

**POWDER HOUSE WASH
FCD GAGE ID# 7113**

STATION DESCRIPTION

LOCATION - The gage on the right bank of Powder House Wash about 1,600 ft upstream from its crossing of Constellation Road and about 1/2 mile northeast of US60. Latitude N 33° 58' 50.5", Longitude W 112° 43' 02.1". Located in the SW1/4 NW1/4 S06 T7N R4W in the Wickenburg 7.5-minute quadrangle.

ESTABLISHMENT - The gage was installed May 18, 1995.

DRAINAGE AREA - 1.84 mi²

GAGE - The instrument is pressure transducer water level sensor. The PT diaphragm is taken as -0.20 feet gage height, levels of July 21, 2015. According to level survey on August 19, 1994, the PT is located at about 2131.66 ft MSL in reference to ERM 406 from the Wickenburg ADMS mapping. A GPS survey indicated the PT elevation to be 2,133.71 feet NAVD 1988.

There are no staff gages at this location.

There is one crest stage gage at this location. It is located just downstream from the PT gage near the right channel bank.

CSG#1 is the lower gage and has pin elevation of 1.16 feet gage height.

ZERO GAGE HEIGHT – Zero gage height is defined as the level of the pressure transducer at the time of installation. It is not known to have moved since that time. A survey of April 24, 2001 with GPS survey procedures, indicated that this elevation is 2,133.710 feet NAVD 1988, based on observations of the RM-PDRHSE and previous surveys with a level and rod of the RM and the PT.

HISTORY - No known previous gaging at this location or elsewhere on Powder House Wash. Gaging established by FCDMC on May 18, 1995. The crest gages were established in February 2000. Cross section markers at three cross sections at and downstream of the gage were installed September 29, 2000. They were modified on April 24, 2001, with the former cross section three becoming cross section two and a third cross section added downstream from cross section two. Cross section one at the gage was not affected.

REFERENCE MARKS –

RM-PDRHSE, was established in 1995. The surveyed elevation is 8.85 feet gage height, levels of July 21, 2015. A GPS survey of the monument gives an elevation of 2,142.560 feet NAVD 1988, levels of April 24, 2001. Northing 1085360.849, Easting 457275.033.

RP1 is reported as the top of a large blackish rock on the right bank near a mesquite tree about 60 ft downstream of the PT. It has an elevation of 2131.98 ft MSL according to levels performed on August 19, 1994. It has not been found during any survey since March 2000.

ERM 406 from the Wickenburg ADMS topographic mapping is at an elevation of 2081.66 ft MSL (-50.0 ft gage height). ***It may be useful to recover this marker if possible. From the Wickenburg ADMS, N=1083578.31 and E=455985.87.***

RM2 was established on March 8, 2000. It is a chiseled 'x' on the gage house foundation pad. It has elevation 8.58 feet gage height, levels of July 21, 2015.

There are three monumented cross sections for evaluating slope area computations. One is located at the gage cross section with two further downstream.

Cross section one is located at the gage. Survey markers are on both ends. XS1LB is stake at elevation 18.47 feet for slope area or 8.47 feet gage height. XS1RB is rebar at elevation 19.34 feet for slope area, or 9.34 feet gage height.

Cross section two is located 250 feet downstream from XS1. Survey markers are on both ends. XS2LB is rebar at elevation 12.90 feet for slope area or 2.90 feet gage height. XS2RB is rebar at elevation 9.17 feet for slope area or -0.83 feet gage height.

Cross section three is located 300 feet downstream from XS2. Survey markers are on both ends. XS3LB is stake at elevation 6.69 feet for slope area or -3.31 feet gage height. XS3RB is stake at elevation 14.48 feet for slope area or 4.48 feet gage height.

CHANNEL AND CONTROL – The channel at the gage location is natural sand bottom with relatively steep side slopes. The right bank sides are rock and the left bank slopes are compacted soil (natural). The bottom width at the gage is approximately 190 feet. Vegetation is somewhat significant throughout the channel with a small main channel and several smaller channels in the vegetation.

The control is the channel through the range of stages. The channel has a steep slope that yields supercritical solutions through the range of expected depths. Therefore, depths are expected to remain fairly shallow.

RATING – The current rating is a revised Rating No. 1. The revision came about as a slope area computation was done for the August 29, 2000 event. Solutions were supercritical. The original rating was solved as a subcritical solution. The original HEC-2 model from the Wickenburg ADMS was input to HEC-RAS and run for the cross sections upstream of the gage. Solution of the supercritical HEC-RAS matched well with the Slope Area solution. The revised rating is applied beginning with Water Year 2001.

DISCHARGE MEASUREMENTS - Discharge measurements beside indirect surveys are difficult at this site since access during a flow is essentially impossible. Wading measurements for low flows might be possible near the Constellation Road crossing.

POINT OF ZERO FLOW – The PZF is approximately 0.0 feet gage height.

FLOODS – The largest runoff event on record occurred on July 18, 2015, with a peak discharge of 2,300 cfs at 2.4 feet gage height. Another high flow event occurred on September 26, 1997 resulting from the remnants of Hurricane Nora. The peak stage was 2.12 feet and 1,425 cfs. Significant flooding has occurred in years previous to the gage installation such as September 4-5, 1970 (see photos in the USACE flood report for the Wickenburg area for that storm). A flood of about 550 cfs at 1.23 feet gage height occurred on August 29, 2000.

REGULATION – None known

DIVERSIONS – None known

ACCURACY – Poor to Fair

JUSTIFICATION – Flood warning for the town of Wickenburg.

UPDATE - August 17, 2015
D. E. Gardner