



DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

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REPLY TO
ATTENTION OF

MCHB-TS-OIP (40)

12 JUN 1998

MEMORANDUM FOR Director, Defense Logistics Agency, ATTN: CAAE
8725 John J. Kingman, Suite 2533,
Fort Belvoir, VA 22060-6221

SUBJECT: Industrial Radiation Survey No. 27-MH-8011-98, Defense
National Stockpile Center, Casad Depot, New Haven, IN,
29-30 April 1998

Copies of subject report with an Executive Summary are enclosed.
Findings and recommendations were discussed at the exit briefing
conducted at each of the sites surveyed to assist in effecting
timely corrections of deficiencies noted.

FOR THE COMMANDER:

Harris Edge
HARRIS EDGE
Program Manager
Industrial Health Physics

Encl

CF (w/encl):
CDR, MEDCOM, ATTN: MCHO-CL-W
HQ, DLA, ATTN: DLSC-LD (DR. FRICK)
CDR, DDC
MGR, DNSC, CASAD DEPOT
CDR, NORTH ATLANTIC RMC

U.S. Army Center for Health Promotion and Preventive Medicine

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INDUSTRIAL RADIATION SURVEY NO. 27-MH-8011-98
DEFENSE NATIONAL STOCKPILE
CASAD DEPOT
NEW HAVEN, INDIANA
29-30 APRIL 1998

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Distribution limited to U.S. Government agencies only;
protection of privileged information evaluating another
command; Jun 98. Requests for this document must be
referred to Director, Defense Logistics Agency, ATTN:
CAAE, 8725 John J. Kingman Road, Suite 2533, Fort Belvoir,
VA 22060-6221.

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Readiness Thru Health



DEPARTMENT OF THE ARMY
U.S. ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MARYLAND 21010-5422

REPLY TO
ATTENTION OF

EXECUTIVE SUMMARY
INDUSTRIAL RADIATION SURVEY NO. 27-MH-8011-98
DEFENSE NATIONAL STOCKPILE CENTER
CASAD DEPOT
NEW HAVEN, INDIANA
29-30 APRIL 1998

1. PURPOSE. This survey was performed to assist in your efforts to receive, store, ship and use sources of ionizing radiation safely and in accordance with current regulatory requirements. Specifically, this survey was performed to alert you to any previously unknown potential health hazards or areas of noncompliance with regulatory requirements associated with the receipt, storage, shipping and/or use of these ionizing radiation sources; provide recommendations to correct any health hazards, ensure regulatory compliance, and improve your Radiological Health Program; provide onsite advice to further assist in improving the program.

2. CONCLUSION. A review of the findings indicates that the Defense National Stockpile Center, Casad Depot, had a sound Radiation Protection Program (RPP). Implementing the following recommendations should improve the overall management and regulatory compliance of the RPP.

3. RECOMMENDATIONS. Develop and implement a radiation protection training program for depot employees. Notify the local emergency personnel of appropriate changes to the emergency information located at the guard station. Ensure data contained in internal program reviews are current and accurate. Ensure the check source accompanies the radiation detection instrumentation to calibration to provide a source for a consistency value and stagger calibration cycles to maintain a calibrated device on site.



REPLY TO
ATTENTION OF

MCHB-TS-OIP

DEPARTMENT OF THE ARMY
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INDUSTRIAL RADIATION SURVEY NO. 27-MH-8011-97
DEFENSE NATIONAL STOCKPILE CENTER
CASAD DEPOT
NEW HAVEN, INDIANA
29-30 APRIL 1998

1. REFERENCES. See Appendix A for a list of references.
2. AUTHORITY.
 - a. Mission Services Planning meeting between Defense Logistics Agency (DLA) representatives and program managers, 25-26 July 1995, U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM).
 - b. Interservice Support Agreement, W23MWP-95-003, between USACHPPM and DLA, effective until 21 May 1999.
3. PURPOSE. This survey was performed to assist in your efforts to receive, store, ship and use sources of ionizing radiation safely and in accordance with current regulatory requirements. Specifically, this survey was performed to:
 - a. Alert you to any previously unknown potential health hazards or areas of noncompliance with regulatory requirements associated with the receipt, storage, shipping and/or use of these ionizing radiation sources.
 - b. Provide recommendations to correct any health hazards, ensure regulatory compliance, and improve your Radiation Protection Program (RPP).
 - c. Provide onsite advice to further assist in improving the program.
4. GENERAL.
 - a. An entrance interview was held on 29 April 1998 with:
Ms. Lois Huddlestun, Defense Logistics Agency Civilian (DLAC), Storage Specialist, Radiation Protection Officer (RPO), and Mr. William Till, DLAC, Quality Assurance (QA) Specialist, RPO.

Readiness thru Health

Indust Radn Surv No. 27-MH-8011-98, DNSC, Casad Depot, New Haven,
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b. An exit briefing, to include a discussion of the findings and recommendations, Appendix C, was held on 1 May 1998 with Ms. Huddlestun.

c. No previous evaluation of the RPP by this organization was identified.

d. This survey was conducted by SSG David Collins, U.S. Army, Health Physics Specialist, Industrial Health Physics Program, USACHPPM.

e. Appendix B contains a list of abbreviations used in this report.

f. This evaluation focused on the Defense National Stockpile Center (DNSC) operations as they relate to the regulatory conditions of the Nuclear Regulatory Commission (NRC) license issued to DLA; pertinent DLA directives and regulations; and DNSC guidance as stated in their Radiation Protection Guideline dated May 1997.

g. The survey officer made an onsite visit to Warehouse 214 as well as the outside Storage Area Piles 111 and 111A.

5. FINDINGS.

a. General.

(1) Ms. Lois Huddlestun, Storage Specialist, DNSC, was designated, in writing as the Depot RPO.

(2) Mr. William Till, QA Specialist, DNSC, was designated, in writing as the Depot RPO.

(3) Radioactive materials at the Casad Depot for the DNSC are stored under the authority of the NRC License # STC-133 which expires on 31 October 1999.

(4) A written RPP was in place in the form of DNSC Occupational RPP dated 30 May 1997. There was an Emergency Protection Plan dated May 1997 which was reviewed and found to be adequate. The onsite emergency plan was in the process of update at the time of the survey.

(5) Annual audits of the RPP were being conducted and documented. Each audit is forwarded to the DNSC Headquarters as well as maintained on file.

b. Personnel Dosimetry Program.

(1) Local dosimetry service is provided by the U.S. Army Ionizing Radiation Dosimetry Center (USAIRDC). Dosimeters are exchanged on a quarterly basis and all individuals assigned to the depot are on the dosimetry program.

(2) The DD Form 1952's were on hand for all individuals assigned to the Depot, however, many of the forms were not complete.

(3) Records of occupational exposures to ionizing radiation are maintained using the Automated Dosimetry Record supplied by USAIRDC as well as the use of DD Form 1141.

(4) Pocket Self-Reading Ionization Chambers are used as supplemental dosimetry devices. These devices have a scale of 0-200 milliRoentgen (mR) and are worn by any individual entering the restricted area. Currently there is no verification program in place for these devices with the exception of an annual evaluation for leakage. Documentation of the annual leakage test was not available for review.

c. Radioactive Material.

(1) Ores and concentrates containing uranium and thorium are stored in Warehouse 214, in various locations in Sections 3 and 4. There are outside storage areas of ores; the ores are stored in Location Piles 111 and 111A. Pile 111A is a mixture of ore and surface soil that was transferred to Casad Depot from a previous depot storage site. All entrances into Warehouse 214 are locked as well as secured with numbered seals. The outside storage areas were secured by a fence which completely surrounds the piles with appropriate warning signs on all sides of the fenced area.

