

NPDES PERMIT NO. NM0028762

STATEMENT of BASIS

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

I. APPLICANT

City of Aztec - Water Treatment Plant
201 West Chaco
Aztec, New Mexico 87410

II. ISSUING OFFICE

U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue
Dallas, Texas 75202-2733

III. PREPARED BY

Laurence E. Giglio
Environmental Engineer
NPDES Permits & Technical Branch (6WQ-PP)
Water Quality Protection Division
VOICE: 214-665-6639
FAX: 214-665-2191
EMAIL: giglio.larry@epa.gov

IV. DATE PREPARED

February 20, 2009

V. DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows: BAT - best available technology economically achievable, BMP – best management plan, BOD₅ – five-day biochemical oxygen demand, BPJ - best professional judgment, CD – critical dilution, CFR – Code of Federal Regulations, cfs – cubic feet per second, COD – chemical oxygen demand, COE – United States Corp of Engineers, CWA – Clean Water Act, DMR – discharge monitoring report, EPA – United States Environmental Protection Agency, ESA - Endangered Species Act, F&WS – United States Fish and Wildlife Service, MGD – million gallons per day, NMAC – New Mexico Administrative Code, NMED – New Mexico Environment Department, NMWQS - New Mexico State Standards for Interstate and Intrastate Surface Waters, NPDES – National Pollutant Discharge Elimination System, MQL - minimum quantification level, O&G – oil and

grease, RP – reasonable potential, SIC - standard industrial classification, SWQB – Surface Water Quality Bureau, TDS – total dissolved solids, TMDL – total maximum daily load, TRC – total residual chlorine, TSS – total suspended solids, UAA – use attainability analysis, WET - whole effluent toxicity, WQCC – New Mexico Water Quality Control Commission, and WWTP – wastewater treatment plant.

VI. PERMIT ACTION

Proposed reissuance of the current NPDES permit initially issued February 17, 2006, with an effective date of April 1, 2006, and an expiration date of December 31, 2008.

Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed in Title 40, CFR, revised as of January 16, 2009.

VII. CHANGES FROM THE PREVIOUS PERMIT

- A. Limitations for total aluminum are eliminated and replaced with dissolved aluminum reporting.

VIII. APPLICANT ACTIVITY

Under the Standard Industrial Classification (SIC) Code 4941, the applicant operates a drinking water treatment plant. The plant has four separate treatment devices at the same site. The plant uses a combination of coagulation, flocculation and sand filters to treat a daily average of 1.21 MGD drinking water with peak flows of 2.65 MGD. The discharge is backwash from the plant that averages 0.551 MGD.

IX. DISCHARGE LOCATION

As described in the application, the facility is located at New Mexico Highway 173 in the City of Aztec in San Juan County, New Mexico. The discharge is to the receiving water named Lower Animas Ditch; thence to the Animas River in Waterbody Segment No.20.6.4.403 of the San Juan River Basin. The discharge is located at Latitude 36° 50' 00" North and Longitude -107° 58' 45" West.

X. RECEIVING STREAM STANDARDS

The general and specific stream standards are provided in NMWQS (20.6.4 NMAC, amended through August 1, 2007).

The facility discharges into the lower Animas Ditch, thence to the Animas River, thence to the San Juan River, Waterbody Segment No. 20.6.4.403 NMAC of the San Juan River Basin. The designated uses of the receiving water(s) are municipal and industrial water supply, irrigation, livestock watering, wildlife habitat, marginal coldwater aquatic life, warmwater aquatic life, and primary contact.

XI. EFFLUENT CHARACTERISTICS

A quantitative description of the discharge(s) described in the permit application is presented in the pollutant table below.

POLLUTANT TABLE

PARAMETER	Result
Nitrate - N	0.356 mg/l
Nitrogen, Nitrate/Nitrite	0.299 mg/l
Hardness as CaCO ₃	240 mg/l
Cyanide, weak acid dissociable	ND
Aluminum, T	1680 ug/l
Antimony, T	0.701 ug/l
Arsenic, T	ND
Beryllium, T	ND
Chromium, T	ND
Copper, T	3.04 ug/l
Lead, T	ND
Mercury, T	ND
Nickel, T	3.68 ug/l
Selenium, T	1.35 ug/l
Thallium, T	ND
Zinc, T	19.65 ug/l
Cyanide, T	4.71 ug/l
Phenols	4.18 ug/l
Barium	73.1 ug/l
Boron	54.0 ug/l
Cobalt	0.44 ug/l
Molybdenum, T	1.42 ug/l
Uranium, T	1.69 ug/l
Vanadium, T	ND
Methylene Chloride	2.51 ug/l
TRC	18.6 ug/l

