National Aeronautics and
Space Administration
John H. Glenn Research Center
Lewis Field
Cleveland, OH 44135–3191

January 9, 2009

Reply to Attn of: Q

U.S. Nuclear Regulatory Commission
Washington, DC 20555
Attn: Document Control Desk

Subject: Plum Brook Reactor Facility, Request for Amendment to Licenses Nos. TR-3, Docket No. 50-30 and R-93, Docket No, 50-185

The following request is affirmed under 28 USC Section 1746.

NASA requests that Licenses TR-3 and R-93 be amended as described in the enclosures to this letter. The proposed amendments will add a condition to each license requiring NASA to assess the residual activity and demonstrate that the stream bed and banks of Plum Brook between the boundary of Plum Brook Station and Sandusky Bay meet the license termination criteria specified in 10 CFR 20.1402 for unrestricted use prior to terminating Licenses TR-3 and R-93.

This application has been reviewed pursuant to 10 CFR 50.91(a)(1) and an analysis supporting a determination of no significant hazards is included. NASA requests that the amendment be made effective upon issuance. The enclosed License Amendment Request is true and correct to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct. Executed this 9th day of January 2009.

Should you have any questions or need additional information, please contact Mr. Keith Peecook, NASA Plum Brook Station, 6100 Columbus Avenue, Sandusky, Ohio 44870, at (419) 621-3277.

Sincerely,

Thomas W. Hartline
Director, Safety and Mission Assurance

A020
NMSS01
FSME

3 Enclosures:
Description and Evaluation of the Proposed Changes
Proposed Amended License TR-3
Proposed Amended License R-93

cc:
USNR/C. J. Glenn (FSME)
USNRC/J. Webb (FSME)
USNRC/W. G. Snell (R.IlI/DNMS/DB)
ODH/R. E. Owen
ODH/R. M. Snee
ODH/M. J. Rubadue

Enclosure 1
Description and Evaluation of the Proposed Changes

I LICENSE AMENDMENT REQUEST

NASA requests that a new paragraph number 4 be added to Licenses TR-3 and R-93 requiring that NASA assess the residual activity and demonstrate that the stream bed and banks of Plum Brook between Plum Brook Station boundary and Sandusky Bay meet the radiological criteria for unrestricted use specified in 10 CFR 20.1402 prior to terminating Licenses TR-3 and R-93. The existing paragraph 4 of both licenses will be renumbered as paragraph 5.

II REASONS FOR THE PROPOSED CHANGE

The license condition added by this proposed amendment will provide assurance that the National Aeronautics and Space Administration performs assessments of the residual radioactivity in the offsite areas in Plum Brook. The assessments will demonstrate that termination of the Licenses for the Plum Brook Reactor Facility will be protective of the public health and safety, will be in conformance with the radiological criteria specified in 10 CFR 20.1402 for unrestricted use, and will be ALARA.

III DESCRIPTION OF THE PROPOSED CHANGES

A new paragraph 4 is added to Licenses TR-3 and R-93 that reads as follows:

"4. Prior to termination of this license, NASA shall assess the residual activity in Plum Brook between the Plum Brook Station and Sandusky Bay and demonstrate that the area meets the radiological criteria for unrestricted use specified in 10 CFR 20.1402."

The existing paragraph 4 which states:

"4 This license amendment is effective as of its date of issuance."

is renumbered as paragraph 5.

IV NO SIGNIFICANT HAZARDS CONSIDERATION

The proposed amendment to Licenses TR-3 and R-93 was recommended by the NRC staff to provide assurance that the areas of Plum Brook which are outside of the boundaries of the Plum Brook Reactor Facility and the NASA owned Plum Brook Station meet the regulatory criteria for unrestricted use prior to termination of the

Facility Licenses. The proposed changes do not involve a significant hazard as shown in the following:

A. The proposed amendment to Licenses TR-3 and R-93 does not involve a significant increase in the probability or consequences of an accident previously analyzed.

The accident scenarios applicable to the decommissioning of the Plum Brook Reactor Facility are described in section 3.3 of the Decommissioning Plan for the Plum Brook Reactor. The Decommissioning Plan describes postulated events that could result in a release of radioactive materials from the site and analyzes the radiation dose consequences of these events and demonstrates that no adverse public health and safety impacts are expected from these events. Radiological assessment of the residual radioactivity in environmental areas involves sampling and performance of surveys. Spot remediation of some areas will be performed to assure that the ALARA criteria are met. These activities will involve handling and movements of minimal quantities of radioactive material and will involve methods and processes similar to those used for on-site radiological decontamination and remediation. Further, since any planned spot remediation will involve the handling of extremely small quantities of radioactive material, the consequences of any postulated accidents will be a small fraction of the consequences of the accidents previously analyzed in the Decommissioning Plan. Therefore, the proposed amendment will not increase the probability or consequences of accidents previously analyzed.

