

WHITE TANK FRS #3
FCD GAGE ID #87307

STATION DESCRIPTION

LOCATION – The structure is located north of the Bethany Home Road alignment and west of the Beardsley Canal. The gage is near the southeast corner of the structure. Latitude N 33° 31' 59.1", Longitude W 112° 28' 18.7". Located in the SE1/4 NW1/4 S09 T2N R2W in the Waddell 7.5-minute quadrangle.

ESTABLISHMENT – March 12, 1986.

DRAINAGE AREA – 20.5 mi²

GAGE – The gage is a pressure transducer type instrument. The PT is at gage height 0.15 feet, or 1,192.50 feet NAVD88.

There are several staff gages located at the principal outlet. The gages are 5-foot staffs located along the upstream slope of the dam. The staff gages display level from 0 – 25 feet gage height. The 0 – 5 foot staff displays about 0.05 feet low. The 5 – 10 foot staff displays about 0.04 feet low. The 10 – 15 foot staff displays 0.04 feet low. The 15 – 20 foot staff reads about 0.15 feet low. The 20 – 25 foot staff reads about 0.4 feet low. The painted 25 – 27 foot staff was not surveyed.

There are no crest gages at this location.

ZERO GAGE HEIGHT - Zero gage height is defined as the lip of the invert of the gated inlet in the principal outlet. Elevation is 1,191.00 feet NAVD88.

HISTORY – The pressure transducer was moved March 10, 1992 to 1,190.07 feet MSL = 0.00 feet gage height. The previous PT elevation is not known for certain. From the first capacity table, it appears that the elevation was 1,186.60 feet MSL (which was 0.00 feet gage height prior to March 10, 1992.) The spillway minimum was lowered approximately 3 feet in 2002 to provide for the 4-foot freeboard requirement of ADWR. Settling in the dam crest forced the need to lower the spillway crest. Level gage was removed for dam reconstruction in December 2005. Station was moved and reinstalled at the new east bypass outlet on June 18, 2008. The three old outlets were removed. A new principal outlet with an 18-inch gated inlet was built during the dam reconstruction. The PT was moved to a spot near the northeast corner of the principal outlet on November 14, 2013. As a result of the construction and move of the principal outlet, zero gage height was redefined, as of November 14, 2013, to the lip of the inlet in the outlet structure. Staff gages were installed at the principal outlet in the spring of 2014. With the installation of the staff gages, zero gage height was adjusted from 1190.900 feet

NAVD88 to 1191.000 feet NAVD88. A concrete pad was installed at the outlet in early 2021. The plates covering the uncontrolled inlet to the principal outlet were removed on March 10, 2021. The transducer gage was lowered to the elevation of the new pad on or around April 1, 2021.

REFERENCE MARKS –

BM-A-37R is an FCDMC brass cap located on top of the structure near the principal outlet. It is at elevation 26.989 feet gage height and 1,217.989 feet NAVD88, levels of June 9, 2021.

PSI-01 is a chiseled X on the top of the east most bypass outlet. It is at 11.538 feet gage height and 1,202.538 feet NAVD88, levels of June 9, 2021.

PSI-02 is a chiseled X on top of the west bypass outlet. It is at 11.540 feet gage height and 1,202.540 feet NAVD88, levels of June 9, 2021.

PSI-03 is a chiseled X on top of the east side of the principal outlet structure. It is at elevation 13.665 feet gage height and 1,204.665 feet NAVD88, levels of June 9, 2021.

PSI-04 is a chiseled X on top of the west side of the principal outlet structure. It is at elevation 13.640 feet gage height and 1,204.640 feet NAVD88, levels of June 9, 2021.

RP-1 is a chiseled 'X' on the concrete pad near the principal outlet. It is at elevation 0.000 feet gage height and 1,191.000 feet NAVD88, levels of June 9, 2021.

RP-2 is a chiseled 'X' on the top concrete step near the top of the dam. It is at elevation 27.073 feet gage height and 1,218.073 feet NAVD88, levels of June 9, 2021.

CHANNEL AND CONTROL – There is a gated 18-inch pipe located at the intake tower. The lip of the gated inlet is at elevation 0.00 feet gage height, or 1,191.00 feet NAVD88. There is one uncontrolled outlet at the principal outlet at 1,200.00 feet NAVD88 and 9.00 feet gage height. There are two identical gated bypass outlets near the primary outlet. The left gated bypass outlet has a separate outlet pipe from the principal outlet. The right gated outlet is a bypass outlet connected to the principal spillway. Both the gated outlet spillway and the primary spillway are 48-inch metal conduit pipes. The inlet elevation for both gated bypass outlets is 6.00 feet gage height, or 1,197.00 feet NAVD88.

PRINCIPAL OUTLET / EMERGENCY SPILLWAY –

The principal outlet is 48-inch RCCP located under the dam structure. It has a gated 18-inch inlet at 0.00 feet gage height or 1,191.00 feet NAVD88, that is usually closed, at the front face of the outlet tower. Uncontrolled spill into the principal outlet occurs at 9.00

feet gage height or 1,200.00 feet NAVD88 in the outlet tower. The principal outlet pipe also has a gated inlet at 6.00 feet gage height and 1,197.00 feet NAVD88 that was used to bypass the uncontrolled inlet during construction. It is the westernmost gated inlet. It is typically closed.

A second 48-inch RCCP is located under the dam and has a gated inlet at 6.00 feet gage height. It is the easternmost gated inlet. It is typically closed.

The emergency spillway is at about 21.0 feet gage height or 1,212.0 feet NAVD88. It is located to the southwest of the principal outlet.

The minimum top of the dam elevation is approximately 27.0 feet gage height or 1,218.0 feet NAVD88.

RATING –

The current outflow rating is rating #4 and is from Design Report Volume One, by URS Corporation, 'Future Conditions' which are now the current conditions.

The current capacity rating is rating #4 developed by URS and based on the new spillway configuration. It will be effective as of March 1, 2011. Previous rating (#3) was developed from DTM in 1996. Rating #3 is effective from October 1, 1996 to present. Rating #2 was developed from rating #1. Rating #1 was developed from the White Tanks ADMS in 1989. Rating #2 modified rating #1 to account for the change in datum of the stage gage. There was no net change between rating 1 and 2.

DISCHARGE MEASUREMENTS – Outlets could be measured by current meter. Spillway could be measured by wading for low flows.

POINT OF ZERO FLOW - The point where flow begins over the lip of the gated outlet in the principal outlet structure. Elevation 0.00 feet gage height.

FLOODS – The greatest impoundment of record occurred on September 8, 2014 with a peak stage of 9.0 feet gage height and volume of 587 acre-feet.

REGULATION – The gated inlets regulate flow from the structure. Gates are usually closed and opened manually by FCDMC O&M personnel.

DIVERSIONS – None

ACCURACY – Fair to Good

JUSTIFICATION – Monitor levels in White Tanks #3 FRS for public safety.

UPDATED – December 19, 2023
D E Gardner