NPDES PERMIT NO. NM0020583
FACT SHEET

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

APPLICANT

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DATE PREPARED

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PERMIT ACTION

Proposed reissuance of the current National Pollutant Discharge Elimination System (NPDES) permit issued September 24, 2010, with an effective date of November 1, 2010, and an expiration date of October 31, 2015.

RECEIVING WATER – BASIN

San Juan River – San Juan Basin

DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

4Q3	Lowest four-day average flow rate expected to occur once every three-years
BAT	Best available technology economically achievable
BCT	Best conventional pollutant control technology
BPT	Best practicable control technology currently available
BMP	Best management plan
BOD	Biochemical oxygen demand (five-day unless noted otherwise)
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
DAF	Dissolved air flotation
DMR	Discharge monitoring report
DO	Dissolved oxygen
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCB	Fecal coliform bacteria
F&WS	United States Fish and Wildlife Service
ug/l	Micrograms per litter (one part per billion)
mg/l	Milligrams per liter (one part per million)
MGD	Million gallons per day
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMIP	New Mexico NPDES Permit Implementation Procedures
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
POTW	Publically owned treatment works
RAS	Return activated sludge
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TBELs	Technology-based effluent limitations
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
USGS	United States Geological Service

UV	Ultraviolet Light
WET	Whole effluent toxicity
WLA	Waste-load Allocation
WQBELs	Water quality-based effluent limitations
WQCC	New Mexico Water Quality Control Commission
WQMP	Water Quality Management Plan
WWTP	Wastewater treatment plant

As used in this document, references to State water quality standards and/or rules, regulations and/or management plans may mean the State of New Mexico and/or Tribal or both.

I. CHANGES FROM THE PREVIOUS PERMIT

Changes from the permit previously issued on September 24, 2010, with an effective date of November 1, 2010, and an expiration date of October 31, 2015, are as follow:

- Biochemical Oxygen Demand-5-Day and TSS percent removal limits have been established;
- Bacteria daily maximum limit has been revised;
- Sufficiently Sensitive Methods sampling requirements have been added;
- DMR electronic reporting requirements have been added;
- Revised TDS loading limit has been established; and,
- An alternative to the 400 mg/L TDS net incremental increase limit has been established.

II. APPLICANT ACTIVITY

Under the Standard Industrial Classification Code 4952, the applicant operates a municipal wastewater treatment plant with a design capacity of 6.67 million gallons per day (MGD) serving a population of approximately 50,000.

As described in the application, treatment consists of pretreatment, primary sedimentation, biological treatment, trickling filter, activated sludge, followed by secondary clarification, disinfection and dechlorination.

Sludge is treated by Primary anaerobic digestion of raw primary sludge where it is heated and mixed, then sent to secondary digestion, which is not heated or mixed. The sludge is dewatered by a belt press, stock piled in concrete drying beds and further air dried to 70 - 80% solids. The sludge is disposed of at the San Juan County Regional Landfill, 78 County Road 3140, Aztec, NM.

As described in the application, the wastewater treatment plant is located at 1395 South Lake Street, Farmington, San Juan County, New Mexico. The discharges are to the San Juan River, State of New Mexico Segment No. 20.6.4.401 of the San Juan Basin. The discharge from Outfall 001 is on that water at Latitude 36° 43' 02" North, Longitude 108° 13' 15" West.

III. EFFLUENT CHARACTERISTICS

A quantitative description of the discharge(s) described in the EPA Permit Application Form 2A are presented in the pollutant table below. For toxics that were tested at the minimum quantification level (MQL) and reported as less than the MQL, those pollutants are not shown.

POLLUTANT TABLE

Parameter	Max	Avg
	mg/l unless noted	
Flow, million gallons/day (MGD)	6.65	4.96
pH, minimum, standard units (su)	N/A	6.6 su
pH, maximum, standard units (su)	N/A	8.2 su
Temperature, winter, °F	76	59
Temperature, summer, °F	80	71
Biochemical Oxygen Demand, 5-day (BOD_5)	72	10
Fecal Coliform (FCB) (bacteria/100 ml)	2,420	2
Total Suspended Solids (TSS)	139	10
Ammonia (NH3)	8.3	5.3
Chlorine, Total Residual (TRC)	35	3
Dissolved Oxygen	5.1	4.8
Total Kjeldahl Nitrogen	10	5.4
Nitrate plus Nitrite Nitrogen	20	17.5
Oil and grease	1.00	1.00
Phosphorus, T	2.9	2.3
Total Dissolved Solids (TDS)	930	773
Antimony, T	1.5 ug/l	1.3 ug/l
Arsenic, T	1.2 ug/l	1.1 ug/l
Copper, T	26 ug/l	15.58 ug/l
Mercury, T	0.0152 ug/l	0.0076 ug/l
Nickel, T	3.2 ug/l	2.2 ug/l
Selenium, T	1.6 ug/l	1.5 ug/l
Zinc, T	52 ug/l	35.6 ug/l
Hardness (as $CaCO_3$)	353 ug/l	346 ug/l
Silver	1.2 ug/l	1.2 ug/l
Aluminum	130 ug/l	54 ug/l
Chloroform	8.1 ug/l	8.1 ug/l
Bis(2-Ethylhexyl) Phthalate	1.27 ug/l	1.27 ug/l

Footnotes:
T - Total metal form

A summary of the last 36 months of available pollutant data (i.e., January 2012 through January 2015 taken from DMRs indicates 3 and 10 exceedances of permit effluent limits for TRC and E. coli bacteria, respectively. The facility, also, exceeded the daily maximum and 30-day average of total dissolved solids effluent limits numerous times (i.e., 37 and 33, respectively).

IV. REGULATORY AUTHORITY/PERMIT ACTION

In November 1972, Congress passed the Federal Water Pollution Control Act establishing the NPDES permit program to control water pollution. These amendments established technology-based or end-of-pipe control mechanisms and an interim goal to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water”; more commonly known as the “swimmable, fishable” goal. Further amendments in 1977 of the CWA gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry and established the basic structure for

regulating pollutants discharges into the waters of the United States. In addition, it made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. Regulations governing the EPA administered NPDES permit program are generally found at 40 CFR §122 (program requirements & permit conditions), §124 (procedures for decision making), §125 (technology-based standards) and §136 (analytical procedures). Other parts of 40 CFR provide guidance for specific activities and may be used in this document as required.

It is proposed that the permit be reissued for a 5-year term following regulations promulgated at 40 CFR §122.46(a). The previous permit will be expired on October 31, 2015. The application and addendum were on April 10, 2015. The facility, also, submitted addenda on October 13, 2015, November 9, 2015, January 7, 2016 and January 22, 2016. The existing permit is administratively continued until this permit is issued.

V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

A. OVERVIEW OF TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations contained in 40 CFR §122.44 NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, or the previous permit.

Technology-based effluent limitations are established in the proposed draft permit for TSS and BOD. Water quality-based effluent limitations are established in the proposed draft permit for E. coli bacteria, pH and TRC.

B. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated at 40 CFR §122.44 (a) require TBELs to be placed in NPDES permits based on ELGs where applicable, on BPJ in the absence of guidelines, or on a combination of the two. In the absence of promulgated guidelines for the discharge, permit conditions may be established using BPJ procedures. EPA establishes limitations based on the following technology-based controls: BPT, BCT, and BAT. These levels of treatment are:

BPT - The first level of technology-based standards generally based on the average of the best existing performance facilities within an industrial category or subcategory.

BCT - Technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and O&G.

BAT - The most appropriate means available on a national basis for controlling the direct discharge of toxic and non-conventional pollutants to navigable waters. BAT effluent limits represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

The facility is a POTW treating sanitary wastewater. POTW's have technology-based ELG's established at 40 CFR Part 133, Secondary Treatment Regulation. Pollutants with ELG's established in this Chapter are BOD_5, TSS and pH. BOD_5 limits of 30 mg/l for the 30-day average and 45 mg/l for the 7-day average and 85% percent (minimum) removal are found at 40 CFR §133.102(a). TSS limits, 30 mg/l for the 30-day average and 45 mg/l for the 7-day average, and 85% percent (minimum) removal, are, also, found at 40 CFR §133.102(b). ELG's for pH are between 6-9 s.u. and are found at 40 CFR §133.102(c). Regulations at 40 CFR §122.45(f)(1) require all pollutants limited in permits to have limits expressed in terms of mass such as pounds per day. When determining mass limits for POTW's, the plant's design flow is used to establish the mass load. Mass limits are determined by the following mathematical relationship:

Loading in lbs/day = pollutant concentration in mg/l * 8.345 lbs/gal * design flow in MGD

30-day average TSS loading = 30 mg/l * 8.345 lbs/gal * 6.67 MGD
30-day average TSS loading = 1,669 lbs

7-day average TSS loading = 45 mg/l * 8.345 lbs/gal * 6.67 MGD
7-day average TSS loading = 2,504 lbs

30-day average BOD_5 loading = 30 mg/l * 8.345 lbs/gal * 6.67 MGD
30-day average BOD_5 loading = 1,669 lbs

7-day average BOD_5 loading = 45 mg/l * 8.345 lbs/gal * 6.67 MGD
7-day average BOD_5 loading = 2,504 lbs

A summary of the technology-based limits for the facility is:

Final Effluent Limits 6.67 MGD design flow

EFFLUENT CHARACTERISTICS	DISCHARGE LIMITATIONS			
	lbs/Day		mg/l (unless noted)	
Parameter	30-Day Avg.	7-Day Avg.	30-Day Avg.	7-Day Avg.
Flow	N/A	N/A	Measure MGD	Measure MGD
BOD_5	1669	2504	30	45
BOD_5, % removal[1]	≥ 85	---	---	---
TSS	1669	2504	30	45
TSS, % removal[1]	≥ 85	---	---	---
pH	N/A	N/A	6.0 – 9.0 standard units	

[1] % removal is calculated using the following equation: [(average monthly influent concentration – average monthly effluent concentration) ÷ average monthly influent concentration] * 100.

I. WATER QUALITY BASED LIMITATIONS

1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State WQS and applicable State water quality management plans to assure that surface WQS of the receiving waters are protected and maintained, or attained.

The facility discharge point into the San Juan River is in State waters approximately two miles upstream of the boundary with the Navajo Nation. Since 40 CFR §122.4(d) requires NPDES permits be protective of a downstream state's water quality standards, the water quality standards of the Navajo Nation have been considered.

2. Implementation

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.

3. State of New Mexico Water Quality Numerical Standards

The general and specific stream standards are provided in New Mexico State Standards for Interstate and Intrastate Surface Water (20.6.4 NMAC, effective June 5, 2013). The facility discharges into the San Juan River in segment number 20.6.4.401 of the San Juan Basin. The designated uses of the receiving waters are public and industrial water supply, irrigation, livestock watering, wildlife habitat, primary contact, marginal coldwater aquatic life and warmwater aquatic life.

4. Navajo Nation Water Quality Standards

The general and specific stream standards for the Navajo Nation (NN) are provided in Surface Water Quality Standards (NNWQS) passed by Navajo Nation Resources Committee on May 13, 2008, effective March 26, 2009. The Navajo Nation WQS and New Mexico WQS are very similar except for some of the parameters discussed below. The designated uses of the receiving stream are domestic water supply, primary human contact, secondary human contact, agricultural water supply, fish consumption, aquatic & wildlife habitat and livestock watering.

5. 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 more stringent than effluent limitation guideline and applicable for this discharge are based on 20.6.4 NMAC.

a. pH

Stream segment specific (20.6.4.401 NMAC) WQS for pH, 6.6 to 9.0 standard units (su), are more restrictive than the technology-based limits presented earlier and downstream Navajo Nation segment specific WQS for pH (i.e., 5-9 su for domestic water supply, 6.5-9 su for agricultural water supply, etc.). The draft permit will propose 6.6 to 9.0 su based on New Mexico water quality limits which are consistent with requirements in the previous permit and protective of the downstream Navajo Nation standards.

b. Bacteria

EPA approved the NMED TMDL developed for the San Juan River Watershed for both FCB and E. coli on August 26, 2005. However, FCB has been eliminated as E. coli was approved as a WQS for the State of New Mexico. Downstream Navajo Nation segment specific WQS for E. coli bacteria are 126 cfu/100 ml monthly geometric mean for domestic water supply, and 235 cfu/100 ml to 575 cfu/100 ml single sample maximum for secondary human contact. The established E. coli daily loading limit of 3.19 x 1010 cfu/day in the EPA approved TMDL were based on 4Q3 low flow and 126 cfu/100 ml, which was a proposed State WQS for bacteria at the time. The loading limit was determined by the following:

C, expressed as cfu/100ml * 1,000 ml/L * l/0.264 gallons * Q, flow, expressed in 1,000,000 gallons/day

Where:
C = state water quality standard criterion for bacteria, 126 cfu/100 ml
Q = stream flow in million gallons per day (mgd), 299 MGD

The draft permit proposes the E. coli limit of 126 cfu/100 ml for monthly geometric mean, and E. coli limit of 235 cfu/100 ml and E. coli loading limit of 3.19×10^{10} cfu/day for the daily maximum which are consistent with the intent of the approved TMDL and protective of the downstream Navajo Nation standards. The TMDL did not specify any other permit condition such as daily maximum. The E.coli daily maximum limit was based on Navajo daily maximum of 235 cfu/100 ml, which is the most restrictive WQS for E. coli bacteria.

c. Dissolved Oxygen

A steady state model (LA-QUAL) was used to evaluate the biochemical oxygen demand of the discharge. A complete characterization of the receiving water was not available. The evaluation demonstrated that the discharge would not cause an excursion of the in-stream standard of 5 mg/L (see Appendix A).

d. Low Flow – 4Q3

The low flow or 4Q3 was taken from the previous permit and was provided by NMED. The 4Q3 is 431.3 cubic feet per second (cfs) and the harmonic mean low flow used for human health calculations is 1108 cfs. To convert 4Q3 expressed in cfs to 4Q3 expressed as MGD, the constant 1.548 cfs/MGD is used. The 4Q3 is 278.6 MGD and the harmonic mean low flow is 715.8 MGD.

e. Chlorine

The facility uses chlorine to control bacteria. The NMWQS for total residual chlorine (TRC) are 11 ug/l for chronic and 19 ug/l for acute conditions. The NNWQS for TRC are 4000 ug/L for domestic water supply, and primary/secondary human contact; 19 ug/L for aquatic & wildlife habitat-acute; and, 11 ug/L for aquatic & wildlife habitat-chronic and livestock watering. Since acute conditions do not allow dilution; the limit must be met at end-of-pipe but chronic standards do allow dilution, the permit shall use the most stringent WQS for the permit limit. The following shows the calculations.

