DEC 09 1993

License Nos. 29-00047-02
29-00047-06
SUB-348

Docket Nos. 030-05215
030-05216
040-06377

Control Nos. 112495
112497
112499

Department of the Army
Commander
U.S. Army Materiel Command
ATTN: AMCSF-P
5001 Eisenhower Avenue
Alexandria, Virginia 22333-0001

Gentlemen:

Subject: Financial Assurance for Decommissioning

This refers to your various submittals regarding financial assurance for decommissioning dated April 30, 1990, April 11, 1991, and May 13, 1992. We have reviewed your cost estimates and Statement of Intent and have no further questions at this time. Based on the information provided in these documents, you are presently in compliance with the financial assurance requirements in the decommissioning rule outlined in 10 CFR 30.35

Please note that you must adjust your decommissioning funding plan for each license and submit the modified cost estimate along with each application for license renewal.

If you have any questions, please contact Anthony Dimitriadis, of my staff, at (215) 337-6953.

OFFICIAL RECORD COPY - S:\PENDING\DEPTARM.FA - December 9, 1993

260201

Your cooperation with us is appreciated.

Sincerely,

Original Signed By:
Mohamed M. Shanbaky

Mohamed M. Shanbaky, Chief
Research and Development Section
Division of Radiation Safety
and Safeguards

cc:
Department of the Army
U.S. Army Armament Research
Development and Engineering Center
ATTN: Michael F. Clune, Acting Chief
Safety, Surety & Environmental Office
Picatinny Arsenal, New Jersey 07806-5000

bcc:
M. Shanbaky, RI
A. Dimitriadis, RI

DRSS:RI	DRSS:RI
Dimitriadis	Shanbaky
12/8/93	12/8/93

MS-16
L-3

DEPARTMENT OF THE ARMY
U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

May 13, 1992

REPLY TO
ATTENTION OF
Installation Safety Division
Health Physics Branch

U.S. Nuclear Regulatory Commission-Region I
Attention: Mr. Eric H. Reber
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Dear Mr. Reber,

This is in response to your enclosed letter to this Center, dated February 10, 1992. Refer to Mail Control Numbers 112499, 112496, and 112498. In your letter, you made four requests/recommendations. These are addressed below individually.

a. In response to paragraph 1, this Center has re-written the Statement of Intent, enclosed, to include a specific dollar amount. It lists the figure of $475,000 to cover the decommissioning costs for NRC licenses 29-00047-02 ($55,000), 29-00047-08 ($75,000), and SUB-348 ($345,000).

b. In response to paragraph 2, this Center has removed references to, and costs associated with licenses 29-00047-06 and 29-00047-09 from the Statement of Intent. This Center also removed references to, and costs associated with license SNM-561, since it only authorizes possession of sealed material in quantities less than those listed in the sealed source column of Regulatory Guide 3.66, appendix G.

c. In response to paragraph 3, this Center has elected to provide a Decommissioning Funding Plan, also enclosed, for license 29-00047-02.

d. In response to paragraph 4, this Center discussed this issue with Mr. Reber during telephone conversations on May 4 and 5, 1992, and mutually agreed that it would not be necessary to enclose a copy of the Decommissioning Funding Plan for license SUB-348, since it was already submitted to NRC-Region I in a letter dated March 22, 1991.

If you have any further questions, you may contact Mr. Richard Fliszar, ARDEC Radiation Protection Officer (RPO), or Mr. Richard Moss, Alternate RPO, at (201)724-3126/3742.

Sincerely,

Michael F. Clune
Acting Chief, Safety, Surety,
& Environmental Office

Enclosures

Copies Furnished:
AMCSF-P (Mr. John Manfre)
AMSMC-SFS (Ms. Kathy LaFrenz)

112499
MAY 20 1992

OFFICIAL RECORD COPY ML 10

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

FEB 10 1992

License Nos. 29-00047-02, 08
SUB-348

Docket Nos. 030-05215, 030-12535
040-06377

Control Nos. 112495, 112497
112499

Department of the Army
Commander
U.S. Material Command
ATTN: AMSCF-P
5001 Eisenhower Avenue
Alexandra, Virgina 22333-0001

Gentlemen:

This is in reference to your financial assurance submittal dated April 11, 1991 for Picatinny Arsenal, New Jersey. In order to continue our review, we need the following additional information:

1. Please amend your Statement of Intent to reference a specific dollar amount.

2. When you amend your Statement of Intent, it would be less confusing if you did not reference License Nos. 29-00047-06 and 29-00047-09. 10 CFR 30.35 does not require you to provide financial assurance for these licenses.

3. If you would like to provide only $75,000 in financial assurance for License No. 29-00047-02, you will need to amend that license so that it only authorizes the possession and use of sealed sources.

4. Please provide the details of the decommissioning cost estimate that you made for License No. SUB-348. Your decommissioning cost estimate should contain a level of detail similiar to that contained in Regulatory Guide 3.66, Appendix F (enclosed).

We will continue our review upon receipt of this information. Please reply in duplicate to my attention at the Region I office and refer to Mail Control Nos. 112499, 112496, and 112498. The reviewer for this licensing action is Eric H. Reber. If you have questions regarding this action please call the reviewer at (215) 337-5276.

Sincerely,

John D. Kinneman, Chief
Research, Development &
Decommissioning Section B
Division of Radiation Safety
and Safeguards

Enclosure: Regulatory Guide 3.66

bcc:
Reber, E., RI
Kinneman, J., RI

DEPARTMENT OF THE ARMY
U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

REPLY TO
ATTENTION OF

15 MAY 1992

STATEMENT OF INTENT

The U.S. Army Armament Research, Development and Engineering Center (ARDEC) located at Picatinny Arsenal, New Jersey is licensee under NRC license numbers 29-00047-02, 29-00047-08 and SUB-348.

ARDEC, as licensee under the foregoing NRC licenses, is responsible for providing financial assurance on decommissioning costs which would be required if ARDEC were to discontinue any or all operations involving these NRC licensed activities.

The Commanding Officer of ARDEC, signatory on the foregoing NRC licenses, will assure that whatever funds required will be programmed through budgetary procedures in the amounts prescribed in 10 CFR parts 30, 40, and 70, or in appropriate funding plans, for such decommissioning. The Commander is responsible under Army Regulation 210.10 for all activities assigned to or under the jurisdiction of the installation and for ensuring that requisitions and estimates for allotment of funds are properly prepared and submitted.

The funds needed for decommissioning, currently estimated to be $475,000, will be requested sufficiently in advance of decommissioning activities in order to prevent delay of those activities.

This is an originally signed duplicate.

WILLIAM R. HOLMES
Brigadier General, USA
Commanding

DEPARTMENT OF THE ARMY
U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

REPLY TO
ATTENTION OF

15 MAY 1992

STATEMENT OF INTENT

The U.S. Army Armament Research, Development and Engineering Center (ARDEC) located at Picatinny Arsenal, New Jersey is licensee under NRC license numbers 29-00047-02, 29-00047-08 and SUB-348.

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The Commanding Officer of ARDEC, signatory on the foregoing NRC licenses, will assure that whatever funds required will be programmed through budgetary procedures in the amounts prescribed in 10 CFR parts 30, 40, and 70, or in appropriate funding plans, for such decommissioning. The Commander is responsible under Army Regulation 210.10 for all activities assigned to or under the jurisdiction of the installation and for ensuring that requisitions and estimates for allotment of funds are properly prepared and submitted.

The funds needed for decommissioning, currently estimated to be $475,000, will be requested sufficiently in advance of decommissioning activities in order to prevent delay of those activities.

This is an originally signed duplicate.

WILLIAM R. HOLMES
Brigadier General, USA
Commanding

Decommissioning Funding Plan for License 29-00047-02 (March 9, 1992)

1. The basis for this Decommissioning Funding Plan is the cost associated with disposal of the current inventory, and the costs required to clean up current contamination of ARDEC resulting from activities under license 29-00047-02. All statements made in this Decommissioning Funding Plan apply only to this license, and only for conditions and operations as they presently exist. Since this is a research and development facility, circumstances could change with time.

2. The current estimated cost of decommissioning for license 29-00047-02 is $55,000. This is a conservative plan based on a worst-case analysis of the current contamination status. Much less effort will probably be necessary since the levels of contamination of the facilities listed below are below the release limits listed in Regulatory Guide 1.86. A general description of the plan is described in the paragraphs which follow. The detailed costs are itemized in the cost estimating tables, attached.

3. The inventory consists of less than two thousand curies of tritium in sealed light sources, along with a much smaller quantity of other isotopes mostly in sealed source form. ARDEC currently has very little unsealed material on hand, all of which is actually enclosed in sealed containers such as glass vials, lecture bottles, or tightly closed containers. This Decommissioning Funding Plan assumes that the inventory will be transferred to an approved low level radioactive material disposal site.

