

Kennedy NASA Policy Directive

Effective Date: October 9, 2019

Expiration Date: October 9, 2024

Responsible Office: Spaceport Integration and Services

KSC RADIATION PROTECTION PROGRAM

National Aeronautics and
Space Administration

John F. Kennedy Space Center

Change Log

Date	Revision	Description
10/5/09	Basic-2	Revalidated with administrative changes. Changed section 4 from References to Applicable Documents and revised accordingly and updated organizational citations.
10/16/12	Basic-3	Administratively changed to replace reference to cancelled NPD 1820.1, NASA Environmental Health Program, with NPD 1800.2C, NASA Occupational Health Program on page 3, 3.a. and replace reference to KHB 1700.7, Space Shuttle Payload Ground Safety Handbook with KNPR 8715.3-1, KSC Safety Practices Procedural Requirements, Vol. 1 on page 3, 4.1.
10/5/14	Basic-4	Content revalidated as written. Format changes to comply with NPR 1400.1, NASA Directives and Charters Procedural Requirements
10/26/16	Basic-5	Updated organization from Center Operations to Spaceport Integration and Services. Also updated directorate and organization names, where necessary, to reflect most recent Center Reorganization. Hyperlinked all documents. Added List of Acronyms as Attachment A.
10/9/19	Rev A	Updated and formatted to comply with NPR 1400.1. Updated hyperlinks and administrative changes. Section 3: Added NPR 1800.1, NASA Occupational Health Program Procedures Section 5: 5.e.1, Changed "KSC Safety, Reliability and Quality Assurance program" to "KSC Safety and Mission Assurance program". Section 8: Removed "Supersession" from header"

1. POLICY

It is the policy of Kennedy Space Center (KSC) to exercise centralized control over the procurement, use, storage, transportation, and disposition of ionizing (e.g., radioactive materials and radiation producing machines) and nonionizing (e.g., radio frequency/microwave, lasers, ultraviolet, infrared, and visible) radiation sources to ensure compliance with applicable regulatory requirements and to limit the exposure of personnel, facilities, and the environment to levels which are As Low As Reasonably Achievable (ALARA).

2. APPLICABILITY

a. This directive applies to all KSC organizational elements, facilities, geographical areas, and operations under KSC jurisdiction or direction, including civilian and military personnel, prime and subcontractor organizations, tenants, principal investigators, and visitors.

b. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term "shall." The terms "may" or "can" denote discretionary privilege or permission, "should" denotes a good practice and is recommended, but not required, "will" denotes expected outcome, and "are/is" denotes descriptive material.

c. In this directive, all document citations are assumed to be the latest version unless otherwise noted.

3. AUTHORITY

a. [National Aeronautics and Space Administration \(NASA\) Policy Directive \(NPD\) 1800.2, NASA Occupational Health Program](#)

b. [NPD 8715.1, NASA Occupational Safety and Health Programs](#)

c. [NASA Procedural Requirement \(NPR\) 1800.1, NASA Occupational Health Program Procedures](#)

d. [Kennedy NASA Policy Directive \(KNPD\) 1800.1, Environmental Health Program](#)

e. NASA KSC United States (U.S.) Nuclear Regulatory Commission Broadscope Radioactive Materials License #09-11149-03

4. APPLICABLE DOCUMENTS AND FORMS

a. [KNPD 1150.24, KSC Councils, Boards, and Committees](#)

b. [KNPD 8700.1, Safety and Mission Assurance Policy](#)

c. [Kennedy NPR \(KNPR\) 1860.1, Kennedy Space Center Ionizing Radiation Protection Program](#)

d. [KNPR 1860.2, Kennedy Space Center Nonionizing Radiation Protection Program](#)

- e. [KNPR 8715.2, Comprehensive Emergency Management Plan](#)
- f. [KNPR 8715.3-1, KSC Safety Procedural Requirements Volume 1, Safety Procedural Requirements for Civil Servants/NASA Contractors](#)
- g. [C-0047, Radiation Protection Committee](#)
- h. [KSC Form 7-49, Purchase Request \(Supplies/Equipment or Property Turn-In\)](#)
- i. [45th Space Wing Instruction 40-201 - Radiation Protection Program](#)

5. RESPONSIBILITY

a. The Radiation Protection Committee (RPC) ([C-0047](#)), in accordance with the requirements of [KNPD 1150.24](#), is responsible for:

- (1) Ensuring the development and maintenance of KSC Radiation Protection Program policies and recommending their approval to the Center Director.
- (2) Reviewing and approving the usage of controlled radiation sources ([See Appendix C](#)).
- (3) Advising the Radiation Protection Officer (RPO) in the execution of program duties as defined in this KNPD.
- (4) Providing oversight of the KSC Radiation Protection Program implementation and maintenance.

