



ARMED FORCES RADIOBIOLOGY RESEARCH INSTITUTE  
8901 WISCONSIN AVENUE  
BETHESDA, MD 20889-5603



19 Jun 2014

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U.S. Nuclear Regulatory Commission  
Region I  
2100 Renaissance Blvd., Suite 100  
King of Prussia, PA 19406-2713

Decommissioning Plan for NRC License Nr. 19-08330-02

The Armed Forces Radiobiology Research Institute submitted a cost estimate for the decommissioning of license 19-08330-02 on December 26, 2013. This letter is to correct the cost estimate based on recommendations communicated by email to AFRRRI by Mr. Dennis Lawyer.

1. The Decommissioning Funding Plan (DFP) estimate as of June 19, 2014 is \$97,325. The details of this estimate are attached.
2. This estimate is smaller than the estimates presented to the NRC in 2006 and 2010. One reason is many of our facilities have been decommissioned. A decade ago, AFRRRI had more than 50 posted radiation labs – AFRRRI now has 11 posted radiation labs. We have also undertaken (in 2013 and up to the present time) a facility-wide characterization of the plumbing system (sinks, floor drains, and piping) of our warm waste system, which includes determination of contamination levels, if any, within said system. AFRRRI has purchased and upgraded radiation detection equipment recently, so there is less of a need to purchase equipment in the event of decommissioning. Also, AFRRRI only currently has two researchers who are using unsealed radioactive materials, which is significantly reduced from past decades.

Should you require further information, please contact Major Brian Livingston at 301-295-2723 or [brian.livingston@usuhs.edu](mailto:brian.livingston@usuhs.edu).

L. Andrew Huff  
Colonel, USAF, MC, SFS  
Director, AFRRRI

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Attachment: US NRC License Decommissioning Plan Cost Estimate

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# U.S NRC License Decommissioning Plan Cost Estimate

Armed Forces Radiobiology Research Institute

June 18, 2014

License No. 19-08330-02, Type A Broad Scope

## Annual Salaries (to include fringe benefits)

Project Manager \$130,000

Health Physicist \$120,000

Health Physics Tech \$50,000

## 1. Planning and preparation of the facility and site for decommissioning.

### a. Preparation/documentation

|                    | Time (days) | Cost    |
|--------------------|-------------|---------|
| Project Manager    | 2           | \$1,040 |
| Health Physicist   | 2           | \$960   |
| Radiation Tech (1) | 0           | \$0     |
| Radiation Tech (2) | 0           | \$0     |

### b. Submittal of decommissioning plan to NRC

|                    | Time (days) | Cost  |
|--------------------|-------------|-------|
| Project Manager    | 1           | \$520 |
| Health Physicist   | 1           | \$480 |
| Radiation Tech (1) | 0           | \$0   |
| Radiation Tech (2) | 0           | \$0   |

### c. Development of work plans

|                    | Time (days) | Cost  |
|--------------------|-------------|-------|
| Project Manager    | 1           | \$520 |
| Health Physicist   | 1           | \$480 |
| Radiation Tech (1) | 0           | \$0   |
| Radiation Tech (2) | 0           | \$0   |

### d. Procurement of special equipment

|      |     |
|------|-----|
| Cost | \$0 |
|------|-----|

### e. Staff training

| Time (days) | Cost |
|-------------|------|
|-------------|------|

**NONNEGOTIABLE**

|                    |   |         |
|--------------------|---|---------|
| Project Manager    | 0 | \$0     |
| Health Physicist   | 5 | \$2,400 |
| Radiation Tech (1) | 5 | \$1,000 |
| Radiation Tech (2) | 5 | \$1,000 |

f. Characterization of radiological conditions

|                    | Time (days) | Cost  |
|--------------------|-------------|-------|
| Project Manager    | 0           | \$0   |
| Health Physicist   | 2           | \$960 |
| Radiation Tech (1) | 4           | \$800 |
| Radiation Tech (2) | 4           | \$800 |

g. Write/review reports

|                    | Time (days) | Cost    |
|--------------------|-------------|---------|
| Project Manager    | 0           | \$0     |
| Health Physicist   | 3           | \$1,440 |
| Radiation Tech (1) | 1           | \$200   |
| Radiation Tech (2) | 1           | \$200   |

h. Other tasks

|                    | Time (days) | Cost  |
|--------------------|-------------|-------|
| Project Manager    | 1           | \$520 |
| Health Physicist   | 1           | \$480 |
| Radiation Tech (1) | 1           | \$200 |
| Radiation Tech (2) | 1           | \$200 |

|            |  |          |
|------------|--|----------|
| Total cost |  | \$14,200 |
|------------|--|----------|