The critical dilution (CD) is calculated as follows:

$$CD = Qe \div [(FQa) + Qe]$$

where:
Qe = facility effluent or design flow; 6.67 MGD
Qa = 4Q3; 278.6 MGD
F = fraction of stream allowed for mixing; 1.0

$$CD = 6.67 \div [(1.0 \times 278.6) + 6.67]$$
$$CD = 0.0234 \text{ or } 2.34\%$$

The in-stream TRC concentration after allowing for dilution is; 11 ug/l ÷ 0.0234 = 470 ug/l. Since this value is greater than the 19 ug/l end-of-pipe acute standard, the 19 ug/l is more stringent and will be more protective. The draft permit maintains the 19 ug/l end-of-pipe acute limit since it is more stringent and will be more protective than the 11 ug/l dilution based chronic limit. In addition to the 19 ug/l chemical specific limitation, the draft permit also maintains the narrative limit for total residual chlorine shall be “No Measurable.” TRC shall be limited as follows: “After dechlorination and prior to final disposal, the effluent shall contain NO MEASURABLE (TRC) at any time. NO MEASURABLE will be defined as no detectable concentration of TRC as determined by any approved method established in 40 CFR Part 136. The effluent limitation for TRC is the instantaneous maximum and cannot be averaged for reporting purposes. The maximum dechlorinated TRC shall be monitored daily by grab sample. TRC shall be measured within fifteen (15) minutes of sampling.

v. Total Dissolved Solids

The Colorado River flows more than 1400 miles from it headwaters in the Rocky Mountains through portions of seven states and the Republic of Mexico before it discharges into the Gulf of California. Salinity impacts have been a major concern in the United States and Mexico. The salinity of the Colorado River increases as it flows downstream. The Colorado River has carried an average salt load of approximately 9 million tons annually past Hoover Dam, the uppermost location at which numeric criteria have been established. Many of the saline sediments of the Basin were deposited in prehistoric marine environments. Salts contained within the sedimentary rocks are easily eroded, dissolved, and transported into the river system. (Source: *2014 Review, Water Quality Standards for Salinity, Colorado River System - coloradoriversalinity.org)*.

In 1973, the Colorado River Basin States came together in 1973 and organized the Colorado River Basin Salinity Control Forum (Forum). In 1974, in coordination with the Department of the Interior and the U.S. State Department, the Forum worked with Congress in the passage of the Colorado River Basin Salinity Control Act (Act). Since implementation of the Program, measures have been put in place which now reduce the annual salt load of the Colorado River by more than 1.3 million tons. The salinity concentration at Imperial Dam has been reduced by about 90 mg/L. (Source: *Colorado River Basin Salinity Control Forum - coloradoriversalinity.org*)

According to the Forum-adopted NPDES permit program policies (for Municipal Discharges), in order for a permittee to be in compliance with the Forum's municipal discharges criteria, the incremental increase in salinity shall be 400 mg/L or less, which is considered to be a reasonable incremental increase above the flow weighted average salinity of the intake water supply. However, the permitting authority may permit a discharge in excess of the 400 mg/L incremental increase at the time of issuance or reissuance of a NPDES discharge permit, upon satisfactory demonstration by the permittee that it is not practicable to attain the 400 mg/L limit.

The previous City of Farmington wastewater treatment plant's permit limited daily maximum TDS to 400 mg/L net increase over drinking water concentrations, which was based on the Forum-adopted NPDES permit program policies (a New Mexico WQS and a Navajo Nation WQS). The facility has not been able to meet the limit for past 2 permit terms. On April 10, 2015, the facility submitted to EPA Region 6 a NPDES permit renewal application seeking a permit relief for TDS in the next permit cycle to address non-compliance issues being addressed by EPA Region 6 Enforcement Division. The City is requesting M5-B designation which has been granted to Olathe, CO; Ashley Valley, UT; St. George, UT; and, Rock Springs, WY. Specifically, the City requested a waiver to their discharge limit or a new limit of 725 mg/l incremental increase be granted.

Based on Appendix B of the Forum's 2014 Review Water Quality Standards for Salinity Colorado River System, the facility submitted to EPA a package demonstrating that it is not practicable, and it would be cost prohibitive to meet the net 400 mg/L incremental increase limit required by the previous permit. As a part of the demonstration, it includes the elimination of 25 gas production wells (accounted for an average of 13,000 pounds of TDS daily) and 2 power plants from their collection system; implementation of Public Awareness Program; establishment of Technically Based Local Limits for light industrial users; collaboration with owners/operators

of hotels, industrial laundry, car washes and hospitals to reduce TDS in their discharges; city approval of $14 million upgrades to the wastewater treatment plant which will potentially reduce TDS; and, a comprehensive TDS study to determine sources, mass balances, treatment alternatives, and costs. The City of Farmington, also, evaluated the costs of treatment alternatives and estimated that it would require a capital investment of approximately from $23M to $27M (depending on the selected technology) to meet the net 400 mg/l TDS limit. The cost of alternative plans ranges approximately from $865 to $2,493 per ton of salt removed from the discharge.

EPA believes that the submitted information satisfactorily demonstrated that it is not practicable and would be cost prohibitive for the facility to meet the net 400 mg/L incremental increase limit required by the previous permit. To protect and maintain existing water quality as required by 40 CFR §122(4)(d).and to prevent further degradation of water quality in the San Juan River in accordance with 40 CFR §131.12, Subsection A of 20.6.4.8 NMAC, the New Mexico Continuing Planning Process – Anti-degradation Policy Implementation Procedures, and § 201 of Navajo Nation Clean Water Act – Anti-degradation Policy, EPA cannot grant a waiver to the TDS discharge limit, as requested. However, in consultation with NMED and the Colorado River Basin Salinity Control Forum, EPA is proposing a 30-day average TDS limit of 497 mg/L net incremental increase as an alternative to the net 400 mg/L limit in the draft permit for this permit cycle. The proposed TDS permit limit for the facility, in accordance with 40 CFR §133.101(f), was based on the 95th percentile of the most recent three years (i.e., 2013-2015) of City's wastewater treatment plant effluent net TDS data. In addition, the 30 day average loading limit was revised to 27,664 lbs/day from 22,264 lbs/day based on the proposed a 30-day average TDS limit of 497 mg/L net incremental increase. The proposed limits for the facility are conceivably high enough above the long-term average to accommodate reasonably anticipated variability within control of the facility and, at same time, would not cause further degradation of the receiving water and its downstream. The facility is required to maintain the formulated BMP activities and to monitor its effluent quality and quantity on a regular basis with reporting results monthly.

In addition, the permittee indicated that the current water intake sampling location is affecting the facility's ability to meet the TDS WQS. They requested to move it to an intake water supply point on the Animas River (i.e., Animas River Pump Station #2). The permittee believes the new sampling location is a more appropriate place than current Farmington Lake effluent location.

Farmington Lake (Reservoir) is the City's main source of water supply. The Reservoir is supplied by both Animas River and Farmer Ditch (which is also supplied by the Animas River). The City supplies its drinking water treatment plants with water from the Reservoir and water seasonally drawn directly from Animas River. Because there is a combination of water entering the City's drinking water treatment plants from both Farmington Lake and Animas River, EPA believes that data collected at the proposed Animas River Pump Station #2 are not representative of the intake water supply entering the drinking water treatment plants. On the other hand, since at certain times of the year, most of the intake water is from the river and not from the lake, the current lake intake monitoring locations is also not completely representative of the intake water quality. This is not consistent with the Forum requirement for "a reasonable incremental increase above the flow weighted average salinity of the intake water supply". Therefore, EPA, after consultation with NMED, has determined it is not appropriate to grant the permittee's request for sampling in the Animas River. To ensure the intake measurement is truly representative and

consistent with the Forum intent for limiting the net increase over the raw water supply intake, construction of new sampling stations at the immediate or in proximity of the drinking water treatment plants intake where the separate and/or combined flows enter the treatment process are proposed in the draft permit. The current Farmington Lake effluent sampling location, which provided the existing net TDS data used to calculate the new net TDS limit, remains in the draft permit until new sampling locations are online. Data collected at the new sampling stations will be used to re-evaluate TDS limits for the plant at the next permit cycle.

vi. Toxics

1) Reasonable Potential – The State of New Mexico

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. A water quality screen has been conducted to determine if discharged pollutant concentrations demonstrate RP to exceed WQS for the various designated uses. If RP exists, the screen would also calculate the appropriate permit limit needed to be protective of such designated uses. The results of the RP screening which is based on the NMIP as of March 15, 2012 indicate no pollutants shown in the pollutant table above demonstrate RP to exceed the State of New Mexico water quality standards consistent with the designated uses for the receiving water (see Appendix 1).

2) Reasonable Potential – The Navajo Nation

The Navajo Nation is a downstream state and the permit limits developed for this permit must ensure that its WQS are protected. See 40 CFR 122.4(d). Pollutants that have the Navajo Nation WQS that were found to be at levels above MQL are antimony, aluminum, arsenic, copper, mercury, molybdenum, nickel, selenium, silver, zinc, Bis(2-ethylhexyl)Phthalate and chloroform.

Criteria for several of the pollutants; Zinc, copper, nickel, and silver are expressed as a function of hardness according to the following mathematical relationships and their results are as follows:

Copper – Acute	0.960 e (0.9422[ln (hardness)] – 1.700)	(Eqn. 1)
Copper – Chronic	0.960 e (0.8545[ln (hardness)] – 1.702)	(Eqn. 2)
Nickel – Acute	0.998 e (0.8460[ln (hardness)] + 2.255)	(Eqn. 3)
Nickel – Chronic	0.997 e (0.8460[ln (hardness)] + 0.0584)	(Eqn. 4)
Silver – Acute	0.85 e (1.72[ln (hardness)] - 6.59)	(Eqn. 5)
Silver – Chronic	(Silver has no chronic criteria)	
Zinc – Acute	0.978 e (0.8473[ln (hardness)] + 0.884)	(Eqn. 6)
Zinc – Chronic	0.986 e (0.8473[ln (hardness)] + 0.884)	(Eqn. 7)

For the analysis, the San Juan River geometric mean hardness of 152 mg/l (expressed as $CaCO_3$), which was based on the data provided by NMDEQ, was used. The results of Navajo Nation RP screening is shown in Appendix 2. Based on the results of the screening, no pollutants shown in the pollutant table above demonstrate RP to exceed the Navajo Nation water quality standards consistent with the designated uses for the receiving water.

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). Technology based pollutants; BOD_5 and TSS, are proposed to be monitored five times per week, with sampling on at least five different days. Flow is proposed to be monitored continuously using a totalizing meter. Sample type for BOD_5 and TSS is 12-Hr composite. These frequencies and sample types are the same as the current permit. The monitoring frequencies of daily for TRC and five times per week for E. coli, pH and flow are consistent with the previous permit. Report requirements of once per week for TDS is also consistent with the previous permit. Once per quarter selenium reporting is consistent the previous permit.

6. Whole Effluent Toxicity Limitations

Procedures for implementing WET terms and conditions in NPDES permits are contained in the NMIP. Table 11 (page 42) of the NMIP outlines the type of WET testing for different types of discharges. Analysis of the facility past WET data to determine RP was conducted and shown in the Appendix 3. The results show no reasonable potential. EPA concludes that based on the passed WET tests and the Reasonable Potential Analyzer, reasonable potential to cause toxicity does not exist. The draft permit will not propose any WET limits. However, continuation of WET monitoring is proposed in the draft permit. Previously it was shown that the CD was 2.34%. When the critical dilution is equal to or less than 10%, the procedures in the letter from Marcy Leavitt, NMED, to Claudia Hosch, EPA, December 16, 2005, NMED provided Narrative Toxics Implementation Guidance – Whole Effluent Toxicity, (NTIG-WET) provide that in lieu of the more expensive 7-day chronic test, a 48-hour acute test may be run using a 10:1 acute to chronic ratio; 23.4% rounded to the nearest whole number 23%. The facility shall conduct a 48-hour acute test using Daphnia pulex at a once per six-months and a 48-hour acute test using Pimephales promelas at a once per year frequency. Any failure shall re-establish all tests for both species to once per three-month for the remainder of the permit. The test series will be 10%, 13%, 17%, 23% and 31%.

