

ITEM 15

Radiation Protection Program
Vandenberg Operations Supplement 1

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1.0 General

Radioactive materials as described on US Nuclear Regulatory Commission License Number 05-03010-10 is used by Martin Marietta Corporation to fulfill responsibilities of the Peacekeeper Assembly, Test, and System Support contract awarded by the Ballistic Missile Office, Norton AFB. Martin Marietta Corporation receives at Vandenberg AFB some Flight Termination Ordnance System (FTOS) firing units and Ordnance Initiation Set (OIS) firing units as loose-shipped ordnance for incorporation into the missile system. The remaining firing units arrive at Martin Marietta Corporation at Vandenberg already installed on major system components, e.g. missile stages. The radioactive materials of concern are contained in and are not separable from the firing units by Martin Marietta Corporation as stipulated by the contract.

2.0 Storage

Missile stages arriving on base with firing units installed are stored at the Peacekeeper Stage Storage Facility (Building 1830). All other firing units are stored at the Peacekeeper ordnance storage facility (Building 1815 and 1817) or 394th Intercontinental Ballistic Missile Test Squadron (ICBMTS) storage area (1500 area). The storage areas containing firing units are labeled to indicate the presence of radioactive materials. Firing units are maintained on a temporary basis during missile system processing at the following Peacekeeper facilities: Integrated Checkout Facility, Stage Processing Facility, Mechanical Maintenance Facility, Missile Assembly Building, and the Test Pad.

3.0 Access Control

Access to storage areas is controlled by ordnance personnel or 394th ICBMTS munitions control access to facilities stating items to be moved by serial number and immediate application of items to be removed. Security controlling general access to all areas is provided by the USAF and Martin Marietta contracted security forces.

4.0 Shipping and Receiving

Shipping and receiving procedures is performed in accordance with Martin Marietta Vandenberg Standard Procedures 5.2, 5.4 M, and 9.14 M. Procedures will conform to the requirements that apply in VAFBR 161-1.

5.0 Accountability

Martin Marietta Materiel Support maintains accountability records for all ordnance materials including receipts, issues, and disposal actions. All movements of radioisotope materials on VAFB are coordinated to Bioenvironmental Engineering Services, Base Fire Department, and the Martin Marietta Radiation Protection Officer.

6.0 Training

Training with regard to radiological hazards and control is provided to all ordnance personnel by the Martin Marietta Radiation Protection Officer. Ordnance personnel are trained by their supervision in the handling and installation of firing units. These personnel are trained to recognize damage to firing units which may cause a fracture of the electron tube housing the radioactive materials. Actions to be taken in the event of accidents or unusual situations are included in the training of ordnance personnel.

7.0 Personnel Experience

The average length of experience per ordnance technician dealing with explosives and nuclear materials is approximately five (5) years.

8.0 Emergency Procedures

Emergency procedures include the protocol described in VAFBR 161-1 paragraph 4-7, Emergency Procedures. Bioenvironmental Engineering Services at Vandenberg AFB will assist Martin Marietta Corporation by monitoring damaged sources for radioactive emissions. In the event of severe damage to a firing unit, ordnance personnel will contain the damaged unit and decontaminate the site where the damage occurred.

Item 16 - Formal Training in Radiation Safety

Attached are radiological training summaries of Fred Holmes and Laurie Tuohy who will directly supervise the use of the licensed material and of Jack Dekker, Radiation Protection Officer and Greg Lain, Radiation Protection Officer alternate.

TRAINING SUMMARY OF: Fred Holmes

Nuclear Theory, 2 weeks, Sandia Base, NM, Jan 1955.
Maintenance of Nuclear Systems, 8 weeks, Sandia Base, NM, Jun 1956.
Radiation Monitoring, 1 week, Sandia Corp., NM, 1963.
Radiation Protection, 2 days, Sandia Corp., NM, 1963.
Use of Radiac Instruments, 1 week, Sandia Corp., NM, 1964.

Received training from Sandia Corp. (Doctor Taylor) on emergency procedures for accidents/incidents during range use of radioisotopes from 1964 to 1969.

TRAINING SUMMARY OF: Laurie Tuchy

Attended 6 week course in 1981 entitled "Explosive Ordnance Disposal (Phase II), Nuclear Weapons" at Indian Head, MD. Course dealt heavily with the effects of radiation, the prevention of contamination, and the radiological decontamination of materials.

TRAINING SUMMARY OF: Jack Dekker

Formal Education:

Grand Rapids Junior College (1974-1975)
Grand Rapids, Michigan
Major: Biology

B.A. - 1978
Hope College (1975-1978)
Holland, Michigan
Majors: Biology - 33 semester hours
Chemistry - 30 semester hours

M.S. in Environmental Health (to be awarded upon completion
of thesis)
University of Cincinnati
Cincinnati, Ohio
Major Subjects: Safety Management - 9 quarter hours.
Environmental Health and Industrial Hygiene
- 33 quarter hours.
Law - 6 quarter hours.

Short Courses:

Ionizing and Non-ionizing Radiation (NIOSH), University of
Southern California, November 1981.

