

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and Title 10, Code of Federal Regulations, Chapter I, Parts 30, 31, 32, 33, 34, 35, 36, 39, 40, and 70, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

<p style="text-align: center;">Licensee</p> <p>1. Defense Logistics Agency Defense National Stockpile Center</p> <p>2. 8725 John J. Kingman Road Fort Belvoir, Virginia 22060-6223</p>	<p>In accordance with the application dated January 6, 2010,</p> <p>3. License number STC-133 is amended in its entirety to read as follows:</p>	
	<p>4. Expiration date February 29, 2020</p>	
	<p>5. Docket No. 040-00341 Reference No.</p>	
<p>6. Byproduct, source, and/or special nuclear material</p> <p>A. Uranium and Thorium</p>	<p>7. Chemical and/or physical form</p> <p>A. Natural uranium and thorium mixtures as ores, concentrates, and solids</p>	<p>8. Maximum amount that licensee may possess at any one time under this license</p> <p>A. 2,000,000 kilograms</p>
<p>9. Authorized use:</p> <p>A. Storage, sampling, repackaging, and transfer as necessary for the activities of the National Defense Stockpile.</p>		

CONDITIONS

10. Licensed material may be used or stored only at the licensee's facilities located at DNSC New Haven Depot, State Route 14, New Haven, Indiana; and DNSC Scotia Depot, Route 5, Scotia, New York.
11. A. Licensed material shall be used by, or under the supervision of, Michael J. Pecullan or individuals who have completed the training described in the application dated January 6, 2010.
- B. The Radiation Safety Officer for this license is Michael J. Pecullan.
12. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**License Number
STC-133Docket or Reference Number
040-00341

Amendment No. 34

13. The licensee may use the following Derived Concentration Guideline Level (DCGL) for decommissioning of the licensee's facilities at the DNSC New Haven Depot, State Route 14, New Haven, Indiana with the intention of release of the facility for unrestricted use: not more than 2.5 picocuries per gram thorium 232 and progeny in soil and 2.3 picocuries per gram natural uranium and progeny in soil.
14. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents, including any enclosures, listed below. The U.S. Nuclear Regulatory Commission's regulations shall govern unless the statements, representations, and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated January 6, 2010 (ML100141271)



For the U.S. Nuclear Regulatory Commission

Date February 17, 2010

By

A handwritten signature in blue ink, appearing to read "Dennis R. Lawyer", is written over a horizontal line.

Dennis R. Lawyer
Commercial and R&D Branch
Division of Nuclear Materials Safety
Region I
King of Prussia, Pennsylvania 19406

Wednesday, February 17, 2010 14:06:22



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

February 17, 2010

Docket No. 04000341
Control No. 144372

License No. STC-133

Michael Pecullan
Radiation Safety Officer
Defense Logistics Agency
Defense National Stockpile Center
8725 John J. Kingman Road
Fort Belvoir, VA 22060-6223

SUBJECT: DEFENSE LOGISTICS AGENCY, LICENSE RENEWAL, CONTROL NO. 144372

Dear Mr. Pecullan:

This refers to your request for renewal of your NRC license. Enclosed with this letter is the renewed license. Please review the enclosed document carefully and be sure that you understand all conditions. If there are any errors or questions, please notify the U.S. Nuclear Regulatory Commission, Region I Office, Licensing Assistance Team, (610) 337-5239, so that we can provide appropriate corrections and answers.

Your application did not include your location at New Haven Depot, State Route 14, New Haven, Indiana, so it was included on your license until the site has been authorized for release.

The NRC expects licensees to conduct their programs with meticulous attention to detail and high standards of safety and compliance. Because of the serious consequences to employees and the public that can result from failure to comply with NRC requirements, you must conduct your program according to NRC regulations, the conditions of your NRC license, and the representations made in your application. In particular, note that you must:

1. Operate in accordance with NRC regulations 10 CFR Part 19, "Notices, Instructions and Reports to Workers; Inspections," 10 CFR Part 20, "Standards for Protection Against Radiation," and other applicable regulations.
2. Notify the NRC in writing of any change in mailing address.
3. In accordance with 10 CFR 30.36(d), notify the NRC, promptly, in writing, and request termination of the license
 - a) when you decide to terminate all activities involving materials authorized under the license; or
 - b) if you decide not to acquire or possess and use authorized material.
4. Request and obtain a license amendment before you:

- a) change Radiation Safety Officers;
 - b) order byproduct material in excess of the amount, or radionuclide, or form different than authorized on the license;
 - c) add or change the areas of use, or addresses of use identified in the license application or on the license; or
 - d) change the name or ownership of your organization.
5. Submit a complete renewal application or termination request at least 30 days before the expiration date of your license. You will receive a reminder notice approximately 90 days before the expiration date. Possession of byproduct material after your license expires is a violation of NRC regulations.

You will be periodically inspected by the NRC. Failure to conduct your program safely and in accordance with NRC regulations, license conditions, and the representations made in your license application and supplemental correspondence with NRC will result in enforcement action against you. This could include issuance of a notice of violation, imposition of a civil penalty, or an order suspending, modifying or revoking your license.

An environmental assessment for this action is not required, since this action is categorically excluded under 10 CFR 51.22(c)(14).

Current NRC regulations and guidance are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Medical, Academic, and Industrial Uses of Nuclear Material; Regulations, Guidance, and Communications**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 7:00 a.m. to 6:30 p.m. EST, Monday through Friday (except Federal holidays).

Thank you for your cooperation.

Sincerely,



Dennis R. Lawyer
Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety

Enclosure:
Amendment No. 34



DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VIRGINIA 22060-6221

IN REPLY
REFER TO

DNSC-ME

JAN 6 2010

Licensing Assistance Team
Environmental Management Programs
U.S. Nuclear Regulatory Commission, Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Re: License STC-133

Subject: Request For License Renewal

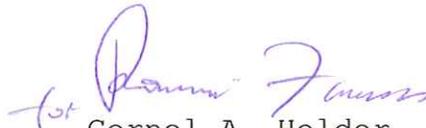
Gentlemen:

We hereby request renewal of the subject license which expires on February 28, 2010. In support of our request, we are enclosing NRC Form 313 with copies of our Occupational Radiation Protection Program and our previously approved Financial Assurance Submittal.

In addition, we wish to remind you that, while future storage of licensed materials will be at our depot in Scotia, NY, we are currently awaiting your approval of the previously submitted final status survey for our facility at New Haven, IN.

Should you have any additional questions regarding this letter, please contact Mr. Michael Pecullan at (703)767-7620.

Sincerely


Cornel A. Holder
Administrator

Attachments

NRC FORM 313
(3-2009)
10 CFR 30, 32, 33,
34, 35, 36, 39, and 40

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 3/31/2012

APPLICATION FOR MATERIALS LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

OFFICE OF FEDERAL & STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS
DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
612 E. LAMAR BOULEVARD, SUITE 400
ARLINGTON, TX 76011-4125

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

- A. NEW LICENSE
- B. AMENDMENT TO LICENSE NUMBER _____
- C. RENEWAL OF LICENSE NUMBER STC-133

2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

**Defense Logistics Agency
Defense National Stockpile Center (DNSC)
8725 John J. Kingman Road
Fort Belvoir, VA 22060**

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

**DNSC Depot
Route 5
Scotia, NY 12302**

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Michael J. Pecullan

TELEPHONE NUMBER

(703) 767-7620

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY **n/a** AMOUNT ENCLOSED **\$ 0.00**

13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE

Cornel A. Holder, Administrator

SIGNATURE

for Corni' Holder

DATE

1/6/10

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

ATTACHMENT TO NRC FORM 313 - APPLICATION FOR MATERIALS LICENSE

Item 5: Radioactive Material

Natural Uranium & Thorium mixtures as ores, concentrates & solids – 2,000,000 kilograms

Th-232 440 Ci maximum

U-238 1,420 Ci maximum

See Enclosure 1 for Financial Assurance; See Enclosure 2 for Recordkeeping

Item 6: Purposes

Storage, sampling, repackaging, transfer, transportation, decontamination as necessary for the activities of the National Defense Stockpile.

Item 7: Individual Responsible For Radiation Safety Program:

Michael J. Pecullan

Mr. Pecullan served as the Radiological Safety Officer for the Defense National Stockpile Zone (Northeastern U.S.) from 1978 through 1996. Upon disestablishment of the zone in 1996, through 2009, he was a Radiological Safety Officer for the DNSC Headquarters. His experience in the use of licensed materials encompasses a 31 year tenure as a Radiological Officer for the Defense National Stockpile Center (DNSC). Specific isotopes handled were up to 2 million kg of natural uranium and thorium (and daughters) contained in DNSC Source Materials. During this period his duties included field surveys, training, review of policy and procedures, repackaging, sampling, transportation, decontamination, decommissioning, and respiratory protection.

His formal training included the following:

Course	School	Hours	Dates
Basic Radiological Defense Officer Course	University of Lowell	40	Feb-78
Occupational Respiratory Protection	NIOSH	32	Jun-78
Ionizing Radiation	NIOSH	40	Sep-81
Hazardous Waste & Materials Compliance	Transportation Skills, Inc.	24	May-85
Impact of Proposed Changes to 10CFR20	Nucleon Lectern Associates	24	Jan-87
Radiation Protection 1992	Regulatory Consultants, Inc	16	Jan-92
Radioactive Waste Guidance	Chem-Nuclear Systems	40	Jan-94

ATTACHMENT TO NRC FORM 313 - APPLICATION FOR MATERIALS LICENSE

Course	School	Hours	Dates
Decontamination & Decommissioning	Nevada Technical Associates	40	Apr-99
Radiation Protection Workshop	USA CHPPM	24	May-99
Radiation Safety Officer Refresher	Nevada Technical Associates	16	Apr-00
Radiation Officer Refresher Training	ERS Solutions	24	May-02
MARSSIM	ORAU	40	May-03
Radiation Safety Officer Refresher	ORAU	24	Feb-05
Comprehensive Radioactive Waste Mgmt	ORAU	16	Apr-06
Env Monitoring for Radioactive Material	ORAU	40	May-06
Radiation Refresher Course	ORAU	24	Mar-07
Decontamination & Decommissioning	Argonne National Laboratory	32	Mar-07
Site Characterization	ORAU	40	Feb-09
Nuclear Accident Control	Army Corr Course Program	3	Apr-78
Peacetime Radiation Criteria	Army Corr Course Program	3	Apr-78
Nuclear Radiation Fundamentals	Army Corr Course Program	5	Jun-78
Radiological Safety I - Fundamentals	Army Corr Course Program	13	Jun-78
Radiac Instruments & Shielding	Army Corr Course Program	14	Aug-78
Radiological Health	Army Acad of Health Sciences	6	Oct-78

Item 8: Training

Defense National Stockpile Center Staff and Depot Security Personnel receive training commensurate with their duties and responsibilities in accordance with Section 17 of Enclosure 2, DNSC Occupational Radiation Protection Program.

Item 9: Facilities & Equipment

See Enclosure 2, DNSC Occupational Radiation Protection Program.

Item 10: Radiation Safety Program

See Enclosure 2, DNSC Occupational Radiation Protection Program

Item 11: Waste Management

See Section 7 of Enclosure 2, DNSC Occupational Radiation Protection Program

Enclosure 1

Financial Assurance



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

July 30, 2008

Docket No. 04000341
Control No. 141653

License No. STC-133

Michael Pecullan
Radiation Safety Officer
Defense Logistics Agency
Defense National Stockpile Center
8725 John J. Kingman Road, Suite 3229
Ft. Belvoir, VA 22060-6223

SUBJECT: DEFENSE LOGISTICS AGENCY, REVIEW OF FINANCIAL ASSURANCE
SUBMITTAL, CONTROL NO. 141653

Dear Mr. Pecullan:

We have reviewed the letter dated June 17, 2008, to meet the financial assurance requirements for your license. We have no further questions at this time.

The following documents currently provide your financial assurance:

Certification of Financial Assurance dated June 17, 2008 [ML081840459]
Statement of Intent dated June 17, 2008 [ML081840459]
Decommissioning Funding Plan dated June 17, 2008 [ML081840459]

We will return the original copies of superceded documents under separate cover.

Sincerely,

A handwritten signature in cursive script, appearing to read "Dennis R. Lawyer".

Dennis R. Lawyer
Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety



DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VIRGINIA 22060-6223

IN REPLY
REFER TO DNSC-ME

JUN 17 2008

Mr. Dennis R. Lawyer
United States Nuclear Regulatory Commission
Region 1
Division of Nuclear Materials Safety
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Ref: Request For Additional Information Concerning Financial Assurance Documents.
Control No. 141653

Dear Mr. Lawyer:

This letter is in response to your letter of May 16, 2008 to Mr. Michael J. Pecullan, regarding financial assurance documents associated with the requirements of NUREG – 1757, Volume 3, “Consolidated NMSS Decommissioning Guidance.”

1. We are re-submitting the attached Decommissioning Funding Plan (DFP) for review.
2. We are also attaching the requested Certification of Financial Assurance.
3. We are resubmitting our Statement of Intent with a copy of 50 U.S.C. § 98h (b)(2)(j) as you requested. The Statement of Intent specifically indicates our statutory authority to engage in decommissioning activities by expenditures from the National Defense Stockpile Transaction Fund. I am the Administrator of the Defense National Stockpile Center, the institution holding license STC-133, and as such have the authority to utilize this fund.

If you have any further questions concerning this matter please contact Mr. Pecullan at the above address.

Sincerely,

Cornel A. Holder
Administrator

Attachments



DEFENSE NATIONAL STOCKPILE CENTER

DECOMMISSIONING FUNDING PLAN LICENSE NO. STC-133

1. At present the following facilities are listed on our license:
 - a. DNSC Depot, Curtis Bay, MD
 - b. DNSC Depot, Hammond, IN
 - c. DNSC Depot, New Haven, IN
 - d. DNSC Depot, Scotia, NY
2. The license authorizes possession of source material in the form of 2,000,000 kilograms of natural uranium and thorium mixtures as ores, concentrates and solids. We currently possess no licensed materials at any site.
3. All decommissioning activities at sites a., b., and c. have been completed. Survey results (Final Status Survey Reports (FSSR)) have been submitted for sites a. and b. and we are awaiting a decision regarding site specific Derived Concentration Guideline Levels in order to submit the FSSR for site c. No further funding is required for these three sites.
4. At site d., we have completed a Historical Site Assessment and limited scoping survey. We anticipate decontamination will not be required and will need only to conduct a Final Status Survey. We estimate the cost of the survey at \$150,000 based on similar surveys at other, previously released, stockpile depots.
5. In addition to the \$150,000 estimate above, this funding plan includes a 25% contingency factor in the amount of \$37,500.
6. We anticipate no future changes at site d. and therefore will periodically adjust the site specific cost estimate based on the Consumer price Index.