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

EFFLUENT CHARACTERISTIC	DISCHARGE	MONITORING
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) (*1)	30-DAY AVG MINIMUM	48-Hr. MINIMUM
Daphnia pulex	REPORT	REPORT
Pimephales promelas	REPORT	REPORT
EFFLUENT CHARACTERISTIC	**MONITORING FREQUENCY**	**REQUIREMENTS TYPE**
Whole Effluent Toxicity Testing (48 Hr. Static Renewal) (*1)		
Daphnia pulex	1/6 months	24 Hr. Composite
Pimephales promelas	1/year	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.

E. SEWAGE SLUDGE PRACTICES

The permittee shall use only those sewage sludge disposal or reuse practices that comply with the federal regulations established in 40 CFR Part 503 "Standards for the Use or Disposal of Sewage Sludge". The specific requirements in the permit apply as a result of the design flow of the facility, the type of waste discharged to the collection system, and the sewage sludge disposal or reuse practice utilized by the treatment works. The permittee shall submit an Annual Sludge Status report in accordance with NPDES Permit NM0020583, Parts I and Parts IV.

F. WASTE WATER POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute programs directed towards pollution prevention. The permittee will institute programs to improve the operating efficiency and extend the useful life of the treatment system.

G. INDUSTRIAL WASTEWATER CONTRIBUTIONS

The treatment plant currently has five permitted industries which include the two City power generation plants. They are Halliburton Energy Service, ALSCO, San Juan Regional Medical Center, Animas Power Plant, and Bluffview Power Plant. Both Animas and Bluffview power plants are now offline. The facility has a pretreatment program in place and will be continued with this draft permit.

Due to TDS concerns, the facility will be required to maintain the formulated best management practice (BMP) plan for TDS control from these sources.

H. 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 monthly. Reporting requirements and the requirement of using EPA-approved test procedures (methods) for the analysis and quantification of pollutants or pollutant parameters are contained in 40 CFR 122.41(l) and 40 CFR 122.21 (e), respectively. As required by 40 CFR 127.16, all Discharge Monitoring Reports (DMRs) shall be electronically reported effective December 21, 2016. The monitoring results will be available to the public.

XII. 303(d) LIST

The San Juan River is listed on the current "2006 - 2008 State of New Mexico 303(d) List for Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs)". The San Juan River is listed as impaired for bacteria. The draft permit proposes E. coli limits consistent with the approved TMDL. Since the previous permit previously limited the concentration limits that are identical to those approved in the TMDL, there will be no compliance schedule granted to come into compliance with the WLA.

XIII. ANTIDEGRADATION

New Mexico and the Navajo Nation both have antidegradation requirements to protect existing uses through implementation of their respective states WQS. The limitations and monitoring requirements set forth in the proposed draft are developed from the appropriate State WQS and are protective of those designated uses. Furthermore, the policy's set 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.

XIV. 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 is slightly more restrictive than the previous permit since BOD_5 and TSS percent removal limits have been established in the draft permit. The limits for BOD_5, TSS, pH, and TRC are the same. However, the E. coli daily maximum of 126 cfu/100 ml has been revised to 235 cfu/100 ml. The revision of the limit is a result of re-interpretation of the approved NMED TMDL. In addition, the 30-day average TDS net incremental increase and loading limits have been revised to 496 mg/L (from 400 mg/L) and to 27,664 lbs/day (from 22,264 lbs/day), respectively, in the draft permit. The revision of the limit was based on the facts that the facility demonstrated that the net 400 mg/L incremental increase limit could not be practically achieved, and would be cost

prohibitive to comply. Changing limits based on new information is an allowable exception to anti-backsliding (CWA section 303(d)(4)(B) and 40 CFR §122.44(l)(2)(i)(A))

XV. ENDANGERED SPECIES CONSIDERATIONS

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region 2 website, http://ecos.fws.gov/tess_public/reports/species-by-current-range-county?fips=35045, eleven species in San Juan County are listed as endangered (E), threatened (T) or candidate (C). Three of the species are aquatic and include the Colorado pike minnow (*Ptychocheilus lucius*), E, the Zuni bluehead sucker (*Catostomus discobolus yarrow)*, E, and the Razorback sucker (*Xyrauchen texanus*), E. Two of the species are avian and include the Yellow-billed Cuckoo (*Coccyzus americanus)*, T, and the Southwestern willow flycatcher *(Empidonax traillii extimus)*, E. Four plant species are the Knowlton cactus (*Pediocactus knowltonii*), E, the Mancos milk-vetch (*Astragalus humillimus*), E, the Zuni fleabane *(Erigeron rhizomatus)*, T, and the Mesa Verde cactus (*Sclerocactus mesae-verdae*), T. One mammals species is the Cana Lynx (Lynx Canadensis), T.

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) In the previous permit issued September 24, 2010, EPA made a "no effect" determination for federally listed species (i.e., the Colorado pike minnow (*Ptychocheilus lucius*), the Razorback sucker (*Xyrauchen texanus*), the Knowlton cactus (*Pediocactus knowltonii*), the Mancos milk-vetch (*Astragalus humillimus*), the Mesa Verde cactus (*Sclerocactus mesae-verdae*), the Cana Lynx (Lynx Canadensis), etc.). EPA has received no additional information since then which would lead to a revision of that "no effect" determination. EPA determines that this reissuance will not change the environmental baseline established by the previous permit, and therefore, EPA concludes that reissuance of this permit will have "no effect" on the listed species and designated critical habitat.

2) No additions have been made to the critical habitat designation in the area of the discharge since prior issuance of the permit.

3) EPA has received no additional information since the previous permit issuance which would lead to revision of its determinations.

4) Except for the TDS limit relaxation, the draft permit is no less stringent from the previous permit. The proposed TDS permit limit is based on the variability of the discharge under current operations. The results of WET tests and Reasonable Potential Analyzer show that effluent from the facility's current operation has no reasonable potential to cause toxicity. The facility effluent critical dilution after mixing in the receiving water is low (i.e., 2.3% at 4Q3). In comparing to the net 400 mg/L incremental increase limit required by the previous permit, the proposed limit would increase the in-stream TDS level by

approximately 2.27 mg/L and raise the resultant in-stream TDS concentration (after complete mixing occurs) of the receiving stream to approximately 361 mg/L. According to the Pimentel and Bulkley study (1983) on TDS concentrations preferred or avoided by Juvenile Colorado squawfish, humpback (Gila cypha) and bonytail (Gila elegans), Colorado squawfish had the lowest preferred TDS concentration (560-1150 mg/L) and the lowest avoided concentration (more than 4,400 mg/L). Similar preference and avoidance data do not exist for mentioned endangered aquatic species. EPA concludes that the proposed limit, which reflects current discharge levels, would not result in TDS concentrations that would have an effect on the relevant endangered species.

5) EPA determines that Items 1, thru 4 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.

XVI. 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.

XVII. 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 or if changes are made to the “Water Quality Standards for Salinity - Colorado River System” by the Colorado River Basin Salinity Control Forum. 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). Modification of the permit is subject to the provisions of 40 CFR §124.5.

XVIII. VARIANCE REQUESTS

No variance requests have been received.

XIX. 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.

XX. FINAL DETERMINATION

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

XXI. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

A. APPLICATION(s)

EPA Application Form 2A was received on April 10, 2015.

B. 40 CFR CITATIONS

§§ 122, 124, 125, 127, 131, 133, 136

C. STATE OF NEW MEXICO REFERENCES

New Mexico State Standards for Interstate and Intrastate Surface Water, 20.6.4 NMAC, effective June 5, 2013.

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

Procedures for Implementing National Pollutant Discharge Elimination System Permits in New Mexico, March 2012.

Statewide Water Quality Management Plan, December 17, 2002.

State of New Mexico 303(d) List for Assessed Stream and River Reaches, 2014 -2016.

D. MISCELLANEOUS REFERENCES

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

2014 Review Water Quality Standards for Salinity - Colorado River System, Colorado River Basin Salinity Control Forum - October 2014.

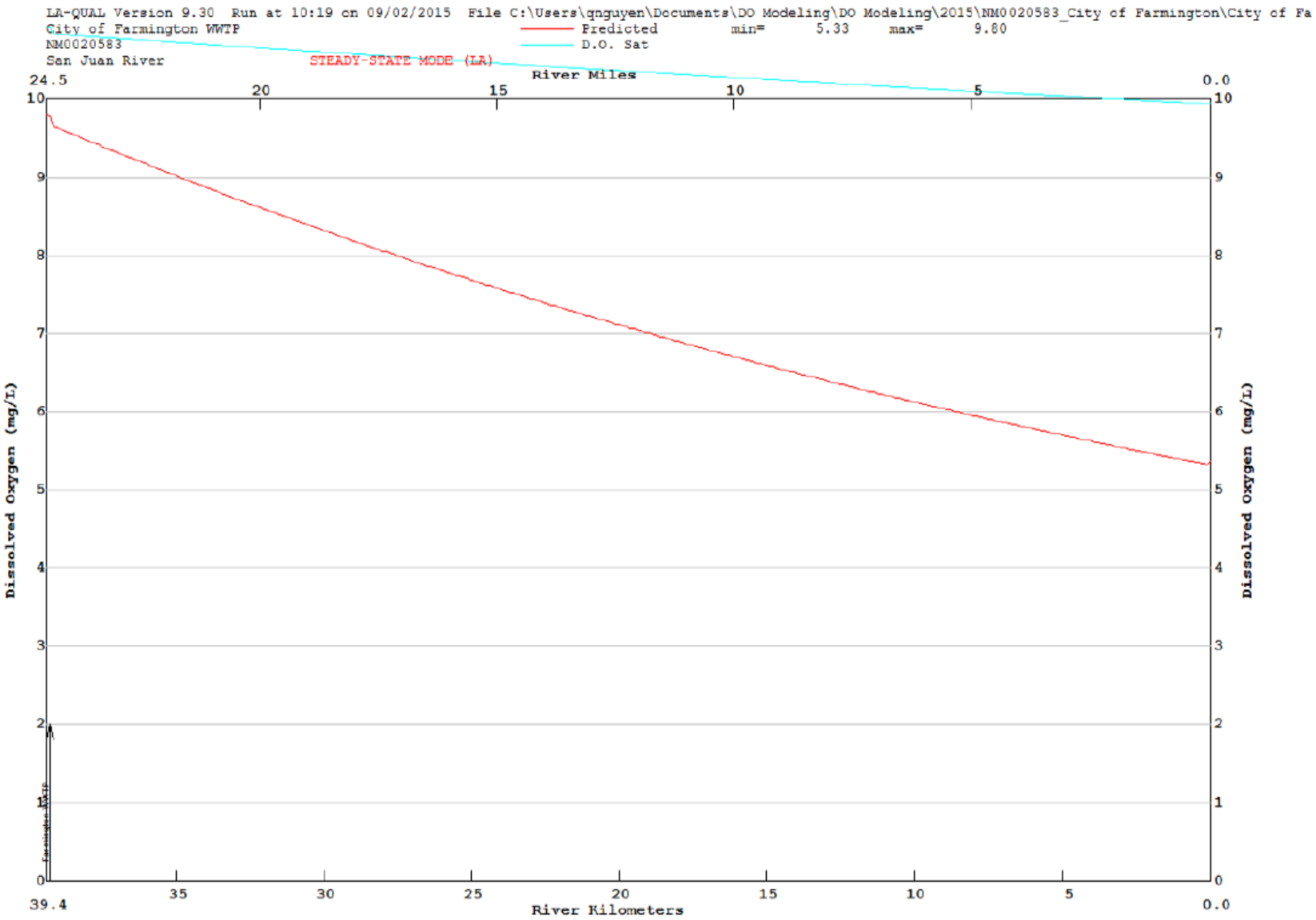
Navajo Nation Surface Water Quality Standards 2007, passed by Navajo Nation Resources Committee on May 13, 2008

Pimentel, R. and R. V. Bulkley. 1983. Concentrations of total dissolved solids preferred or avoided by endangered Colorado River fishes. Transactions of the American Fisheries Society 112:595-600.

Emails from NMED to EPA Region 6 on October 30, 2015 and March 22, 2016 regarding the establishment of an alternative to the 400 mg/L TDS net incremental increase limit and recommendation of new sampling locations for the City of Farmington WWTP, respectively.

Email from the Colorado River Basin Salinity Control Forum to EPA Region 6 on July 13, 2016 regarding the establishment of an alternative to the 400 mg/L TDS net incremental increase limit for the City of Farmington WWTP.

