

**NPDES PERMIT NO. NM0029041**  
**RESPONSE TO COMMENTS**

RECEIVED ON THE SUBJECT DRAFT NATIONAL POLLUTANT DISCHARGE  
ELIMINATION SYSTEM (NPDES) PERMIT IN ACCORDANCE WITH REGULATIONS  
LISTED AT 40 CFR 124.17

APPLICANT: Village of Pecos  
P.O. Drawer 337  
54 South Main Street  
Pecos, NM 87552

ISSUING OFFICE: U.S. Environmental Protection Agency  
Region 6  
1201 Elm Street, Suite 500  
Dallas, TX 75270

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PERMIT ACTION: Final permit decision and response to comments received on the proposed  
NPDES permit publicly noticed on January 28, 2023.

DATE PREPARED: March 20, 2023

Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40,  
Code of Federal Regulations, revised as of March 20, 2023.

## STATE CERTIFICATION

In a letter from Shelly Lemon, Bureau Chief, SWQB, to Troy Hill - Acting Director, Water Division (EPA) dated March 14, 2023, the NMED conditionally certified that the discharge will comply with the applicable provisions of Section 208(e), 301, 301, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of State law.

The NMED stated that in order to meet the requirements of State law, including water quality standards and appropriate basin plan as may be amended by the water quality management plan, the final permit must include the conditions of certification and each of the conditions cited in the draft permit shall not be made less stringent.

The State also stated that it reserves the right to amend or revoke this certification if such action is necessary to ensure compliance with the State's water quality standards and water quality management plan.

## CONDITIONS OF CERTIFICATION

### **Condition No. 1: Effluent Limitations for Total Nitrogen and Total Phosphorus (Nutrients)**

To protect and maintain existing and downstream water quality and to prevent further degradation of water quality in the Pecos River Basin, EPA shall include the following total nitrogen (TN) and total phosphorus (TP) effluent discharge limitations in Part I- Requirements for NPDES Permits, Section A- Limitations and Monitoring Requirements – 0.15 MGD Design Flow.

Effluent Characteristics		Discharge Limitation						Monitoring Requirements	
Pollutant	STORET code	lbs/day, unless noted			mg/L, unless noted			Frequency	Type
		30- day average	Daily MAX	7-day average	30-day average	Daily MAX	7-day average		
Total Nitrogen* (TN)	00600	19.6	Report	N/A	31.8	Report	N/A	Twice/ Month	Grab
Total Phosphorus (TP)	00665	2.36	Report	N/A	3.83	Report	N/A	Twice/ Month	Grab

\*Total Nitrogen (TN) is the sum of Total Kjeldahl Nitrogen (as N) and Nitrate-Nitrite (as N).

[20.6.4.8(A) NMAC – State of New Mexico Antidegradation Policy; 20.6.4.13 NMAC – General Criteria; 20.6.4.13(E) NMAC, Plant Nutrients; 20.6.4.117 NMAC – Pecos River Basin; State of New Mexico Water Quality Management Plan and Continuing Planning Process (WQMP/CPP), including Appendix A; 2022- 2024 State of New Mexico CWA §303(d) / §305(b) Integrated Report; EPA Region VI Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico – NMIP]

**Regulatory Rationale:**

The Village of Pecos Wastewater Treatment Plant (WWTP) discharges treated effluent into the Pecos River in Water Quality Segment 20.6.4.217 NMAC of the Pecos River Basin. The designated uses for the stream are domestic water supply, fish culture, high quality coldwater aquatic life, irrigation, wildlife habitat and primary contact, and public water supply on the main stem of the Pecos River.

State water quality standards consist of various components such as designated uses, water quality criteria, and the Statewide Water Quality Management Plan and Continuing Planning Process (WQMP/CPP) for the antidegradation policy. The primary purpose of the Antidegradation Policy is to promote the maintenance and protection of existing water quality by limiting discharges and other activities that will negatively impact water quality, impair or threaten to impair designated uses of surface waters. An antidegradation policy provides a baseline level of protection relative to established water quality criteria.

According to the approved New Mexico Antidegradation Policy Implementation Procedure for Regulated Activities, the Pecos River is classified as Tier 1; therefore, any increase in pollutant load or other activity that would cause further degradation of water quality is not allowed. Each NPDES permit issued must contain requirements necessary to achieve water quality standards. Furthermore, where a surface water is impaired, there shall be no further degradation or lowering of the water quality.

Segment 20.6.4.217 NMAC of the Pecos River Basin, assessment unit NM-2214.A\_003 is impaired due to dissolved oxygen (DO). NMED monitoring has measured elevated nutrients in the effluent discharge from the facility. To prevent further dissolved oxygen degradation, an effluent limitation for total nitrogen and total phosphorus is needed to limit algal bloom effects on dissolved oxygen and prevent or mitigate nutrient pollution and excess nutrient loading.

Nutrient pollution can be described as excess amounts of nitrogen and phosphorus and the resultant high algal biomass. Nutrient impairment occurs when algae and other aquatic vegetation (macrophytes) interfere with designated uses such as domestic water supply or aquatic life. Eutrophication is the process by which a body of water becomes enriched with nutrients that stimulate the growth of aquatic plant life. During the day, aquatic vegetation produces oxygen, sometimes leading to supersaturation. At night, however, excessive algal growth can deplete dissolved oxygen (DO) in the waterbody through respiration and decay of dead algal cells and other organic matter. Low DO concentrations and increased diel fluctuations can cause shifts in community composition and, in severe cases, the death of organisms such as macroinvertebrates and fish. Eutrophication can be a natural incremental process for a water body, but human activities can greatly enhance the process to the detriment of aquatic life.

