Topics for Discussion regarding Tennessee Valley Authority's Letter Requesting Regulatory Interpretation of the Applicability of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.10(a)(1) to the Permanent Backfill Underneath the Power Block Foundations

Background

An August 27, 2024, Tennessee Valley Authority (TVA) sent a letter to U.S. Nuclear Regulatory Commission (NRC) with a request for regulatory interpretation of the applicability of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.10(a)(1) to the permanent backfill underneath the power block foundations Agencywide Documents Access and Management System (ADAMS) Accession No. ML24241A269. In the letter TVA defined fill material used to raise the site elevation to the bottom of the power block foundations (foundations of structures adjacent to the deeply embedded reactor building (RB)) as permanent backfill. TVA indicated that the backfill will support cranes and other equipment required for drilling and blasting through competent rock. TVA stated that the backfill itself does not directly perform any of the functions as being construction activities as defined in 10 CFR 50.10(a)(1) because the design of the foundations for the surrounding power block structures utilize caissons to transfer the load to the competent rock.

Topics for discussion

1. Clarification is needed on the discrepancies between the text of the letter and the enclosure figures (ML24241A269). Specifically, TVA's letter refers to permanent backfill, which implies excavation before placing permanent backfill. The figures, however, indicate there is no excavation prior to the placement of fill, which could, alternatively, be considered to be associated with grading of the site (see notes immediately below).

   10 CFR 50.10 (a) (1) states the activities constituting construction (requiring a limited work authorization or an exemption) and 10 CFR 50.10 (a) (2) state activities that do not constitute construction (do not require NRC approval).

   10 CFR 50.10 (a) (1) in part, states that the placement of backfill is an activity that constitutes construction for items (i) through (vii).

   Engineering practice generally describes backfill as the process of refilling excavated areas to provide support and stability to structures. In meeting the requirements of 10 CFR Part 50, the NRC Standard Review Plan 2.5.4 and Regulatory Guide 1.132 contains specific guidance for backfill to ensure the safety and stability of nuclear sites. In addition, as part of the Clinch River ESP, several COL action items include information about backfill requirements to be met by a future applicant.

   10 CFR 50.10 (a) (2) (iii) in part, states that preparation of a site for construction of a facility, including grading, does not constitute construction.

   Engineering practice generally describe grading as reshaping the ground surface to achieve a desire elevation or level, typically to ensure that the site is properly prepared for construction activities, such as ensuring proper drainage and a stable level.

2. NRC needs to understand any implications of the activities identified in the figures shown in TVA's enclosure (ML24241A269) for the geologic mapping of excavations for safety-related engineered structures foundations as stipulated in ESP-006 (ML19352D868) Permit Condition 3.