Appendix A – DO Modeling Results



		CALCULATIONS OF NEW MEXICO WATER QUALITY-BASED EFFLUENT LIMITATIONS	
NMAC 20.6.4.		(EPA approved site-specific criteria for aluminum, cadmium, and zinc on April 30, 2012)	
Calculations Specifications:		Excel	**Revised as of July 10, 2012**
Prepared By:		Quang Nguyen	
STEP 1:	REFERENCE IMPLEMENTATION PROCEDURES		**Appendix 1 of Fact Sheet**
	INPUT FACILITY AND RECEIVING STREAM DATA		
	LIST SOURCE OF DATA INPUT		
IMPLEMENTATION PROCEDURES			
The State of New Mexico Standards for Interstate and Intrastate Surface Waters are implemented in this spread sheet			
by using procedures established in the current "Procedures for Implementing NPDES Permits in New Mexico"			
FACILTY			DATA INPUT
Permittee			City of Farmington WWTP
NPDES Permit No.			NM0020583
Outfall No.(s)			1
Plant Effluent Flow (MGD)			6.67
Plant Effluent Flow (cfs)			10.3385
RECEIVING STREAM			DATA INPUT
Receiving Stream Name			San Juan River
Basin Name			San Juan
Waterbody Segment Code No.			20.6.4.401
Is a publicly owned lake or reservoir (enter "1" if it's a lake, "0" if not)			0
Are acute aquatic life criteria considered (1= yes, 0= no)	(MUST enter "1" for 2005 Standards)		1
Are chronic aquatic life criteria considered (1= yes, 0=no)			1
Are domestic water supply criteria considered (1= yes, 0=no)			1
Are irrigation water supply criteria considered (1= yes, 0=no)			1
Livestock watering and wildlife habitat criteria applied to all streams			1
USGS Flow Station			USGS
WQ Monitoring Station No.			
Receiving Stream TSS (mg/l)			97.33
Receiving Stream Hardness (mg/l as CaCOs)		RANGE: 0 - 400	152
Receiving Stream Critical Low Flow (4Q3) (cfs)			431.3
Receiving Stream Harmonic Mean Flow (cfs)			1108
Avg. Receiving Water Temperature (C)			11.38
pH (Avg), Receiving Stream			8.26
Fraction of stream allowed for mixing (F)			1
Fraction of Critical Low Flow			431.3

For industrial and federal facility, use the highest monthly average flow for the past 24 months. For POTWs, use the design flow.

For intermittent stream, enter effluent TSS

For intermittent stream, enter effluent Hardness (If no data, 20 mg/l is used)

Enter "0" for intermittent stream and lake.

Enter harmonic mean or modified harmonic mean flow data or 0.001 if no data is available

Enter 1, if stream morphology data is not available or for intermittent streams.

STEP 2: INPUT AMBIENT AND EFFLUENT DATA

CALCULATE IN-STREAM WASTE CONCENTRATIONS

DATA INPUT

Input pollutant geometric mean concentration as micro-gram per liter (ug/l or ppb)
unless other unit is specified for the parameter.
Effluent value reported as "< detection level" (DL) but the DL is greater than MQL, input "1/2 DL" for calculation.
Effluent value reported as "< detection level" (DL) and the DL is smaller than MQL, no data is inputted.
If a less than MQL vakue is reported, input either the reported value or "0" for calculation.

The following formular is used to calculate the Instream Waste Concentration (Cd)
See the current "Procedures for Implementing NPDES Permits in New Mexico"
Cd = [(F*Qa*Ca) + (Qe*2.13*Ce)] / (F*Qa + Qe)
Where:
Cd = Instream Waste Concentration
F = Fraction of stream allowed for mixing (see "Procedures for Implementing NPDES Permits in New Mexico")
Ce = Reported concentration in effluent
Ca = Ambient stream concentration upstream of discharge
Qe = Plant effluent flow
Qa = Critical low flow of stream at discharge point expressed as the 4Q3 or harmonic mean flow for human health criteria

The following formular convert metals reported in total form to dissolved form if criteria are in dissolved form
See the current "Procedures for Implementing NPDES Permits in New Mexico"
Kp = Kpo * (TSS**a)
Kp = Linear partition coefficient; Kpo and a can be found in table below
C/Ct = 1/ (1 + Kp*TSS* 10^-6)
TSS = Total suspended solids concentration found in receiving stream (or in effluent for intermittent stream)
Total Metal Criteria (Ct) = Cr / (C/Ct)
C/Ct = Fraction of metal dissolved; and Cr = Dissolved criteria value

		Stream Linear Partition Coefficient					Lake Linear Partition Coefficient				
Total Metals	Total Value	Kpo	alpha (a)	Kp	C/Ct	Dissolved Value in Stream	Kpo	alpha (a)	Kp	C/Ct	Dissolved Value in Lake
Arsenic	1.2	480000	-0.73	16975.44349	0.37704264	0.45245117	480000	-0.73	16975.44349	0.37704264	0.4524512
Chromium III	ND	3360000	-0.93	47563.06407	0.177641569	#VALUE!	2170000	-0.27	630424.5521	0.016036121	#VALUE!
Copper	26	1040000	-0.74	35134.25621	0.226263942	5.88286249	2850000	-0.9	46283.13933	0.18166169	4.7232039
Lead	ND	2800000	-0.8	71872.15265	0.125073221	#VALUE!	2040000	-0.53	180243.4137	0.05392844	#VALUE!
Nickel	3.2	490000	-0.57	36049.18476	0.221795037	0.70974412	2210000	-0.76	68127.86261	0.131046401	0.4193485
Silver	1.2	2390000	-1.03	21404.43536	0.324328494	0.38919419	2390000	-1.03	21404.43536	0.324328494	0.3891942
Zinc	52	1250000	-0.7	50715.10239	0.168460748	8.75995889	3340000	-0.68	148504.1858	0.064708533	3.3648437

The following formular is used to calculate hardness dependent criteria
(Please refer to State Water Quality Standards for details)

		Dissolved WQC (ug/l)	
Aluminum (T)	Acute	e(1.3695[ln(hardness)]+1.8308)	6069.335306	If Stream pH < 6.5, enter 750 in cell O113
	Chronic	e(1.3695[ln(hardness)]+0.9161)	2431.59907	If Stream pH < 6.5, enter 87 in cell P113
Cadmium (D)	Acute	e(0.8968[ln(hardness)]-3.5699)*CF1	2.361167846	CF1 = 1.136672 - 0.041838*ln(hardness)
	Chronic	e(0.7647[ln(hardness)]-4.2180)*CF2	0.611948223	CF2 = 1.101672 - 0.041838*ln(hardness)

										Dissolved						
										WQC (ug/l)						
Chromium III (D)			Acute			0.316 e(0.819[ln(hardness)]+3.7256)				802.8316825						
			Chronic			0.860 e(0.819[ln(hardness)]+0.6848)				104.4319076						
Copper (D)			Acute			0.960 e(0.9422[ln(hardness)]-1.700)				19.93901235						
			Chronic			0.960 e(0.8545[ln(hardness)]-1.702)				12.80817848						
Lead (D)			Acute			e(1.273[ln(hardness)]-1.46)*CF3				101.5626551		CF3 = 1.46203 - 0.145712*ln(hardness)				
			Chronic			e(1.273[ln(hardness)]-4.705)*CF4				3.957750863		CF4 = 1.46203 - 0.145712*ln(hardness)				
Manganese (D)			Acute			e(0.3331[ln(hardness)]+6.4676)				3432.535917						
			Chronic			e(0.3331[ln(hardness)]+5.8743)				1896.479594						
Nickel (D)			Acute			0.998 e(0.846[ln(hardness)]+2.255)				667.274108						
			Chronic			0.997 e(0.846[ln(hardness)]+0.0584)				74.1135526						
Silver (D)			Acute			0.85 e(1.72[ln(hardness)]-6.59)				6.609814344						
Zinc (D)			Acute			0.978 e(0.9094[ln(hardness)]+0.9095)				234.1522013						
			Chronic			0.986 e(0.90947[ln(hardness)]+0.6235)				177.4111097						
						Instream Waste Concentration						Livestock&	Acute	Chronic	Human	Need
POLLUTANTS				Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
				Conc.	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
		CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Radioactivity, Nutrients, and Chlorine																
Aluminum, total		7429-90-5	2.5	2.25	130	276.9	8.6793965	8.6793965	4.78900677	1E+100	5000	1E+100	6069.335306	2431.5991	1E+100	N/A
Barium, dissolved		7440-39-3	100			0	0	0	0	2000	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Boron, dissolved		7440-42-8	100			#VALUE!	#VALUE!	#VALUE!	#VALUE!	1E+100	750	5000	1E+100	1E+100	1E+100	N/A
Cobalt, dissolved		7440-48-4	50			0	0	0	0	1E+100	50	1000	1E+100	1E+100	1E+100	N/A
Uranium, dissolved		7440-61-1	0.1			0	0	0	0	30	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Vanadium, dissolved		7440-62-2	50			0	0	0	0	1E+100	100	100	1E+100	1E+100	1E+100	N/A
Ra-226 and Ra-228 (pCi/l)						0	0	0	0	5	1E+100	30	1E+100	1E+100	1E+100	N/A
Strontium (pCi/l)						0	0	0	0	8	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Tritium (pCi/l)						0	0	0	0	20000	1E+100	20000	1E+100	1E+100	1E+100	N/A
Gross Alpha (pCi/l)						0	0	0	0	15	1E+100	15	1E+100	1E+100	1E+100	N/A
Asbestos (fibers/l)						0	0	0	0	7000000	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Total Residual Chlorine		7782-50-5	33			#VALUE!	#VALUE!	#VALUE!	#VALUE!	1.00E+100	1E+100	11	19	11	1E+100	N/A
Nitrate as N (mg/l)						0	0	0	0	10	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Nitrite + Nitrate (mg/l)				0.22	20	42.6	1.21209111	1.21209111	0.61178266	1E+100	1E+100	132	1E+100	1E+100	1E+100	N/A
METALS AND CYANIDE																
Antimony, dissolved (P)		7440-36-0	60		1.5	3.195	0.07479309	0.07479309	0.02953623	6	1E+100	1E+100	1E+100	1E+100	640	N/A
Arsenic, dissolved (P)		7440-38-2	0.5		0.452451169	0.963720989	0.02256015	0.02256015	0.00890914	10	100	200	340	150	9	N/A
Beryllium, dissolved		7440-41-7	0.5			0	0	0	0	4	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Cadmium, dissolved		7440-43-9	1			0	0	0	0	5	10	50	2.361167846	0.6119482	1E+100	N/A
Chromium (III), dissolved		16065-83-1	10			#VALUE!	#VALUE!	#VALUE!	#VALUE!	1E+100	1E+100	1E+100	802.8316825	104.43191	1E+100	N/A
Chromium (VI), dissolved		18540-29-9	10			0	0	0	0	1E+100	1E+100	1E+100	16	11	1E+100	N/A
Chromium, dissolved		7440-47-3				0	0	0	0	100	100	1000	1E+100	1E+100	1E+100	N/A
Copper, dissolved		7440-50-8	0.5		5.882862491	12.53049711	0.29333164	0.29333164	0.1158384	1300	200	500	19.93901235	12.808178	1E+100	N/A
Lead, dissolved		7439-92-1	0.5		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	15	5000	100	101.5626551	3.9577509	1E+100	N/A
Manganese, dissolved		7439-96-5				0	0	0	0	1E+100	1E+100	1E+100	3432.535917	1896.4796	1E+100	N/A

					Instream Waste Concentration						Livestock&	Acute	Chronic	Human	Need
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
POLLUTANTS			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
	CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Mercury, dissolved	7439-97-6	0.005		0.0152	0.032376	0.0007579	0.0007579	0.0002993	1E+100	1E+100	1E+100	1.4	0.77	1E+100	N/A
Mercury, total	7439-97-6	0.005			0	0	0	0	2	1E+100	0.77	1E+100	1E+100	1E+100	N/A
Molybdenum, dissolved	7439-98-7		0.001	6.22	13.2486	0.3111186	0.3111186	0.12346767	1E+100	1000	1E+100	1E+100	1E+100	1E+100	N/A
Molybdenum, total recoverable	7439-98-7				0	0	0	0	1E+100	1E+100	1E+100	7920	1895	1E+100	N/A
Nickel, dissolved (P)	7440-02-0	0.5		0.70974412	1.511754975	0.0353893	0.0353893	0.01397545	700	1E+100	1E+100	667.274108	74.113553	4600	N/A
Selenium, dissolved (P)	7782-49-2	5		1.6	3.408	0.07977929	0.07977929	0.03150532	50	130	50	1E+100	1E+100	4200	N/A
Selenium, dis (SO4 >500 mg/l)		5			0	0	0	0	50	250	50	1E+100	1E+100	4200	N/A
Selenium, total recoverable	7782-49-2	5			0	0	0	0	1E+100	1E+100	5	20	5	1E+100	N/A
Silver, dissolved	7440-22-4	0.5		0.389194193	0.82898363	0.01940602	0.01940602	0.00766355	1E+100	1E+100	1E+100	6.609814344	1E+100	1E+100	N/A
Thalllium, dissolved (P)	7440-28-0	0.5			0	0	0	0	2	1E+100	1E+100	1E+100	1E+100	0.47	N/A
Zinc, dissolved	7440-66-6	20		8.759958892	18.65871244	0.43678959	0.43678959	0.1724908	10500	2000	25000	234.1522013	177.41111	26000	N/A
Cyanide, total recoverable	57-12-5	10			0	0	0	0	200	1E+100	5.2	22	5.2	140	N/A
Dioxin	1764-01-6	0.00001			0	0	0	0	3.00E-05	1E+100	1E+100	1E+100	1E+100	5.1E-08	N/A
VOLATILE COMPOUNDS															
Acrolein	107-02-8	50			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	9	N/A
Acrylonitrile	107-13-0	20		1.6	3.408	0.07977929	0.07977929	0.03150532	0.65	1E+100	1E+100	1E+100	1E+100	2.5	N/A
Benzene	71-43-2	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	510	N/A
Bromoform	75-25-2	10			0	0	0	0	44	1E+100	1E+100	1E+100	1E+100	1400	N/A
Carbon Tetrachloride	56-23-5	2		5	10.65	0.2493103	0.2493103	0.09845411	5	1E+100	1E+100	1E+100	1E+100	16	N/A
Chlorobenzene	108-90-7	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	1600	N/A
Clorodibromomethane	124-48-1	10			0	0	0	0	4.2	1E+100	1E+100	1E+100	1E+100	130	N/A
Chloroform	67-66-3	50		8.1	17.253	0.40388268	0.40388268	0.15949566	57	1E+100	1E+100	1E+100	1E+100	4700	N/A
Dichlorobromomethane	75-27-4	10			0	0	0	0	5.6	1E+100	1E+100	1E+100	1E+100	170	N/A
1,2-Dichloroethane	107-06-2	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	370	N/A
1,1-Dichloroethylene	75-35-4	10			0	0	0	0	7	1E+100	1E+100	1E+100	1E+100	7100	N/A
1,2-Dichloropropane	78-87-5	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	150	N/A
1,3-Dichloropropylene	542-75-6	10			0	0	0	0	3.5	1E+100	1E+100	1E+100	1E+100	210	N/A
Ethylbenzene	100-41-4	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	2100	N/A
Methyl Bromide	74-83-9	50			0	0	0	0	49	1E+100	1E+100	1E+100	1E+100	1500	N/A
Methylene Chloride	75-09-2	20			#VALUE!	#VALUE!	#VALUE!	#VALUE!	5	1E+100	1E+100	1E+100	1E+100	5900	N/A
1,1,2,2-Tetrachloroethane	79-34-5	10			0	0	0	0	1.8	1E+100	1E+100	1E+100	1E+100	40	N/A
Tetrachloroethylene	127-18-4	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	33	N/A
Tolune	108-88-3	10			0	0	0	0	1000	1E+100	1E+100	1E+100	1E+100	15000	N/A
1,2-trans-Dichloroethylene	156-60-5	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	10000	N/A
1,1,1-Trichloroethane	71-55-6				0	0	0	0	200	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
1,1,2-Trichloroethane	79-00-5	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	160	N/A
Trichloroethylene	79-01-6	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	300	N/A
Vinyl Chloride	75-01-4	10			0	0	0	0	2	1E+100	1E+100	1E+100	1E+100	24	N/A
ACID COMPOUNDS															
2-Chlorophenol	95-57-8	10			0	0	0	0	175	1E+100	1E+100	1E+100	1E+100	150	N/A
2,4-Dichlorophenol	120-83-2	10			0	0	0	0	105	1E+100	1E+100	1E+100	1E+100	290	N/A
2,4-Dimethylphenol	105-67-9	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	850	N/A
4,6-Dinitro-o-Cresol	534-52-1	50			0	0	0	0	14	1E+100	1E+100	1E+100	1E+100	280	N/A