b. The RPO is responsible for:

- (1) Providing general surveillance over uses of radiation sources.
- (2) Representing the KSC Radiation Protection Program and the RPC to ensure compliance with applicable regulatory agency requirements, standards, and radiation-related activities.
- (3) Acting as liaison officer between KSC organizations, regulatory and non-regulatory agencies, parties, contractors, etc., for radiological matters.
- (4) Providing technical guidance to KSC organizations on radiation-related matters.
- (5) Auditing the records of the KSC Radiation Protection Program as necessary.
- (6) Assuming technical control, initiating investigations, and directing corrective actions in radiological incidents and emergencies for KSC and coordinating mishap reporting and investigation requirements with the KSC Safety and Mission Assurance directorate and KSC Protective Services Office, as appropriate.
- (7) Performing a contract insight role by participating in contractor Environmental Health Management Team and Government contract evaluation/performance meetings.

- (8) Representing the RPC and acting for KSC on matters of policy and procedures relating specifically to control of radiation sources for KSC.
- (9) Making interim approvals for the RPC, subject to subsequent RPC ratification.
- (10) Assuring proper disposition of radiation records for all employees, both Government and contractor, upon their termination of employment or transfer from KSC.
- (11) Advising the KSC Protective Services Office of the location of major radiation sources. In addition, the contractor Fire Chief receives a quarterly listing of all facilities containing radioactive materials.

c. Heads of primary organizations are responsible for:

- (1) Ensuring that all requests for the procurement, use, or transfer of controlled radiation sources (as defined in [KNPR 1860.1](#) and [KNPR 1860.2](#)) are coordinated with the RPO for approval before being forwarded to the Procurement Officer, Transportation Officer, or other appropriate official.
- (2) Ensuring that project leaders, technical representatives, and supervisors:
 - (a) Familiarize themselves with policies and procedures governing radiation sources.
 - (b) Make certain that personnel within their respective organizational responsibility are provided appropriate operational orientation and/or systems training involving uses of radiation sources.
 - (c) Review their project plans and procedures that involve the use of radiation sources, and identify them to the RPC/RPO.
- (3) Ensuring that Procurement Requests and Statements of Work involving radiation sources (directly or indirectly):
 - (a) Identify requirements for Radiation Protection Program compliance
 - (b) Require all contractor radiation source user personnel who are terminating or transferring employment be identified in accordance with the Use Authorization (UA) requirements.
 - (4) Assuring the designation of a user organization/group Area Radiation Officer (ARO). The ARO shall have familiarity with KSC Radiation Protection Program requirements.

d. AROs are responsible for:

- (1) Ensuring the safe use and accountability of the radiation source(s) under their control in accordance with the provisions specified and approved by the applicable KSC Radiation UA.
- (2) Ensuring all sources of radiation under their jurisdiction have been identified and approved by the RPO.

- (3) Giving prior notification to the Kennedy environmental and medical contractor Health Physics Office (HPO) of movement of controlled radiation sources.
 - (4) Ensuring all personnel using sources of radiation, under their jurisdiction, are properly trained in safe practices for the possession and use of such sources and are oriented to the applicable regulatory requirements and making sure the individual users have been approved through the KSC Radiation Protection Program.
 - (5) Designating an Alternate ARO and/or Use Supervisor/Custodian (US/C) to act as designated representative in their absence or whenever they are unable to maintain direct supervision of the sources under their jurisdiction, and ensuring that the Alternate ARO or US/C has training and experience in radiation protection that is commensurate with the scope of the proposed activities and is satisfactory to the RPO.
- e. Safety and Mission Assurance is responsible for:
- (1) Coordinating provisions of the KSC Safety and Mission Assurance program with KSC Radiation Protection Program provisions or with the KSC RPO, as necessary.
 - (2) Reviewing and monitoring procedures from a safety standpoint involving the use, movement, and transportation of radioactive materials, as required by [KNPR 8715.3-1](#) or [KNPR 8715.2](#), as appropriate.
 - (3) Providing safety surveillance of all activities involving the use of radiation sources as such activities relate to [KNPD 8700.1](#).
 - (4) Coordinating with the RPO on emergency operations concerning radiation sources.
 - (5) Supporting enforcement of radiological controls established by the KSC Radiation Protection Program.
- f. The Director, Spaceport Integration and Services, is responsible for ensuring that:
- (1) The Emergency Preparedness Officer
 - (a) Coordinates with the RPO, or designated representative, on the development of emergency plans and procedures for major emergency situations involving radiation sources that might significantly affect KSC operations or personnel safety.
 - (b) Coordinates KSC resources to support implementation of approved emergency plans and procedures for radiation sources, as directed by the RPO.
 - (2) The Protective Services Office fire protection personnel are properly trained in protective practices for fighting fires involving radiation sources.
 - (3) The Chief, Logistics Branch ensures:
 - (a) Outbound shipments of radioactive materials from KSC comply with applicable regulations and have been approved by the RPO or designated representative.

- (b) Receipts of radioactive materials are identified and approvals received by the RPO for disposition.
- (c) Controlled radiation sources are not released from KSC without approval by the RPO.
- g. The Chief, Construction of Facilities, Technical Performance and Integration Division, is responsible for ensuring requests for construction or modification of facilities in which radiation sources are intended to be stored, tested, or used are approved through the KSC Radiation Protection Program.
- h. The Director, Procurement, is responsible for:
 - (1) Ensuring procurement requests for material or equipment that produces or contains sources of radiation have been identified to the RPO for approval prior to procurement.
 - (2) Incorporating into all Requests for Proposal and Invitations for Bid (to include [KSC Form 7-49](#)) all radiation protection requirements identified by the heads of primary organizations in their Purchase Requests or Statements of Work.
 - (3) Ensuring contractor compliance with the requirements of the KSC Radiation Protection Program.
 - (4) Contracting Officers are responsible for including in all contracts the requirement that the contractor ensures personnel who are classified as radiation workers and who are terminating or transferring employment be cleared through the Occupational Medicine and Environmental Health Facility.
- i. The Director, Communication and Public Engagement, is responsible for coordinating public affairs activities involving radiation sources with the RPC or the RPO.
- j. Human Resources is responsible for ensuring all NASA/KSC and civil service tenant employees who are classified as radiation workers and who are terminating or transferring employment are cleared through the Occupational Medicine and Environmental Health Facility.
- k. All personnel engaged in the transportation, handling, storage, and/or utilization of controlled radiation sources are responsible for complying with radiation protection requirements and applicable regulations, including the prompt reporting of any violation to the RPO.

6. DELEGATION OF AUTHORITY

[KSC-DES-0106, Radiation Protection Officer](#)

7. MEASUREMENT/VERIFICATION

None

8. CANCELLATION

This revision cancels KNPD 1860.1, Rev. Basic-5, KSC Radiation Protection Program.

/original signed by/

Robert D. Cabana
Director, John F. Kennedy Space Center

Appendix A: Acronyms

Appendix B: Provisions

Appendix C: Radiation Protection Program Summary

Distribution: TechDoc Library

APPENDIX A. ACRONYMS

ALARA	As Low as Reasonably Achievable
ARO	Area Radiation Officer
HP	Health Physics
HPO	Health Physics Office
KNPD	Kennedy NASA Policy Directive
KNPR	Kennedy NASA Policy Requirement
KSC	Kennedy Space Center
NASA	National Aeronautics and Space Administration
NPD	NASA Policy Directive
NPR	NASA Procedural Requirement
RPC	Radiation Protection Committee
RPO	Radiation Protection Officer
U.S.	United States
UA	Use Authorization
US/C	Use Supervisor/Custodian

APPENDIX B. PROVISIONS

Activities involving ionizing and nonionizing sources will be centrally controlled under the provisions of the KSC Radiation Protection Program in order to restrict exposure of personnel and the environs to levels, which are ALARA, and to ensure consistent regulatory compliance. All activities involving radiation sources will be subject to the concurrence of the KSC RPC, which will review such activities and levy suitable constraints through the RPO. Radiation sources will be identified to the KSC RPO for appropriate review and evaluation. No radiation source will be considered exempt from control requirements unless so designated by the RPO or by guidelines provided by the RPC or Radiation Protection Program documents. The following general provisions are provided as guidance to the requirements of the program. Specific requirements, controls, and guidelines are provided in [KNPR 1860.1](#) and [KNPR 1860.2](#).

B1. Requests for review and approval of all activities involving radiation sources will be submitted to the RPC through the RPO.

B2. Designated original KSC forms will be used by the requester for all submittals to the RPO.

B3. All receiving, internal transfer, shipping, and disposal of controlled radiation sources will be coordinated in advance with the RPO for review and approval. Organizational elements responsible for such activities will review their plans and procedures to ensure required coordination is accomplished.

B4. In addition to basic regulatory requirements, the RPO may include additional requirements as deemed appropriate.

B5. Applicable records pertaining to the KSC Radiation Protection Program will be maintained by the RPO. Records of approved UAs will also be maintained by the user organization involved.

B6. Personnel who enter a defined radiation area will be appropriately monitored to identify and assess potential exposures.