Footnotes:

T – Total

D – Dissolved

ND – Non detect

XII. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

The proposed effluent limitations for those pollutants proposed to be limited are based on regulations promulgated at 40 CFR 122.44. The draft permit limits are based on either technology-based effluent limits pursuant to 40 CFR 122.44(a), on BPJ in the absence of guidelines, NMWQS and/or requirements pursuant to 40 CFR 122.44(d), whichever are more stringent.

A. REASON FOR PERMIT ISSUANCE

It is proposed that the permit be issued for approximately a 5-year term following regulations promulgated at 40 CFR 122.46(a). The proposed permit expiration date will coordinate with the

EPA Basin Statewide Management Approach to Permitting in New Mexico, adopted March 2, 2000.

B. TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Following regulations promulgated at 40 CFR 122.44, the draft permit limits are based on either technology-based effluent limits pursuant to 40 CFR 122.44(a) or on NMWQS and requirements pursuant to 40 CFR 122.44(d), whichever are more stringent.

TSS is limited due to technology-based effluent limitations.

Water quality-based effluent limitations are established in the proposed permit for TRC and pH.

C. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Discharges from similar drinking water facilities (e.g City of Las Vegas, Village of Ruidoso, City of Springer etc) are required to meet effluent limitations for total suspended solids (TSS) at monthly average of 20 mg/l and daily maximum of 30 mg/l. Therefore, based on these similar permitted facilities, using BPJ, effluent limitations for TSS are established in the draft permit identical to the previous permit.

Loading limits are not established since the discharge is not a continuous one and is discharged from a holding lagoon on an as needed basis. This is identical to the previous permit.

D. MONITORING FREQUENCY FOR LIMITED PARAMETERS

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity, 40 CFR 122.48(b), and to assure compliance with permit limitations, 40 CFR 122.44(i)(1). The technology based pollutant TSS shall be monitored at once per week the same as the previous permit. Sample type for this pollutant is grab.

E. OPERATION AND REPORTING

The applicant is required to operate the treatment facility at maximum efficiency at all times; to monitor the facility's discharge on a regular basis; and report the results quarterly. The monitoring results will be available to the public.

F. WATER QUALITY BASED LIMITATIONS

1. General Comments

Effluent limitations and/or conditions established in the draft permit are in compliance with State water quality standards and the applicable water quality management plan.

2. Post Third Round Policy and Strategy

Section 101 of the CWA states that "...it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited..." To insure that the CWA's prohibitions on toxic discharges are met, EPA has issued a "Policy for the Development of Water Quality-Based Permit Limitations for Toxic Pollutants 49 FR 9016-9019, March 9, 1984." In support of the national policy, Region 6 adopted the "Policy for Post Third Round NPDES Permitting" and the "Post Third Round NPDES Permit Implementation Strategy" on October 1, 1992. The Regional policy and strategy are designed to insure that no source will be allowed to discharge any wastewater which (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical State water quality standard resulting in nonconformance with the provisions of 40 CFR 122.44(d); (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

3. Implementation

The Region is currently implementing its post third round policy in conformance with the Regional strategy. The NPDES permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, additional water quality-based effluent limitations and/or conditions are included in the NPDES permits. State narrative and numerical water quality standards are used in conjunction with EPA criteria and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

4. State Water Quality Numerical Standards

a. WATER QUALITY STANDARDS

The NM WQCC adopted WQS for the State of New Mexico. The WQS are available on the NMED's website at <http://www.nmcpr.state.nm.us/nmac/parts/title20/20.006.0004.pdf>. The WQCC established the WQS in accordance with, and under authority of, the NM Water Quality Act [Chapter 74, Article 6, NMSA 1978 Annotated].

b. PERMIT ACTION - WATER QUALITY-BASED LIMITS

Regulations promulgated at 40 CFR 122.44(d) require limits in addition to, or more stringent than effluent limitation guidelines (technology based). NM WQS that are applicable for this discharge are based on 20.6.4 NMAC.

i. pH

Site specific limitations (20.6.4.403 NMAC) for pH, 6.6 to 9.0 su will be continued in the draft permit, identical to the previous permit.

ii. Toxics

The Clean Water Act in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR 122.44 (d) state that if a discharge poses the reasonable potential to cause an in-stream excursion above a water quality criteria, the permit must contain an effluent limit for that pollutant.

