2024 Water Sentinels Rios de Taos Water Quality Sampling Report

Prepared under the Quality Assurance Project Plan for Amigos Bravos' Water Sentinels Rios de Taos Water Monitoring Project

Table of Contents

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Abstract

The Water Sentinels Ríos de Taos volunteer monitoring program tracks water quality across streams and rivers in Northern New Mexico to help communities better understand watershed health and identify areas needing attention.

During 2024, volunteers and partners monitored water quality at sites in the Rio Hondo, Rio Pueblo de Taos, Rio Fernando de Taos, Red River, Upper Rio Grande, Rio Embudo, Pecos River, Jemez watershed, and San Juan River. Samples were compared against standards established by the New Mexico Environment Department and guidance from the U.S. Environmental Protection Agency.

General findings include:

- Persistent high electrical conductivity in several rivers, especially near development or historic mining areas.
- Ongoing nutrient and *E. coli* concerns near wastewater discharges and livestock-impacted sites.
- Episodic low dissolved oxygen at several sites, which may affect aquatic life.

Specific findings include:

- Elevated *E. coli* levels in portions of the upper Rio Fernando
- Recurring *E. coli* exceedances at Merris Spring (P1A)
- Elevated electrical conductivity and nitrate concentrations in the Taos Ski Valley (TSV) area
- Ongoing nutrient concerns associated with wastewater effluent in the Rio Pueblo watershed

Long-term monitoring remains essential for identifying trends and supporting watershed restoration efforts.

Introduction

The Water Sentinels Ríos de Taos (Water Sentinels) project was initiated in 2005 by the Sierra Club in response to concerns about limited water quality data in local watersheds. In partnership with Amigos Bravos, volunteers developed a monitoring plan approved by the New Mexico Environment Department (NMED). Sampling began in 2007 in the Rio Hondo, Rio Fernando de Taos (Rio Fernando), and Rio Pueblo watersheds. Over time, additional sites were added, including the Red River (2012), Rio Embudo (2021), upper Pecos River sites, and other regional watersheds.

This report summarizes sampling performed in 2024 and builds on seventeen prior annual reports (2007–2023). Monitoring objectives include:

- Tracking long-term trends in surface water quality
- Identifying exceedances of state water quality standards
- Supporting community-based watershed stewardship
- Informing agencies and stakeholders about potential impairment risks

Water quality parameters were evaluated using New Mexico surface water standards (20.6.4 New Mexico Administrative Code [NMAC]), U.S. Environmental Protection Agency (EPA) criteria, and established scientific guidelines where regulatory standards do not exist (Figure 1).

Figure 1: Surface Water Quality Standards and Guidelines

Parameter	Standard/Guideline Value	Standard or Guideline Source
Temperature	Less than or equal to 23℃	Standard - 20.6.4 NMAC
pH	6.6-8.8	Standard - 20.6.4 NMAC
Dissolved Oxygen	Greater than or equal to 6	Standard - 20.6.4 NMAC
Electrical Conductivity	Less than or equal to 400µS/cm	Standard - 20.6.4 NMAC. Less than or equal to 500µS/cm in the Rio Fernando
E. coli	Less than or equal to 235 CFU/100ml	Standard - 20.6.4 NMAC. 410 in the Rio Hondo

Aluminum	Hardness of 100 - 3,420 µg/L acute; 1,370 µg/L chronic. Hardness of 200 - 8,840 acute; 3,540 chronic µg/L.	Standard - 20.6.4 NMAC. Depends on hardness. See (3) Table of Selected Values, pg. 49-50 20.6.4 NMAC
Phosphate	Less than 0.10	Standard - 20.6.4 NMAC. No standard on PS2 or the Rio Grande sites
Nitrate	No State Standard or EPA standard	Nitrate levels above 0.3 mg/L (equivalent to PPM) are indicative of pollution running off the land and into aquatic habitats. The Florida Department of Environmental Protection has developed numeric criteria for nutrients as targets to limit algal growth and maintain healthy surface waters. For clear water streams, their criterion for nitrate is 0.35 milligrams NOx-N per liter.
Ammonia	EPA Standard	Based on a one-hour average, typically around (17 mg/L) TAN at pH 7 and 20°C. and a chronic criterion (30-day) of 1.9 mg/L TAN (at pH 7 and 20°C) Total Ammonia Nitrogen (TAN) criteria are dependent on pH and temperature, as higher levels increase toxicity.

Nitrates and phosphates were measured at many sites. The New Mexico Environment Department does not set segment-specific nitrate criteria for surface waters, but the drinking water standard is 10 mg/L. In surface waters, nitrate levels as low as about 0.3 mg/L can promote algal blooms and lower pH, indicating possible pollution runoff.

Nitrogen compounds may also occur naturally, including up to 0.5 mg/L in rainfall, but common sources include fertilizers, animal waste, and human waste. For comparison, the Florida Department of Environmental Protection sets a nitrate target of 0.35 mg/L for clear streams to control algal growth. The 2025 National Pollutant Discharge Elimination System (NPDES) permit for the Taos Wastewater Treatment Plant (Taos WWTP) allows a maximum 30-day average nitrate discharge of 11 mg/L.

The United States Environmental Protection Agency (2013) freshwater aquatic-life guidance for total ammonia nitrogen (TAN) recommends a 1-hour acute limit of 17 mg/L and a 30-day chronic limit of 1.9 mg/L at pH 7 and 20°C, with limits varying by temperature, pH, and species. The New Mexico Environment Department standards in NMAC 20.6.4 include these criteria. The Taos Wastewater Treatment Plant ammonia limits are a 30-day average of 3.75 mg/L and a daily maximum of 5.62 mg/L.

The New Mexico Environment Department phosphate standard for most Upper Rio Grande segments is 0.1 mg/L. The Taos WWTP's phosphate discharge limit is a 30-day average of 4 mg/L.

