



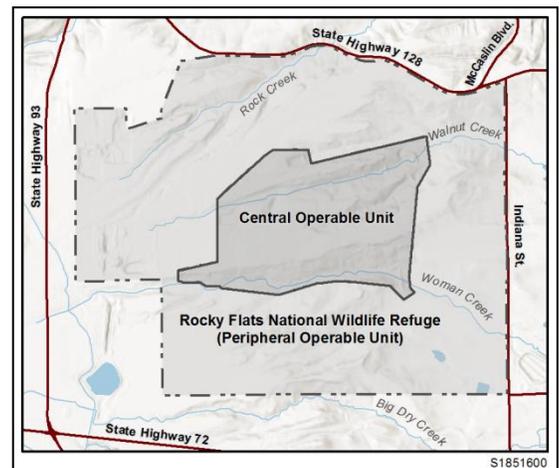
COLORADO
Department of Public
Health & Environment



**U.S. DEPARTMENT OF
ENERGY**

KEY POINTS

- Rocky Flats was cleaned up and closed in accordance with state and federal environmental laws, regulations, and guidance.
- The Refuge (Peripheral Operable Unit) was deleted from the CERCLA National Priorities List in 2007. Environmental data demonstrates that the Refuge is suitable for unlimited use and unrestricted exposure. That means even homes could be built here.
- Post-closure environmental data show the remedy is working; the Five-Year Reviews (a periodic check of data and site conditions) conclude the remedy is protective of human health and the environment.
- DOE continues to monitor the Central Operable Unit (COU) and maintain the remedy.
- EPA and CDPHE continue to provide oversight in accordance with agency authority, environmental law, regulations, and guidance.
- The Rocky Flats Stewardship Council provides a public forum for sharing information with local governments, stakeholders, and residents. Public meetings are held about five times a year. Meetings provide opportunities for public comment.
- Scientifically-defensible studies of physician-reported cancers show no pattern of increased cancer incidence in communities around Rocky Flats.



CLEANUP DATA AND FACTS

- EPA, CDPHE, and DOE in the 2006 Corrective Action Decision/Record of Decision (CAD/ROD) determined that the portion of the Rocky Flats property comprising the Refuge was already in a state that is protective of human health and the environment, and suitable for unlimited use and unrestricted exposure.
- The Radionuclide Soil Action Level (RSAL) developed under the Rocky Flats Cleanup Agreement (RFCA) for plutonium was 50 picocuries (trillionth of a Curie) per gram of soil and is protective of both wildlife refuge workers and visitors.
- Residual plutonium concentrations in surface soil in the Refuge average about 1.1 picocuries/gram, which is approximately 2% of the RSAL for plutonium. These concentrations are protective of human health for any exposure scenario.
- The wildlife refuge visitor scenario used for risk calculations includes both a child and an adult who visit Rocky Flats federal property 100 days a year for 2.5 hours per day. The dose estimate for plutonium for the wildlife refuge visitor child is 0.2 mrem per year, which is a very small fraction of the average annual dose to U.S. public from all sources of 620 mrem/year.

