

***Navajo Nation – Mancos River Watershed
– Surface Water Quality Assessment
Report (Integrated 305(b) Report and
303(d) Listing)***



Mancos River on June 1, 2017

Prepared by:

Navajo Nation Environmental Protection Agency
Water Quality Program
Post Office Box 339
Window Rock, Arizona 86515
(928) 871-7690

January 12, 2018

TABLE OF CONTENTS

1.0 Background and Purpose 1

2.0 Mancos River Watershed 2

3.0 Mancos River Watershed - Surface Water Quality Data Collection Activities..... 3

4.0 Mancos River Watershed - Surface Water Quality Data Assessment 4

5.0 Designated Use Support and Impairment Determination 9

6.0 References..... 9

FIGURES

2.0. Mancos River Watershed (64 square miles).....3

TABLES

2.0 Atlas of Assessed Surface Water Bodies with Known Lengths/Areas.....3

4.0 Mancos River Water Quality Data Assessment Table7

MAPS

4.0 Mancos River Sample Site.....5

PHOTOGRAPHS

4.0 Mancos River Sample Site.....5

1.0 Background and Purpose

The objective of the United States Clean Water Act (USCWA) is to "*restore and maintain* the chemical, physical, and biological integrity of the Nation's Waters" (USGPO, 1988). In order to meet this objective, and exert its sovereign authority to protect its water resources, the Navajo Nation codified the Navajo Nation Clean Water Act (NNCWA 1999) in July 1999. The importance of water to the Navajo Nation is clearly demonstrated by the adoption of the NNCWA, with the Navajo Nation being only one of a few tribes or states to adopt a clean water act. The NNCWA provides the legislative authority to allow the Navajo Nation to fulfill the USCWA requirements.

In order to *restore and maintain* the chemical, physical, and biological integrity of the Nation's Water, states and federally recognized tribes adopt water quality standards which protect the uses of the Nation's water bodies. Water quality standards are narrative and numeric criteria used as benchmarks to determine if a designated use for a water body is being attained. NNCWA Section 103(a) (2) (A) provides for "the establishment of water quality standards to protect fish and wildlife and the domestic, cultural, agricultural and recreational uses of the waters of the Navajo Nation." This is consistent with the "fishable and swimmable goal" set forth in USCWA Sections 101(a) (2) and 303(c) (2). NNCWA Sections 201(b) and (c) requires that designated uses be established for public water supplies, the protection and propagation of fish and wildlife, recreational purposes, agricultural (including livestock watering), industrial, cultural, and other uses, and to establish criteria to protect the designated uses.

The Navajo Nation first codified the 1999 Navajo Nation Water Quality Standards (1999 NNWQS) in July 1999 (NNEPA 1999). On January 20, 2006 the US Environmental Protection Agency (USEPA) approved the Navajo Nation's application to administer the Water Quality Standards and Certification Programs under the federal Clean Water Act's Sections 303 and 401. On March 26, 2009, the USEPA approved the 2007 Navajo Nation Surface Water Quality Standards (2007 NNSWQS) (NNEPA 2008).

The Navajo Nation Surface Water Quality Standards 2015 (NNSWQS 2015) is the revision to the 2007 NNSWQS. The 2015 NNSWQS were approved by the Navajo Nation Natural Resources Committee on May 23, 2017.

The Navajo Nation Environmental Protection National Pollutant Discharge Elimination System / Water Quality Program (NNEPA WQP) is responsible for implementing the requirements of the USCWA and the NNCWA within the Navajo Nation.

This report fulfills the federal Clean Water Act Section (CWA) 305(b) reporting requirements, CWA 303(d) listing requirements, EPA's CWA § 106 Tribal Guidance, Chapter 8 and Appendix A, assessment reporting requirements, and FY 2018-2019 National Water Program Guidance Measures WQ-06a. It also fulfills assessment reporting requirements in the “Navajo Nation Environmental Protection Agency Water Quality/Navajo Nation Pollutant Discharge Elimination System Program, Federal Clean Water Act Performance Partnership Grant” Work Plan.

The purpose of this report is to assess the Mancos River Watershed surface water quality data obtained by the NNEPA WQP by:

1. Presenting the surface water quality data;
2. Comparing the surface water quality data to the latest version of the NNSWQS to see if standards are being met; and
3. Determine if uses designated for surface waters are being supported using the methods described in the February 20, 2008 NNEPA document entitled: “Guidance for Assessing the Quality of Navajo Nation Surface Waters to Determine Impairment” (Integrated 305(b) Reporting and 303(d) Listing) (NNEPA Impairment Guidance).