4. The limited contamination consists entirely of tritium which has leaked from activities involving tritium light source research over the years. The following buildings have some level of tritium contamination, which, as can be seen below, is minor in nature.

a. Building 3018: This is an old earth-covered explosives storage magazine which was used to store radioactive materials in the past. At one time, a leaking tritium vial was stored there awaiting disposal. Some of the tritium was absorbed into the floor resulting in removable contamination levels of about 200 dpm/100 cm^2. Even though these levels are relatively low, this Decommissioning Funding Plan assumes that to decommission the facility, it will be necessary to sandblast the entire interior wall and ceiling surface, and cut up and remove the concrete floor for disposal in an approved radioactive waste disposal site. The disposal site is assumed to be the Envirocare Facility in Utah, which is the most reasonable location to dispose of contaminated building material.

b. Building 3021: This facility contains a laboratory fume hood which has been used for temporary storage of several leaking tritium light sources. The interior has locations with removable contamination of approximately several thousand dpm/100cm^2. This hood is scheduled to be disposed of in the next few months, and funding has already been set aside for this effort. However, this Decommissioning Funding Plan still includes the costs associated with disposal of the hood and its associated ductwork. Building 3021 also contains a vault which has been used as a radioactive material storage area. The vault previously contained a neutron generator which at one time leaked a small quantity of tritiated water on the floor. Since initial cleanup, there is still removable tritium contamination levels of several hundred dpm/100cm^2 in severa locations on the floor. This Decommissioning Funding Plan assumes that the storage area floor tile would be removed and transported to Envirocare for disposal.

5. The following cost estimates are submitted in accordance with Regulatory Guide 3.66. This Center had generally followed the format found in appendix F except that:

a. More worker categories were included to cover contractor consultants, since it is likely that they will do a significant amount of the work. Some categories were changed (i.e., Supervisor to RPO), and the laborers category was eliminated since there is no plan to use them.

b. For convenience and clarity, a new column, "Worker Cost Per Day", was added to Table 2.

c. Work days and costs were summed at the bottom of Tables 1, 3, and 9, instead of on the right side.

6. This Decommissioning Funding Plan will be incorporated into the license upon the next license renewal, and will be reviewed and modified each time the license is submitted for renewal.

COST ESTIMATING TABLES

1. PLANNING AND ORGANIZATION

TABLE 1

(WORK DAYS)

TASK	RPO	SEN H.P.	H.P.TECH	CLERICAL	FOREMAN	CRAFTSMEN	CONT PROJ MGR	SEN TECH	
1. PREPARATION OF DOCUMENTATION FOR REGULATORY AGENCIES	1	5	-	-	-	-	-	-	-
2. SUBMITTAL OF DECOMMISSIONING PLAN TO NRC	1	5	-	1	-	-	-	-	-
3. DEVELOPMENT OF WORK PLANS	-	-	-	-	1	-	2	-	-
4. PROCURING OF SPECIAL EQUIPMENT	-	-	-	-	1	-	-	1	-
5. STAFF TRAINING	2	1	1	1	1	1	2	1	1
6. CHARACTERIZATION OF RADIOLOGICAL CONDITION OF FACILITY	.5	6	-	-	-	-	1	-	-
SUBTOTALS	4.5	15	1	2	3	1	5	2	1
TOTAL COST	$1332	$1230	$227	$206	$681	$192	$2000	$672	$280

TABLE 2

UNIT COST FOR WORKERS

POSITION	BASIC SALARIES ($/YEAR)	OVERHEAD RATE (%)	WORKER COST PER YEAR	WORKER COST/DAY
RPO	55,000	40%	77,000	296
SENIOR HP	46,000	40%	64,000	246
HP TECH	42,000	40%	59,000	227
FOREMAN	42,000	40%	59,000	227
CRAFTSMAN	36,000	40%	50,000	192
CLERICAL	19,000	40%	27,000	103
CONTRACTOR PROJ MGR	NA	NA	NA	400
CONTRACTOR SENIOR TECH	NA	NA	NA	336
CONTRACTOR TECH	NA	NA	NA	280

2. DECONTAMINATION AND/OR DISMANTLING OF RADIOACTIVE FACILITY COMPONENTS

	NUMBER	DIMENSIONS	RELEASE/DISPOSAL		NUMBER	DIMENSIONS	REL/DISP
GLOVE BOXES	-	-	-	FLOOR SPACE (3018)	1	14 M^2	DISP
FUME HOODS	1	3 m^3	DISP	FLOOR SPACE (3021)	1	28 M^2	DISP
HOT CELLS	-	-	-	VENTILATION DUCT (3021)	1	10 M	-
LAB BENCHES	-	-	-	WALL SPACE	-	-	-
SINK AND DRAIN	-	-	-				

TABLE 3

(WORKDAYS)

TASK	RPO	SEN H.P.	H.P.TECH	CLERICAL	FOREMAN	CRAFTSMEN	CONT PROJ MGR	SEN TECH	
1. DECON/DISMANTLE MAJOR COMPONENTS AND/OR PROCESSING AND STORAGE TANKS	-	-	-	-	-	-	-	-	-
2. DECON/DISMANTLE LABORATORIES FUME HOODS	1	1	-	-	-	-	1	-	-
3. DECON/DISMANTLE WASTE AREAS	-	-	-	-	-	-	-	-	-
4. DECON.DISMANTLE SERVICE FACILITIES	1	2	-	-	1	2	3	3	3
5. DECON/DISMANTLE WASTE TREATMENT FACILITIES ON THE SITE	-	-	-	-	-	-	-	-	-
6. MONITOR FOR COMPLIANCE RECLEAN AND REMONITOR IF NECESSARY	.5	2	-	-	-	-	-	-	-
TOTALS	2.5	9	-	-	1	2	4	3	3
TOTAL COSTS	$740	$2214	-	-	$227	$384	$1600	$1008	$840

TABLE 4

EQUIPMENT/SUPPLY	QUANTITY	COST	
CRANE (TO LOAD B25 CONTAINERS ON TRUCK)	1 DAY	$ 0.00	(COVERED BY OVERHEAD)
FRONT END LOADER (TO REMOVE CONCRETE FROM 3018)	1 DAY	$ 0.00	(COVERED BY OVERHEAD)
INDUSTRIAL SANDBLASTER, COMPRESSOR AND SAND	1 DAY	$ 400.00	
CONCRETE CUTTER AND BLADE RENTAL PURCHASE	2 DAYS	$ 400.00	
FEE FOR CONTRACTOR OWNED EQUIPMENT (SAMPLER ETC)	8 DAYS	$ 2000.00	
FEE TO CONTRACTOR PROVIDED PPE	8 DAYS	$ 2000.00	

COST ESTIMATING TABLES (CONTINUED)

3. PACKAGING, SHIPPING, AND DISPOSAL OF RADIOACTIVE WASTES/INVENTORY

TABLE 5

WASTE TYPE	VOLUME (M^3)	NO OF CONT	TYPE OF CONT	UNIT COST OF CONT	TOTAL COST OF ONT
CONCRETE	6.0	2	B25 BOX	$ 400.00	$ 800.00
TRITIUM (<2000 Ci)	.3	10	DOT 17C CANS	$ 20.00	$ 200.00
OTHER INVENTORY	.5	5	DOT 17H DRUMS	$ 30.00	$ 300.00
TRITIUM	.3	1	HI INTEG CONT	$ 400.00	$ 400.00
DUCT	1.0	1	STC	$ 200.00	$ 200.00
TILE	.1	1	DOT 17H DRUM	$ 30.00	$ 30.00
ABRASIVE SAND	.1	1	DOT 17H DRUM	$ 30.00	$ 30.00
TOTAL	-	-	-	-	$ 1960.00

TABLE 6

DISTANCE SHIPPED 750.00 MILES TO BARNWELL SC 2000 MILES TO ENVIROCARE (UTAH)
COST PER MILE $ 2.50
ADDITIONAL CHARGES $ 0.00

WASTE TYPE	NO. OF SHIPMENTS	UNIT COST FOR SHIP	DISTANCE	SURCHARGE	TRANS COST
CONTAMINATED CONCRETE AND TILE	1	$ 0.00	2000 MI	0.00	$ 5000
EXCESS INVENT, SAND, LL WASTE, ETC	1	$ 0.00	750 MI	0.00	$ 1875

TABLE 7

	BARNWELL SC	ENVIROCARE (UTAH)
BURIAL CHARGES	$1236.00 PER CUBIC METER	$883.00 PER CUBIC METER
SURCHARGES		
NONCOMPLIANCE STATE	$ 5648.00 PER CUBIC METER	NA
CURIE SURCHARGE	$ 10000.00 TOTAL FOR INVENTORY	NA

