

CORRECTED COPY

MATERIALS LICENSE

Amendment No. 46

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

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Licensee

1. National Aeronautics & Space
Administration
2. Goddard Space Flight Center
Health Physics, Code 205.9
Greenbelt, Maryland 20771-0001

In accordance with the letter dated
July 1, 1996,3. License Number 19-05748-02 is amended in
its entirety to read as follows:

4. Expiration Date July 31, 2000

5. Docket or
Reference No. 030-045386. Byproduct, Source, and/or
Special Nuclear Material7. Chemical and/or Physical
Form8. Maximum Amount that Licensee
May Possess at Any One Time
Under This License

- | | | |
|---|--|---|
| A. Any byproduct material with Atomic Numbers 1 through 83 | A. Any | A. Not to exceed 10 millicuries per radionuclide and 500 millicuries total |
| B. Any byproduct material with Atomic Numbers 1 through 83 | B. Sealed sources | B. Not to exceed 1 curie per radionuclide and 50 curies total |
| C. Any byproduct material with Atomic Numbers 1 through 83 | C. Plated or sealed sources | C. Not to exceed 16 millicuries per radionuclide and 800 millicuries total |
| D. Any byproduct material with Atomic Numbers 84 through 96 | D. Any | D. Not to exceed 1 millicurie per radionuclide and 10 curies total |
| E. Any byproduct material with Atomic Numbers 84 through 96 | E. Sealed or plated sources | E. Not to exceed 100 millicuries per radionuclide and 1 curie total |
| F. Hydrogen 3 | F. Any | F. 200 curies |
| G. Iron 55 | G. Any | G. 5 curies |
| H. Cobalt 60 | H. Sealed sources | H. 10 curies |
| I. Nickel 63 | I. Any | I. 1 curie |
| J. Krypton 85 | J. Any | J. 110 curies |
| K. Iodine 125 | K. Sealed sources | K. 5 curies |
| L. Cesium 137 | L. Sealed sources | L. 5 curies |
| M. Promethium 147 | M. Any | M. 10 curies |
| N. Polonium 210 | N. Any | N. 10 millicuries |
| O. Polonium 210 | O. Sealed or plated sources | O. 5 curies |
| P. Americium 241 | P. Any | P. 10 millicuries |
| Q. Americium 241 | Q. Sealed sources or plated sources | Q. 5 curies |
| R. Curium 244 | R. Any | R. 10 millicuries |

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MATERIALS LICENSE
SUPPLEMENTARY SHEET

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License Number

19-05748-02

Docket or Reference Number

030-04538

Amendment No. 46

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|---|----------------------------------|--|
| 6. Byproduct, source, and/or special nuclear material | 7. Chemical and/or physical form | 8. Maximum amount that licensee may possess at any one time under this license |
| S. Curium 244 | S. Sealed or plated sources | S. 5 curies |
| T. Californium 252 | T. Sealed or plated sources | T. 16.2 millicuries |
| U. Uranium 235 | U. Sealed or plated sources | U. 10 grams |
| V. Plutonium 238 | V. Sealed or plated sources | V. 50 milligrams |
| W. Plutonium 239 | W. Sealed or plated sources | W. 20 micrograms |

9. Authorized use

A. through W. Research and development as defined in 10 CFR 30.4

CONDITIONS

10. Licensed material may be used only at the licensee's facilities located at the National Aeronautics & Space Administration, Goddard Space Flight Center, Greenbelt, Maryland except that sealed and plated sources may be used at temporary job sites of the licensee anywhere in the United States.
11. A. Licensed material shall be used by, or under the supervision of, individuals designated by the licensee's Radiation Safety Committee, Phillip J. Nessler, Jr., Chairman.
- B. The Radiation Safety Officer for this license is Theodore D. Simmons.
12. A. Sealed sources and detector cells containing licensed material shall be tested for leakage and/or contamination at intervals not to exceed six months or at such other intervals as are specified by the certificate of registration referred to in 10 CFR 32.210, not to exceed three years.
- B. Notwithstanding Paragraph A of this Condition, sealed sources designed to emit alpha particles shall be tested for leakage and/or contamination at intervals not to exceed three months.
- C. In the absence of a certificate from a transferor indicating that a leak test has been made within six months prior to the transfer, a sealed source or detector cell received from another person shall not be put into use until tested.
- D. Each sealed source fabricated by the licensee shall be inspected and tested for construction defects, leakage, and contamination prior to any use or transfer as a sealed source.
- E. Sealed sources and detector cells need not be leak tested if:
- (i) they contain only hydrogen-3; or
 - (ii) they contain only a radioactive gas; or