(2) An inventory of radioactive material was available for review and appeared to be adequate. Radioactive components are listed by percentage and weight of a particular ore.

d. Records, Reports, and Surveys.

(1) Radiation safety training for depot employees has not been documented since November 1994.

(2) A hazardous information station is maintained at the security station and its location is provided to local emergency departments. Documentation of this notification was not available for review. Instructions to the security force strictly prohibits entry into restricted areas of the depot.

(3) A review of documented audits maintained by the depot appeared to contain reprints of previous audits.

(4) An inventory of survey instruments used at the depot was available for review with supporting documentation of calibration being performed as required. Calibration of instruments currently does not include the recording of a check source reading. A cesium-137 source is available to be sent with the instrument.

(5) Since there are many entrances into Warehouse 214, the posting of notices at each entrance was not feasible. A worker's posting board was used to make available the appropriate standing operating procedures, Section 206 of the Energy Reorganization Act, NRC-3 form (8-97), and a notice to employees on where Title 10, Code of Federal Regulations, Part 19, 20, or 21 (10 CFR 19) and the current NRC license could be found for review.

6. ONSITE ASSISTANCE.

a. A survey was performed in Warehouse 214 as well as the outside storage areas to determine exposure rates. The ores at this depot are in storage and at this time there was no scheduled date for movement.

b. The exposure rate survey was performed on 30 April 1998 with the AN/PDR 77 RADIAC Meter, using the beta/gamma probe, serial number 1201A. Background measurements ranged from .024 to .032 milliRoentgen per hour (mR/hr).

(1) Measurements taken on contact of ore Pile 111 containers varied from 1.6 mR/hr to a maximum of 2.25 mR/hr.

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(2) Measurements along the fence line surrounding the outside storage area varied from 155 to a maximum of 200 microRoentgen per hour.

(3) Measurements taken in uncontrolled areas of Warehouse 214 were undistinguishable from background.

7. DISCUSSION.

a. Ms. Huddlestun was invaluable for her organizational skills and records maintenance.

b. There was some discussion with the RPO regarding the level of training received to enable them to perform their respective missions. It was noted that the NRC license application dated 1 February 1994, is very specific as to the training required for the RPO's. The training attended by the Depot RPO while a very good class is not the training specified by the license.

c. A complete copy of the license application and updated copies of applicable regulations were not available at the depot Radiation Protection Office. Ready accessibility to these documents are necessary to maintain currency with changing license requirements. Also, there was a lack of available technical references to support the RPO. We suggested the Internet as a good source for updated regulations as well as training materials, and direct access by the RPO would enhance the RPP.

8. CONCLUSION. A review of the findings indicates that the DNSC, Casad Depot, has a working RPP. However, implementing the following recommendations will improve the overall management and regulatory compliance of the RPP.

9. RECOMMENDATIONS.

a. General. None required at this time.

b. Personnel Dosimetry Program.

(1) Ensure that DD Forms 1952 are complete for all individuals assigned to the depot (DLAR 1000.28, paragraph B-1).

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(2) The RPO should sign the ADRs to indicate that a review had been completed [DLAI 1000.30, paragraph 4-3b (2)].

(3) To eliminate a duplication of work, the use of the DD Form 1141 could be discontinued (DLAR 1000.28, paragraph 6-3a).

c. Radioactive Material. None required at this time.

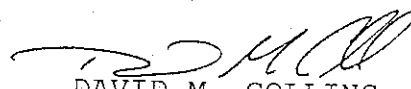
d. Records, Reports, and Surveys.

(1) Develop and implement an annual radiation protection training program for depot workers (DLAR 4145.23, Section 4-2).

(2) Document the notification of emergency personnel of location and contents of hazardous information station. Notification should be on an annual basis or when status changes.

(3) Ensure that documentation maintained to support the RPP reviews are accurate and current (10 CFR 20.1501).

(4) Calibration of instruments should be staggered to ensure a calibrated detectors is on hand. A check source should be sent with the instrument to calibration to be used for a constancy reading. This check source reading provided by the calibration facility can be used throughout the calibration interval to verify the calibration.



DAVID M. COLLINS

SSG, USA

Health Physicist Specialist

Industrial Health Physics Program

APPROVED:



HARRIS EDGE

Program Manager

Industrial Health Physics

Indust Radn Surv No. 27-MH-8011-98, DNSC, Casad Depot, New Haven, IN, 29-30 Apr 98

APPENDIX A

REFERENCES

1. DLAR 1000.28, Occupational Ionizing Radiation Personnel Dosimetry, 30 June 1995.
2. DLAI 1000.30, Personnel Dosimetry Guidance and Dose Recording Procedures for Personnel Occupationally Exposed to Ionizing Radiation, 30 June 1995.
3. DLAM 4145.8, Radioactive Commodities in the DoD Supply Systems, 19 April 1985.
4. DLAR 4145.23-MMD, Radioactive Materials in the DLA Supply System, 20 August 1993.
5. DLAM 6055.1, DLA Safety and Health Manual, Change 1, 5 August 1986.
6. DDRWM 6055.1, DDRW Occupational Safety and Health Manual, Change 1, 11 June 1996.
7. Title 10, Code of Federal Regulation (CFR), 1996 rev., Part 19, Notices, Instructions and Reports to Workers; Inspection.
8. Title 10, CFR, 1997 rev., Part 20, Standards for Protection Against Radiation.
9. U.S. Nuclear Regulatory Commission Regulatory Guide 8.13, Instruction Concerning Prenatal Radiation Exposure, Revision 2, December 1987.

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APPENDIX B

ABBREVIATIONS

CFR	Code of Federal Regulations
DLAC	Defense Logistic Agency Civilian
DNSC	Defense National Stockpile Center
DLA	Defense Logistics Agency
DLAI	Defense Logistics Agency Instruction
DLAR	Defense Logistics Agency Regulation
DoD	Department of Defense
mR/hr	milliRoentgen per hour
NRC	Nuclear Regulatory Commission
QA	Quality Assurance
RPP	radiation protection program
RPO	radiation protection officer
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAIRDC	U.S. Army Ionizing Radiation Dosimetry Center

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IN, 29-30 Apr 98

MCHB-TS-OIP (40)

30 April 1998

Exit Briefing Notes

I. General Information

- a. Defense Logistic Agency, Casad New Haven Depot NDS
- b. Industrial Radiation Survey No. 27-MH-8011-98
- c. Survey Date: 29-30 Apr 98
- d. Survey Officer: SSG David Collins
- e. No previous evaluation by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) Survey was identified.
- f. Applicable License(s) and/or DARA(s)

USNRC Specific License # STC-133, Defense Logistics Agency, Defense National Stockpile Center. Uranium and Thorium ores concentrates and solids.

- g. Casad Depot RPO - Ms. Lois Huddlestun, Storage Specialist
RSO - Mr. William Till, QA Specialist
Telephone: Comm: (210) 749-5953/9544
- h. List of individuals/titles who attended in-briefing:

Ms. Lois Huddlestun, DLAC, Storage Specialist, RPO
Mr. William Till, DLAC, QA Specialist, RSO
SSG David Collins, Health Physics Technician, USACHPPM

- i. List of individuals attending exit briefing:

Ms. Lois Huddlestun, DLAC, Storage Specialist/RSO
SSG David Collins, Health Physics Technician, USACHPPM

Indust Radn Surv No. 27-MH-8011-98, DNSC, Casad Depot, New Haven,
IN, 29-30 Apr 98

II. Findings:

a. General

A written radiation protection program is in place in the form of DNSC Occupational Radiation Protection Program dated 30 May 1997. Site specific operating procedures and emergency procedures are in place and appear to be adequate for their purpose. The emergency plan was last evaluated in May 1997 and was being updated at the time of this evaluation.