CERTIFICATION OF FINANCIAL ASSURANCE

Principal: Defense National Stockpile Center
8725 John J. Kingman Road
Fort Belvoir, VA 22060

JUN 17 2008

NRC License No. STC-133
DNSC Depot Curtis Bay, MD
DNSC Depot Hammond, IN
DNSC Depot New Haven, IN
DNSC Depot Scotia, NY

Issued to: U.S. Nuclear Regulatory Commission

I certify that the Defense National Stockpile Center (DNSC) is licensed to possess the following types of source material in a readily dispersible form licensed under 10 CFR Part 40, in the following amounts:

<u>Type of Material</u>	<u>Amount of Material</u>
Natural uranium & thorium as ores, concentrates and solids	2,000,000 kilograms

I also certify that financial assurance in the amount of \$187,500 will be obtained for the purposes of decommissioning as prescribed by 10 CFR Part 40.



CORNEL A. HOLDER
Administrator

TO: U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

JUN 17 2008

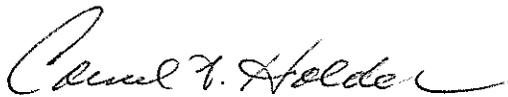
STATEMENT OF INTENT

As Administrator of the Defense National Stockpile Center (DNSC), I exercise express authority and responsibility to request funds from the National Defense Stockpile Transaction Fund for decommissioning activities associated with operations authorized by U.S. Nuclear Regulatory Commission License No. STC-133. The statutory authority for the Defense National Stockpile to engage in decommissioning activities is found in 50 U.S.C. § 98h(b)(2)(j), which makes funds available for the purpose of "Performance of environmental remediation, restoration, waste management, or compliance activities at locations of the stockpile that are required under a federal law or are undertaken by the government under an administrative decision or negotiated agreement." Decommissioning activities called for under NUREG-1757 fall into this category of permissible expenditures. Within this authority, I intend to request that funds be made available when necessary in the amount of \$187,500 to decommission the DNSC Scotia depot in Scotia, NY.

Decontamination and final surveys have been completed at all other licensed DNSC facilities:

DNSC Depot Curtis Bay, MD
DNSC Depot Hammond, IN
DNSC Depot New Haven, IN

Only a final survey is required at DNSC Depot Scotia, NY.



CORNEL A. HOLDER
Administrator

TITLE 50--WAR AND NATIONAL DEFENSE

CHAPTER 5--ARSENALS, ARMORIES, ARMS, AND WAR MATERIAL GENERALLY

SUBCHAPTER III--ACQUISITION AND DEVELOPMENT OF STRATEGIC RAW MATERIALS

Sec. 98h. National Defense Stockpile Transaction Fund

(a) Establishment

There is established in the Treasury of the United States a separate fund to be known as the National Defense Stockpile Transaction Fund (hereinafter in this section referred to as the 'fund').

(b) Fund operations

(1) All moneys received from the sale of materials in the stockpile under paragraphs (5) and (6) of section 98e(a) of this title shall be covered into the fund.

(2) Subject to section 98d(a)(1) of this title, moneys covered into the fund under paragraph (1) are hereby made available (subject to such limitations as may be provided in appropriation Acts) for the following purposes:

- (A) The acquisition, maintenance, and disposal of strategic and critical materials under section 98e(a) of this title.
- (B) Transportation, storage, and other incidental expenses related to such acquisition, maintenance, and disposal.
- (C) Development of current specifications of stockpile materials and the upgrading of existing stockpile materials to meet current specifications (including transportation, when economical, related to such upgrading).
- (D) Testing and quality studies of stockpile materials.
- (E) Studying future material and mobilization requirements for the stockpile.
- (F) Activities authorized under section 98h-6 of this title.
- (G) Contracting under competitive procedures for materials development and research to--
 - (i) improve the quality and availability of materials stockpiled from time to time in the stockpile; and
 - (ii) develop new materials for the stockpile.
- (H) Improvement or rehabilitation of facilities, structures, and infrastructure needed to maintain the integrity of stockpile materials.
- (I) Disposal of hazardous materials that are stored in the stockpile and authorized for disposal by law.
- (J) Performance of environmental remediation, restoration, waste management, or compliance activities at locations of the stockpile that are required under a Federal law or are undertaken by the Government under an administrative decision or negotiated agreement.
- (K) Pay of employees of the National Defense Stockpile program.
- (L) Other expenses of the National Defense Stockpile program.

(3) Moneys in the fund shall remain available until expended.

Enclosure 2

Occupational Radiation Protection Program



OCCUPATIONAL RADIATION PROTECTION PROGRAM

NOVEMBER 2009

Directorate of Materials Management
DNSC-M

PREFACE

This November, 2009 revision of the Defense National Stockpile Center (DNSC) Radiation Protection Guidelines supersedes all previous publications relating to radiological protection for DNSC personnel and property.

It is the stated policy and goal of the DNSC to establish appropriate and adequate procedures and controls to minimize exposure to ionizing radiation, to DNSC employees and the general public, to "AS LOW AS REASONABLY ACHIEVABLE", (ALARA). Adherence to the guidance set forth in this document will afford the protection necessary to achieve this goal and greatly minimize the biological effects of low level radiation exposure.

TABLE OF CONTENTS

	TITLE	PAGE
1.	PURPOSE	1
2.	SCOPE	1
3.	RESPONSIBILITY	1
4.	PROGRAM REQUIREMENTS	2-3
5.	CONTROL MEASURES	3-4
6.	PRECAUTIONARY MEASURES	4-5
7.	WASTE DISPOSAL	5
8.	WARNING SIGNS, LABELS, MARKINGS AND PLACARDS	5-6
9.	EXPOSURE CRITERIA	6-7
10.	STANDARDS AND REGULATIONS	7
11.	SURVEYS	7-8
12.	DECONTAMINATION & DECOMMISSIONING	8
13.	INSTRUMENTATION	8
14.	EMERGENCY PROCEDURES	8
15.	MEDICAL SURVEILLANCE	9
16.	RECORDS	9
17.	TRAINING	9
APPENDIX A	DEFINITIONS	
APPENDIX B	APPLICABLE REGULATIONS	
APPENDIX C	UNITS OF RADIOLOGICAL MEASUREMENT	
APPENDIX D	DNSC RADIOLOGICAL OFFICERS	
APPENDIX E	DEMONSTRATING COMPLIANCE WITH PUBLIC DOSE	

DEFENSE NATIONAL STOCKPILE CENTER

OCCUPATIONAL RADIATION PROTECTION PROGRAM

1. Purpose

The policy stated herein establishes guidelines for protection against ionizing radiation and an "Occupational Radiation Protection Program" (ORPP) for the handling and storage of licensed radioactive source materials at Defense National Stockpile Center (DNSC) facilities.

2. Scope

These guidelines apply to all DNSC personnel, visitors, and contractor personnel who, by the nature of their duties, may be exposed to ionizing radiation at locations where licensed DNSC radioactive materials are stored.

3. Responsibility

3.1 The Occupational Radiation Protection Manager (ORPM) is responsible for the development and overall administration of the ORPP. It is the responsibility of the ORPM to designate Radiological Safety Officers (RSO's), and Depot Radiological Protection Officers (RPO's), to carry out the functional responsibilities included in these guidelines. These individuals shall be designated in writing and their position descriptions shall be annotated to reflect the additional duty.

3.2 The Chief of Stockpile Operations (DNSC-MO) is responsible for nominating personnel to be RPO's, assuring that they attend the required training course(s) approved by the ORPM, and ensuring the establishment of an Emergency Response Plan by the manager of each depot where licensed radioactive stockpile materials are stored.

3.3 The RSO's are responsible for monitoring the effectiveness of the depots' radiological programs and extending the training program among personnel as required.

3.4 Distribution Facility Managers and Depot RPO's are responsible for the day to day supervision of the ORPP at their respective facilities. They are also responsible for and will ascertain that prescribed monitoring and safety precautions are taken with respect to radioactive materials.

3.5 It is the responsibility of the Depot RPO's to immediately notify the appropriate responsible officials (i.e., fire department, DNSC officials, etc) and take appropriate action in the event of an incident involving the release or potential release of radioactive materials in accordance with the depots' Emergency Protection Plans.

4. Program Requirements

An active, closely supervised ORPP will be implemented at a high level of organization, training, and proficiency at each DNSC facility storing radioactive materials. In implementing and maintaining the ORPP, the following specific requirements will be observed:

4.1 Each Depot RPO will maintain current copies of this ORPP. Depot RPO's will periodically review all plans and procedures, care for and maintain instruments, inspect records and materials in storage.

4.2 All personnel entering a restricted area shall first complete a DD Form 1952, "Dosimeter Application And Record Of Occupational Radiation Exposure". Mailing addresses shall be obtained for all Non-DNSC personnel and dosimetry results shall be forwarded to them, annually. A permanent record on DD Form 1141, Record Of Occupational Exposure To Ionizing Radiation, will be maintained for each potentially exposed person (when monitoring has been provided), by the Depot RPO. A computer generated form containing the same information as the printed DD Form 1141 is authorized; this will be referred to as the Automated Dosimetry Record (ADR).

4.3 Section 206 of Public Law 93-438 "Energy Reorganization Act of 1974", NRC Form 3 "Notice To Employees", "Notice of Violation" involving radiological working conditions (within two working days after receipt of the documents from the Commission and for a minimum of 5 working days or until action correcting the violation has been completed, whichever is later), and the location of the NRC license will be posted so as to be clearly visible.

4.4 Each depot having licensable radioactive materials in storage will have on hand as a minimum, two instruments capable of detecting alpha and gamma radiation, one alpha and one gamma check source, and TLD's for each employee. A supply of TLD's shall also be maintained for use by occasional visitors at any facility that has a restricted area.

4.5 The RSO's shall make, at a minimum, one survey per year at each depot **containing licensed materials** to review, 1) records, 2) inventories of instruments, check sources and licensed materials, 3) instrument calibration, 4) dosimetry services, and 5) Emergency Protection Plans. During the survey they shall also monitor all licensed material and evaluate radiation safety procedures through observation and discussion with the Depot RPO's, managers, supervisors, and other employees. Further, they shall prepare a comprehensive report detailing their annual survey and forward the same to the ORPM. The survey reports shall also: 1) Utilize a format and include the checklists provided by the ORPM; 2) contain a written evaluation of public dose compliance as noted in 10 CFR 20.1302 and 3) note the specific range of employee accumulated doses for the past year.

4.6 Depot RPO's shall review, and document this review of, all exposure records (DD Form 1141 or ADR) quarterly. Annually, they shall notify each person monitored of his/her accumulated dose and obtain written acknowledgements from the employees that shall be placed in the depot records. The notification shall be in accordance with the requirements of Title 10 CFR 19.13 and include the statement: "*This report is furnished to you under the provisions of the NRC regulation 10 CFR Part 19. You should preserve this report for further reference.*". Additionally, the Depot RPO's shall monitor operational activities relating to licensed radioactive materials, and maintain appropriate records of such operations.

4.7 Depot RPO's shall be responsible for the coordination of shipments and paperwork, including Nuclear Regulatory Commission reporting requirements . Strict compliance with 49 CFR § 173 shipping and labeling requirements shall be observed.

4.8 Once each fiscal year, RSO's shall coordinate with Distribution Facility Managers to set aside a monthly safety meeting for radiation protection training. The RSO's shall provide the training to all personnel except the guard force and clerical staff. Upon completion of the training, the RSO shall notify the ORPM, in writing, of the names of all attendees at the meeting. Training of the guard force will be accomplished in the form of written post instructions.

4.9 The ORPM shall audit the program by reviewing the annual reports submitted by the RSO's to determine compliance with the requirements of the NRC license and the ORPP and shall also annually review the overall licensed radiation protection program, NRC regulations, provisions of the NRC License and compliance status of the DNSC program. The ORPM shall report any adverse findings to senior management and shall forward each annual survey to DNSC-MO to advise of the status of the program at the depot.

4.10 Depot RPO's shall conduct a physical inventory of all NRC licensed material once each fiscal year. This inventory shall be documented in writing and kept on file at the depot. A copy shall be forwarded to the ORPM. Shipments or receipts of licensed material shall be reported by the Depot RPO's directly to the ORPM within 5 work days.

4.11 Depot RPO's shall establish a Decommissioning File at each location storing licensable material. The file shall contain the following records:

- a. documentation indicating where radioactive materials have been stored, handled or used.
- b. documentation of any spills or areas found to be contaminated
- c. copies of all annual surveys and surveys performed after sampling repackaging or shipping activities
- d. inventories and documentation regarding disposal, sale or shipment of radioactive commodities.

5. Control Measures

The greatest emphasis should be placed on engineering control measures to reduce exposures to levels "As Low As Reasonably Achievable" (ALARA).

5.1 Ventilation, Dust Collection, Isolation, and Facility Layout. Ventilation systems are not normally utilized during regular handling and storage of licensed material within DNSC as they are normally kept in unopened, sealed containers. However, local exhaust ventilation systems may be necessary in the rare event of a special project.

Prior to the beginning of a repackaging or decontamination project, an assessment shall be made by the ORPM, the radiological officers, and other stockpile personnel, to determine if there is a need for additional controls. Engineering controls such as, but not limited to, isolation, enclosure, exhaust ventilation and dust collection shall be used to meet the NRC exposure limit criteria.

5.2 Access. The layout of storage facilities shall be such that it minimizes exposure to ionizing radiation. For example, radioactive commodities shall be consolidated and isolated to limit access. Warehouses shall generally be kept locked and sealed and a log maintained to control the issuance of numbered seals. Depot access is to be controlled by perimeter fences along the site boundary and a full time security force.

5.3 Shielding.

For materials stored inside buildings or structures, if necessary, highly dense material in drums can serve as an effective perimeter shield. Normally, lead, concrete, or a combination of the two is used to attenuate the highly penetrative gamma rays. If shielding material is installed, special attention should be paid to such details as overlapping joints, eliminating voids or non-homogeneities in the shielding material, the need for structural support for non-load bearing material such as lead, the need to ensure proper attenuation through leaky areas in the shield, (e.g., glass windows, joints, seams, pipes, conduits, service boxes and doors). There is also a need for continuous maintenance of the shielding structure, to prevent deterioration.

