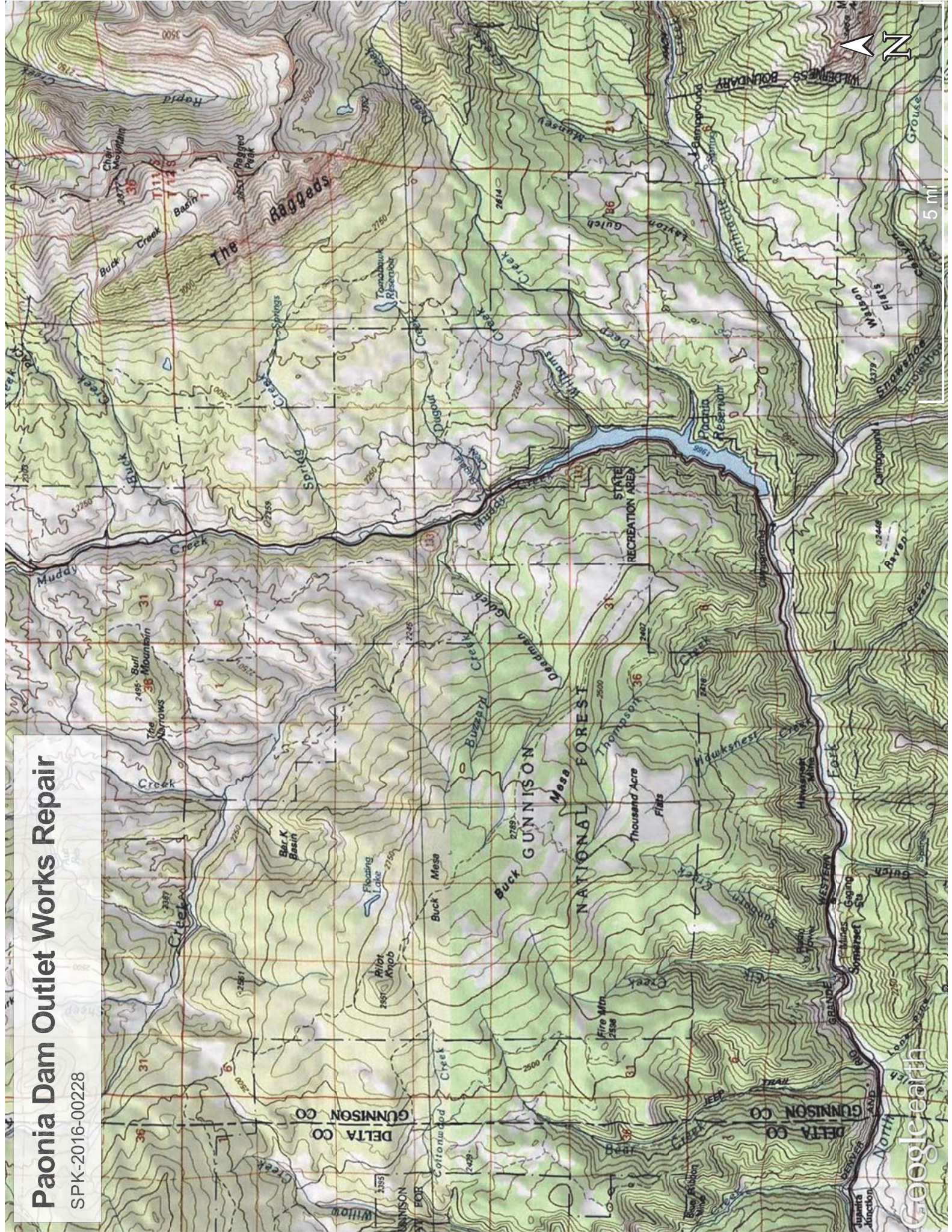


# Paonia Dam Outlet Works Repair

SPK-2016-00228





USGS 09131495 PAONIA