2. Decontamination/disposal of radioactive facility components

a. Decon/dismantle laboratories

|                    | Time (days) | Cost    |
|--------------------|-------------|---------|
| Project Manager    | 0           | \$0     |
| Health Physicist   | 0           | \$0     |
| Radiation Tech (1) | 11          | \$2,200 |
| Radiation Tech (2) | 11          | \$2,200 |

b. Decon/dismantle radiation waste facility

|                  | Time (days) | Cost  |
|------------------|-------------|-------|
| Project Manager  | 0           | \$0   |
| Health Physicist | 1           | \$480 |

**NONNEGOTIABLE**

|                    |   |       |
|--------------------|---|-------|
| Radiation Tech (1) | 1 | \$200 |
| Radiation Tech (2) | 1 | \$200 |

c. Monitor for compliance, reclean, remonitor

|                    | Time (days) | Cost  |
|--------------------|-------------|-------|
| Project Manager    | 0           | \$0   |
| Health Physicist   | 2           | \$960 |
| Radiation Tech (1) | 2           | \$400 |
| Radiation Tech (2) | 2           | \$400 |

d. Decon radioactive waste tanks

|                    | Time (days) | Cost    |
|--------------------|-------------|---------|
| Project Manager    | 0           | \$0     |
| Health Physicist   | 1           | \$480   |
| Radiation Tech (1) | 1           | \$200   |
| Radiation Tech (2) | 1           | \$200   |
| Total cost         |             | \$7,920 |

3. Supplies

|                 | Quantity | Cost  |
|-----------------|----------|-------|
| Decon Solutions | 20       | \$400 |
| Decon Supplies  |          | \$100 |
| 55 Gallon Drums | 3        | \$240 |
| Total Cost      |          | \$740 |

4. Packaging, shipping, and disposal of radioactive waste

Burial fee & transport \$16,000 per drum

|                        | Quantity | Cost     |
|------------------------|----------|----------|
| Burial fee & transport | 3        | \$48,000 |

5. Restoration of contaminated areas on facility grounds

Not applicable - we do not anticipate this for our byproduct license

6. Final radiation survey

|  | Time (days) | Cost |
|--|-------------|------|
|--|-------------|------|

**NONNEGOTIABLE**

|                    |   |         |
|--------------------|---|---------|
| Project Manager    | 5 | \$2,600 |
| Health Physicist   | 5 | \$2,400 |
| Radiation Tech (1) | 5 | \$1,000 |
| Radiation Tech (2) | 5 | \$1,000 |

|            |  |         |
|------------|--|---------|
| Total cost |  | \$7,000 |
|------------|--|---------|

|                           |  |          |
|---------------------------|--|----------|
| Total cost (all sections) |  | \$77,860 |
|---------------------------|--|----------|

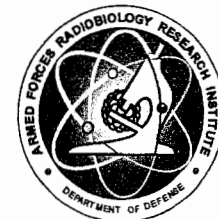
|                   |  |          |
|-------------------|--|----------|
| Contingency (25%) |  | \$19,465 |
|-------------------|--|----------|

|       |  |          |
|-------|--|----------|
| TOTAL |  | \$97,325 |
|-------|--|----------|

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Financial Assurance Requirement for NRC License Nr. 19-08330-02

**STATEMENT OF INTENT**

As Director of the Armed Forces Radiobiology Research Institute (AFRRI), I exercise express authority and responsibility to request from the Uniformed Services University of the Health Sciences (USUHS) funds for decommissioning activities associated with operations authorized by U.S. Nuclear Regulatory Commission Material License Nr. 19-08330-02. This authority is established by Department of Defense Instruction 5105.33, "Armed Forces Radiobiology Research Institute (AFRRI)," dated March 29, 2006. The AFRRI is an organizational element of USUHS. Within this authority, I intend to request that funds be made available, when necessary, in the amount of \$97,325 to decommission licensed facilities located at 8901 Wisconsin Avenue, Building 42, Bethesda, Maryland, 20889-5603. I intend to request and obtain the funds noted herein sufficiently in advance to prevent delay of all required decommissioning activities.

