



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 28, 2021

Ms. Brigid Lowery, Director
Assessment and Remediation Division
Office of Superfund Remediation
and Technology Innovation
U.S. Environmental Protection Agency
M.S. 5201P
1200 Pennsylvania Avenue, NW
Washington, DC 20004

SUBJECT: COMPLETION OF SCHEDULED DECOMMISSIONING ACTIVITIES AT THE
GENERAL ATOMICS TRIGA® REACTOR FACILITY IN SAN DIEGO,
CALIFORNIA (NRC LICENSE NOS. R-38 AND R-67)

Dear Ms. Lowery:

I am writing to inform you of the completion of the active onsite decommissioning activities at the General Atomics (GA) TRIGA® Reactor Facility, in San Diego, California, where the Mark 1 and Mark F non-power research reactors are located. The U.S. Nuclear Regulatory Commission (NRC) staff is in the final stages of completing the review of the GA's Final Status Survey Report (FSSR) for the remediated portions of the site. The review will confirm that the data in the GA FSSR demonstrate that the site meets the radiological criteria for unrestricted use in Subpart E, "Radiological Criteria for License Termination," of Part 20, "Standards for Protection Against Radiation," to Title 10 of the *Code of Federal Regulations* (10 CFR). Currently, we are coordinating the actions to terminate NRC License Nos. R-38 and R-67 for the GA site and release the site for unrestricted use with the State of California. The NRC expects to issue a license termination decision within the next two months or less.

In a letter dated December 14, 2020 (Agencywide Documents Access and Management System [ADAMS] Accession No. ML21012A268), GA submitted a request to terminate the GA research reactor licenses following completion of decontamination, decommissioning, and final survey activities. These steps will be completed in accordance with the NRC-approved GA Decommissioning Plan (DP) and supplemental Final Status Survey Plan. This request is supported by the FSSR demonstrating that all land areas and all facilities thereon (authorized locations under the jurisdiction of NRC License Nos. R-38 and R-67) have been decontaminated, as needed, in accordance with criteria set forth in 10 CFR Part 20, Subpart E.

The NRC reviewed and approved the GA DP in 1999, before the U.S. Environmental Protection Agency (EPA) and NRC entered the Memorandum of Understanding (MOU), "Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites," dated October 9, 2002 (ADAMS Accession No. ML022830208). Under the MOU, the EPA agreed to continue its deferral policy of not listing sites on the Comprehensive Environmental Response, Compensation, and Liability Act's National Priorities List that are subject to the NRC's licensing authority. The MOU provides that, unless an NRC-licensed site exceeds any of three trigger criteria contained in the MOU, the EPA agrees to a policy of deferral to NRC decision-making on decommissioning without the need for consultation. For sites that trigger the criteria in the

MOU, the NRC will consult with the EPA at two points in the decommissioning process: (1) prior to NRC approval of the License Termination Plan or DP, which the NRC terms Level 1 consultation; and (2) following completion of the final status survey (FSS), which the NRC terms Level 2 consultation. As discussed below, the NRC staff has concluded that a Level 2 consultation is not required based on the residual radioactivity remaining at the GA site at this time.

Although the GA reactors were not evaluated for the Level 1 consultation, the NRC subsequently evaluated the Derived Concentration Guideline Levels (DCGLs) contained in the FSSR to determine whether they would have triggered the need for consultation. Based on this review, the NRC staff concluded that a Level 1 consultation would not have been needed because the approved DCGLs are below the Level 1 consultation trigger soil concentrations for sites that intend to pursue industrial/commercial use (which is the expected future use of the GA site for the foreseeable future). The FSSR states that the site, along with much of the surrounding area, is designated for scientific research, and indicates that there is no significant agricultural activity in the local area and that no significant fresh water recreation areas exist within the local hydrological area. The exposure scenarios considered in the dose assessment were based on the site continuing to be used for its current purpose.

By letter dated December 18, 2015, (ADAMS Accession No. ML15362A506), as supplemented by letter dated August 15, 2016, (ADAMS Accession No. ML16242A319), GA requested to update the isotope specific radiological release criteria applicable to the decontamination of GA's site. This request was approved by the NRC in a letter dated February 1, 2017 (ADAMS Accession No. ML16285A300). The approval updated the DP to (1) be consistent with newer decommissioning guidance documents available since the GA DP's approval in 1999 and (2) provide clear, isotope specific radiological release criteria for the portions of the site undergoing dismantlement and decontamination in order to ensure that any remaining residual radioactivity is below the level required for unrestricted site release. As part of this review, the NRC staff concluded that this approach represents an acceptable method for GA to meet the unrestricted release criteria requirements established in the NRC-approved DP by following the more contemporary guidance. The staff determined that revised DCGLs were below the EPA MOU Level 1 consultation trigger values for soil concentration for sites that intend to continue with industrial and/or commercial use and therefore a Level 1 consultation was not required.