B. The proposed amendment to Licenses TR-3 and R-93 will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Accidents previously analyzed in the Decommissioning Plan assess different scenarios that could cause the dispersion of radioactive material to the environment. These scenarios arise from dismantlement activities associated with the decommissioning. Assessment of residual radioactivity in Plum Brook involve sample and survey activities that use techniques and processes that are comparable to those used in on-site assessments. In addition, radioactivity that will remain in the environmental areas after License Termination will meet the regulatory criteria for unrestricted use specified in 10 CFR 20.1402. Therefore, no new or different types of accidents are created by this proposed amendment.

C. The proposed amendment to Licenses TR-3 and R-93 will not involve a significant reduction in a margin of safety.

As discussed previously, the activities that will be performed at the facility are as previously described and evaluated in the accident analyses presented in the Decommissioning Plan. The radiological criteria to be used in applying for termination of the NRC Licenses will remain the same as originally proposed

and are consistent with the criteria of 10 CFR 20 Subpart E for unrestricted use. The results of assessments performed by the Licensee will remain subject to review by the U.S. NRC for adequate implementation of the License Termination criteria. Therefore, the margins of safety applicable to assessing the long term dose to member of the public from exposure to the facility after termination of the license remain unchanged. In addition, since this amendment does not impact any previously reviewed accident analyses as previously discussed, no margins of safety are affected by this proposed amendment.

IV IMPLEMNTATION

NASA requests that the amendment become effective as of the date of issuance.

Enclosure 2

Proposed Amended License

TR-3

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

DOCKET NO. 50-30

AMENDMENT TO FACILITY LICENSE

Amendment No. 14
License No. TR-3

1. The Nuclear Regulatory Commission (the Commission) has found that:

A. The application for amendment to Facility License No. TR-3, filed by the National Aeronautics and Space Administration (the licensee), dated May 18, 2005, as supplemented by submittals dated July 11, 2005, May 12, 2006, January 10, 2007, and February 9, 2007, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations as set forth in 10 CFR Chapter I;

B. The facility will be maintained in conformity with the amended license, the provisions of the Act, and the rules and regulations of the Commission;

C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;

E. This amendment is issued in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Facility License No. TR-3 is hereby amended in its entirety to read:

A. This license applies to the heterogeneous light-water cooled and moderated test reactor referred to as the Plum Brook Reactor Facility (hereinafter referred to as "the reactor" or "PBRF"). The PBRF includes all associated and site support facilities except for the Mock-Up Reactor (MUR) which is under separate License R-93, Docket No. 50-185. The PBRF is owned by National Aeronautics and Space Administration (NASA), an independent agency of the United States Government and located at the NASA Plum Brook Station near Sandusky, Ohio. The PBRF is described in the application for the full-term license dated January 10, 1964 and amendments thereto.

3. NASA is authorized to decommission the facility in accordance with the Decommissioning Plan for the Plum Brook Reactor Facility approved by the Commission by issuance of license amendment dated March 20, 2002, as revised pursuant to paragraph 3.A.1 below, and to perform Final Status Surveys in accordance with the Final Status Survey Plan for the Plum Brook Reactor Facility submitted by letters dated May 12, 2006 and February 9, 2007 and revised pursuant to paragraph 3.A.1 below.

A. This amendment authorizes inclusion of the Decommissioning Plan for the Plum Brook Reactor Facility and the Final Status Survey Plan for the Plum Brook Reactor Facility and their supplements as supplements to the Safety Analysis Report pursuant to 10 CFR 50.82(b)(5).

1. The licensee may make changes to the above plans and revisions without prior U.S. Nuclear Regulatory Commission approval provided the proposed changes do not:

a. Require Commission approval pursuant to 10 CFR 50.59;

b. Reduce the coverage requirements for scan measurements;

c. Increase the derived concentration guideline level and related minimum detectable concentrations (for both scan and fixed measurement methods);

d. Use a statistical test other than the Sign test or the Wilcoxon Rank Sum test for evaluation of the final status survey;

e. Result in significant environmental impacts not previously reviewed;

f. Increase the radioactivity level, relative to the applicable derived concentration guideline level, at which an investigation occurs;

g. Increase the Type I decision error;

h. Decrease an area classification (i.e., impacted to unimpacted; Class 1 to Class 2; Class 2 to Class 3; Class 1 to Class 3).

2. The licensee shall provide the U.S. NRC notification of any changes to the planned decommissioning schedule that will extend the completion date of December 31, 2010.

3. DELETED

4. Before backfilling or performing actions that would otherwise render an area inaccessible for survey:

   a. The final status survey or the portion of the final status survey covering the affected area shall be performed.

   b. The completed final status survey for the affected area and a technical or safety justification demonstrating the need to perform the intended actions shall be submitted to the U.S. NRC.

   c. Concurrence that the proposed actions may be performed shall be received via telephone, email, or letter from the U.S. NRC.

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses the NASA Test Reactor:

1. Pursuant to Section 104c of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess, but not operate the reactor in accordance with the procedures and limitations described in the application and this license;

2. Pursuant to the Act and 10 CFR Part 30, "Rules and General Applicability to Domestic Licensing of Byproduct Material," and Part 70, "Domestic Licensing of Special Nuclear Material," to possess, but not to separate, such byproduct and special nuclear materials as may have been produced by operation of the facility.

