$100	\$9,300
Fort Hood	557.2	2,786	55 gallon drum	\$100	\$278,600
Fort Hunter Liggett	18.6	93	55 gallon drum	\$100	\$9,300
Fort Jackson	18.6	93	55 gallon drum	\$100	\$9,300
Fort Knox	549.9	2,730	55 gallon drum	\$100	\$273,000
Fort Polk	365.4	1,327	55 gallon drum	\$100	\$132,700
Fort Riley	14.5	72	55 gallon drum	\$100	\$7,200
Fort Sill	80.7	404	55 gallon drum	\$100	\$40,400
Joint Base Lewis McChord/Yakima Training Center	242.3	1,212	55 gallon drum	\$100	\$121,200
Joint Base McGuire-Dix-Lakehurst	6.9	35	55 gallon drum	\$100	\$3,500
Schofield Barracks/Pohakuloa Training Area	98.5	493	55 gallon drum	\$100	\$49,300
Total	4191.7	20,341			\$2,044,100
Total (without Hawaii sites)	4093.2	19,848			\$1,994,800

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Table A.3.1.2.2.a.2 Packing Material for Personal Protective Equipment

Location	Volume (m ³)	Number of containers	Type of Container	Unit Cost of Container	Total Packaging Costs
Donnelly Training Area, Fort Wainwright	11	55	55 gallon drum	\$100	\$5,500
Fort Benning	11	55	55 gallon drum	\$100	\$5,500
Fort Bragg	11	55	55 gallon drum	\$100	\$5,500
Fort Campbell	11	55	55 gallon drum	\$100	\$5,500
Fort Carson	11	55	55 gallon drum	\$100	\$5,500
Fort Gordon	11	55	55 gallon drum	\$100	\$5,500
Fort Hood	11	55	55 gallon drum	\$100	\$5,500
Fort Hunter-Liggett	11	55	55 gallon drum	\$100	\$5,500
Fort Jackson	11	55	55 gallon drum	\$100	\$5,500
Fort Knox	11	55	55 gallon drum	\$100	\$5,500
Fort Polk	11	55	55 gallon drum	\$100	\$5,500
Fort Riley	11	55	55 gallon drum	\$100	\$5,500
Fort Sill	11	55	55 gallon drum	\$100	\$5,500
Joint Base Lewis McChord/Yakima Training Center	11	55	55 gallon drum	\$100	\$5,500
Joint Base McGuire-Dix-Lakehurst	11	55	55 gallon drum	\$100	\$5,500
Schofield Barracks/Pohakuloa Training Area	11	55	55 gallon drum	\$100	\$5,500
Total	176	880			\$88,000
Total (without Hawaii sites)	165	825			\$77,000

Table A.3.1.2.2.b Shipping Costs for Spotter Rounds, Fragments, Contaminated Soil and PPE

Location	Number of containers	Number of Shipments	Distance(mi)	Unit cost (\$/shipment x mile)	Total Shipping Costs
Donnelly Training Area, Fort Wainwright	120	2	2863	\$2.29	\$13,113
Fort Benning	6,748	85	2055	\$2.29	\$400,006
Fort Bragg	2,961	38	2233	\$2.29	\$194,316
Fort Campbell	525	7	1650	\$2.29	\$26,450
Fort Carson	1,024	13	1183	\$2.29	\$35,218
Fort Gordon	148	2	2087	\$2.29	\$9,558
Fort Hood	2,841	36	1320	\$2.29	\$108,821
Fort Hunter-Liggett	148	2	818	\$2.29	\$3,746
Fort Jackson	148	2	77	\$2.29	\$353
Fort Knox	2,785	35	1666	\$2.29	\$133,530
Fort Polk	1,382	18	1629	\$2.29	\$67,147
Fort Riley	127	2	1062	\$2.29	\$4,864
Fort Sill	459	6	1163	\$2.29	\$15,980
Joint Base Lewis McChord/Yakima Training Center	1,267	16	227	\$2.29	\$8,317
Joint Base McGuire-Dix-Lakehurst	90	2	2247	\$2.29	\$10,291
Schofield Barracks/Pohakuloa Training Area	270				\$110,000
Total					\$1,141,710
Total (without Hawaii sites)					\$1,031,710

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Table A.3.1.2.2 (c) Disposal Costs

Packing Material Costs (Spotter rounds, fragments and contaminated soil)				
Location	Volume (m ³)	Unit Cost(\$/m ³)	Surcharge	Disposal Costs
Donnelly Training Area; Fort Wainwright	23.8	\$21,033	-	\$500,585
Fort Benning	1349.6	\$21,033	-	\$28,386,136
Fort Bragg	592.3	\$21,033	-	\$12,457,845
Fort Campbell	105.0	\$21,033	-	\$2,208,465
Fort Carson	204.8	\$21,033	-	\$4,307,558
Fort Gordon	29.6	\$21,033	-	\$622,576
Fort Hood	568.2	\$21,033	-	\$11,950,950
Fort Hunter-Liggett	29.6	\$21,033	-	\$622,576
Fort Jackson	29.6	\$21,033	-	\$622,576
Fort Knox	560.9	\$21,033	-	\$11,797,409
Fort Polk	376.4	\$21,033	-	\$7,916,821
Fort Riley	25.5	\$21,033	-	\$536,341
Fort Sill	91.7	\$21,033	-	\$1,928,726
Joint Base Lewis McChord/Yakima Training Center	253.3	\$21,033	-	\$5,327,659
Joint Base McGuire-Dix-Lakehurst	17.9	\$21,033	-	\$376,491
Schofield Barracks/Pohakuloa Training Area	109.5	\$21,033	-	\$2,303,113
Total	4367.7			\$91,865,827
Total (without Hawaii sites)	4258.2			\$89,562,714

Table A.3.1.2.2 (d) Equipment and Supplies (per km²)

Equipment/supply Costs (Excluding Containers)			
Equipment/Supplies	Quantity	Unit Cost	Total Equipment/Supply Cost
Monthly facility cost	2	\$5,000	\$10,000
Monthly instrument cost	2	\$45,000	\$90,000
Monthly consumable cost	2	\$15,000	\$30,000
Monthly vehicle cost	2	\$20,000	\$40,000
Monthly PPE cost	2	\$2,000	\$4,000
TOTAL			\$174,000

Table A.3.1.2.2 (e) Laboratory Costs (per km²)

Activity	Total Cost
Sampling	
Transport of samples	\$33,390
Testing and analysis	\$667,800
Other (specify)	
Total	\$701,190

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Table A.3.1.2.2 (f) Miscellaneous Expenses (per km²)

Cost Item	Total Cost
License Fees	\$50,000
Government Contract Acquisition	\$75,000
Taxes	
Air fare	\$25,000
Per diem	\$29,412
Contractor fee	\$300,000
Other (specify)	
Total	\$479,412

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