U.S. NUCLEAR REGULATORY COMMISSION
DOCKET NO. 030-04858
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Environmental Assessment
Related to Issuance of a License Amendment
of U.S. Nuclear Regulatory Commission Materials License No. 21-08362-08,
Dow Corning Corporation

The U.S. Nuclear Regulatory Commission (NRC) has performed an environmental review of the Dow Corning Corporation's decommissioning plan for Building DC-3 and its adjacent areas located at 2200 West Salzburg Road in Auburn, Michigan. Dow Corning Corporation (Dow-Auburn) submitted a request to terminate its license to NRC in July of 2018 (Agency Document Access Management System (ADAMS) Accession No. ML18228A804). The Decommissioning Plan was submitted in April of 2019 (ADAMS Accession No. ML19114A482). Dow-Auburn has conducted characterization surveys of the facilities and identified carbon-14 (C-14) and tritium (H-3) contamination in the DC-3 building where licensed material was used. The NRC staff has evaluated Dow-Auburn's request and has developed an environmental assessment (EA) to support the review of the Dow-Auburn's proposed decommissioning plan and license amendment request, in accordance with the requirements of 10 CFR Part 51. Based on the NRC staff evaluation, the conclusion of the EA is a Finding of No Significant Impact (FONSI) on human health and the environment for the proposed licensing action.

Introduction

Dow-Auburn was authorized by NRC from 1969 to 2018 to use radioactive materials for research and development as defined by their radioactive material license. Dow-Auburn ceased operations at Building DC-3 in 2018 and submitted a request to terminate its license to NRC. Licensed operations were conducted within the DC-3 building and two adjacent outdoor locations.

The DC-3 building is a one-story structure with a footprint of approximately 55,000 square feet (ft^2). Approximately 9,000 ft^2 have historically been controlled as radioactive materials usage areas. Radioactive materials used at the facility consisted of a variety of beta and gamma emitting radionuclides for research and development. Nuclides approved for use in unsealed form were H-3, C-14, chromium-51 (Cr-51), iodine-125 (I-125), sulfur-35 (S-35) and phosphorus-32 (P-32).

For a short time in the mid 1990's, the licensee temporarily stored packages of low-level radioactive waste generated from licensed operations in an outdoor shed adjacent to north wall of the DC-3 building. The steel shed was 7 feet by 7 feet with 1-inch thick plywood with epoxy coated for the floor. In addition to the epoxy coated floor, there was a welded steel secondary containment sump to collect spills, if any. Waste was stored in six 55-gallon drums packed in accordance with U.S. Department of Transportation regulations.

In addition to the outdoor storage above, in 2015, the licensee conducted one outdoor study using C-14. The licensee spiked soil with less than 400 microcuries of C-14 in a lab in the DC-3 building. The soil was placed into several 2-liter graduated cylinders. These cylinders were then placed into secondary containment (plastic tubs) and kept outdoors adjacent to Building

DC-3 in an area with footprint less than five square meters for two weeks. The area was covered with plexiglass to protect the samples from rainfall, enclosed with wire fence, and visually checked daily by lab personnel. After the study, the plastic tub and soil samples in the area were surveyed for contamination; no radiation levels above background were found.

On behalf of Dow-Auburn, Chase Environmental Group, Inc. (Chase) conducted a characterization survey of the affected areas and developed a decommissioning plan. The characterization survey confirmed the presence of H-3 and C-14 contamination in portions of the DC-3 building and was used as the basis for development of the decommissioning plan. The affected area of the Dow-Auburn facility consists of Rooms 179, 185, 194, 195, 201, 227, 246, 250, 255 and 258.

