

Reference: NRC License SMB-707 Renewal Request, US Army Public Health Command

DEPARTMENT OF THE ARMY  
US Army Public Health Command  
Aberdeen Proving Ground, Maryland 21010-5403

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SNM-860	07000867
19-09880-01	03004550

Reference: Nuclear Regulatory Commission Source Material License Number SMB-707,  
Byproduct Material License 19-09880-~~10~~ and Special Nuclear Material License SNM-860

-01 *HW*

Decommissioning Funding Plan  
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NMSS/RGN1 MATERIALS-002

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1. Description of the facility buildings, rooms, and grounds, including the number and dimensions of areas (e.g. laboratories) that could require decontamination:

a. Radioactive Material Use.

(1) The U.S. Public Health Command (USAPHC) mission requires that we maintain the capacity to possess Army commodities containing radioactive material in quantities in excess of 100 mCi. Such commodities are returned to the manufacturer or disposed of as radioactive waste upon completion of analysis. On a day to day basis, USAPHC possesses only small quantities (less than 1.0 mCi) of low level unsealed radioactive material.

(2) USAPHC also possesses sealed sources in various amounts up to our possession limits that are leak tested as required by our NRC license conditions. No sealed source leak test that we have performed has exceeded our action level of 0.0005 microcuries, 10 percent of the value that requires reporting to the NRC in accordance with our NRC license conditions.

(3) As a result of the control and mitigation efforts performed by the Radiation Safety Staff at USAPHC, a large scale decontamination effort will not be required to comply with future decommissioning of USAPHC facilities presently authorized under our USNRC Licenses.

(4) Radiation surveys and mitigation required for the return of any previously controlled radiation areas to unrestricted use shall be performed under the supervision of the USAPHC Radiation Safety Staff. The cost of surveying and mitigation will be resident in the operating budget of the USAPHC or other sponsoring organizations.

(5) The cost estimate provided below will allow USAPHC to meet the release criteria of 10 CFR 20.1402.

b. Facilities.

(1) Building E-2100 radiation analysis laboratories are used for sample analysis and contain sealed and unsealed radiation sources and low level radioactive waste that is awaiting pick-up for disposal. There are approximately 17 laboratory spaces (including large rooms that are subdivided into smaller spaces). Total area of laboratory and storage areas is approximately 354 square meters.

(2) Building E-2100 and 2101 radioactive material storage areas are used to store sealed sources, low level radioactive waste that is awaiting pick-up for disposal, and unsealed calibration standards. There are 3 areas designated as storage areas. All laboratory and storage areas are considered to have similar levels of contamination (less than 200 dpm gross alpha-beta/100cm<sup>2</sup>), so all of these areas are consolidated in the tables below.

(3) A license amendment has been submitted to allow for the temporary storage of low-level radioactive waste governed by the USAPHC NRC Licenses in building B5111, Aberdeen Proving Ground North. However; the responsibility for radiation safety and decommissioning of building B5111, Aberdeen Proving Ground North falls under the purview of the US Army Aberdeen Test Center. Therefore building B5111, Aberdeen Proving Ground (APG) North is not included in this decommissioning funding plan.

(4) All other areas in USAPHC buildings are considered non-impacted areas.

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c. Waste Disposal

(1) A total of about one cubic meter of waste materials are generated every three years under USAPHC NRC licenses. Check sources are shipped and disposed of as radioactive waste as radionuclide's decay, or are replaced.

(2) Radioactive waste generated at USAPHC under our USNRC licenses is disposed of through the U.S Army Joint Munitions Command (JMC), Rock Island, Illinois. The Joint Munitions Command is responsible for all costs associated with disposal of low-level radioactive waste in Army facilities.

**Number and Dimensions of Facility Components (A.3.5)**

Name of room, laboratory, or area: Storage and use areas in USAPHC

Level of contamination: less than 200 dpm (gross alpha-beta/100 cm<sup>2</sup>)

<b>Component</b>	<b>Number of Components</b>	<b>Dimensions of Component (specify units)</b>	<b>Total Dimensions (specify units)</b>
Glove Boxes	0	0	0
Fume Hoods	7*	2.2 m <sup>2</sup>	15.4m <sup>2</sup>
Lab Benches	17*	Varied	94 m <sup>2</sup>
Sinks	10*	0.8m <sup>2</sup>	8 m <sup>2</sup>
Drains	2*	5 cm diameter	10 cm diameter
Floors	0*	0	0
Walls	0*	0	0
Ceilings	0*	0	0
Ventilation/Ductwork (2'x 4'x 2')	10	0.9 m <sup>3</sup>	9 m <sup>3</sup>
Hot Cells	0	0	0
Equipment/Materials	10*	N/A	N/A
Soil Plots	0	0	0
Storage Tanks	0	0	0
Storage Areas	2*	10 m <sup>2</sup> average	20 m <sup>2</sup>
Radwaste Areas	4*	5.6 m <sup>2</sup> average	22.4 m <sup>2</sup>
Scrap Recovery Areas	0	0	0
Maintenance Shop	0	0	0
Equipment Decontamination Areas	0	0	0
Other (specify)	N/A	N/A	N/A

\*Assumption: residual radioactivity concentration is expected to be minimal or non-existent as lab practice rules prohibit work to be performed without the use of plastic-backed paper or in some cases, spill trays. Contamination limits are set at 200 dpm (gross alpha-beta/100 cm<sup>2</sup>) for all daily and monthly use and storage area wipe surveys, so contamination is monitored and documented on a continuous basis.