NMED provided the low-flow (4Q3) for the Animas River, near Cedar Hill. The 4Q3 is 183 cfs and the harmonic mean used for human health pollutant RP is 426 cfs. For permitting purposes, the highest monthly average flow over the most recent 24-months is used for industrial dischargers, and from the DMR data that flow is 0.33 MGD.

The CD used for determining certain end-of-pipe permit limits is calculated as follows:

$$CD = Q_e / (FQ_a + Q_e)$$

where:

Q_e = facility flow (0.33 MGD or 0.5115 CFS)

Q_a = critical low flow of the receiving waters ($Q_a = 183$ CFS)

F = fraction of stream allowed for mixing (1.0)

$$\begin{aligned} CD &= 0.5115 \text{ CFS} / [(1.0)(183) + 0.5115] \\ &= 0.0028 \\ &= 0.28 \% \end{aligned}$$

This CD is lower than the previous permit since the effluent flow is lower than what was used in the previous permit (0.5 MGD). The net effect however is negligible since both are well below 1%.

The Table in Section XI above showed both total and dissolved aluminum analysis. The previous permit, however, had aluminum limits in total form as required by 40 CFR 122.45(c). The WQS for aluminum is dissolved and the facility was directed to provide dissolved analysis of its discharge and those results are as follows:

Date	Aluminum, mg/l	
	Dissolved	Total
November 2008	0.1	0.65
December 2008	0.1	0.9
January 2009	0.21	1.6
February 2009	0.12	1.8

Based on the data it is apparent that the dissolved aluminum concentrations are significantly less than the concentrations of the total form. The attached Fact Sheet Appendix compares the geometric mean of the four dissolved data points, 0.126 mg/l, and compares for purposes of RP against the State WQS. Based on the attached fact Sheet Appendix there is no RP to exceed the aluminum WQS. Limits for aluminum are removed from the permit but instead monitoring for dissolved aluminum will be placed in the next permit cycle to demonstrate continued

compliance. At the next permit cycle the RP will be check and if no RP is continued then this monitoring can be eliminated then. The removal of the aluminum limit does not constitute antibacksliding contained in 40 CFR 122.44(l)(2)(i)(B), information not known at the time the limit was imposed.

The only pollutant that demonstrates RP is TRC, a limitation continued in the draft permit from the existing permit at 19 ug/l.

iii. TDS

The discharge to the San Juan River is part of the Colorado River Basin where a basinwide Colorado Salinity Control Program (CSP) was established by EPA in December 1974. The NM WQS citation for adoption of this policy is at 20.6.4.54 NMAC. The CSP states that... "The objective of the policy, as provided in Sections I.A. and I.B., is to achieve "no salt return" whenever practicable for industrial discharges and an incremental increase in salinity over the supply water for municipal dischargers." Under the CSP, the facility is considered to be an existing facility defined as one where construction commenced on or before October 18, 1975. The Aztec water plant was built in 1954. For existing industrial facilities permitting authority may permit the salt discharge upon satisfactory demonstrating that it meets one of three tests. The applicable test for the Aztec plant is that the existing tonnage of salt is less than one-ton (2000 lbs) per day or 366 tons per year. The TDS value as reported on the most recent 24-months DMR data is 310 mg/l. Average loading for TDS is calculated as:

$$\text{TDS} = 310 \text{ mg/l} * 8.345 \text{ lbs/gal} * 0.33 \text{ MGD} * 1 \text{ ton}/2000 \text{ lbs} = 0.43 \text{ tons/day.}$$

Identical to the previous permit the facility shall continue monitoring of TDS in the draft permit.

5. Monitoring Frequency for Limited Parameters

Regulations require permits to establish monitoring requirements to yield data representative of the monitored activity 40 CFR_122.48(b) and to assure compliance with permit limitations 40 CFR_122.44(i)(1). The pollutant TRC shall be monitored daily when discharging by instantaneous grab which according to Part 136 is defined as analysis within 15 minutes of collection. Dissolved aluminum monitoring is established at once per quarter by grab sample. TDS shall be monitored once per quarter by grab sample consistent with the previous permit. Flow shall be estimated daily when discharging. Since the permit does not establish loading limits, the use of a flow recording device is not needed and estimation of the flow may be made using sound analytical techniques. The plant staff shall be required to determine which technique will be used and this technique shall be established in a written standard operations manual for staff to use. Estimated flow measurements are not subject to the accuracy provisions established at Part III.C.6 of the permit.