Annual training had not been documented for Depot workers since Nov 94. The local fire department is aware of the hazardous material located on the depot and a hazardous material information station is maintained at the guard post. Instruction to security force personnel strictly prohibits entry into restricted areas.

Audits are documented and forwarded to DNSC headquarters. Many items recorded on the annual audit appear to be reprints from previous audits. Radiation levels measured at survey points had the same readings for six consecutive surveys.

b. Dosimetry

Local dosimetry service is provided by the U.S. Army Ionizing Radiation Dosimetry Center. Dosimeters are exchanged on a quarterly basis and all individuals assigned to the depot are on the dosimetry program.

DD Form 1952 were on hand for all individuals but were complete (blocks 11-20).

Personnel exposure records are being maintained on Automated Dosimetry Reports provided by USAIRDC as well as being recorded on DD Form 1141.

The quarterly review by the RPO has not been documented.

Self-reading ionization chambers are used as supplemental dosimeters. Documentation of annual leakage was not available for review.

c. Radioactive Material

Radiation detection equipment is calibrated by the manufacturer in an annual basis. There are three different sets of detectors on hand. Currently a check source is not sent with the instrument for calibration.

Calibration records were on file for all instruments and appeared to be complete.

Radioactive material storage facilities are properly secured and posted.

Radiation levels were recorded during the visit and all readings were within acceptable levels. Exposure levels on the perimeter of the fence containing the piles of ore were recorded to be >0.2 mR/hr. Measurements made in direct contact with the ore pile yielded readings from 1.6 to 2.25 mR/hr.

III. Recommendations:

a. General

Develop and document an annual radiation protection training program for depot employees. (DLAR 4145.23 Section 4-2)

Notify in writing the local fire department of appropriate changes to the emergency information located at the guard shack. (10 CFR 19.12)


Ensure that information contained in audits is accurate and current. (10 CFR 20.1501)

b. Dosimetry

DD Form 1952 should be completed for all individuals assigned to the Casad New Haven Depot. (DLAR 1000.28 B-1)

The RPO should sign the ADRs to indicate that a review has been completed. (DLAI 1000.30 4-3b(2))

To eliminate a duplication of work, the DD Form 1141 can be discontinued. (DLAR 1000.28, 6-3a)



Indust Radn Surv No. 27-MH-8011-98, DNSC, Casad Depot, New Haven,
IN, 29-30 Apr 98

c. Radioactive Material

Instrument calibrations should be staggered to ensure that a calibrated instrument is always on hand. (10 CFR 20.1501)

Check sources should be sent with radiation detection instruments to calibration for constancy values.

IV. Conclusions: No health hazards were identified due to the licensed use of radioactive materials at the Casad New Haven Depot, NDS. The above findings and recommendations are provided to aid Casad New Haven Depot Manager in the continued implementation of it's Radiation Protection Program.

V. The recommendations provided to the Commander will be recommended to the Commander, USACHPPM for inclusion in the Industrial Radiation Survey No. 27-MH-8011-98. The Commander, USACHPPM may delete any or all of the above recommendations from the final report. Any area of this survey may be discussed with the Program Manager, Industrial Health Physics at DSN 584-3502 or commercial (410) 671-3502 or facsimile DSN 584-3502 or commercial (410) 671-8261.

U.S. Army Center for Health Promotion and Preventive Medicine

The lineage of the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) can be traced back over 50 years. This organization began as the U.S. Army Industrial Hygiene Laboratory, established during the industrial buildup for World War II, under the direct supervision of the Army Surgeon General. Its original location was at the Johns Hopkins School of Hygiene and Public Health. Its mission was to conduct occupational health surveys and investigations within the Department of Defense's (DOD's) industrial production base. It was staffed with three personnel and had a limited annual operating budget of three thousand dollars.

Most recently, it became internationally known as the U.S. Army Environmental Hygiene Agency (AEHA). Its mission expanded to support worldwide preventive medicine programs of the Army, DOD, and other Federal agencies as directed by the Army Medical Command or the Office of The Surgeon General, through consultations, support services, investigations, on-site visits, and training.

On 1 August 1994, AEHA was redesignated the U.S. Army Center for Health Promotion and Preventive Medicine with a provisional status and a commanding general officer. On 1 October 1995, the nonprovisional status was approved with a mission of providing preventive medicine and health promotion leadership, direction, and services for America's Army.

The organization's quest has always been one of excellence and the provision of quality service. Today, its goal is to be an established world-class center of excellence for achieving and maintaining a fit, healthy, and ready force. To achieve that end, the CHPPM holds firmly to its values which are steeped in rich military heritage:

- ★ *Integrity is the foundation*
 - ★ *Excellence is the standard*
 - ★ *Customer satisfaction is the focus*
 - ★ *Its people are the most valued resource*
 - ★ *Continuous quality improvement is the pathway*

This organization stands on the threshold of even greater challenges and responsibilities. It has been reorganized and reengineered to support the Army of the future. The CHPPM now has three direct support activities located in Fort Meade, Maryland; Fort McPherson, Georgia; and Fitzsimons Army Medical Center, Aurora, Colorado; to provide responsive regional health promotion and preventive medicine support across the U.S. There are also two CHPPM overseas commands in Landstuhl, Germany and Camp Zama, Japan who contribute to the success of CHPPM's increasing global mission. As CHPPM moves into the 21st Century, new programs relating to fitness, health promotion, wellness, and disease surveillance are being added. As always, CHPPM stands firm in its commitment to Army readiness. It is an organization proud of its fine history, yet equally excited about its challenging future.

PART II. ENERGY REORGANIZATION ACT OF 1974

PUBLIC LAW 93-438 [H.R. 115101
(88 STAT. 1233)]

NONCOMPLIANCE

Sec. 206.

(a) Any individual director, or responsible officer of a firm constructing, owning, operating, or supplying the components of any facility, or activity which is licensed or otherwise regulated pursuant to the Atomic Energy Act of 1954 as amended, or pursuant to this Act, who obtains information reasonably indicating that such facility or activity or basic components supplied to such facility or activity -

(1) fails to comply with the Atomic Energy Act of 1954, as amended, or any applicable rule, regulation, order, or license of the Commission relating to substantial safety hazards, or

(2) contains a defect which could --create a substantial safety hazard, as defined by regulations which the Commission shall promulgate, shall immediately notify the Commission of such failure to comply, or of such defect, unless such person has actual knowledge-that the Commission has been adequately informed of -such defect or failure to comply.

(b) Any person who knowingly and consciously-fails to provide the notice required by subsection (a) of this section shall be subject to a civil penalty in an amount equal to the amount provided by section 234 of the Atomic energy Act of 1954, as amended.

(c) The requirements of this section shall be prominently posted in the premises of any facility licensed or otherwise regulated pursuant to the Atomic energy Act of 1954, as amended.

(d) The Commission is authorized to conduct such reasonable inspections and other enforcement activities as needed to insure compliance with the provisions of this section.



DEFENSE LOGISTICS AGENCY
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Till

IN REPLY
REFER TO

18 1997

DNSC-M

MEMORANDUM FOR DNSC-MD, DNSC-ME, DNSC-MO, DNSC-MQ, DNSC-MOF,
DNSC-MQF, DEPOT MANAGERS, SUPERVISORY QUALITY
ASSURANCE SPECIALISTS, AND RADIOLOGICAL
OFFICERS

SUBJECT: DNSC Occupational Radiation Protection Program-
Addendum

A recent quarterly assessment of management control objectives noted the absence of a system to track the annual radiation safety training which is required by Paragraph 3.3 of the DNSC Occupational Radiation Protection Program (ORPP), dated May 30, 1997.