WASTE TYPE	BURIAL VOLUME	UNIT COST OF BURIAL	SURCHARGE	BURIAL COST
CONCRETE	6 CUBIC METERS	$ 883/CUBIC METER	-	$ 5298
TILE	.1 CUBIC METER	$ 883/CUBIC METER	-	$ 88
CRUSHED DUCT	.3 CUBIC METER	$ 1236/CUBIC METER	$ 5648/CUBIC METER	$ 2065
EXCESS INVENTORY	1.1 CUBIC METERS	$ 1236/CUBIC METER	$ 5648/CUBIC METER	$ 7572
SAND	.1 CUBIC METER	$ 1236/CUBIC METER	$ 5648/CUBIC METER	$ 688

4. RESTORATION OF CONTAMINATED AREAS OF FACILITY GROUND

TABLE 8

TASK	SUPERVISOR	FOREMAN	H.P.	CLERICAL	CONTRACTOR	TOTAL	TOTAL COST
BACKFILL AND	-	-	-	-	-	-	-
RESTORE SITE	-	-	-	-	-	-	-

COST ESTIMATING TABLES (CONTINUED)

5. FINAL RADIATION SURVEY

TABLE 9

TASK	RPO	SENIOR H.P.	H.P.	CLERICAL	FOREMAN	CONTRACTOR PROJ MGR	SENIOR TECH	TECH
SURVEY SOIL UNDER BLDG 3018 FLOOR	1	2	-	-	-	-	-	-
SURVEY SUBFLOOR IN BLDG 3021	.5	.5	-	-	-	-	-	-
SURVEY WALLS IN BLDGS 3021 AND 3018	.5	1	-	-	-	-	-	-
TOTAL	2.0	3.5	-	-	-	-	-	-
TOTAL COST	$ 592	$ 861	-	-	-	-	-	-

6. SITE STABILIIZATION, LONG TERM SURVEILLANCE (NOT APPLICABLE)

112499

NRC FORM 218 (4-76) NRCM 0240

U.S. NUCLEAR REGULATORY COMMISSION

TELEPHONE OR VERBAL CONVERSATION RECORD

DATE: 5/4/92

TIME: ☐ A.M. ☐ P.M.

☐ INCOMING CALL ☐ OUTGOING CALL ☐ VISIT

PERSON CALLING	OFFICE/ADDRESS	PHONE NUMBER / EXTENSION
Eric H. Reber	Region I	(215) 337-5276
PERSON CALLED	**OFFICE/ADDRESS**	**PHONE NUMBER / EXTENSION**
Richard Hiszar		(201) 724-3126

CONVERSATION

SUBJECT: License Nos 29-00047-02, 08 SUB-348

SUMMARY:

5/4 - They sent cost estimate on March 2, '91 for SUB-348 as part of renewal - get it to Robert

He will be sending a response in a weeks or so for -02 & -08 licenses

5/5 - Dick Hoss - should have it in by the end of the week (their response

REFERRED TO:

☐ ADVISE ME OF ACTION TAKEN.

ACTION REQUESTED

INITIALS

DATE

ACTION TAKEN

INITIALS

DATE

FEB 10 1992

License Nos. 29-00047-02, 08
SUB-348

Docket Nos. 030-05215, 030-12535
040-06377

Control Nos. 112495, 112497
112499

Department of the Army
Commander
U.S. Material Command
ATTN: AMSCF-P
5001 Eisenhower Avenue
Alexandra, Virgina 22333-0001

Gentlemen:

This is in reference to your financial assurance submittal dated April 11, 1991 for Picatinny Arsenal, New Jersey. In order to continue our review, we need the following additional information:

1. Please amend your Statement of Intent to reference a specific dollar amount.

2. When you amend your Statement of Intent, it would be less confusing if you did not reference License Nos. 29-00047-06 and 29-00047-09. 10 CFR 30.35 does not require you to provide financial assurance for these licenses.

3. If you would like to provide only $75,000 in financial assurance for License No. 29-00047-02, you will need to amend that license so that it only authorizes the possession and use of sealed sources.

4. Please provide the details of the decommissioning cost estimate that you made for License No. SUB-348. Your decommissioning cost estimate should contain a level of detail similiar to that contained in Regulatory Guide 3.66, Appendix F (enclosed).

OFFICIAL RECORD COPY ML 495 REBER - 0001.0.0
01/06/92

ML 10

We will continue our review upon receipt of this information. Please reply in duplicate to my attention at the Region I office and refer to Mail Control Nos. 112499, 112496, and 112498. The reviewer for this licensing action is Eric H. Reber. If you have questions regarding this action please call the reviewer at (215) 337-5276.

Sincerely,

Original Signed By:
John D. Kinneman

John D. Kinneman, Chief
Research, Development &
Decommissioning Section B
Division of Radiation Safety
and Safeguards

Enclosure: Regulatory Guide 3.66

bcc:
Reber, E., RI
Kinneman, J., RI

RI:DRSS
Reber/kw
1/10/92

RI:DRSS
Kinneman
2/6/92

OFFICIAL RECORD COPY

ML 495 REBER - 0002.0.0
01/06/92

AUG 02 1991

MEMORANDUM FOR: Louis M. Bykoski, NRC Project Officer
Low Level Waste Management, Low Level Regulatory Branch

FROM: John D. Kinneman, Chief
Nuclear Materials Safety Section B
Division of Radiation Safety
and Safeguards

SUBJECT: NONSTANDARD FINANCIAL ASSURANCE SUBMITTALS RELATED TO THE DECOMMISSIONING RULE

John Austin's August 6, 1990 memorandum set forth a procedure for submitting nonstandard financial assurance submittals to you for review by the NRC contractor. We have also included parent company guarantees and decommissioning funding plans.

Licensee	License No.	Control No.
Textron Defense Systems	SUB-1410	113599
Philips Elmet Division of North American	STB-171	114173
E. R. Squibb & Sons, Inc.	29-00139-02	113770
Liposome Company, Inc.	29-19918-01	114548
Department of the Army	SUB-348	112499
Department of the Army	29-00047-02	112495
Department of the Army	29-00047-06	112496
Department of the Army	29-00047-08	112497
Department of the Army	29-00047-09	112498
Bristol-Myers Squibb Co.	06-27843-02	114227
American Cyanamid Company	29-07694-01	112844

If you or the contractors believe any of these cases should more properly be reviewed by the Region, please return them.

Original Signed By:
John D. Kinneman

John D. Kinneman, Chief
Nuclear Materials Safety Section B
Division of Radiation Safety
and Safeguards

cc:
J. Glenn, NMSS
R. Bellamy, RI

OFFICIAL RECORD COPY FINANCIAL ASSURANCE MEMO/5 - 0001.0.0
07/29/91

ML 10

RI:DRSS
Villar/bj
07/24/91

RI:DRSS
Kinneman/bj
8/1 /91

OFFICIAL RECORD COPY

MS16
C3

DEPARTMENT OF THE ARMY
U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

REPLY TO
ATTENTION OF

April 11, 1991

Safety Office

Mr. John D. Kinneman
Nuclear Materials Safety Section B
Division of Radiation Safety and Safeguards
U.S. Nuclear Regulatory Commission - Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406

Dear Mr. Kinneman:

This is in response to your letter, a copy of which is enclosed, dated February 26, 1991, which refers to the decomissioning financial assurance statement, or Statement of Intent, that was initially submitted by the U.S. Army Armament Research, Development and Engineering Center (ARDEC), on April 30, 1990. Please refer to Mail Control Nos. 112495, 112496, 112497, 112498, and 112499.

As requested in your letter, the revised Statement of Intent, also enclosed, proclaims that funds needed for decommissioning will be requested sufficiently in advance of decommissioning activities in order to prevent delay of those activities. However, it must be emphasized that, per congressional mandate, appropriations can be set aside for a specific purpose, such as decommissioning, only within the fiscal year that the activity is to actually take place.

In our original submission of the Statement of Intent, dated April 30, 1990, it was stated that the Commanding Officer of ARDEC, Brigadier General William R. Holmes (then Colonel), would assure that funds required through budgetary procedures in the amounts prescribed by 10 CFR Parts 30, 40, and 70 would be available for such decommissioning. An accompanying letter, resubmitted here as an enclosure, dated December 11, 1989, from Major General Marvin D. Brailsford, Commander of the U.S. Army Armament, Munitions and Chemical Command (AMCCOM), Rock Island, Illinois, verified that then Colonel Holmes had been granted In Process Review (IPR) authority for ARDEC. This authority essentially allows the ARDEC commander to manage the programs, and, in turn, the finances for those programs at ARDEC, as he deems fit. Copies of the above are again provided with this correspondence.