The approved DCGLs are consistent with those contained in NUREG-1757, Volume 2, "Characterization, Survey, and Determination of Radiological Criteria," Appendix H, Table H.2, for Cobalt-60, Cesium-137, Europium-152 (as adjusted to conform with the EPA MOU), and Europium-154, for the screening of soil as the isotope specific radiological release criteria to be used for release for unrestricted use of residual soil and concrete at the GA site. Use of the NUREG-1757 screening DCGLs during the FSS and license termination phase for the remainder of the GA decommissioning project was a conservative approach compared to use of the radiological release criteria contained in the GA DP because the screening values were significantly lower than those in the original GA plan. In addition, using these criteria to establish the appropriate release guidelines for the activated concrete and soil at the GA site ensures that the revised approach meets the previously approved radiological release limits (i.e., 10 CFR 20.1402).

After completion of decommissioning activities, including soil, structure, and buried piping removal, GA conducted their FSS in accordance with the guidance in the Multi-Agency Radiological Survey and Site Investigation Manual (MARSSIM), NUREG-1757, and the approved DP. GA partitioned the approximately 60-acre site into 17 individual survey units,

consisting of eleven Class 1 survey units, five Class 2 survey units, and one Class 3 survey unit ranging in size from 5.6 to 886 square meters. Using the MARSSIM guidance, GA collected and analyzed a total of approximately 780 systematic and judgmental samples in the 17 survey units. In accordance with the FSS plan, GA also performed radiological scanning measurements of the soil surfaces within each of the survey units using handheld equipment.

The NRC staff reviewed the data in the GA FSSR and compared the residual radioactivity levels to the trigger values for soil in Table 1 of the EPA MOU related to the residential and industrial use scenarios. Table 1 states that, except for Radium-226, Thorium-232, or total uranium, soil concentrations should be aggregated using a sum of fractions approach to determine the site-specific consultation trigger concentrations. Consistent with the MOU, the residual radioactive material concentrations for Cobalt-60, Cesium-137, Europium-152, and Europium-154 (as determined from the sample analyses) were aggregated using the sum of fractions approach to determine the site-specific consultation trigger values for each of the 17 GA survey units. The NRC staff determined that none of the "as left" survey unit average concentrations exceed the sum of fractions trigger value when compared to the Table 1 values for industrial use in the EPA MOU. After evaluating this information, the NRC determined that a Level 2 consultation with the EPA under the MOU is not required.

During the site decommissioning process, the NRC performed a number of onsite inspections of GA's actions to verify that the cleanup was being conducted as described in the approved DP, as supplemented. The NRC also performed independent measurements and sample analysis to verify GA's FSS results by leveraging the services of the Oak Ridge Institute for Science and Education (ORISE) and concluded they were consistent with the FSS data provided by the licensee. Based on these actions, the NRC concluded the following: (1) decommissioning activities were performed in accordance with the approved GA DP; (2) the FSS data was collected and evaluated consistent with the MARSSIM guidance; and (3) the FSS data and NRC/ORISE independent measurements support the NRC's ongoing evaluation to determine whether the site meets the NRC radiological criteria for release for unrestricted use.

In accordance with 10 CFR 2.390, a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <https://www.nrc.gov/reading-rm/adams.html>.

If you or your staff have any questions regarding this letter, or the ongoing license termination activities at the GA site, please contact Bruce Watson, CHP, at 301-415-6221 or via email at Bruce.Watson@nrc.gov.

Sincerely,



Signed by Holahan, Patricia
on 09/28/21

Patricia K. Holahan, Director
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

B. Lowery

- 4 -

Docket Nos.: 50-089 and 50-163
License No.: R-38 and R-67

cc: Distribution via
General Atomics Listserv

General Atomics TRIGA® Reactors - U.S. EPA MOU Consultation Letter DATE September 28, 2021

DISTRIBUTION:

- RidsNmssDuwpRdb, NMSS
- RidsRgn4MailCenterResource, RGN IV
- KConway, NMSS/DUWP/RDB
- SGiebel, NMSS/DUWP/RDB
- GWarnick, R-IV/DNMS/RIB
- VGaddy, R-IV/DRS/EB1
- REvans, R-IV/DNMS/MLDB
- ARoberts, NMSS/DUWP

ADAMS Accession No.: Ltr ML21232A698

OFFICE	NMSS/DUWP /LLWPB	NMSS/DUWP/RTAB	NMSS/DUWP /RTAB	NMSS/DUWP/RDB
NAME	MDoell <i>MD</i>	KPinkston <i>KP</i>	LParks <i>LP</i>	BWatson <i>BW</i>
DATE	Aug 23, 2021	Sep 3, 2021	Sep 7, 2021	Sep 7, 2021
OFFICE	OGC/GCRPS/RMR	NMSS/DUWP		
NAME	MSmith <i>MS</i>	PHolahan <i>PH</i>		
DATE	Sep 21, 2021	Sep 28, 2021		

OFFICIAL RECORD COPY