The Proposed Action

The proposed action is to amend the license to incorporate appropriate and acceptable derived concentration guideline levels (DCGLs) into the license. The licensee's objective for the decommissioning project, as stated in the decommissioning plan, is to decontaminate and remediate the affected areas of the DC-3 building sufficiently to enable unrestricted use, while ensuring exposures to occupational workers and the public during the decommissioning are maintained as low as reasonably achievable (ALARA). The licensee's decommissioning plan proposes to use DCGLs that are screening values developed by NRC (65 FR 37186, June 13, 2000) to demonstrate compliance with the radiological criteria for license termination. The DCGLs will define the maximum amount of residual radioactivity on building surfaces, equipment and materials, and in soils that will satisfy the NRC requirements in Subpart E, 10 CFR Part 20, "Radiological Criteria for License Termination."

The NRC developed a Safety Evaluation Report (SER) (ADAMS Accession No. ML21208A428 that analyzes the licensee's justification and calculations to show the DC-3 building and its adjacent areas could be released for unrestricted use. Based on the evaluation, the NRC determined that the proposed radiological criteria for unrestricted use had been met.

Need for the Proposed Action

The purpose of the proposed action is to reduce residual radioactivity in the DC-3 building to a level that permits release of the property for unrestricted use.

Environmental Impacts of the Proposed Action

The NRC staff has reviewed the decommissioning plan (DP) for the Dow-Auburn facility and examined the impacts of decommissioning. Based on its review, the NRC staff determined that the affected environment and the environmental impacts associated with the decommissioning of the Dow-Auburn facility are bounded by the impacts evaluated by the "Generic Environmental Impact Statement in Support of Rulemaking on Radiological Criteria for License Termination of NRC–Licensed Nuclear Facilities" (NUREG–1496). The NRC staff determined that the proposed decommissioning of the Dow-Auburn facility should demonstrate compliance with the requirements of Title 10 CFR 20.1402, the radiological criteria for unrestricted use.

Since ceasing operations, the Dow-Auburn site has been stabilized to prevent contamination

from spreading beyond its current locations. Access to the contaminated areas is controlled to assure the health and safety of workers and the public. No ongoing licensed activities are occurring in the facilities.

Contamination controls will be implemented during decommissioning to prevent airborne and surface contamination from escaping the remediation work areas, and therefore no release of airborne contamination is anticipated. If produced, any effluent from the proposed decommissioning activities will be controlled in accordance with NRC requirements in 10 CFR Part 20 or contained onsite or treated to reduce contamination to acceptable levels before release and shall be maintained as low as reasonably achievable (ALARA). Release of contaminated liquid effluents are not expected to occur during the work.

Chase will perform the remediation under the Dow-Auburn license, with Dow-Auburn overseeing the activities and maintaining primary responsibility. Based upon the review of the licensee's inspection history and lack of reported events, there is little documented evidence that the licensee lacks adequate radiation protection capabilities, and, thus, is anticipated to implement an acceptable program to ensure exposures to radioactive materials are maintained ALARA. Based on the submitted decommissioning plan and additional information provided (See *References* for specific documents) describing the work to be performed, the associated work activities are not anticipated to result in a dose to workers or the public in excess of the 10 CFR Part 20 limits.

The NRC staff considered the possible environmental impacts decommissioning 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 DC-3 is located within the boundary of Dow-Auburn property. Other structures and paved roads are located around the property. Upon completion of the licensing action, the DC-3 building will remain in place and will be released for unrestricted use. The land use is not expected to change as a result of the decommissioning activities of the DC-3 building.

The waste generated from the decommissioning activities should be limited and focused material found in the laboratories. It is expected that a relatively small volume, about 17,000 pounds, of waste will be generated and that it will take several vehicles to transport debris, which was removed from affected rooms resulting in a small short term impact on transportation during decommissioning. After completion of the decommissioning, the transportation resource should return to pre-decommissioning levels.

The water resources and the local soils are not expected to be impacted by the decommissioning of affected areas inside the building. Contamination has not been identified outside of the building.

The decommissioning of affected areas in 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 there will be no changes to the outside of the building.

