



**NORTH POUDBRE #4**  
Wellington, CO

**WHY THIS PROJECT IS RELEVANT**

- Alternative ideas to increase
- Cost savings through VE
- Project innovations to improve constructability
- Colorado project
- On time and within budget

**PROJECT SIZE**

30,000 Cubic Yard Dam Embankment  
12,000 Cubic Yard Riprap  
30 Foot Intake Tower

**INITIAL/FINAL COST**

\$1,753,899/\$1,676,872

**CHANGE ORDERS**

None

**COST SAVINGS**

>\$75,000

**SCHEDULE**

September 2015 - August 2016

**PROJECT TEAM**

Dan Sewczak  
Jesse Sewczak  
Mike Sewczak

The North Poudre Irrigation Company supplies water to an area of northeastern Larimer County and western Weld County in north central Colorado. Part of a system of 19 reservoirs, the North Poudre #4 dam is a storage reservoir for irrigation water and also serves as a recreation area.

Due to poor soil conditions and a badly leaking outlet pipe, the existing dam suffered from major water leakage. Zak Dirt was hired to rehab the existing dam which consisted of:

- › Breaching the existing dam and constructing an entire new outlet works (intake structure, pipe encasement, gate tower, outlet structure.)
- › Upstream dam embankment 30,000 CY
- › Upstream rip rap slope protection
- › Excavation of inlet canal
- › New spillway construction with precast spill way cutoff walls
- › Perforated toe drain with multiple bedding types

**As part of our services, Zak Dirt undertook value engineering and constructability evaluations to ensure the best means and methods for the project were used.**



NORTH POUUDRE #4 (Continued)  
Wellington, CO

#### REFERENCES

##### **OWNER**

Tad Moen  
North Poudre Irrigation Co.  
970-568-3612  
info@npcwater.com

##### **ENGINEER**

Ronald Slosson  
North Poudre Irrigation Co.  
970-481-0833

#### SELF PERFORM

95%

All scopes of work except  
seeding and planting

#### **CREATIVE VALUE ENGINEERING AND CONSTRUCTABILITY**

The major obstacle for this project was a lack of suitable clay fill dirt onsite. The geotechnical report indicated that the material was available inside the reservoir but upon exploratory excavation, it was found to not meet the specifications for embankment.

Zak proposed an idea to utilize material located downstream of the reservoir along the outlet ditch that was found to meet specifications. **Excavating in this area also gave the Owner the added benefit of gaining access to clean debris and silt from the outlet ditch which was previously inaccessible at no added cost to the owner.**

This project was Zak Dirt's first project utilizing GPS controlled hydraulic excavators to shape and place rip rap on the upstream face of the dam. Zak now does this on nearly every dam project as it streamlines the construction process and minimizes material waste, thus allowing Zak to provide lower cost construction to owners.