

ENVIRONMENTAL ASSESSMENT
FOR DECOMMISSIONING OF BUILDING 140
AT NASA'S JOHN H. GLENN RESEARCH CENTER, CLEVELAND, OHIO
MATERIALS LICENSE 34-00507-16, DOCKET 030-05626

1. Introduction:

A. *Summary*

NASA John H. Glenn Research Center (the licensee) submitted a request to remove Building 140 (Cyclotron facility) to the U.S. Nuclear Regulatory Commission (NRC) for review and approval (Agencywide Documents Access and Management System [ADAMS] Accession Nos. ML17159A717, ML17159A729, ML17159A733, ML17159A744, ML17159A749, ML17270A113, ML17270A111, ML17270A116 and ML17159A749). The licensee planned to use the information provided within the documents submitted to characterize licensed material activated by its cyclotron that was located in Building 140 at the John H. Glenn Research Center (NASA), Cleveland, Ohio. Following the completion of the characterization and unrestricted release, the licensee planned to demolish and send for recycling and/or landfill disposal the building. If the unrestricted release is approved, the NRC staff would amend License 34-00507-16 to allow the unrestricted release of the building. As stipulated in Part 51 of Title 10 of the *Code of Federal Regulations* (10 CFR Part 51), the NRC performed an environmental assessment of the proposed unrestricted release of the building.

The NRC staff developed this Environmental Assessment (EA) to support the review of the proposed unrestricted release in accordance with the requirements of 10 CFR Part 51. According to Section 1.2 of NUREG-1748, "Environmental Review Guidance for Licensing Actions Associated with NMSS Programs" (ML032450279), an EA is a concise, publically-available document that provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement or a Finding of No Significant Impact (FONSI). Based on the NRC staff's evaluation, the conclusion of this EA is a FONSI on human health and the environment for the proposed licensing action. Accordingly, the NRC staff will not prepare an Environmental Impact Statement for this license amendment.

B. *Facility Description*

The cyclotron was constructed by General Electric in the 1940s and 1950s and was first operated in 1955. The cyclotron was upgraded in the 1970s from a 60" to a 69"-cyclotron. The facility was also upgraded several times to include neutron therapy and additional spacing. NASA operated the facility and cyclotron until 1990 for research purposes. NASA contracted personnel to support decommissioning of the facility. Contractor personnel had supported NASA with facility characterization and removal of activated and radioactively contaminated equipment and materials, except for the remaining cyclotron components, embedded piping, overhead crane, and building structures.

In 2015, the licensee took surface and subsurface soil samples around Building 140 to determine if significant radiological activation occurred during operation.

Between 2015 and 2017, the licensee was regularly removing radiological activated material from the site and disposing of the material in accordance with NRC regulations.

In February 2017, the licensee removed the cyclotron from the facility and disposed of it in accordance with NRC regulations.

In May 2017, the licensee submitted Final Status Survey information for the site that demonstrated the basis for it being released for unrestricted use. The licensee has stated that they most likely will demolish the building.

The physical material the licensee is requesting for unrestricted release consists of bulk soil, concrete and steel. The licensee and NRC agreed that the screening values found in Appendix B of NUREG-1757, Vol. 1, Rev. 2, "Consolidated Decommissioning Guidance" (ML063000252) were not solely applicable for use to determine whether the building material and soil could be released for unrestricted use. During the characterization, the licensee did not obtain specific NRC-approved derived concentration guidelines levels. Therefore, the licensee developed a proposed dose assessment analysis using NUREG-1640, "Radiological Assessments for Clearance of Materials from Nuclear Facilities" (ML032250178, ML043090271, ML032250625, and ML032250704) for NRC's approval.

C. NRC Guidance for Preparation of EAs

The NRC staff conducted this environmental assessment using the guidance provided in NUREG-1748, Section 3, "Preparing an Environmental Assessment." The NRC staff conducted this assessment, in part, because the proposed action (the facility did not meet the radiological criteria for unrestricted use in 10 CFR 20.1402 without further remediation or analysis) did not qualify for a categorical exemption.

Section 3.2 of NUREG-1748 discusses the differences between simple and complex licensing actions and associated EA documents. The NRC staff concluded that the decommissioning and demolition of Building 140 did not meet the criteria for a complex licensing action, because the proposed residual radiological contamination to be left at the site did not involve major changes to existing facilities (e.g., significant new construction), construction of new facilities, or approval of decommissioning plans involving major disturbances to the environment. Since the NRC staff considered this project to be a simple licensing action, the NRC staff elected to prepare a simple EA using the guidance provided in Section 3.3 of NUREG-1748.

2. Proposed Action:

The NRC's proposed action is to amend License 34-00507-16 to approve the unrestricted release of Building 140. The licensee would then be authorized to maintain the building in an "as-is" configuration or, as planned, demolish the building and send the materials to a landfill for disposal and/or a recycling facility.

