Buffalo, WY Soil Survey Office

Howell Reservoir Dam Riser Failure

Purpose

The Buffalo soil survey office was asked to help determine the cause of the failure for the Howell Reservoir Dam. The staff did soil investigations, looking at the amount of clay and salts in the soils used for building the Dam. They determined that the soils contained more than 35 percent clay and were dispersed due to the amount of salts in the soils.

One key soil interpretation for designing the Dam is the Hydrologic Soil Group (HSG). The HSG is based on runoff potential of the soils according to infiltration rate, bare vegetation, and ability to receive water from long-duration storms. This information has been generated by the soil scientist and is stored in Web Soil Survey. HSGs are in groups A-D: A is able to receive more water and infiltrate faster than B, and so on with HSG D as the slowest to infiltrate.

Key Outcomes

The Buffalo SSO worked with the NRCS Engineering staff to determine that HSG D would be the best rating for this Dam to use in the rebuild. The Soil Scientists were able to give the Engineering staff on-site advice to aid in a better and faster decision process, saving money and time for the rebuild of Howell Reservoir Dam.

Figure 1. Water from Howell Reservoir Dam pours into the hole created by the riser failure.

Figure 2. A view into part of the hole created by the failed riser, with the damaged riser at the bottom left.

Figure 3. Dam riser failure at Howell Reservoir Dam in Wyoming.