6. Whole Effluent Toxicity Limitations

a. GENERAL COMMENTS

The State has established narrative criteria, which in part state that:

“...surface waters of the state shall be free of toxic pollutants from other than natural causes in amounts, concentrations or combinations that affect the propagation of fish or that are toxic to humans, livestock or other animals, fish or other aquatic organisms, wildlife using aquatic environments for habitation or aquatic organisms for food, or that will or can reasonably be expected to bioaccumulate in tissues of fish, shellfish and other aquatic organisms to levels that will impair the health of aquatic organisms or wildlife or result in unacceptable tastes, odors or health risks to human consumers of aquatic organisms....” (NM WQS Section 20.6.4.13.F.)

In a letter from Marcy Leavitt, NMED, to Claudia Hosch, EPA, December 16, 2005, NMED provided Narrative Toxics Implementation Guidance – Whole Effluent Toxicity, (NTIG-WET), an update to the 1995 Implementation Guidance. The discharge of the effluent is to a perennial stream and for this type of facility the NTIG-WET requires a one-time chronic test. However, since the CD 0.28% is ≤ 10%, the NTIG-WET allow for the less expensive acute test using an acute-to-chronic ratio of 10:1. After rounding to the nearest whole percent, the dilution series is 1.7%, 2.3%, 3.0%, 4.0% and 5.0%, with 3% as the CD. This series is slightly different from the previous permit since the CD has been changed. The test species shall be the *Daphnia pulex* and *Pimephales promelas*. Automatic retests are not established in the permit but if this test does not pass, the permit may be reopened and additional WET requirements may be added to the permit.

The permittee shall conduct separate whole effluent toxicity tests in accordance with the following table:

<u>EFFLUENT CHARACTERISTIC</u>	<u>DISCHARGE</u> <u>30-DAY AVG MINIMUM</u>	<u>MONITORING</u> <u>48-HR MINIMUM</u>
Whole Effluent Toxicity Testing (48-Hour Static Renewal) (*1)		
<i>Daphnia pulex</i>	REPORT	REPORT
<i>Pimephales promelas</i>	REPORT	REPORT

<u>EFFLUENT CHARACTERISTIC</u>	<u>MONITORING</u> <u>FREQUENCY</u>	<u>REQUIREMENTS</u> <u>TYPE</u>
Whole Effluent Toxicity Testing (48-Hour Static Renewal) (*1)		
<i>Daphnia pulex</i>	Once/Permit Term	24 Hr. Composite
<i>Pimephales promelas</i>	Once/Permit Term	24-Hr. Composite

FOOTNOTES

(*1) Monitoring and reporting requirements begin on the effective date of this permit. See Part II, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

XIII. 303(d) LIST

The reach (Animas River from its confluence with the San Juan upstream to Estes Arroyo) into which the facility discharges to the San Juan River in Waterbody Segment No. 20.6.4.403 of the San Juan River Basin is listed on the “2006-2008 Integrated §303(d)/§305(b) List of Impaired Waters.” The 303(d) list indicates that marginal coldwater fishery and warmwater fishery are uses not fully supported in the stream segments. The probable causes of impairment are sediment bioassays (freshwater acute toxicity) and nutrient/eutrophication biological indicators. TMDLs cannot be written based on toxicity data until the specific cause of the toxicity is

determined. The discharger is not a contributor of nutrient loading or sediment bioassay to the receiving water. Therefore, no additional requirements beyond the previously described technology-based or water quality-based effluent limitations and monitoring requirements, are established in the proposed permit. The proposed 2008-2010 Integrated §303(d)/§305(b) List of Impaired Waters waiting approval by EPA does not change either the impairments or pollutants, and in the event of its imminent approval would not cause any change in the draft permit conditions.

XIV. ANTIDegradation

The NMAC, Section 20.6.4.8 “Antidegradation Policy and Implementation Plan” sets forth the requirements to protect designated uses through implementation of the State water quality standards. The limitations and monitoring requirements set forth in the proposed permit are developed from the State water quality standards and are protective of those designated uses. Furthermore, the policy sets forth the intent to protect the existing quality of those waters, whose quality exceeds their designated use. The permit requirements and the limits are protective of the assimilative capacity of the receiving waters, which is protective of the designated uses of that water, NMAC Section 20.6.4.8.A.2.

