

## Snake River at Doughboy, NE. 06459175

### LOCATION

#### *Latitude and Longitude*

42.614167, 101.277222

#### *Road Log*

The gage is reached from Merritt Dam by crossing the dam and following the hard surfaced road through the Nebraska National Forest to Nebraska Highway 97, then following Highway 97 in a southwesterly direction past the forest headquarters to the forest boundary, thence by county road to the gage. Road distance to the gage is 30.3 mi. from Merritt Dam and 13.3 mi. from headquarters of Nebraska National Forest. The gage can also be reached from Nenzel by driving 30 mi. south along Nebraska Spur 16F. The last 13 miles on Mule Deer RD. is a paved one lane wide road and should be driven at reduced speed.

#### *Nearby Features*

Merritt Dam is approximately 15 miles downstream from the gage.

### Establishment and History

Miscellaneous measurements were made at the site in 1963, 1980, and 1981.

Gage established on October 7, 1981, by the U. S. Geological Survey and Nebraska Department of Water Resources.

Gage datum was lowered 1.00 ft. from 3098.92 to 3097.92 above National Geodetic Vertical Datum of 1929, on October 1, 1988.

Gage datum was lowered 2.00 ft. from 3097.92 to 3095.92 above National Geodetic Vertical Datum of 1929, on May 17, 1994.

The Nebraska Department of Water Resources assumed operation of the gage as of October 1, 1994.

Gage datum was lowered 2.00 ft. from 3095.92 to 3093.92 above National Geodetic Vertical Datum of 1929, on April 5, 2010.

On Oct. 18, 1994, Fisher-Porter digital recorder was removed.

On May 10, 1995, Stevens A-35 water-stage recorder was removed.

On May 10, 1995, Stevens A-71 water-stage recorder was installed.

On June 10, 1997, Servo-manometer was removed. The 48 inch corrugated metal shelter was removed June 10, 1997 and a 5' x 5' Corps of Engineers type of metal shelter was installed June 11, 1997 on left downstream bank 20 ft. left of bridge abutment.

On June 11, 1997, Water Gage II -25 was installed.

The Nebraska Department of Water Resources name was changed to Nebraska Department of Natural Resources as of July 1, 2000.

On April 26, 2005 the Satellite Goes antenna was installed.

On June 15, 2005 the Design Analysis Water Log Series Model H-522XL was installed.

On June 25, 2013 the Stevens A-71 water-stage recorder, Water Gage II-25, Safe Purge, Shaft encoder, and Nitrogen tank were removed.

On June 25, 2013 a Design Analysis H-3553 Bubbler was installed.

On June 11, 2014, there was a CSI gage installed and established.

On April 6, 2022, the Design Analysis Waterlog Series Model H-522XL, the H-3553 bubbler, and the Satellite Goes antenna were removed.

On April 6, 2022, a Sutron Satlink 3, an OTT Radar level sensor, and a Geo-Satellite antenna with GPS were installed.

## Hydrology

### *Drainage Area*

405 sq. mi., approximately, of which about 26 sq. mi. contributes directly to surface runoff.

### *Channel and Control*

The channel is straight for about 80 ft. upstream and 120 ft. downstream from the gage and is about 60 to 100 ft. wide. A gentle bend to the left occurs about 150 ft. downstream. The banks are low and are covered with grass, shrubs, and trees.

### *Discharge Measurements*

Normal flows are measured by wading in the vicinity of the gage. High flows can be measured from the bridge.

### *Extremes for Period of Record*

Maximum Instantaneous discharge of 662 cfs and with a daily mean discharge of 577 cfs on May 27, 2015, gage height of 4.62 ft. On May 27, 2015 the highest measurement was made since the gage was established with a discharge of 629 cfs and a gage height of 4.58. Rating 17 was used for these figures.

### *Point of Zero Flow*

Variable. Changes with conditions of scour and fill.

### *Winter Flow*

Flooding or complete ice cover should seldom occur.

## *Regulation and Diversions*

None.

## *Accuracy*

Discharge measurements are normally made once every four weeks. Records should be good to fair.

## **Equipment Details**

### *Recording Gage*

Sutron Satlink 3 in a standard 5' x 5' Corps of Engineers type metal shelter. The OTT Radar level sensor is mounted on downstream H-beam pile at left end of bridge. Attached to the left downstream wing wall is a CSI gage.

### *External Gage*

The reference gage is a staff gage (0 - 6.7 ft.) mounted on the downstream H-beam pile at left end of bridge. A nail located at 6.44 ft. on the staff gage; elevation 6.43 ft., gage datum. Levels of 3/9/2017.

### *Bench Mark and Reference Marks*

R.M. #1: is a standard bronze tablet set in concrete in the fence line, 27 ft. downstream from centerline of road, and 16 ft. left from the left side of shelter. Elevation is 13.96 ft., gage datum. Levels of 8/29/2023.

R.M. #2: **(Basic)** is a standard bronze tablet set in concrete 3 ft. upstream from fence line 28 ft., upstream from centerline of road, and 37 ft. left from left end of bridge. Elevation is 14.20 ft., gage datum. Levels of 8/29/2023.

R.M. #3: is top of downstream left corner of downstream H-beam pile at left abutment. Elevation is 14.48 ft., gage datum. Levels of 8/29/2023.

R.M. #4: is top of upstream left corner of upstream H-beam pile at left abutment. Elevation is 14.44 ft., gage datum. Levels of 8/29/2023.

R.P. #1: is chiseled X marked R.P. on downstream right edge of horizontal channel iron on right side of left abutment pile bent and 4.5 ft. below top of bridge deck. Elevation is 10.00 ft., gage datum. Levels of 8/29/2023.

R.M. #5: is a chiseled X on upstream shoreward corner of the 4-inch channel iron on gage house base support. Elevation is 15.42 ft., gage datum. Levels of 8/29/2023.

Elevation of the top of the CSI gage is 8.53 ft., from levels of 8/29/2023.

Datum of gage is 3094.918 ft. above NAVD88, as determined by levels of August 5, 2014, from reference mark (RM2-06459175).

## Revision History

Original description prepared 10-23-81 by H. D. Stephens

Revised 11-07-83 by K. H. Calver

Revised 02-18-87 by R. B. Swanson

Revised 01-08-90 by R. B. Swanson

Revised 05-24-94 by R. A. Drudik

Revised 01-17-95 by D. L. Studnicka

Revised 02-08-96 by D. L. Studnicka

Revised 06-12-97 by D. L. Studnicka

Revised 10-09-98 by D. L. Studnicka

Revised 09-17-01 by D. L. Studnicka

Revised 03-16-04 by D. L. Studnicka

Revised 06-15-05 by D.L. Studnicka

Revised 10-11-07 by D.L. Studnicka

Revised 04-05-10 by D.L. Studnicka

Revised 01-10-12 by J.E. Sedlacek

Revised 02-24-14 by J.E. Sedlacek

Revised 02-03-15 by J.E. Sedlacek

Revised 11-13-15 by J.E. Sedlacek

Revised 03-17-17 by J.E. Sedlacek

Revised 06-11-20 by J.E. Sedlacek

Revised 07-07-22 by J. E. Sedlacek

Revised 11-14-23 by J. E. Sedlacek