RESERVOIR NEAR BARDINE, CO

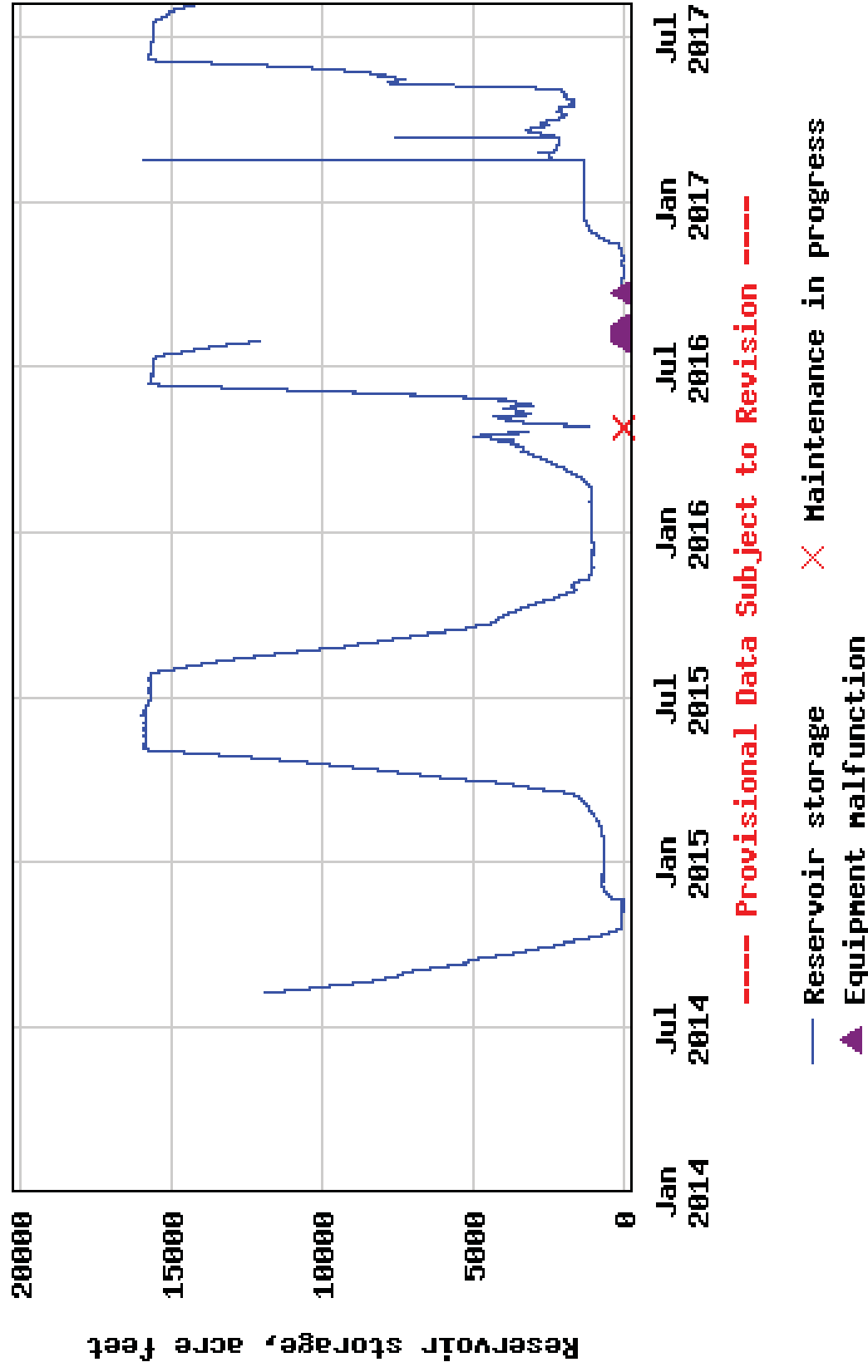
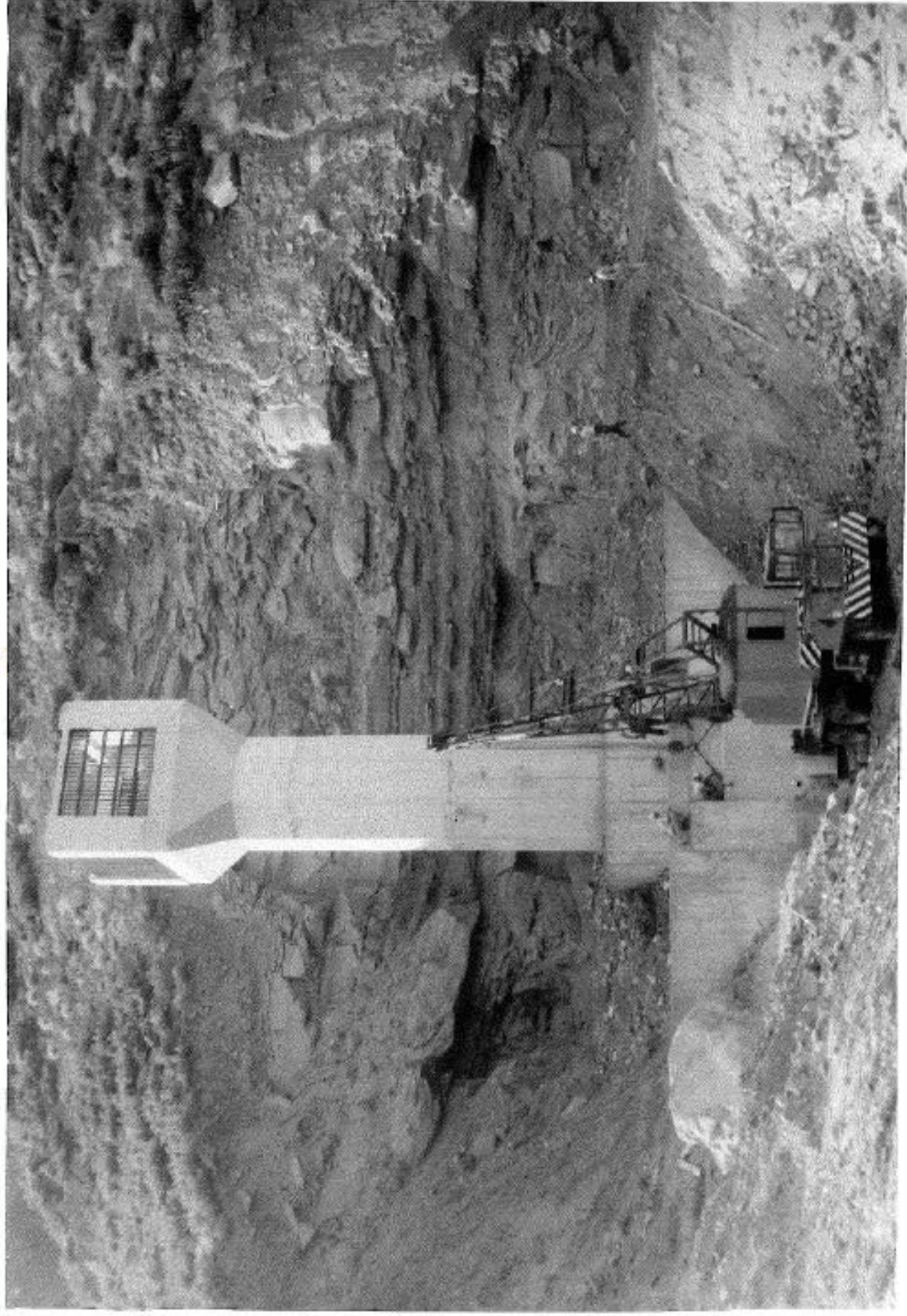