**Limitation Derivation:**

The current NPDES permit for the Village of Pecos does not have nutrient effluent limitations or monitoring requirements. The stream has been assessed and is impaired for DO. As noted above, human activities can accelerate the rate and extent of eutrophication through both point-source discharges and non-point loadings of limiting nutrients, such as nitrogen and phosphorus, into

aquatic ecosystems. Excess nutrient loading leads to algal blooms and dramatic diel swings in DO causing impacts to drinking water supplies, aquatic life, and recreation.

The Village of Pecos WWTP outfall location was sampled by the NMED-SWQB Monitoring Team in 2019. Sample results indicate extremely high levels of total nitrogen and total phosphorus in the effluent discharge (50-100 times greater than the nutrient assessment thresholds for perennial streams). Documented impacts that can be attributed to excessive nutrient loading include: taste and odor problems in drinking water supplies; increased treatment required for drinking water; human health problems, such as blue baby syndrome and non-Hodgkin lymphoma; adverse ecological effects, such as large diurnal swings in DO and reduction of habitat utilized by aquatic organisms; and harmful algal blooms that can cause fish kills, and injury to people, pets, wildlife, and livestock.

Considering (1) the wastewater treatment plant is discharging elevated nutrient concentrations to the Pecos River, (2) excess nutrients cause algal blooms that negatively impact dissolved oxygen levels, and (3) the Pecos River is not supporting its high-quality aquatic life use because of dissolved oxygen levels (i.e., the Pecos River is impaired), New Mexico's antidegradation policy implementation procedures requires Tier 1 protections of the waterbody. Under Tier 1, when a waterbody is not meeting applicable water quality standards, no discharges will be permitted to cause further degradation and there will be no lowering of the water quality. Therefore, based on the limited available dataset, an effluent limit is set at the 85th percentile of the four effluent samples collected by the NMED-SWQB Monitoring Team to prevent further degradation of the Pecos River.

The 85th percentile of all reported effluent nutrient concentrations recorded by the NMED-SWQB Monitoring Team was chosen because it represents current treatment capabilities and represents the intent of this condition, which is to maintain existing and downstream water quality and prevent further degradation of Pecos River. The loading limitations were calculated by multiplying the concentration by the maximum 30-day average flow, which was collected from NetDMR, and a conversion factor (8.34) so that the limit in units of pounds per day (lbs/day).

Table 1: NMED SWQB Monitoring, Assessment and Standard Data Collected in 2019

NMED Monitoring Data		
Date (mm/dd/yyyy)	Total Nitrogen 30-day average (mg/L)	Total Phosphorus 30-day average (mg/L)
03-20-2019	29.23	6.52
05-23-2019	31.76	0.102
08-08-2019	30.65	0.535
09-19-2019	31.78	0.1
MINIMUM	29.23	0.1
AVERAGE	30.86	1.81
MAXIMUM	31.78	6.52
85th PERCENTILE	31.8	3.83

Table 2: Village of Pecos WWTP, Reported Flow Data, DMRs 2019-2022

Flow	30-day Average	Maximum 30-day average	Design Flow
MGD	0.057	0.074*	0.15

\*MAX 30-day average flow used to calculate loading limits for permit.

**Response to Condition No. 1:**

Effluent limitations for Total Nitrogen and Total Phosphorus (Nutrients) have been added to the final permit in order to comply with conditions of certification as required by 40 CFR §124.55(a)(2).

**COMMENTS THAT ARE NOT CONDITIONS OF CERTIFICATION**

**Comments from New Mexico Environment Department:**

**Comment No. 1:** The NPDES draft permit for the Village of Pecos Wastewater Treatment Plant NM0029041 has the incorrect permit number listed on the cover page and subsequent headers. The headers state *NPDES PERMIT No. NM0027731*, which needs to be corrected to NM0029041.

**Response No. 1:** EPA has modified the NPDES permit to reflect the correct permit number.

**Comment No. 2:** In Part I Requirements for NPDES Permits, Section A Limitations and Monitoring Requirements, 1 Final Effluent Limits – 0.15 MGD Design Flow, NMED requests the addition of a footnote that states, “Total Nitrogen (TN) is defined as the sum of Total Kjeldahl Nitrogen (as N) and Nitrate-Nitrite (as N).”

**Response No. 2:** EPA added the requested Total Nitrogen footnote in Part I Section A.

**Comment No. 3:** The State of New Mexico supports EPA incorporating a 5-year compliance schedule into the permit to allow the Village of Pecos to allow the Village to assess, fund, and implement process and/or capital improvements to the WWTP to achieve the nutrient effluent limits, ensure full permit compliance, and improve effluent quality to the Pecos River.

**Response No. 3:** EPA has incorporated a 5-year Nutrients compliance schedule into the permit to allow the Village to assess, fund and implement process and/or capital improvements to the wastewater treatment plant and ensure full permit compliance.