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Planning and Preparation (A.3.6)

Activity	Labor Category RSO \$832/day	Labor Category HP \$704/day	Labor Category Clerical \$300/day	Labor Category HP Tech \$494/day
Preparation of Documentation for Regulatory Agencies	5	0	2	0
Submittal of Decommissioning Plan to NRC when required by 10CFR 40.42(g)(1)	5	5	3	0
Development of Work Plans	5	5	3	0
Procurement of Special Equipment	0	0	0	0
Staff Training	0	0	0	0
Characterization of Radiological Condition of the Facility (including soil and tailings analysis or groundwater analysis of applicable)	10	10	5	2
Other (specify)	0	0	0	0
<b>TOTALS</b>	<b>25</b>	<b>20</b>	<b>13</b>	<b>2</b>

1. Cost figure includes \$5,000 for travel and incidental expenses.
2. These items are for preparation and documentation for all USAPHC use and storage areas.
3. All labor rates are fully burdened.

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**Decontamination or Dismantling of Radioactive Facility Components (Work Days) (A.3.7)**

Name of room, laboratory or area: Storage and use areas in USAPHC

Level of contamination: less than 200dpm (gross alpha-beta/100 cm<sup>2</sup>)

Component	Decon Method	Labor Category RSO	Labor Category HP	Labor Category Clerical	Labor Category HP Tech
Glove Boxes	N/A	0	0	0	0
Fume Hoods*	Rad Wash	2	2	0	5
Lab Benches*	Rad Wash	1	1	0	5
Sinks*	Dismantle/ Rad Wash	1	1	0	2
Drains	Dismantle/ Rad Wash	0	0	0	1
Floors*	Rad Wash	1	1	0	2
Walls*	Rad Wash	1	1	0	2
Ceilings*	Rad Wash	1	1	0	2
Ventilation/Ductwork	Rad Wash	1	1	0	1
Hot Cells	N/A	0	0	0	0
Equipment/Materials*	Rad Wash	1	1	0	1
Soil Plots	N/A	0	0	0	0
Storage Tanks	N/A	0	0	0	0
Storage Areas*	Rad Wash	1	1	0	1
Radwaste Areas*	Rad Wash	1	1	0	1
Scrap Recovery Areas	N/A	0	0	0	0
Maintenance Shop	N/A	0	0	0	0
Equipment Decontamination Areas	N/A	0	0	0	0
Other (specify)	N/A	0	0	0	0
<b>TOTALS</b>		<b>11</b>	<b>11</b>	<b>0</b>	<b>23</b>

\*Assumption: contamination is expected to be minimal or non-existent as lab practice rules prohibit work to be performed without the use of plastic-backed paper or in some cases, spill trays. Contamination limits are also set at 200 dpm (gross alpha-beta/100 cm<sup>2</sup>) for all daily and monthly use and storage area wipe surveys, so contamination is monitored and documented on a continuous basis.

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**Restoration of Contaminated Areas on Facility Grounds (Work Days) (A.3.8)**

Activity	Labor Category RSO	Labor Category HP	Labor Category Clerical	Labor Category HP Tech
Backfill and Restore Site	0*	0	0	0
TOTALS	0	0	0	0

\* Not applicable to USAPHC facilities or grounds

**Final Radiation Survey (Work Days) (A.3.9)**

Activity	Labor Category RSO	Labor Category HP	Labor Category Clerical	Labor Category HP Tech
Final Wipe/Survey	1	1	0	2
2 <sup>nd</sup> Decon	1	1	0	4
Report Review	5	3	2	1
TOTALS	7	5	2	7

**Site Stabilization and Long-Term Surveillance (Work Days) (A.3.10)**

Activity	Labor Category RSO	Labor Category HP	Labor Category Clerical	Labor Category HP Tech
Site Stabilization	0*	0	0	0
Long-Term Surveillance	0	0	0	0
TOTALS	0	0	0	0

\* Not applicable to USAPHC facilities or grounds

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**Total Work Days by Labor Category (A.3.11)**

<b>Task</b>	<b>Labor Category RSO</b>	<b>Labor Category HP</b>	<b>Labor Category Clerical</b>	<b>Labor Category HP Tech</b>
Planning and Preparation (TOTALS from Table A.3.6)	25	20	13	2
Decontamination and/or Dismantling of Radioactive Facility Components (Sum of TOTALS from all copies of Table A.3.7)	11	11	0	23
Restoration of Contaminated Areas on Facility Grounds (TOTALS from Table A.3.8)	0	0	0	0
Final Radiation Survey (TOTALS from Table 3.9)	7	5	2	7
Site Stabilization and Long-Term Surveillance (TOTALS from Table 3.10)	0	0	0	0