Aluminum concentrations in natural waters vary widely based on water chemistry. Near-neutral waters typically contain 1–50 µg/L dissolved aluminum, while acidic or organic-rich waters may reach 500–1,000 µg/L, and extremely acidic mine-impacted waters can reach up to 90,000 µg/L. The New Mexico Environment Department standards use hardness-based acute and chronic limits. At hardness of 100 mg/L, standards are then 3,420 µg/L (acute) and 1,370 µg/L (chronic); at hardness of 200 mg/L, limits are then 8,840 µg/L (acute) and 3,540 µg/L (chronic).

Acute criteria address short-term toxicity (96 hours or less) and are assessed from single-grab samples. Chronic criteria address longer-term effects such as impaired growth, disease, and reduced reproduction; compliance is based on average results from multiple samples, and exceedances are allowed no more than once every three years

Water Sampling Methods

Surface water sampling was conducted between April and November 2024 within the Upper Rio Grande watershed. Sampling sites included:

- 5 sites on the Rio Hondo
- 5 sites on the Rio Pueblo de Taos
- 4 sites on the Rio Fernando de Taos
- 4 sites on the Red River
- 6 sites on the Rio Grande
- 5 sites on the Rio Embudo
- 3 sites on the Pecos River

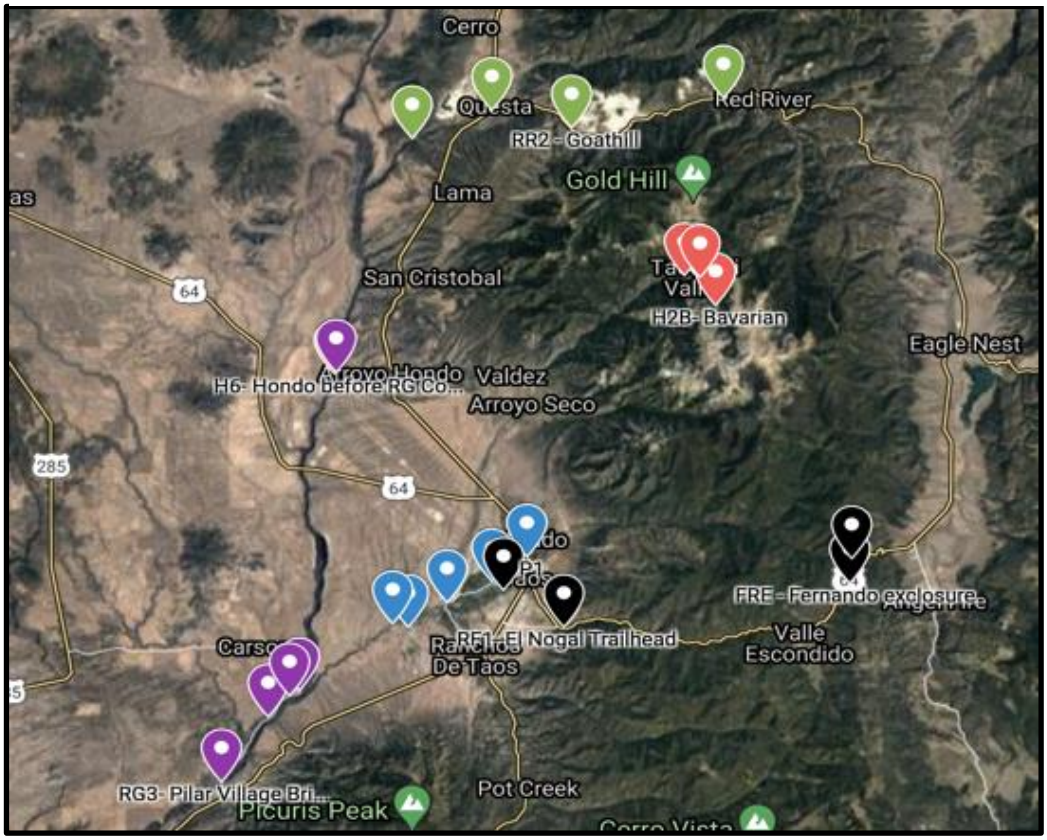
- 2 sites in the Jemez watershed
- 3 sites on the San Juan River

Sampling followed the NMED-approved Quality Assurance Project Plan (QAPP) for the Water Sentinels Ríos de Taos monitoring program.

Field measurements included temperature, pH, dissolved oxygen, and electrical conductivity. Water samples were kept on ice and processed within an eight-hour holding time at Sangre de Cristo Laboratories (Alamosa, Colorado). *E. coli* samples were analyzed using IDEXX methods at the Amigos Bravos laboratory.

EPA-approved analytical methods and holding times were followed for all laboratory parameters (Appendix B). Due to technical difficulties, *E. coli* results were unavailable for the August 21 sampling event. Figures 2-6 show sampling locations across the state.

Figure 2: Map of Taos, NM Area Water Sampling Locations



Green = Red River, Red = Rio Hondo, Purple = Rio Grande, Blue = Rio Pueblo, and Black = Rio Fernando.