					Instream Waste Concentration						Livestock&	Acute	Chronic	Human	Need
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
POLLUTANTS			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
	CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
2,4-Dinitrophenol	51-28-5	50			0	0	0	0	70	1E+100	1E+100	1E+100	1E+100	5300	N/A
Pentachlorophenol	87-86-5	50			0	0	0	0	1	1E+100	1E+100	19	15	30	N/A
Phenol	108-95-2	10		50	106.5	2.49310296	2.49310296	0.98454113	10500	1E+100	1E+100	1E+100	1E+100	860000	N/A
2,4,6-Trichlorophenol	88-06-2	10			0	0	0	0	32	1E+100	1E+100	1E+100	1E+100	24	N/A
BASE/NEUTRAL															
Acenaphthene	83-32-9	10			0	0	0	0	2100	1E+100	1E+100	1E+100	1E+100	990	N/A
Anthracene	120-12-7	10			0	0	0	0	10500	1E+100	1E+100	1E+100	1E+100	40000	N/A
Benzidine	92-87-5	50			0	0	0	0	0.0015	1E+100	1E+100	1E+100	1E+100	0.002	N/A
Benzo(a)anthracene	56-55-3	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Benzo(a)pyrene	50-32-8	5			0	0	0	0	0.2	1E+100	1E+100	1E+100	1E+100	0.18	N/A
3,4-Benzofluoranthene	205-99-2	10			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Benzo(k)fluoranthene	207-08-9	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Bis(2-chloroethyl)Ether	111-44-4	10			0	0	0	0	0.3	1E+100	1E+100	1E+100	1E+100	5.3	N/A
Bis(2-chloroisopropyl)Ether	108-60-1	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	65000	N/A
Bis(2-ethylhexyl)Phthalate	117-81-7	10		1.27	2.7051	0.06332482	0.06332482	0.02500734	6	1E+100	1E+100	1E+100	1E+100	22	N/A
Butyl Benzyl Phthalate	85-68-7	10			0	0	0	0	7000	1E+100	1E+100	1E+100	1E+100	1900	N/A
2-Chloronapthalene	91-58-7	10			0	0	0	0	2800	1E+100	1E+100	1E+100	1E+100	1600	N/A
Chrysene	218-01-9	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Dibenzo(a,h)anthracene	53-70-3	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
1,2-Dichlorobenzene	95-50-1	10			0	0	0	0	600	1E+100	1E+100	1E+100	1E+100	1300	N/A
1,3-Dichlorobenzene	541-73-1	10			0	0	0	0	469	1E+100	1E+100	1E+100	1E+100	960	N/A
1,4-Dichlorobenzene	106-46-7	10			0	0	0	0	75	1E+100	1E+100	1E+100	1E+100	190	N/A
3,3'-Dichlorobenzidine	91-94-1	5			0	0	0	0	0.78	1E+100	1E+100	1E+100	1E+100	0.28	N/A
Diethyl Phthalate	84-66-2	10			0	0	0	0	28000	1E+100	1E+100	1E+100	1E+100	44000	N/A
Dimethyl Phthalate	131-11-3	10			0	0	0	0	350000	1E+100	1E+100	1E+100	1E+100	1100000	N/A
Di-n-Butyl Phthalate	84-74-2	10			0	0	0	0	3500	1E+100	1E+100	1E+100	1E+100	4500	N/A
2,4-Dinitrotoluene	121-14-2	10			0	0	0	0	1.1	1E+100	1E+100	1E+100	1E+100	34	N/A
1,2-Diphenylhydrazine	122-66-7	20			0	0	0	0	0.44	1E+100	1E+100	1E+100	1E+100	2	N/A
Fluoranthene	206-44-0	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	140	N/A
Fluorene	86-73-7	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	5300	N/A
Hexachlorobenzene	118-74-1	5			0	0	0	0	1	1E+100	1E+100	1E+100	1E+100	0.0029	N/A
Hexachlorobutadiene	87-68-3	10			0	0	0	0	4.5	1E+100	1E+100	1E+100	1E+100	180	N/A
Hexachlorocyclopentadiene	77-47-4	10			0	0	0	0	50	1E+100	1E+100	1E+100	1E+100	1100	N/A
Hexachloroethane	67-72-1	20			0	0	0	0	25	1E+100	1E+100	1E+100	1E+100	33	N/A
Indeno(1,2,3-cd)Pyrene	193-39-5	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Isophorone	78-59-1	10			0	0	0	0	368	1E+100	1E+100	1E+100	1E+100	9600	N/A
Nitrobenzene	98-95-3	10			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	690	N/A
n-Nitrosodimethylamine	62-75-9	50			0	0	0	0	0.0069	1E+100	1E+100	1E+100	1E+100	30	N/A
n-Nitrosodi-n-Propylamine	621-64-7	20			0	0	0	0	0.05	1E+100	1E+100	1E+100	1E+100	5.1	N/A
n-Nitrosodiphenylamine	86-30-6	20			0	0	0	0	71	1E+100	1E+100	1E+100	1E+100	60	N/A
Nonylphenol	84852-15-3				0	0	0	0	1E+100	1E+100	1E+100	28	6.6	1E+100	N/A
Pyrene	129-00-0	10			0	0	0	0	1050	1E+100	1E+100	1E+100	1E+100	4000	N/A
1,2,4-Trichlorobenzene	120-82-1	10			0	0	0	0	70	1E+100	1E+100	1E+100	1E+100	70	N/A

					Instream Waste Concentration						Livestock&	Acute	Chronic	Human	Need
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
POLLUTANTS			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
	CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
PESTICIDES AND PCBS															
Aldrin	309-00-2	0.01			0	0	0	0	0.021	1E+100	1E+100	3	1E+100	0.0005	N/A
Alpha-BHC	319-84-6	0.05			0	0	0	0	0.056	1E+100	1E+100	1E+100	1E+100	0.049	N/A
Beta-BHC	319-85-7	0.05			0	0	0	0	0.091	1E+100	1E+100	1E+100	1E+100	0.17	N/A
Gamma-BHC	58-89-9	0.05			0	0	0	0	0.2	1E+100	1E+100	0.95	1E+100	1.8	N/A
Chlordane	57-74-9	0.2			0	0	0	0	2	1E+100	1E+100	2.4	0.0043	0.0081	N/A
4,4'-DDT and derivatives	50-29-3	0.02			0	0	0	0	1	1E+100	0.001	1.1	0.001	0.0022	N/A
Dieldrin	60-57-1	0.02			0	0	0	0	0.022	1E+100	1E+100	0.24	0.056	0.00054	N/A
Diazinon	333-41-5				0	0	0	0	1E+100	1E+100	1E+100	0.17	0.17	1E+100	N/A
Alpha-Endosulfan	959-98-8	0.01			0	0	0	0	62	1E+100	1E+100	0.22	0.056	89	N/A
Beta-Endosulfan	33213-65-9	0.02			0	0	0	0	62	1E+100	1E+100	0.22	0.056	89	N/A
Endosulfan sulfate	1031-7-8	0.1			0	0	0	0	62	1E+100	1E+100	1E+100	1E+100	89	N/A
Endrin	72-20-8	0.02			0	0	0	0	2	1E+100	1E+100	0.086	0.036	0.06	N/A
Endrin Aldehyde	7421-93-4	0.1			0	0	0	0	10.5	1E+100	1E+100	1E+100	1E+100	0.3	N/A
Heptachlor	76-44-8	0.01			0	0	0	0	0.4	1E+100	1E+100	0.52	0.0038	0.00079	N/A
Heptachlor Epoixde	1024-57-3	0.01			0	0	0	0	0.2	1E+100	1E+100	0.52	0.0038	0.00039	N/A
PCBs	1336-36-3	0.2			0	0	0	0	0.5	1E+100	0.014	2	0.014	0.00064	N/A
Toxaphene	8001-35-2	0.3			0	0	0	0	3	1E+100	1E+100	0.73	0.0002	0.0028	N/A

STEP 3: SCAN POTENTIAL INSTREAM WASTE CONCENTRATIONS AGAINST WATER QUALITY CRITERIA
AND ESTABLISH EFFLUENT LIMITATIONS FOR ALL APPLICABLE PARAMETERS

No limits are established if the receiving stream is not designated for the particular uses.
No limits are established if the potential instream waste concentrations are less than the chronic water quality criteria.
The most applicable stringent criteria are used to establish effluent limitations for a given parameter.
Water quality criteria apply at the end-of-pipe for acute aquatic life criteria and discharges to public lakes.
If background concentration exceeds the water quality criteria, water quality criteria apply. And "Need TMDL" shown to the next column of Avg. Mass
Monthly avg concentration = daily max. / 1.5.

APPLICABLE WATER QUALITY-BASED LIMITS

The following formular is used to calculate the allowable daily maximum effluent cincentration — See the current "Procedures for Implementing NPDES Permits in New Mexico"

Daily Max. Conc. = Cs + (Cs - Ca)(F*Qa/Qe) — Monthly Avg. Conc. = Daily Max. Conc. / 1.5

Where:
Cs = Applicable water quality standard
Ca = Ambient stream concentration
F = Fraction of stream allowed for mixing (1.0 is assigned to domestic water supply and human health uses)
Qe = Plant effluent flow
Qa = Criteria Low flow (4Q3) or Harmonic Mean flow for Human Health Criteria

POLLUTANTS	CAS No.	STORET	Domestic Limits	Irrigation Limits	Livestock or Wildlife Limits	Acute Aquatic Limits	Chronic Aquatic Limits	Human Health Limits	Daily Max Conc ug/l	Monthly Avg Conc ug/l	Daily Max Total ug/l	Mon. Avg Total ug/l	Daily Max Load lb/day	Monthly Avg Load lb/day
Radioactivity, Nutrients, and Chlorine, as Total														
Aluminum, Total	7429-90-5	01105	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Barium, Total	7440-39-3	01007	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Boron, Total	7440-42-8	01022	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Cobalt, Total	7440-48-4	01037	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Uranium, Total	7440-61-1	22706	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium, Total	7440-62-2	01087	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ra-226 and Ra-228 (pCi/l)		11503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Strontium (pCi/l)		13501	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tritium (pCi/l)		04124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross Alpha (pCi/l)		80029	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Asbestos (fibers/l)			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Residual Chlorine	7782-50-5	50060	N/A	N/A	N/A	19	N/A	N/A	19	12.66666667	19	12.666667	1.0569282	0.7046188
Nitrate as N (mg/l)		00620	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrite + Nitrate (mg/l)		00630	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METALS AND CYANIDE, as Total														
Antimony, Total (P)	7440-36-0	01097	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic, Total (P)	7440-38-2	1002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beryllium, Total	7440-41-7	01012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium, Total	7440-43-9	01027	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium (III), dissolved	16065-83-1	01033	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Chromium (VI), dissolved	18540-29-9	01034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium, Total	7440-47-3	01034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper, Total	7440-50-8	01042	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead, Total	7439-92-1	01051	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Manganese, dissovled	7439-96-5	01056	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, Total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, Total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Molybdenum, dissolved	7439-98-7	1060	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Molybdenum, total recoverable	7439-98-7	01062	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel, Total (P)	7440-02-0	01067	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, Total (P)	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, Total (SO4 >500 mg/l)		01147	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, Total recoverable	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver, Total	7440-22-4	01077	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thalllium, Total (P)	7440-28-0	01059	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc, Total	7440-66-6	1092	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyanide, total recoverable	57-12-5	00720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DIOXIN														0
2,3,7,8-TCDD	1764-01-6	34675	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VOLATILE COMPOUNDS														
Acrolein	107-02-8	34210	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acrylonitrile	107-13-0	34215	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	71-43-2	34030	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bromoform	75-25-2	32104	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	56-23-5	32102	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