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**Cost Estimate Tables Unit Cost for Workers (A.3.12)**

Position	Basic Salaries (\$/yr)	Overhead Rate (%)	Worker Cost/Year	Worker Cost/Day
Radiation Safety Officer (GS-14 equivalent))	129,313	67.3	\$216,340	\$832
Health Physicist (GS-13 equivalent)	109,428	67.3	\$183,073	\$704
Clerical (GS-6 equivalent)	46,696	67.3	\$78,122	\$300
Health Physics Technician (GS-11 equivalent)	76,773	67.3	\$128,441	\$494

\*Based on 260 work days per year

**Total Labor Costs by Major Decommissioning Task (A.3.13)**

Task	Labor Category RSO (\$832/day)	Labor Category HP (\$704/day)	Labor Category Clerical (\$300/day)	Labor Category HP Tech (\$494/day)	Total
Planning and Preparation	\$20,800	\$14,080	\$3900	\$5,988**	\$44,768.00
Decontamination and/or Dismantling of Radioactive Facility Components	\$9,152	\$7,744	\$0	\$11,362	\$28,258.00
Restoration of Contaminated Areas on Facility Grounds	\$0	\$0	\$0	\$0	\$0
Final Radiation Survey	\$5,824	\$3,520	\$600	\$3,458	\$13,402.00
Site Stabilization and Long-Term Surveillance	\$0	\$0	\$0	\$0	\$0

\*\*Cost figure includes \$5,000 for travel and incidental expenses



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**Packaging, Shipping, and Disposal of Radioactive Wastes (Excluding Labor Costs)  
(A.3.14)**

**(a) Packing Material Costs\***

Waste Type	Volume (m <sup>3</sup> )	Number of Containers	Type of Container	Unit Cost of Container	Total Packaging Costs
LL Solid	1.5	4	Lined Drum	\$125	\$500
TOTAL	1.5	4	Lined Drums	\$125/drum	\$500

\* services are brokered through the Army's executive agency for radioactive waste such that packaging, transport and disposal are charged together so costs are provided here for informational purposes only.

**(b) Shipping costs\***

Waste Type	Number of Truckloads	Unit Cost (\$/mile/truckload)	Surcharges	Overweight Charges	Distance Shipped (miles)	Total Shipment Costs
LL Solid	1	\$25 per mile for each mile over 200 traveled	\$1,800 per drum	N/A	1,200	\$32,200
TOTAL	1	1,000 miles traveled	4 drums = \$7,200	N/A		\$32,200

\*services are brokered through the Army's executive agency for radioactive waste such that packaging, transport and disposal are charged together so costs are provided here for informational purposes only.

**(c) Waste Disposal Costs\***

Waste Type	Disposal Volume (m <sup>3</sup> )	Unit Cost (\$/m <sup>3</sup> )	Surcharges	Total Disposal Costs
LL Solid	6.0	\$9,000	*	\$54,000
Total	6.0	\$9,000	*	\$54,000

\* services are brokered through the Army's executive agency for radioactive waste such that packaging, transport and disposal are charged together so costs are provided here for informational purposes only.

**Equipment Costs (Excluding Containers) (A.3.15)**

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Equipment/Supplies	Quantity	Unit Cost	Total Equipment/Supply Cost
Wipes	2 Boxes	\$70/box of 500 wipes	\$140
Radwash	30 gallons	\$20/gallon	\$600
TOTAL			\$740.00

**Laboratory Costs (A.3.16)**

Activity	Total Cost
Sampling	\$2,000
Transport of samples	\$300
Testing and analysis	\$10,000
Other(specify) - Supplies	\$5,000
TOTAL	\$17,300.00

**Miscellaneous Costs (A3.17)**

Cost Item	Total Cost
License Fees	\$0
Insurance	\$0
Other (specify)	\$0
TOTAL	\$0

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**Total Decommissioning Costs (A.3.18)**

<b>Task/Component</b>	<b>Cost</b>	<b>Percentage</b>
Planning & Prep (from Table A.3.13)	\$44,768	23.4%
Decontamination and/or Dismantling (from Table A.3.13)	\$28,258	14.8%
Restoration of Cont Areas (from Table A.3.13)	\$0	0%
Final Radiation Survey (from Table A.3.13)	\$13,402	7.0%
Site Stab & Long Term Surveillance (from Table A.3.13)	\$0	0%
Packing Material Costs (from Table A.3.14a)	\$500	0.3%
Shipping Costs (from Table A.3.14b)	\$32,200	16.8%
Waste Disposal Costs (from Table A.3.14c)	\$54,000	28.2%
Equipment/Supply Costs (from Table A.3.15)	\$740	0.4%
Laboratory Costs (from Table A.3.16)	\$17,300	9.0%
Miscellaneous Costs (from Table A.3.17)	\$0	0%
SUBTOTAL	\$191,168.00	100%
25% Contingency	\$47,792	
TOTAL DECOMMISSIONING COST ESTIMATE	\$238,960	