A permitting study was initiated to identify the lead agency or jurisdiction controlling permit issuance, requirements for obtaining these permits and establishing points of contact. During S-2, the project team will continue this process.

**Access.** The portal and surface campus are located on property owned by the Chemical Lime Co. (CLC). The underground campus and access tunnels will be located on land that is part of the Jefferson National Forest and owned by the U.S. Forest Service. This land is designated multi-use and is presently used for timber production. The Forest Service maintains a fire tower and public hiking trails on the top of Butt Mountain but all facilities are primitive. The towers are designated as Historic Landmarks with VA Department of Historic Preservation. We have engaged the New River Valley Ranger District in permit discussions and successfully obtained permits from them for the geophysical imaging. We will require an additional permit during S-2 for drilling and other characterization site work.

**Construction.** Giles County has jurisdiction over construction permitting. They are enthusiastic about this project and have stated that they look forward to working with the project team to minimize any delays in permitting.

**NEPA Process.** While not specifically a permit, successful completion and review of the National Environmental Policy Act (NEPA) process is required for federally funded projects before many agencies will issue permits. The NEPA checklist analysis was completed to provide a preliminary evaluation of the likely impacts to the human and ecological environment from DUSEL development. During S-2 the formal NEPA process will begin that identifies potentially significant impacts, addresses mitigation measures, solicits public comment, and determines if impacts are significant enough to require a full Environmental Impact Statement (EIS) be prepared.

**Soil Erosion and Sediment Control.** Soil Erosion and Sediment Control plans are required of land disturbing activities. These plans provide engineered measures to prevent sediment from leaving a construction site, either due to water or air transport. Formal approval of the plan by the local Soil Erosion and Sediment Control District is necessary prior to issuance of a construction permit.

**Air Quality.** Air quality permits may be required for fugitive air discharges during construction and for normal ventilation discharges during operation. This process will include an assessment of the quantities of fugitive dust emissions that will potentially be generated as well as plans and procedures for both reducing (controlling) and monitoring dust emissions. The specific requirements for air quality permit will be discussed in detail with US Environmental Protection Agency Region III (USEPA) and the Virginia Department of Environmental Quality (VADEQ).

**Water Quality** (*discharge permits and certifications*). Sections 404 and 401 of the Clean Water Act regulates discharges of ‘dredged material’ into navigable waters of the US and allows for
protection of wetland from degradation due to discharges. These permits may be necessary during construction for potential discharge into Little Stony Creek. The US Army Corps of Engineers and the VADEQ have jurisdiction over these permits and they can involve requirements for public notices and comment from other agencies.

Section 402 of the Clean Water Act created the National Pollutant Discharge Elimination System (NPDES) to limit discharges into streams, rivers, and bays. In Virginia, VADEQ administers the program as the Virginia Pollutant Discharge Elimination System (VPDES). VPDES permits are required for point source discharges and some non-point discharges (stormwater) to surface waters. Stormwater discharge VPDES permits for construction-related activities will be required where disturbances of more than one acre. The US Environmental Protection Agency has authority for review of applications and permits for ‘major’ discharges, based on discharge quantity and composition. It is unlikely that operations at Kimballton DUSEL will constitute a ‘major’ discharge.

**Rock Disposal.** The rock material excavated from the Kimballton site will be either limestone, dolomite or shale. Options for disposal of this material include: 1) re-utilization, 2) stockpiling in vacant quarries located nearby, and 3) stockpiling underground. In addition to the state highway serving the Kimballton mine, an existing and active railroad siding exists near the portal that gives an added means with which to transport excavated material. S-2 studies will provide an opportunity to address these alternatives and explore other options.

1. Reutilization. This option is potentially exciting as it employs ‘green engineering’ ideals and aspects of it are potential research projects. The limestone and dolomite materials are of high strength and are unweathered. Based on the project team’s geotechnical engineering experience, the materials are expected to meet the durability requirements of the Virginia Department of Transportation for abrasion loss and soundness (AASHTO T103/104, T96). Therefore the material can likely be used in highway projects and other non-highway construction.

   One attractive option for reutilization is the proposed major expansion of the Interstate 81 corridor from the Maryland-Virginia border to the Virginia-Tennessee border now being considered by the Virginia General Assembly. The project seeks to mitigate the severe safety problems that currently exist. Construction is anticipated to extend into the year 2018, which encompasses the development period of Kimballton DUSEL.

   If this material is sold, a Mining Permit may be required from the Virginia Department of Mining and Mineral Resources. In addition, non-competition concerns will need to be addressed among the regional highway material suppliers.

   Shale materials are typically not used in highway projects but could be used for backfill in non-critical applications or stockpiled. Based on available geologic and mineralogic information the majority of the shale does not contain significant amounts of pyrite or mineralization. The absence of mineralization will be confirmed by periodic rock testing and monitoring using standard methods (i.e., acid base accounting analysis). If mineralization is
found in the tested material, the material will be disposed of using best management practices to avoid the potential for environmental impacts.

2. Several open, unused quarries exist in close proximity to the portal site may have sufficient capacity to store the spoil generated from this project. Depending on the actual distance it might be possible to transport the material using trucks, conveyor, or a combination of conveyor/rail. According to VADEQ, the disposal of rock materials and soil is given a conditional exemption from the solid waste rules under section 20-8060-E7 of the regulations. Discussions with VADEQ will continue during S-2 regarding the requirements for stormwater runoff control.

3. The third option is to store excavated materials in unused mine excavations underground. Under these conditions, permitting requirements for underground storage of excavated rock materials would be evaluated on a case-by-case basis.