Figure 3: Map of Rio Embudo Area Sampling Locations

Figure 4: Map of Pecos River Sampling Locations

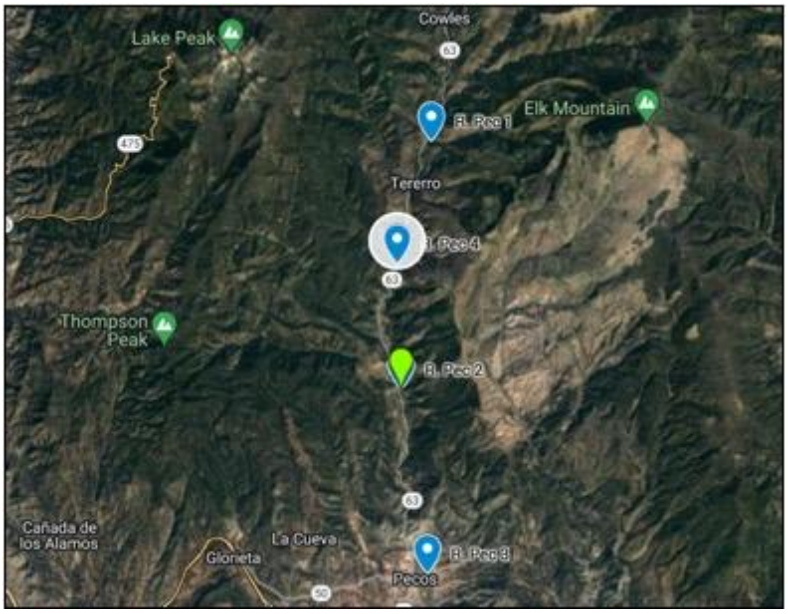


Figure 5: Map of San Juan River Sample Locations

Figure 6: Map of Jemez Watershed sample locations.

J1 = East Fork of the Jemez River, and J2 = Rio San Antonio

Results

Water quality standard exceedances and interesting results for each sampling date and river are stated below. The full sampling results for 2024 can be found in Appendix C. Streamside readings of temperature, dissolved oxygen, pH, and electrical conductivity were taken at all sites. Parameters analyzed by a lab vary and are shown in this section or in Appendix C. *E. coli* results are not available in August of 2024 due to technical difficulties. Please refer to the introduction section for detailed information on water quality standards for each parameter.

Rio Hondo

Sites HB, H2B3, H2C, H6				
Site	**Date**	**Nitrate (mg/L)**	**Electrical Conductivity (µS/cm)**	**pH**
H2B (Bavarian)	10/16/24	-	326	9.1
H2B3 (Sutton Place Bridge)	7/17/24	-	1,489	8.61
H2C (Children's Learning Center)	7/17/24	0.22	1,496	8.63
H6 (Hondo just before RG Confluence)	10/16/24	0.34	329	8.35

Site H2E - Village of Taos Ski Valley Wastewater Treatment Plant

Date	Nitrate (mg/L)	Ammonia (mg/L)
7/17/24	1.43	<0.10
8/21/24	0.78	<0.10
10/16/24	4.3	4.08

Parameters sampled for that were not above water quality standards tables included: temperature, dissolved oxygen, phosphate, *E. coli,* and total suspended solids.

Rio Pueblo

Site PS2: Taos Wastewater Treatment Plant

Date	Parameter	Result	Standard	Notes
7/17/24	Phosphate	1.82 mg/L	30 day average of 4 mg/L	Elevated above standards for other segments of 0.1mg/L
7/17/24	Nitrate	0.76 mg/L	30-day average of 11 mg/L	Elevated above guidance of 0.35mg/L for surface water quality in Florida State standards
7/17/24	Conductivity	8,410 µS/cm	None	Extremely elevated above 400/500 µS/cm standards on other segments
7/17/24	*E. coli*	214.2 CFU/100 mL	235 CFU/100ml	Elevated compared to all

				previous *E. coli samples* a this location.
8/21/24	Phosphate	1.24 mg/L	30 day average of 4 mg/L	Elevated above standards for other segments of 0.1mg/L
8/21/24	Nitrate	1.03 mg/L	30-day average of 11 mg/L	Elevated above guidance of 0.35mg/L for surface water quality in Florida State standards
10/16/24	Conductivity	875 µS/cm	None	Elevated above standards on other segments
10/16/24	Phosphate	2.72 mg/L	30 day average of 4 mg/L	Elevated above standards for other segments of 0.1mg/L
10/16/24	Nitrate	1.33 mg/L	30-day average of 11 mg/L	Elevated above guidance of 0.35mg/L for surface water quality in Florida State standards

P1, P1A/MS1, PS3

Site	Date	Parameter	Result	Standard	Standard Notes
PS3 (below WWTP)	7/17/24	pH	8.98	6.6-8.8	Exceeded standard
P1 (Car wash adjacent)	7/17/24	Conductivity	9,940 µS/cm	400 µS/cm	Exceeded standard
MS1/P1A (Merris Spring)	7/17/24	*E. coli*	648.8 CFU/100 mL	235 CFU/100ml	Exceeded standard
P1 (Car wash adjacent)	8/21/24	Conductivity	2,240 µS/cm	400 µS/cm	Exceeded standard
MS1/P1A (Merris Spring)	10/16/24	*E. coli*	920.8 CFU/100 mL	None	Extremely elevated above 235 CFU/100ml standards on other segments in the vicinity

MS1/P1A (Merris Spring)	10/16/24	Conductivity	504 µS/cm*	None	Slightly elevated above 400/500 µS/cm standards on other segments

Parameters sampled for that were not above water quality standards or shown in the above tables included: temperature, dissolved oxygen, ammonia and total suspended solids.

Rio Fernando de Taos

Date	Site/Location	Parameter	Result	Notes/Standards
7/17/24	FLJ (Riparian Pasture)	*E. coli*	648.8 CFU/100 mL	Exceeds standard
7/17/24	F4 (Fred Baca Park)	Electrical Conductivity	733 µS/cm	Above 500 µS/cm standard
7/17/24	F1 (El Nogal Parking Lot)	Electrical Conductivity	716 µS/cm	Above 500 µS/cm standard
8/21/24	FRE (Riparian Pasture)	Electrical Conductivity	880 µS/cm	Exceeds standard
8/21/24	F4 (Fred Baca Park)	Electrical Conductivity	914 µS/cm	Exceeds standard
8/21/24	F1 (El Nogal Parking Lot)	Electrical Conductivity	869 µS/cm	Exceeds standard
8/21/24	F1 (El Nogal Parking Lot)	Dissolved Oxygen	5.5 ppm	Below standard
10/16/24	F1 (El Nogal Parking Lot)	Dissolved Oxygen	2 ppm	Below standard
10/16/24	F1 (El Nogal Parking Lot)	Electrical Conductivity	678 µS/cm	Exceeds standard
10/16/24	FRE (Riparian Pasture)	Electrical Conductivity	650 µS/cm	Exceeds standard
10/16/24	FRE (Riparian Pasture)	*E. coli*	307.6 CFU/100 mL	Elevated
10/16/24	F4 (Fred Baca Park)	*E. coli*	>2419.6 CFU/100 mL	Elevated

The conductivity standard for the Rio Fernando is 500 µS/cm, compared with 400 µS/cm for most other rivers. Parameters sampled for that were not above water quality standards or shown in the above tables included temperature, and pH.

