

ALKALI CREEK RESERVOIR INFORMATION SHEET

Project Description:

In 2007, a group of landowners within the Nowood River watershed approached the Wyoming Water Development Office (Office) with concerns regarding late-season irrigation water shortages. Since 2008, these landowners have worked with the Wyoming Water Development Commission (WWDC) and Office to evaluate storage options within the watershed. A Level I Watershed Study and subsequent Level II, Phase I and Phase II studies were undertaken under the Office's direction to evaluate watershed hydrology and opportunities to develop storage to capture and store early-season runoff and release water to augment late-season flows. The Nowood Watershed Improvement District was formed in 2014 and assumed the role of Project Sponsor. The WWDC applied for a Right-of-Way Application with the BLM in November 2016. The NEPA process was subsequently initiated and the Final EIS was published in May 2019. The BLM issued a favorable Record of Decision (ROD) in October 2019 and the Corps of Engineers issued a favorable ROD in May 2021 and a Section 404 Clean Water Act permit in June 2021. The Final Design Contract was executed in June 2017 and design began in earnest in 2021 following the favorable agency RODs. Design is on hold pending outstanding landowner agreements and easements. Both State and Federal funding is being pursued to support construction.

Reservoir Facts:

- Location – Alkali Creek upstream of Paint Rock Creek confluence, 3 miles northwest of Hyattville, Big Horn County.
- Volume – 8,966 acre-feet (AF) (6,070 AF active irrigation pool and 2,896 AF conservation pool for recreation, flatwater fishery, and to minimize the effects of low late-season flows in the lower Nowood River.)
- Source – The reservoir will be supplied with direct flow from Alkali Creek and diverted flows from Medicine Lodge and Paint Rock conveyed via enlargements to the existing 4.3-mile-long Anita Ditch and 0.5-mile-long Anita Supplemental Ditch.
- Surface Area – 312 acres at full pool, minimum 132 acres (conservation pool for recreation)
- Dam Height – 100 ft (at max cross-section)
- Crest Width – 20 ft
- Dam Length – 2,500 ft
- Dam Construction – earthen embankment
- Yield – 5,187 AF of the 6,070 AF irrigation pool enlargement could be released 8 out of every 10 years

Service Area:

- Approx. 10,220 currently irrigated acres with an additional 3,150 potentially irrigable permitted acres (directly or indirectly).
- Alkali Creek, Paint Rock Creek, and the lower Nowood River drainages directly and by exchange, and Medicine Lodge Creek by exchange.
- Currently irrigated acreage water shortages in the service area in the 30% shortest years average 12,240 acre-feet.
- The proposed Alkali Creek Reservoir could reduce currently irrigated acreage water shortages by 42% in the 30% shortest years.

Water Quality:

- Potential to develop a reservoir fishery, improve stream water quality, and augment dry season stream flows.

Benefits/Costs (2022 Dollars):

An updated cost-benefit analysis was prepared for the Office in August 2022. This analysis used a 1.5% discount rate to estimate the net present value of direct and indirect benefits. Note that this discount rate was based on the 2021 Discount Rates published in the Office of Management and Budget (OMB) Circular No. A-94. Inflation and guidance provided by the U.S. Bureau of Reclamation when evaluating possible federal funding in December 2022 suggested a current discount rate of 2.5%. Using a 2.5% discount rate would reduce the estimated present value of the reservoir benefits as shown in the table below.

TABLE 1. BENEFIT-COST SUMMARY

	August 2022 (In Millions)	December 2022 Guidance (In Millions)
<i>Discount Rate</i>	<i>1.5%</i>	<i>2.5%</i>
Irrigation Benefits (direct and indirect)	46.3M and 75.5M	38.2M and 62.3M
Recreation Benefits (reservoir fishing/boating, day use)	12.2M	10.6M
Wyoming Construction Benefit	10.8M	10.5M
Total Benefits	144.8M	121.7M
Total of public benefits	98.5M	83.5M
Permitting and Design Cost (previously appropriated)	4.4M	
Acquisition of Right-of-ways and Easements	1.8M	
Construction Cost (2022 Estimate)	56.1M	
Construction Management cost	5.6M	
Contingency	9.3M	
Total Cost	77.2M	
Benefit-Cost Ratio	1.8	1.6

ALKALI CREEK RESERVOIR SERVICE AREA