- The Colorado Standards for Protection Against Radiation set the maximum annual dose for an individual at 25 mrem above background per year.
- The vast majority of the Rocky Flats federal property is suitable for any use including residential. The main reason the COU is not part of the Refuge and not open to the public is to protect the ongoing actions (e.g., landfill covers, treatment systems) from human interference. Any access restrictions imposed by the federal agencies are not due to human health risk in either the COU or the Refuge.
- The public, including local governments, was extensively involved in the selection of the end use of the property as a wildlife refuge with public access. During the cleanup and post-cleanup periods, public involvement included public comment, working groups, oversight panels, a Citizens Advisory Board, and a Council of Local Governments/Rocky Flats Stewardship Council. Public use of the refuge was envisioned, thoroughly analyzed, and shared with the public and the local governments in numerous decision documents and mandated by the Refuge Act passed by the U.S. Congress in 2001.
- The Remedial Investigation/Feasibility Study (RI/FS) for Rocky Flats (2006) consists of 23 volumes of environmental data and analysis. The database of sample results used to prepare the RI/FS and Comprehensive Risk Assessment contained approximately 6.9 million data records for all media (soil, groundwater, surface water, air).
- During Rocky Flats closure, 7,200 onsite surface soil locations were sampled for numerous analytes such as radionuclides, metals, volatile organic compounds, PCBs, and other constituents. The evaluation used more than 220,000 results to determine the nature and extent of surface-soil contamination. Figure 1 maps and summarizes plutonium-239/240 sampling results for onsite locations.
- Of the more than 200 offsite locations sampled for plutonium, most had concentrations within the range of background. The final regulatory decision for offsite areas (Operable Unit 3) was that no cleanup action was necessary to protect human health or the environment because plutonium contaminant levels were so low.
- Extensive air monitoring was conducted at and around the Rocky Flats federal property for decades by DOE, the State, and EPA. Air monitoring is no longer conducted. The air monitoring data collected during site operations (prior to contaminant source removal) and during active remediation show dose rates well below acceptable limits (Figure 2). The contaminant sources that previously existed, such as certain building areas and the contaminated soils of the 903 Pad, were removed during Rocky Flats closure. Therefore, with these sources no longer present, future dose rates from airborne contaminants would be even lower.
- A panel of national experts issued an Actinide Migration Evaluation, which determined that air and surface water are the main transport pathways for radionuclides. However, as explained above, the air pathway no longer poses a risk. Therefore, the remedy specifically requires ongoing groundwater and surface water monitoring (Figure 3). The continuing surface water monitoring provides a direct measurement of soil contamination being transported in water. Therefore, measured changes in concentrations of contaminants in surface water are an indicator of changes in the environment that have affected these transport pathways. Surface water monitoring since closure demonstrates the remedy selected by the CAD/ROD is protective of human health and the environment. The surface water standard for plutonium in water leaving the Site is 100 times more stringent than the federal drinking water standard for radionuclides like plutonium.