The ORPP is hereby amended to add the following paragraph 4.8:

4.8 Once each fiscal year, Depot RPO's shall coordinate with Depot Managers and Supervisory Quality Assurance Specialists to set aside a monthly safety meeting for radiation protection training. The Depot RPO (alternate RSO at Mechanicsburg, PA) shall provide the training to all personnel (except clerical staff). Upon completion of the training, the RPO shall notify the Radiation Program Manager, in writing, of the names of all attendees at the meeting."

Should you have any questions please contact Kevin Reilly on (703) 767-6522.

GILES E. LEPAGE
Director,
Directorate of Strategic
Materials Management

'97 JUL 29 07:43





DEFENSE LOGISTICS AGENCY
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SEP 9 1997

IN REPLY
REFER TO DNSC-M


MEMORANDUM FOR DNSC-MD, ME, MH, MO, MQ, MOF, MQF, ALL SQAS,
DEPOT MANAGERS, RADIATION PROTECTION
OFFICERS (RPO), AND RADIATION SAFETY
OFFICERS (RSO)

SUBJECT: DNSC Occupational Radiation Protection
Program (ORPP) -Amendment

Paragraph 13.4. of the ORPP is hereby amended to read
as follows:

"Personal dosimeters that require processing to
determine the radiation dose must be processed and evaluated
by the Department of the Army Ionizing Radiation Dosimetry
Center."

Should you have any questions please contact Kevin
Reilly on (703) 767-6522.


GILES E. LEPAGE
Director,
Directorate of Strategic
Materials Management





DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
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IN
REFER TO

DEC 16 1997

DNSC-M

MEMORANDUM FOR DNSC-M, MD, ME, MH, MO, MQ, ALL DEPOT
MANAGERS, ALL SQAS, RADIATION PROTECTION
OFFICERS AND RADIATION SAFETY OFFICERS

SUBJECT: DNSC Occupational Radiation Protection Program
(ORPP)-Amendment

Paragraph 4.3 of the ORPP is hereby amended to read as
follows:

"Section 206 of Public Law 93-438 "Energy
Reorganization Act of 1974, NRC FORM 3 "Notice To
Employees", and the location of the NRC License will be
posted so as to be clearly visible to employees."

Should you have any questions please contact Kevin
Reilly on (703) 767-6522.

GILES E. LEPAGE
Director,
Directorate of Strategic
Materials Management

Attachment

1. Section 6, PL 93-438

'97 DEC 22 10:29





DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
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AUG 24 1998

IN REPLY
REFER TO DNSC-ME

MEMORANDUM FOR DNSC-MO, DNSC-MQ, DNSC-MH, ALL RSO'S
ALL RPO'S

SUBJECT: Updating DNSC Radiation Protection Program

The recent radiation inspection surveys performed by the U.S. Army Center for Health Promotion and Preventive Medicine (USACHPPM) revealed several areas where we can improve our radiation program. The following instructions and guidance should assist you in making the necessary changes in your operation to comply with the recommendations set forth in the inspection reports.

First, I am gathering the data necessary to provide all licensed facilities a complete Nuclear Regulatory Commission (NRC) license package. As amendments are added I will insure all licensed facilities get copies for their files.

The use of Pocket dosimeters will be discontinued at all licensed facilities except DNSC Curtis Bay and DNSC Hammond. All Licensed DNSC facilities shall obtain TLD's from the U.S. Army Ionizing Radiation Dosimeter Center. This center will provide quarterly read outs for your TLD's and will replace the need for completing DD Form 1141. RPO's in charge of recordkeeping must insure all previous exposure data is provided to the Army Center for incorporation into their database so the print outs provided and discussed with the employees annually will have all their historical data. DNSC Curtis Bay, Hammond and New Haven already use TLD's and will assist other licensed facilities in accomplishing this new requirement.

Unneeded radiation check sources will be properly disposed of through DLA/DRMO. Dedicated check sources will be calibrated along with the radiation detection equipment annually. DNSC Depot RPO's shall insure this happens.



Apparently from the inspection reports DNSC Binghamton and DNSC Scotia have adequate Emergency Plans. DNSC RPO's shall work with their respective Depot manager and share this information with all licensed facilities. Review your Depot emergency plans and incorporate information, as necessary, so licensed facilities plans are all similar.


When we do our annual radiation safety training please include the guards on duty and if possible hold a second session to incorporate all the guards assigned to your facility. Access to the Internet is a valuable and essential resource for information; here are several Internet addresses that may help if you do not already have them:

DLAPS, DLA Regs, etc. - www.dasc.dla.mil
Code of Federal Regulation -
www.access.gpo.gov/nara/cfr/index.html
Nuclear Regulatory Commission - www.nrc.gov

In addition, I am formalizing a radiation training class with USACHMMP that will strictly address stockpile radioactive commodities (uranium and thorium), the DNSC radiation program, the equipment we use and plan to purchase, basically our specific needs. The class will probably be held at DNSC Curtis Bay in the spring of 1999.

I believe I have covered most of the required changes we need to improve our program. If I have missed something please contact me as soon as possible so changes can be made. Obviously, your assistance and cooperation are the key to this program so let's work together and make everything easier.

Any questions please call me on (703) 767-6522.



F. KEVIN REILLY
Radiation Program Manager



DEFENSE LOGISTICS AGENCY
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FT. BELVOIR, VIRGINIA 22060-6223

SEP 9 1997

IN REPLY
REFER TO DNSC-M


MEMORANDUM FOR DNSC-MD, ME, MH, ~~MO~~ MQ, MOF, MQF, ALL SQAS,
DEPOT MANAGERS, RADIATION PROTECTION
OFFICERS (RPO), AND RADIATION SAFETY
OFFICERS (RSO)


SUBJECT: DNSC Occupational Radiation Protection
Program (ORPP) - Amendment

Paragraph 13.4. of the ORPP is hereby amended to read
as follows:

"Personal dosimeters that require processing to
determine the radiation dose must be processed and evaluated
by the Department of the Army Ionizing Radiation Dosimetry
Center."

Should you have any questions please contact Kevin
Reilly on (703) 767-6522.


GILES E. LEPAGE
Director,
Directorate of Strategic
Materials Management

CC- Employees
Post
File






DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD, SUITE 3339
FT. BELVOIR, VIRGINIA 22060-6223



REPLY
REFER TO

SEP 06 1996

DNSC-MO

MEMORANDUM FOR MOE, MOW, ALL DEPOT MANAGERS

SUBJECT: Radiation Officer

The following personnel have been selected as Depot Radiological Officers:

Somerville, NJ - Bernard Lettieri
Curtis Bay, MD - Grant Baker
Scotia, NY - Daniel Shepherd
Binghamton, NY - Clifford Jones
New Haven, IN - Lois Huddlestum
Warren, OH - Leon Morrison

The required training classes will be established and they will be notified of the time and place.

Until these people are properly trained, the current radiation officers will remain in place.

fr GILES E. LEPAGE
Director
Directorate of Strategic
Materials Management





DEFENSE LOGISTICS AGENCY
DEFENSE NATIONAL STOCKPILE CENTER
8725 JOHN J. KINGMAN ROAD, SUITE 4616
FT. BELVOIR, VIRGINIA 22060-6223

Till

JUN 25 1997

IN REPLY
REFER TO

DNSC-M

MEMORANDUM FOR DNSC-MD, ME, MO, MQ, DEPOT MANAGERS,
SUPERVISORY QUALITY ASSURANCE SPECIALISTS
AND RADIOLOGICAL OFFICERS

SUBJECT: Revised DNSC Occupational Radiation Protection
Program (ORPP)

Attached for your information and implementation is the updated Occupational Radiation Protection Program, dated May 30, 1997.