To support this proposed action, the NRC developed a Safety Evaluation Report (SER) (ML18123A475) that analyzes the licensee's justification and calculations to show the bulk soil, concrete and steel could be released for unrestricted use under several scenarios. In each scenario, the NRC determined that the radiological criteria for unrestricted use had been met.

3. Need for Proposed Action:

The purpose of the proposed action is to release the building for unrestricted use in accordance with NRC's release criteria as specified in 10 CFR Part 20, Subpart E. Approval of the

proposed action would allow the NRC to fulfill its responsibilities under the Atomic Energy Act to ensure protection of the public health and safety and the environment.

4. Environmental Impacts of the Proposed Action:

The NRC staff considered the possible environmental impacts of the proposed action. The staff considered the impacts on the following environmental resources: (1) land use; (2) transportation; (3) geology and soils; (4) water resources; (5) ecology; (6) meteorology, climatology, and air quality; (7) noise; (8) historical and cultural resources; (9) visual/scenic resources; (10) socioeconomic; (11) public and occupational health; and (12) waste management.

Building 140 is located within the boundary of NASA's John H. Glenn Research Center. Other structures and paved roads are located around the property. The Cleveland Hopkins International Airport is adjacent to NASA's property. Upon completion of the licensing action, the licensee is expected to demolish the building. The land use is not expected to change significantly as a result of demolition as another building is planned to be built in the future to support NASA's mission.

Although the demolition of the building will not take place until after the action is taken, the transportation resource was addressed within this assessment. The transportation resource will be impacted slightly during demolition of the building. Additional vehicles will be needed to demolish the building and remove demolished debris. This increase in transportation resources will only exist as long as the building demolition is in progress. After completion of demolition, the transportation resource should return to normal until NASA decides the type of structure to be built on that site. The number of additional trucks is expected to be small, based on the low volume of material required to be disposed.

The building used local soil as shielding to reduce any potential doses to members of the public so the local soils are expected to be minimally impacted by building demolition and the local soils were already impacted by the construction of the building and surrounding infrastructure. Local geology is not expected to be impacted. The area of the demolition project is small when compared to the overall size of the research center.

The water resources are not expected to be impacted by the building demolition or residual contamination. Soil analysis surrounding the building indicated that residual contamination levels are well below NRC's release criteria.

The demolition of the building is not expected to have an impact on local ecology. No critical or endangered species or habitats are expected to be impacted, since the building is surrounded by other buildings, pavement, and an active international airport.

The demolition of the building may have short-term impacts on air quality. These potential impacts include generation of airborne dust during demolition and vehicle exhaust. With regards to the potential for airborne dust generated during building demolition, the demolition contractor is expected to take typical industrial precautions to minimize airborne dust, including use of water suppression or discontinuing work during windy conditions. Also, the work will result in a short-term increase of vehicle exhaust during building demolition work. The percentage increase in vehicle exhaust is expected to be small compared to the relative size of the research center and the output of the adjacent airport.

Noise will increase during building demolition work. The increase in noise is expected to be limited to daytime hours, will last only for the duration of the work and will be a small fraction of the noise generated by the adjacent international airport.

No historical, cultural, visual or scenic resources are expected to be impacted. Any cultural or historical resource would have been impacted during the construction of the building. The demolition of the building is not expected to impact any resources beyond the area already impacted by current development. The demolition of the building will not impact scenic or visual resources and the building is not considered historically significant.

The demolition of the building will not impact any social groups, and the economic impacts of the work activities are expected to be minimal. NASA has indicated that another building will be placed upon the footprint of the building being demolished.

The decommissioning contractor will provide measures to control public and occupational health during work. The demolition contractor is expected to implement typical industrial safety controls such as issuance of safety equipment to workers, control of work area boundaries and suppression of dust.

Finally, the decommissioning contractor established procedures for disposal of solid waste material. As the building will already be released for unrestricted use, there will be no disposal of radioactive waste. Liquid waste is not expected to be created.

If NASA does not demolish the building, it is expected that, transportation; geology and soils; water resources; ecology; meteorology, climatology, and air quality; noise; historical and cultural resources; visual/scenic resources; socioeconomic; public and occupational health; and waste management will be impacted as described above or less.

In summary, the proposed building demolition or the maintaining of the building as-is are not expected to have significant, long-term impacts on environmental resources.

5. Environmental Impacts of the Alternatives to the Proposed Action:

As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the "no-action" alternative). The no-action alternative assumes that the status quo is maintained. With respect to the Building 140 project, the no-action alternative means that the licensee would not be allowed to demolish the building and it may be necessary to limit access to the building by NASA and other personnel.

The no-action alternative is not acceptable because it would put the licensee in violation of the NRC's Timeliness Rule regulations specified in 10 CFR 30.36. The Timelessness Rule requires licensees to decommission and release for unrestricted use in a timely manner when licensed activities have permanently ceased. Approval of the no-action alternative will prevent the licensee from releasing the site for unrestricted use under Subpart E requirements. Accordingly, the NRC staff eliminated the no-action alternative from consideration.

