POSTMINING WATER RESOURCE DEVELOPMENT DAVE JOHNSTON MINE[1]

Chet Skilbred[2]

Abstract. The Surface Mining Control and Reclamation Act (SMCRA, Public Law 95-87) established national environmental performance standards for surface mining and reclamation. These standards require operators as a minimum to "restore disturbed land to an original or better condition." Implementation of these standards was through a nationwide permit program (commonly administered by State regulatory programs). These Federal/State programs required operators to submit comprehensive mining and reclamation plans that provide detail necessary to demonstrate the operations ability to meet the performance standards during and after mining and the capacity of reclaimed lands to support a variety of land uses.

On Western surface mines wildlife habitat is often considered a joint land usage along with livestock grazing and while the reestablishment of diverse native plant communities on these lands does benefit wildlife, maximum benefit from these reconstructed ecosystems can be achieved by providing adequate postmining wildlife water facilities.

The following narrative and figures characterize the development of one of these postmining water resources at the Dave Johnston Coal Mine (Mine). The Mine is located in east central Wyoming on the southern edge of the Powder River Basin coal field. Mine topography is characterized by low, rolling hills and buttes capped with sandstone. Elevations on the Mine range from 5,400 to 5,800 feet.

Soils on the Mine are deep to moderately deep; textures range from sandy to sandy loam. However, finer soil textures are common within drainage area alluvial deposits.

The Mine lies within a semiarid climatic zone and is characterized by cold, dry winters and hot summers. Annual precipitation is 11.54 inches; temperatures range from -30.0 to 96.0 degrees Fahrenheit. Winds blow constantly; the average annual velocity is 14.7 miles per hour.

---

[1]Paper was presented at the at the 2003 National Meeting of the American Society of Mining and Reclamation and the 9th Billings Land Reclamation Symposium, Billings, MT, June 3-6, 2003. Published by ASMR, 3134 Montavesta Rd., Lexington, KY 40502.

[2]Chet Skilbred, Glenrock Coal Company, Glenrock, WY 82637.

Vegetation on the Mine is comprised primarily of big sagebrush *(Artemisia tridentata)* and rangeland grasses and forbs characteristic of the Great Plains flora associated with a short grass prairie. Visually, big sagebrush dominates the Mine site's vegetation.

Baseline hydrology data indicates that there are no surface springs/wetlands within the 13,588 acre permit area. Overburden drilling data indicate that the coal seams contain no water. Similarly these data depict that the strata above, between and immediately below these coal seams (from the surface to 200 plus feet deep) also display minimal subsurface water. Mine facilities water is obtained from two wells more than 1,000 feet deep.

Consequently, because of this apparent lack of developmental subsurface water the reclamation plan does not depict the restoration of any postmining surface water facilities. Therefore, postmining wildlife usage and diversity has been developed through selective placement of rock piles, artificial nest platforms and tree plantings.

However, with the closure of the Mine (November 1999) and subsequent regrading of existing highwalls, small weeps (areas that depict a diffused ground water discharge) have been identified. These weeps located at or near the top of these highwalls, while displaying no standing water or flow, have provided an opportunity for the Mine to develop a postmining wildlife water resources.