

Underground Pipelines Change Badlands Grazing Patterns

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Go "deep" or go "shallow," but going with the pipeline water is changing Badlands grazing for the better . . . better quality water that's easier for livestock to get to, better distribution of the cattle and less overgrazing which allows better pasture management and results in heavier calves with less health problems.

Ranchers in both the McKenzie County Grazing Association and the Medora Grazing Association agree on the benefits of plenty of high quality, accessible water even though they solved their water problems in slightly different ways.

"Deep" can refer to the depth of the line, which in the Dickinson area often is 6 feet so that ranchers can use the water year-around. Or, it may refer to the depth of artesian wells such as the 1,600-foot well on the Maurice O'Connell operation near Dickinson.

"Shallow" may mean the 2-foot depth of pipe in the McKenzie county system, which provides water only during the grazing season. Or, it may refer to the relatively shallow 300-foot well that supplies water to the McKenzie county group. That system must be drained in the fall before freeze-up and recharged in the spring before the grazing season opens, but most of the maintenance can be handled with hand tools and breaks in the line are easy to see.

Shallow could also mean the dugouts and dams both groups of ranchers formerly depended on for a water supply. Throughout the Badlands, dugouts and dams provide a dubious source of water since runoff from clay buttes can silt-in even the best built dugouts in a relatively short time. Dry weather puts additional stress on an already hard-put water supply that means a real battle for a cow to get a drink. Calves, after a few tries, often "make-do" with their mother's milk supply.

Shallow tanks—either fiberglass or wood—are now helping improve grazing patterns in the Badlands by spreading cattle out in smaller groups

and away from the traditionally heavily grazed draws near dugouts. Dependable sources of high quality water, coupled with fencing and other management techniques, have resulted in calves as much as 50 pounds heavier at weaning time than previously. And the number of pounds sold is the name of the game, points out O'Connell. He also points out that without cost-sharing on his 23.5 mile system—as well as others—that the area wouldn't have such systems for a long time.

North Dakota State University, through its Experiment Station and Extension Service, the Soil Conservation Service, the U. S. Forest Service and other agriculturally-related service agencies have been talking management for years. Most ranchers are willing to make the few changes necessary to improve vegetative as well as herd management. It's just a matter of getting down on paper what has been carried around in people's heads for years, points out Darrol Harrison, forest ranger of the Medora District. The Forest Service is "putting it down on paper" through its management plans. Or, as C. W. "Swede" Adams, director of the Medora Grazing Association puts it, "It's the Forest Service's job to **administer** the land; it's **our** job to take care of it."

Adams is in the process of putting down a line designed to "shove" water out 10 miles in case someone else wants to hook onto the system at a later date, according to Russ Alexander, engineering technician for the Forest Service at Dickinson. The cost for the 6-foot line isn't that much more compared to doubling up on the line at a later date, says Alexander. Cost of the shallow (2-foot) line is about \$3,800 per mile; for the deep (6-foot) line the cost rises to \$6,200 per mile.

Costs of pipeline systems are cost-shared at varying rates. Since 1973, permittee cost-share has totaled over \$150,000. But permittees in the Mc-

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Maurice O'Connell, Duaine Dodds, NDSU extension grassland management specialist, and Darroll Harrison, district forest ranger, Medora district, left to right, inspect an underwater cut-off valve (center) that controls the water level in a fiberglass tank on the O'Connell ranch near Dickinson. The recently completed deep (6 feet) underground line laid below frost line permits late fall and winter grazing when heaters are used in tanks.

Kenzie county allotment didn't have much choice. Due to the condition of the allotment, if nothing had been done, such as water improvement and pasture rotation, pasture members would have had to make a substantial cut in cattle numbers to reduce the overgrazing that was occurring. This type of reduction may well have put some of the members out of business, according to Van Elsbernd, range conservationist with the Forest Service at Watford City.

With O'Connell, it was a matter of choosing between spending money to develop more dugouts with an extremely short life and still be faced with a lack of distribution of cattle, or going to a pipeline system that allows him to control grazing through the astute placement of tanks. His system also allows him to cut down on fencing, which has tripled in cost over the last 10 years. In addition to O'Connell's deep well, a "shallow" well can be called on in a case of emergency. He figures that any emergency wouldn't last more than 48 hours because repairs are always at hand. And although his 450-head operation would require upward of

15,000 gallons on a hot summer day, his storage in tanks is at least 12,000 gallons.

During the last year, the McKenzie county unit installed three 10,000-gallon tanks for emergency purposes. These tanks, located on the highest point of the grazing unit, would feed the line by gravity in case of a pump failure. Service has been good on the line so far, with the contractor responding readily to major repairs. Many minor repairs are made by members of the grazing association. It takes just four hours to patrol the entire pipeline on an iron cowhorse (motorcycle).

Of the two units, the McKenzie allotment has more "vertical" terrain, and since that factor precluded winter grazing, the pipeline was designed for summer grazing only. In addition to spreading out cattle more and grazing areas never before grazed, old cattle trails to water holes are starting to heal and reducing erosion problems, reports Tom Tarnawsky, one of the permittees. The grass looks better than before, even in a dry year such as 1976, he adds. Ranchers in both units also report less "water belly" (urinary calculi) since quality water has become available.