

ENERGY MINERALS

Oil, gas and minerals

The Arapaho and Roosevelt National Forests and Pawnee National Grassland (ARP) have a long history of hard rock mining and mineral exploration. Oil and gas production and exploration continues to grow on the Pawnee National Grassland (PNG). Planning activities continue for both oil and gas production and exploration, as well as other minerals, across the Forest and addressing abandoned mines.



Tailings of the abandoned Tip Top Mine in Gilpin County. The site is being assessed for potential watershed impacts.

► The **Abandoned Mine Lands (AML)** program coordinated discovery of unknown mine adits and shafts on Boulder Ranger District (BRD), in part, through coordination with the Recreation and Wildlife programs. By training and funding field crews from other program areas to recognize and report mine safety hazards they discover, the AML program is better able to leverage its resources for project development. After ownership of safety hazards is determined, working with the **Colorado Division of Reclamation, Mining and Safety (CDRMS)**, sites are prioritized for closure.

► The ARP continues to gather data in an effort to better understand if the **Perigo** and **Tip Top** mines are affecting the **Gamble Gulch** watershed on BRD, and how best to address potential impacts from the sites. In May, the Forest partnered with the **Environmental Protection Agency (EPA)**, **U.S. Fish and Wildlife Service (USFWS)**, **Colorado Department of Public Health and Environment (CDPHE)** and **CDRMS** to sample surface water during high flows. CDRMS also conducted drilling in an effort to better understand the subsurface mine workings. The forest is currently in a phase of data collection to help determine if there is a need for remediation.

► The ARP coordinated a multiagency partnership for data collection focused on historical mining within the **Leavenworth Creek** watershed on Clear Creek Ranger District (CCRD). The ARP partnered with **U.S. Geological Service (USGS)** and **CDRMS** to identify the surface-to-groundwater interactions throughout the watershed. In partnership with **CDRMS, USGS, EPA, USFWS, CDPHE**, a data summary report for all research within the watershed was compiled to determine data gaps.

► The ARP also partnered with **Trout Unlimited** to reclaim the **Doctor Mine** on CCRD to reduce elevated metals from eroding into the West Fork of Clear Creek. Soil amendments were incorporated in all impacted areas followed by seeding and woodstraw mulch to establish vegetation. Surface and groundwater diversions were installed to reduce further leaching through contaminated areas.

► Pawnee National Grassland authorized reconstruction of a **two-track road to improve access** to a previously drilled oil and gas well. Also authorized was construction of approximately 0.6 miles of 4-inch flexible plastic pipeline to transport natural gas produced by this same well to market. Six oil and gas wells were **plugged and abandoned** on PNG. Final reclamation of the surface disturbance will continue through multiple growing seasons.

ENERGY MINERALS 2013 FACTS

- Accepted **25 mining plans** of operations and mining notices of intent.
- Approved **18 mining plans** and completed **18 inspections** across the ARP in the Minerals Program.
- Authorized **7 oil and gas wells** on the PNG and 3 of those were drilled.
- Inspected **87 oil and gas facilities** on PNG.



Oil and Gas development on Pawnee National Grassland.