Decommissioning activities are limited to inside the building and there should be no impacts on

air quality. There may be potential airborne dust generated during decommissioning activities inside the building, such as room surface cleaning, equipment cleaning, cutting into ventilation systems and draining systems, and moving debris. The licensee's radiation safety plan and procedures for the use of administrative and engineering controls include airborne monitoring for radioactive material and associated dust suppression controls to be implemented to maintain doses below the NRC radiation limits.

The proposed decommissioning activities will not impact the noise level in the areas surrounding the building. Noise will increase during building decommissioning works; however, it will be limited to some areas inside the building. The increase in noise is expected to be during daytime hours.

No historical, cultural, visual or scenic resources are expected to be impacted. Building DC-3 is not considered historically significant; the proposed decommissioning activities will only be in affected rooms and associated ventilation and drainage systems in the building; and the building at a whole will not be changed.

The decommissioning of the contaminated areas in the building will not impact any social groups, and the economic impacts of the work activities are expected to be very minimal.

The licensee, Dow-Auburn, will ensure measures to control public and occupational health during work are implemented by Chase. All workers (licensee or subcontractor) are expected to implement typical industrial safety controls including use of safety equipment, control of work area boundaries and suppression of dust.

Procedures for disposal of solid waste material have been established in the DP. Liquid waste is not expected to be created. All radioactive waste will be removed from the site. There are no plans for disposal of radioactive waste on site.

In summary, the proposed decommissioning activities in the DC-3 building and to release it for unrestricted use are not expected to have significant, long-term impacts on environmental resources.

Environmental Impacts of the Alternatives to the Proposed Action

The only alternative to the proposed action to allow decommissioning of the site is no action. 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, which requires licensees to decommission and release a licensed site, building, or portions thereof, 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 and terminating its license in accordance with 10 CFR Part 20 Subpart E, "Radiological Criteria for License Termination". Accordingly, the NRC staff did not consider the no-action alternative.

Agencies and Persons Consulted

This EA was prepared by NRC staff and coordinated with the following agencies: State of Michigan Department of Environment, Great Lakes, and Energy, Michigan State Office of Historical Preservation, Michigan U.S. Fish and Wildlife Service, and the U.S. Fish and Wildlife Service.

NRC staff provided a draft of its Environmental Assessment to Michigan Department of Environment, Great Lakes, and Energy for review.

On June 9, 2021 the Michigan Department of Environment, Great Lakes, and Energy responded by letter and stated that it had no comments

Conclusion

The NRC staff determined that the proposed action complies with the requirements of 10 CFR Part 20. Decommissioning of the site to the proposed DCGLs will result in reduced residual contamination levels in the facility, enabling release of the facility for unrestricted use and facilitate termination of the radioactive materials license. No significant radiologically contaminated effluents are expected during the decommissioning. Occupational doses to decommissioning workers are expected to be low and well within the limits of 10 CFR Part 20. No radiation exposure to any member of the public is expected, and public exposure will therefore also be less than the applicable public exposure limits of 10 CFR Part 20.

NRC has prepared this EA in support of the proposed license amendment to incorporate appropriate and acceptable DCGLs and to use the DCGLs for the decommissioning by the licensee and its subcontractor at the Dow-Auburn facility. On the basis of the EA, NRC staff has concluded that the environmental impacts from the proposed action are expected to be insignificant and has determined there is no need to prepare an environmental impact statement for the proposed action.