Hazardous Waste Handling, National Spill Control School,
Corpus Christi State University (at Vandenberg AFB), Sept
1984.

Respiratory Protection Course, American Industrial Hygiene
Association, October 1984.

TRAINING SUMMARY OF: Greg Lain

Formal Education:

B.A. - 1984

University of Dubuque (1980-1984)

Dubuque, Iowa

Majors: General Science, key subjects included:
12 semester hours, biology
16 semester hours, chemistry
12 semester hours, mathematics

Occupational Safety and Health, key subjects
included:

18 semester hours, Safety
14 semester hours, Regulation & Case Studies
7 semester hours, Occupational Health
2 semester hours, Security

Item 17 - Experience

Attached are the experience summaries of Fred Holmes, Laurie Tuohy, Jack Dekker, and Greg Lain describing their work experience with radiation.

EXPERIENCE RESUME OF FRED HOLMES

From 1954 thru 1979 performed duties as a Nuclear Weapons technician with the United States Air Force. Attended numerous classes conducted by the Air Force and other federal agencies pertaining to radiation exposure and safety precautions.

During the period 1964-1969 was in charge of the Department of Defense Radiac Calibration Range at Albuquerque, New Mexico. These duties required the day-to-day handling of sources and the enforcement of the NRC safety requirements.

Since August 1981 have been handling equipment containing radioactive material as part of employment with Martin Marietta Aerospace Peacekeeper Program.

EXPERIENCE RESUME OF LAURIE TUOHY

From June 1979 to June 1982 performed duties as an Explosive Ordnance Disposal Technician in the 77th Ordnance Detachment, Ft. Huachuca, Arizona. Responsibilities involving radioisotopes included supervision of Radiation Decontamination Stations for the decontamination of both personnel and equipment. Was also able to perform detailed render safe procedures and disposal on Army nuclear ordnance and initial render safe procedures on nuclear ordnance of other U.S. Military Services.

From August 1982 to present employed at Martin Marietta performing duties in the ordnance section of the Peacekeeper Program. Employment began as a technician which included installation of firing units containing radioisotopes. Currently is employed as Ordnance Engineer supervising ordnance operations of which firing unit installation is a part.

EXPERIENCE SUMMARY OF JACK DEKKER

Experience in health physics was had in the Master of Science in Environmental Health Program at the Kettering Institute, University of Cincinnati. A 9-hour series of lectures covering health physics was attended as part of a course entitled "Environmental Hygiene and Technology" conducted during the university's winter quarter in 1979. "Environmental Hygiene and Technology" included principles and practices of radiation protection, general physiologic responses to radiation, and related mathematics covering half-life, relative biological effects, and distance/dose relationships. Laboratory experience in measuring radioactive materials was in the "Air Sampling and Analysis" course also acquired during the winter quarter in 1979. This laboratory included measuring:

Radon-222	Gas Proportional Counter
P0-210	Eberline Scintillation Counter (PAC-45)
Kr-85	Cutie Pie and Geiger Mueller Survey Meter
Sr-90	Cutie Pie and Geiger Mueller Survey Meter
Y-90	Cutie Pie and Geiger Mueller Survey Meter

Experience as the Radiation Protection Officer at Martin Marietta Corporation under USNRC License No. 05-03010-10 began in November 1981 and continues to present.

EXPERIENCE SUMMARY OF GREG LAIN

Mr. Lain has been working at Martin Marietta Corporation since August 1984 as a Safety Engineer monitoring operations in an industrial safety capacity involving hardware which contains the radioisotopes covered by this license.

Mr. Lain also received classroom instruction at the University of Dubuque, Iowa, in a 16 hour segment of the "Industrial Hygiene" course which included recognition, evaluation, and control of radiological health hazards.

He also attended the NIOSH "Ionizing and Non-ionizing Radiation" course at the University of Southern California, Los Angeles, April 1-5, 1985. Practical aspects of handling radioisotopes were covered in a laboratory session of the radiation course.

Item 8 - Line (1) Licensed Material

The Nickel 63 is electroplated on the cathode and anode portion of a spark gap device (see attachment 2 for specification information). The spark gap device with other various components is then filled with rigid polyurethane foam and enclosed with an aluminum shield. This unit is then installed in the Peacekeeper firing unit. The firing unit is then surrounded with a second rigid polyurethane foam and enclosed with and protected by an aluminum cover. This serves as the outer case. A silicone rubber thermal insulating shield/cover is bonded over the entire outer case surface of the completed Firing unit (see attachment 3 for specification information).

Item 8 - Line (2) Licensed Material

The Carbon 14 is an amorphous carbon powder that is imbedded in the micro structure of a ceramic component part within an electron tube, over voltage spark gap (see attachment 5 for specification information). This tube is used as a component in an ordnance firing unit.

Following assembly of the components, containing two over voltage spark gap tubes, a rigid polyurethane foam protection is inserted into the interior of the firing unit and a corrosion resistant steel outside cover is installed (see attachment 6 for specification information).