The Navajo Nation Mancos River Watershed Surface Water Quality Assessment Report is intended to be a living document, which can be updated to include the latest surface water quality data. The NNEPA WQP welcomes all comments that will assist in revising this report in the future.

2.0 Mancos River Watershed

The Mancos River Watershed (Figure 2.0) is located on approximately 64 square miles within the Navajo Nation. The United States Geological Survey (USGS) 8-digit Hydrologic Unit Code (HUC) for the Mancos River Watershed is 14080107 (USGS 1987). The NNEPA WQP watershed code for the Mancos River Watershed is 07. A detailed geographic location of the watershed sampling site may be found in Section 4.0. An atlas of water bodies with known lengths and areas assessed by the NNEPA WQP within this watershed are listed in Table 2.0. There are 3.51 miles of surface waters in this watershed.

Figure 2.0 – Mancos River Watershed (64 square miles)

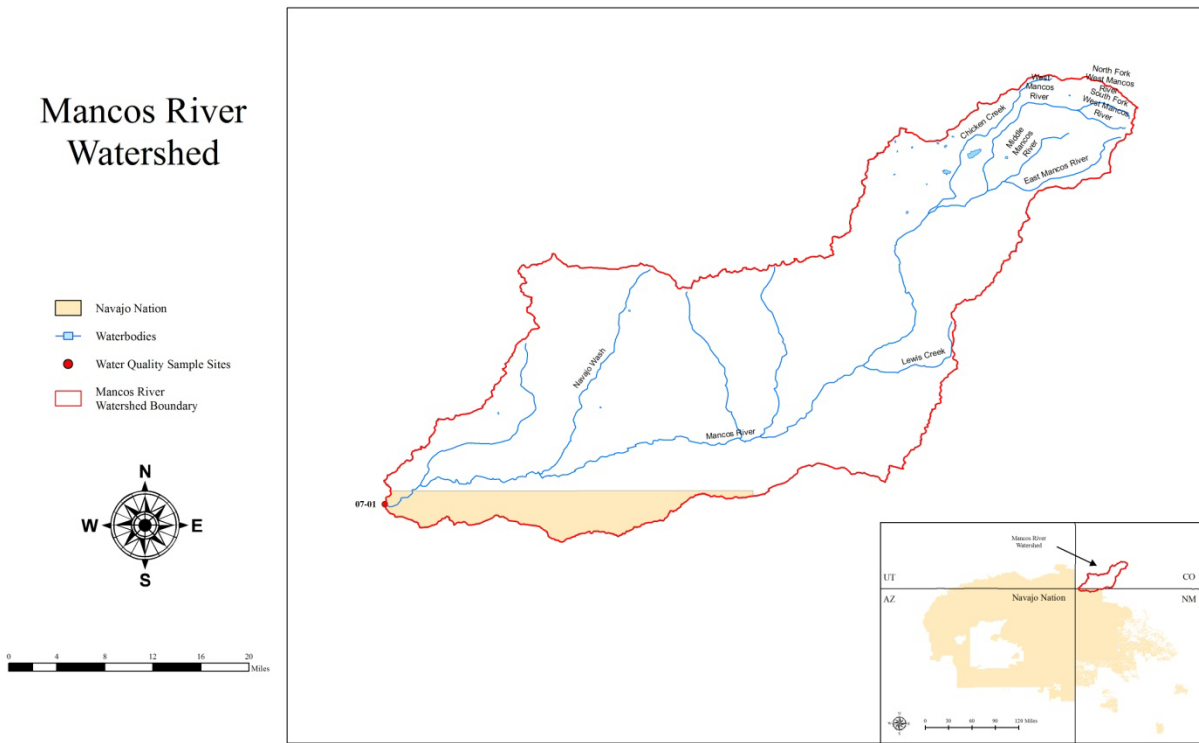


Table 2.0 – Atlas of Assessed Surface Water Bodies with Known Lengths/Areas

(from Navajo Nation Department of Water Resources - March 31, 2009)

Surface Water Body Name Within The Navajo Nation	
Streams (Rivers, Washes, Arroyos, Creeks)	Length (miles)
Mancos River	3.51 miles
Total Stream Miles Assessed (minimum)	3.51 miles

3.0 Mancos River Watershed Surface Water Quality Data Collection Activities

Monitoring and water quality sampling of the Mancos River Watershed was conducted using professional experience and in accordance with the NNEPA WQP June 1, 2012 “Quality Assurance Plan for Surface Water Data Collection” or previous quality assurance plans. Measurements of physical/ chemical characteristics and stream discharge were made. Samples were obtained and submitted to an analytical laboratory for analyses. Quality Assurance and Quality Control samples were also obtained.

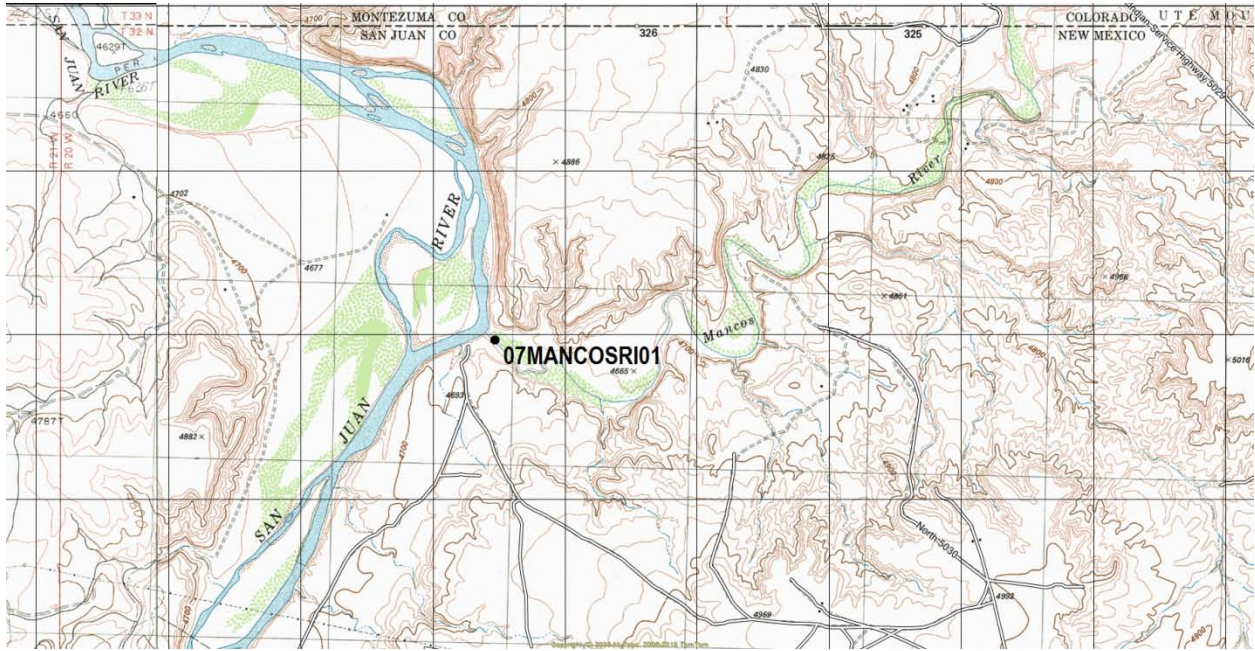
4.0 Mancos River Watershed Surface Water Quality Data Assessment

The following tables provide detailed information on the Mancos River sample site. When available a site photograph is provided. The sample site name used for sampling is provided along with the alias used to locate the sample site on the watershed map in Section 2.0 and a location description. The total number of years sampled is provided along with years sampled during the assessment period. The assessment period is the consecutive time period where a minimum number of samples must be obtained in order to determine designated use support. In most instances it is a three year consecutive period where a minimum of five samples must be obtained. (Please refer to the NNEPA Impairment Guidance). Water quality data at each site was compared to the numeric standards in the NNSWQS 2015. Uses designated for each water body in the NNSWQS 2015 are listed in each table. These uses may include Domestic Water Supply (Dom), Primary Human Contact (PrHC), Secondary Human Contact (ScHC), Fish Consumption (FC), Aquatic & Wildlife (Acute and Chronic) (A&W (A) and A&W (C)), Agricultural Water Supply (AgWS), and Livestock Watering (LW). Exceedances of the numeric standard are provided for any analyte for both the individual analyte and for the analytes corresponding to each designated use. Also provided are the percentages of exceedances from the number of samples obtained. The letter “n” refers to the number of samples obtained.

The category of designated use support from the NNEPA Impairment Guidance may be found at the end of each table. Designated use support categories are determined, in part, by comparing the analytical result at each sample site to the NNSWQS 2015. The NNEPA WQP may also choose to list surface waters as impaired if it pursues primacy granted by USEPA for federal Clean Water Act Section 303(d).

To obtain the complete set of surface water quality analytical data from this watershed used in these tables please call 505-368-1037.

Map 4.0 – Mancos River Sample Site



Photographs 4.0 – Mancos River Sample Site

(Note: San Juan River confluence pictured in background of some photographs)



Site 07MANCOSRI01 on August 15, 2001



Site 07MANCOSRI01 on April 27, 2004

Photographs 4.0 – Mancos River Sample Site (continued)



Site 07MANCOSRI01 on June 18, 2009



Site 07MANCOSRI01 on March 13, 2017



Confluence of San Juan River (left) and Mancos River (right) on April 5, 2017

Photographs 4.0 – Mancos River Sample Site (continued)



Site 07MANCOSRI01 on July 27, 2017

Table 4.0 – Mancos River – Water Quality Data Assessment Table

Site	Alias	Location
07MANCOSRI01	07-01	Mancos River @ mouth

Total		Assessment period	
Year(s) sampled	# of Sample Events	Year(s) sampled*	# of Sample Events*
2001-2017	29	2015-2017	17

*Note that not all analytes were necessarily sampled each sample event.

Designated Use	All samples		Assessment period	
	Total number of exceedances	Total analytes exceeded	Total number of exceedances	Total analytes exceeded
FC	1	1	0	0
PrHC	7	1	5	1
ScHC	7	1	5	1
A&W (C)	47	3	35	3
AgWS	1	1	0	0
LW	9	2	9	2

Table 4.0 – Mancos River – Water Quality Data Assessment Table (continued)

Analyte	Fish Consumption					
	All samples			Assessment period		
	Exceedances	n	Percent	Exceedances	n	Percent
Mercury (T)	1	29	3.4%	0	17	0.0%

Analyte	Primary Human Contact					
	All samples			Assessment period		
	Exceedances	n	Percent	Exceedances	n	Percent
Lead (T)	7	25	28.0%	5	17	29.4%

Analyte	Secondary Human Contact					
	All samples			Assessment period		
	Exceedances	n	Percent	Exceedances	n	Percent
Lead (T)	7	25	28.0%	5	17	29.4%

Analyte	Aquatic and Wildlife (Chronic)					
	All samples			Assessment period		
	Exceedances	n	Percent	Exceedances	n	Percent
Aluminum (AS)	3	16	18.8%	3	16	18.8%
Mercury (T)	23	29	79.3%	16	17	94.1%
Selenium (T)	21	29	72.4%	16	17	94.1%

Analyte	Agricultural Water Supply					
	All samples			Assessment period		
	Exceedances	n	Percent	Exceedances	n	Percent
Aluminum (T)	1	23	4.3%	0	15	0.0%

Analyte	Livestock Watering					
	All samples			Assessment period		
	Exceedances	n	Percent	Exceedances	n	Percent
Gross alpha (Adj)	7	23	30.4%	7	16	43.8%
Vanadium (T)	2	15	13.3%	2	15	13.3%

5.0 Designated Use Support and Impairment Determination

- **Was the minimum number of samples to determine designated use support obtained during the assessment period? Yes.**
- **Category of Designated Use Support: Category 5b – At least one designated use is not supported and a review of the designated use and/or water quality standards will be conducted to determine if appropriate for the surface water body.**
- **Category 5b is specific to only the analytes listed above with 2 or more exceedances during the assessment period for the individual designated use. For analytes with 1 or less exceedances during the assessment period the designated use is supported for those analytes.**
- **Aluminum is an abundant element within the Navajo Nation and may be completely attributable to naturally occurring sources, not anthropogenic sources.**
- **The Agricultural Water Supply and Livestock Watering numeric surface water quality standards are being reviewed to determine toxicity to agricultural products, livestock, and human health.**

6.0 References

- United States Government Printing Office (USGPO). March 1988. The Clean Water Act
As Amended By The Water Quality Act Of 1987 Public Law 100-4.
- NNEPA. July 23, 1999. Navajo Nation Clean Water Act.
- NNEPA. November 9, 1999. Navajo Nation Water Quality Standards.
- NNEPA. May 13, 2008. Navajo Nation Surface Water Quality Standards 2007
- NNEPA. 2015. Navajo Nation Surface Water Quality Standards 2015. Passed by Navajo Nation
Council Resources and Development Committee on May 23, 2017
- United States Geological Survey. 1987. Hydrologic Unit Maps, United States Geological
Survey Water- Supply Paper 2294.