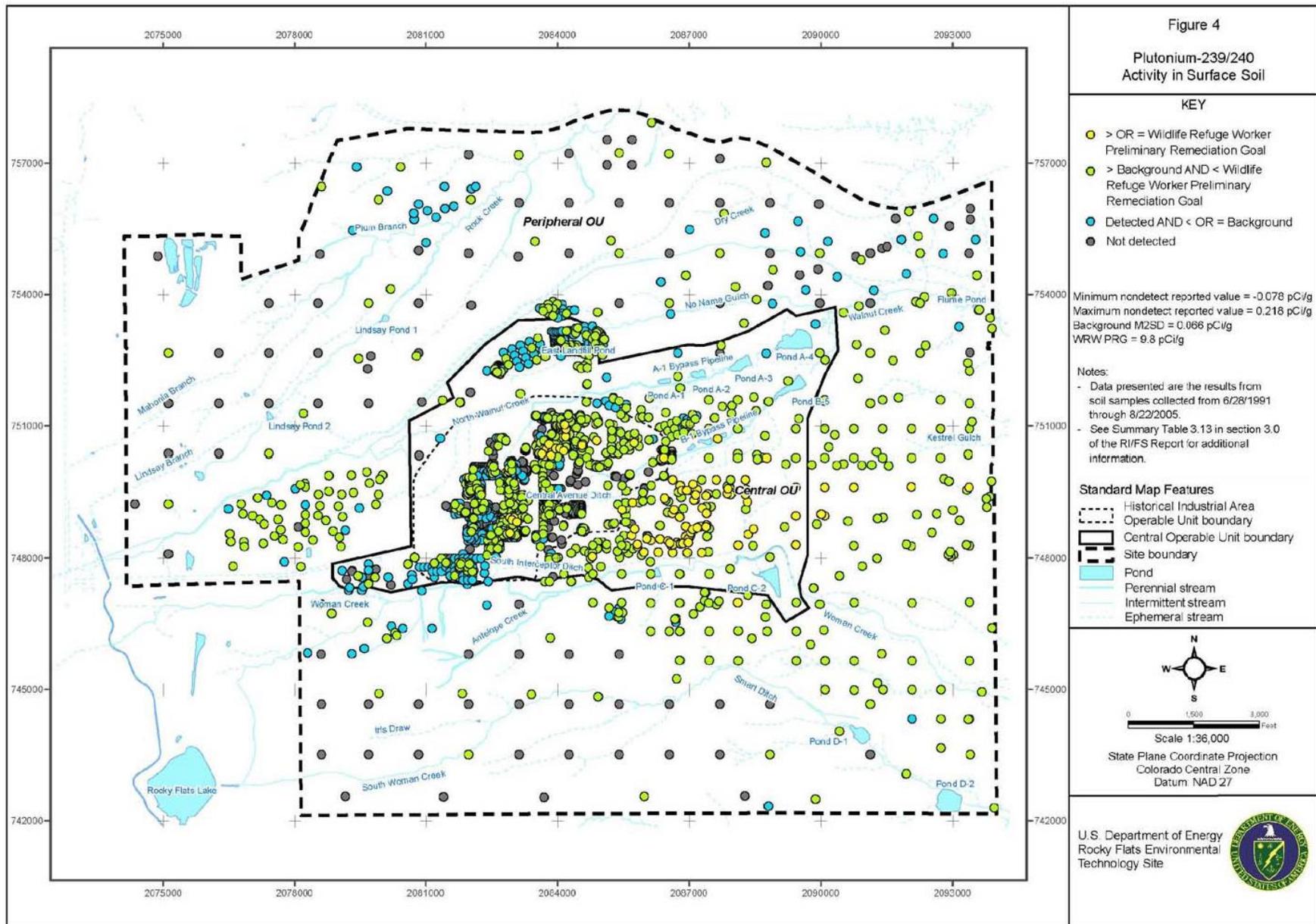


Figure 1 Plutonium-239/240 Activity in Surface Soil (reproduced from the Rocky Flats Environmental Technology Site Proposed Plan)

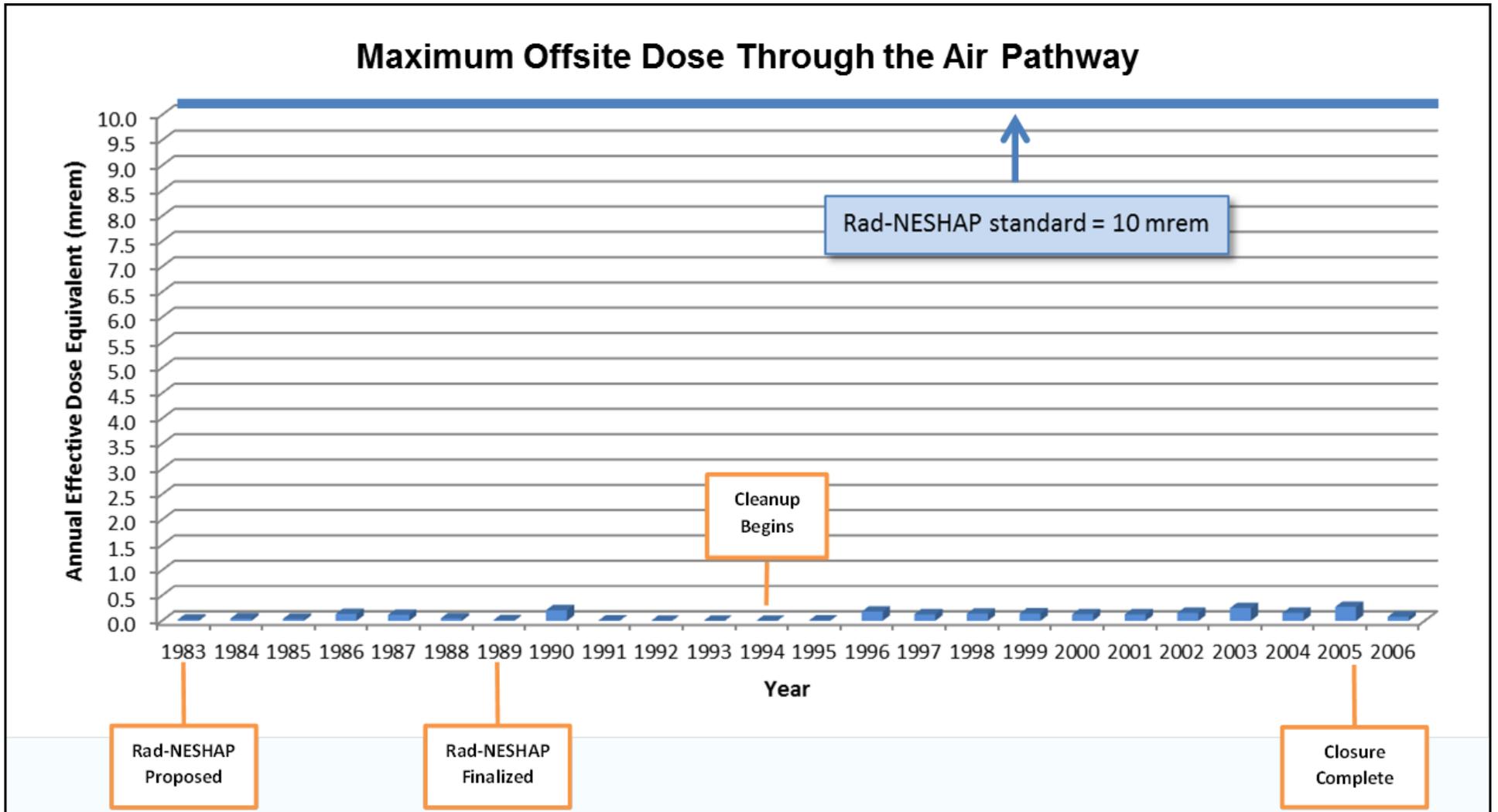


Figure 2. Annual Air Monitoring Results: Effective Dose Equivalent for Calendar Years 1983 through 2006

