

**SUNSET FRS
FCD GAGE# 5233**

STATION DESCRIPTION

LOCATION - The gage is located in the town of Wickenburg, approximately 1/2 mile west of downtown. From US 60 turn south on Mariposa Road (Jones Ford) to the wash. The dam is to the left. Latitude N 33° 57' 50", Longitude W 112° 44' 33". Located in the SW1/4 NE1/4 S11 T7N R5W in the Wickenburg 7.5-minute quadrangle.

ESTABLISHMENT - The gage was installed on February 12, 1989.

DRAINAGE AREA - 0.95 mi²

GAGE - The gage is a pressure transducer type instrument, located at 0.10 feet gage height, or 2,114.11 feet NAVD 1988, levels of January 24, 2012.

There are eight staff gages at this location.

A staff plate is located near the pressure transducer. It reads in gage height, verified with levels of January 24, 2012.

Seven staff gages are located on the upstream side of the dam. The gages are in five-foot segments and are subdivided into one-foot increments. The gages read in gage height, +/- 0.1 feet, verified with levels of January 24, 2012.

ZERO GAGE HEIGHT - Zero is based on zero on the staff gage. Elevation 2,114.01 feet NAVD 1988.

HISTORY - The gage had previously been at 1.14 feet gage height, 2,112.60 feet MSL, but was moved to its current location on January 28, 1994. The dam has been in place since 1976. Found PT diaphragm at 0.13 feet gage height during survey of January 8, 2002. Made effective beginning with Water Year 2002. Gage found at elevation 0.10 feet gage height during survey of January 24, 2012.

REFERENCE MARKS -

SNST-13 – is an FCD brass cap located at station 13+00. Elevation is 29.132 feet gage height, or 2,143.140 feet NAVD 1988, levels of January 24, 2012.

None of the following reference marks were surveyed on January 24, 2012.

RM1 - This is reference 431 from the Wickenburg ADMS. It is a chiseled '+' on top of east concrete curb at the south end of pavement of Kellis Road. Elevation = 2,160.71 feet MSL, gage height 49.15 feet.

RP1 - White paint spot on northeast corner of concrete base for outlet gate control. Elevation = 2,143.35 feet MSL, gage height = 31.89 feet.

RP2 - White paint on concrete at base of first short post north of structure. Elevation = 2,120.36 feet MSL, gage height = 8.90 feet.

RP3 - Northernmost bolt on staff gage 0.18 feet below 14 feet. Elevation = 2,113.84 feet MSL, gage height = 2.38 feet.

RP4 - Top of angle iron on top of dam, north of gate. Tag 4USSFRS 3130. Elevation = 2,139.93 feet MSL, gage height = 28.47 feet.

RP5 - Brass cap in center of roadway on Kellis Road south of RM1. Elevation = 2,080.89 feet MSL, gage height = -30.57 feet.

CHANNEL AND CONTROL - The principal outlet for the dam is a 30-inch diameter, 184-foot long culvert. The emergency spillway for the dam is a concrete spillway located in the center of the dam.

PRINCIPAL OUTLET / EMERGENCY SPILLWAY

The principal outlet is a 30-inch diameter culvert pipe. The culvert invert elevation at the inlet is 2,107.61 feet NAVD 1988 or -6.40 feet gage height. The culvert invert elevation at the outlet is 2,106.86 feet NAVD 1988, or -7.15 feet gage height. There are two intakes in the tower. The lower orifice is at elevation 2,114.01 feet NAVD 1988, or 0.00 feet gage height. The upper orifice is at elevation 2,122.76 feet NAVD 1988, or 8.75 feet gage height. Flow begins in the intake tower at elevation 2,133.76 feet NAVD 1988, or 19.75 feet gage height.

The emergency spillway crest is at elevation 2,132.86 feet NAVD 1988, or 18.85 feet gage height. The spillway is 40 feet wide and 10.5 feet high.

Top of dam elevation is at about 30.0 feet gage height, or 2,144.01 feet NAVD 1988, levels of January 24, 2012.

RATING -

The current discharge rating is number 2 developed by R.W. Cruff in February 1992 utilizing a combination FHWA HY8 culvert analysis for flows through the primary outlet, and the weir equation for flows through the auxiliary spillway. The weir coefficient used

was 2.90. Rating #2 is applied to all the gage record. Rating number 1 was developed by S.D. Waters in 1990.

The current capacity rating is rating #2 from the Wickenburg ADMS DTM study. The previous rating was from the Wickenburg ADMS HEC-1 input. Rating #2 is applied to all the gage record.

DISCHARGE MEASUREMENTS - The principal outlet is an underground culvert running to the Hassayampa River. Flows through the emergency spillway are too dangerous to attempt a direct measurement.

POINT OF ZERO FLOW - Flow begins at 0.00 feet gage height or 2,114.01 feet NAVD88 through the lower orifice.

FLOODS / SIGNIFICANT IMPOUNDMENTS – The largest impoundment on record occurred on July 18, 2015, with a peak stage of 16.78 feet gage height, and 64.3 acre-feet and 74.8 percent full. The second impoundment occurred on September 26, 1997 at 12.27 feet, 34 acre-feet, or 39.5 percent full.

REGULATION - The dam is a regulation of natural flows in Sunset Wash.

DIVERSIONS - None known

ACCURACY - Good

JUSTIFICATION - Monitor impoundment behind Sunset dam for flood warning to the town of Wickenburg.

UPDATE - June 7, 2016
DE Gardner