5.4 Time. The longer, a person is exposed to radiation, the greater the biological risk. It should be understood that work operations involving radioactive stockpile commodities, particularly thorium nitrate or oxide, should take into account the length of time a person is exposed to a given dose of radiation. Personal monitoring, in conjunction with radiation surveys, are necessary to ensure that workers; a) are not exposed to radiation in excess of NRC regulations and b) exposure for a particular work task is maintained ALARA

5.5 Distance. Distance is a practical method of reducing the amount of radiation exposure to persons conducting stockpile work operations in and around radioactive materials. The levels of radiation decline rapidly as the distance is increased between the source and the person.

5.6 Protective Equipment. Every effort shall be made to reduce potential radiation exposures by the methods noted above. There may be times, however, when personal protective clothing and equipment will be the primary means of personnel protection, especially for airborne radionuclide particulates. Respirators shall be chosen for use according to the DNSC Occupational Health Guidelines for Respiratory Protection. Such respirators shall be approved for use in atmospheres containing radionuclides by the National Institute for Occupational Safety and Health (NIOSH). The specific type of respiratory protective equipment to be used shall be based on the judgment of the ORPM or a RSO.

Special training is necessary for the proper usage of personal protective clothing and equipment; such training (except for the care and use of respirators) is the responsibility of the Depot RPO's. Respiratory protection training is the responsibility of Respiratory Protection Designees as noted in the DNSC Respiratory Protection Program.

6. Precautionary Measures.

There are a number of measures that the Radiological Protection Officers and other depot personnel should be aware of at all times:

--the amount of exposure should be controlled in accordance with section 5.0 of this document,

--employee rotation (dose sharing),

--eating, drinking, smoking or chewing gum is strictly prohibited in areas containing radioactive materials,

--personal belongings such as: watches, rings, combs, etc shall not be worn while working in restricted areas,

--persons with open wounds shall not be allowed work in areas containing radioactive materials,

--if a person receives a cut or wound during a work operation involving radioactive materials, they shall immediately be removed from that area and the wound shall immediately be attended to,

--containers of licensable radioactive materials that are to be received into the Defense National Stockpile shall be thoroughly inspected for contamination and leaks prior to storage; in accordance with 10 CFR 20.1906,

--engineering controls, such as shielding, local exhaust ventilation, dust collection and isolation shall be used when and where necessary,

--handling of radioactive materials shall be carried out in a manner, which will prevent damage to the containers and reduce radiation exposure to ALARA,

--personnel shall exercise good personal hygiene habits (e.g., washing and showering thoroughly) when conducting work operations involving contact with radioactive materials,

--personnel shall wear personal protective equipment when conducting work operations where they may come into contact with airborne radioactive materials, or their gases,

--personnel shall be monitored by dose rate and contamination surveys during and after contact with licensed radioactive materials,

--radiation doses measured by personal dosimetry shall be recorded immediately after determination of the dose,

--shipment of licensed materials shall be in accordance with all federal, state, and local regulations,

7. Waste Disposal.

Shipment of radioactive waste is performed by a Department of Defense (DOD) Broker under contract to the DOD Executive Agent for Low-Level Radioactive Waste (US Army Joint Munitions Command). The broker is responsible for packaging the items and shipping them in accordance with applicable DOT regulations. The RPO is responsible for ensuring that all work performed by the broker is performed in accordance with the ALARA principle, standard radiological health practices, and this manual.

8. Warning Signs. Labels. Markings and Placards.

8.1 General. Documents, notices, signs, or forms shall be conspicuous, and shall be replaced if defaced or otherwise rendered illegible.

8.2 Notices. Items a., b., & d. below shall be posted such that workers have access to them as they travel to/from work. The other items can be posted with a notice as to where persons entering a Radioactive Materials Area (RAM) can review them:

- a. NRC Form 3, Notice to Employees.
- b. 10 CFR Parts 19, 20, 21
- c. NRC license for DNSC and amendments
- d. Notice of Violation, or any other applicable infraction, involving radiological working conditions.
- e. Section 206, Energy Reorganization Act

8.3 Radioactive Material (RAM) Areas. Radioactive Material Areas shall be posted at each entrance of a building, room, or area. An area within a building may be designated a RAM area by the use of stanchions positioned such that the posting is clearly visible from each avenue of approach.

a. Restricted areas where dose rates exceed 5.0 mR/hr at any point shall be posted with conspicuous signs in accordance with 10 CFR 20.1902(a).

b. Any area which contains more than 1,000 microcuries of licensed material shall be posted with conspicuous signs in accordance with 10 CFR 20.1902(e).

9. Exposure Criteria and Evaluation.

There are some basic assumptions that have been derived in formulating radiation protection guidelines. They are: 1) the biological effects of low level radiation are not precisely known, 2) there is no known level of radiation below which there will be no biological effects, and 3) there is a linear relationship between biological effects and dose.

Permissible levels of radiation exposure in an occupational environment are set higher than in a non-occupational environment.

9.1 DNSC Exposure Criteria.

9.1.1 The maximum permissible occupational dose is 5.0 rems per year. The maximum permissible dose to members of the public is 100 millirem per year.

9.1.2 The DNSC maximum permissible dose rate within a controlled area shall not exceed 0.50 mR/hr. A Restricted Area shall be established where dose rates exceed 0.50 mR/hr at a distance of one foot from the material.

9.1.3 TLD's shall be used by ALL personnel entering a restricted area WHERE THEY ARE LIKELY TO RECEIVE, IN ONE YEAR, A DOSE IN EXCESS OF 500 mRem. The RSO will annually evaluate the need for personnel dosimetry at the depot and document the evaluation in the annual survey.

9.1.4 The DNSC maximum permissible dose rate at the perimeter fence of the storage facility shall not exceed background.

9.1.5 Minors shall not be permitted to enter restricted areas.

9.1.6 Because of the DNSC mission and operational structure, exposure to radiation is limited. It is, however, recognized that radiation exposure can produce damaging effects to embryos and fetuses, especially when received during certain periods of gestation. Because of this sensitivity, it is DNSC policy to minimize fetal exposure to radiation. DNSC employees who are at risk for occupational exposure and who are pregnant, or believe that they could be pregnant, are encouraged to notify their supervisor and/or Radiation Protection Officer, in writing, and to discuss the situation, risks, and possible consequences of continued exposure. All such discussions will remain confidential. All female employees likely to receive an occupational dose, and all supervisors at NRC licensed sites, shall be given a copy of NRC Regulatory Guide 8.13, "Instructions Concerning Prenatal Radiation Exposure" and instructed in the potential risks of exposure to ionizing radiation during pregnancy.

Upon receipt of a written notification containing the estimated date of conception, pregnant employees shall be provided with an alternate work assignment comparable to their current position that will eliminate occupational exposure to radiation during the remainder of their pregnancy.

Declared pregnant workers (DPW) will not be exposed to more than 100 millirem during the gestation period after they have declared their pregnancy in writing to their supervisor. Supervisors are responsible for informing the RPO of all such declarations as soon as possible, providing a copy of the declaration to the RPO and taking appropriate action to limit the worker's potential exposure for the remainder of the pregnancy. If the worker has already received 100 millirem from the time of conception to the time of declaration, contact the ORPM for additional guidance. DNSC employees unable to continue their regular duties because of this limitation will be provided with an alternative work assignment, free from occupational radiation exposure, that will have no adverse effect on their rate of pay, benefits or promotion.

10. Standards and Regulations.

Applicable standards, regulations and guidelines shall be fully understood and complied with when handling, storing, or, shipping licensed radioactive materials in the Defense National Stockpile. A list of these standards can be found in Appendix B.

11. Surveys

Annual radiological surveys shall be conducted at each facility containing licensed material by an RSO. They shall include, but not be limited to, a physical survey of the material and equipment, review of records, review of training, and interviews of the Distribution Facility Manager and RPO.

As a minimum the survey shall include the requirements outlined in 10 CFR Part 20. 1501. Surveys shall also include measurements of dose rates at contact with the container (where practical), at one foot distance, at the perimeter of any restricted area, and at the depot perimeter if the depot contains a restricted area. (NOTE: In lieu of radiological measurements at the Depot perimeter, measurements may be taken within the controlled area at a point where levels of radiation do not exceed background.) The RSO shall also document the location of licensed materials in the depot and assure that an inventory was conducted within the past 365 days.

12. Decontamination & Decommissioning

When closing out a facility or "decommissioning" a specific storage building, area, material or equipment, residual radioactive contamination must be addressed. The procedures, level or limits established by the Nuclear Regulatory Commission (NRC) in their document NUREG 1757 "Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees" shall be used. Specific procedures shall be developed by the ORPP Manager. Decontamination actions shall be documented in writing.

13. Instrumentation

13.1 Monitoring instruments shall have sufficient sensitivity, precision, and dynamic range to accommodate the type of radiation being measured.

13.2 The monitoring level on the instruments should be set at the level of radiation expected to be encountered. Review of previous survey results in the area will provide the expected levels.

13.3..Annual calibration of all monitoring instruments is MANDATORY. Calibration must be performed by a laboratory possessing a valid NRC or Agreement State license. When the instruments are received from the calibration facility, establish a baseline for future operational checks by taking a reading with the appropriate check source. Place a written record of the date, reading, instrument and source serial numbers in the depot calibration file.

13.4 TLD's must be obtained from, processed and evaluated by, the Department of the Army Ionizing Radiation Dosimetry Center.

14. Emergency Procedures

14.1 DNSC-MO is responsible to ensure that each Manager, at depots where radioactive material is stored, establishes an Emergency Protection Plan. These procedures shall be reviewed and/or updated annually. The revisions must be reviewed by the RPO.

14.2 Prior arrangements should be established with local police and fire departments, hospitals, in-house and outside emergency squads and other medical facilities. Evacuation routes and assembly points should be designated. Documentation of meetings/contacts with outside agencies shall be maintained.

15. Medical Surveillance

A pre-employment and annual medical examination program for stockpile employees potentially exposed to hazardous and radioactive materials shall be conducted. Complete medical records for each employee shall be maintained by the servicing health unit.

16. Records

16.1 The Nuclear Regulatory Commission requires each licensee to keep exposure, monitoring, survey, disposal, and decontamination records. These records shall be kept indefinitely at the depots where the licensed material is stored. Copies of radiation surveys will be forwarded to the DNSC Headquarters.

16.2 The depot RPO at each site where licensed source material is stored will establish a Radiological Data Book containing license data, exposure data, calibration data, the DNSC ORPP and all other documents related to the source material at the site. Included shall be written records of quarterly exposure reviews, annual radiation exposure notifications, and initial and annual radiation safety training

16.3 Dosimetry Records: See Defense Logistics Agency One Book "Personnel Dosimetry and Recordkeeping" for scope and disposition.

17. Training

17.1 Radiological officers shall be given at least 40 hours formal classroom training commensurate with their assigned duties and specific to their responsibilities within the DNSC ORPP. Training courses must be approved by the ORPM. As a minimum, the training shall include: the fundamentals of ionizing radiation, its characteristics, and appropriate units of measure, evaluation techniques, instrumentation, biological effects, NRC Regulations, and control measures. Refresher training shall be provided triennially. Additionally radiological officers shall receive training in DoT Regulations.

17.2 All depot personnel (except clerical staff and security personnel) shall receive annual training regarding potential hazards, precautions to minimize exposure, work practices and operating procedures, personal hygiene, information contained in NRC Regulatory Guide 8.13, and use of personal protective clothing and equipment. The RSO's shall develop a detailed, site specific, outline which will be kept on file at the depot. Attendance at all training sessions shall be documented and lists kept on file (See paragraph 4.8). At the conclusion of the training, a written test shall be administered; the passing grade shall be 70%. Persons failing the test shall be retrained and tested.

17.3 Security personnel who may encounter radiological hazards during the performance of their duties will be properly instructed, annually. The scope of the training will be appropriate to the level of exposure as determined by the RSO and may be in the form of written instruction rather than formal classroom training.

DEFINITIONS

APPENDIX A

DEFINITIONS

Absorbed dose means the energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the rad and the gray (Gy).

Activity is the rate of disintegration (transformation) or decay of radioactive material. The units of activity are the curie (Ci) and the becquerel (Bq).

Adult means an individual 18 or more years of age.

Airborne radioactive material means radioactive material dispersed in the air in the form of dusts, fumes, particulate, mists, vapors, or gases.

Airborne radioactivity area means a room, enclosure, or area in which airborne radioactive materials, composed wholly or partly of licensed material, exist in concentrations:

(1) In excess of the derived air concentrations (See Appendix B, 10 CFR Part 20) or,

(2) To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6 percent of the annual limit on intake (ALI) or 12 DAC hours.

ALARA (acronym for "as low as is reasonably achievable") means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical, consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in the relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest.

Background Radiation means radiation from cosmic sources, naturally occurring radioactive materials, including radon (except as a decay product of source or special nuclear material) and global fallout as it exists in the environment from the testing of nuclear explosive devices. "Background radiation" does not include radiation from source, byproduct, or special nuclear materials regulated by the Commission.

Bioassay (radiobioassay) means the determination of kinds, quantities or concentrations and in some cases, the locations of radioactive material in the human body, whether, by direct measurement (in vivo counting) or by analysis and evaluation of materials excreted or removed from the human body.

Byproduct material means

(1) Any radioactive material (except special nuclear- material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material; and,

(2) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes

resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "byproduct material" within this definition.

Collective dose is the sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation.

Committed dose equivalent means the dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

Committed effective dose equivalent is the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues.

Controlled area means an area, outside a restricted area but inside the site boundary, access to which can be limited by the licensee for any reason.

Declared Pregnant woman means a woman who has voluntarily informed her employer, in writing, of her pregnancy and the estimated date of conception.

Deep-dose equivalent which applies to external whole-body exposure, is the dose equivalent at a tissue depth of 1 cm.

Dose or radiation dose is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent.

Dose equivalent means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and sievert.

Dose Rate is a measure of dose per unit of time.

Effective dose equivalent is the **sum** of the products of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the body organs or tissues that are irradiated.

Exposure means being exposed to ionizing radiation or to radioactive material.

External dose means that portion of the dose equivalent received from radiation sources outside the body.

