



# Department of Defense INSTRUCTION

**NUMBER** 6055.08

December 15, 2009

Incorporating Change 2, August 31, 2018

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USD(A&S)

**SUBJECT:** Occupational Ionizing Radiation Protection Program

**References:** See Enclosure 1

1. **PURPOSE.** This Instruction reissues Department of Defense Instruction (DoDI) 6055.8 (Reference (a)) according to the authority in DoD Directive (DoDD) 5134.01 (Reference (b)) and the guidance in DoDD 4715.1E (Reference (c)) to:

a. Implement Occupational Safety and Health Administration (OSHA) ionizing radiation standards pursuant to subpart 1910.1096 of title 29, Code of Federal Regulations (CFR) (Reference (d)) and in accordance with Executive Order 12196 (Reference (e)); section 19 of the Occupational Safety and Health Act of 1970, section 668 of title 29, United States Code (U.S.C.) (Reference (f)); and Environmental Protection Agency (EPA) radiation protection guidance approved by the President for all Federal agencies (Reference (g)).

b. Establish policy and updates requirements for the Occupational Ionizing Radiation Protection Program for the Department of Defense in DoD workplaces, including military operations and deployments.

c. Establish the DoD Ionizing Radiation Working Group to provide technical guidance and recommend policy on ionizing radiation safety and occupational health matters within the Department of Defense in accordance with DoDI 6055.01 (Reference (h)).

2. **APPLICABILITY.** This Instruction:

a. Applies to the Office of the Secretary of Defense (OSD), the Military Departments, the Office of the Chairman of the Joint Chiefs of Staff and the Joint Staff, the Combatant Commands, the DoD Office of the Inspector General, the Defense Agencies, the DoD Field Activities, and all other organizational entities within the DoD (hereafter referred to collectively as the "DoD Components").

b. Applies to all DoD civilian and military personnel who are occupationally exposed to ionizing radiation.

c. Does not apply to:

(1) Personnel who, as patients, undergo diagnostic or therapeutic radiological procedures in medical or dental treatment facilities.

(2) Personnel exposed to ionizing radiation as a result of nuclear war.

(3) Personnel exposed to ionizing radiation as a result of combat, peacekeeping, or peacemaking operations for which an alternate ionizing radiation protection standard is implemented in accordance with the North Atlantic Treaty Organization or Military Service doctrine.

(4) Personnel exposed to cosmic ionizing radiation, such as aircrew, who are covered under Federal Aviation Administration guidelines.

(5) Personnel engaged in activities associated with nuclear reactor programs including the Naval Propulsion Program, nuclear weapon systems, and fuel and other material controlled under section 2121 of title 42, U.S.C. (Reference (i)).

(6) DoD contractors unless required by contract specification.

3. DEFINITIONS. These terms and their definitions are for the purpose of this Instruction.

a. embryo or fetus. The developing human organism from conception until time of birth.

b. ionizing radiation. Electromagnetic waves (photons) or subatomic particles capable of producing ions, directly or indirectly, when passing through matter.

c. occupational dose. Dose received by an individual in the course of employment in which the individual's assigned duties involve exposure to ionizing radiation or to radioactive material. Occupational dose does not include doses received from background ionizing radiation, from any medical administration the individual has received, from voluntary participation in medical research programs, or as a member of the general public.

4. POLICY. It is DoD policy to maintain occupational and environmental exposures to ionizing radiation associated with DoD operations to a level as low as reasonably achievable (ALARA) with consideration given to efficiency, cost, and mission requirements. Whenever possible, engineering controls shall prevail over personal protective equipment.

5. RESPONSIBILITIES

a. Assistant Secretary of Defense for Energy, Installations, and Environment (ASD(EI&E)). The ASD(EI&E), under the authority, direction, and control of the Under Secretary of Defense for Acquisition, Technology, and Logistics, shall:

(1) Develop policy and provide guidance and coordination on ionizing radiation protection matters within the Department of Defense.

(2) Serve as the principal point of contact for the Department of Defense with Federal and State regulatory agencies that control occupational and environmental exposure to ionizing radiation.

(3) Establish the DoD Ionizing Radiation Working Group, consisting of full-time or permanent part-time DoD employees from the DoD Components.

(4) Appoint an OSD representative to the DoD Ionizing Radiation Working Group.

b. Heads of the DoD Components. The Heads of the DoD Components that conduct operations in which potential exposures to occupational doses of ionizing radiation exist shall:

(1) Establish and maintain occupational ionizing radiation protection programs that implement the requirements in Enclosure 2, and ensure that unnecessary exposure is avoided.

(2) Materially support existing Nuclear Regulatory Commission (NRC) master material licenses and NRC programs to provide for the implementation of this Instruction, and foster the use of these programs to provide compatibility, continuity, and compliance in joint situations.

