

**ADOBE DAM POOL
FCD GAGE ID# 5539**

STATION DESCRIPTION

LOCATION – The dam is located near what would be the intersection of Deer Valley Road and 43rd Avenue. The gage is located on the west end of the main dam structure across Skunk Creek. To reach the structure, drive north on 35th Avenue from Deer Valley Road. The gage house is on the top of the dam. Latitude N33° 40' 37", Longitude W112° 09' 12". Located in the SE1/4 SE1/4 NE1/4 S21 T4N R2E in the Hedgpeth Hills 7.5-minute quadrangle.

ESTABLISHMENT – The gage was established on October 28, 1982.

DRAINAGE AREA – 89.6 mi²

GAGE – The gage is a bubbler/orifice type instrument located at the outlet works in the dam pool. The orifice is at elevation 2.851 feet gage height, or 1,342.700 feet NAVD 1988, levels of January 31, 2012.

There are 14 staff gages located from the bottom of the pool area to the top of the dam. All staff gages read in NGVD 1929 (MSL) datum. A first rule-of-thumb is to add about 1.8 feet to the staff reading to get the equivalent NAVD 1988 elevation. A second rule-of-thumb is to subtract 1,338.1 feet from the staff reading to convert to gage height elevations.

ZERO GAGE HEIGHT - The zero point is the invert of the outlet culvert through the dam. The zero elevation is 1,339.810 feet NAVD 1988, levels of January 31, 2012, and adjusted with 2013 survey data by others.

HISTORY – No history at this location prior to gage installation. Gaging was established at this location on October 28, 1982. The gage was a float and manometer type instrument. The float type gage was replaced with a pressure transducer on June 15, 1994. The pressure transducer was replaced with a gas purge system on August 9, 2000. The gage type is set in the database as a float type gage. Pool gage assigned a new id number 5534. The orifice elevation is 3.1 feet higher than the PT was.

REFERENCE MARKS –

RM1 is a brass tablet on top of dam marked USCE SM-2. Elevation 65.131 feet gage height, or 1,404.980 feet NAVD 1988, January 31, 2012.

RP-1 is a chiseled 'X' located on the left top of headwall on pool side of dam. Elevation is 1,356.839 feet NAVD 1988, or 16.990 feet gage height, levels of January 31, 2012.

RP-2 is a chiseled 'X' located on the left wingwall where it meets the headwall of the principal outlet. Elevation is 1,355.309 feet NAVD 1988, or 15.460 feet gage height, levels of January 31, 2012.

RP-3 is a chiseled 'X' located near the center of the headwall of the principal outlet. Elevation is 1,356.824 feet NAVD 1988, or 16.975 feet gage height, levels of January 31, 2012.

RP-4 is a chiseled 'X' located on the right top of the headwall of the principal outlet. Elevation is 1,356.830 feet NAVD 1988, or 26.564 feet gage height, levels of January 31, 2012.

RP-5 is a chiseled 'X' located on the right wingwall where it meets the headwall of the principal outlet. Elevation 1,355.345 feet NAVD 1988, or 15.496 feet gage height, levels of January 31, 2012.

CHANNEL AND CONTROL – The primary outlet from the dam is a large concrete culvert 292 feet in length. The auxiliary spillway for the dam is located to the west of the main dam.

PRINCIPAL OUTLET / EMERGENCY SPILLWAY –

The principal outlet is a 6-foot wide by 8.83-foot tall concrete culvert. The invert at the inlet is at 0.00 feet gage height, or 1,339.810 feet NAVD 1988. The invert at the outlet is at -1.72 feet gage height, or 1,338.09 feet NAVD 1988. The culvert length is 292 feet. Flow begins through the culvert at 0.00 feet gage height.

The emergency spillway is located to the west of the gage and main dam. The spillway is blasted into the mountain and spills into the valley below. The bottom width of the spillway is 40 feet. The spillway crest is at 39.77 feet gage height, or 1,379.58 feet NAVD 1988.

The top of the dam elevation is 65.07 feet gage height, or 1,404.88 feet NAVD 1988.

RATING – The current discharge rating is Rating #3. This rating is a revision of the second rating at the low end of that rating based on measurements of the outlet gage. Rating #2 was developed by R. W. Cruff using HY-8 culvert analysis and the weir equation for the spillway. Rating #1 was from the original COE design modified with additional computations.

The current capacity rating is Rating #2. Rating #2 was developed from an analysis of the ACDC ADMS topography. Rating #1 was from the design capacities.

DISCHARGE MEASUREMENTS – Discharge measurements are made at the outlet channel to refine the rating for that gage. No other discharge measurements at the primary outlet would be possible.

POINT OF ZERO FLOW – Flow begins through the primary outlet at 0.00 feet gage height. Flow begins through the auxiliary spillway at approximately 40.0 feet gage height.

FLOODS / SIGNIFICANT IMPOUNDMENTS – An impoundment of 13.95 feet and 990 acre-feet occurred on August 19, 2014. An impoundment of 17.30 feet and 1,853 acre-feet occurred on January 22, 2010. An impoundment of 14.45 feet and 1,033 acre-feet occurred on August 16, 1990.

REGULATION – None known above the dam, possibly a stock tank or two in the upper watershed. Adobe dam regulates natural flows of Skunk Creek.

DIVERSIONS – None known

ACCURACY – Fair

JUSTIFICATION – Monitor water levels behind Adobe Dam for public safety.

UPDATE – July 16, 2015
D E Gardner