List of Preparers

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References

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

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

NRC “Rules Of General Applicability To Domestic Licensing Of Byproduct Material,” 10 CFR Part 30

NUREG-1757, Vol. 1, Rev. 2, “Consolidated Decommissioning Guidance: Decommissioning Process for Materials Licensees” (ADAMS Accession No.ML063000243)

NUREG-1757, Vol 3, “Consolidated Decommissioning Guidance: Financial Assurance,

Recordkeeping, and Timelines” (ADAMS Accession No. ML12048A683)

NUREG-1556, Vol 7, Rev. 1 “Consolidated Guidance About Materials Licenses – Program-Specific Guidance About Academic, Research and Development, and Other Licenses of Limited Scope – Including Electron Capture Devices and X-Ray Fluorescence Analyzers” (ADAMS Accession No. ML18065A006)

NUREG-1640, Vol. 1, "Radiological Assessments for Clearance of Materials from Nuclear Facilities" (ADAMS Accession No. ML032250178)

NUREG-1640, Vol. 2, "Radiological Assessments for Clearance of Materials from Nuclear Facilities - Appendices A thru E" (ADAMS Accession No. ADAMS Accession No. ML043090271)

NUREG-1640, Vol. 3a, "Radiological Assessments for Clearance of Materials from Nuclear Facilities - Appendices F and G" (ADAMS Accession No. ML032250625)

NUREG-1640, Vol. 3b, "Radiological Assessments for Clearance of Materials from Nuclear Facilities - Appendix G Results of Copper Scrap" (ADAMS Accession No. ML032250704)

NUREG-1640, Vol. 4, "Radiological Assessments for Clearance of Materials from Nuclear Facilities - Appendices H thru O" (ADAMS Accession No. ML041550973)

NUREG-1575, Rev. 1, "Multi-Agency Radiation Survey and Site Manual" or MARSSIM (ADAMS Accession No. ML082470583)

Reg Guide 8.21 “Health Physics Surveys for Byproduct Material at NRC Licensed Processing and Manufacturing Plants” (ADAMS Accession No. ML19263F099)

Reg Guide 8.25 “Air Sampling in the Workplace” (ADAMS Accession No. ML20035E114)

Decommissioning Notification for Dow Corning dated July 24, 2018 (ADAMS Accession No. ML18228A804)

The Dow Chemical Company / Dow Corning Corporation – Conversation Record and RFAI dated September 7, 2018 (ADAMS Accession No. ML18250A253)

The Dow Corning Corporation Notification to Cease Principal Activities for DC3 Building Under License 21-08362-08 (Mail Control Number 609668) dated September 10, 2018 (ADAMS Accession No. ML18253A233)

Dow Corning Corporation Inspection Report 03004858/2018001 Dated September 26, 2018(ADAMS Accession No. ML18297A029)

Dow Corning Corporation/The Dow Chemical Company re. Decommissioning dated April 22, 2019 (ADAMS Accession No. ML19114A482)

Dow Corning Corporation – Decommissioning Plan Acceptance Review Requests for Additional Information dated August 23, 2019 (ADAMS Accession No. ML19238A276)

Dow Corning Corporation Response to NRC Request for Additional Information concerning Decommissioning – 609668 dated October 24, 2019 (ADAMS Accession No. ML19347B155)

Dow Corning Corporation, Acceptance Review Complete, Initiation of Technical Review of Decommissioning Plan Submitted in Accordance With 10 CFR 30.36(G) Under License No. 21-08362-08 (Mail Control Number 609668) dated December 20, 2019 (ADAMS Accession No. ML19354B860)

Dow Corning Corporation – Conversation Record for Decommissioning Plan dated February 5, 2020 (ADAMS Accession No. ML20041D786)

Dow Corning Co., Licensee Response to NRC Request for Information letter dated April 14, 2020 (ADAMS Accession No. ML20105A239)

Dow Corning Corporation – Conversation Record for Decommissioning Plan dated February 2, 2021 (ADAMS Accession No. ML21035A133)

Dow Corning Corporation – License Response to NRC Request for Information for Decommissioning Plan dated February 15, 2021 (ADAMS Accession No. ML21049A026)

NRC Email – Request for Additional Information for Decommissioning Plan dated February 23, 2021 (ADAMS Accession No. ML21055A023)

Dow Corning Corporation – Licensee Response to NRC Request for Information for Decommissioning Plan dated February 18, 2021 (ADAMS Accession No. ML21082A187)