(3) Appoint representatives to the DoD Ionizing Radiation Working Group to perform the functions described in Enclosure 3.

6. PROCEDURES. Enclosure 2 defines occupational ionizing radiation protection program requirements for the Heads of the DoD Components that conduct operations in which potential exposures to occupational doses of ionizing radiation exist.

7. INFORMATION REQUIREMENTS. The status update to the ASD(EI&E), at section 8 of Enclosure 2, is exempt from review and approval in accordance with Paragraph 1.b.(13) of Volume 1 of DoD Manual 8910.01 (Reference (j)).

8. RELEASABILITY. **Cleared for public release.** This instruction is available on the Directives Division Website at <http://www.esd.whs.mil/DD/>.

9. SUMMARY OF CHANGE 2. This change reassigns the office of primary responsibility for this Instruction to the Under Secretary of Defense for Acquisition and Sustainment in accordance with the July 13, 2018 Deputy Secretary of Defense Memorandum (Reference (k)).

10. EFFECTIVE DATE. This Instruction is effective December 15, 2009.



Ashton B. Carter  
Under Secretary of Defense  
for Acquisition, Technology and Logistics

Enclosures

1. References
2. Occupational Ionizing Radiation Program Requirements
3. DoD Ionizing Radiation Working Group Functions

TABLE OF CONTENTS

REFERENCES .....6

OCCUPATIONAL IONIZING RADIATION PROGRAM REQUIREMENTS.....8

    GENERAL .....8

    DOSIMETRY .....8

    HEALTH RISK SURVEILLANCE (HRS) .....8

    IONIZING RADIATION DOSES TO THE UNBORN CHILD .....8

        ALARA.....8

        Notifications.....9

        Declaration.....9

    INSPECTIONS, RISK MANAGEMENT, AND RECORDS .....9

        Inspections .....9

        Risk Management .....9

        Records .....9

    CONTROL OF RADIOACTIVE MATERIAL AND DEVICES CAPABLE OF  
        GENERATING IONIZING RADIATION.....10

    INCREASED CONTROLS .....11

    ALARA PROGRAM.....11

    FACILITIES AND INSTALLATIONS .....12

DoD IONIZING RADIATION WORKING GROUP FUNCTIONS .....13

ENCLOSURE 1

REFERENCES

- (a) DoDI 6055.8, “Occupational Radiation Protection Program,” March 31, 1989 (hereby canceled)
- (b) DoDD 5134.01, “Under Secretary of Defense for Acquisition, Technology, and Logistics (USD(AT&L)),” December 9, 2005, as amended
- (c) DoDD 4715.1E, “Environment, Safety, and Occupational Health (ESOH),” March 19, 2005
- (d) Subpart 1910.1096 of title 29, Code of Federal Regulations
- (e) Executive Order 12196, “Occupational Safety and Health Programs for Federal Employees,” February 26, 1980 (as amended by Executive Order 12223 on July 2, 1980)
- (f) Section 19 of the Occupational Safety and Health Act of 1970, section 668 of title 29, United States Code
- (g) Environmental Protection Agency, “Radiation Protection Guidance to Federal Agencies for Occupational Exposure,” as approved by the President at 52 Federal Register 2822, January 27, 1987, and as directed by Executive Order 10831, “Establishing the Federal Radiation Council,” August 14, 1959<sup>1</sup>
- (h) DoD Instruction 6055.01, “DoD Safety and Occupational Health (SOH) Program,” October 14, 2014
- (i) Section 2121 of title 42, United States Code
- (j) DoD Manual 8910.01, Volume 1, “DoD Information Collections Manual: Procedures for DoD Internal Information Collections,” June 30, 2014, as amended
- (k) Deputy Secretary of Defense Memorandum, “Establishment of the Office of the Under Secretary of Defense for Research and Engineering and the Office of the Under Secretary of Defense for Acquisition and Sustainment,” July 13, 2018
- (l) Parts 20, 30, and 31 of title 10, Code of Federal Regulations
- (m) DoD Directive 5400.11, “DoD Privacy Program,” October 29, 2014
- (n) DoD 5400.11-R, “Department of Defense Privacy Program,” May 14, 2007
- (o) DoD 6025.18-R, “DoD Health Information Privacy Regulation,” January 24, 2003
- (p) Nuclear Regulatory Commission Regulation-1575, Revision 1/Environmental Protection Agency 402-R-97-016/Department of Energy/EH-0624, “Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM),” August 2000<sup>2</sup>
- (q) Nuclear Regulatory Commission Regulation-1575, Supplement 1/Environmental Protection Agency 402-R-09-001/Department of Energy/HS-0004, “Multi-Agency Radiation Survey and Assessment of Materials and Equipment Manual (MARSAME),” January 2009<sup>2</sup>
- (r) Nuclear Regulatory Commission Regulation-1576/Environmental Protection Agency 402-B-04-001-A/National Technical Information Service PB2004-105421, “Multi-Agency Radiological Laboratory Analytical Protocols Manual (MARLAP),” July 2004<sup>3</sup>
- (s) Subpart 52.223-7 of the Federal Acquisition Regulation, “Notice of Radioactive Materials,” January 1997