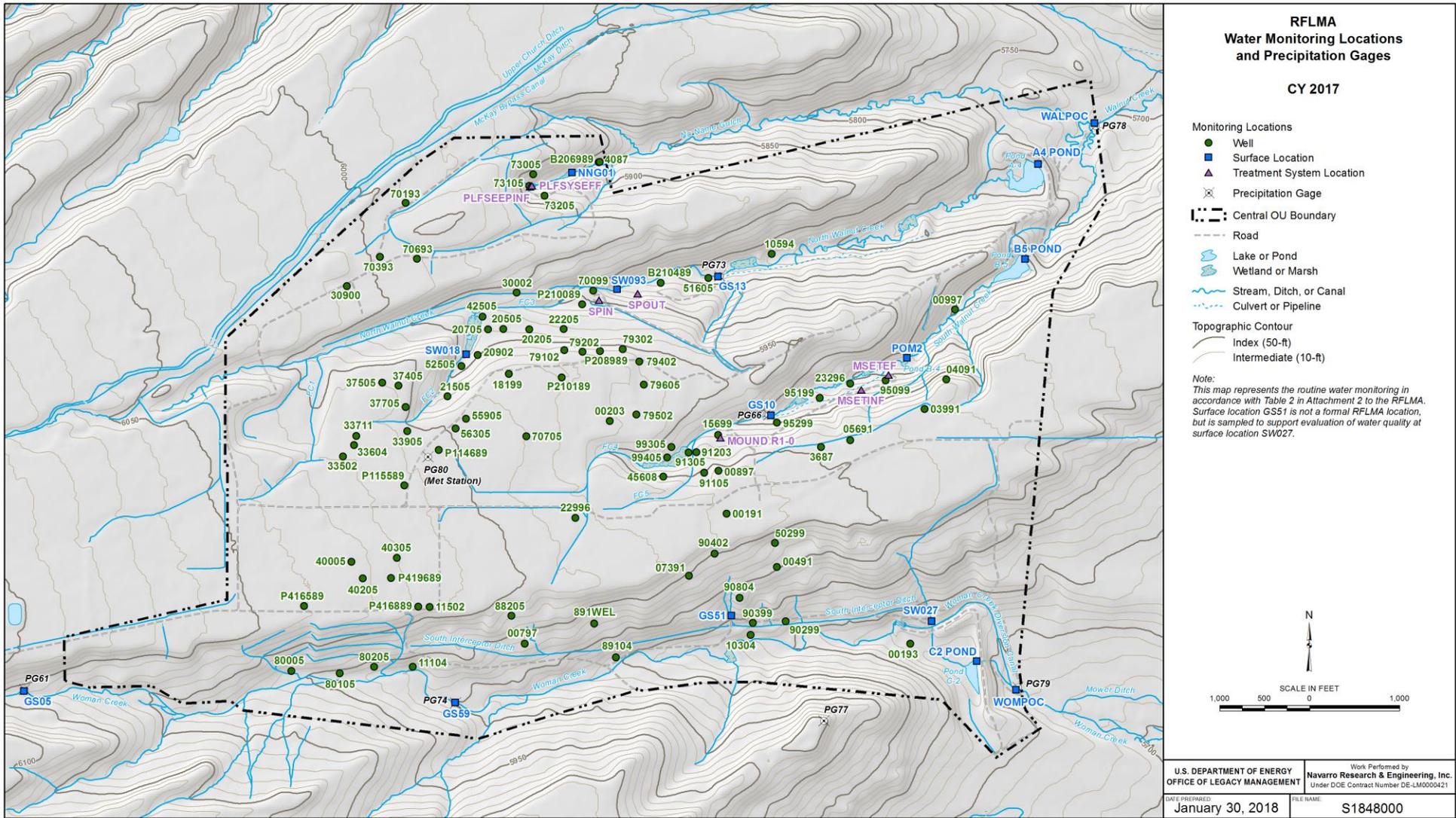


Figure 3. RFLMA Water Monitoring Locations