Figure 2. Paonia Reservoir storage level, 2014-present.



P551-417-2302 Paonia Dam--Paonia Project, Colorado. General view of outlet works intake structure as temporary irrigation bulkhead is being installed. Work by Bud King Construction Company, Specs. No. DC-5117. 7-11-61 Bureau of Reclamation photo by E. J. Peterson

**Figure 2.—Photo of the construction of the intake tower at Paonia Dam in 1961 (photo courtesy of Philip Ipson, Western Colorado Area Office).**





Figure 1- Access ramp to outlet works constructed in 2014.





Figure 2- Low flow channel eroded through sediment deposit in 2014.





Figure 3- Sediment accumulation downstream of stilling basin observed in 2014.

## Attachment A – Monitoring Plan Summary

Environmental Resource	Evaluation Criteria	Monitoring Mechanism	Location	Monitoring Frequency	Data delivered to USACE
<b>Stream Health</b>	Suspended Sediment Concentration	USGS Monitoring Stations	Above and below reservoir	15-minute intervals, seasonally through 2018	January 2019
	Sediment Deposition	Measurement of percent fines and channel morphology (USGS Pebble counts & cross section surveys)	Downstream of dam for 7 miles at 6 different locations	Samples once a year from 2015-2018. Data available January of following year	January 2019
<b>Aquatic Life</b>	Macroinvertebrates	Species Composition, Tolerance Indicator Values ( $TIV_{sed}$ ), Multi-Metric Index (MMI)	Downstream of dam for 7 miles at 6 different locations (with one replication site); Upstream of reservoir at 1 location	Samples once a year from 2016-2018. Data available after lab analysis (estimated June of following year)	June 2019
	Fish Population	Species composition, abundance, survival, growth rates	Downstream of dam at 2 different locations	Samples once a year from 2016-2018. Report available 2018.	January 2019
	Aquatic Habitat Condition (fish spawning habitat)	Measurement of percent fines (USGS pebble counts)	Downstream of dam for 7 miles at 6 different locations	Samples once a year from 2015-2018. Data available January of following year	January 2019