XV. ANTIBACKSLIDING

The proposed permit is consistent with the requirements to meet antibacksliding provisions of the Clean Water Act, Section 402(o) and 40 CFR §122.44(l)(i)(A), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation. The proposed permit maintains the permit requirements of the previous permit for TSS, pH and TRC. Eliminating the limit for total aluminum and replacing it with dissolved aluminum monitoring was previously addressed above.

XVI. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region 2 website, <http://ifw2es.fws.gov/EndangeredSpecies/lists/>, eight species in San Juan County are listed as endangered (E) or threatened (T). Two of the species are aquatic and include the Colorado pike minnow (*Ptychocheilus lucius*), E, EXPN and the razorback sucker (*Xyrauchen texanus*), E. Two of the species are avian and include the Interior least tern (E) (*Sterna antillarum*) and the Mexican spotted owl (T) (*Strix occidentalis lucida*). Three plant species are the Knowlton cactus (*Pediocactus knowltonii*), E, Mancos milk-vetch (*Astragalus humillimus*), E and the Mesa Verde cactus (*Sclerocactus mesae-verdae*) and the lone mammal is the black-footed ferret, (*Mustela nigripes*), E, Experimental Population Non-Essential (EXPN). The American bald eagle (*Haliaeetus leucocephalus*) was previously listed in San Juan County; however, the USFWS, removed the American bald eagle in the lower 48 states from the Federal List of Endangered and Threatened Wildlife Federal Register, July 9, 2007, (Volume 72, Number 130).

In accordance with requirements under section 7(a)(2) of the Endangered Species Act, EPA has reviewed this permit for its effect on listed threatened and endangered species and designated critical habitat. After review, EPA has determined that the reissuance of this permit will have “no effect” on listed threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. Permit limitations have only been made more restrictive from the previously issued permit, February 17, 2006.
2. No changes have been made to the US Fish and Wildlife list of threatened and endangered species and critical habitat designation in the area of the discharge since prior issuance of the permit.
3. EPA concluded “no effect” during the previous issuance of the permit on February 17, 2006, and has received no additional information since then which would lead to revision of that “no effect” determination.
4. EPA determines that Items 1, 2, and 3 result in no change to the environmental baseline established by the previous permit, therefore, EPA concludes that reissuance of this permit will have “no effect” on listed species and designated critical habitat.

XVII. HISTORICAL and ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The reissuance of the permit should have no impact on historical and/or archeological sites since no construction activities are planned in the reissuance.

XVIII. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if relevant portions of New Mexico's Water Quality Standards for Interstate and Intrastate Streams are revised or remanded by the New Mexico Water Quality Control Commission. In addition, the permit may be reopened and modified during the life of the permit if relevant procedures implementing the Water Quality Standards are either revised or promulgated by the New Mexico Environment Department. Should the State adopt a State water quality standard, and/or develop or amend a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that approved State standard and/or water quality management plan, in accordance with 40 CFR 122.44(d).

XIX. VARIANCE REQUESTS

No variance requests have been received.

XX. CERTIFICATION

The permit is in the process of certification by the State agency following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District

Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service prior to the publication of that notice.

XXI. FINAL DETERMINATION

The public notice describes the procedures for the formulation of final determinations.

XXII. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(s)

EPA Application Form 1 and Form 2C received May 22, 2008.

B. 40 CFR CITATIONS

Sections 122, 124, 125, 133, 136

C. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, as amended through August 1, 2007.

Region 6 Implementation Guidance for State of New Mexico Standards for Interstate and Intrastate Stream, May 1995.

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2006 - 2008.

Draft State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2008 - 2010.

D. MISCELLANEOUS REFERENCES

EPA Region 6 "Policy for Post Third Round NPDES Permitting" and "Post Third Round NPDES Permit Implementation Strategy," October 1, 1992.

Compliance Evaluation Inspection, Aztec Water Treatment Plant, NPDES #NM0028762, August 21, 2008, by Richard Powell, SWQB, NMED.

E. COMMUNICATIONS

E-mail from Cindy Huntsman, Aztec Treatment Plant, to Larry Giglio, EPA, February 17, 2009, providing dissolved aluminum pollutant data.