The revision replaces the previous program guidelines implemented on February 3, 1992.

Supervisory Quality Assurance Specialists and Depot Managers are directed to add the revision to their facility libraries and discuss the contents during their periodic safety meetings.

Additional training to explain the contents of this revised ORPP, and the duties and responsibilities of radiological officers, will be provided. Until this is accomplished, Radiological Safety Officers are expected to closely support and assist newly appointed Radiological Protection Officers.

Should you have any questions please contact Kevin Reilly on (703) 767-6522.

Giles E. Lepage

GILES E. LEPAGE
Director
Directorate of Strategic
Materials Management

Attachment

'97 JUN 30 13:10



PREFACE

This May 30, 1997 revision of the Defense National Stockpile Center (DNSC) Radiation Protection Guidelines supersedes all previous publications relating to radiological protection for DNSC personnel and property. This revised program has incorporated the new reorganized structure of the Defense National Stockpile Center of June 30, 1996 and April 1, 1997.

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.

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DEFENSE NATIONAL STOCKPILE CENTER
OCCUPATIONAL RADIATION PROTECTION PROGRAM

1. Purpose

The actions stated herein establish guidelines for protection against ionizing radiation and the establishment and maintenance of an "Occupational Radiation Protection Program" (ORPP) for the handling and storage of radioactive materials at all facilities containing Defense National Stockpile Center (DNSC) radioactive source materials.

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 all locations where DNSC radioactive materials are stored.

3. Responsibility

3.1 The Occupational Radiation Program Manager (ORPM) is responsible for the development and overall administration of the ORPP. This position is located in the Directorate of Strategic Materials Management (DNSC-M). Management, and continued effectiveness, of the ORPP is delegated to the ORPM. It is his/her responsibility to designate a Radiological Safety Officer (RSO) and alternates, 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. These individuals shall be given at least 40 hours formal training that will enable them to recognize, and evaluate through monitoring and surveys, radiological activities within their areas of responsibility.

3.2 The RSO and alternates are responsible for monitoring the effectiveness of the depot's radiological programs.

* 3.3 The Depot RPO's are responsible for the day to day supervision of the ORPP for their respective facilities. They are also responsible for extending the training program among depot personnel (see DLAR 4145.23, Encl 1, Section 4, Par. 4.2), and will ascertain that prescribed monitoring and safety precautions are taken with respect to radioactive materials.

3.4 It is the responsibility of the Depot RPO's and the RSO (and/or alternates) 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.

4. Program Requirements

An active, closely supervised ORPP will be maintained 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 this ORPP. Depot RPO's will provide for periodic reviews of all plans, procedures, continued training of old and new employees, care and maintenance of instruments, inspection of records and of materials in storage.

* 4.2 A permanent record on DD Form 1141, Record Of Occupational Exposure To Ionizing Radiation, will be maintained for each potentially exposed employee, by the Depot RPO.

4.3 NRC FORM 3 "Notice To Employees", and the location of the NRC license will be posted so as to be clearly visible to employees.

* 4.4 Each depot having licensable radioactive materials in storage will have on hand as a minimum, one (1) Geiger counter, one (1) dosimeter charger, pocket dosimeters for each employee, and film badges as required for use by personnel engaged in handling such materials.

4.5 The RSO, or alternates, shall make at a minimum one inspection per year at each depot to review the status of programs and records, inventory instruments and check calibration records, monitor all licensed material, and advise the Depot RPO's in the administrative and operational measures required for compliance with DNSC and Federal regulations. Further they shall prepare a comprehensive report detailing their annual inspection at each depot containing licensed radioactive materials and forward the same to the DNSC-M, ORPP Manager.

* 4.6 Depot RPO's shall review and document this review for all exposure records (DD Form 1141) quarterly. Additionally, the Depot RPO's shall monitor such operations as material handling, repackaging, spills, clean-ups, and/or any other operational activities relating to these 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 (i.e. NRC Form 741). Strict compliance with 49 CFR § 173 shipping and labeling requirements shall be observed.

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. However, local exhaust ventilation systems may be necessary for use during special projects. Industrial size vacuum cleaners, equipped with high efficiency particulate filters (HEPA) that capture radionuclides, shall be available on site for use during repackaging projects involving commodities controlled under our source material license. They shall be used to ensure that if any material is spilled, it will not become airborne to any significant extent.

Prior to the beginning of a repackaging or decontamination project, an assessment shall be made by the DNSC-M ORPP Manager, the RSO, and other stockpile personnel, to determine if there is a need for additional controls. Engineering control such as, but not limited to, isolation, enclosure, exhaust ventilation and dust collection shall be used to meet the NRC exposure limits criteria where and when feasible. Local exhaust ventilation and dust collection systems shall be designed, constructed, installed and maintained in accordance with the American National Standards Institute (ANSI) standards governing the design and operation of local exhaust systems, ANSI Z9.2, which is incorporated herein by reference.

The layout of storage facilities shall be such that it minimizes exposure to ionizing radiation. For example, radioactive commodities shall be concentrated and isolated to limit access.

5.2 Shielding The thickness of a specified substance that, when placed in the path of emitted radiation, reduces the measured level by half is referred to as the "half-value layer" (HVL). The HVL is often used to denote the effectiveness of shielding materials. In using HVL data, it should be remembered that a shield thickness of 2HVL reduces the exposure rate by a factor of 4; a thickness of 3HVL by a factor of 8. The table below illustrates the above principle.

Material Used for Shielding Reduction in Exposure
Half-Value Layer

1.....	2x
2.....	4x
3.....	8x
4.....	16x
5.....	32x
6.....	64x
7.....	128x

Shielding designs should be used to reduce exposures to the lowest practicable level. Many times, dense stockpile non-radioactive materials, stored in drums, can be used to effectively form a shield perimeter, where there are radioactive materials stored inside the perimeter area. The density of the shielding materials is closely associated with the attenuation of radioactivity. The more dense the shielding material, the greater the attenuation.

In the case of photon emissions (gamma rays), the selection of material is very important. Highly dense material such as ferrochrome in drums can serve as an effective perimeter barrier for the thorium nitrate stored in the stockpile. Normally, lead, concrete, or a combination of the two are 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 material, need for structural support for non-load bearing material such as lead, need to ensure proper attenuation through leaky areas in the shield, (e.g., glass windows, joints, seams, pipes, conduit, service boxes and doors). There is also a need to be certain that the correct shielding materials are being used for the type of radiation in question and the need for continuous maintenance of the shielding structure, to prevent deterioration.

5.3 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, should take into account the length of time a person is exposed to a given dose of radiation. Pocket dosimeters, thermoluminescent dosimeters, and/or film badges in conjunction with accurate exposure recordkeeping are necessary to ensure that workers are; a) not overexposed according to NRC criteria in Part 20 and b) limited to the minimum amount of exposure that a particular work task requires.

5.4 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 (inverse square relationship). When the distance is doubled from the source of radioactivity, the intensity of the radiation is decreased approximately 4 times; tripling the distance from the source reduces the radiation approximately 9 times.

