



Oak Ridge Site Specific Advisory Board Recommendation 255: Recommendations on Groundwater Remedy Selections in the Main Plant and K-31/K-33 Areas at the East Tennessee Technology Park at the U.S. Department of Energy Oak Ridge

Reservation, Oak Ridge, Tennessee

Background

As a result of past research and industrial activities on the Oak Ridge Reservation (ORR), groundwater beneath several areas of the reservation has become contaminated. Groundwater investigations have been done on and adjacent to the ORR since the 1980s. The Department of Energy's Oak Ridge Office of Environmental Management (OREM), in partnership with regulators at the U.S. Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC), used findings from groundwater research, sampling, and analysis over the decades to develop a groundwater strategy document (DOE/OR/01-2628). Several strategy objectives were identified to guide the path forward for groundwater remediation on the ORR and these strategies were integrated into the Federal Facility Agreement (FFA), which sets milestones for cleanup actions on the ORR.

Early actions were taken in the 1990s for off-site contamination and high-risk/high-priority releases. In the 2000s, Watershed Interim Records of Decision (RODs) were signed to address contaminant sources and building demolition projects.

In 2020, OREM completed removal of all contaminated and unneeded buildings at East Tennessee Technology Park (ETTP) as part of the Vision 2020 project, with soil remedial actions slated for completion within the following year. Now, the site will be the focus of the first large-scale decisions on groundwater for the Oak Ridge Reservation (ORR).

ETTP is divided into three sections for groundwater remediation planning. One section is the Main Plant Area, which encompasses most of the operations area at the former enrichment complex. Another section is the area where the large K-31 and K-33 uranium enrichment buildings once stood. The third section is called Zone 1, which is the area immediately surrounding the Main Plant and K-31 and K-33 areas.

Discussion

The Proposed Plan for an Interim ROD for Groundwater in the Main Plant Area at ETTP (DOE/OR/01-2921&D2/R1) was released for public input in January 2023. The scope covered by the Proposed Plan includes six areas of groundwater contamination (i.e., groundwater plumes) within the Main Plant Area. These areas are located below the water table in the unconsolidated weathered soil/rock and bedrock zones.

The Proposed Plan for the Record of Decision for Groundwater in the K-31/K-33 Area (DOE/OR/01-2922&D2) was released for public input in March 2023.

The proposed plans describe the alternatives analyzed, identify the preferred alternative for each respective area, and explain the rationale for each preferred alternative.

DOE accepted public comments on both proposed plans, with comments accepted on the Main Plant Area

plan from April 5, 2023, through May 19, 2023, and on the K-31/K-33 Area plan from April 26, 2023, through June 12, 2023.

The Oak Ridge Site Specific Advisory Board (ORSSAB) has been interested in the status of groundwater on and around the ORR for several years, and during that time OREM and contractor experts have provided several presentations on groundwater conditions. Most recently, Regulatory Affairs Specialist and FFA Projects Manager Roger Petrie presented board members with information on groundwater at ETTP on May 10, 2023, and June 14, 2023, with the presentations covering the Main Plant Area proposed plan and the K-31/K-33 Area proposed plan, respectively.

ORSSAB members also toured groundwater sites at ETTP on June 6, 2023, and the EM & Stewardship Committee had detailed discussions on May 24, 2023, and June 28, 2023.

Recommendations

Main Plant Area

Based on previous positive outcomes using enhanced in-situ bioremediation and its relatively low cost, ORSSAB supports its selection as the preferred alternative as detailed in the “Proposed Plan for an Interim Record of Decision for Groundwater in the Main Plant Area at the East Tennessee Technology Park, Oak Ridge, Tennessee” – dated January 2023. However, our concerns remain about the predictive positive outcomes being complicated by the uniquely complex hydrogeology in the area combined with additional contaminants of concern within the six targeted TCE plumes. Therefore, ORSSAB recommends the following after the first significant injection:

1. In addition to monitoring the six treated plumes, monitor downgradient and around those plumes to determine if the contaminants have migrated.
2. Monitor the microorganisms to evaluate continued viability.
3. Report the results of monitoring and evaluation to ORSSAB once this information is available.

K-31/K-33 Area

Based on information presented showing that the forces of nature appear to be lowering concentrations of contaminants in the K31/K33 area to acceptable levels, ORSSAB supports the selected alternative of monitored natural attenuation along with land use controls in this area.