Red River

Date	Site/Location	Parameter	Result	Notes/Standards
17-Jul-24	All Sites	pH	9.84–10.47	Above standard (6.6–8.8)
21-Aug-24	RR2	pH	9.1	Above standard
21-Aug-24	RR3	pH	9.98	Above standard
21-Aug-24	RR4	pH	9.82	Above standard

Aluminum and Hardness Values for the Red River in 2024.

Red River Site	Date	Hardness (ppm)	Recovered Aluminum (µg/L)	Exceedance (yes/no)
RR1	7/17/24	133.2	246	No
RR1	8/21/24	142.3	502	No
RR1	10/16/24	230.8	526	No
RR2	7/17/24	232.8	388	No
RR2	8/21/24	238.6	576	No
RR2	10/16/24	261.9	609	No
RR3	7/17/24	221.6	349	No
RR3	8/21/24	207.3	603	No
RR3	10/16/24	266.4	630	No
RR4	7/17/24	221.6	210	No
RR4	8/21/24	201.7	649	No
RR4	10/16/24	143.3	388	No

NMED hardness-dependent Aluminum standards:

- Hardness = 220 ppm: 10,100 µg/L acute; 4,030 µg/L chronic
- Hardness = 200 ppm: 8,840 µg/L acute; 3,540 µg/L chronic
- Hardness = 100 ppm: 3,420 µg/L acute; 1,370 µg/L chronic

Parameters sampled for that were not above water quality standards or shown in the above tables included temperature, dissolved oxygen, electrical conductivity, and *E. coli.*

Upper Rio Grande

Date	Site/Location	Parameter	Result	Notes/Standards
17-Jul-24	RG4	pH	8.9	Exceeds standard

17-Jul-24	RG5	*E. coli*	>2419.6 CFU/100 mL	Exceeds standard
17-Oct-24	RIN-1	Dissolved Oxygen	4.5 ppm	Exceeds standard

Parameters sampled for that were not above water quality standards or shown in the above tables included temperature, electrical conductivity, total suspended solids, phosphates, nitrates, and ammonia.

Rio Embudo

Date	Site/Location	Parameter	Result	Notes/Standards
17-Jul-24	RE-3	Electrical Conductivity	515 µS/cm	Slightly above standard
21-Aug-24	EMB-2	Dissolved Oxygen	4 ppm	Below standard
21-Aug-24	RE-6	Dissolved Oxygen	5 ppm	Below standard
16-Oct-24	RE-3	Dissolved Oxygen	5.5 ppm	Below standard
16-Oct-24	RE-4	Dissolved Oxygen	5.5 ppm	Below standard
16-Oct-24	RE-5	Dissolved Oxygen	5 ppm	Below standard
16-Oct-24	RE-6	Dissolved Oxygen	5 ppm	Below standard

BTEX Screening: Community members expressed concern about potential roadway runoff impacts at site RE-4 from State Roads 68 and 75. All BTEX results were non-detect for benzene, ethylbenzene, toluene, m+p-xylenes, o-xylene, and total xylenes.

Parameters sampled for that were not above water quality standards or shown in the above tables included temperature, pH, aluminum, electrical conductivity, *E. coli*, and hardness.

Pecos River

Metals results are summarized below. Metals consistently detected in 2024 included: magnesium (2.2–3.8 mg/L), aluminum (0.07–2.7 mg/L), hardness (75–170 mg/L), barium (0.03–0.036 mg/L), and manganese (0.007–0.021 mg/L).

Electrical conductivity levels were close to water quality standard (300 µS/cm) at RPec1 and well above water quality standards a RPec2 and RPec 3.

Site	7/16/24 (µS/cm)	8/20/24 (µS/cm)	9/12/24 (µS/cm)
RPec1	334	335	339
RPec2	1,726	1,486	1,663
RPec3	1,998	1,693	184

Pecos River Metals Results 2024:

	7/16/24			8/20/24			9/12/24		
Units = mg/L	**RPec1**	**RPec2**	**RPec3**	**RPec1**	**RPec2**	**RPec3**	**RPec1**	**RPec2**	**RPec3**
Boron	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Calcium	61	27	33	61	24	27	61	26	31
Magnesium	3.8	2.6	2.9	3.4	2.2	2.4	3.5	2.4	2.7
Aluminum	0.26	0.07	0.15	0.08	0.1	0.15	0.09	0.07	0.42
Antimony	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Arsenic	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium	0.036	0.023	0.027	0.034	0.024	0.027	0.035	0.024	0.030
Berylliu m	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Cadmium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Chromium	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Cobalt	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Copper	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Lead	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Manganese	0.013	0.011	0.018	0.01	0.012	0.019	0.007	0.008	0.021
Molybdenum	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.001
Seleniu m	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01
Silver	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005
Thalliu m	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Uraniu m	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Vanadium	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Zinc	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002

Parameters sampled for that were not above water quality standards or shown in the above tables included temperature, dissolved oxygen, pH, phosphates, nitrates, ammonia, and *E. coli*.