POLLUTANTS	CAS No.	STORET		Domestic Limits	Irrigation Limits	Livestock or Wildlife Limits	Acute Aquatic Limits	Chronic Aquatic Limits	Human Health Limits	Daily Max Conc ug/l	Monthly Avg Conc ug/l	Daily Max Total ug/l	Mon. Avg Total ug/l	Daily Max Load lb/day	Monthly Avg Load lb/day
Chlorobenzene	108-90-7	34301		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clorodibromomethane	124-48-1	32105		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloroform	67-66-3	32106		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichlorobromomethane	75-27-4	32101		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane	107-06-2	34531		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	75-35-4	34501		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloropropane	78-87-5	34541		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,3-Dichloropropylene	542-75-6	34561		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	100-41-4	34371		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl Bromide	74-83-9	34413		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Chloride	75-09-2	34423		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
1,1,2,2-Tetrachloroethane	79-34-5	34516		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tetrachloroethylene	127-18-4	34475		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tolune	108-88-3	34010		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-trans-Dichloroethylene	156-60-5	34546		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	71-55-6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2-Trichloroethane	79-00-5	34511		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trichloroethylene	79-01-6	39180		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	75-01-4	39175		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ACID COMPOUNDS															
2-Chlorophenol	95-57-8	34586		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dichlorophenol	120-83-2	34601		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dimethylphenol	105-67-9	34606		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,6-Dinitro-o-Cresol	534-52-1	34657		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dinitrophenol	51-28-5	34616		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	87-86-5	39032		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Phenol	108-95-2	34694		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4,6-Trichlorophenol	88-06-2	34621		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BASE/NEUTRAL															
Acenaphthene	83-32-9	34205		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anthracene	120-12-7	34220		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzidine	92-87-5	39120		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	56-55-3	34526		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	50-32-8	34247		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,4-Benzofluoranthene	205-99-2	34230		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene	207-08-9	34242		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-chloroethyl)Ether	111-44-4	34273		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-chloroisopropyl)Ether	108-60-1	34283		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)Phthalate	117-81-7	39100		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Butyl Benzyl Phthalate	85-68-7	34292		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chloronapthalene	91-58-7	34581		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	218-01-9	34320		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzo(a,h)anthracene	53-70-3	34556		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	95-50-1	34536		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

POLLUTANTS	CAS No.	STORET	Domestic Limits	Irrigation Limits	Livestock or Wildlife Limits	Acute Aquatic Limits	Chronic Aquatic Limits	Human Health Limits	Daily Max Conc ug/l	Monthly Avg Conc ug/l	Daily Max Total ug/l	Mon. Avg Total ug/l	Daily Max Load lb/day	Daily Avg Load lb/day
1,3-Dichlorobenzene	541-73-1	34566	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	106-46-7	34571	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	91-94-1	34631	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Diethyl Phthalate	84-66-2	34336	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dimethyl Phthalate	131-11-3	34341	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Di-n-Butyl Phthalate	84-74-2	39110	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dinitrotoluene	121-14-2	34611	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Diphenylhydrazine	122-66-7	34346	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fluoranthene	206-44-0	34376	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fluorene	86-73-7	34381	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachlorobenzene	118-74-1	39700	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachlorobutadiene	87-68-3	34391	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachlorocyclopentadiene	77-47-4	34386	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachloroethane	67-72-1	34396	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)Pyrene	193-39-5	34403	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isophorone	78-59-1	34408	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	98-95-3	34447	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n-Nitrosodimethylamine	62-75-9	34438	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n-Nitrosodi-n-Propylamine	621-64-7	34428	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n-Nitrosodiphenylamine	86-30-6	34433	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nonylphenol	84852-15-3		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pyrene	129-00-0	34469	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2,4-Trichlorobenzene	120-82-1	34551	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PESTICIDES AND PCBS														
Aldrin	309-00-2	39330	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alpha-BHC	319-84-6	39337	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beta-BHC	319-85-7	39338	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gamma-BHC	58-89-9	39340	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlordane	57-74-9	39350	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT and derivatives	50-29-3	39300	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	60-57-1	39380	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Diazinon	333-41-5	39570	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alpha-Endosulfan	959-98-8	34361	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beta-Endosulfan	33213-65-9	34356	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan sulfate	1031-7-8	34351	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin	72-20-8	39390	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin Aldehyde	7421-93-4	34366	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	76-44-8	39410	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor Epoixde	1024-57-3	39420	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCBs	1336-36-3	39516	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toxaphene	8001-35-2	39400	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

		CALCULATIONS OF NAVAJO NATION WATER QUALITY-BASED EFFLUENT LIMITATIONS	
NMAC 20.6.4.		(EPA approved site-specific criteria for aluminum, cadmium, and zinc on April 30, 2012)	
Calculations Specifications:		Excel **Revised as of July 10, 2012**	
Prepared By:		Quang Nguyen	
STEP 1:	REFERENCE IMPLEMENTATION PROCEDURES		**Appendix 2 of Fact Sheet**
	INPUT FACILITY AND RECEIVING STREAM DATA		
	LIST SOURCE OF DATA INPUT		
IMPLEMENTATION PROCEDURES			
The Navajo Nation Standards for Surface Waters are implemented in this spread sheet			
by using procedures established in the current "Procedures for Implementing NPDES Permits in New Mexico"			
FACILTY			DATA INPUT
Permittee			City of Farmington WWTP
NPDES Permit No.			NM0020583
Outfall No.(s)			1
Plant Effluent Flow (MGD)			6.67
Plant Effluent Flow (cfs)			10.3385
RECEIVING STREAM			DATA INPUT
Receiving Stream Name			San Juan River
Basin Name			San Juan
Waterbody Segment Code No.			20.6.4.401
Is a publicly owned lake or reservoir (enter "1" if it's a lake, "0" if not)			0
Are acute aquatic life criteria considered (1= yes, 0= no)	(MUST enter "1" for 2005 Standards)		1
Are chronic aquatic life criteria considered (1= yes, 0=no)			1
Are domestic water supply criteria considered (1= yes, 0=no)			1
Are irrigation water supply criteria considered (1= yes, 0=no)			1
Livestock watering and wildlife habitat criteria applied to all streams			1
USGS Flow Station			USGS
WQ Monitoring Station No.			
Receiving Stream TSS (mg/l)			97.33
Receiving Stream Hardness (mg/l as CaCOs)		RANGE: 0 - 400	152
Receiving Stream Critical Low Flow (4Q3) (cfs)			431.3
Receiving Stream Harmonic Mean Flow (cfs)			1108
Avg. Receiving Water Temperature (C)			11.38
pH (Avg), Receiving Stream			8.26
Fraction of stream allowed for mixing (F)			1
Fraction of Critical Low Flow			431.3

For industrial and federal facility, use the highest monthly average flow for the past 24 months. For POTWs, use the design flow.

For intermittent stream, enter effluent TSS

For intermittent stream, enter effluent Hardness (If no data, 20 mg/l is used)

Enter "0" for intermittent stream and lake.

Enter harmonic mean or modified harmonic mean flow data or 0.001 if no data is available

Enter 1, if stream morphology data is not available or for intermittent streams.

STEP 2: INPUT AMBIENT AND EFFLUENT DATA

CALCULATE IN-STREAM WASTE CONCENTRATIONS

DATA INPUT

Input pollutant geometric mean concentration as micro-gram per liter (ug/l or ppb)
unless other unit is specified for the parameter.
Effluent value reported as "< detection level" (DL) but the DL is greater than MQL, input "1/2 DL" for calculation.
Effluent value reported as "< detection level" (DL) and the DL is smaller than MQL, no data is inputted.
If a less than MQL vakue is reported, input either the reported value or "0" for calculation.

The following formular is used to calculate the Instream Waste Concentration (Cd)
See the current "Procedures for Implementing NPDES Permits in New Mexico"
Cd = [(F*Qa*Ca) + (Qe*2.13*Ce)] / (F*Qa + Qe)
Where:
Cd = Instream Waste Concentration
F = Fraction of stream allowed for mixing (see "Procedures for Implementing NPDES Permits in New Mexico")
Ce = Reported concentration in effluent
Ca = Ambient stream concentration upstream of discharge
Qe = Plant effluent flow
Qa = Critical low flow of stream at discharge point expressed as the 4Q3 or harmonic mean flow for human health criteria

The following formular convert metals reported in total form to dissolved form if criteria are in dissolved form
See the current "Procedures for Implementing NPDES Permits in New Mexico"
Kp = Kpo * (TSS**a)
Kp = Linear partition coefficient; Kpo and a can be found in table below
C/Ct = 1/ (1 + Kp*TSS* 10^-6)
TSS = Total suspended solids concentration found in receiving stream (or in effluent for intermittent stream)
Total Metal Criteria (Ct) = Cr / (C/Ct)
C/Ct = Fraction of metal dissolved; and Cr = Dissolved criteria value

		Stream Linear Partition Coefficient					Lake Linear Partition Coefficient				
Total Metals	Total Value	Kpo	alpha (a)	Kp	C/Ct	Dissolved Value in Stream	Kpo	alpha (a)	Kp	C/Ct	Dissolved Value in Lake
Arsenic	1.2	480000	-0.73	16975.44349	0.37704264	0.45245117	480000	-0.73	16975.44349	0.37704264	0.4524512
Chromium III	ND	3360000	-0.93	47563.06407	0.177641569	#VALUE!	2170000	-0.27	630424.5521	0.016036121	#VALUE!
Copper	26	1040000	-0.74	35134.25621	0.226263942	5.88286249	2850000	-0.9	46283.13933	0.18166169	4.7232039
Lead	ND	2800000	-0.8	71872.15265	0.125073221	#VALUE!	2040000	-0.53	180243.4137	0.05392844	#VALUE!
Nickel	3.2	490000	-0.57	36049.18476	0.221795037	0.70974412	2210000	-0.76	68127.86261	0.131046401	0.4193485
Silver	1.2	2390000	-1.03	21404.43536	0.324328494	0.38919419	2390000	-1.03	21404.43536	0.324328494	0.3891942
Zinc	52	1250000	-0.7	50715.10239	0.168460748	8.75995889	3340000	-0.68	148504.1858	0.064708533	3.3648437

The following formular is used to calculate hardness dependent criteria
(Please refer to State Water Quality Standards for details)

		Dissolved WQC (ug/l)	
Aluminum (T)	Acute	e(1.3695[ln(hardness)]+1.8308)	6069.335306	If Stream pH < 6.5, enter 750 in cell O113
	Chronic	e(1.3695[ln(hardness)]+0.9161)	2431.59907	If Stream pH < 6.5, enter 87 in cell P113
Cadmium (D)	Acute	e(1.0166[ln(hardness)]-3.924)*CF1	3.025018579	CF1 = 1.136672 - 0.041838*ln(hardness)
	Chronic	e(0.7409[ln(hardness)]-4.719)*CF2	0.329007096	CF2 = 1.101672 - 0.041838*ln(hardness)