A copy of Department of Defense Instruction 5105.33, "Armed Forces Radiobiology Research Institute (AFRRI)" is attached as evidence that I am authorized to represent the AFRRI in this transaction.

L. Andrew Huff  
Colonel, USAF, MC, SFS  
Director, AFRRI

Attachment: DoDI 5105.33

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# Department of Defense

## INSTRUCTION

NUMBER 5105.33  
March 29, 2006

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USD(P&R)

SUBJECT: Armed Forces Radiobiology Research Institute (AFRRI)

- References:
- (a) DoD Directive 5105.33, "Armed Forces Radiobiology Research Institute," November 25, 1987 (hereby canceled)
  - (b) Deputy Secretary of Defense Memorandum, "DoD Directives Review – Phase II," July 13, 2005
  - (c) DoD Directive 5105.45, "Uniformed Services University of the Health Sciences (USUHS)," March 9, 2000
  - (d) DoD Directive 5136.1, "Assistant Secretary of Defense for Health Affairs (ASD(HA))," May 27, 1994
  - (e) DoD Directive 5105.18, "DoD Committee Management Program," February 8, 1999
  - (f) DoD Directive 8910.1, "Management and Control of Information Requirements," June 11, 1993

### 1. REISSUANCE AND PURPOSE

This Instruction:

1.1. Reissues Reference (a) as a DoD Instruction according to the guidance in Reference (b) to update and clarify the responsibilities and functions of the Armed Forces Radiobiology Research Institute (AFRRI).

1.2. Sets forth the organizational relationships and establishes the management and administrative procedures for the AFRRI, and provides for the establishment of a Board of Governors (BoG).

## 2. APPLICABILITY

This Instruction applies to the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities in the Department of Defense (hereafter referred to collectively as the "DoD Components").

## 3. MISSION

The mission of the AFRRI shall be to conduct research in the field of radiobiology and related matters essential to the operational and medical support of the Department of Defense and the Military Services. The AFRRI may provide services and perform cooperative research with other Federal and civilian agencies and institutions with the approval of the Assistant Secretary of Defense for Health Affairs (ASD(HA)).

## 4. ORGANIZATION AND MANAGEMENT

The AFRRI, according to DoD Directive 5105.45, "Uniformed Services University of the Health Sciences (USUHS)," and DoD Directive 5136.1, "Assistant Secretary of Defense for Health Affairs (ASD(HA))" (References (c) and (d)), is established as a joint entity of the Military Departments, subject to the authority, direction, and control of the President of USUHS, under the ASD(HA) and the Under Secretary of Defense for Personnel and Readiness (USD(P&R)). The ASD(HA) shall appoint:

4.1. A BoG, consistent with DoD Directive 5105.18, "DoD Committee Management Program" (Reference (e)), to advise the ASD(HA) on programs and policies and facilitate broad DoD participation in supporting accomplishment of the AFRRI mission. At a minimum, the BoG shall meet annually. The BoG membership shall consist of:

4.1.1. The Principal Deputy ASD(HA), who shall be the Chairman;

4.1.2. The Surgeons General of the Army, Navy, and Air Force;

4.1.3. The Deputy Chiefs of Staff for Operations of the Army, Navy, and Air Force;

4.1.4. The Joint Staff Surgeon;

4.1.5. The President of USUHS;

4.1.6. A representative of the Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs;

4.1.7. The Director of AFRRI, who shall serve as Executive Secretary;



4.1.8. Any additional representatives of DoD Components or other Federal agencies as the ASD(HA) determines appropriate in achieving the purpose of the BoG.

4.2. A Director of AFRRI who shall be a military officer (in grade O-6), and who holds an earned academic doctoral degree in one of the life sciences. The candidates for Director position shall be nominated by the Surgeons General of the Army, the Navy, and the Air Force. Each Service shall nominate one individual with the proper professional qualifications and demonstrated management ability. The BoG shall review the Service nominees and provide a prioritized list of candidates to the ASD(HA). This appointment shall be for a 4-year term.

## 5. RESPONSIBILITIES AND FUNCTIONS

### 5.1. The AFRRI shall:

5.1.1. Operate research facilities for the study of radiobiology and ionizing radiation bioeffects and for the development of medical countermeasures against ionizing radiation, and the results shall be disseminated.