3. DELETED

4. Pursuant to the Act and Title 10, CFR, Chapter 1, Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components.

C. This license shall be deemed to contain and is subject to the conditions specified in Part 20, 30, 50, 51, 55, 70, and 73 of 10 CFR Chapter 1, to all applicable provisions of the Act, and to the rules, regulations, and orders of the Commission now or hereafter in effect.

D. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 13, are hereby incorporated in the license. The licensee shall maintain the reactor in accordance with the Technical Specifications.

4. Prior to termination of this license, NASA shall assess the residual activity in Plum Brook between the Plum Brook Station and Sandusky Bay and demonstrate that the area meets the radiological criteria for unrestricted use specified in 10 CFR 20.1402.

5. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Attachment:
Appendix A Technical Specifications

Date of Issuance:

Enclosure 3

Proposed Amended License

R-93

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

DOCKET NO. 50-185

AMENDMENT TO FACILITY LICENSE

Amendment No. 10
License No. R-93

1. The Nuclear Regulatory Commission (the Commission) has found that:

A. The application for amendment to Facility License No. R-93, filed by the National Aeronautics and Space Administration (the licensee), dated May 18, 2005, as supplemented by submittals dated July 11, 2005, May 12, 2006, January 10, 2007, and February 9, 2007, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations as set forth in 10 CFR Chapter I;

B. The facility will be maintained in conformity with the amended license, the provisions of the Act, and the rules and regulations of the Commission;

C. There is reasonable assurance: (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public;

E. This amendment is issued in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Facility License No. R-93 is hereby amended in its entirety to read:

A. The license applies to the NASA Mockup Reactor (herein referred to as "the reactor") that is owned by NASA and located on the Plum Brook Station in Sandusky, Ohio, and described in the licensee's application dated December 20, 1999, and amendments thereto.

3. NASA is authorized to decommission the facility in accordance with the Decommissioning Plan for the Plum Brook Reactor Facility approved by the Commission by issuance of license amendment dated March 20, 2002, as revised pursuant to paragraph 3.A.1 below, and to perform Final Status Surveys in accordance with the Final Status Survey Plan for the Plum Brook Reactor Facility submitted by letters dated May 12, 2006 and February 9, 2007 and revised pursuant to paragraph 3.A.1 below.

A. This amendment authorizes inclusion of the Decommissioning Plan for the Plum Brook Reactor Facility and the Final Status Survey Plan for the Plum Brook Reactor Facility and their supplements as supplements to the Safety Analysis Report pursuant to 10 CFR 50.82(b)(5).

1. The licensee may make changes to the above plans and revisions without prior U.S. Nuclear Regulatory Commission approval provided the proposed changes do not:

a. Require Commission approval pursuant to 10 CFR 50.59;

b. Reduce the coverage requirements for scan measurements;

c. Increase the derived concentration guideline level and related minimum detectable concentrations (for both scan and fixed measurement methods);

d. Use a statistical test other than the Sign test or the Wilcoxon Rank Sum test for evaluation of the final status survey;

e. Result in significant environmental impacts not previously reviewed;

f. Increase the radioactivity level, relative to the applicable derived concentration guideline level, at which an investigation occurs;

g. Increase the Type I decision error;

h. Decrease an area classification (i.e., impacted to unimpacted; Class 1 to Class 2; Class 2 to Class 3; Class 1 to Class 3).

2. The licensee shall provide the U.S. NRC notification of any changes to the planned decommissioning schedule that will extend the completion date of December 31, 2010.

3. DELETED

4. Before backfilling or performing actions that would otherwise render an area inaccessible for survey:

   a. The final status survey or the portion of the final status survey covering the affected area shall be performed.

   b. The completed final status survey for the affected area and a technical or safety justification demonstrating the need to perform the intended actions shall be submitted to the U.S. NRC.

   c. Concurrence that the proposed actions may be performed shall be received via telephone, email, or letter from the U.S. NRC.

B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses the NASA Test Reactor:

1. Pursuant to Section 104c of the Act and 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities," to possess, but not operate the reactor in accordance with the procedures and limitations described in the application and this license;

2. Pursuant to the Act and 10 CFR Part 30, "Rules and General Applicability to Domestic Licensing of Byproduct Material," and Part 70, "Domestic Licensing of Special Nuclear Material," to possess, but not to separate, such byproduct and special nuclear materials as may have been produced by operation of the facility.

3. DELETED

4. Pursuant to the Act and Title 10, CFR, Chapter 1, Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components.

C. This license shall be deemed to contain and is subject to the conditions specified in Part 20, 30, 50, 51, 55, 70, and 73 of 10 CFR Chapter 1, to all applicable provisions of the Act, and to the rules, regulations, and orders of the Commission now or hereafter in effect.

D. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 9, are hereby incorporated in the license. The licensee shall maintain the reactor in accordance with the Technical Specifications.

4. Prior to termination of this license, NASA shall assess the residual activity in Plum Brook between the Plum Brook Station and Sandusky Bay and demonstrate that the area meets the radiological criteria for unrestricted use specified in 10 CFR 20.1402.

5. This license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Attachment:
Appendix A Technical Specifications

Date of Issuance: