

Niobrara River at Agate, Nebraska 06454100

LOCATION

Latitude and Longitude

42.42353, -103.7925

Road Log

Located on right bank 10 feet upstream from 54-inch metal culvert under a farm access road. 300 feet upstream from bridge on State Highway 29, 0.2 mile northwest of post office at Agate, and 14.5 mile upstream from Whistle Creek.

Equipment Details

Recording Gage

SUTRON CBS bubbler gage with a Sutron Satlink DCP radio along with support equipment was installed on March 10, 2016. This gage provides one hour satellite transmissions with 15 minute data each hour.

External Gage

Base gage is enameled staff gage set to datum.

Bench Mark and Reference Marks

R.M. No. 1, 2, 4, 5, and 6 have been Destroyed.

R.M. No.3 Standard bronze tablet in concrete post 14 feet west of shelter post. Elevation of 8.01 feet from levels and read 8.00 feet dated 06/21/2019 used as origin.

Elevation of 8.00 feet by levels dated November 5, 2021.

R.M. No. 7 Nebraska Department of Roads standard bronze tablet on left upstream wing wall of the highway bridge. Elevation of 11.63 feet by levels dated 06/21/2019.

Elevation of 11.63 feet by levels dated November 5, 2021.

Staff Gage by levels dated 06/21/2019 held at 4.25 feet and reads 4.37 feet

Elevation of 5.08 feet found by levels dated November 5, 2021. -.06 from established elevation

Water Surface (WS) by levels dated 11/05/2021 Elevation of WS= 3.90 feet by levels dated November 5, 2021.

Hydrology

Drainage Area

840 square mile, approximately.

Channel and Control

Low to high water control is approach to opening of the 54-inch CMP culvert and is stable. Minor shifts can be expected due to debris lodging near opening.

Discharge Measurements

Practically all discharge measurements can be made by wading in the vicinity of the gage. In the event wading stages are exceeded measurements can be made from the State hiway 29 bridge from downstream of gage.

Extremes for Period of Record

1957-89 Maximum discharge 181 cubic feet per second June 23, 1959 (gage height, 5.00 feet from flood mark) minimum daily 1.0 cubic feet per second March 29, 1975.

Point of Zero Flow

Point of Zero Flow collected was 2.62 ft. on August 24, 2018.

Winter Flow

Very little backwater from ice conditions. Extreme stage variation may be experienced from snow blowing into channel above gage and choking off flow.

Regulation and Diversions

Diversions for irrigation of approximately 6,700 acres above station.

Accuracy

Published records are rated good.

Cooperation

Station maintained in cooperation with U.S. National Park Service. Field work and data assembly are done by Nebraska Department of Natural Resources.

Establishment and History

Established Dec. 12, 1957 by G. G. Jamison (USGS) and S.M. Christensen (Nebraska Dept. of Water Resources).

Recording gage installed November 3, 1960 by J.G. Lathrop, M.D. Stevens (Nebraska Dept. of Water Resources) and L.L Hull (USGS).

Station discontinued and closed out with levels dated March 22, 1993. Measurements were made quarterly.

https://nednr.nebraska.gov/RealTime/

Station discontinued till September 29, 2004 at this time a cubical shelter mounted to a pipe pedestal was installed. Present site location is 10 feet upstream and 5 feet south of USGS CMP station. An Isco 4230 bubble flow meter is used as recorder connected to stream with orifice line and sand point.

On March 10, 2016 the ISCO 4230 bubbler was removed. SUTRON CBS bubbler gage with a Sutron Satlink DCP radio along with support equipment was installed on March 10, 2016. This gage provides one hour satellite transmissions with 15 minute data each hour. Base gage is enameled staff gage set to datum.

Revision History

 Original description prepared by:
 G.G.Jamison
 12/16/1957

 Revised by:
 L.L Hull 11/16/1960

 Revised by:
 E.K. Steele 08/24/77

 Revised by:
 J.W.Vassos 01/09/1991

 Revised by:
 A. S. Leisy 08/01/2011

 Revised by:
 J.A. Marburger 01/25/2017

 Revised by:
 T. Stephens 10/24/2019

 Revised by:
 K. Schwager 11/28/2023