

Lateral Thinking on Minesite Rehabilitation in Australia. D.J. Williams

Abstract: The Australian mining industry has disturbed less than 0.03 % of the land mass in 200 years, compared with 65 % used for agricultural activity (mostly for sparse grazing). About 0.1 % of Australia's land is cleared every year, removing native habitat. The rehabilitation of mined land conventionally involves smoothing of the disturbed land, followed by revegetation. The end land use is typically designated as cattle grazing, even though this is unsustainable in the more arid climates. Open-cut mining results in an elevated land form. Smoothing generates a mounded final land form of enlarged area, which tends to direct increased rainfall runoff, erosion products, and any contamination offsite. An alternative strategy is to minimise the area of disturbance and to contain any potential offsite impacts within the mined area. This can be achieved with far less earthworks than is required for smoothing, and reduces offsite impacts. A dished plateau land form allows grazing, while retaining steeper slopes is compatible with native habitat re-construction, reflecting the sharp relief which often dominates in nature. These alternative strategies are being trialed at a number of operating Australian mines.

Additional Key Words: cattle grazing, erosion, rainfall runoff.

Reclamation of the Wahsatch Gathering System Pipeline in southwestern Wyoming and northeastern Utah. D. Strickland, G. Dern, G. Johnson and W. Erickson.

Abstract: The Union Pacific Resources Company (UPRC) constructed a 40.4 mile pipeline in 1993 in Summit and Rich Counties, Utah and Uinta County, Wyoming. The pipeline collects and delivers natural gas from six existing wells to the Whitney Canyon Processing Plant north of Evanston, Wyoming. We describe reclamation of the pipeline, the cooperation received from landowners along the right-of-way, and mitigation measures implemented by UPRC to minimize impacts to wildlife. The reclamation procedure combines a 2 step topsoil separation, mulching with natural vegetation, native seed mixes, and measures designed to reduce the visual impacts of the pipeline. Topsoil is separated into the top 4 inches of soil material mixed with ground up vegetation and the remaining 8 inches of soil material, when present. The resulting top dressing is rich in native seed and rhizomes allowing a reduced seeding rate. The borders of the right-of-way are mowed in a curvilinear pattern to reduce the straight line effect of the pipeline. Monitoring of reclamation success illustrates the effects of landowner cooperation on revegetation. Specifically, following 2 years of monitoring, significant differences in plant cover ($0.01 < P < 0.05$) exist among regions of the pipeline. Observations suggest that revegetation may be heavily influenced by grazing management by individual landowners. Observations also suggest that growth of sagebrush plants from seed germination is exceeding growth from sagebrush plants planted as tublings.

Additional Key Words: erosion potential, grazing, stratified sampling.