5.1.1.1. The scope of this research shall reflect requirements identified by the DoD Components for support of military operational planning and employment (current and future), and shall put special emphasis on individual and organizational performances under nuclear and radiological combat conditions in realistic operational and force protection scenarios.

5.1.1.2. The AFRRI program shall consider present and projected threats, Service and joint operational concepts and weapons, and defense systems developments.

5.1.2. Provide analysis, study, and consultation on the impact of the biological effects of ionizing radiation on the organizational efficiency of the Military Services and their members.

5.1.3. Conduct cooperative research with the Military Medical Departments in those aspects of military operational and medical support considerations related to nuclear weapons effects and the radiobiological hazards of space operations.

5.1.4. Conduct advanced training in the field of radiobiology and the biological effects of nuclear and radiological weapons to meet the internal requirements of the AFRRI, the Military Services, and other DoD Components and organizations.

5.1.5. Participate in cooperative research and other enterprises, consistent with the AFRRI mission and applicable authorities, with other Federal agencies involved in homeland security and emergency medical preparedness.

5.1.6. Perform such other functions as may be assigned by the ASD(HA).

5.2. The President of USUHS, consistent with Reference (c), shall:

5.2.1. Exercise authority, direction, and control over the AFRRI.

5.2.2. Ensure that the Director of AFRRI executes those responsibilities and functions pertaining to the day-to-day operations of the AFRRI.

5.3. The ASD(HA), under the USD(P&R), shall:

5.3.1. Exercise authority, direction, and control over the programs, funding, and associated resources in the Department of Defense as they relate to the AFRRI according to Reference (d).

5.3.2. Develop policies and issue policy guidance to ensure the effective administration and efficient operation of the AFRRI. This includes, but is not limited to, the development of DoD Directives, the issuance of DoD Instructions, and OSD-level participation in the Planning, Programming, Budgeting, and Execution process.

5.3.3. Ensure that the advice of the BoG is considered in operational and programmatic direction of the AFRRI.

5.4. The Secretaries of the Military Departments shall provide authorized resources to support the activities of the AFRRI.

## 6. RELATIONSHIPS

6.1. The Director of AFRRI shall:

6.1.1. Ensure that the DoD Components are kept fully informed of AFRRI activities with which they have collateral or related functions.

6.1.2. Use established facilities and services of the Department of Defense and other Federal Agencies, whenever practicable, to avoid duplication and to achieve an appropriate balance of modernization, efficiency, and economy of operations.

6.1.3. Maintain appropriate liaison, consultation, and coordination with other Governmental and non-Governmental Agencies, as required, to exchange information and advice on programs in the fields of assigned responsibility.

6.2. The Heads of the DoD Components shall coordinate with the Director of AFRRI, as appropriate, on matters relating to AFRRI operations, functions, and responsibilities.

## 7. AUTHORITIES

The Director of AFRRI is specifically delegated authority to:

7.1. Obtain information, advice, and assistance necessary to carry out AFRRI programs and activities from other DoD Components, which is consistent with the policies and criteria of DoD Directive 8910.1 (Reference (f)).

7.2. Communicate directly with appropriate representatives of the DoD Components, other Executive Departments and Agencies, and members of the public, as appropriate, on matters related to AFRRI programs and activities. Communications to the Commanders of the Combatant Commands shall be relayed through the Chairman of the Joint Chiefs of Staff.

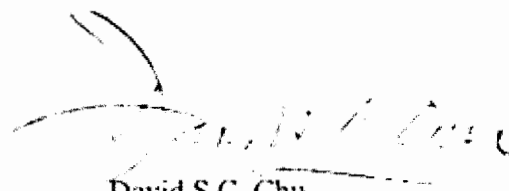
## 8. ADMINISTRATION

8.1. Funding for the AFRRI shall be the responsibility of the ASD(HA) and shall be programmed and budgeted within the Defense Health Program (DHP), Operation and Maintenance, and Research, Development, Testing and Evaluation appropriations.

8.2. The Military Departments shall be responsible for providing authorized military manpower to the AFRRI. AFRRI military manpower should be DHP-resourced in the Program Objective Memorandum with Military Personnel appropriation resources transferring from the DHP to the Military Departments in the Budget Estimate Submission/President's Budget submissions.

## 9. EFFECTIVE DATE

This Instruction is effective immediately.



David S. C. Chu  
Under Secretary of Defense for  
Personnel and Readiness