High radiation area means an area accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.1 rem in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

Individual monitoring means

(1) The assessment of dose equivalent by the use of devices designed to be worn by an individual,

(2) The assessment of committed effective dose equivalent by bioassay (see Bioassay) or by determination of the time-weighted air concentrations to which an individual has been exposed, or

(3) The assessment of dose equivalent by the use of survey data.

Internal dose means that portion of the dose equivalent received from radioactive material taken into the body.

Licensed material means source material, special nuclear material, or byproduct material received, possessed, used, transferred or, disposed of under a general or specific license by the Commission.

Limited quantity means a quantity of radioactive material not exceeding the materials package limits of 49 CFR 173.423 which conforms to the requirements in 49 CFR 173.421.

Limits (dose limits) means the permissible upper bounds of radiation doses.

Low specific activity (LSA) material generally means uranium or thorium ores and their physical or chemical concentrates; a material of low activity and heavy weight as noted in 49 CFR 173.403).

Member of the Public means any individual except when that individual is receiving an occupational dose.

Minor means an individual less than 18 years of age.

Monitoring means the measurement of radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.

Occupational dose means the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the license or other person. Occupational dose does not include dose received from background radiation or as a member of the general public.

Public dose means the dose received by a member of the public from exposure to radiation or radioactive material released by a licensee, or to any other source of radiation under the control of a licensee. It does not include occupational dose or doses received from background radiation.

Radiation (ionizing radiation) means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this program, does not include non-ionizing radiation, such as radio-or microwaves, or visible, infrared, or ultraviolet light.

Radiation area means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 mSv) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

Rem is the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by the quality factor, 1 rem = 0.01 sievert (Sv)

Restricted Area means an area, access to which is limited by the licensee for the purpose of protecting individuals against risks from exposure to radiation.

Shallow-dose equivalent which applies to the external exposure of the skin or an extremity is taken as the dose equivalent at a tissue depth of 0.007 centimeter averaged over an area of 1 square centimeter.

Sievert (Sv) is the Standard International (SI) unit of any of the quantities expressed as dose equivalent. The dose equivalent in sieverts is equal to the absorbed dose in grays multiplied by the quality factor, 1 Sv = 100 rems.

Site boundary means that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

Source material means:

(1) Uranium or thorium or any combination of uranium and thorium in any physical or chemical form; or

(2) Ores that contain, by weight, one-twentieth of 1 percent (0.05 percent), or more, of uranium, thorium, or any combination of uranium and thorium (see 40 CFR 40.4). NOTE Source material does not include special nuclear material.

Survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.

Total Effective Dose Equivalent (TEDE) means the sum of the deep-dose equivalent (for external exposure and the committed effective dose equivalent (for internal exposures).

Unrestricted area means an area, access to which is neither limited nor controlled by the licensee.

APPLICABLE REGULATIONS

APPENDIX B

APPLICABLE REGULATIONS

1. Title 10, Code of Federal Regulations (Energy), parts 19, 20, 40, and 71.
2. Title 29, Code of Federal Regulations (Labor), part 1910.
3. Title 40, Code of Federal Regulations (Environment), all applicable parts.
4. Title 49, Code of Federal Regulations (Transportation), parts 171 – 189.
5. All Applicable State Rules and Requirements governing the use, storage transportation and disposal of radioactive source material.
6. DLA One Book Personnel Dosimetry and Recordkeeping
7. DNSC Respiratory Protection Program.

UNITS OF RADIOLOGICAL MEASUREMENT

UNITS OF RADIOLOGICAL MEASUREMENT

MULTIPLY # OF \longrightarrow by \longrightarrow TO OBTAIN # OF
 TO OBTAIN # OF \longleftarrow by \longleftarrow DIVIDE # OF

becquerel	2.703×10^{-11}	curies
curies	3.70×10^{10}	disintegrations /sec
curies	10^3	millicuries
curies	10^6	microcuries
curies	10^{12}	picocuries
curies	10^{-3}	kilocuries
curies	3.7×10^{10}	becquerel
dis/min	4.505×10^{-10}	millicuries
dis/min	4.505×10^{-7}	microcuries
dis/sec	2.703×10^{-8}	millicuries
dis/sec	2.703×10^{-5}	microcuries
gray	100	rad
kilocuries	10^3	curies
microcuries	3.7×10^4	dis/sec
microcuries	2.2×10^6	dis/min
millicuries	3.7×10^7	dis/sec
millicuries	2.22×10^9	dis/min

UNITS OF RADIOLOGICAL MEASUREMENT



R	2.58×10^{-4}	C/kg of air
rads	0.01	gray
rads	0.01	J/kg
rads	100	ergs/gm
rads	6.242×10^7	MeV/g
rem	0.01	sievert
microcuries/cm ³	2.22×10^{12}	dpm/m ³
microcuries/cm ³	2.22×10^9	dpm/liter
dpm/m ³	0.4505	pCi/m ³
sievert	100	rem

DNSC RADIOLOGICAL OFFICERS & STAFF

APPENDIX D

DEFENSE NATIONAL STOCKPILE CENTER RADIOLOGICAL OFFICERS & STAFF

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M. Pecullan- ORPM & RSO

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GUIDANCE FOR DEMONSTRATING COMPLIANCE WITH PUBLIC DOSE

Guidance for Demonstrating Compliance with Public Dose

Background

The ORPP, requires the RSO to perform an evaluation at each depot to ensure that exposures to individual members of the public do not exceed 1.0 mSv (100 mrem) in a calendar year. The Nuclear Regulatory Commission has issued specific guidance on the methods used to perform this evaluation. The following provides guidance on performing this evaluation and the retention of records associated with the evaluation.

Regulatory Requirement

10 CFR 1301 states,

1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 millisievert) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with §35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with §20.2003, and

(2) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with §35.75, does not exceed 0.002 rem (0.02 millisievert) in any one hour.

10 CFR 1302 states that compliance is demonstrated by:

(a) The licensee shall make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in §20.1301.

(b) A licensee shall show compliance with the annual dose limit in §20.1301 by --

(1) Demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit;

A member of the public is an individual in a controlled or unrestricted area who is not receiving an Occupational Dose.

Compliance Methods

The dose to a member of the public is comprised of internal and external exposure (i.e., Total Effective Dose Equivalent (TEDE)). NRC regulations require that the total effective dose equivalent (TEDE) from all exposure pathways not exceed 100 mrem per year. This exposure is comprised of equal parts of internal and external exposure (i.e., 50 mrem internal and 50 mrem external). In order to perform the evaluation, all potential sources of external and internal radiation exposures and all locations of use, transport, and storage of radioactive material at the depot must be identified. For DNSC depots, we will use a combination of measurements, process knowledge, and calculations to demonstrate compliance. Since the types of radioactive material stored or handled at DNSC depots are solids in sealed containers, then the internal pathway can be eliminated and the total dose limit (100 mrem) can be assumed to occur through external exposure.

Step 1 Determine the Dose In The Unrestricted Area

Determine the location in an unrestricted area where a member of the public would receive the highest dose from licensed operations (*Unrestricted area* means an area, access to which is neither limited nor controlled by the licensee). This location is typically outside the depot perimeter fence. Determine the dose rate by reviewing the results of monitoring by perimeter surveys. Since it is DNSC policy to maintain the dose rate at the perimeter fence at background, the annual dose to a member of the public would be zero. This should be noted in a written discussion in the annual survey report.

Step 2 Determine the Dose In The Controlled Area

If members of the public are routinely present in a controlled area, locate the building(s) where they are situated and determine the dose rate by reviewing the results of monitoring. A conservative approach is to select the highest measurement and assume that the dose rate remained at that level for an entire year.

Assume that the member of the public is present at that location for 24 hours per day, 365 days per year. This provides an occupancy factor of 1. If the result of the calculation using an occupancy factor of 1 shows that the public dose limit is not exceeded, there is no need for further evaluation.

If the calculation demonstrates that the public dose limit is exceeded with an occupancy factor of 1 the following assumption may be made:

For example, the RSO knows, based upon process knowledge that workers do not work 24 hours per day, 365 days per year. To gain an estimate of a more realistic occupancy the RSO assumes 40 hours per week, 52 weeks per year. This will safeside the results because the RSO knows that, at this location, the workers do not work a full work day, every day of every week during the year.

If the result of this calculation shows that the public dose limit is exceeded then more realistic assumptions of the individuals' occupancy may be made. When this approach is used, the RSO must document the justification for the use of the reduced occupancy factor. One method would be to interview workers and supervisors.

Step 3 Records

The depot must maintain records (annual survey report) to demonstrate compliance with the dose limit until the NRC terminates the license. In general the following must be included:

- The surveys or measurements used in the calculations,
- The justification of site specific occupancy factors,
- A map or diagram showing the perimeter of the storage area and the location of highest dose and
- The results of the calculations must be maintained

Example Calculations

Calculations for compliance are performed as follows. The calculations shown assume a maximum measured dose rate of 0.030 mrem/hr.

- *Occupancy Factor*

$$(40 \text{ hr/wk})(52 \text{ wks/yr}) = 2,080 \text{ hrs/yr}$$

- *Maximum Dose to Member of Public*

$$(0.030 \text{ mrem/hr})(2,080 \text{ hr/yr}) = \mathbf{62.4 \text{ mrem}}$$

ANNUAL SURVEY REPORT TEMPLATE

APPENDIX G



OCCUPATIONAL RADIATION PROTECTION PROGRAM ANNUAL SURVEY

XXXXXXXXXXXXXXXXXXXX DEPOT

XXXXXXXX 200X

Prepared by

Directorate of Materials Management
DNSC-M

OCCUPATIONAL RADIATION PROTECTION PROGRAM SURVEY

XXXXXXXXXXXXX DEPOT

EXECUTIVE SUMMARY

On XXXXXXXXXXXXXXXX xx, 200x, Ms XXXXXXXXXXXXX XXXXXXXXXXXXX, Radiological Safety Officer, performed a survey of the radiological operations at the DNSC XXXXXXXXXXXXXXXX Depot in XXXXXXXXXXXXXXXX, XX. The results of the survey indicated that the depot had an effective Occupational Radiation Protection Program. XXXXXXXXX items were identified that did not meet the requirements of the DNSC Nuclear Regulatory Commission License or the DNSC ORPP and are identified in sections X, XX, and XX of this report. There were xxxx health and safety concerns identified as a result of the storage and handling of radioactive material at XXXXXXXXXXXXX. Exposures for depot personnel have been maintain ALARA.

Implementation of the following recommendations will improve the overall management and regulatory compliance of the ORPP at XXXXXXXXXXXXX.

- a. XXXXXXXXXXXXXXXX [ORPP section x.x]
- b. XXXXXXXXXXXXXXXX[10 CFR 20.xx]
- c. XXXXXXXXXXXXXXXX[10 CFR 19.xx]

DISCUSSION

I. ADMINISTRATION

Mr. XXXXXXXX XXXXXXXXXX was designated as the Radiological Protection Officer.

LICENSE

Radiological operations were authorized under NRC license STC-133, Amendment No. 23, issued August 5, 2002, expiring on February 28, 2010. The license authorizes the storage, sampling, repackaging and transfer natural uranium and thorium ores, concentrates or solids. The license was implemented under the DNSC ORPP manual dated December x, 2002.

INVENTORY

The license authorizes the DNSC to possess a total of 2,000,000 kg of radioactive material in the form of uranium and thorium contained in ores, concentrates, and solids. Inventories at specific locations were not limited. DNSC records dated XXXXX xx, 200x indicate that the depot possessed a total of x,xxx,xxx pounds of thorium nitrate, x,xxx,xxx pounds of tungsten concentrates and x,xxx,xxx pounds of columbium/tantalum concentrates with a total of xx.xx curies. The weights agree/disagree with depot records. A physical inventory was last conducted by XXXXXXXXXX XXXXXXXX on XXXXXXXXXX xx, 200x. Inventory results were in agreement with records.

II. DOSIMETRY

Thermoluminescent dosimeters (TLD) are available for all employees with access to the radioactive materials; a supply is kept on hand for visitors. TLD's are supplied and analyzed by the U.S. Army Ionizing Radiation Dosimetry Center (USAIRDC) at the Redstone Arsenal. USAIRDC possess an NVLAP certification. All TLD's are stored in xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx and are issued to workers when they xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.

The writer reviewed the results of the personnel monitoring for the past year. A total of xx TLD's had been issued to personnel working at the depot. The monitoring results indicated that the exposures were below the 5.0 Rem annual limit specified by the ORPP. The range of recorded annual exposures was xx to xx Rem.

Each person issued a TLD had completed an exposure history (Form 1952). Copies were maintained by the RPO. Exposure records had been reviewed quarterly and the RPO provided each worker with an annual report for the previous year.

Internal dosimetry is not routinely performed due to the nature of storage.

PUBLIC DOSE COMPLIANCE

Dose rate measurements were made at the perimeter of the depot which indicated that levels were at background. Therefore the annual dose to members of the public in the unrestricted area outside the depot was zero. The property inside the depot fence is a controlled area. ***There are no restricted areas on the depot. There are restricted areas at the depot in xxxxxxxxxxxxxxxx.***

There are no members of the public routinely present in the controlled area. Members of the public are routinely present in the controlled area at xxxxxxxxxxxxxxxx. Annual dose was calculated at xx.xx mrem per year which is within the allowable limits (100 mrem) noted in 10 CFR 20.1301 (see attached calculation).

III. TRAINING

The RPO has received the formal radiological safety classroom training required by the ORPP [section 17.1] and ***has also (has not)*** received training in DoT Regulations.

General worker training of depot employees and security personnel was accomplished by the RSO on XXXXXXXXXXXX xx, 200x. The RSO maintained a detailed outline of the training topics presented during the class. Scope of the training met the requirements of the ORPP [section 17.2].

IV. EMERGENCY RESPONSE

Emergency Plan (*Provide a narrative including but not limited to the date of the latest revision and the date of the lastest discussion or agreements with offsite responders.*)

Emergency response personnel

V. RADIATION SURVEYS

Last survey
Instrumentation-this survey
Dose rates

VI. RECEIPTS, SHIPMENTS, AND DISPOSAL

No receipts, shipments or disposals were made since the last annual survey.

VII. INSTRUMENTATION (See attached spreadsheet)

The depot had an adequate supply of instrumentation on hand to ensure successful operation of the ORPP. Instrumentation consisted of an XXXXXXXXXXXX xxxxxxxxxx with a xxxxxxxxxxxxxx. All calibrations had been accomplished within the allowable (every 365 days) time frames by the XXXXXXXXXXXXXX Company of XXXXXXXXXXXXXXXX, XX.

