NEBRASKA
Good Life. Great Water.
DEPT. OF NATURAL RESOURCES

Niobrara River near Hay Springs, Nebraska
06456500

LOCATION

Latitude and Longitude

42.4825, -102.6941

Road Log

Station is located on the right bank east side of hi-way 87 ten miles South of Hay Springs. 3,730 feet above sea level southeast corner of bridge #3059 on Niobrara River between mile post 30 and 31.

Equipment Details

Recording Gage

Sutron CBS bubbler flow meter with a Satlink DCP radio to provide near real time information via satellite one hour transmissions of 15-minute data blocks.

External Gage

On April 12th, 2018 a wire weight was put on the downstream bridge rail as the new base gage. Levels were ran on April 19th, 2018 and an elevation of 20.99 was found to be the check bar elevation.

Bench Mark and Reference Marks

R.M. No. 1: Standard bronze tablet 9 feet West 12 feet south of lock on shelter. Elevation of 22.06 with levels dated April 19 2018. (Used as origin)

Elevation of 22.06 with levels dated December 16, 2021. (Used as origin.)

R.M. No. 2: X in guard rail 10 feet West 107 feet north of lock on shelter. Elevation of 22.00 feet found with levels dated May 2, 2019.

Elevation of 22.02 with levels dated December 16, 2021.

R.M. No. 3: Angle iron in concrete post 7 feet South 53 feet east of lock on shelter. Elevation of 7.90 feet found with levels dated May 2, 2019.

Elevation of 7.90 with levels dated December 16, 2021.

Staff Gage checked by Levels dated September 2, 2015 with an elevation held at 5 feet.

No longer the base gage as of 04/12/18. The staff was not shot on the level run on April 19 2018.

Wire weight was installed on 04/12/2018. Levels were ran on 04/19, 2018 and the check bar was found to have an elevation of 20.99. Check bar elevation of 20.99 found on May 2, 2019.

Elevation of 20.99 with levels dated December 16, 2021.

Hydrology

Drainage Area

1500 sq mile approximately.

Channel and Control

Shifting sand channel.

Discharge Measurements

Practically all discharge measurements can be made by wading in the vicinity of the gage. High flow measurements can be made from hi-way 87 bridge upstream of gage.

Extremes for Period of Record

Maximum discharge 119 cubic feet per second April 15, 2018, gage height 3.70 feet;

minimum daily discharge 5.5 cubic feet per second September 11 & 12, 2017.

Point of Zero Flow

Variable due to shifting sand channel.

Winter Flow

Ice conditions may occur at this site. Stage variation may be experienced from snow blowing into channel above gage and causing backwater or freeze outs.

Regulation and Diversions

This gage is used to help with administration for irrigation. There are irrigation diversions upstream of this gage. Box Butte Reservoir is located 12 miles upstream.

Accuracy

Published records are rated good.

Establishment and History

Established April 21, 2005 by the State of Nebraska Department of Natural Resources for the purpose of monitoring stream flow for irrigation administration.

April 21, 2005 a cubical type shelter on a pipe pedestal was installed. ISCO Flow meter is connected to stream with a sand point.

Levels were then ran on April 25, 2005. Staff gage was also established this will be used as base gage.

March 15, 2016 the ISCO Flow meter and phone system was removed and new equipment was installed. The new equipment is Sutron CBS bubbler flow meter with a Satlink DCP radio to provide near real time information via satellite one hour transmissions of 15-minute data blocks.

April 12th, 2018 a wire weight was put on the downstream bridge rail as the new base gage to take place of the often times damaged staff gage.

Levels were ran on April 19th, 2018 and an elevation of 20.99 was found to be the check bar elevation.

Levels were ran on December 16, 2021 and an elevation of 20.99 was found to be the check bar elevation.

Revision History

Original description prepared by:	A.S. Leisy	10/21/2009
Revised by:	S. Figuric	01/06/2017
Revised by:	J. Nichols	04/16/2018
Revised by:	J. Nichols	02/12/2019
Revised by:	T. Stephens	10/30/2019
Revised by:	K.Schwager	11/30/2023