**DEPARTMENT OF ENERGY, IDAHO OPERATIONS OFFICE NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) DETERMINATION**

**ACTION:**

As required by the Nuclear Energy Innovation Capabilities Act of 2017 (Pub. L. 115–248), the U.S. Department of Energy (DOE) assessed the mission need for a versatile reactor-based fast-neutron source (or Versatile Test Reactor [VTR]) to serve as a national user facility. In December 2020, DOE published a Draft Environmental Impact Statement (DEIS) evaluating the potential environmental impacts of proposed alternatives for the construction and operation of the VTR and associated facilities that are needed for performing post-irradiation evaluation of test articles and managing spent nuclear fuel. DOE is currently reviewing and addressing public comments related to the DEIS.

The DEIS does not contain specific geotechnical data for the candidate site at the Materials and Fuels Complex (MFC) at Idaho National Laboratory (INL). The proposed action conducts geotechnical investigations needed to support preliminary design. The purpose of this investigation is to obtain information and basic data on the nature and suitability of subsurface materials at the preferred alternative MFC location for the VTR. There is an urgent need to complete the geotechnical investigations to avoid potential delays to the construction of VTR at the INL if that alternative were to be chosen in the Record of Decision (ROD). This action requires field work which must be completed in warmer months. The geotechnical data will take months to develop and will feed the preliminary design of the reactor building which is critical path for the project. Typically, the geotechnical work is done during conceptual design, which has already been completed. INL originally scheduled the proposed geotechnical investigations during conceptual design but delayed the investigations due to funding constraints. Delay in the geotechnical investigations could cause a delay of the entire project.

**PROPOSED BY**: INL (via Environmental Compliance Permit INL-21-045)

**SUBMITTED BY:** DOE-ID NEPA Compliance Officer

**DISCUSSION:** Under DOE's NEPA Implementing Procedures at 10 CFR Part 1021.211, no action may be taken concerning a proposal that is the subject of an EIS before issuing a ROD except as provided in the Council on Environmental Quality (CEQ) Regulations. The CEQ Regulations (40 CFR Part 1506.1(a)) state that "until an agency issues a record of decision as provided in Sec. 1505.2 (except as provided in paragraph (c) of this section), no action concerning the proposal shall be taken which would: (1) have an adverse environmental impact; or (2) limit the choice of reasonable alternatives." Actions within the scope of the NEPA process that are taken before a ROD or Finding of No Significant Impact is issued are commonly referred to as "interim actions". Such actions should proceed in accordance with applicable CEQ and DOE published guidance. DOE Policy 451.1 delegates NEPA authority to the Heads of Departmental Elements but also allows for delegation of responsibility for NEPA compliance to Heads of Field Elements. NEPA compliance responsibility for the Idaho National Laboratory has been delegated to the Manager of the Idaho Operations Office. This responsibility and

authority for NEPA compliance at the INL would include determining when interim actions is appropriate.

**WHY THE PROPOSED INTERIM ACTION IS CLEARLY ALLOWABLE:** The proposed interim action would allow the efforts necessary to evaluate geotechnical information needed to support preliminary design of the VTR. The primary components of the action are listed below with justification why they do not prejudice the final decision regarding construction and operation of the VTR or have an adverse impact on the environment.

- The proposed geotechnical investigations include 56 borings with depths ranging from 10 feet to 650 feet. The proposed action uses rotary drilling machines a hydraulic feed to obtain soil samples and rock cores. The project drills and cores each borehole to fit a downhole seismic probe of 4-6 inches in diameter. The proposed activity cases the holes in steel or PVC using a cement and bentonite grouting mixture.

- For some of the borehole sites, the investigations use suspension (S-P) logging and downhole seismic velocity measurement techniques. For S-P logging, the project will cap the casing at the bottom-hole depth then fill it with water or drilling mud to ensure effective transmission of seismic signals. Downhole measurements use a surface seismic source (sledgehammer and vibroseis truck) while the receivers are lowered to varying depths.

- The proposed action uses a backhoe to excavate 15 test pits, eight of which are about 4 feet deep for thermal resistivity/conductivity testing. The remaining seven pits are for bulk sampling and will be about 14 feet deep. The project will place excavated material close to the excavation sites for later use to backfill the pits following completion of testing.

- The project proposes to perform three electrical resistivity tests at depths ranging from 3-150 feet along with thermal resistivity testing in conjunction with the test pits at depths of 2-4 feet.

- The proposed action performs Spectral Analysis of Surface Waves (SASW). This analysis involves laying up to 1,312 feet of cable on top of the ground to allow for a maximum profile depth of 650 feet. The process places up to six standard 1-Hz vertical seismometers along the cable to acquire SASW data by placing the seismometers in shallow holes (<1' deep and <1' diameter) excavated with a shovel or hand auger.

- The proposed activities will use existing roads where possible. The project uses a pickup truck or ATV to lay down and retrieve cable along each designated line. Each line with all receiver configurations and source locations will be surveyed one at a time.

- Some of the proposed locations may require new two-track roads and a turn-around point for the trucks.

- The proposed action requires several temporary structures, including a trailer with generator and portable restrooms and a water tank, in addition to a seismic station.

Performing these activities before the ROD for the construction and operation of the VTR is approved would not, in itself, cause adverse environmental impacts or limit the choice of reasonable alternatives in the VTR EIS.

The primary components of the interim action (listed above) consist of activities that would normally be categorically excluded under DOE NEPA regulations found in Appendix A or B to Subpart D of part 1021—Categorical Exclusions Applicable to Specific Agency Actions. There are no extraordinary circumstances related to the actions that may affect the significance of its environmental effects. After the geotechnical investigations, INL will restore the area to near its original condition, or DOE will construct the VTR on the site, in which case the VTR EIS will evaluate the environmental impacts. Therefore, these actions would not have an adverse impact on the environment. The proposed actions are necessary only to minimize substantial delay in project execution.

The interim action would not limit the choice of reasonable alternatives as stated in the DEIS. The data from the geotechnical investigations is not expected to be available until late 2021 or early 2022 and will not inform the ROD which is expected earlier in 2021. This action will inform the preliminary design of the VTR; it will not complete final design. Geotechnical investigations at the alternative VTR site at Oak Ridge National Laboratory are not limited by cold weather constraints or needed at this stage of design due to geotechnical information maturity resulting from previous siting studies.

**DETERMINATION:** Based on the discussion above, the INL contractor may immediately proceed in performing geotechnical investigations as allowable interim actions under NEPA. These actions do not commit DOE to a single course of action, limit the choice of reasonable alternatives or prejudice the decision to be made in the VTR EIS. The activities permitted as a result of this determination will not cause adverse environmental impacts.

Approval: _____ Date: 5/25/2021

Robert Boston, Manager
Idaho Operations Office