B7. Specific exemption or waiver of program control requirements may be issued only by the RPO after appropriate review and evaluation and only on an individual case basis.

B8. A copy of this Instruction will be readily available to users in each area that has been authorized as a place of use or storage of radiation sources.

B9. Specific provisions and requirements of the KSC Radiation Protection Program are described in [KNPR 1860.1](#) and in [KNPR 1860.2](#). These KNPRs include information regarding the review, approval and exemption process; licensing and registration of radiation sources; leak testing; inspections and surveys; program responsibilities and definitions; shipping and receiving procedures; emergency notification requirements; and incident investigations.

B10. The Health Physics (HP) element of the Kennedy medical and environmental contractor will, to the extent provided by contract, provide services to include:

- a. Implementation of the operations of the KSC Radiation Protection Program as required by the Statement of Work.
- b. Designation of an individual to act on behalf of the RPO, in the RPO's absence and after formal notification by the RPO.
- c. Preparation of licensing and registration applications for NASA/KSC and maintenance of those licenses/registrations with associated records and reports in accordance with applicable regulatory agencies' requirements.
- d. Surveillance of general functions for the KSC Radiation Protection Program.
- e. Evaluation of uses of radiation, recommendations, and technical assistance to the RPO on matters concerning radiation protection for KSC.
- f. Act as the field representative for the KSC Radiation Protection Program and as liaison between user organizations and the RPO on radiological matters.
- g. Perform onsite surveillance and inspection surveys/audits of radiation use and users.
- j. Evaluation of uses of radioactive material for determination of waste handling/processing/disposal requirements in accordance with the KSC Radiation Protection Program.

APPENDIX C. RADIATION PROTECTION PROGRAM SUMMARY

C1. KSC's Radiation Protection Program is based on three fundamental principles: (1) centralized and uniform control and enforcement; (2) compliance with applicable regulations, standards, and guides; and (3) elimination or minimization of personnel exposures to levels that are below regulatory limits and are ALARA. These basic principles are documented in [KNPD 1150.24](#), [KNPD 1860.1](#), [KNPR 1860.1](#), and [KNPR 1860.2](#). The documents emphasize the administrative implementation of these principles through the authorities, responsibilities, and functions of the program's three major elements represented by the KSC RPC, the KSC RPO, and the KSC Contractor HPO. The documents also prescribe, by reference, the current and latest versions of relevant regulations, standards, and guides, and are always applicable to current usage. It should be noted that only limited portions of these regulations, selected for the reader's information, are reproduced in the program documents.

C2. Implementation of the program relies heavily on the Radiation Use Request/Authorization process. This process involves the submittal of specific information by the prospective user, review of the information for applicable requirements, assessment of the potential hazards involved, the imposition of specific controls and provisions, and the issuance to the user of a final, comprehensive UA package incorporating and documenting all elements of approved radiation source use and possession. Specific UA packages expire after one year. Annual extensions, as well as other revisions/changes to the original package, can be obtained through the review and approval of a Modification Request submitted by the user.

C3. In effect, the overall Radiation Use Request/Authorization process can be viewed as a quasi-licensing process that requires case-by-case review, evaluation, and approval of each radiation source use. Following the guidance provided in [KNPR 1860.1](#) or [KNPR 1860.2](#), the prospective user assembles a Use Request package using standardized KSC forms and incorporating other required data/information. This package is then submitted to the HP contractor for a thorough, in-depth review.

C4. The HP review of the package includes a comprehensive evaluation of the radiation source characteristics; the handling, storage, and emergency procedures; the associated area, facilities, and equipment; and user personnel qualifications. These elements are reviewed for program conformance, regulatory compliance, and the potential radiation hazards involved. As a result of this review, HP contractor develops a set of tailor-made administrative, engineering, and procedural control requirements that are documented and incorporated into the package together with their recommendation regarding approval.

C5. The RPO then conducts a review of the UA package as received from HP. Acting on behalf of the Program and as functional representative of the RPC, the RPO will approve, modify, or reject the package. When approved, the package is signed off by the RPO and forwarded to the RPC Chairman for review. Again, acting on behalf of the program and the committee, the RPC Chairman will approve, modify, or reject the package as received from the RPO. When approved, the official UA package is signed off by the RPC Chairman and is returned to the HP contractor for distribution. For UA packages involving U.S. Air Force programs or Cape Canaveral Air Force Station locations, the 45th Space Wing RPO also approves the package.

UAs that have been approved and signed off by both the RPC Chairman and the RPO are reviewed and acted upon by the RPC membership during its next regularly scheduled quarterly meeting. These approval actions are documented in the minutes of the quarterly RPC meeting.