Calibration Certificates

VIII. INCIDENTS

No incidents were reported since the last survey.

IX. STORAGE AREAS

Locations
Type construction
Building security (doors, locks, seals)
Shielding

X. POSTING

NRC Form 3
Section 206, Public Law 93-438
NFPA signs
“CAUTION RADIATION AREA”
“CAUTION RADIOACTIVE MATERIALS”

XI. OTHER

Projects
Audits
NRC Inspections

CONCLUSION

The ORPP, at the DNSC XXXXXXXXXXXX Depot, was effective. Implementing the following recommendations will improve the overall management and regulatory compliance.

- 1.
- 2.
- 3.



DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VIRGINIA 22060-6221

IN REPLY
REFER TO

DNSC-ME

JAN 6 2010

Licensing Assistance Team
Environmental Management Programs
U.S. Nuclear Regulatory Commission, Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

Re: License STC-133

Subject: Request For License Renewal

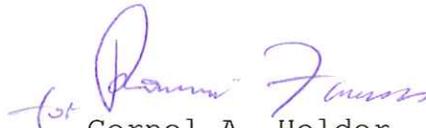
Gentlemen:

We hereby request renewal of the subject license which expires on February 28, 2010. In support of our request, we are enclosing NRC Form 313 with copies of our Occupational Radiation Protection Program and our previously approved Financial Assurance Submittal.

In addition, we wish to remind you that, while future storage of licensed materials will be at our depot in Scotia, NY, we are currently awaiting your approval of the previously submitted final status survey for our facility at New Haven, IN.

Should you have any additional questions regarding this letter, please contact Mr. Michael Pecullan at (703)767-7620.

Sincerely


Cornel A. Holder
Administrator

Attachments

NRC FORM 313
(3-2009)
10 CFR 30, 32, 33,
34, 35, 36, 39, and 40

U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0120

EXPIRES: 3/31/2012

APPLICATION FOR MATERIALS LICENSE

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE APPROPRIATE LICENSE APPLICATION GUIDE FOR DETAILED INSTRUCTIONS FOR COMPLETING APPLICATION. SEND TWO COPIES OF THE ENTIRE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

OFFICE OF FEDERAL & STATE MATERIALS AND ENVIRONMENTAL MANAGEMENT PROGRAMS
DIVISION OF MATERIALS SAFETY AND STATE AGREEMENTS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA, SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406-1415

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING, SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
612 E. LAMAR BOULEVARD, SUITE 400
ARLINGTON, TX 76011-4125

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR (Check appropriate item)

A. NEW LICENSE

B. AMENDMENT TO LICENSE NUMBER _____

C. RENEWAL OF LICENSE NUMBER STC-133

2. NAME AND MAILING ADDRESS OF APPLICANT (Include ZIP code)

**Defense Logistics Agency
Defense National Stockpile Center (DNSC)
8725 John J. Kingman Road
Fort Belvoir, VA 22060**

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

**DNSC Depot
Route 5
Scotia, NY 12302**

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Michael J. Pecullan

TELEPHONE NUMBER

(703) 767-7620

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES (See 10 CFR 170 and Section 170.31)

FEE CATEGORY	n/a	AMOUNT ENCLOSED	\$ 0.00
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13. CERTIFICATION. (Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.

WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
Cornel A. Holder, Administrator	<i>Cornel A. Holder</i>	11/6/10

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED	CHECK NUMBER	COMMENTS
			\$		
APPROVED BY				DATE	

ATTACHMENT TO NRC FORM 313 - APPLICATION FOR MATERIALS LICENSE

Item 5: Radioactive Material

Natural Uranium & Thorium mixtures as ores, concentrates & solids – 2,000,000 kilograms

Th-232 440 Ci maximum

U-238 1,420 Ci maximum

See Enclosure 1 for Financial Assurance; See Enclosure 2 for Recordkeeping

Item 6: Purposes

Storage, sampling, repackaging, transfer, transportation, decontamination as necessary for the activities of the National Defense Stockpile.

Item 7: Individual Responsible For Radiation Safety Program:

Michael J. Pecullan

Mr. Pecullan served as the Radiological Safety Officer for the Defense National Stockpile Zone (Northeastern U.S.) from 1978 through 1996. Upon disestablishment of the zone in 1996, through 2009, he was a Radiological Safety Officer for the DNSC Headquarters. His experience in the use of licensed materials encompasses a 31 year tenure as a Radiological Officer for the Defense National Stockpile Center (DNSC). Specific isotopes handled were up to 2 million kg of natural uranium and thorium (and daughters) contained in DNSC Source Materials. During this period his duties included field surveys, training, review of policy and procedures, repackaging, sampling, transportation, decontamination, decommissioning, and respiratory protection.

His formal training included the following:

Course	School	Hours	Dates
Basic Radiological Defense Officer Course	University of Lowell	40	Feb-78
Occupational Respiratory Protection	NIOSH	32	Jun-78
Ionizing Radiation	NIOSH	40	Sep-81
Hazardous Waste & Materials Compliance	Transportation Skills, Inc.	24	May-85
Impact of Proposed Changes to 10CFR20	Nucleon Lectern Associates	24	Jan-87
Radiation Protection 1992	Regulatory Consultants, Inc	16	Jan-92
Radioactive Waste Guidance	Chem-Nuclear Systems	40	Jan-94

ATTACHMENT TO NRC FORM 313 - APPLICATION FOR MATERIALS LICENSE

Course	School	Hours	Dates
Decontamination & Decommissioning	Nevada Technical Associates	40	Apr-99
Radiation Protection Workshop	USA CHPPM	24	May-99
Radiation Safety Officer Refresher	Nevada Technical Associates	16	Apr-00
Radiation Officer Refresher Training	ERS Solutions	24	May-02
MARSSIM	ORAU	40	May-03
Radiation Safety Officer Refresher	ORAU	24	Feb-05
Comprehensive Radioactive Waste Mgmt	ORAU	16	Apr-06
Env Monitoring for Radioactive Material	ORAU	40	May-06
Radiation Refresher Course	ORAU	24	Mar-07
Decontamination & Decommissioning	Argonne National Laboratory	32	Mar-07
Site Characterization	ORAU	40	Feb-09
Nuclear Accident Control	Army Corr Course Program	3	Apr-78
Peacetime Radiation Criteria	Army Corr Course Program	3	Apr-78
Nuclear Radiation Fundamentals	Army Corr Course Program	5	Jun-78
Radiological Safety I - Fundamentals	Army Corr Course Program	13	Jun-78
Radiac Instruments & Shielding	Army Corr Course Program	14	Aug-78
Radiological Health	Army Acad of Health Sciences	6	Oct-78

Item 8: Training

Defense National Stockpile Center Staff and Depot Security Personnel receive training commensurate with their duties and responsibilities in accordance with Section 17 of Enclosure 2, DNSC Occupational Radiation Protection Program.

Item 9: Facilities & Equipment

See Enclosure 2, DNSC Occupational Radiation Protection Program.

Item 10: Radiation Safety Program

See Enclosure 2, DNSC Occupational Radiation Protection Program

Item 11: Waste Management

See Section 7 of Enclosure 2, DNSC Occupational Radiation Protection Program

Enclosure 1

Financial Assurance



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

July 30, 2008

Docket No. 04000341
Control No. 141653

License No. STC-133

Michael Pecullan
Radiation Safety Officer
Defense Logistics Agency
Defense National Stockpile Center
8725 John J. Kingman Road, Suite 3229
Ft. Belvoir, VA 22060-6223

SUBJECT: DEFENSE LOGISTICS AGENCY, REVIEW OF FINANCIAL ASSURANCE
SUBMITTAL, CONTROL NO. 141653

Dear Mr. Pecullan:

We have reviewed the letter dated June 17, 2008, to meet the financial assurance requirements for your license. We have no further questions at this time.

The following documents currently provide your financial assurance:

Certification of Financial Assurance dated June 17, 2008 [ML081840459]
Statement of Intent dated June 17, 2008 [ML081840459]
Decommissioning Funding Plan dated June 17, 2008 [ML081840459]

We will return the original copies of superceded documents under separate cover.

Sincerely,

A handwritten signature in black ink, appearing to read "Dennis R. Lawyer".

Dennis R. Lawyer
Health Physicist
Commercial and R&D Branch
Division of Nuclear Materials Safety



DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD
FORT BELVOIR, VIRGINIA 22060-6223

IN REPLY
REFER TO DNSC-ME

JUN 17 2008

Mr. Dennis R. Lawyer
United States Nuclear Regulatory Commission
Region 1
Division of Nuclear Materials Safety
475 Allendale Road
King of Prussia, Pennsylvania 19406-1415

Ref: Request For Additional Information Concerning Financial Assurance Documents.
Control No. 141653

Dear Mr. Lawyer:

This letter is in response to your letter of May 16, 2008 to Mr. Michael J. Pecullan, regarding financial assurance documents associated with the requirements of NUREG – 1757, Volume 3, “Consolidated NMSS Decommissioning Guidance.”

1. We are re-submitting the attached Decommissioning Funding Plan (DFP) for review.
2. We are also attaching the requested Certification of Financial Assurance.
3. We are resubmitting our Statement of Intent with a copy of 50 U.S.C. § 98h (b)(2)(j) as you requested. The Statement of Intent specifically indicates our statutory authority to engage in decommissioning activities by expenditures from the National Defense Stockpile Transaction Fund. I am the Administrator of the Defense National Stockpile Center, the institution holding license STC-133, and as such have the authority to utilize this fund.

If you have any further questions concerning this matter please contact Mr. Pecullan at the above address.

Sincerely,

Cornel A. Holder
Administrator

Attachments



DEFENSE NATIONAL STOCKPILE CENTER

DECOMMISSIONING FUNDING PLAN LICENSE NO. STC-133

1. At present the following facilities are listed on our license:
 - a. DNSC Depot, Curtis Bay, MD
 - b. DNSC Depot, Hammond, IN
 - c. DNSC Depot, New Haven, IN
 - d. DNSC Depot, Scotia, NY
2. The license authorizes possession of source material in the form of 2,000,000 kilograms of natural uranium and thorium mixtures as ores, concentrates and solids. We currently possess no licensed materials at any site.
3. All decommissioning activities at sites a., b., and c. have been completed. Survey results (Final Status Survey Reports (FSSR)) have been submitted for sites a. and b. and we are awaiting a decision regarding site specific Derived Concentration Guideline Levels in order to submit the FSSR for site c. No further funding is required for these three sites.
4. At site d., we have completed a Historical Site Assessment and limited scoping survey. We anticipate decontamination will not be required and will need only to conduct a Final Status Survey. We estimate the cost of the survey at \$150,000 based on similar surveys at other, previously released, stockpile depots.
5. In addition to the \$150,000 estimate above, this funding plan includes a 25% contingency factor in the amount of \$37,500.
6. We anticipate no future changes at site d. and therefore will periodically adjust the site specific cost estimate based on the Consumer price Index.

CERTIFICATION OF FINANCIAL ASSURANCE

Principal: Defense National Stockpile Center
8725 John J. Kingman Road
Fort Belvoir, VA 22060

JUN 17 2008

NRC License No. STC-133
DNSC Depot Curtis Bay, MD
DNSC Depot Hammond, IN
DNSC Depot New Haven, IN
DNSC Depot Scotia, NY

Issued to: U.S. Nuclear Regulatory Commission

I certify that the Defense National Stockpile Center (DNSC) is licensed to possess the following types of source material in a readily dispersible form licensed under 10 CFR Part 40, in the following amounts:

<u>Type of Material</u>	<u>Amount of Material</u>
Natural uranium & thorium as ores, concentrates and solids	2,000,000 kilograms

I also certify that financial assurance in the amount of \$187,500 will be obtained for the purposes of decommissioning as prescribed by 10 CFR Part 40.



CORNEL A. HOLDER
Administrator

TO: U.S. Nuclear Regulatory Commission
Region 1
475 Allendale Road
King of Prussia, PA 19406-1415

JUN 17 2008

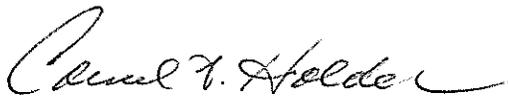
STATEMENT OF INTENT

As Administrator of the Defense National Stockpile Center (DNSC), I exercise express authority and responsibility to request funds from the National Defense Stockpile Transaction Fund for decommissioning activities associated with operations authorized by U.S. Nuclear Regulatory Commission License No. STC-133. The statutory authority for the Defense National Stockpile to engage in decommissioning activities is found in 50 U.S.C. § 98h(b)(2)(j), which makes funds available for the purpose of "Performance of environmental remediation, restoration, waste management, or compliance activities at locations of the stockpile that are required under a federal law or are undertaken by the government under an administrative decision or negotiated agreement." Decommissioning activities called for under NUREG-1757 fall into this category of permissible expenditures. Within this authority, I intend to request that funds be made available when necessary in the amount of \$187,500 to decommission the DNSC Scotia depot in Scotia, NY.

Decontamination and final surveys have been completed at all other licensed DNSC facilities:

DNSC Depot Curtis Bay, MD
DNSC Depot Hammond, IN
DNSC Depot New Haven, IN

Only a final survey is required at DNSC Depot Scotia, NY.



CORNEL A. HOLDER
Administrator

TITLE 50--WAR AND NATIONAL DEFENSE

CHAPTER 5--ARSENALS, ARMORIES, ARMS, AND WAR MATERIAL GENERALLY

SUBCHAPTER III--ACQUISITION AND DEVELOPMENT OF STRATEGIC RAW MATERIALS

Sec. 98h. National Defense Stockpile Transaction Fund

(a) Establishment

There is established in the Treasury of the United States a separate fund to be known as the National Defense Stockpile Transaction Fund (hereinafter in this section referred to as the 'fund').

(b) Fund operations

(1) All moneys received from the sale of materials in the stockpile under paragraphs (5) and (6) of section 98e(a) of this title shall be covered into the fund.

(2) Subject to section 98d(a)(1) of this title, moneys covered into the fund under paragraph (1) are hereby made available (subject to such limitations as may be provided in appropriation Acts) for the following purposes:

(A) The acquisition, maintenance, and disposal of strategic and critical materials under section 98e(a) of this title.

(B) Transportation, storage, and other incidental expenses related to such acquisition, maintenance, and disposal.

(C) Development of current specifications of stockpile materials and the upgrading of existing stockpile materials to meet current specifications (including transportation, when economical, related to such upgrading).