Jemez watershed

Date	Site	Parameter	Result	Notes
April 1, 2024	J1	Electrical Conductivity	1,364 µS/cm	Elevated
April 1, 2024	J2	Dissolved Oxygen	5 ppm	—
April 1, 2024	J1/J2	Aluminum	2.3 mg/L (2,300 µg/L)	Extremely elevated (see Appendix C)
July 16, 2024	J1	Dissolved Oxygen	5 ppm	—
July 16, 2024	J1	Electrical Conductivity	1,590 µS/cm	—
November 11, 2024	J1	Electrical Conductivity	1,486 µS/cm	Elevated
November 11, 2024	J2	Dissolved Oxygen	5 ppm	Low
November 11, 2024	J2	Electrical Conductivity	1,983 µS/cm	High

Parameters sampled for that were not above water quality standards or shown in the above tables included temperature, pH, *E. coli,* and aluminum.

San Juan River

Date	Site	Parameter	Result	Notes
March 19, 2024	J1	Electrical Conductivity	**1,364 µS/cm**	Exceeds standard.
	J2	Dissolved Oxygen	**5 ppm**	Exceeds standard.
	J1 and J2	Aluminum	**2300 µg/L**	Near/Above chronic standards. Hardness was not sampled so exceedance cannot be determined
July 16, 2024	J1	Electrical Conductivity	**1,590 µS/cm**	Exceeds standard.
	Unspecified	Dissolved Oxygen	**5 ppm**	Exceeds standard.
Nov 11, 2024	J1	Electrical Conductivity	**1,486 µS/cm**	Exceeds standard.
	J2	Electrical Conductivity	**1,983 µS/cm**	Exceeds standard.
	J2	Dissolved Oxygen	**5 ppm**	Exceeds standard

2024 San Juan River Metals

San Juan Metals 2024	**3/19**			**11/24**		
Units = mg/L	**SJ1**	**SJ2**	**SJ3**	**SJ1**	**SJ2**	**SJ3**
Iron	0.24	0.295	0.28	-	-	-
Magnesium	4.84	5.47	4.79	-	-	-
Potassium	1.86	1.85	1.97	-	-	-
Sodium	11.7	16.8	11.9	-	-	-
Aluminum	0.276	0.261	0.315	0.171	0.106	0.123

Barium	ND	0.0617	0.0672	-	-	-
Copper	0.0014	0..0017	0.0016	-	-	-
Manganese	0.0068	0.0129	0.0106	-	-	-
Nickel	0.0018	0.002	0.0019	-	-	-
Antimony	ND	ND	ND	-	-	-
Arsenic	0.0013	0.0015	ND	-	-	-
Beryllium	ND	ND	ND	-	-	-
Cadmium	ND	ND	ND	-	-	-
Chromium	ND	ND	ND	-	-	-
Cobalt	ND	ND	ND	-	-	-
Lead	ND	ND	ND	ND	ND	ND
Selenium	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	-	-	-
Thallium	ND	ND	ND	-	-	-
Vanadium	ND	ND	ND	-	-	-
Zinc	ND	ND	0.0153	-	-	-
Mercury	ND	ND	ND	ND	ND	ND

Parameters sampled for that were not above water quality standards or shown in the above tables included phosphates, nitrates, ammonia, total suspended solids, hardness, aluminum.

Conclusion and Recommendations

This section summarizes the parameters of concern in each river. Rivers and results not mentioned had results within the water quality standards or general guidelines for that parameter. See Appendix C for all data collected. **Bold** font is used for recommendations of action for the New Mexico Environment Department.

Rio Hondo

- **Electrical Conductivity**
  - Exceeding standards since 2014; 2024 values: 1,489–1,767 µS/cm (standard: 400 µS/cm)
  - Indicates elevated salts/contaminants
  - **Recommend continued monitoring and source investigation (construction, wastewater)**

- **Phosphate**
  - Extremely high in 2020–2021 (up to 47× standard at TSV WWTP)
  - Returned to <0.20 mg/L (2022–2024)
  - Continue monitoring; improvement noted
- **Nitrate**
  - 4.3 mg/L (Oct 2024) — below drinking water limit, but ecologically high
  - ~12× above protective ecological benchmark (0.35 mg/L)
  - **Recommend more frequent nutrient sampling at TSV WWTP (≥ annually)**

Rio Fernando de Taos

- **Fred Baca Park**
  - Ongoing issues: *E. coli*, conductivity, DO
  - 2024 improvements: fewer E. coli exceedances; no DO exceedances
  - Conductivity still high (650–914 µS/cm)
  - Wetland restoration and riparian shading expected to help
- **Upper Rio Fernando (Grazing Impacts)**
  - Extremely high E. coli during grazing (>2419.6 CFU/100 mL)
  - Restoration ongoing to improve resilience

Rio Pueblo

- **Merris Spring (MS1/P1A)**
  - Chronic septic contamination (>20 years)
  - *E. coli* consistently exceeds standards (2024: 2.8–3.9× over)
  - Sources: human + bird
  - **Plan: pursue 319 grant; coordinate with NMED on solutions**
- **Upper Rio Pueblo**
  - Sporadic *E. coli* exceedances (none in 2023–2024)
  - Continued monitoring needed
- **Taos WWTP (PS2)**
  - Elevated E. coli (214 CFU/100 mL post-treatment)
  - Nitrate
    - Extremely high in 2022 (up to 18.7 mg/L; near 2× drinking water limit)
    - Declining trend (2023–2024), but concern remains
    - **Recommend closer monitoring of discharge and permit compliance**
  - Phosphate
    - Up to 5.23 mg/L (52× standard)
    - Exceeds 2025 permit limit (4 mg/L)
    - **Recommend stricter NMED oversight of WWTP outflow**

Red River

- **Aluminum**
  - Repeated chronic exceedances (2013–2017; 2019–2022)
  - Extremely high values (up to 10,050 µg/L)
  - No exceedances in 2023–2024, but long-term pattern persists
  - **Recommend renewed sampling and reconsideration of impairment listing**
- **Standards Concern**
  - Post-2010 standard less protective than earlier version
  - **Recommend evaluation of adequacy of current criteria**