5.5 Protective Equipment Every effort shall be made to reduce potential radiation exposures by the methods noted above. There will 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 of 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 use 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 considerations that the Radiological Protection Officers should assess at all times:

- the amount of exposure should be controlled using time-limiting procedures,
- if radiation levels are high, employee rotation shall be considered,
- eating, drinking, smoking or chewing gum are strictly prohibited in areas containing radioactive materials
- personal belongings such as; watches, rings, combs, etc., shall not be worn while working in such areas,
- persons with open wounds shall not be allowed work in such areas,
- 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,
- licensable radioactive materials that are to be received into the Defense National Stockpile shall be thoroughly inspected for contamination and leaks prior to storage,
- Engineering controls, such as shielding, local exhaust ventilation, dust collection and isolation shall be used when practicable,
- handling of radioactive material shall be carried out in a manner which will prevent damage to the containers and reduce radiation exposure to a minimum,
- personnel shall exercise good personal hygiene habits when conducting work operations involving radioactive materials (e.g., washing and showering thoroughly),
- personnel shall wear personal protective equipment when conducting work operations where they may come into contact with radioactive materials, their gases, or their airborne particulates,
- personnel shall be monitored during and after working with licensed radioactive materials,

--radiation doses measured by personal dosimetry shall be recorded immediately after exiting the work area,

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

7. Waste Disposal. Radioactive wastes half-lives range from minutes to millions of years. Because of this, there are numerous problems associated with the disposal of radioactive wastes.

Disposal of radioactive waste shall be accomplished in accordance with applicable NRC, DOT, EPA, State and Local Criteria. It is the responsibility of the RPO, RSO and alternates to become fully knowledgeable about such criteria.

The DNSC shall dispose of any radioactive waste at an NRC licensed radioactive waste disposal facility.

All necessary health and safety precautions shall be adhered to when monitoring and collecting radioactive wastes for placement into approved containment devices. They shall be properly labeled, stored, and shipped per DOT and NRC requirements.

* 8. Warning Signs, Labels, Markings and Placards. Appropriate specialized warning signs, labels, markings and placards are required by the regulatory agencies when handling, storing and shipping licensed radioactive materials. 29 CFR 1910.96 (OSHA), 10 CFR Parts 19, 20, 40 and 71 (NRC) as well as other NRC guidelines and 49 CFR Parts 171--189 (DOT) shall be used by the RPO's, RSO, and alternates, in making decisions with regard to the proper manner of placing warning signs, labels, marking or, placards. Assistance in resolving problems shall be directed to the DNSC-M ORPM.

* Restricted areas where dose rates exceed 0.50 mR/hr shall be posted with conspicuous signs bearing the radiation symbol and the words "CAUTION, RADIATION AREA." *? contact*

9. Exposure Criteria and Evaluation. There are some basic assumptions that have been derived in formulating radiation protection guidelines. They are: 1) the effects of all types of radiation, dose rates and exposure durations are not precisely known; 2) there is no known level of radiation below which there will be no biological damage; and 3) there is a linear relationship between biological effects and radiation 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.

?
* 9.1.2 The DNSC maximum permissible dose rate within a controlled area shall not exceed 0.50 mR/hr.

* 9.1.3 Individual radiological monitoring devices shall be used by ALL personnel who enter an area containing thorium nitrate and by personnel entering a restricted area WHERE THEY ARE LIKELY TO RECEIVE, IN ONE YEAR, A DOSE IN EXCESS OF 500 MREMS.

* 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. A DNSC employee who is at risk for occupational exposure and who is pregnant, or believes that they could be pregnant, is encouraged to notify their supervisor and/or Radiation Protection Officer, and to discuss the situation, risks, and possible consequences of continued exposure. All such discussions will remain confidential.

At their request, 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.

Under no circumstances, however, will a fetus or embryo be allowed to exceed a total exposure of 500 millirems during the fetal gestation period as specified in Section 20.1208 of 10 CFR, Part 20. 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 or benefits.

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 licensed facility.

As a minimum the survey shall include the requirements outlined in 10 CFR, part 20.1501 (see Appendix B). 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.

12. Decommissioning

When closing out a facility or "decommissioning" a specific storage building or area, residual radioactive contamination must be addressed. The level or limits established by the Nuclear Regulatory Commission (NRC) in their document "GUIDELINES FOR DECOMMISSIONING OF FACILITIES AND EQUIPMENT PRIOR TO RELEASE FOR UNRESTRICTED USE OR THE TERMINATION OF LICENSES FOR BY-PRODUCT, SOURCE, OR SPECIAL NUCLEAR MATERIAL" JULY 1982, shall be used. This document is contained in Appendix C.

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 high enough to avoid spurious signals but low enough to ensure the safety of personnel.

13.3 Annual calibration and maintenance of all monitoring instruments is MANDATORY.

13.4 Personal dosimeters that require processing to determine the radiation dose must be processed and evaluated by the Department of the Army Ionizing Radiation and Dosimetry Program at Lexington, Kentucky.

13.5 RSO's shall make a periodic determination of whether the area sampling points or conditions being monitored are the appropriate ones to monitor, or whether a change in sampling points is necessary.

14. Emergency Procedures

14.1 The DNSC-M ORPM is responsible to ensure the establishment of an Emergency Procedures Program by the manager of each depot where licensed radioactive stockpile materials are stored. Step-wise emergency procedures shall be established and be available in each depot. Since conditions change over time, the emergency procedures must be reviewed and updated periodically. The essential element of an emergency procedure includes simple, direct, step-wise instructions on the course of action to be taken in an emergency.

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.

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. Only radiation surveys will be forwarded to the DNSC Headquarters.

16.2 The depot RPO at each site containing licensed source material 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.

APPENDIX A 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 (BY).

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, particulates, 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 (DACs) 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 safety, and other societal and socioeconomic considerations, and in relation to utilization of nuclear energy 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 countings) 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.

Class (or lung class or inhalation class) means a classification scheme for inhaled material according to its rate of clearance from the pulmonary region of the lung. Materials are classified as D, W, or Y, which applies to a range of clearance half-times: for Class D (Days) of less than 10 days, for Class W (Weeks from 10 to 100 days, and for Class Y (Years) of greater than 100 days.

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 license 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.

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.

Gray (Gy) is the Standard International (SI) unit of absorbed dose. One gray is equal to an absorbed dose of 1 Joule/kilogram or 100 rads.

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 or 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(n).

Member of the public means an individual in a controlled or unrestricted area. However, an individual is not a member of the public during any period in which the individual receives 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 a restricted area or, in the course of employment in which the individual's assigned duties involve exposure to radiation and to radioactive material from licensed and unlicensed sources of radiation, whether in the possession of the licensee or other person. Occupational dose does not include dose received from background radiation, as a patient from medical practices, from voluntary participation in medical research programs, or as a member of the general public.

Planned special exposure means an infrequent exposure to radiation, separate from and in addition to the annual dose limits.

Public dose means the dose received by a member of the public from exposure to radiation and to radioactive material released by a licensee, or to another source of radiation either within a licensee's controlled areas or in unrestricted areas. It does not include occupational dose or doses received from background radiation as a patient from medical practices, or from voluntary participation in medical research programs.

Rad is the special unit of absorbed dose. One rad is equal to an absorbed dose of 100 ergs/gram or 0.01 joule/kilogram or 0.01 gray.

Radiation (ionizing) 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).

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, $1 \text{ Sv} = 100 \text{ rems}$.

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 or 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 of 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.

