COPPER WASH
FCD GAGE ID# 5033

STATION DESCRIPTION

LOCATION – The gage site is located approximately 3 miles north of the crossing with Agua Caliente Road and approximately 10 miles above the Gila River. Latitude N 33° 12' 17", Longitude W 113° 17' 07". Located in W1/2 SE1/4 SE1/4 S33 T2S R10W, in the Hyder NE 7.5-minute quadrangle.

ESTABLISHMENT – The gage was installed February 20, 2001

DRAINAGE AREA – 6.6 mi^2

GAGE – The gage is a pressure transducer type instrument. The PT is at gage height 0.80 feet, or 1,064.80 feet NAVD 1988, levels of January 4, 2011.

There are no staff gages at this location.

There is one crest gage located near the PT. The pin elevation is 1.27 feet gage height, or 1,065.27 feet NAVD 1988, levels of January 4, 2011.

ZERO GAGE HEIGHT – Zero gage height is defined as 1,064.000 feet NAVD 1988. It is arbitrarily defined as this elevation.

HISTORY – No history before gage installation. Gaging established on February 20, 2001. A significant flow event occurred on August 27, 2003. Flow destroyed the crest-stage gage and moved the PT downstream. Both were replaced on September 4, 2003. XS1LB stake was not found during the September 4, 2003 visit. Transducer changed and re-secured on July 3, 2010.

REFERENCE MARKS –

RM-CPPR is an FCD brass tablet set near the gage standpipe, established on February 22, 2001. Elevation 1,072.289 feet NAVD 1988 or 8.29 feet gage height, levels of February 27, 2001. Northing 804957.155 feet; Easting 281509.458 feet.

There are eight monumented cross sections. Cross sections one through three are suitable for slope area computations. A fourth cross-section upstream of the gage cross section (XS1) should be added and used.

XS1 is located at the gage. There is a metal stake on both banks. The left bank stake was not found during the September 4, 2003 visit and survey. The right bank stake (XS1RB) has elevation 6.24 feet gage height, levels of February 27, 2001.

XS2 is located approximately 190 feet downstream from the gage cross section. There is a metal stake on both banks. The left bank stake (XS2LB) has elevation 4.36 feet gage height, levels of February 27, 2001. The right bank stake (XS2RB) has elevation 1.29 feet gage height, levels of February 27, 2001.

XS3 is located about 190 feet downstream from cross section two. There is a metal stake on both banks. The left bank stake (XS3LB) has elevation 1.20 feet gage height, levels of February 27, 2001. The right bank stake (XS3RB) has elevation 1.29 feet gage height, levels of February 27, 2001.

Cross sections four through eight are not suitable for indirect measurements. Information about these cross sections and stakes are available in the station folder.

CHANNEL & CONTROL – The channel is natural with a general trapezoidal shape. The channel is straight several hundred feet upstream of the gage site and for several hundred feet downstream from the gage site. Beyond the third cross section downstream, the channel begins to split and braid. By the fourth cross section there are two distinct channels of near identical size. In cross sections five through eight, a well-defined main channel is not as evident as there are many channels. Control for this gage is the channel at the gage for all but the lowest flows. A large overbank on the right bank can convey a significant amount of water.

RATING – The current rating is Rating #1. The rating was done using surveyed cross sections and an HEC-RAS model to compute a step backwater analysis. Several runs of the HEC-RAS were used in analysis. A run with all eight cross sections was compared with a run of just the upper four cross sections. There was no difference between the two runs seeming to indicate that the braided channel downstream has the same a straight channel downstream.

DISCHARGE MEASUREMENTS – Direct measurements would be difficult at the gage site, since the wash must be crossed several times before reaching the gage site, and the shear distance from the office. Discharge measurements could be made at Agua Caliente Road, but are probably too far downstream to relate to the gage reach meaningfully. Indirect measurements could be made in the reach at the gage. A cross section should be added upstream of the gage cross-section and used with existing cross sections 1 – 3.

POINT OF ZERO FLOW - The PZF is at 0.10 feet gage height, levels of September 4, 2003.

FLOODS – A flood of 3,780 cfs at 5.70 feet gage height occurred on August 27, 2003. A flood of about 210 cfs at 1.9 feet gage height occurred on August 12, 2001.

REGULATION – No known regulation

DIVERSIONS – No known diversions

ACCURACY – Fair

JUSTIFICATION – Cooperative gage with MCDOT for monitoring flows in Copper Wash for closing and grading of Agua Caliente Road.

UPDATE - January 4, 2011
D. E. Gardner