Rio Embudo

- **Dissolved Oxygen**
  - All sites exceeded at least once in 2024 (as low as 4 ppm)
  - Likely linked to nutrient pollution (not temperature)
  - **Plan to begin nutrient sampling**
- **Electrical Conductivity**
  - Slight exceedance at RE-3 (515 µS/cm)

Pecos River

- **Metals (2024)**
  - Magnesium: normal
  - Aluminum: elevated (>0.05 mg/L → contamination concern)
  - Barium & manganese: low, within safe ranges
- **Electrical Conductivity**
  - Major exceedances at RPec2 & RPec3 (1,486–1,998 µS/cm; up to 6.7× standard)
  - Likely linked to Terrero Mine
  - **Recommend frequent monitoring of:**
    - Conductivity
    - Aluminum (hardness-dependent)
    - Magnesium, barium, manganese, hardness

Jemez Watershed

- **Aluminum**
  - Very high in April 2024 (2,300 µg/L)
  - Dropped in later samples (210–720 µg/L)
  - **Continue monitoring and investigate potential sources**

SAMPLE #	DATE	COLLECTION TIME	TEMP, C.	pH	DISSOLVED OXYGEN	ELECTRICAL CONDUCTIVITY	PHOSPHATE	E. COLI	NITRATE	AMMONIA	HARDNESS	TOTAL SUSPENDED SOLIDS	ALUMINUM
-	-	-	-	-	ppm	µS/cm	mg/L	COLONIES /100ML	mg/L	mg/L	ppm	mg/L	(total)µg/L
STANDARD	**-**	**-**	**<=23**	**6.6-8.8**	**>=6**	**<=500/400/300**	**<0.1**	**235.0**	**None**	**None**	**None**	**Reporting Limit: 1**	**Hardness = 100: 3,421 acute; 1,370 chronic ug/l**
Rio Fernando	**-**	-	-	-	-	-	-	-	-	-	-	-	-
STANDARD			**<=23**	**6.6-8.8**	**>=6**	**<=500**	**<0.1**	**235.0**	**None**	**None**	**None**	**Reporting Limit: 1**	**Hardness = 100: 3,421 acute; 1,370**
F1	7/17/24	11:10	7.50	7.89	6.0	716	-	172.3	-	-	-	-	-
F1	8/21/24	11:08	14.70	7.84	7.0	869	-	-	-	-	-	-	-
F1	10/16/24	11:50	13.10	8.41	7.0	678	-	151.5	-	-	-	-	-
F4	10/16/24	11:40	9.00	7.74	11.0	650	-	307.6	-	-	-	-	-
F4	8/21/24	11:39	15.40	7.42	11.0	914	-	-	-	-	-	-	-
F4	7/17/24	12:15 PM	18.50	7.82	7.0	733	-	107.6	-	-	-	-	-
FLJ	10/16/24	9:46	3.94	7.51	2.0	492	-	<1	-	-	-	-	-
FLJ	8/21/24	9:58	12.50	7.77	5.5	463	-	-	-	-	-	-	-
FLJ	7/17/24	10:29	13.60	7.77	4.5	455	-	648.8	-	-	-	-	-
FRE	10/16/24	10:24	7.40	7.95	9.0	347	-	>2419.6	-	-	-	-	-
FRE	8/21/24	10:22	18.40	7.71	7.0	880	-	-	-	-	-	-	-
FRE	7/17/24	10:57	17.80	8.3	6.0	361	-	>2419.6	-	-	-	-	-
Rio Pueblo	-												
STANDARD	**-**	**-**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**	**None**
PS2	10/16/24	9:16	18.00	7.98	4.5	875	2.72	7.5	1.33	0.20	-	-	-
PS2	8/21/24	10:40	21.70	8.27	7.0	889	1.24	-	1.03	<0.10	-	-	-
PS2	7/17/24	10:40	20.20	8.45	7.0	8,410	1.82	214.2	0.76	0.23	-	-	-
Rio Pueblo													
STANDARD	**-**	**-**	**<=23**	**6.6-8.8**	**>=6**	**<=400**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
Field Blank	7/17/24	8:55	-	-	-	-	<0.20	-	<0.20	<0.10	-	-	-
Field Blank	8/21/24	9:25	-	-	-	-	-	-	-	-	-	-	-
Field Blank	10/16/24	9:16	-	-	-	-	<0.20	-	<0.20	<0.10	-	-	-
P1	10/16/24	10:38	9.10	7.93	7.0	232	-	53.0	-	-	-	-	-
P1	8/21/24	9:26	17.00	8.76	7.0	2,240	<0.20	-	<0.20	<0.10	-	-	-
P1	7/17/24	9:00	14.70	8.46	6.0	9,940	-	224.7	-	-	-	-	-