(D) Testing and quality studies of stockpile materials.

(E) Studying future material and mobilization requirements for the stockpile.

(F) Activities authorized under section 98h-6 of this title.

(G) Contracting under competitive procedures for materials development and research to--

(i) improve the quality and availability of materials stockpiled from time to time in the stockpile; and

(ii) develop new materials for the stockpile.

(H) Improvement or rehabilitation of facilities, structures, and infrastructure needed to maintain the integrity of stockpile materials.

(I) Disposal of hazardous materials that are stored in the stockpile and authorized for disposal by law.

(J) Performance of environmental remediation, restoration, waste management, or compliance activities at locations of the stockpile that are required under a Federal law or are undertaken by the Government under an administrative decision or negotiated agreement.

(K) Pay of employees of the National Defense Stockpile program.

(L) Other expenses of the National Defense Stockpile program.

(3) Moneys in the fund shall remain available until expended.

Enclosure 2

Occupational Radiation Protection Program



OCCUPATIONAL RADIATION PROTECTION PROGRAM

NOVEMBER 2009

Directorate of Materials Management
DNSC-M

PREFACE

This November, 2009 revision of the Defense National Stockpile Center (DNSC) Radiation Protection Guidelines supersedes all previous publications relating to radiological protection for DNSC personnel and property.

It is the stated policy and goal of the DNSC to establish appropriate and adequate procedures and controls to minimize exposure to ionizing radiation, to DNSC employees and the general public, to "AS LOW AS REASONABLY ACHIEVABLE", (ALARA). Adherence to the guidance set forth in this document will afford the protection necessary to achieve this goal and greatly minimize the biological effects of low level radiation exposure.

TABLE OF CONTENTS

	TITLE	PAGE
1.	PURPOSE	1
2.	SCOPE	1
3.	RESPONSIBILITY	1
4.	PROGRAM REQUIREMENTS	2-3
5.	CONTROL MEASURES	3-4
6.	PRECAUTIONARY MEASURES	4-5
7.	WASTE DISPOSAL	5
8.	WARNING SIGNS, LABELS, MARKINGS AND PLACARDS	5-6
9.	EXPOSURE CRITERIA	6-7
10.	STANDARDS AND REGULATIONS	7
11.	SURVEYS	7-8
12.	DECONTAMINATION & DECOMMISSIONING	8
13.	INSTRUMENTATION	8
14.	EMERGENCY PROCEDURES	8
15.	MEDICAL SURVEILLANCE	9
16.	RECORDS	9
17.	TRAINING	9
APPENDIX A	DEFINITIONS	
APPENDIX B	APPLICABLE REGULATIONS	
APPENDIX C	UNITS OF RADIOLOGICAL MEASUREMENT	
APPENDIX D	DNSC RADIOLOGICAL OFFICERS	
APPENDIX E	DEMONSTRATING COMPLIANCE WITH PUBLIC DOSE	

DEFENSE NATIONAL STOCKPILE CENTER

OCCUPATIONAL RADIATION PROTECTION PROGRAM

1. Purpose

The policy stated herein establishes guidelines for protection against ionizing radiation and an "Occupational Radiation Protection Program" (ORPP) for the handling and storage of licensed radioactive source materials at Defense National Stockpile Center (DNSC) facilities.

2. Scope

These guidelines apply to all DNSC personnel, visitors, and contractor personnel who, by the nature of their duties, may be exposed to ionizing radiation at locations where licensed DNSC radioactive materials are stored.

3. Responsibility

3.1 The Occupational Radiation Protection Manager (ORPM) is responsible for the development and overall administration of the ORPP. It is the responsibility of the ORPM to designate Radiological Safety Officers (RSO's), and Depot Radiological Protection Officers (RPO's), to carry out the functional responsibilities included in these guidelines. These individuals shall be designated in writing and their position descriptions shall be annotated to reflect the additional duty.

3.2 The Chief of Stockpile Operations (DNSC-MO) is responsible for nominating personnel to be RPO's, assuring that they attend the required training course(s) approved by the ORPM, and ensuring the establishment of an Emergency Response Plan by the manager of each depot where licensed radioactive stockpile materials are stored.

3.3 The RSO's are responsible for monitoring the effectiveness of the depots' radiological programs and extending the training program among personnel as required.

3.4 Distribution Facility Managers and Depot RPO's are responsible for the day to day supervision of the ORPP at their respective facilities. They are also responsible for and will ascertain that prescribed monitoring and safety precautions are taken with respect to radioactive materials.

3.5 It is the responsibility of the Depot RPO's to immediately notify the appropriate responsible officials (i.e., fire department, DNSC officials, etc) and take appropriate action in the event of an incident involving the release or potential release of radioactive materials in accordance with the depots' Emergency Protection Plans.

4. Program Requirements

An active, closely supervised ORPP will be implemented at a high level of organization, training, and proficiency at each DNSC facility storing radioactive materials. In implementing and maintaining the ORPP, the following specific requirements will be observed:

4.1 Each Depot RPO will maintain current copies of this ORPP. Depot RPO's will periodically review all plans and procedures, care for and maintain instruments, inspect records and materials in storage.

4.2 All personnel entering a restricted area shall first complete a DD Form 1952, "Dosimeter Application And Record Of Occupational Radiation Exposure". Mailing addresses shall be obtained for all Non-DNSC personnel and dosimetry results shall be forwarded to them, annually. A permanent record on DD Form 1141, Record Of Occupational Exposure To Ionizing Radiation, will be maintained for each potentially exposed person (when monitoring has been provided), by the Depot RPO. A computer generated form containing the same information as the printed DD Form 1141 is authorized; this will be referred to as the Automated Dosimetry Record (ADR).

4.3 Section 206 of Public Law 93-438 "Energy Reorganization Act of 1974", NRC Form 3 "Notice To Employees", "Notice of Violation" involving radiological working conditions (within two working days after receipt of the documents from the Commission and for a minimum of 5 working days or until action correcting the violation has been completed, whichever is later), and the location of the NRC license will be posted so as to be clearly visible.

4.4 Each depot having licensable radioactive materials in storage will have on hand as a minimum, two instruments capable of detecting alpha and gamma radiation, one alpha and one gamma check source, and TLD's for each employee. A supply of TLD's shall also be maintained for use by occasional visitors at any facility that has a restricted area.

4.5 The RSO's shall make, at a minimum, one survey per year at each depot **containing licensed materials** to review, 1) records, 2) inventories of instruments, check sources and licensed materials, 3) instrument calibration, 4) dosimetry services, and 5) Emergency Protection Plans. During the survey they shall also monitor all licensed material and evaluate radiation safety procedures through observation and discussion with the Depot RPO's, managers, supervisors, and other employees. Further, they shall prepare a comprehensive report detailing their annual survey and forward the same to the ORPM. The survey reports shall also: 1) Utilize a format and include the checklists provided by the ORPM; 2) contain a written evaluation of public dose compliance as noted in 10 CFR 20.1302 and 3) note the specific range of employee accumulated doses for the past year.

4.6 Depot RPO's shall review, and document this review of, all exposure records (DD Form 1141 or ADR) quarterly. Annually, they shall notify each person monitored of his/her accumulated dose and obtain written acknowledgements from the employees that shall be placed in the depot records. The notification shall be in accordance with the requirements of Title 10 CFR 19.13 and include the statement: "*This report is furnished to you under the provisions of the NRC regulation 10 CFR Part 19. You should preserve this report for further reference.*". Additionally, the Depot RPO's shall monitor operational activities relating to licensed radioactive materials, and maintain appropriate records of such operations.

4.7 Depot RPO's shall be responsible for the coordination of shipments and paperwork, including Nuclear Regulatory Commission reporting requirements . Strict compliance with 49 CFR § 173 shipping and labeling requirements shall be observed.

4.8 Once each fiscal year, RSO's shall coordinate with Distribution Facility Managers to set aside a monthly safety meeting for radiation protection training. The RSO's shall provide the training to all personnel except the guard force and clerical staff. Upon completion of the training, the RSO shall notify the ORPM, in writing, of the names of all attendees at the meeting. Training of the guard force will be accomplished in the form of written post instructions.

4.9 The ORPM shall audit the program by reviewing the annual reports submitted by the RSO's to determine compliance with the requirements of the NRC license and the ORPP and shall also annually review the overall licensed radiation protection program, NRC regulations, provisions of the NRC License and compliance status of the DNSC program. The ORPM shall report any adverse findings to senior management and shall forward each annual survey to DNSC-MO to advise of the status of the program at the depot.

4.10 Depot RPO's shall conduct a physical inventory of all NRC licensed material once each fiscal year. This inventory shall be documented in writing and kept on file at the depot. A copy shall be forwarded to the ORPM. Shipments or receipts of licensed material shall be reported by the Depot RPO's directly to the ORPM within 5 work days.

4.11 Depot RPO's shall establish a Decommissioning File at each location storing licensable material. The file shall contain the following records:

- a. documentation indicating where radioactive materials have been stored, handled or used.
- b. documentation of any spills or areas found to be contaminated
- c. copies of all annual surveys and surveys performed after sampling repackaging or shipping activities
- d. inventories and documentation regarding disposal, sale or shipment of radioactive commodities.

5. Control Measures

The greatest emphasis should be placed on engineering control measures to reduce exposures to levels "As Low As Reasonably Achievable" (ALARA).

5.1 Ventilation, Dust Collection, Isolation, and Facility Layout. Ventilation systems are not normally utilized during regular handling and storage of licensed material within DNSC as they are normally kept in unopened, sealed containers. However, local exhaust ventilation systems may be necessary in the rare event of a special project.

Prior to the beginning of a repackaging or decontamination project, an assessment shall be made by the ORPM, the radiological officers, and other stockpile personnel, to determine if there is a need for additional controls. Engineering controls such as, but not limited to, isolation, enclosure, exhaust ventilation and dust collection shall be used to meet the NRC exposure limit criteria.

5.2 Access. The layout of storage facilities shall be such that it minimizes exposure to ionizing radiation. For example, radioactive commodities shall be consolidated and isolated to limit access. Warehouses shall generally be kept locked and sealed and a log maintained to control the issuance of numbered seals. Depot access is to be controlled by perimeter fences along the site boundary and a full time security force.

5.3 Shielding.

For materials stored inside buildings or structures, if necessary, highly dense material in drums can serve as an effective perimeter shield. Normally, lead, concrete, or a combination of the two is used to attenuate the highly penetrative gamma rays. If shielding material is installed, special attention should be paid to such details as overlapping joints, eliminating voids or non-homogeneities in the shielding material, the need for structural support for non-load bearing material such as lead, the need to ensure proper attenuation through leaky areas in the shield, (e.g., glass windows, joints, seams, pipes, conduits, service boxes and doors). There is also a need for continuous maintenance of the shielding structure, to prevent deterioration.

5.4 Time. The longer, a person is exposed to radiation, the greater the biological risk. It should be understood that work operations involving radioactive stockpile commodities, particularly thorium nitrate or oxide, should take into account the length of time a person is exposed to a given dose of radiation. Personal monitoring, in conjunction with radiation surveys, are necessary to ensure that workers; a) are not exposed to radiation in excess of NRC regulations and b) exposure for a particular work task is maintained ALARA

5.5 Distance. Distance is a practical method of reducing the amount of radiation exposure to persons conducting stockpile work operations in and around radioactive materials. The levels of radiation decline rapidly as the distance is increased between the source and the person.

5.6 Protective Equipment. Every effort shall be made to reduce potential radiation exposures by the methods noted above. There may be times, however, when personal protective clothing and equipment will be the primary means of personnel protection, especially for airborne radionuclide particulates. Respirators shall be chosen for use according to the DNSC Occupational Health Guidelines for Respiratory Protection. Such respirators shall be approved for use in atmospheres containing radionuclides by the National Institute for Occupational Safety and Health (NIOSH). The specific type of respiratory protective equipment to be used shall be based on the judgment of the ORPM or a RSO.

Special training is necessary for the proper usage of personal protective clothing and equipment; such training (except for the care and use of respirators) is the responsibility of the Depot RPO's. Respiratory protection training is the responsibility of Respiratory Protection Designees as noted in the DNSC Respiratory Protection Program.

6. Precautionary Measures.

There are a number of measures that the Radiological Protection Officers and other depot personnel should be aware of at all times:

--the amount of exposure should be controlled in accordance with section 5.0 of this document,

--employee rotation (dose sharing),

--eating, drinking, smoking or chewing gum is strictly prohibited in areas containing radioactive materials,

--personal belongings such as: watches, rings, combs, etc shall not be worn while working in restricted areas,

--persons with open wounds shall not be allowed work in areas containing radioactive materials,

--if a person receives a cut or wound during a work operation involving radioactive materials, they shall immediately be removed from that area and the wound shall immediately be attended to,

--containers of licensable radioactive materials that are to be received into the Defense National Stockpile shall be thoroughly inspected for contamination and leaks prior to storage; in accordance with 10 CFR 20.1906,

--engineering controls, such as shielding, local exhaust ventilation, dust collection and isolation shall be used when and where necessary,

--handling of radioactive materials shall be carried out in a manner, which will prevent damage to the containers and reduce radiation exposure to ALARA,

--personnel shall exercise good personal hygiene habits (e.g., washing and showering thoroughly) when conducting work operations involving contact with radioactive materials,

--personnel shall wear personal protective equipment when conducting work operations where they may come into contact with airborne radioactive materials, or their gases,

--personnel shall be monitored by dose rate and contamination surveys during and after contact with licensed radioactive materials,

--radiation doses measured by personal dosimetry shall be recorded immediately after determination of the dose,

--shipment of licensed materials shall be in accordance with all federal, state, and local regulations,

7. Waste Disposal.

Shipment of radioactive waste is performed by a Department of Defense (DOD) Broker under contract to the DOD Executive Agent for Low-Level Radioactive Waste (US Army Joint Munitions Command). The broker is responsible for packaging the items and shipping them in accordance with applicable DOT regulations. The RPO is responsible for ensuring that all work performed by the broker is performed in accordance with the ALARA principle, standard radiological health practices, and this manual.

8. Warning Signs. Labels. Markings and Placards.

8.1 General. Documents, notices, signs, or forms shall be conspicuous, and shall be replaced if defaced or otherwise rendered illegible.

