

## 2009 Major Reclamation Award

# Alfred Burke

Cenovus Energy Inc.



Alfred Burke accepted the ACR's Major Reclamation Award on behalf of Cenovus which operates oil and gas wells within a public grazing near Brooks, Alberta called Antelope Creek Ranch. The area is managed by Alberta Sustainable Resource Development and accommodates wildlife, waterfowl, cattle grazing and oil and gas production. "It was great working with the landowner," Alfred said. "Alberta Sustainable Resource Development was key in letting us proceed with our work and understanding the different parts of the puzzle we had to put together. Stakeholder engagement is a large part of what we do."

While conducting remediation and native prairie reclamation, Cenovus found an issue with historical use of sterilants applied to control vegetation on older oil and gas leases. Sterilants, including tebuthiuron, are industrial herbicides designed to control vegetation. They remain in soil for many years following application and have been identified as an issue for remediation and reclamation since the 1980s in Alberta.

"A lot of what I do is clean-up and decommissioning of older infrastructure," Alfred said. "So we become forensic scientists in a lot of ways. Environmental forensics becomes part of what we do: looking back at history, trying to understand what happened and what we can do today to bring the land back to equivalent capability."

Although certain sterilants became controlled substances federally in the 1970s, there were no provincial guidelines until development of *Alberta Tier 1 Soil and Groundwater Remediation Guidelines* in 2007. However, the clean-up criteria did not address instances where tebuthiuron was in direct contact with plant roots. Since vegetation and soil quality are keys to reclamation success, knowing the concentrations that affect native plant species is critical.

To overcome this problem, Cenovus developed standards that protect native plant species. Cenovus contracted EBA Engineering along with Stantec Consulting Ltd. to determine concentrations of tebuthiuron that would be safe for four plant species and two soil invertebrates. To more accurately assess tebuthiuron concentrations in the soil, a new laboratory method provided by ACCESS Analytical Laboratories Inc. was used to detect lower concentration levels.

If tebuthiuron at an oil and gas lease exceeded the acceptable limit, Cenovus cleaned the site using a soil technology that uses heat to separate the sterilant from the soil, called thermal desorption. This application of thermal treatment technology from Nelson Environmental had never before been attempted in Alberta. About 15,000 tonnes of soil were treated and used as backfill on site. This meant the contaminated soil did not have to be landfilled and soil from other locations, which may have contained weed species, did not have to be brought to the lease.

“The wealth of our future depends a lot on the successes and innovations we can put in place now,” Alfred said. “So it’s very important that we continue to look at these kinds of problems.”