MS1/P1A	10/16/24	10:20	9.80	7.78	6.0	504	-	920.8	-	-	-	-	-
MS1/P1A	8/21/24	10:00	17.30	8.07	6.0	-	-	-	-	-	-	-	-
MS1/P1A	7/17/24	9:20	16.80	8.43	6.0	391	-	648.8	-	-	-	-	-
PS3	10/16/24	9:40	9.00	8.50	8.5	495	<0.20	83.0	<0.20	0.13	-	28	-
PS3	8/21/24	11:05	21.30	8.74	8.0	417	<0.20	-	<0.20	<0.10	-	-	-
PS3	7/17/24	11:00	19.60	8.98	9.0	444	<0.20	-	<0.20	<0.10	-	-	-
P4	10/16/24	10:06	9.00	8.32	9.0	365	-	42.8	-	-	-	-	-
P4	8/21/24	10:15	18.10	8.52	7.0	347	-	-	-	-	-	-	-
P4	7/17/24	10:10	17.60	8.75	7.0	350	-	105.4	-	-	-	-	-
Rio Hondo	-												
STANDARD	**-**	**-**	**<=23**	**6.6-8.8**	**>=6**	**<=400**	**<0.1**	**410.0**	**None**	**None**	**None**	**-**	**None**
H2B	10/16/24	8:15	3.70	9.10	7.0	326	-	<1	-	-	-	-	-
H2B	8/21/24	9:50	10.50	8.40	7.0	1,767	-	-	-	-	-	-	-
H2B	7/17/24	8:25	8.30	8.32	7.0	154	<0.20	<1	0.20	<0.10	-	1	-
H2B3	10/16/24	9:35	4.70	8.40	8.0	1,651	-	7.5	-	-	-	-	-
H2B3	8/21/24	10:45	10.20	8.40	8.0	1,554	-	-	-	-	-	-	-
H2B3	7/17/24	9:10	9.10	8.61	9.0	1,489	-	10.8	-	-	-	-	-
H2C	10/16/24	9:45	5.80	8.25	8.0	1,632	-	5.2	-	-	-	-	-
H2C	8/21/24	11:01	10.50	8.46	8.0	1,556	-	-	-	-	-	-	-
H2C	7/17/24	9:36	9.70	8.63	8.0	1,496	<0.20	8.6		<0.10	-	<1	-
H2E	10/16/24	10:18	7.00	8.04	-	1,646	<0.20	<1	4.3	4.08	-	-	-
H2E	8/21/24	11:20	15.50	8.21	7.0	223	<0.20	-	0.78	<0.10	-	1	-
H2E	7/17/24	9:55	11.40	8.36	8.0	209	<0.20	1.0	1.43	<0.10	-	1	-
H6	10/16/24	11:15	10.80	8.35	7.0	329	<0.20	57.3	0.34	0.14	-	-	-
H6	8/21/24	12:20 PM	20.90	8.63	7.0	312	-	-	-	-	-	-	-
H6	7/17/24	11:00	17.50	8.80	7.0	331	-	67.7	-	-	-	-	-
ASTM RH	7/17/24	-	-	-	-	-	-	-	-	-	-	-	-
ASTM RH - H2C	8/21/24	11:01	-	-	-	-	<0.20	-	<0.20	<0.10	-	<1	-
ASTM RH	10/16/24	9:35	-	-	-	-	<0.20	-	<0.20	<0.10	-	-	-
Red River	-												
STANDARD	**-**	**-**	**<=23**	**6.6-8.8**	**>=6**	**<=400**	**<0.1**	**235.0**	**None**	**None**	**None**	**-**	**Hardness = 220: 10,071 acute; 4,035 chronic ug/l**
RR1	10/16/24	10:42	4.10	3.09	7.0	241	-	5.2	-	-	230.8	-	526.0
RR1	8/21/24	9:40	11.50	8.70	-	221	-	-	-	-	142.3	-	502.0
RR1	7/17/24	11:15	13.10	10.47	10.0	218	-	6.2	-	-	133.2	-	246.0
RR2	10/16/24	10:15	5.40	7.82	10.0	444	-	6.3	-	-	261.9	-	609.0
RR2	8/21/24	10:04	12.20	9.10	-	341	-	-	-	-	238.6	-	576.0
RR2	7/17/24	10:55	14.00	10.14	10.0	354	-	11.0	-	-	232.8	-	388.0
RR3	10/16/24	9:55	6.30	7.78	11.0	444	-	56.5	-	-	266.4	-	63.0
RR3	8/21/24	10:20	13.40	9.98	-	319	-	-	-	-	207.3	-	603.0
RR3	7/17/24	10:37	13.90	10.01	10.0	356	-	24.3	-	-	221.6	-	349.0
RR4	10/16/24	9:25	9.80	7.91	9.0	431	-	41.7	-	-	143.3	-	388.0
RR4	8/21/24	10:35	14.60	9.82	-	333	-	-	-	-	201.7	-	649.0
RR4	7/17/24	10:08	14.50	9.84	10.0	361	-	62.0	-	-	221.6	-	21.0