8.2 Notices. Items a., b., & d. below shall be posted such that workers have access to them as they travel to/from work. The other items can be posted with a notice as to where persons entering a Radioactive Materials Area (RAM) can review them:

- a. NRC Form 3, Notice to Employees.
- b. 10 CFR Parts 19, 20, 21
- c. NRC license for DNSC and amendments
- d. Notice of Violation, or any other applicable infraction, involving radiological working conditions.
- e. Section 206, Energy Reorganization Act

8.3 Radioactive Material (RAM) Areas. Radioactive Material Areas shall be posted at each entrance of a building, room, or area. An area within a building may be designated a RAM area by the use of stanchions positioned such that the posting is clearly visible from each avenue of approach.

a. Restricted areas where dose rates exceed 5.0 mR/hr at any point shall be posted with conspicuous signs in accordance with 10 CFR 20.1902(a).

b. Any area which contains more than 1,000 microcuries of licensed material shall be posted with conspicuous signs in accordance with 10 CFR 20.1902(e).

9. Exposure Criteria and Evaluation.

There are some basic assumptions that have been derived in formulating radiation protection guidelines. They are: 1) the biological effects of low level radiation are not precisely known, 2) there is no known level of radiation below which there will be no biological effects, and 3) there is a linear relationship between biological effects and dose.

Permissible levels of radiation exposure in an occupational environment are set higher than in a non-occupational environment.

9.1 DNSC Exposure Criteria.

9.1.1 The maximum permissible occupational dose is 5.0 rems per year. The maximum permissible dose to members of the public is 100 millirem per year.

9.1.2 The DNSC maximum permissible dose rate within a controlled area shall not exceed 0.50 mR/hr. A Restricted Area shall be established where dose rates exceed 0.50 mR/hr at a distance of one foot from the material.

9.1.3 TLD's shall be used by ALL personnel entering a restricted area WHERE THEY ARE LIKELY TO RECEIVE, IN ONE YEAR, A DOSE IN EXCESS OF 500 mRem. The RSO will annually evaluate the need for personnel dosimetry at the depot and document the evaluation in the annual survey.

9.1.4 The DNSC maximum permissible dose rate at the perimeter fence of the storage facility shall not exceed background.

9.1.5 Minors shall not be permitted to enter restricted areas.

9.1.6 Because of the DNSC mission and operational structure, exposure to radiation is limited. It is, however, recognized that radiation exposure can produce damaging effects to embryos and fetuses, especially when received during certain periods of gestation. Because of this sensitivity, it is DNSC policy to minimize fetal exposure to radiation. DNSC employees who are at risk for occupational exposure and who are pregnant, or believe that they could be pregnant, are encouraged to notify their supervisor and/or Radiation Protection Officer, in writing, and to discuss the situation, risks, and possible consequences of continued exposure. All such discussions will remain confidential. All female employees likely to receive an occupational dose, and all supervisors at NRC licensed sites, shall be given a copy of NRC Regulatory Guide 8.13, "Instructions Concerning Prenatal Radiation Exposure" and instructed in the potential risks of exposure to ionizing radiation during pregnancy.

Upon receipt of a written notification containing the estimated date of conception, pregnant employees shall be provided with an alternate work assignment comparable to their current position that will eliminate occupational exposure to radiation during the remainder of their pregnancy.

Declared pregnant workers (DPW) will not be exposed to more than 100 millirem during the gestation period after they have declared their pregnancy in writing to their supervisor. Supervisors are responsible for informing the RPO of all such declarations as soon as possible, providing a copy of the declaration to the RPO and taking appropriate action to limit the worker's potential exposure for the remainder of the pregnancy. If the worker has already received 100 millirem from the time of conception to the time of declaration, contact the ORPM for additional guidance. DNSC employees unable to continue their regular duties because of this limitation will be provided with an alternative work assignment, free from occupational radiation exposure, that will have no adverse effect on their rate of pay, benefits or promotion.

10. Standards and Regulations.

Applicable standards, regulations and guidelines shall be fully understood and complied with when handling, storing, or, shipping licensed radioactive materials in the Defense National Stockpile. A list of these standards can be found in Appendix B.

11. Surveys

Annual radiological surveys shall be conducted at each facility containing licensed material by an RSO. They shall include, but not be limited to, a physical survey of the material and equipment, review of records, review of training, and interviews of the Distribution Facility Manager and RPO.

As a minimum the survey shall include the requirements outlined in 10 CFR Part 20. 1501. Surveys shall also include measurements of dose rates at contact with the container (where practical), at one foot distance, at the perimeter of any restricted area, and at the depot perimeter if the depot contains a restricted area. (NOTE: In lieu of radiological measurements at the Depot perimeter, measurements may be taken within the controlled area at a point where levels of radiation do not exceed background.) The RSO shall also document the location of licensed materials in the depot and assure that an inventory was conducted within the past 365 days.

12. Decontamination & Decommissioning

When closing out a facility or "decommissioning" a specific storage building, area, material or equipment, residual radioactive contamination must be addressed. The procedures, level or limits established by the Nuclear Regulatory Commission (NRC) in their document NUREG 1757 "Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees" shall be used. Specific procedures shall be developed by the ORPP Manager. Decontamination actions shall be documented in writing.

13. Instrumentation

13.1 Monitoring instruments shall have sufficient sensitivity, precision, and dynamic range to accommodate the type of radiation being measured.

13.2 The monitoring level on the instruments should be set at the level of radiation expected to be encountered. Review of previous survey results in the area will provide the expected levels.

13.3..Annual calibration of all monitoring instruments is MANDATORY. Calibration must be performed by a laboratory possessing a valid NRC or Agreement State license. When the instruments are received from the calibration facility, establish a baseline for future operational checks by taking a reading with the appropriate check source. Place a written record of the date, reading, instrument and source serial numbers in the depot calibration file.

13.4 TLD's must be obtained from, processed and evaluated by, the Department of the Army Ionizing Radiation Dosimetry Center.

14. Emergency Procedures

14.1 DNSC-MO is responsible to ensure that each Manager, at depots where radioactive material is stored, establishes an Emergency Protection Plan. These procedures shall be reviewed and/or updated annually. The revisions must be reviewed by the RPO.

14.2 Prior arrangements should be established with local police and fire departments, hospitals, in-house and outside emergency squads and other medical facilities. Evacuation routes and assembly points should be designated. Documentation of meetings/contacts with outside agencies shall be maintained.

15. Medical Surveillance

A pre-employment and annual medical examination program for stockpile employees potentially exposed to hazardous and radioactive materials shall be conducted. Complete medical records for each employee shall be maintained by the servicing health unit.

16. Records

16.1 The Nuclear Regulatory Commission requires each licensee to keep exposure, monitoring, survey, disposal, and decontamination records. These records shall be kept indefinitely at the depots where the licensed material is stored. Copies of radiation surveys will be forwarded to the DNSC Headquarters.

16.2 The depot RPO at each site where licensed source material is stored will establish a Radiological Data Book containing license data, exposure data, calibration data, the DNSC ORPP and all other documents related to the source material at the site. Included shall be written records of quarterly exposure reviews, annual radiation exposure notifications, and initial and annual radiation safety training

16.3 Dosimetry Records: See Defense Logistics Agency One Book "Personnel Dosimetry and Recordkeeping" for scope and disposition.

17. Training

17.1 Radiological officers shall be given at least 40 hours formal classroom training commensurate with their assigned duties and specific to their responsibilities within the DNSC ORPP. Training courses must be approved by the ORPM. As a minimum, the training shall include: the fundamentals of ionizing radiation, its characteristics, and appropriate units of measure, evaluation techniques, instrumentation, biological effects, NRC Regulations, and control measures. Refresher training shall be provided triennially. Additionally radiological officers shall receive training in DoT Regulations.

17.2 All depot personnel (except clerical staff and security personnel) shall receive annual training regarding potential hazards, precautions to minimize exposure, work practices and operating procedures, personal hygiene, information contained in NRC Regulatory Guide 8.13, and use of personal protective clothing and equipment. The RSO's shall develop a detailed, site specific, outline which will be kept on file at the depot. Attendance at all training sessions shall be documented and lists kept on file (See paragraph 4.8). At the conclusion of the training, a written test shall be administered; the passing grade shall be 70%. Persons failing the test shall be retrained and tested.

17.3 Security personnel who may encounter radiological hazards during the performance of their duties will be properly instructed, annually. The scope of the training will be appropriate to the level of exposure as determined by the RSO and may be in the form of written instruction rather than formal classroom training.

DEFINITIONS

APPENDIX A

DEFINITIONS

Absorbed dose means the energy imparted by ionizing radiation per unit mass of irradiated material. The units of absorbed dose are the rad and the gray (Gy).

Activity is the rate of disintegration (transformation) or decay of radioactive material. The units of activity are the curie (Ci) and the becquerel (Bq).

Adult means an individual 18 or more years of age.

Airborne radioactive material means radioactive material dispersed in the air in the form of dusts, fumes, particulate, mists, vapors, or gases.

Airborne radioactivity area means a room, enclosure, or area in which airborne radioactive materials, composed wholly or partly of licensed material, exist in concentrations:

(1) In excess of the derived air concentrations (See Appendix B, 10 CFR Part 20) or,

(2) To such a degree that an individual present in the area without respiratory protective equipment could exceed, during the hours an individual is present in a week, an intake of 0.6 percent of the annual limit on intake (ALI) or 12 DAC hours.

ALARA (acronym for "as low as is reasonably achievable") means making every reasonable effort to maintain exposures to radiation as far below the dose limits in this part as is practical, consistent with the purpose for which the licensed activity is undertaken, taking into account the state of technology, the economics of improvements in the relation to state of technology, the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy and licensed materials in the public interest.

Background Radiation means radiation from cosmic sources, naturally occurring radioactive materials, including radon (except as a decay product of source or special nuclear material) and global fallout as it exists in the environment from the testing of nuclear explosive devices. "Background radiation" does not include radiation from source, byproduct, or special nuclear materials regulated by the Commission.

Bioassay (radiobioassay) means the determination of kinds, quantities or concentrations and in some cases, the locations of radioactive material in the human body, whether, by direct measurement (in vivo counting) or by analysis and evaluation of materials excreted or removed from the human body.

Byproduct material means

(1) Any radioactive material (except special nuclear- material) yielded in, or made radioactive by, exposure to the radiation incident to the process of producing or utilizing special nuclear material; and,

(2) The tailings or wastes produced by the extraction or concentration of uranium or thorium from ore processed primarily for its source material content, including discrete surface wastes

resulting from uranium solution extraction processes. Underground ore bodies depleted by these solution extraction operations do not constitute "byproduct material" within this definition.

Collective dose is the sum of the individual doses received in a given period of time by a specified population from exposure to a specified source of radiation.

Committed dose equivalent means the dose equivalent to organs or tissues of reference that will be received from an intake of radioactive material by an individual during the 50-year period following the intake.

Committed effective dose equivalent is the sum of the products of the weighting factors applicable to each of the body organs or tissues that are irradiated and the committed dose equivalent to these organs or tissues.

Controlled area means an area, outside a restricted area but inside the site boundary, access to which can be limited by the licensee for any reason.

Declared Pregnant woman means a woman who has voluntarily informed her employer, in writing, of her pregnancy and the estimated date of conception.

Deep-dose equivalent which applies to external whole-body exposure, is the dose equivalent at a tissue depth of 1 cm.

Dose or radiation dose is a generic term that means absorbed dose, dose equivalent, effective dose equivalent, committed dose equivalent, committed effective dose equivalent, or total effective dose equivalent.

Dose equivalent means the product of the absorbed dose in tissue, quality factor, and all other necessary modifying factors at the location of interest. The units of dose equivalent are the rem and sievert.

Dose Rate is a measure of dose per unit of time.

Effective dose equivalent is the **sum** of the products of the dose equivalent to the organ or tissue and the weighting factors applicable to each of the body organs or tissues that are irradiated.

Exposure means being exposed to ionizing radiation or to radioactive material.

External dose means that portion of the dose equivalent received from radiation sources outside the body.

High radiation area means an area accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.1 rem in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

Individual monitoring means

(1) The assessment of dose equivalent by the use of devices designed to be worn by an individual,

(2) The assessment of committed effective dose equivalent by bioassay (see Bioassay) or by determination of the time-weighted air concentrations to which an individual has been exposed, or

(3) The assessment of dose equivalent by the use of survey data.

Internal dose means that portion of the dose equivalent received from radioactive material taken into the body.

Licensed material means source material, special nuclear material, or byproduct material received, possessed, used, transferred or, disposed of under a general or specific license by the Commission.

Limited quantity means a quantity of radioactive material not exceeding the materials package limits of 49 CFR 173.423 which conforms to the requirements in 49 CFR 173.421.

Limits (dose limits) means the permissible upper bounds of radiation doses.

Low specific activity (LSA) material generally means uranium or thorium ores and their physical or chemical concentrates; a material of low activity and heavy weight as noted in 49 CFR 173.403).

Member of the Public means any individual except when that individual is receiving an occupational dose.

Minor means an individual less than 18 years of age.

Monitoring means the measurement of radiation levels, concentrations, surface area concentrations or quantities of radioactive material and the use of the results of these measurements to evaluate potential exposures and doses.

Occupational dose means the dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to radiation or to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the license or other person. Occupational dose does not include dose received from background radiation or as a member of the general public.

Public dose means the dose received by a member of the public from exposure to radiation or radioactive material released by a licensee, or to any other source of radiation under the control of a licensee. It does not include occupational dose or doses received from background radiation.

Radiation (ionizing radiation) means alpha particles, beta particles, gamma rays, x-rays, neutrons, high-speed electrons, high-speed protons, and other particles capable of producing ions. Radiation, as used in this program, does not include non-ionizing radiation, such as radio-or microwaves, or visible, infrared, or ultraviolet light.

Radiation area means an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 0.005 rem (0.05 mSv) in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates.

Rem is the special unit of any of the quantities expressed as dose equivalent. The dose equivalent in rems is equal to the absorbed dose in rads multiplied by the quality factor, 1 rem = 0.01 sievert (Sv)

Restricted Area means an area, access to which is limited by the licensee for the purpose of protecting individuals against risks from exposure to radiation.

Shallow-dose equivalent which applies to the external exposure of the skin or an extremity is taken as the dose equivalent at a tissue depth of 0.007 centimeter averaged over an area of 1 square centimeter.

Sievert (Sv) is the Standard International (SI) unit of any of the quantities expressed as dose equivalent. The dose equivalent in sieverts is equal to the absorbed dose in grays multiplied by the quality factor, 1 Sv = 100 rems.

Site boundary means that line beyond which the land or property is not owned, leased, or otherwise controlled by the licensee.