Very high radiation area means an area, accessible to individuals, in which radiation levels could result in an individual receiving an absorbed dose in excess of 500 rads in 1 hour at 1 meter from a radiation source or from any surface that the radiation penetrates

APPENDIX B APPLICABLE REGULATIONS AND REFERENCES

APPENDIX B

APPLICABLE REGULATIONS

1. Title 10, Code of Federal Regulations (Energy), parts 19, 20, 40, and 71 Note: 10 CFR, PART 20 STANDARDS FOR RADIATION PROTECTION (ATTACHED)
2. Title 29, Code of Federal Regulations (Labor), part 1910
3. Title 40, Code of Federal Regulations 40 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. AR40-14, DLAR No. 1000.28 Control and Recordkeeping procedures for Exposure to Ionizing Radiation and Radioactive Materials 15 March 1982.
7. DLAR 4145.23, Radioactive Materials in the DLA Supply System

REFERENCES

- * Recommendations of the International Commission on Radiological Protection, ICRP Publication 26, adopted January 17, 1977.
- * Health Effects of Exposure to Low Levels of Ionizing Radiation, BIER V, Committee on the Biological Effects of Ionizing Radiation, Board of Radiation Effects Research Commission of Life Sciences, National Research Council. National Academy Press, Washington, DC 1990
- * International Commission on Radiation Protection (ICRP) System for Dose Limitation, ICRP 26 & 60.

APPENDIX B

APPENDIX C NRC DECOMMISSIONING GUIDELINES

APPENDIX C

GUIDELINES FOR DECONTAMINATION OF FACILITIES AND EQUIPMENT
PRIOR TO RELEASE FOR UNRESTRICTED USE
OR TERMINATION OF LICENSES FOR BYPRODUCT, SOURCE,
OR SPECIAL NUCLEAR MATERIAL

U. S. Nuclear Regulatory Commission
Division of Fuel Cycle and Material Safety
Washington, D.C. 20555

July 1982

ENCLOSURE 2

The instructions in this guide, in conjunction with Table 1, specify the radionuclides and radiation exposure rate limits which should be used in decontamination and survey of surfaces or premises and equipment prior to abandonment or release for unrestricted use. The limits in Table 1 do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control is considered on a case-by-case basis.

1. The licensee shall make a reasonable effort to eliminate residual contamination.
2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Table 1 prior to the application of the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.
3. The radioactivity on the interior surfaces of pipes, drain lines, or ductwork shall be determined by making measurements at all traps, and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement shall be presumed to be contaminated in excess of the limits.
4. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer of premises to another organization continuing work with radioactive materials, or conversion of facilities to a long-term storage or standby status. Such requests must:
 - a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.
 - b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Table 1. A copy of the survey report shall be filed with the Division of Fuel Cycle and Material Safety, USNRC, Washington, D.C. 20555, and also the Administrator of the NRC Regional Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report shall:
 - a. Identify the premises.
 - b. Show that reasonable effort has been made to eliminate residual contamination.
 - c. Describe the scope of the survey and general procedures followed.
 - d. State the findings of the survey in units specified in the instruction.

Following review of the report, the NRC will consider visiting the facilities to confirm the survey.

ACCEPTABLE SURFACE CONTAMINATION LEVELS

NUCLIDES ^a	AVERAGE ^{b c f}	MAXIMUM ^{b d f}	REMOVABLE ^{b e f}
U-nat, U-235, U-238, and associated decay products	5,000 dpm α /100 cm ²	15,000 dpm α /100 cm ²	1,000 dpm α /100 cm ²
Transuranics, Ra-226, Ra-228, Th-230, Th-228, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm ²	300 dpm/100 cm ²	20 dpm/100 cm ²
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1000 dpm/100 cm ²	3000 dpm/100 cm ²	200 dpm/100 cm ²
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above.	5000 dpm $\beta\gamma$ /100 cm ²	15,000 dpm $\beta\gamma$ /100 cm ²	1000 dpm $\beta\gamma$ /100 cm ²

^aWhere surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

^bAs used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

^cMeasurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

^dThe maximum contamination level applies to an area of not more than 100 cm².

^eThe amount of removable radioactive material per 100 cm² of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface should be wiped.

^fThe average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

Acceptable Soil Contamination Levels

<u>Kind of Material</u>	<u>Soil Concentration Level for unrestricted area</u>
i) Natural Uranium (U-238 + U-234) with daughters present and in equilibrium	10 (pCi/gm of soil)
ii) Depleted Uranium or Natural Uranium that has been separated from its daughters Soluble or Insoluble	35 (pCi/gm of soil)
iii) Natural Thorium (Th-232 + Th-228) with daughters present and in equilibrium	10 (pCi/gm of soil)
iv) Enriched Uranium Soluble or Insoluble	30 (pCi/gm of soil)
v) Plutonium (Y) or (W) compounds	25 (pCi/gm of soil)
vi) Am-241 (W) compounds	30 (pCi/gm of soil)
vii) All Byproduct Material	Soil concentrations shall be determined on a case by case basis
viii) External Radiation	10 microrentgens/hr above background measured at one meter from the ground surface

APPENDIX D UNITS OF RADIOLOGICAL MEASUREMENT

APPENDIX D

UNITS OF RADIOLOGICAL MEASUREMENT

MULTIPLY # OF- $\xrightarrow{\hspace{10em}}$ by $\xrightarrow{\hspace{10em}}$ TO OBTAIN # OF
 TO OBTAIN # OF- $\xleftarrow{\hspace{10em}}$ by $\xleftarrow{\hspace{10em}}$ DIVIDE # OF

becquerel	2.703×10^{-11}	curies
<u>curies</u>	3.700×10^{10}	dis/sec
<u>curies</u>	10^3	millicuries
<u>curies</u>	10^6	microcuries
<u>curies</u>	10^{12}	picocuries
<u>curies</u>	10^{-3}	kilocuries
<u>curies</u>	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	2.22×10^6	dis/min
millicuries	3.7×10^7	dis/sec
millicuries	2.22×10^9	dis/min

MULTIPLY # OF- _____ by _____ TO OBTAIN # OF
 TO OBTAIN # OF- _____ by _____ DIVIDE # OF

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
$\mu\text{Ci}/\text{cm}^3$	2.22×10^{12}	dpm/m ³
$\mu\text{Ci}/\text{cm}^3$	2.22×10^9	dpm/liter
dpm/m ³	0.4505	pCi/m ³
sievert	100	rem

APPENDIX D

APPENDIX E

DNSC RADIOLOGICAL PROTECTION AND RADIOLOGICAL SAFETY OFFICERS

APPENDIX E

DEFENSE NATIONAL STOCKPILE CENTER RADIOLOGICAL OFFICERS

DNSC Headquarters
8745 John J. Kingman RD
Suite 4616
Ft. Belvoir, VA 22060

F. Kevin Reilly-ORPM
R. Bywaters-Safety &
Health Mgr.
M. Pecullan-RSO
A. Bixler-RSO

DNSC Binghamton Depot
Hoyt Avenue
Binghamton, NY 13901-1699

Clifford Jones, Depot RPO
Mary Davidson, RSO(alt.)

DNSC Scotia Depot
Route 5, Bldg 2
Scotia, NY 12302-9463

Dan Shepard, Depot RPO
Dennis Wesolowski, RSO(alt.)

DNSC Somerville Depot
152 US Highway Route 206 south
Somerville, NJ 08876-4135

Bernard Lettieri, Depot RPO
K. Patel, RSO(alt.)

DNSC Curtis Bay Depot
710 Ordnance Road
Baltimore, MD 21226-1786

Grant Baker, Depot RPO
K. Mickley, RSO(alt.)

DNSC Hammond Depot
3200 Sheffield Avenue
Hammond, IN 46327

Dave Kenar, Depot RPO
Judith Muff, RSO(alt.)

DNSC New Haven Depot
State Route 14
New Haven, IN 46774-9644

Lois Huddleston, Depot RPO
William Till, RSO(alt.)