RR4 - Field Blank	7/17/24	10:08	-	-	-	-	-	-	-	-	<1.0	-	<0.005
Rio Grande	-												
STANDARD	**-**	**-**	**<=24**	**6.6-8.8**	**>=6**	**400**	**None**	**235.0**	**None**	**None**	**None**	**-**	**None**
RG2	10/16/24	11:25	12.00	8.28	9.0	291	-	3.1	-	-	-	-	-
RG2	8/21/24	12:35 PM	20.60	8.57	7.0	226	<0.20	-	0.25	<0.10	-	28	-
RG2	7/17/24	11:10	19.10	8.78	7.0	262	<0.20	19.9	0.2	<0.10	-	6	-
RIN-1	10/16/24	9:57	11.80	8.26	4.5	329	-	2.0	-	-	-	-	-
RIN-1	8/21/24	8:52	19.60	8.19	6.0	246	-	-	-	-	-	-	-
RIN-1	7/17/24	8:40	18.70	7.89	7.0	383	-	6.1	-	-	-	-	-
RG3	10/17/24	11:00	11.50	8.53	-	317	-	-	-	-	-	225	-
RG3	8/21/24	9:13	19.80	8.38	-	269	-	-	-	-	-	-	-
RG3	7/17/24	9:14	20.00	8.28	-	288	-	1.0	-	-	-	-	-
RG4	10/17/24	10:40	12.10	8.14	-	321	-	-	-	-	-	227	-
RG4	8/21/24	9:34	19.60	8.63	-	274	-	-	-	-	-	-	-
RG4	7/17/24	9:30	19.70	8.90	-	350	-	<1	-	-	-	-	-
RG5	10/17/24	10:20	13.10	7.98	-	389	-	-	-	-	-	277	-
RG5	8/21/24	9:57	16.40	8.42	-	395	-	-	-	-	-	-	-
RG5	7/17/24	9:40	16.70	8.44	-	470	-	>2419.6	-	-	-	-	-
RG6	10/17/24	9:40	11.70	8.05	-	327	-	-	-	-	-	232	-
RG6	8/21/24	10:07	19.40	8.53	-	285	<0.20	-	<0.20	<0.10	-	-	-
RG6	7/17/24	10:00	19.60	8.78	-	355	-	5.2	-	-	-	-	-
Rio Embudo	-	-	-	-	-	-	-	-	-	-	-	-	-
STANDARD	**-**	**-**	**<=23**	**6.6-8.8**	**<=6**	**<=400**	**<0.1**	**235.0**	**None**	**None**	**None**	**Reporting Limit: 1**	**Hardness = 100: 3,421 acute; 1,370**
RE-3	10/16/24	9:25	10.00	8.49	5.5	444	-	36.9	-	-	-	-	-
RE-3	8/21/24	8:35	16.70	8.39	6.0	381	-	-	-	-	-	-	-
RE-3	7/17/24	9:10	15.70	7.8	9.0	515	-	139.6	-	-	-	-	-
EMB-2 (RE-2)	10/16/24	8:55	11.90	8.35	6.0	347	-	13.1	-	-	-	-	-
EMB-2	8/21/24	8:15	2.00	8.15	4.0	265	-	-	-	-	139.9	-	370.0
EMB-2	7/17/24	9:30	19.20	8.38	6.0	379	-	19.9	-	-	-	-	-
RE-4	10/16/24	10:28	11.00	-	5.5	444	-	52.0	-	-	-	-	-
RE-4	8/21/24	9:14	17.20	8.37	8.0	373	-	-	-	-	-	-	-
RE-4	7/17/24	9:55	17.10	7.52	7.0	499	-	99.0	-	-	-	-	-
RE-5	10/16/24	10:40	11.70	8.14	5.0	429	-	-	-	-	-	-	-
RE-5	8/21/24	9:34	17.40	8.27	8.0	355	-	-	-	-	-	-	-
RE-5	7/17/24	10:51	16.70	7.4	7.0	487	-	64.4	-	-	-	-	-
RE-6	10/16/24	10:50	9.20	8.62	5.0	388	-	1.0	-	-	-	-	-
RE-6	8/21/24	10:05	18.10	8.73	5*	323	-	-	-	-	-	-	-
RE-6	7/17/24	10:30	17.60	7.86	7.0	430	-	25.9	-	-	-	-	-
Pecos River	**-**	**-**	**<=20.0**	**6.6-8.8**	**>=6**	**<=300**	**<0.1**	**235.0**	**None**	**None**	**None**	**Limit: 1**	**3,421 acute; 1,370**
STANDARD	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
RPEC-1	7/16/24	9:25	11.90	8.29	7.0	335	-	22.8	-	-	170	-	260.0
RPEC-2	7/16/24	10:04	13.60	8.28	8.0	1,726	-	14.5	-	-	79	-	70.0
RPEC-3	7/16/24	10:37	15.60	8.23	9.0	1,998	-	15.4	-	-	95	-	150.0
RPEC-1	8/20/24	9:30	11.20	8.54	8.0	334	<0.100	24.6	0.2	<0.05	170	-	80.0

RPEC-2	8/20/24	10:05	12.50	8.11	8.0	1,486	<0.100	14.8	0.52	<0.05	68	-	100.0
RPEC-3	8/20/24	10:39	14.50	8.22	8.0	1,639	<0.100	27.2	0.48	<0.05	77	-	150.0
RPEC-1	9/12/24	9:16	10.70	8.44	8.0	339	<0.100	12.0	<0.05	<0.05	170	-	90.0
RPEC-2	9/12/24	9:51	11.40	8.3	8.0	1,663	<0.100	20.1	0.17	<0.05	75	-	70.0
RPEC-3	9/12/24	10:21	13.10	8.34	8.0	184	<0.100	9.7	0.12	<0.05	88	-	420.0
Jemez Watershed	-	-	-	-	-	-	-	-	-	-	-	-	-
STANDARD	-	-	**<=23**	**6.6-8.8**	**>=6**	**<=400**	**<0.1**	**235.0**	**None**	**None**	**None**	**Limit: 1**	**3,421 acute; 1,370**
J1	4/1/24	10:40	2.67	8.98	6.0	1,364	-	-	-	-	-	-	2300.0
J2	4/1/24	10:50	3.55	8.18	5.0	357	-	-	-	-	-	-	2300.0
J1	7/16/24	9:15	16.17	8.07	5.0	1,590	-	-	-	-	-	-	210.0
J2	7/16/24	10:00	16.44	8.11	7.0	213	-	-	-	-	-	-	140.0
J1	11/4/24	11:17	2.67	8.25	8.0	1,486	-	12.2	-	-	-	-	720.0
J2	11/4/24	10:36	1.44	8.09	5.0	1,983	-	16.1	-	-	-	-	260.0
San Juan River	-	-	-	-	-	-	-	-	-	-	-	-	-
STANDARD	-	-	**<=23**	**6.6-8.8**	**>=6**	**<=400**	**<0.1**	**235.0**	**None**	**None**	**None**	**Limit: 1**	**3,421 acute; 1,370**
SJ1	3/9/24	-	-	-	-	-	ND	-	0.113	ND	27.6	125	-
SJ2	3/9/24	-	-	-	-	-	ND	-	0.036	ND	30.8	145	-
SJ3	3/9/24	-	-	-	-	-	ND	-	0.07	ND	26	125	-
SJ1	11/11/24	-	-	-	-	-	ND	-	0.113	-	-	135	171.0
SJ2	11/11/24	-	-	-	-	-	ND	-	0.072	-	-	160	106.0
SJ3	11/11/24	-	-	-	-	-	ND	-	0.123	-	-	195	101.0
-	-	-	-	-	-	-	-	-	-	-	-	-	-