										Dissolved						
										WQC (ug/l)						
Chromium III (D)			Acute			0.316 e(0.819[ln(hardness)]+3.7256)				802.8316825						
			Chronic			0.860 e(0.819[ln(hardness)]+0.6848)				104.4319076						
Copper (D)			Acute			0.960 e(0.9422[ln(hardness)]-1.700)				19.93901235						
			Chronic			0.960 e(0.8545[ln(hardness)]-1.702)				12.80817848						
Lead (D)			Acute			e(1.273[ln(hardness)]-1.46)*CF3				101.5626551		CF3 = 1.46203 - 0.145712*ln(hardness)				
			Chronic			e(1.273[ln(hardness)]-4.705)*CF4				3.957750863		CF4 = 1.46203 - 0.145712*ln(hardness)				
Manganese (D)			Acute			e(0.3331[ln(hardness)]+6.4676)				3432.535917						
			Chronic			e(0.3331[ln(hardness)]+5.8743)				1896.479594						
Nickel (D)			Acute			0.998 e(0.846[ln(hardness)]+2.255)				667.274108						
			Chronic			0.997 e(0.846[ln(hardness)]+0.0584)				74.1135526						
Silver (D)			Acute			0.85 e(1.72[ln(hardness)]-6.59)				6.609814344						
Zinc (D)			Acute			0.978 e(0.9094[ln(hardness)]+0.9095)				234.1522013						
			Chronic			0.986 e(0.90947[ln(hardness)]+0.6235)				177.4111097						
						Instream Waste Concentration						Livestock&	Acute	Chronic	Human	Need
POLLUTANTS				Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
				Conc.	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
		CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Radioactivity, Nutrients, and Chlorine																
Aluminum, total		7429-90-5	2.5	2.25	130	276.9	8.6793965	8.6793965	4.78900677	1E+100	5000	1E+100	750	87	1E+100	N/A
Barium, dissolved		7440-39-3	100			0	0	0	0	2000	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Boron, dissolved		7440-42-8	100			#VALUE!	#VALUE!	#VALUE!	#VALUE!	1E+100	750	5000	1E+100	1E+100	1E+100	N/A
Cobalt, dissolved		7440-48-4	50			0	0	0	0	1E+100	50	1000	1E+100	1E+100	1E+100	N/A
Uranium, dissolved		7440-61-1	0.1			0	0	0	0	30	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Vanadium, dissolved		7440-62-2	50			0	0	0	0	1E+100	100	100	1E+100	1E+100	1E+100	N/A
Ra-226 and Ra-228 (pCi/l)						0	0	0	0	5	1E+100	30	1E+100	1E+100	1E+100	N/A
Strontium (pCi/l)						0	0	0	0	8	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Tritium (pCi/l)						0	0	0	0	20000	1E+100	20000	1E+100	1E+100	1E+100	N/A
Gross Alpha (pCi/l)						0	0	0	0	15	1E+100	15	1E+100	1E+100	1E+100	N/A
Asbestos (fibers/l)						0	0	0	0	7000000	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Total Residual Chlorine		7782-50-5	33			#VALUE!	#VALUE!	#VALUE!	#VALUE!	4000	N/A	11	19	11	4000	N/A
Nitrate as N (mg/l)						0	0	0	0	10	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Nitrite + Nitrate (mg/l)				0.22	20	42.6	1.21209111	1.21209111	0.61178266	N/A	N/A	132	N/A	N/A	N/A	N/A
METALS AND CYANIDE																
Antimony, dissolved (P)		7440-36-0	60		1.5	3.195	0.07479309	0.07479309	0.02953623	5.6	N/A	88 and 30	88	30	370	N/A
Arsenic, dissolved (P)		7440-38-2	0.5		0.452451169	0.963720989	0.02256015	0.02256015	0.00890914	10 and 200	2000	340 and 150	340	150	30	N/A
Beryllium, dissolved		7440-41-7	0.5			0	0	0	0	4	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
Cadmium, dissolved		7440-43-9	1			0	0	0	0	5	10	50	3.025018579	0.3290071	1E+100	N/A
Chromium (III), dissolved		16065-83-1	10			#VALUE!	#VALUE!	#VALUE!	#VALUE!	1E+100	1E+100	1E+100	802.8316825	104.43191	1E+100	N/A
Chromium (VI), dissolved		18540-29-9	10			0	0	0	0	1E+100	1E+100	1E+100	16	11	1E+100	N/A
Chromium, dissolved		7440-47-3				0	0	0	0	100	100	1000	1E+100	1E+100	1E+100	N/A
Copper, dissolved		7440-50-8	0.5		5.882862491	12.53049711	0.29333164	0.29333164	0.1158384	1300 and 500	200	20.4 and 13.1	19.93901235	12.808178	9330	N/A
Lead, dissolved		7439-92-1	0.5		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	15	5000	100	101.5626551	3.9577509	1E+100	N/A
Manganese, dissolved		7439-96-5				0	0	0	0	1E+100	1E+100	1E+100	3432.535917	1896.4796	1E+100	N/A

					Instream Waste Concentration				Livestock&			Acute	Chronic	Human	Need
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
POLLUTANTS			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
	CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
Mercury, dissolved	7439-97-6	0.005		0.0152	0.032376	0.0007579	0.0007579	0.0002993	2	N/A	2.4 and 0.001	2.4	0.001	280	N/A
Mercury, total	7439-97-6	0.005			0	0	0	0	2	1E+100	0.77	1E+100	1E+100	1E+100	N/A
Molybdenum, dissolved	7439-98-7		0.001	6.22	13.2486	0.3111186	0.3111186	0.12346767	N/A	1000	N/A	N/A	N/A	N/A	N/A
Molybdenum, total recoverable	7439-98-7				0	0	0	0	1E+100	1E+100	1E+100	7920	1895	1E+100	N/A
Nickel, dissolved (P)	7440-02-0	0.5		0.70974412	1.511754975	0.0353893	0.0353893	0.01397545	610	N/A	682.1 and 75.8	667.274108	74.113553	18670	N/A
Selenium, dissolved (P)	7782-49-2	5		1.6	3.408	0.07977929	0.07977929	0.03150532	50	20	33 and 2	33	2	4670	N/A
Selenium, dis (SO4 >500 mg/l)		5			0	0	0	0	50	250	50	1E+100	1E+100	4200	N/A
Selenium, total recoverable	7782-49-2	5			0	0	0	0	1E+100	1E+100	5	20	5	1E+100	N/A
Silver, dissolved	7440-22-4	0.5		0.389194193	0.82898363	0.01940602	0.01940602	0.00766355	35	N/A	6.911822858	6.609814344	N/A	4670	N/A
Thalllium, dissolved (P)	7440-28-0	0.5			0	0	0	0	2	1E+100	1E+100	1E+100	1E+100	0.47	N/A
Zinc, dissolved	7440-66-6	20		8.759958892	18.65871244	0.43678959	0.43678959	0.1724908	2100	10000	239.7 and 181.(	234.1522013	177.41111	280000	N/A
Cyanide, total recoverable	57-12-5	10			0	0	0	0	200	1E+100	5.2	22	5.2	140	N/A
Dioxin	1764-01-6	0.00001			0	0	0	0	3.00E-05	1E+100	1E+100	1E+100	1E+100	5.1E-08	N/A
VOLATILE COMPOUNDS															
Acrolein	107-02-8	50			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	9	N/A
Acrylonitrile	107-13-0	20		1.6	3.408	0.07977929	0.07977929	0.03150532	0.65	1E+100	1E+100	1E+100	1E+100	2.5	N/A
Benzene	71-43-2	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	510	N/A
Bromoform	75-25-2	10			0	0	0	0	44	1E+100	1E+100	1E+100	1E+100	1400	N/A
Carbon Tetrachloride	56-23-5	2		5	10.65	0.2493103	0.2493103	0.09845411	5	1E+100	1E+100	1E+100	1E+100	16	N/A
Chlorobenzene	108-90-7	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	1600	N/A
Clorodibromomethane	124-48-1	10			0	0	0	0	4.2	1E+100	1E+100	1E+100	1E+100	130	N/A
Chloroform	67-66-3	50		8.1	17.253	0.40388268	0.40388268	0.15949566	5.7	N/A	14000 and 900	14000	900	9330	N/A
Dichlorobromomethane	75-27-4	10			0	0	0	0	5.6	1E+100	1E+100	1E+100	1E+100	170	N/A
1,2-Dichloroethane	107-06-2	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	370	N/A
1,1-Dichloroethylene	75-35-4	10			0	0	0	0	7	1E+100	1E+100	1E+100	1E+100	7100	N/A
1,2-Dichloropropane	78-87-5	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	150	N/A
1,3-Dichloropropylene	542-75-6	10			0	0	0	0	3.5	1E+100	1E+100	1E+100	1E+100	210	N/A
Ethylbenzene	100-41-4	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	2100	N/A
Methyl Bromide	74-83-9	50			0	0	0	0	49	1E+100	1E+100	1E+100	1E+100	1500	N/A
Methylene Chloride	75-09-2	20			#VALUE!	#VALUE!	#VALUE!	#VALUE!	5	1E+100	1E+100	1E+100	1E+100	5900	N/A
1,1,2,2-Tetrachloroethane	79-34-5	10			0	0	0	0	1.8	1E+100	1E+100	1E+100	1E+100	40	N/A
Tetrachloroethylene	127-18-4	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	33	N/A
Tolune	108-88-3	10			0	0	0	0	1000	1E+100	1E+100	1E+100	1E+100	15000	N/A
1,2-trans-Dichloroethylene	156-60-5	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	10000	N/A
1,1,1-Trichloroethane	71-55-6				0	0	0	0	200	1E+100	1E+100	1E+100	1E+100	1E+100	N/A
1,1,2-Trichloroethane	79-00-5	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	160	N/A
Trichloroethylene	79-01-6	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	300	N/A
Vinyl Chloride	75-01-4	10			0	0	0	0	2	1E+100	1E+100	1E+100	1E+100	24	N/A
ACID COMPOUNDS															
2-Chlorophenol	95-57-8	10			0	0	0	0	175	1E+100	1E+100	1E+100	1E+100	150	N/A
2,4-Dichlorophenol	120-83-2	10			0	0	0	0	105	1E+100	1E+100	1E+100	1E+100	290	N/A
2,4-Dimethylphenol	105-67-9	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	850	N/A
4,6-Dinitro-o-Cresol	534-52-1	50			0	0	0	0	14	1E+100	1E+100	1E+100	1E+100	280	N/A

					Instream Waste Concentration						Livestock&	Acute	Chronic	Human	Need
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
POLLUTANTS			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
	CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
2,4-Dinitrophenol	51-28-5	50			0	0	0	0	70	1E+100	1E+100	1E+100	1E+100	5300	N/A
Pentachlorophenol	87-86-5	50			0	0	0	0	1	1E+100	1E+100	19	15	30	N/A
Phenol	108-95-2	10		50	106.5	2.49310296	2.49310296	0.98454113	10500	1E+100	1E+100	1E+100	1E+100	860000	N/A
2,4,6-Trichlorophenol	88-06-2	10			0	0	0	0	32	1E+100	1E+100	1E+100	1E+100	24	N/A
BASE/NEUTRAL															
Acenaphthene	83-32-9	10			0	0	0	0	2100	1E+100	1E+100	1E+100	1E+100	990	N/A
Anthracene	120-12-7	10			0	0	0	0	10500	1E+100	1E+100	1E+100	1E+100	40000	N/A
Benzidine	92-87-5	50			0	0	0	0	0.0015	1E+100	1E+100	1E+100	1E+100	0.002	N/A
Benzo(a)anthracene	56-55-3	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Benzo(a)pyrene	50-32-8	5			0	0	0	0	0.2	1E+100	1E+100	1E+100	1E+100	0.18	N/A
3,4-Benzofluoranthene	205-99-2	10			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Benzo(k)fluoranthene	207-08-9	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Bis(2-chloroethyl)Ether	111-44-4	10			0	0	0	0	0.3	1E+100	1E+100	1E+100	1E+100	5.3	N/A
Bis(2-chloroisopropyl)Ether	108-60-1	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	65000	N/A
Bis(2-ethylhexyl)Phthalate	117-81-7	10		1.27	2.7051	0.06332482	0.06332482	0.02500734	1.2	N/A	N/A	400	360	330	N/A
Butyl Benzyl Phthalate	85-68-7	10			0	0	0	0	7000	1E+100	1E+100	1E+100	1E+100	1900	N/A
2-Chloronapthalene	91-58-7	10			0	0	0	0	2800	1E+100	1E+100	1E+100	1E+100	1600	N/A
Chrysene	218-01-9	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Dibenzo(a,h)anthracene	53-70-3	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
1,2-Dichlorobenzene	95-50-1	10			0	0	0	0	600	1E+100	1E+100	1E+100	1E+100	1300	N/A
1,3-Dichlorobenzene	541-73-1	10			0	0	0	0	469	1E+100	1E+100	1E+100	1E+100	960	N/A
1,4-Dichlorobenzene	106-46-7	10			0	0	0	0	75	1E+100	1E+100	1E+100	1E+100	190	N/A
3,3'-Dichlorobenzidine	91-94-1	5			0	0	0	0	0.78	1E+100	1E+100	1E+100	1E+100	0.28	N/A
Diethyl Phthalate	84-66-2	10			0	0	0	0	28000	1E+100	1E+100	1E+100	1E+100	44000	N/A
Dimethyl Phthalate	131-11-3	10			0	0	0	0	350000	1E+100	1E+100	1E+100	1E+100	1100000	N/A
Di-n-Butyl Phthalate	84-74-2	10			0	0	0	0	3500	1E+100	1E+100	1E+100	1E+100	4500	N/A
2,4-Dinitrotoluene	121-14-2	10			0	0	0	0	1.1	1E+100	1E+100	1E+100	1E+100	34	N/A
1,2-Diphenylhydrazine	122-66-7	20			0	0	0	0	0.44	1E+100	1E+100	1E+100	1E+100	2	N/A
Fluoranthene	206-44-0	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	140	N/A
Fluorene	86-73-7	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	5300	N/A
Hexachlorobenzene	118-74-1	5			0	0	0	0	1	1E+100	1E+100	1E+100	1E+100	0.0029	N/A
Hexachlorobutadiene	87-68-3	10			0	0	0	0	4.5	1E+100	1E+100	1E+100	1E+100	180	N/A
Hexachlorocyclopentadiene	77-47-4	10			0	0	0	0	50	1E+100	1E+100	1E+100	1E+100	1100	N/A
Hexachloroethane	67-72-1	20			0	0	0	0	25	1E+100	1E+100	1E+100	1E+100	33	N/A
Indeno(1,2,3-cd)Pyrene	193-39-5	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18	N/A
Isophorone	78-59-1	10			0	0	0	0	368	1E+100	1E+100	1E+100	1E+100	9600	N/A
Nitrobenzene	98-95-3	10			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	690	N/A
n-Nitrosodimethylamine	62-75-9	50			0	0	0	0	0.0069	1E+100	1E+100	1E+100	1E+100	30	N/A
n-Nitrosodi-n-Propylamine	621-64-7	20			0	0	0	0	0.05	1E+100	1E+100	1E+100	1E+100	5.1	N/A
n-Nitrosodiphenylamine	86-30-6	20			0	0	0	0	71	1E+100	1E+100	1E+100	1E+100	60	N/A
Nonylphenol	84852-15-3				0	0	0	0	1E+100	1E+100	1E+100	28	6.6	1E+100	N/A
Pyrene	129-00-0	10			0	0	0	0	1050	1E+100	1E+100	1E+100	1E+100	4000	N/A
1,2,4-Trichlorobenzene	120-82-1	10			0	0	0	0	70	1E+100	1E+100	1E+100	1E+100	70	N/A

