

Bentonite—A Natural Resource of Malheur County

The Malheur County SWCD has had several projects that have used an important natural resource, bentonite. After some investigation, it was discovered there are different types of bentonite. Teague Mineral Products, in the Adrian area, was contacted for clarification. The bentonite they provide is sodium bentonite and is mined in Malheur County, from high quality drilled reserves, dried and ground to a coarse powder creating a custom sealant. The unique swelling properties of this sodium bentonite, that occurs with hydration, play the major role in the success of a watertight seal. When it is added to the soils and hydration occurs, the bentonite granules swell into voids surrounding the soil particles, creating a tough, watertight seal. According to Teagues, the typical swell is 20 times its volume.

Sodium bentonite is not only used for large wetland ponds, it is used as a sealant for decorative ponds, to seal irrigation water retention ponds, sewer lagoons and landfills. Ranchers find it useful to seal stock tanks. It can be used to seal irrigation ditches and canals. Bentonite is also used as a sealant around well casings as well as a drilling mud for well drilling.

Sodium bentonite is used as a binder in the hay cubing process. It is also used in animal feed. What a natural resource!

One biologist noted that for building ponds, he prefers bentonite as it retains the ability to exchange nutrients with the sediments. Garden ponds with hard rubber liners cause all kinds of problems because they don't do this, causing the pond owner to spend a great deal of money on filters, and UV sterilizers unnecessarily trying to solve the nutrient problems.

Bentonite —Choir Boys Constructed Wetland



Bentonite Application



New Pond Beginning to Fill



Planting Wetland Plants

For the Choir Boys Constructed Wetland, sodium bentonite was the sealant choice of the landowners and was applied to the ponds using a sprinkling method as indicated in the photo. The bentonite was incorporated into the soil by discing.

This series of wetland ponds was constructed to clean the water from Singer Drain that had historically dumped a lot of sediment into the Snake River, thus the name, Choir Boys, for the landowners of the properties along this portion of the drain.

The ponds were planted with over 6,000 plants including Baltic Rush, Hard-stem Bulrush, and Nebraska Sedge. The plants help to clean the water.

Even though this is a very new project, the water leaving the series of constructed wetland ponds prior to entering the Snake River is already visibly cleaner than it has been in the past.

Your local USDA NRCS office has more specific information on using bentonite for ponds in instances when there are plans for planting or regular sediment removal.



Completed Constructed Wetland Pond

This bird seems to approve!