DNSC Warren Depot
Pine Street Extension
Warren, OH 44482-9999

Leon Morrison, Depot RPO
Clifford Hineman, RSO(alt.)
Robert Skruck, RSO(alt.)

APPENDIX F RADIOLOGICAL FORMS (DD-1141 AND DD-1952)

APPENDIX F

RECORD OF OCCUPATIONAL EXPOSURE TO IONIZING RADIATION

FOR INSTRUCTIONS, SEE REVERSE OF SHEET.

1. IDENTIFICATION NUMBER	2. NAME (Last, first, middle initial)	3. SOCIAL SECURITY NUMBER	4. RANK/RATE TITLE OF POSITION	5. DATE OF BIRTH (Day, month, year)
--------------------------	---------------------------------------	---------------------------	--------------------------------	-------------------------------------

PLACE WHERE EXPOSURE OCCURRED	PERIOD OF EXPOSURE		DOSE THIS PERIOD (rem)				ACCUMULATED DOSE (rem)		INITIAL
	FROM <small>(Day-Mo-Yr)</small>	TO <small>(Day-Mo-Yr)</small>	SKIN DOSE <small>(Soft)</small>	GAMMA AND X-RAY	NEUTRON	TOTAL THIS PERIOD	TOTAL LIFETIME	PERMISSIBLE LIFETIME <small>5(N-18)</small>	
6	7	8	9	10	11	12	13	14	PERSON MAKING ENTRY 15

16. REMARKS (Continue on additional sheet if necessary)

TO BE RETAINED PERMANENTLY IN INDIVIDUAL'S MEDICAL RECORD

DOSIMETER APPLICATION AND RECORD OF OCCUPATIONAL RADIATION EXPOSURE

Print legibly or type all information requested. See Privacy Act Statement on reverse.

1. FULL NAME (Last, First, Middle)		2. DATE OF BIRTH (YYMMDD)	3. SOCIAL SECURITY NO.
4. DUTY SECTION (Dept., Ward, Unit, etc.)		5. JOB TITLE	
6. DUTY PHONE		7. PAY GRADE CIVILIAN <input type="checkbox"/> MILITARY <input type="checkbox"/>	
8. HAVE YOU WORN A DOSIMETER ISSUED BY THIS COMMAND IN THE PAST <input type="checkbox"/> YES <input type="checkbox"/> NO		9. DATE OF RADIATION PHYSICAL (YYMMDD)	
10. DUTY STATUS <input type="checkbox"/> PERMANENT <input type="checkbox"/> TRANSIENT 6 WEEKS OR LESS		IF TRANSIENT SHOW MAILING ADDRESS (street address, city, state, zip code) OF LOCATION OF HEALTH RECORDS	

EXPOSURE INFORMATION (ITEMS 11 THROUGH 20 FOR HEALTH PHYSICS USE ONLY)

11. CLASSIFICATION OF EXPOSURE <input type="checkbox"/> EXTERNAL <input type="checkbox"/> NEUTRON <input type="checkbox"/> INTERNAL		
12. BADGES REQUIRED <input type="checkbox"/> WRIST <input type="checkbox"/> WHOLE-BODY <input type="checkbox"/> NEUTRON		13. TLD REQUIRED <input type="checkbox"/> WRIST <input type="checkbox"/> WHOLE-BODY <input type="checkbox"/> FINGER
14. BIOASSAYS REQUIRED		
WHOLE-BODY COUNT <input type="checkbox"/> YES <input type="checkbox"/> NO	THYROID UPTAKE <input type="checkbox"/> YES <input type="checkbox"/> NO	URINALYSIS <input type="checkbox"/> α <input type="checkbox"/> β <input type="checkbox"/> β - γ
FREQUENCY <input type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> ANNUALLY		
<i>GIVE DATES FOR ITEMS 15 THROUGH 20 (YYMMDD)</i>		
15. DOSIMETER(S) ISSUED	16. DD FORM(S) 1141 INITIATED	17. DOSIMETER(S) DISCONTINUED
18. LAST DOSIMETER(S) RETURNED	19. LOCATOR CARD TO HEALTH RECORD	20. DD FORM(S) 1141 TO MEDICAL RECORDS

OCCUPATIONAL EXPOSURE HISTORY

NOTE: This section only applies to the individual who has worked with radiation-producing devices or radioisotopes in a permanent status. List only those employers for whom you worked with radiation.

NAME OF EMPLOYER	ADDRESS <small>(street address, city, state, zip code)</small>	FROM		TO		Do not write in this space
		YR	MO	YR	MO	
TOTAL EXPOSURE DATA						

REMARKS

PRIVACY ACT STATEMENT
DATA REQUIRED BY THE PRIVACY ACT OF 1974
(5 USC 552a)

1. **TITLE OF FORM:** Dosemeter Application and Record of Occupational Radiation Exposure.
2. **PRESCRIBING DIRECTIVE:** AR 40-14 and DLAR 4145.24.
3. **AUTHORITY:** 5 USC 301-Departmental Regulation; 10 USC 1071, Medical and Dental Care, Purposes; 42 USC 2073, 2093, 2095, 2111, 2133, 2134, 2201(b), and 2201(o). The authority for soliciting the social security number is 10 CFR 20; 44 USC 3101-Record Management by Agency Heads, General Duties.
4. **PRINCIPAL PURPOSE(S):** To establish qualification of personnel monitoring and document previous exposure history. The information is used in the evaluation of risk of exposure to ionizing radiation or radioactive materials. The data permits meaningful comparison of both current (short-term) and long-term exposure to ionizing radiation or radioactive material. Data on your exposure to ionizing radiation or radioactive materials is available to you upon request.
5. **ROUTINE USES:** The information may be used to provide data to other Federal agencies, academic institutions, and non-governmental agencies, such as the National Council on Radiation Protection and Measurement and the National Research Council, involved in monitoring/evaluating exposures of individuals to ionizing radiation or radioactive materials who are employed as radiation workers on a permanent or temporary basis and exposure received by monitored visitors. The information may also be disclosed to appropriate authorities in the event the information indicates a violation or potential violation of law and in the course of an administrative or judicial proceeding.
6. **MANDATORY OR VOLUNTARY DISCLOSURE AND EFFECT ON INDIVIDUAL NOT PROVIDING INFORMATION:** It is voluntary that you furnish the requested information, including social security number; however, the installation or activity must maintain a completed DD Form 1141 on each individual occupationally exposed to ionizing radiation or radioactive material as required by 10 CFR 20, 29 CFR 1910.96 and AR 40-14/DLAR 4145.24. If information is not furnished, individual may not become a radiation worker. The social security number is used to assure that the Army/Agency has accurate identifier not subject to the coincidence of similar names or birthdates among the large number of persons on whom exposure data is maintained.

STATEMENT

Under the provisions of 10 CFR 19.13, 29 CFR 1910.96 and the Privacy Act of 1974, I hereby authorize the release of, and request that all of my radiation exposure records be furnished appropriate authorities in accordance with the "Routine Uses" portion of the above Privacy Act Statement. As a radiation worker, I have been provided instructions in radiation protection as required by 10 CFR 19.12 and 29 CFR 1910.96. As a female radiation worker, I have been informed of the biological affects and the risks from ionizing radiation on the embryo-fetus and received a copy of NRC (Nuclear Regulatory Commission) Guide 8 13. I will contact my supervisor or the radiation protection officer if I have any questions. I hereby certify that the exposure history listed on the obverse is correct and complete, to the best of my knowledge and belief. I have read and understand the above Privacy Act Statement.

Date (YYMMDD)

Signature of Applicant