					Instream Waste Concentration						Livestock&	Acute	Chronic	Human	Need
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health	TMDL
POLLUTANTS			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria	
	CAS No.	MQL	Ca (ug/l)	Ce (ug/l)	2.13*Ce	Cd,dom (ug/l)	Cd (ug/l)	Cd,hh (ug/l)	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
PESTICIDES AND PCBS															
Aldrin	309-00-2	0.01			0	0	0	0	0.021	1E+100	1E+100	3	1E+100	0.0005	N/A
Alpha-BHC	319-84-6	0.05			0	0	0	0	0.056	1E+100	1E+100	1E+100	1E+100	0.049	N/A
Beta-BHC	319-85-7	0.05			0	0	0	0	0.091	1E+100	1E+100	1E+100	1E+100	0.17	N/A
Gamma-BHC	58-89-9	0.05			0	0	0	0	0.2	1E+100	1E+100	0.95	1E+100	1.8	N/A
Chlordane	57-74-9	0.2			0	0	0	0	2	1E+100	1E+100	2.4	0.0043	0.0081	N/A
4,4'-DDT and derivatives	50-29-3	0.02			0	0	0	0	1	1E+100	0.001	1.1	0.001	0.0022	N/A
Dieldrin	60-57-1	0.02			0	0	0	0	0.022	1E+100	1E+100	0.24	0.056	0.00054	N/A
Diazinon	333-41-5				0	0	0	0	1E+100	1E+100	1E+100	0.17	0.17	1E+100	N/A
Alpha-Endosulfan	959-98-8	0.01			0	0	0	0	62	1E+100	1E+100	0.22	0.056	89	N/A
Beta-Endosulfan	33213-65-9	0.02			0	0	0	0	62	1E+100	1E+100	0.22	0.056	89	N/A
Endosulfan sulfate	1031-7-8	0.1			0	0	0	0	62	1E+100	1E+100	1E+100	1E+100	89	N/A
Endrin	72-20-8	0.02			0	0	0	0	2	1E+100	1E+100	0.086	0.036	0.06	N/A
Endrin Aldehyde	7421-93-4	0.1			0	0	0	0	10.5	1E+100	1E+100	1E+100	1E+100	0.3	N/A
Heptachlor	76-44-8	0.01			0	0	0	0	0.4	1E+100	1E+100	0.52	0.0038	0.00079	N/A
Heptachlor Epoixde	1024-57-3	0.01			0	0	0	0	0.2	1E+100	1E+100	0.52	0.0038	0.00039	N/A
PCBs	1336-36-3	0.2			0	0	0	0	0.5	1E+100	0.014	2	0.014	0.00064	N/A
Toxaphene	8001-35-2	0.3			0	0	0	0	3	1E+100	1E+100	0.73	0.0002	0.0028	N/A

STEP 3: SCAN POTENTIAL INSTREAM WASTE CONCENTRATIONS AGAINST WATER QUALITY CRITERIA
AND ESTABLISH EFFLUENT LIMITATIONS FOR ALL APPLICABLE PARAMETERS

No limits are established if the receiving stream is not designated for the particular uses.
No limits are established if the potential instream waste concentrations are less than the chronic water quality criteria.
The most applicable stringent criteria are used to establish effluent limitations for a given parameter.
Water quality criteria apply at the end-of-pipe for acute aquatic life criteria and discharges to public lakes.
If background concentration exceeds the water quality criteria, water quality criteria apply. And "Need TMDL" shown to the next column of Avg. Mass
Monthly avg concentration = daily max. / 1.5.

APPLICABLE WATER QUALITY-BASED LIMITS

The following formular is used to calculate the allowable daily maximum effluent cincentration — See the current "Procedures for Implementing NPDES Permits in New Mexico"

Daily Max. Conc. = Cs + (Cs - Ca)(F*Qa/Qe) — Monthly Avg. Conc. = Daily Max. Conc. / 1.5

Where:
Cs = Applicable water quality standard
Ca = Ambient stream concentration
F = Fraction of stream allowed for mixing (1.0 is assigned to domestic water supply and human health uses)
Qe = Plant effluent flow
Qa = Criteria Low flow (4Q3) or Harmonic Mean flow for Human Health Criteria

POLLUTANTS	CAS No.	STORET	Domestic Limits	Irrigation Limits	Livestock or Wildlife Limits	Acute Aquatic Limits	Chronic Aquatic Limits	Human Health Limits	Daily Max Conc ug/l	Monthly Avg Conc ug/l	Daily Max Total ug/l	Mon. Avg Total ug/l	Daily Max Load lb/day	Monthly Avg Load lb/day
Radioactivity, Nutrients, and Chlorine, as Total														
Aluminum, Total	7429-90-5	01105	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Barium, Total	7440-39-3	01007	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Boron, Total	7440-42-8	01022	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Cobalt, Total	7440-48-4	01037	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Uranium, Total	7440-61-1	22706	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vanadium, Total	7440-62-2	01087	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ra-226 and Ra-228 (pCi/l)		11503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Strontium (pCi/l)		13501	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tritium (pCi/l)		04124	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gross Alpha (pCi/l)		80029	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Asbestos (fibers/l)			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total Residual Chlorine	7782-50-5	50060	N/A	N/A	N/A	19	N/A	N/A	19	12.66666667	19	12.666667	1.0569282	0.7046188
Nitrate as N (mg/l)		00620	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrite + Nitrate (mg/l)		00630	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
METALS AND CYANIDE, as Total														
Antimony, Total (P)	7440-36-0	01097	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic, Total (P)	7440-38-2	1002	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beryllium, Total	7440-41-7	01012	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium, Total	7440-43-9	01027	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium (III), dissolved	16065-83-1	01033	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Chromium (VI), dissolved	18540-29-9	01034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium, Total	7440-47-3	01034	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper, Total	7440-50-8	01042	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead, Total	7439-92-1	01051	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Manganese, dissovled	7439-96-5	01056	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, Total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, Total	7439-97-6	71900	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Molybdenum, dissolved	7439-98-7	1060	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Molybdenum, total recoverable	7439-98-7	01062	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel, Total (P)	7440-02-0	01067	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, Total (P)	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, Total (SO4 >500 mg/l)		01147	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Selenium, Total recoverable	7782-49-2	01147	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver, Total	7440-22-4	01077	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Thalllium, Total (P)	7440-28-0	01059	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc, Total	7440-66-6	1092	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cyanide, total recoverable	57-12-5	00720	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
DIOXIN														0
2,3,7,8-TCDD	1764-01-6	34675	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VOLATILE COMPOUNDS														
Acrolein	107-02-8	34210	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Acrylonitrile	107-13-0	34215	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzene	71-43-2	34030	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bromoform	75-25-2	32104	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	56-23-5	32102	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

POLLUTANTS	CAS No.	STORET		Domestic Limits	Irrigation Limits	Livestock or Wildlife Limits	Acute Aquatic Limits	Chronic Aquatic Limits	Human Health Limits	Daily Max Conc ug/l	Monthly Avg Conc ug/l	Daily Max Total ug/l	Mon. Avg Total ug/l	Daily Max Load lb/day	Monthly Avg Load lb/day
Chlorobenzene	108-90-7	34301		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Clorodibromomethane	124-48-1	32105		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chloroform	67-66-3	32106		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dichlorobromomethane	75-27-4	32101		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloroethane	107-06-2	34531		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1-Dichloroethylene	75-35-4	34501		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichloropropane	78-87-5	34541		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,3-Dichloropropylene	542-75-6	34561		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ethylbenzene	100-41-4	34371		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methyl Bromide	74-83-9	34413		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Methylene Chloride	75-09-2	34423		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
1,1,2,2-Tetrachloroethane	79-34-5	34516		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tetrachloroethylene	127-18-4	34475		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tolune	108-88-3	34010		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-trans-Dichloroethylene	156-60-5	34546		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,1-Trichloroethane	71-55-6			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2-Trichloroethane	79-00-5	34511		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Trichloroethylene	79-01-6	39180		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	75-01-4	39175		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ACID COMPOUNDS															
2-Chlorophenol	95-57-8	34586		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dichlorophenol	120-83-2	34601		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dimethylphenol	105-67-9	34606		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,6-Dinitro-o-Cresol	534-52-1	34657		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dinitrophenol	51-28-5	34616		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	87-86-5	39032		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Phenol	108-95-2	34694		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4,6-Trichlorophenol	88-06-2	34621		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BASE/NEUTRAL															
Acenaphthene	83-32-9	34205		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Anthracene	120-12-7	34220		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzidine	92-87-5	39120		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)anthracene	56-55-3	34526		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(a)pyrene	50-32-8	34247		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,4-Benzofluoranthene	205-99-2	34230		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Benzo(k)fluoranthene	207-08-9	34242		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-chloroethyl)Ether	111-44-4	34273		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-chloroisopropyl)Ether	108-60-1	34283		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bis(2-ethylhexyl)Phthalate	117-81-7	39100		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Butyl Benzyl Phthalate	85-68-7	34292		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2-Chloronapthalene	91-58-7	34581		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chrysene	218-01-9	34320		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dibenzo(a,h)anthracene	53-70-3	34556		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Dichlorobenzene	95-50-1	34536		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

POLLUTANTS	CAS No.	STORET		Domestic Limits	Irrigation Limits	Livestock or Wildlife Limits	Acute Aquatic Limits	Chronic Aquatic Limits	Human Health Limits	Daily Max Conc ug/l	Monthly Avg Conc ug/l	Daily Max Total ug/l	Mon. Avg Total ug/l	Daily Max Load lb/day	Daily Avg Load lb/day
1,3-Dichlorobenzene	541-73-1	34566		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,4-Dichlorobenzene	106-46-7	34571		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	91-94-1	34631		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Diethyl Phthalate	84-66-2	34336		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dimethyl Phthalate	131-11-3	34341		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Di-n-Butyl Phthalate	84-74-2	39110		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2,4-Dinitrotoluene	121-14-2	34611		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2-Diphenylhydrazine	122-66-7	34346		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fluoranthene	206-44-0	34376		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Fluorene	86-73-7	34381		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachlorobenzene	118-74-1	39700		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachlorobutadiene	87-68-3	34391		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachlorocyclopentadiene	77-47-4	34386		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Hexachloroethane	67-72-1	34396		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Indeno(1,2,3-cd)Pyrene	193-39-5	34403		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Isophorone	78-59-1	34408		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	98-95-3	34447		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n-Nitrosodimethylamine	62-75-9	34438		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n-Nitrosodi-n-Propylamine	621-64-7	34428		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
n-Nitrosodiphenylamine	86-30-6	34433		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nonylphenol	84852-15-3			N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pyrene	129-00-0	34469		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,2,4-Trichlorobenzene	120-82-1	34551		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PESTICIDES AND PCBS															
Aldrin	309-00-2	39330		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alpha-BHC	319-84-6	39337		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beta-BHC	319-85-7	39338		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Gamma-BHC	58-89-9	39340		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chlordane	57-74-9	39350		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4,4'-DDT and derivatives	50-29-3	39300		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	60-57-1	39380		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Diazinon	333-41-5	39570		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Alpha-Endosulfan	959-98-8	34361		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beta-Endosulfan	33213-65-9	34356		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan sulfate	1031-7-8	34351		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin	72-20-8	39390		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endrin Aldehyde	7421-93-4	34366		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor	76-44-8	39410		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Heptachlor Epoixde	1024-57-3	39420		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
PCBs	1336-36-3	39516		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Toxaphene	8001-35-2	39400		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

APPENDIX 3

Facility Name	City of Farmington							
NPDES Permit Number	NM0020583					Outfall Number	001	
Proposed Critical Dilution*	23							
			*Critical Dilution in draft permit, do not use % sign.					
			Enter data in yellow shaded cells only. Fifty percent should be entered as 50, not 50%.					
Test Data								
		VERTEBRATE				INVERTEBRATE		
Date (mm/yyyy)	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU	Lethal NOEC	Sublethal NOEC	Lethal TU	Sublethal TU
Jun-12					32		3.13	
Dec-12	32		3.13		32		3.13	
Jun-13					32		3.13	
Dec-13	32		3.13		32		3.13	
Jun-14					32		3.13	
Dec-14	32		3.13		32		3.13	
Jun-15					32		3.13	
	32	100	3.13	1.00	32	100	3.13	1.00
Count			71	68			7	68
Mean			1.090	1.000			3.125	1.000
Std. Dev.			0.431	0.000			0.000	0.000
CV			0.4	0			0.6	0
RPMF			1.2	#N/A			2	#N/A
		4.348	Reasonable Potential Acceptance Criteria					
Vertebrate Lethal								
Vertebrate Sublethal								
				No Reasonable Potential exists. Permit requires WET monitoring, but no WET limit				
Invertebrate Lethal		1.438	No Reasonable Potential exists. Permit requires WET monitoring, but no WET limit.					
Invertebrate Sublethal								
				No Reasonable Potential exists. Permit requires WET monitoring, but no WET limit				

EPA concludes that this effluent does not cause or contribute to an exceedance of the State water quality standards. Therefore WET limits will not be established in the proposed permit.