The initial decommissioning cost estimate of $187,000 was based on the following considerations. The factor of waste disposal, though an important consideration normally for determining decommissioning funding costs, was not initially

11299
11224
APR 22 1991

considered, since within the U.S. Army, funding for radioactive waste disposal/burial is borne by AMCCOM, which is not extracted from ARDEC funds. Upon the review of 10 CFR 30.35, a determination had been made that this section did not appear to apply. Item 6.c. of the 29-00047-02 license, Hydrogen 3, metal tritium targets, had been decommissioned and shipped for radioactive waste burial in 1990. Other than for the small quantities of unsealed sources referenced in item 6.b. of that license (primarily Carbon-14) presently in storage, and awaiting disposal, all radioactive material under this license is in a sealed form. Since, at present, there are no facilities under this license that would require major decommissioning clean-up efforts, other than possibly the dismantling and disposal of hoods and ductwork, an estimated cost of $37,500 was determined (half of the $75,000 value referenced for sealed sources in 10 CFR 30.35(d)). At this time, that cost estimate will be re-adjusted to $75,000 in order to agree with 10 CFR 30.35(d).

In regard to ARDEC's NRC License No. 29-00047-08, this office is in the process of transferring the Neutron Products, Inc. Cobalt-60 source, Model NPI-XX-XXXXW to another licensee. The activity of the other Cobalt-60 source under this license, American Nuclear Corp Drawing No. P101814, is presently 339 curies. Based on this, it was determined that 10 CFR 30.35 did not apply here either. However, since the license possession limit for this source is 10,000 curies, $75,000 will be added to the cost estimate for the present Statement of Intent.

In the SUB-348 license, ARDEC is allowed to have up to 11,000 kilograms of depleted uranium (DU), 100 kilograms of natural uranium, and 20 kilograms of thorium powder. Virtually all of the DU at ARDEC is considered to be in a non-dispersable form (penetrators, slugs, etc). Of the remaining materials present, DU contaminants on work surfaces, collected in waste containers, etc. would be estimated to comprise well less than 10mCi of activity. The main source of dispersable source material would come from laboratory-grade uranium compounds in reagent bottles. Based on the quantity of natural uranium allowed by the license, an assessment of $150,000 was assigned for decommissioning costs. In addition, it is Army policy, at present, not to dispose of penetrators at radioactive waste burial sites, but to recycle them to one of the Army's depleted uranium penetrator manufacturers.

Since the April 30, 1990 submission, this office has composed a decommissioning funding plan in support of the SUB-348 renewal application. The cost estimate obtained during this effort was $345,000. Therefore, the re-submitted Statement of Intent presented here is for a dollar value of approximately $495,000. (SUB-348 (345,000); 29-00047-02 ($75,000); 29-00047-08 ($75,000))

Should this submission still not be sufficient, or if there are any questions, please contact Mr. Richard Fliszar, ARDEC RPO, at (201)724-3126.

Sincerely,

Michael F. Clune
Chief, Safety Office

Enclosures

Copies Furnished:

DASG-PSP-E (COL Day), 5109 Leesburg Pike, Falls Church, VA 22041-5050
AMSMC-SFS (K. LaFrenz)/ AMSMC-CPB(D)/ AMSMC-GC(D)
AMCSF-P (P. Elker)/AMXOS-PE
SMCAR-CO

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

FEB 26 1991

License Nos. 29-00047-02, 06, 08, 09
SUB-348

Docket Nos. 030-05215, 030-05216, 030-12535
030-20846, 040-06477

Control Nos. 112495, 112496, 112497,
112498, 112499

Department of the Army
Commander
U.S. Materiel Command
ATTN: AMSCF-P
5001 Eisenhower Avenue
Alexandra, Virginia 22333-0001

Gentlemen:

This is in reference to your financial assurance submittal dated April 30, 1990. In order to continue our review, we need the following additional information:

1. Please modify your statement of intent to indicate that funds for decommissioning costs will be requested and obtained sufficiently in advance of decommissioning to prevent delay of required activities.

2. Please provide evidence that the individuals signing the statement of intent are authorized to commit the funds described.

3. In your letter, you state, "the command is aware of the need to obtain funds equal to at least $187,000 for decommissioning..." Please describe how you arrived at this figure. If your intention was to comply with 10 CFR 30.35 and 10 CFR 40.36 by submitting a statement of intent as described in 10 CFR 30.35(f)(4) and 10 CFR 40.36(e)(4), the amount should be $1,575,000. Due to the possession limit for cobalt-60 in License No. 29-0047-08, $75,000 would be required to comply with 10 CFR 30.35(c)(3); due to the possession limit for natural and depleted uranium contained in License No. SUB-348, $750,000 would be required to comply with 10 CFR 40.36(c)(2); due to the possession limits contained in License No. 29-00047-02, $750,000 would be required to comply with 10 CFR 30.35(c)(2), for a total of $1,575,000.

   If you would like to submit a Decommissioning Funding Plan with a specific cost estimate, please provide a level of detail similar to that contained in "Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30,40,70, and 72," Appendix F, (copy enclosed).

We will continue our review upon receipt of this information. Please reply in duplicate to my attention at the Region I office and refer to Mail Control No. 112499, 112495, 112496, 112497, 112498.

Sincerely,

John D. Kinneman, Chief
Nuclear Materials Safety Section B
Division of Radiation Safety
and Safeguards

Enclosure:
Regulatory Guide 3.66

STATEMENT OF INTENT

The U.S. Army Armament Research Development and Engineering Center (ARDEC) located at Picatinny Arsenal, New Jersey, 07806-5000 is licensee under NRC license numbers: 29-00047-02, 29-00047-06, 29-00047-08, and 29-00047-09, SUB-348 and SNM-561.

ARDEC as licensee under the foregoing NRC licenses is responsible for providing financial assurance on decommissioning costs which would be required if ARDEC were to discontinue any or all operations involving NRC licensed activities.

The Commanding Officer of ARDEC, signatory, on the foregoing NRC licenses will assure that whatever funds required will be programmed through budgetary procedures in the amounts prescribed by 10 CFR Parts 30, 40, and 70 for such decommissioning. The Commander is responsible under Army Regulation 210.10 for all activities assigned to or under the jurisdiction of the installation and the responsibility for ensuring that requisitions and estimates for allotment of funds are properly prepared and submitted.

The funds needed for decommissioning will be requested sufficiently in advance of decommissioning activities in order to prevent delay of those activities.

This is an originally signed duplicate.

WILLIAM R. HOLMES
Brigadier General, USA
Commanding

Date 11 APR 1991

HEADQUARTERS, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND
ROCK ISLAND, ILLINOIS 61299-6000

REPLY TO
ATTENTION OF

AMSMC-CG (70-1p)

11 DEC 1989

MEMORANDUM FOR Commander, U. S. Army Armament Research, Development and Engineering Center, Picatinny Arsenal, NJ 07806-5000

SUBJECT: U.S. Army Armament, Munitions and Chemical Command (AMCCOM) System In-Process Review (IPR) Authority

1. Colonel William Holmes, as Commander of the U.S. Army Armament Research, Development and Engineering Center (ARDEC) is hereby granted IPR authority for AMCCOM managed systems at ARDEC as outlined in the enclosed Delegation of Authority No. 89-5, 13 February 1989.

2. The point of contact for this action is Mr. C. W. Burgner, AMSMC-RT, AV 793-4551.

Encl

MARVIN D. BRAILSFORD
Major General, USA
Commanding

040-06377
SUB-348

DEPARTMENT OF THE ARMY
U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

March 22, 1991

REPLY TO
ATTENTION OF

Safety Office
Health Physics Branch

Ms. Elizabeth Ullrich
Nuclear Materials Safety Section B
Division of Radiation Safety and Safeguards
U.S. Nuclear Regulatory Commission - Region I
475 Allendale Road
King of Prussia, Pennsylvania 19406

Dear Ms. Ullrich:

In reference to your letter dated February 6, 1991 (enclosure 1), that contains questions which arose during an initial review of the September 13, 1990 Source Material License renewal application, No. SUB-348, the following responses are provided. Please refer to Docket No. 040-06377, and Control No. 113445. The responses are numbered, and presented in a manner that is coordinated with the order of questions in the February 6, 1991 letter.

1. In regard to the statements made in item 1. of referenced letter, it is the understanding of this office that an additional license extension had been granted for SUB-348, with the new expiration date being January 31, 1991. The SUB-348 renewal application had been mailed to the U.S. Army Material Command (AMC), Alexandria, VA for review and coordination on September 13, 1990. However, AMC directed this office to request another extension to this license because they would not have sufficient time to adequately staff its review. Mr. Richard Fliszar, ARDEC RPO, held a telephone conversation with Mr. John Kinnerman regarding this matter. Mr. Kinnerman verbally approved the request, but directed this office to send a letter which formally requested the extension (enclosure 2). This September 18, 1990 correspondence was followed shortly thereafter by the enclosure 3 correspondence. It is recognized that the information contained in this enclosure is misleading. However, this office received similar correspondence from your office approximately one year earlier when this license expiration date was initially extended. A letter indicating timely submission of the SUB-348 license renewal application was subsequently followed by an amendment to said license, which depicted a new expiration date (enclosures 4 & 5). Based on that past experience, this office assumed that the information contained in enclosure 3, although misleading, was sufficient

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notification by the NRC, and that a formal amendment addressing the new January 31, 1991 expiration date might or might not be forthcoming, depending on the date that Army higher headquarters submitted the SUB-348 renewal application to your office. On March 12, 1991, Ms. Ullrich telephoned Mr. Fliszar to indicate that since issuance of the February 6, 1991 letter, she had become aware of the January 31, 1991 extension ARDEC had been granted, and, therefore, directed this office to reference the Docket and Control Nos. found in enclosure 3 instead. As such, the above information is provided for internal documentation purposes only.

2. A decommissioning funding plan, as required by 10 CFR 40.36, is provided in enclosure 6. The following clarifications are made to document what are the present operations under SUB-348, that would require decontamination efforts, if decommissioning were to occur at this time. Since this is a research & development installation, facilities not presently used for SUB-348 license work could go on line in the future, which, in turn, would obviously require modification to the overall decommissioning funding plan data provided here.

Presently, the facilities that would require decommissioning under SUB-348 are listed on page 32 of the September 13, 1990 license renewal application. Buildings 315, 316, and 611B would require the most extensive decommissioning efforts. The pertinent equipment utilized in those buildings, along with that contained in room 18 of building 355, and building 68, would need to be decontaminated, where feasible, transferred for use to another licensed facility, or disposed of as radioactive waste. It is anticipated that any equipment chosen to be decontaminated would be deconned in place, where possible. Further, it is estimated that about one third of all contaminated items will need to be disposed of as waste, because decontamination efforts would not be adequate for unrestricted release.

Listed storage facilities, under present conditions, would not require much time to decommission since the containers housing the radioactive material or waste are clean when they are placed in these storage areas.

It should be noted that ARDEC presently has a staff of in-house trades personnel, such as carpenters, plumbers, electricians, heavy equipment operators, etc. Heavy equipment on hand includes a crane, forklifts, bucketloaders, etc.

DU chips and paper waste will be shipped to the Army's Waste Consolidation Center located at Barnwell, SC for processing. This facility has a supercompactor which, according to U.S. Army AMCCOM, is able to compress down the paper-type waste by a 25 to 1 ratio. It also has an oxidizer system to stabilize the DU chips, thus reducing the necessary volume of oxide to be buried. Also, the policy at present is to recycle DU penetrators, slugs, etc, by transfer back to one of the Army contractor DU manufacturers.

The decommissioning funding plan is based on professional judgment, since this office has relatively little past decommissioning experience. Therefore, estimates of time needed to conduct a specific decommissioning function, and/or the amount of supplies needed, waste generated, or personnel required, could, in reality, be quite different from that projected here. It should also be noted that when this office had submitted the Statement of Intent for source material decommissioning considerations, neither salary of personnel nor burial costs (costs borne by another Army installation, AMCCOM, Rock Island, IL) were considered in the estimate. In addition, since very little of ARDEC source material is in a readily dispersable form at any one time, this office made an interpretation that the costs of materials and equipment needed to conduct decommissioning efforts would be less than that stated in the guidance provided in 10 CFR 40.36.

3. At present, the following facilities, which operate under ARDEC license SUB-348, utilize local exhaust ventilation as a means of engineering control:

a. Building 315 - This facility has two separate local exhaust ventilation systems. One is for the Radioactive Material Machine Shop, and the other for the Metallography Lab. Each has an absolute filter in front of the respective HEPA filter.

b. Building 316 - This facility has one local exhaust ventilation system with several HEPA filters in parallel. There is a pre-filter in front of each HEPA filter.

c. Building 611B - This facility has one local exhaust ventilation system with a pre-filter, two absolute filters, and a HEPA filter, all in series.

d. Building 320 - This facility has one HEPA-filtered local exhaust ventilation system that is located in the Radioisotope Laboratory. The HEPA filter is located above the Fisher Safety Flow Radioisotope Laboratory Fume Hood. There is a pre-filter located upstream to this HEPA filter.

There is a pressure differential gauge installed at all of the above-mentioned local exhaust ventilation systems, except for the system located in building 320 that measures the pressure drop across the filtration system. (An order had been placed several months ago, through the Army procurement system, to purchase a Magnehelic-type gauge for the building 320 exhaust system. As soon as it is received, arrangements will be made to install it). HEPA filters are required to be changed when the pressure drop registering on the gauge is approximately twice what it was when the new HEPA filter(s) was first installed.

When HEPA filters are changed, a DOP test is performed to verify that there is a satisfactory seal on the inlet side to the HEPA filters. DOP test measurements are taken both upstream and downstream of the respective filtration system.

During the installation and removal of HEPA filters, personnel who perform the work must comply with a Radiation Work Permit issued by the Health Physics Branch of the Safety Office. Included in that work permit are the requirements for wearing proper personal protective equipment (protective clothing and appropriate "fit tested" respiratory protection). The various filters are placed in plastic bags, and disposed of as radioactive waste through coordination with the U.S. Army Armament, Munitions, and Chemical Command, Rock Island, Illinois.

Since work at ARDEC is R&D in nature, operations do not run continually, but occur on a sporadic basis. As such, HEPA filters are changed infrequently, and only when needed.

4. TLD finger rings are required to be worn by all ARDEC workers who have occasion to actually handle depleted uranium (DU) as part of their normal job or operation involving a special radiation work permit, etc. Examples of items, not all inclusive, that are handled, include DU penetrators, DU bar stock, other solid forms of DU, cleanup of machinery from the Radioactive Material Machine Shop in building 315, removal of DU chips from such machinery, and the handling of DU ribbon in glove boxes and the Casting Chamber in building 316. Also, the handling of oxidized DU waste in/at the Casting Chamber, along with that of spent crucibles, is done while wearing TLD finger rings. Since this work is R&D, the workload is intermittent in nature. Personnel are directed to wear their finger rings under protective gloves with the TLD chip on the ring turned to face in at the palm of the hand.

5. Based on both air sampling and bioassay results to date, along with allowable levels of surface contamination and normal inspection swipe results, ARDEC appears to qualify for a minimum

bioassay program. A review of U.S. NRC Regulatory Guide 8.11 does indicate that a bioassay program is required for work areas in which employees have the potential to be exposed to uranium contamination, which is being interpreted here to read both surface and/or airborne exposure (C.2.a.(5)), no matter what the amount.

According to office records, our average bioassay detectability limit for uranium in urine is about 0.5ugU/liter of urine, or 1.8×10^{-13}pCiU per liter of urine. The highest periodic value of uranium in urine detected has been 1.5ugU/liter, with the next highest being 0.69ugU/liter. The overwhelming majority of the readings have been below the detection limit. Based on this information, reference to figure 3 of Reg Guide 8.11 suggests that a sampling frequency approaching 600 days or approximately two years would be in order.

The last para of section C.3.d., located on page 8.11-8 of Regulatory Guide 8.11, states the following:

> "Personnel whose duties involve only observance and who spend less than 25% of the work week in areas where bioassay is required may participate on a limited basis. The interval between bioassay measurements for such personnel should be a matter of judgment based on the magnitude of the exposure."

Since ARDEC is a R&D facility, "full time/continual" production-type work does not occur here. Instead, these operations are conducted on an intermittent basis, such that the actual time spent conducting these operations is similar to, if not less than, 25% of the total work hours in a year. Therefore, although these workers are not merely observing the operations being conducted, it would appear that based on the intermittency of work, and bioassay results, that a two-year bioassay program is appropriate. During abnormal situations, such as an accident or incident, where exposure to DU is possible, bioassays are taken even if intake is not very likely, for legal and documentary reasons, as well as for reasons of health physics concern.

It is recognized that a thorough review of Regulatory Guide 8.11 indicates that under most circumstances, a minimum bioassay program requires that bioassays be taken at least once a year; however, with all of the above information taken into account, a periodic two-year bioassay interval appears justified, unless informed otherwise by your office.

6. The operation that is referred to in the third to last paragraph on page 59 of the SUB-348 license renewal application dated September 13, 1990, is that of the Radioactive Materials Machine Shop in building 315. Extensive personnel air sampling had been conducted for several months when work on DU was initially started in this shop in April 1985. The average measured airborne uranium breathing zone level concentration was between $3x10^{-12}$uCi/ml and $5x10^{-12}$uCi/ml during times when work was actually performed.

Potential exposure to the airborne DU primarily exists during instances where DU is being cut on these machines, and somewhat during cleanup (housekeeping efforts), although surfaces may be coated with cutting fluid or machine oil that aids in restricting airborne release. A determination was made of the amount of time over the past two years that DU was actually being worked on in this machine shop. It is estimated that DU had been cut a total of no more than 300 hours over that time period, or approximately 150 hours per year. This is actual cutting time, and does not take into account setup/cleanup time. Assuming an inhalation rate of 20 liters of air per minute, this translates into the inhalation of $9x10^{-4}$uCi/year.

Studies have shown that DU aerosols formed during grinding-type operations contain an appreciable percentage of "D" class solubility material. As such, the referenced occupational airborne concentration limit would be $7x10^{-11}$uCi/ml, and the non-occupational limit would be $3x10^{-12}$uCi/ml, per 10 CFR 20, appendix B. Therefore, an occupational worker could inhale up to $1.68x10^{-1}$uCi/yr, and a member of the general public $3.15x10^{-2}$/yr. The estimated amount of DU inhaled by the machine shop worker in building 315 is only 2.8% of what is allowed a member of the general public in the course of a year, and only 0.5% of that allowed an occupational worker.

In 10 CFR 20.103(a)(3) is contained the following statement:

> "When assessment of a particular individual's intake of radioactive material is necessary, intakes less than those which would result from inhalation for 2 hours in any one day or for 10 hours in any one week at uniform concentrations specified in Appendix B, Table I, Column 1, need not be included in such assessment, provided that for any assessment in excess of these amounts the entire amount is included."

This appears to state that if exposed to less than 25% of the allowable airborne intake, additional air sampling may not be necessary unless work conditions change, such as increase in production rate, failure of engineering controls, or evidence of increased intake based on bioassay results.

Both of the last two urine bioassay results for the machine shop worker in building 315 have been below the detection limit of approximately 0.5ugU/liter of urine. In addition, monthly swipe test results of the work area have shown contamination levels on work surfaces to be well within acceptable limits.

Therefore, based on the above information, air sampling of the above-referenced operation has not been conducted in recent years. However, in order to adhere to the concept of ALARA, this office will modify its policy regarding this operation, and as a normal course of action, take periodic air samples of this type operation every four months, regardless of whether or not there is a change in working conditions.

As indicated during a telephone discussion between Mr. Fliszar, ARDEC RPO, and Ms. Ullrich, NRC, during the week of March 11, 1991, a retraction to the following statement contained on page 3 of SUB-348 license renewal application, dated September 13, 1990, must be made:

> "Outdoor testing of depleted uranium (DU) munitions was only performed at Picatinny Arsenal on 14 and 15 Sep 76, as previously indicated in the 23 Aug 84 correspondance. There is at present no anticipated need to conduct any further outdoor testing of depleted uranium at ARDEC, and, therefore, it is requested that this authorized provision of the present license be deleted."

The inaccuracy in the statement is that Picatinny Arsenal had, in fact, conducted outdoor DU testing at times prior to those dates stated above. The staff members in this office are virtually new, dating back to approximately mid-1987. The statement made above was based on documentation submitted to your office on September 13, 1984 (enclosure 7). (It should be noted that the August 23, 1984 date referenced in the license is an inaccuracy. The August date refers to an inter-Army administrative policy to reference the date of correspondence to which one is responding).

During a recent casual conversation with another previous RPO of Picatinny Arsenal, who served in that capacity from 1964 thru 1972, it was learned that outdoor DU testing which extended over several years, had been conducted within his tenure at a completely different location than the referenced Test Area No. 3, near building 654. Radiation records for that time period, and earlier, of Picatinny activities, appear to be sparse. However, this office is in the process of reviewing pertinent old files, some dating back close to 40 years, as well as attempting to contact any present or previous Picatinny workers who may provide some insight as to when, where, and to what extent DU had been fired outdoors in years past. Based on the findings, this office will take environmental soil samples representative of the locations where this outdoor DU testing is believed to have occurred, and decontaminate those test areas, if appropriate. This office will also follow up with a report to your office regarding this action.

With reference again to the September 13, 1984 correspondence, no outdoor testing of DU was conducted at ARDEC after September 15, 1976.

Any questions regarding the above correspondence may be directed to Mr. Richard Fliszar, at (201)724-3126.

Sincerely,

for Ken Duncan
Michael F. Clune
Chief, Safety Office

7 Enclosures

Copies Furnished:

AMCSF-P (Ms. P. Elker)
AMSMC-SFS (Ms. K. LaFrenz)

040-06377
SUB-348

DECOMMISSIONING FUNDING PLAN
AS REQUIRED BY 10 CFR 40.36
UNDER U.S. NRC LICENSE SUB-348

COST ESTIMATING TABLES (ESTIMATE FOR DECOMMISSIONING ALL SUB-348 FACILITIES)

1. Planning and Preparation

Table 1

Task	Work Days Supervisor	Foreman	H.P.	Clerical	Total	Total Cost
1. Preparation of Documentation for Regulatory Agencies per 10 CFR 40.42(c)(1)			60	10		11,200
2. Submittal of Decommissioning Plan to NRC when required by 10 CFR 30.36(c)(2), 40.42(c)(2), or 70.38(c)(2)* per 10 CFR 40.42(c)(2)			25	5		4,730
3. Development of Work Plans (Radiation Work Permits)	5	10	20	5		6,510
4. Procuring of Special Equipment/Supplies		10	10			3,365
5. Staff Training *(Foremen/support craft personnel/decon laborers -present rad workers) estimate of 30-50 support personnel		50*	10	5		10,180
6. Characterization of Radiological Condition of the Facility (Including soil and tailings analysis or groundwater analysis, if applicable)	Task 6 functions considered in Task 1 evaluation above - envir. monitoring etc, in preparation of decommissioning plan)					
7. Other						
8. Total						

* For assistance in preparation of cost estimate for 10 CFR Part 72, consult NRC Office of Nuclear Material Safety and Safeguards.

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DECOMMISSIONING FUNDING PLAN
AS REQUIRED BY 10 CFR 40.36
UNDER U.S. NRC LICENSE SUB-348

COST ESTIMATING TABLES (ESTIMATE FOR DECOMMISSIONING ALL SUB-348 FACILITIES)

Table 2

Unit Cost for Workers

Position	Basic Salaries ($/yr)	Hourly Rate($/hr) Overhead Rate (%)	Assumed average grade on 3/91 Worker Cost/year
Supervisor (Management)	54,281	26.01	GM-13/5
Foreman (Wage Grade Supervisor)	42,136	20.19	WG-14/3
Craftsman * Wage Grade Workers	28,049	13.44	WG-10/3
Technician			
Health Physicist	45,647	21.87	GS-12/5
Laborer **Radiation Workers	45,647	21.87	GS-12/5
Clerical	18,571	8.90	GS-4/5
Other			

*Carpenters, plumbers, electricians, heavy equipment operators, etc.
**Scientists, engineers, primarily; some technicians

2. Decontamination and/or Dismantling of Radioactive Facility Components*

	No.	Dimensions		No.	Dimensions	
Glove Boxes	4	23.4	(m^3)	Amount of Floor Space		1284	(m^2)
Fume Hood	2	6.8	(m^3)	Ventilation Ductwork		100	(m)
Hot Cells			(m^3)	Amount of Wall Space		1115	(m^2)
Lab Benches			(m)	Other Carts, storage safes, etc		50	m^3
Sink and Drain			(m)	Drainage pipes & waste storage tanks for liquid waste-handling systems		200	m
Paper waste drums of paperwaste (5-10 drums per bldg		10.5	m^3	Bldg 315 Machine Shop machinery (lathes, grinders, saws, etc)		17.3	m^3
DU Chips-oxidized		0.5	m^3	Boring machine		28	m^3
				Bldg 316 casting chambers system		34	m^3

Table 3

Work Days

Task	Supervisor	Foreman	Technicians	H.P.	Craftsmen	Laborer	Total	Total Cost
1. Decon/Dismantle Major Components and/or Processing and Storage Tanks	40a	20b		40a	80b	160a		55,150.00
2. Decon/Dismantle Laboratories, Fume Hoods, Glove Boxes, Benches, etc	20a	10b		20a	40b	80a		27,575

-- Firing chamber structure - Bldg 611B.
-- Machine Shop Machinery - Bldg 315.
-- Strength of Materials Test Machines - Bldg 355.
-- Casting Chamber System - Bldg 316

*Attempt to decon - some disposal anticipated
a= Estimate 10 days/building
b=Estimate 5 days/building

- Bldg 320, Bldg 315 Metallography Lab, Mechanical Test Lab
- Bldg 315, Bldg 320
- Bldg 316

Floor & wall space

a= Estimate 5 to 7 days/building
b=Estimate half of "a" per building

*Bldgs 315. 316. 320. 355. 68. 84, 611B

*Indicate whether component is to be decontaminated to unrestricted release levels or packaged and disposed of at a low-level waste site.

DECOMMISSIONING FUNDING PLAN
AS REQUIRED BY 10 CFR 40.36
UNDER U.S. NRC LICENSE SUB-348

COST ESTIMATING TABLES (ESTIMATE FOR DECOMMISSIONING ALL SUB-348 FACILITIES)

Table 3 (continued)

Work Days

Task	Super-visor	Fore-man	Tech-nicians	H.P.	Crafts-men	La-borer	Total	Total Cost
3. Decon/Dismantle Waste Areas		See Task 5 below						
- Radwaste Areas - Scrap Recovery Areas - Other		Waste processing						
4. Decon/Dismantle Service Facilities		12		12	48*	48*		17,600
*Estimate need for 4 craftsmen per building								
- Maintenance Shop - Decontamination Areas - Ventilation Systems & piping, liquid holding tanks - Bldgs 315, 316, 611B, 320 - Other								
*Estimate 3 days per building-preparation, dismantle, package for disposal.								
5. Decon/Dismantle Waste Treatment Facilities and Storage Areas * (Bldgs 312, 3030, 55, 320)** on the Site (Including exhume and package contaminated soil and tailings, if any)		No waste treatment facilities other than bldg 312 for packaging waste, cementing where necessary.		10		20**		5,250
*Estimate 2-1/2 days survey and cleanup per location at present. **Estimate need for 2 laborers per building.								
- Fluoride Lagoons - Nitrate Lagoons - CaF2 Waste Recovery - Ground Water Restoration - Other								

DECOMMISSIONING FUNDING PLAN
AS REQUIRED BY 10 CFR 40.36
UNDER U.S. NRC LICENSE SUB-348

COST ESTIMATING TABLES (ESTIMATE FOR DECOMMISSIONING ALL SUB-348 FACILITIES)

Table 3 (continued)

Work Days

Task	Supervisor	Foreman	Technicians	H.P.	Craftsmen	Laborer	Total	Total Cost
6. Monitor for* compliance, reclean and remonitor, if necessary	10	10	20		40			14,200
7. Other (e.g., contractor fees)								

*Estimated summary for all operational facilities & storage facilities combined.

Table 4

Equipment/Supply	Quantity	Cost
Various decon supplies and equipment (rent/purchases)		Est. 10,000-15,000.00

3. Packaging, Shipping, and Disposal of Radioactive Wastes (Army Waste Transporting and Disposal Costs presently borne by U.S. Army AMCCOM, Rock Island, IL)

Table 5

Waste Type	Volume (m^3)	No. of Containers	Type of Containers	Unit Cost of Container	Cost of Container
	0.21	100	55 gal drum *wooden containers	28.00/barrel	2800.00
Total					

*Made in-house by carpentry shop

Table 6 (Presently ship to Barnwell, SC for burial)

Distance Shipped _____ (miles)
Unit cost for shipment _____ ($/mile/truckload)
Additional charges
Overweight _____ ($/mile)
Surcharges _____ ($/mile)

Waste Type	No. of Shipments	Unit Cost for Shipping*	Distance Shipped	Surcharge	Transportation Cost
	3	1,000.00			3,000.00
	1**	1,000.00			1,000.00
Total					

*1,000.00 per shipment to travel approx 1,000 miles to Barnwell, SC; waste volume per shipment is 28.3 m3

**Waste to consolidation facility.

DECOMMISSIONING FUNDING PLAN
AS REQUIRED BY 10 CFR 40.36
UNDER U.S. NRC LICENSE SUB-348

COST ESTIMATING TABLES (ESTIMATE FOR DECOMMISSIONING ALL SUB-348 FACILITIES)

Table 7

Burial Charges 2473.50 ($/m^3)
Surcharges
Per container _____ ($)
Disposal _____ ($/m^3)

Waste Type	Burial Volume	Unit Cost of Burial	Surcharge	Burial Cost
_____	65m3	2473.50/m3	_____	161,000.00
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
Total	_____	_____	_____	_____

4. Restoration of Contaminated Areas on Facility Ground (Does not appear applicable at this time)

Table 8

Task	Work Days Supervisor	Foreman	H.P.	Clerical	Total	Total Cost
Backfill and Restore Site	_____	_____	____	_____	_____	_____
_____	_____	_____	____	_____	_____	_____
_____	_____	_____	____	_____	_____	_____

5. Final Radiation Survey

Table 9

Task	Work Days Supervisor	Foreman	H.P.	Clerical	Total	Total Cost
_____	5	5	20	10	_____	6060
_____	_____	_____	____	_____	_____	_____
Total	_____	_____	____	_____	_____	_____

FEB 2 6 1991

License Nos. 29-00047-02, 06, 08, 09
SUB-348

Docket Nos. 030-05215, 030-05216, 030-12535
030-20846, 040-06477

Control Nos. 112495, 112496, 112497,
112498, 112499

Department of the Army
Commander
U.S. Materiel Command
ATTN: AMSCF-P
5001 Eisenhower Avenue
Alexandra, Virginia 22333-0001

Gentlemen:

This is in reference to your financial assurance submittal dated April 30, 1990. In order to continue our review, we need the following additional information:

1. Please modify your statement of intent to indicate that funds for decommissioning costs will be requested and obtained sufficiently in advance of decommissioning to prevent delay of required activities.

2. Please provide evidence that the individuals signing the statement of intent are authorized to commit the funds described.

3. In your letter, you state, "the command is aware of the need to obtain funds equal to at least $187,000 for decommissioning..." Please describe how you arrived at this figure. If your intention was to comply with 10 CFR 30.35 and 10 CFR 40.36 by submitting a statement of intent as described in 10 CFR 30.35(f)(4) and 10 CFR 40.36(e)(4), the amount should be $1,575,000. Due to the possession limit for cobalt-60 in License No. 29-0047-08, $75,000 would be required to comply with 10 CFR 30.35(c)(3); due to the possession limit for natural and depleted uranium contained in License No. SUB-348, $750,000 would be required to comply with 10 CFR 40.36(c)(2); due to the possession limits contained in License No. 29-00047-02, $750,000 would be required to comply with 10 CFR 30.35(c)(2), for a total of $1,575,000.

   If you would like to submit a Decommissioning Funding Plan with a specific cost estimate, please provide a level of detail similar to that contained in "Standard Format and Content of Financial Assurance Mechanisms Required for Decommissioning Under 10 CFR Parts 30,40,70, and 72," Appendix F, (copy enclosed).

OFFICIAL RECORD COPY ML 358 REBER - 0001.0.0
02/04/91

ML 10

We will continue our review upon receipt of this information. Please reply in duplicate to my attention at the Region I office and refer to Mail Control No. 112499, 112495, 112496, 112497, 112498.

Sincerely,
Original Signed By:
John D. Kinneman

John D. Kinneman, Chief
Nuclear Materials Safety Section B
Division of Radiation Safety
and Safeguards

Enclosure:
Regulatory Guide 3.66

RI:DRSS
Reber/vhd
2/[illegible]/91

RI:DRSS
Kinneman
2/25/91

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02/04/91

040-06377

DEPARTMENT OF THE ARMY
U.S. ARMY ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

April 30, 1990

REPLY TO
ATTENTION OF

Safety Office
Health Physics Branch

U.S. Nuclear Regulatory Commission, Region I
Nuclear Materials Safety Section B
475 Allendale Road
King of Prussia, Pennsylvania 19406

Dear Sir or Madam:

Forwarded is the U.S. ARDEC Statement of Intent for decommissioning radioactive material activities IAW, Title 10, Code of Federal Regulations, Parts 30, 40, and 70.

The ARDEC licenses include numbers 29-00047-02, 29-00047-06, 29-00047-08, 29-00047-09, SUB-348, and SNM-561.

The command is aware of the need to obtain funds equal to at least $187,000 for decommissioning U.S. Nuclear Regulatory Commission (NRC) licensed activities at U.S. Army ARDEC, when and as required.

The Statement of Intent assures the NRC that the U.S. Army ARDEC will obtain adequate finances in an amount based on the type and quantity of licensed byproduct material, source material, and special nuclear material described in the NRC Tables, section 30.35(d), section 40.36(b), and section 70.25(d).

Records of information important to the safe and effective decommissioning of the facility will be either kept in an identified location, or if kept for other purposes reference to these records and their locations may be used until the license is terminated by the Commission.

112499
REC'D LMS
MAY 11, 1990

OFFICIAL RECORD COPY ML 10

The person to contact in the Safety Office concerning decommissioning is Mr. Richard W. Fliszar (201)724-3126.