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<sup>1</sup> Available at <http://www.epa.gov/rpdweb00/federal/presdocs.html>

<sup>2</sup> Available at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1575/>

<sup>3</sup> Available at <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1576/>

- (t) Nuclear Regulatory Commission Order EA-05-090, “Issuance of Order for Increased Controls for Certain Radioactive Materials Licensees,” November 14, 2005<sup>4</sup>

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<sup>4</sup> Available at <http://www.nrc.gov/reading-rm/doc-collections/commission/comm-secy/2005/2005-0019comscy-attachment1.pdf>

ENCLOSURE 2

OCCUPATIONAL IONIZING RADIATION PROGRAM REQUIREMENTS

1. GENERAL. The Heads of the DoD Components that conduct operations in which potential exposures to occupational doses of ionizing radiation exist shall implement the requirements in this enclosure and conform to the guidance in Reference (g).
  
2. DOSIMETRY. Individuals who, in the course of their duties, may be occupationally exposed to ionizing radiation shall be provided dosimetry and, as necessary, bioassays when:
  - a. It is determined by a qualified radiation protection expert or professional that there is a significant potential to exceed 10 percent of the limits identified in part 20 of title 10, CFR (Reference (l)).
  
  - b. It benefits the Heads of the DoD Components to document doses below the limits of part 20 of Reference (l).
  
  - c. The Heads of the DoD Components have reason to believe exposure to ionizing radiation or radioactive material is probable in a wartime or emergency environment, and monitoring will be beneficial in preventive measures, medical treatment, or future inquiries.
  
  - d. It is required by NRC license.
  
3. HEALTH RISK SURVEILLANCE (HRS)
  - a. Conduct HRS according to DoD Component policies.
  
  - b. Use risk management, documentation, and training to support monitoring efforts.
  
  - c. Use an approved data management system to manage HRS data.
  
  - d. Maintain records of radioanalytical results from HRS as well as site characterization and decommissioning activities according to DoD Component records disposition schedule.
  
  - e. Establish procedures to make data easily retrievable and available for review by the Heads of the DoD Components, upon request.
  
4. IONIZING RADIATION DOSES TO THE UNBORN CHILD
  - a. ALARA. Establish policies and procedures to keep ionizing radiation doses to the embryo or fetus ALARA.



b. Notifications. To control exposure as discussed in subparagraphs 4.c.(1) and (2) of this enclosure, the civilian employee or military member has the option to notify her supervisor, radiological controls manager, or primary care manager of her pregnancy.

c. Declaration. The civilian employee or military member has the option to declare or decline to declare her pregnancy. The declaration statement shall be filed in the individual's health record (or ionizing radiation dose record if the command does not maintain a health record for the individual).

(1) Once a declaration of pregnancy is made, action shall be taken for a declared pregnant individual to limit the doses to less than 500 millirems (5 millisieverts) total effective dose equivalent during the entire gestation period, and should not exceed 50 millirems (0.5 millisieverts) per month.

(2) For the duration of pregnancy, a declared pregnant individual shall be offered reassignment from specific tasks if it is determined by a qualified radiation protection expert or professional that there is significant potential for a total effective dose to the embryo or fetus in excess of 500 millirems (5 millisieverts) for the gestation period. Reassignment shall entail no loss of job security or economic penalty to the worker.

## 5. INSPECTIONS, RISK MANAGEMENT, AND RECORDS

a. Inspections. Inspections capable of measuring compliance, identifying deficiencies, informing commanders, eliciting corrective actions, and validating outcomes shall:

(1) Occur at a frequency and time advantageous to the DoD Components to ascertain deficiencies during routine operations.

(2) Be identified by the Heads of the DoD Components as appropriate for garrison, underway, and wartime operations.

b. Risk Management. Risk shall be managed to keep exposures to ionizing radiation and radioactive material ALARA in context with operational exigencies. Hazard identification is the primary focus of risk management and every military and civilian member shall be encouraged to mitigate hazards.

c. Records

(1) For each monitored person, maintain cumulative ionizing radiation dose records in a central data repository.

(2) Make external and internal dosimetry data a part of the record even when the results are zero for a specific period of time or event. In addition, identify data that is not based on actual measurements (e.g., calculations or estimates).