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- (iii) the half-life of the isotope is 30 days or less; or
- (iv) they contain not more than 100 microcuries of beta and/or gamma emitting material or not more than 10 microcuries of alpha emitting material; or
- (v) they are not designed to emit alpha particles, are in storage, and are not being used. However, when they are removed from storage for use or transfer to another person, and have not been tested within the required leak test interval, they shall be tested before use or transfer. No sealed source or detector cell shall be stored for a period of more than 10 years without being tested for leakage and/or contamination.
- F. The test shall be capable of detecting the presence of 0.005 microcurie of radioactive material on the test sample. If the test reveals the presence of 0.005 microcurie or more of removable contamination, a report shall be filed with the U.S. Nuclear Regulatory Commission and the source or detector cell shall be removed immediately from service and decontaminated, repaired, or disposed of in accordance with Commission regulations. The report shall be filed within five days of the date the leak test result is known with the U.S. Nuclear Regulatory Commission, Region I, ATTN: Chief, Nuclear Materials Safety Branch, 475 Allendale Road, King of Prussia, Pennsylvania 19406. The report shall specify the source or detector cell involved, the test results, and corrective action taken.
- G. The licensee is authorized to collect leak test samples for analysis by the licensee. Alternatively, tests for leakage and/or contamination may be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.
13. Sealed sources or detector cells containing licensed material shall not be opened or sources removed from source holders by the licensee.
14. Licensed material shall not be used in or on human beings.
15. The licensee shall not use licensed material in field applications where activity is released except as provided otherwise by specific condition of this license.
16. The licensee shall conduct a physical inventory every six months to account for all sealed sources and devices containing licensed material received and possessed under the license.
17. The licensee is authorized to transport licensed material in accordance with the provisions of 10 CFR Part 71, "Packaging and Transportation of Radioactive Material."

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18. Radioactive waste generated shall be stored in accordance with the statements, representations, and procedures included with the waste storage plan described in the licensee's letter dated July 1, 1996.
19. Except as specifically provided otherwise in this license, the licensee shall conduct its program in accordance with the statements, representations, and procedures contained in the documents including any enclosures, listed below. The Nuclear Regulatory Commission's regulations shall govern unless the statements, representations and procedures in the licensee's application and correspondence are more restrictive than the regulations.
- A. Application dated August 24, 1989
 - B. Letter dated March 7, 1990
 - C. Application dated November 5, 1993
 - D. Letter dated July 1, 1996

Date

SEP 20 1996

For the U.S. Nuclear Regulatory Commission

Original Signed By:

By

John D. Kinneman

Nuclear Materials Safety Branch

Region I

King of Prussia, Pennsylvania 19406

SEP 20 1996

License No. 19-05748-02
Docket No. 030-04538
Mail Control No. 123398

Phillip J. Nessler, Jr.
Chairman, Radiation Safety Committee
National Aeronautics & Space Administration
Goddard Space Flight Center
Health Physics, Code 205.2
Greenbelt, MD 20771-0001

Dear Mr. Nessler:

Enclosed is the Corrected Copy of Amendment No. 46 for License No. 19-05748-02. Pursuant to a telephone conversation between Penny Lanzisera of this office and Ted Simmons of your staff, Condition 14 which was added in Amendment No. 46 has been removed from the license. As discussed during the telephone conversation, our policy is to add this condition to licenses unless the licensee has in place adequate procedures for the assessment and approval of unregistered sealed sources and devices and for the handling of equivalent quantities of unsealed material. Therefore, the next time that you request that your license be amended, you must describe the following activities as they relate to sealed sources that are not registered pursuant to 10 CFR 32.210 (enclosed):

- 1) Radiation Safety Committee procedures for reviewing the adequacy or appropriateness of sealed source designs, including a review of the proposed use(s) of the source. Information submitted to the Committee should include sufficient information about the sealed source design, manufacture, prototype testing, quality control program, labeling, proposed uses and leak testing.
- 2) Radiation Safety Committee procedures and criteria for reviewing the training and experience of proposed users of these sources.
- 3) A quality assurance program for all sources received. This program must be adequate to assure that the source received complies with what was approved by the Committee and that sources perform as expected during use.

P. Nessler, Jr.
NASA

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Your cooperation with us is appreciated.

Sincerely,

ORIGINAL SIGNED BY:

John D. Kinneman, Chief
Nuclear Materials Safety Branch 2
Division of Nuclear Materials Safety

License No. 19-05748-02
Docket No. 030-04538
Mail Control No. 123398

Enclosures:

1. Corrected Copy of Amendment No. 46
2. 10 CFR Parts 30 and 32

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| OFFICE | DNMS/RI | N | DNMS/RI | N | | | | |
| NAME | Lanzisera | | Kinneman | | | | | |
| DATE | 09/19/96 | | 09/19/96 | | 09/ /96 | | 09/ /96 | |

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