6. Agencies and Persons Consulted:

The NRC staff consulted with the Ohio Department of Health, Bureau of Radiation Protection, regarding the environmental assessment of the proposed action (Accession No. ML18110A677). By correspondence dated April 19, 2018, the State of Ohio had no comments.

The NRC staff determined that the proposed action will not affect endangered species or critical habitats, because the project is located within an area that was fully developed. Therefore, no further consultations were deemed necessary under Section 7 of the Endangered Species Act. Likewise, the NRC staff determined that the proposed action is not the type of activity that has the potential to impact historical properties, in part, because the building has not been designated as a historic property by NASA. Therefore, no further consultation was determined to be necessary under Section 106 of the National Historic Preservation Act.

7. Conclusion:

The NRC staff have concluded that the proposed licensing action to release for unrestricted use Building 140 at NASA's John H. Glenn Research Center, Cleveland, Ohio, will have minimal impacts on the environment. The NRC staff considered the impacts on land use, transportation, geology and soils, water resources, ecology, air quality, noise, historical and cultural resources, visual and scenic resources, socioeconomic resources, public and occupational health, and waste management. The staff also determined that the affected environmental and the environmental impacts associated with the release for unrestricted use of Building 140 are bounded by the impacts evaluated in the SER and NUREG-1640.

The staff finds that the proposed decommissioning complies with 10 CFR 20.1402, which provides the radiological criteria for unrestricted use.

The NRC staff have prepared this EA in support of the proposed action to amend NRC Materials License 34-00507-16 to approve the licensee's proposed release for unrestricted use of Building 140 at NASA's John H. Glenn Research Center. On the basis of this EA, NRC has concluded that there are no significant environmental impacts and the license amendment does not warrant the preparation of an Environmental Impact Statement. Accordingly, it has been determined that a Finding of No Significant Impact (FONSI) is appropriate.

References:

The following references are available for inspection at NRC's Public Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html> (with accession number in parentheses):

State of Ohio, "RE: REQUEST FOR COMMENTS ON DRAFT ENVIRONMENTAL ASSESSMENT AND SAFETY EVALUATION REPORT FOR PROPOSED DECOMMISSIONING PROJECT AT NASA'S JOHN H. GLENN RESEARCH CENTER," dated April 19, 2018 (ML18110A677)

U.S. Nuclear Regulatory Commission, "Safety Evaluation Report Decommissioning of the Building 140 Cyclotron Vault at NASA's John H. Glenn Research Center," (May 3, 2018) (ML18123A475)

NRC "Standards for Protection Against Radiation," 10 CFR Part 20

Request to Remove Cyclotron Facility from License, dated May 10, 2017 (ML17159A717)

Final Survey Report – NASA GRC Cyclotron Facility, dated April 2017 (ML17159A729)

Final Survey Report – NASA GRC Cyclotron Facility Attachment 1, dated February 2017 (ML17159A733)

NASA Glenn Research Center Building 140 Cyclotron Vault Final Status Survey Report, dated March 31, 2017 (ML17159A744)

NASA Glenn; FSSR Bldg 140 – Attachment 6 – Soil Sampling Results Final (ML17270A113)

NASA Glenn; FSSR Bldg 140 – Attachment 3 – Concrete Results Final (ML17270A111)

NASA Glenn; FSSR Bldg 140 – SR-10 Sub-Surface Soil Sample Close Out (ML17270A116)

Final Survey Report – NASA GRC Cyclotron Facility Attachment 1, dated April 2017 (ML17159A749)

NUREG-1757, Vol. 1, Rev. 2, "Consolidated Decommissioning Guidance" (ML063000252)

NUREG-1640, Vol. 1, "Radiological Assessments for Clearance of Materials from Nuclear Facilities" (ML032250178)

NUREG-1640, Vol. 2, "Radiological Assessments for Clearance of Materials from Nuclear Facilities – Appendices A thru E" (ML043090271)

NUREG-1640, Vol. 3a, "Radiological Assessments for Clearance of Materials from Nuclear Facilities – Appendices F and G" (ML032250625)

NUREG-1640, Vol. 3b, "Radiological Assessments for Clearance of Materials from Nuclear Facilities – Appendix G Results of Copper Scrap" (ML032250704)

NUREG-1640, Vol. 4, "Radiological Assessments for Clearance of Materials from Nuclear Facilities – Appendices H thru O" (ML041550973)

NUREG-1575, Rev. 1, "Multi-Agency Radiation Survey and Site Manual" or MARSSIM (ML082470583)

NUREG-1757 Vol. 1, Rev. 2 – Consolidated Decommissioning Guidance (ML14093B263)

Inspection Report 030-05626/2017001 (ML17100A514)

Inspection Report 030-05626/2016002 (ML16264A325)

Inspection Report 030-05626/2016001 (ML16048A158)