Source material means:

(1) Uranium or thorium or any combination of uranium and thorium in any physical or chemical form; or

(2) Ores that contain, by weight, one-twentieth of 1 percent (0.05 percent), or more, of uranium, thorium, or any combination of uranium and thorium (see 40 CFR 40.4). NOTE Source material does not include special nuclear material.

Survey means an evaluation of the radiological conditions and potential hazards incident to the production, use, transfer, release, disposal, or presence of radioactive material or other sources of radiation. When appropriate, such an evaluation includes a physical survey of the location of radioactive material and measurements or calculations of levels of radiation, or concentrations or quantities of radioactive material present.

Total Effective Dose Equivalent (TEDE) means the sum of the deep-dose equivalent (for external exposure and the committed effective dose equivalent (for internal exposures).

Unrestricted area means an area, access to which is neither limited nor controlled by the licensee.

APPLICABLE REGULATIONS

APPENDIX B

APPLICABLE REGULATIONS

1. Title 10, Code of Federal Regulations (Energy), parts 19, 20, 40, and 71.
2. Title 29, Code of Federal Regulations (Labor), part 1910.
3. Title 40, Code of Federal Regulations (Environment), all applicable parts.
4. Title 49, Code of Federal Regulations (Transportation), parts 171 – 189.
5. All Applicable State Rules and Requirements governing the use, storage transportation and disposal of radioactive source material.
6. DLA One Book Personnel Dosimetry and Recordkeeping
7. DNSC Respiratory Protection Program.

UNITS OF RADIOLOGICAL MEASUREMENT

UNITS OF RADIOLOGICAL MEASUREMENT

MULTIPLY # OF \longrightarrow by \longrightarrow TO OBTAIN # OF
 TO OBTAIN # OF \longleftarrow by \longleftarrow DIVIDE # OF

becquerel	2.703×10^{-11}	curies
curies	3.70×10^{10}	disintegrations /sec
curies	10^3	millicuries
curies	10^6	microcuries
curies	10^{12}	picocuries
curies	10^{-3}	kilocuries
curies	3.7×10^{10}	becquerel
dis/min	4.505×10^{-10}	millicuries
dis/min	4.505×10^{-7}	microcuries
dis/sec	2.703×10^{-8}	millicuries
dis/sec	2.703×10^{-5}	microcuries
gray	100	rad
kilocuries	10^3	curies
microcuries	3.7×10^4	dis/sec
microcuries	2.2×10^6	dis/min
millicuries	3.7×10^7	dis/sec
millicuries	2.22×10^9	dis/min

UNITS OF RADIOLOGICAL MEASUREMENT



R	2.58×10^{-4}	C/kg of air
rads	0.01	gray
rads	0.01	J/kg
rads	100	ergs/gm
rads	6.242×10^7	MeV/g
rem	0.01	sievert
microcuries/cm ³	2.22×10^{12}	dpm/m ³
microcuries/cm ³	2.22×10^9	dpm/liter
dpm/m ³	0.4505	pCi/m ³
sievert	100	rem

DNSC RADIOLOGICAL OFFICERS & STAFF

APPENDIX D

DEFENSE NATIONAL STOCKPILE CENTER RADIOLOGICAL OFFICERS & STAFF

DNSC Headquarters
8725 John J. Kingman RD
Suite 3229
Ft. Belvoir, VA 22060

M. Pecullan- ORPM & RSO

RADIOLOGICAL PROTECTION OFFICERS

Dewey Blair – DNSC, New Haven, IN
Eric Deal – DNSC, Hammond, IN
Frank Falgier – DNSC, Hammond, IN

RADIOLOGICAL SAFETY OFFICERS

Robert Skruck – DNSC, New Haven, IN
Cam Delhoste – DNSC, New Haven, IN

GUIDANCE FOR DEMONSTRATING COMPLIANCE WITH PUBLIC DOSE

Guidance for Demonstrating Compliance with Public Dose

Background

The ORPP, requires the RSO to perform an evaluation at each depot to ensure that exposures to individual members of the public do not exceed 1.0 mSv (100 mrem) in a calendar year. The Nuclear Regulatory Commission has issued specific guidance on the methods used to perform this evaluation. The following provides guidance on performing this evaluation and the retention of records associated with the evaluation.

Regulatory Requirement

10 CFR 1301 states,

1) The total effective dose equivalent to individual members of the public from the licensed operation does not exceed 0.1 rem (1 millisievert) in a year, exclusive of the dose contributions from background radiation, from any medical administration the individual has received, from exposure to individuals administered radioactive material and released in accordance with §35.75, from voluntary participation in medical research programs, and from the licensee's disposal of radioactive material into sanitary sewerage in accordance with §20.2003, and

(2) The dose in any unrestricted area from external sources, exclusive of the dose contributions from patients administered radioactive material and released in accordance with §35.75, does not exceed 0.002 rem (0.02 millisievert) in any one hour.

10 CFR 1302 states that compliance is demonstrated by:

(a) The licensee shall make or cause to be made, as appropriate, surveys of radiation levels in unrestricted and controlled areas and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in §20.1301.

(b) A licensee shall show compliance with the annual dose limit in §20.1301 by --

(1) Demonstrating by measurement or calculation that the total effective dose equivalent to the individual likely to receive the highest dose from the licensed operation does not exceed the annual dose limit;

A member of the public is an individual in a controlled or unrestricted area who is not receiving an Occupational Dose.

Compliance Methods

The dose to a member of the public is comprised of internal and external exposure (i.e., Total Effective Dose Equivalent (TEDE)). NRC regulations require that the total effective dose equivalent (TEDE) from all exposure pathways not exceed 100 mrem per year. This exposure is comprised of equal parts of internal and external exposure (i.e., 50 mrem internal and 50 mrem external). In order to perform the evaluation, all potential sources of external and internal radiation exposures and all locations of use, transport, and storage of radioactive material at the depot must be identified. For DNSC depots, we will use a combination of measurements, process knowledge, and calculations to demonstrate compliance. Since the types of radioactive material stored or handled at DNSC depots are solids in sealed containers, then the internal pathway can be eliminated and the total dose limit (100 mrem) can be assumed to occur through external exposure.

Step 1 Determine the Dose In The Unrestricted Area

Determine the location in an unrestricted area where a member of the public would receive the highest dose from licensed operations (*Unrestricted area* means an area, access to which is neither limited nor controlled by the licensee). This location is typically outside the depot perimeter fence. Determine the dose rate by reviewing the results of monitoring by perimeter surveys. Since it is DNSC policy to maintain the dose rate at the perimeter fence at background, the annual dose to a member of the public would be zero. This should be noted in a written discussion in the annual survey report.

Step 2 Determine the Dose In The Controlled Area

If members of the public are routinely present in a controlled area, locate the building(s) where they are situated and determine the dose rate by reviewing the results of monitoring. A conservative approach is to select the highest measurement and assume that the dose rate remained at that level for an entire year.

Assume that the member of the public is present at that location for 24 hours per day, 365 days per year. This provides an occupancy factor of 1. If the result of the calculation using an occupancy factor of 1 shows that the public dose limit is not exceeded, there is no need for further evaluation.

If the calculation demonstrates that the public dose limit is exceeded with an occupancy factor of 1 the following assumption may be made:

For example, the RSO knows, based upon process knowledge that workers do not work 24 hours per day, 365 days per year. To gain an estimate of a more realistic occupancy the RSO assumes 40 hours per week, 52 weeks per year. This will safeside the results because the RSO knows that, at this location, the workers do not work a full work day, every day of every week during the year.

If the result of this calculation shows that the public dose limit is exceeded then more realistic assumptions of the individuals' occupancy may be made. When this approach is used, the RSO must document the justification for the use of the reduced occupancy factor. One method would be to interview workers and supervisors.

Step 3 Records

The depot must maintain records (annual survey report) to demonstrate compliance with the dose limit until the NRC terminates the license. In general the following must be included:

- The surveys or measurements used in the calculations,
- The justification of site specific occupancy factors,
- A map or diagram showing the perimeter of the storage area and the location of highest dose and
- The results of the calculations must be maintained

Example Calculations

Calculations for compliance are performed as follows. The calculations shown assume a maximum measured dose rate of 0.030 mrem/hr.

- *Occupancy Factor*

$$(40 \text{ hr/wk})(52 \text{ wks/yr}) = 2,080 \text{ hrs/yr}$$

- *Maximum Dose to Member of Public*

$$(0.030 \text{ mrem/hr})(2,080 \text{ hr/yr}) = \mathbf{62.4 \text{ mrem}}$$

ANNUAL SURVEY REPORT TEMPLATE

APPENDIX G



OCCUPATIONAL RADIATION PROTECTION PROGRAM ANNUAL SURVEY

XXXXXXXXXXXXXXXXXXXX DEPOT

XXXXXXXX 200X

Prepared by

Directorate of Materials Management
DNSC-M

OCCUPATIONAL RADIATION PROTECTION PROGRAM SURVEY

XXXXXXXXXXXXX DEPOT

EXECUTIVE SUMMARY

On XXXXXXXXXXXXXXXX xx, 200x, Ms XXXXXXXXXXXX XXXXXXXXXXXX, Radiological Safety Officer, performed a survey of the radiological operations at the DNSC XXXXXXXXXXXXXXXX Depot in XXXXXXXXXXXXXXXX, XX. The results of the survey indicated that the depot had an effective Occupational Radiation Protection Program. XXXXXXXXX items were identified that did not meet the requirements of the DNSC Nuclear Regulatory Commission License or the DNSC ORPP and are identified in sections X, XX, and XX of this report. There were xxxx health and safety concerns identified as a result of the storage and handling of radioactive material at XXXXXXXXXXXX. Exposures for depot personnel have been maintain ALARA.

Implementation of the following recommendations will improve the overall management and regulatory compliance of the ORPP at XXXXXXXXXXXX.

- a. XXXXXXXXXXXXXXXX [ORPP section x.x]
- b. XXXXXXXXXXXXXXXX[10 CFR 20.xx]
- c. XXXXXXXXXXXXXXXX[10 CFR 19.xx]

DISCUSSION

I. ADMINISTRATION

Mr. XXXXXXXX XXXXXXXXXX was designated as the Radiological Protection Officer.

LICENSE

Radiological operations were authorized under NRC license STC-133, Amendment No. 23, issued August 5, 2002, expiring on February 28, 2010. The license authorizes the storage, sampling, repackaging and transfer natural uranium and thorium ores, concentrates or solids. The license was implemented under the DNSC ORPP manual dated December x, 2002.

INVENTORY

The license authorizes the DNSC to possess a total of 2,000,000 kg of radioactive material in the form of uranium and thorium contained in ores, concentrates, and solids. Inventories at specific locations were not limited. DNSC records dated XXXXX xx, 200x indicate that the depot possessed a total of x,xxx,xxx pounds of thorium nitrate, x,xxx,xxx pounds of tungsten concentrates and x,xxx,xxx pounds of columbium/tantalum concentrates with a total of xx.xx curies. The weights agree/disagree with depot records. A physical inventory was last conducted by XXXXXXXXXX XXXXXXXX on XXXXXXXXXX xx, 200x. Inventory results were in agreement with records.

II. DOSIMETRY

Thermoluminescent dosimeters (TLD) are available for all employees with access to the radioactive materials; a supply is kept on hand for visitors. TLD's are supplied and analyzed by the U.S. Army Ionizing Radiation Dosimetry Center (USAIRDC) at the Redstone Arsenal. USAIRDC possess an NVLAP certification. All TLD's are stored in xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx and are issued to workers when they xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx.

The writer reviewed the results of the personnel monitoring for the past year. A total of xx TLD's had been issued to personnel working at the depot. The monitoring results indicated that the exposures were below the 5.0 Rem annual limit specified by the ORPP. The range of recorded annual exposures was xx to xx Rem.

Each person issued a TLD had completed an exposure history (Form 1952). Copies were maintained by the RPO. Exposure records had been reviewed quarterly and the RPO provided each worker with an annual report for the previous year.

Internal dosimetry is not routinely performed due to the nature of storage.

PUBLIC DOSE COMPLIANCE

Dose rate measurements were made at the perimeter of the depot which indicated that levels were at background. Therefore the annual dose to members of the public in the unrestricted area outside the depot was zero. The property inside the depot fence is a controlled area. ***There are no restricted areas on the depot. There are restricted areas at the depot in xxxxxxxxxxxxxxxx.***

There are no members of the public routinely present in the controlled area. Members of the public are routinely present in the controlled area at xxxxxxxxxxxxxxxx. Annual dose was calculated at xx.xx mrem per year which is within the allowable limits (100 mrem) noted in 10 CFR 20.1301 (see attached calculation).

III. TRAINING

The RPO has received the formal radiological safety classroom training required by the ORPP [section 17.1] and ***has also (has not)*** received training in DoT Regulations.

General worker training of depot employees and security personnel was accomplished by the RSO on XXXXXXXXXXXX xx, 200x. The RSO maintained a detailed outline of the training topics presented during the class. Scope of the training met the requirements of the ORPP [section 17.2].

IV. EMERGENCY RESPONSE

Emergency Plan (*Provide a narrative including but not limited to the date of the latest revision and the date of the lastest discussion or agreements with offsite responders.*)

Emergency response personnel

V. RADIATION SURVEYS

Last survey
Instrumentation-this survey
Dose rates

VI. RECEIPTS, SHIPMENTS, AND DISPOSAL

No receipts, shipments or disposals were made since the last annual survey.

VII. INSTRUMENTATION (See attached spreadsheet)

The depot had an adequate supply of instrumentation on hand to ensure successful operation of the ORPP. Instrumentation consisted of an XXXXXXXXXXXX xxxxxxxxxx with a xxxxxxxxxxxxxx. All calibrations had been accomplished within the allowable (every 365 days) time frames by the XXXXXXXXXXXXXX Company of XXXXXXXXXXXXXXXX, XX.

Calibration Certificates

VIII. INCIDENTS

No incidents were reported since the last survey.

IX. STORAGE AREAS

Locations
Type construction
Building security (doors, locks, seals)
Shielding

X. POSTING

NRC Form 3
Section 206, Public Law 93-438
NFPA signs
“CAUTION RADIATION AREA”
“CAUTION RADIOACTIVE MATERIALS”

XI. OTHER

Projects
Audits
NRC Inspections

CONCLUSION

The ORPP, at the DNSC XXXXXXXXXXXX Depot, was effective. Implementing the following recommendations will improve the overall management and regulatory compliance.

- 1.
- 2.
- 3.