Sincerely,

MICHAEL F. CLUNE
Chief, Safety Office

Enclosures

Copies Furnished:
COL Day, DASG-PSP-E, 5109 Leesburg Pike, Falls Church, VA 22041-5050
Commander, U.S. Army Material Command, AMCSF-P/AMXOS-PE
Commander, U.S. Army Armament, Munitions and Chemical Command, AMSMC-SFS/AMSMC-CPB(D)/AMSMC-GC(D)
SMCAR-CO

STATEMENT OF INTENT

The U.S. Army Armament Research Development and Engineering Center (ARDEC) located at Picatinny Arsenal, New Jersey, 07806-5000 is licensee under NRC license numbers: 29-00047-02, 29-00047-06, 29-00047-08, and 29-00047-09, SUB-348, and SNM-561.

ARDEC as licensee under the foregoing NRC licenses is responsible for providing financial assurance on decommissioning costs which would be required if ARDEC were to discontinue any or all operations involving NRC licensed activities.

The Commanding Officer of ARDEC, signatory, on the foregoing NRC licenses will assure that whatever funds required through budgetary procedures in the amounts prescribed by 10 CFR Parts 30, 40, and 70 will be available for such decommissioning. The Commander is responsible under Army Regulation 210.10 for all activities assigned to or under the jurisdiction of the installation and the responsibility for ensuring that requisitions and estimates for allotment of funds are properly prepared and submitted.

This is an originally signed duplicate.

WILLIAM R. HOLMES Date 4/25/90
Colonel, Ordnance Corps
Commanding

HEADQUARTERS, U.S. ARMY ARMAMENT, MUNITIONS AND CHEMICAL COMMAND
ROCK ISLAND, ILLINOIS 61299-6000

REPLY TO
ATTENTION OF

11 DEC 1989

AMSMC-CG (70-1p)

MEMORANDUM FOR Commander, U. S. Army Armament Research, Development and Engineering Center, Picatinny Arsenal, NJ 07806-5000

SUBJECT: U.S. Army Armament, Munitions and Chemical Command (AMCCOM) System In-Process Review (IPR) Authority

1. Colonel William Holmes, as Commander of the U.S. Army Armament Research, Development and Engineering Center (ARDEC) is hereby granted IPR authority for AMCCOM managed systems at ARDEC as outlined in the enclosed Delegation of Authority No. 89-5, 13 February 1989.

2. The point of contact for this action is Mr. C. W. Burgner, AMSMC-RT, AV 793-4551.

MARVIN D. BRAILSFORD
Major General, USA
Commanding

Encl

ACTION [illegible] IG SF PM CA FS FSC AS ASF ASC FM FSA FSO FSF

FSB FSF AF AFF AFS AFC AET CC CCS CCT CCP CCJ CCN CCL CCF

IS ISC ISI ISL ISL-T ISC ISC ISH ISH-Y ISH-PTH ISH-P ISH-E

CDTSY ART ART-TC RCEO SSO MARINES HELIPORT HEL CLINIC SFA [illegible]

ACT INFO AMSMC-MAY MAY-W MAY-P MAY-T MAY-S MAY-F LS OSA-A

SAA OAP OAI OAM OPB OPF PC PCC PCI PCA CA MC DP IG PC AVD

ACT INFO PM-AL MUC MCR MC CAWS TMAS FZ PEP HIP MK-19 GKG

ACTION INFO

ACTION: INFO:

RTTUZYUW RUEADWD6768 3132237-UUUU--RUEREKN.
ZNR UUUUU
R 081900Z NOV 86
FM DA WASHDC//DACS-GOM//
TO RUEREKA/CDRAMCCOM PICATINNY ARSENAL NJ//SM AMMO LCG//
RUEREKA/CDRUSARD SC PICATINNY ARSENAL NJ
INFO RUFDAAA/CINCUSAREUR HEIDELBERG GE//
RUDFGHA/USNMR SHAPE BE//CIAC//
RUAGAAA/CDRUSAEIGHT SEOUL KOR//
RUCJACC/USCINCCENT MACDILL AFB FL//
RHLBAAA/CINCSO QUARRY HEIGHTS PN//
RHCSSPB/CINCFORSCOM FT MCPHERSON GA//
RUCLAIA/CDRTRADOC FT MONROE VA//
RUKLDAF/CDRAMC ALEXANDRIA VA//
RUCJAAA/USCINCSOC MACDILL AFB FL//
RUHPHCA/CINCPAC HONOLULU HI//
RUEATWC/DA WASHINGTON DC//SALL//
RUWJMPA/CDRUSAISC FT HUACHUCA AZ//
RUACJHA/CDRUSARJ CP ZAMA JAPAN//
[illegible] SUPPORT ACTY WASHINGTON DC//[illegible]//
[illegible]/SUPT/USMA WEST POINT NY//
[illegible]/CDRWESTCOM FT SHAFTER HI//

PAGE 02 RUEADWD6768 UNCLAS
RUECFAA/CDRUSASOC FT BRAGG NC//
RUEDSWA/CDRUSAPSP FT CLAYTON PN//
RUEAHQF/CDRTAPA ALEXANDRIA VA//
RUKSMIC/CDRMTMC WASHINGTON DC//
RUKSNDW/CDRMDW WASHINGTON DC//[illegible]//
RUFDNPP/CDR1STPERSCOM SCHWETZINGEN GE//[illegible]//
BT
UNCLAS
SUBJECT: GENERAL OFFICER REASSIGNMENT ORDER FOR COL HOLMES
THIS IS A MESSAGE ORDER. ADDITIONAL COPIES OF THIS ORDER MAY [illegible]
REPRODUCED LOCALLY IF REQUIRED. [illegible]

1990. HOLMES, WILLIAM R., 240-56-8284, COL, USA ARMAMENT,
MUNITIONS AND CHEMICAL COMMAND (PICATINNY ELEMENT) (NAMMD2),
PICATINNY ARSENAL, NJ 07806. YOU ARE REASSIGNED AS INDICATED
BELOW. NO TRAVEL INVOLVED. ASSIGN TO: UNITED STATES ARMY
ARMAMENT RESEARCH AND DEVELOPMENT AND ENGINEER CENTER (ARMAM),
PICATINNY ARSENAL, NJ 07806 FOR ASSIGNMENT AS COMMANDING GENERAL/
DEPUTY COMMANDING GENERAL, UNITED STATES ARMY ARMAMENT, MUNITIONS
AND CHEMICAL COMMAND. REPORTING DATE: NLT 15 NOV 89. TERMINATE
CAC ACCESS FORMS FOR SPECIAL ACCESS PROGRAMS FROM YOUR CURRENT

PAGE 03 RUEADWD6768 UNCLAS
ASSIGNMENT. SHOULD BE COMPLETED PRIOR TO YOUR REASSIGNMENT. ALL
CLASSIFIED INFORMATION, INCLUDING EXTRA COPIES, GENERATED OR
OBTAINED WHILE IN YOUR CURRENT POSITION IS THE PROPERTY OF THE
UNITED STATES GOVERNMENT, AND MUST BE RETURNED TO YOUR DOCUMENT
CONTROL OFFICER. UPON SENATE CONFIRMATION YOU WILL BE REQUIRED TO
FILE AN FINANCIAL DISCLOSURE STATEMENT (SF 278) IAW AR 600-50.
MOC: 12N200. FORMAT: 820. BY ORDER OF THE SECRETARY OF THE ARMY.
ST
&6768

112499

RECD LMB
MAY 11, 1990

OFFICIAL RECORD COPY ML 10

BETWEEN:

LICENSE FEE MANAGEMENT BRANCH, ARM
AND
REGIONAL LICENSING SECTIONS

(FOR LFMS USE)
INFORMATION FROM LTS

PROGRAM CODE: 11300
STATUS CODE: 0
FEE CATEGORY: EX 2C
EXP. DATE: 19901031
FEE COMMENTS: _____

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED
APPLICANT/LICENSEE: ARMY, DEPARTMENT OF THE
RECEIVED DATE: 900511
DOCKET NO: 4006377
CONTROL NO.: 112499
LICENSE NO.: SUB-348
ACTION TYPE: AMENDMENT

2. FEE ATTACHED
AMOUNT: #0
CHECK NO.: -0-

3. COMMENTS

SIGNED R. F. Brown
DATE 5/14/90

B. LICENSE FEE MANAGEMENT BRANCH (CHECK WHEN MILESTONE 03 IS ENTERED /__/)

1. FEE CATEGORY AND AMOUNT: _____

2. CORRECT FEE PAID. APPLICATION MAY BE PROCESSED FOR:
AMENDMENT _____
RENEWAL _____
LICENSE _____

3. OTHER _____
_____

SIGNED _____
DATE _____