(3) Make dosimetry records available to monitored individuals upon demand, and annually to those individuals whose occupational dose exceeds 100 millirems (1 millisievert), based on established DoD Component policy.

(4) Instruct individuals how to obtain their cumulative dosimetry records upon release from employment while sustaining all privacy requirements specified in DoDD 5400.11, DoD 5400.11-R, and DoD 6025.18-R (References (m), (n), and (o)).

(5) Retain HRS data at the installation level and archive according to established DoD Component policy.

(6) Upon closure of installations or facilities, indefinitely archive environmental data pertinent to occupational exposure to ionizing radiation or radioactive material.

(7) Establish procedures to make data easily retrievable and available for review by the Heads of the DoD Components, upon request.

#### 6. CONTROL OF RADIOACTIVE MATERIAL AND DEVICES CAPABLE OF GENERATING IONIZING RADIATION

a. Establish measures to secure, inventory, and safely use radioactive material in area of responsibility (AOR).

b. Establish procedures to prevent and reconcile the loss of radioactive material in an AOR. Except for HRS and control of individual exposures to contamination, this does not apply to depleted uranium munitions.

c. At the installation level, develop a complete inventory of radioactive material (above exempt quantities) and devices designed to emit ionizing radiation. See part 30 of Reference (l) for exempt quantities.

d. Develop the capability to generate reports for specific or consolidated information when required by OSD or Federal regulatory agencies.

e. To the fullest extent practical, implement the safety and occupational health portions of Nuclear Regulatory Commission Regulation (NUREG)-1575, Revision 1 (Reference (p)); NUREG-1575, Supplement 1 (Reference (q)); and NUREG-1576 (Reference (r)) when decontaminating or decommissioning installations, facilities, and equipment.

f. Consult with the DoD Component ionizing radiation safety offices to ensure that appropriate ionizing radiation safety programs are in place prior to the purchase of any industrial equipment designed to emit ionizing radiation.

g. Establish measures to control contractor use of radioactive material and ionizing radiation-producing devices within facilities and installations. Use subpart 52.223-7 of the Federal Acquisition Regulation (Reference (s)), when applicable.

h. Establish measures to ensure that the use and control of generally licensed devices are compatible with part 31 of Reference (l).

i. Establish occupational health procedures for managing naturally occurring radioactive material regulated by the NRC and radon regulated by OSHA. These procedures shall take into account and set limits for occupational exposures to radon per Reference (d).

## 7. INCREASED CONTROLS

a. Implement NRC requirements for increased controls of radioactive material exceeding the established quantities of concern identified in NRC Order EA-05-090 (Reference (t)).

b. Coordinate the increased controls program among DoD Component security, law enforcement, and force protection officials.

c. For documents pertinent to increased controls and quantities of material exceeding sensitive unclassified nonsecurity information levels:

(1) Mark as “Withhold from Public Disclosure Under 10 CFR 2.390.”

(2) Make accessible to individuals with a need to know and determined trustworthy according to NRC criteria.

(3) Keep secure at all times.

d. Transport increased controls material according to NRC and Department of Transportation requirements.

## 8. ALARA PROGRAM

a. Establish means to demonstrate by metrics that exposures of individuals to occupational ionizing radiation are kept ALARA.

b. Provide a status update to the ASD(EI&E) as part of the safety and occupational health program in-progress review requirements of Reference (h).

9. FACILITIES AND INSTALLATIONS

a. Develop a list of locations where radioactive materials are or have been used, stored, or disposed. A historical radiological assessment that documents past and current uses of radioactive materials at installations is the best method to accomplish this requirement.

b. Update the historical radiological assessment as often as specified by the Heads of the DoD Components for active facilities and installations. Chapter 3 of Reference (q) provides guidance on conducting a historical site assessment, which is equivalent to a historical radiological assessment.

c. Manage decontamination and decommissioning activities at DoD Component facilities and installations, including base realignment and closure, using appropriate ionizing radiation safety and occupational health protection protocols.

d. Use signs, postings, and orders issued by commanders in accordance with Federal and State guidelines to designate ionizing radiation areas.

ENCLOSURE 3

DoD IONIZING RADIATION WORKING GROUP FUNCTIONS

The DoD Ionizing Radiation Working Group shall:

1. Be comprised of representatives from the ASD(EI&E) and the DoD Components.
2. Provide technical advice concerning ionizing radiation safety and occupational health to the Director for Environmental Readiness and Safety (ER&S).
3. Establish guidelines to govern the operation of the working group and procedures for selecting and rotating the chair.
4. Meet at the call of the chair to share information, discuss items of mutual interest, and recommend policies through the Director for ER&S to the ASD(EI&E).
5. Submit an annual report with working group accomplishments and a work plan for future actions to the Director for ER&S.