NPDES PERMIT NO. NM0029505
RESPONSE TO COMMENTS

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

APPLICANT: Westmoreland San Juan Mining LLC
La Plata Mine
P.O. Box 561
Waterflow, NM 87421

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

PREPARED BY: Quang Nguyen
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Permitting and Water Quality Branch
Water Division
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PERMIT ACTION: Final permit decision and response to comments received on the proposed NPDES permit publicly noticed on February 29, 2020.

DATE PREPARED: May 01, 2020

Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of September 28, 2015.

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
CBOD	Carbonaceous biochemical oxygen demand (five-day unless noted otherwise)
CD	Critical dilution
CFR	Code of Federal Regulations
Cfs	Cubic feet per second
COD	Chemical oxygen demand
COE	United States Corp of Engineers
CWA	Clean Water Act
DMR	Discharge monitoring report
ELG	Effluent limitations guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FCB	Fecal coliform bacteria
F&WS	United States Fish and Wildlife Service
mg/L	Milligrams per liter
µg/L	Micrograms per liter
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
PCB	Polychlorinated Biphenyl
POTW	Public owned treatment works
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
SWQB	Surface Water Quality Bureau
TDS	Total dissolved solids
TMDL	Total maximum daily load
TRC	Total residual chlorine
TSS	Total suspended solids
UAA	Use attainability analysis
USGS	United States Geological Service
WLA	Wasteload allocation
WET	Whole effluent toxicity
WQCC	New Mexico Water Quality Control Commission
WQMP	Water Quality Management Plan
WWTP	Wastewater treatment plant

In this document, references to State WQS and/or rules shall collectively mean either or both the State of New Mexico and/or the Pueblo of Taos.

SUBSTANTIAL CHANGES FROM DRAFT PERMIT

1. Applied Alternate Effluent Limit to Total Mercury and Total Recoverable Selenium limits for Outfall 28.
2. Revised the compliance schedule to reflect activities of the background conditions study.
3. Put the net Total Aluminum incremental increased limits for Outfalls 15, 16 and 28 on hold pending results of background conditions study.

STATE CERTIFICATION

In a letter from Ms. Shelly Lemon, Bureau Chief, SWQB, to Mr. Ken McQueen, Regional Administrator dated July 16, 2020, the NMED provided a revision to the certification provided on May 15, 2020 and certified that the discharge will comply with the applicable provisions of Section 208(e), 301, 301, 303, 306 and 307 of the Clean Water Act and with appropriate requirements of State law.

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

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

Conditions of Certification:

1. None

Comments that are not Conditions of Certification

Comment No. 1:

On April 12, 2019, EPA approved the official name change of the permittee from San Juan Coal Company to Westmoreland San Juan Mining LLC. Because the draft permit still lists the permittee as San Juan Coal Company, the updated permittee name should be reflected in the final permit

Response No. 1: Final permit has been revised to reflect permittee's name change.

Comment No. 2:

Monitoring requirements for pH and dissolved hardness for Outfalls 015, 016 and 028 should be included in order to evaluate compliance with state water quality standards.

Response No. 2: EPA agrees with NMED. EPA added the pH and dissolved hardness report requirements for Outfalls 015, 016 and 028 in the final permit.

Comment No. 3:

NMED agrees that the less stringent AEL for discharges over the 100-year 24-hour event size will still be protective of water quality if the BMPs are maintained to operate as designed.

Please clarify footnote number five to describe that the AEL replaces the standard limit with BMP inspection and maintenance.

Please add language describing that the permittee is required to report discharges that resulted from rainfall events over 2.60 inches, (100-year, 24-hour storm event) and inspect and repair BMPs. If discharges occur, they must immediately take all reasonable steps to address BMP conditions, including cleaning up any contaminated surfaces so the material will not discharge in subsequent storm events. When the BMP requires a new or replacement control or significant repair, install the new or modified control and make it operational, or complete the repair, by no later than seven (7) calendar days from the time of discovery. If it is infeasible to complete the installation or repair within seven (7) calendar days, you must document and report to EPA and NMED why it is infeasible to complete the installation or repair within the 7-day timeframe and document your schedule for installing the stormwater control(s) and making it operational as soon as feasible after the 7-day timeframe.

Response No. 3: EPA agrees with NMED recommendations. For clarification, EPA revised Part I.A.2 limit table and footnotes. EPA also added a section (Alternate Effluent Limit) in the Part II of the final permit prescribing requirements when the AEL is applied.

OTHER COMMENTS RECEIVED ON DRAFT PERMIT .

A letter from Mr. Daniel Mumm of Westmoreland San Juan Mining LLC to Ms. Evelyn Rosborough (EPA) on April 17, 2020.

RESPONSE TO COMMENTS

Comment No. 1:

Please change the company name and address as approved by EPA Region 6 on April 12, 2019.

Westmoreland San Juan Mining LLC
La Plata Mine
P.O. Box 561
Waterflow, NM 87421

Response No. 1: EPA updated company name and address in the final permit as requested.

Comment No. 2:

Draft Permit Part I Section A.2.

LPM is fully reclaimed in accordance with the performance standards set forth in the New Mexico Administrative Code 19.8.20 and the criteria in the LPM SMCRA permit (Permit No. 16-01). LPM is an inactive, unstaffed, and fully reclaimed mine site as defined in 40 CFR § 434.11. No industrial activities take place at LPM and none are proposed. Currently, only revegetation and reclamation monitoring occur at LPM.

According to the requirements outlined in 40 CFR § 434.82 and incorporated into the current NPDES Permit by your office, sampling is not required for discharges from reclamation areas if a Sediment Control Plan is in place. A Plan was developed and was submitted to the LPM Surface Mining Control and Reclamation Act (SMCRA) permitting authority, the New Mexico Mineral & Mining Division (MMD), the United States Environmental Protection Agency (EPA) and New Mexico Environment Department (NMED) on March 21, 2014. WSJM has complied with the requirements of its Sediment Control Plan for LPM and continues to review and update the Plan as necessary. WSJM will be applying for a renewal of the La Plata Mine SMCRA permit this fall, so the language in the Sediment Control Plan will be reviewed and updated again, if necessary.

Under Part I Section A.2, aluminum discharge limitations are proposed for Outfalls 15, 16, and 28, along with a schedule of compliance outlined in Section B. Topsoil and topdressing in northwest New Mexico contain naturally high levels of aluminum and iron. Geomorphic reclamation reduces the amount of stormwater runoff by promoting infiltration, but the reclamation is still designed to discharge when enough precipitation is received. This design is implemented to mimic the pre-mine hydrologic balance, for which similar levels of aluminum would be expected.

WSJM collects samples from the two native arroyos that run through the LPM (Cinder and McDermott arroyos) to verify that the reclamation is not adding significant amounts of constituents to these streams. As the information in the tables below shows, the stormwater that enters the mine tends to be high in total suspended solids (TSS), leading to high levels of aluminum and iron. When comparing these numbers to the samples that were collected from the outfalls, it's evident that Outfalls 15, 16, and 28 generally do not add significant amounts of aluminum and iron to the overall flow. Upset storm conditions do occur at La Plata, which have resulted in a higher sediment load in a sample and increased levels of aluminum and iron. These samples have triggered the requirement for a discharge limitation, but do not reflect the average amount discharged from the outfall. Additionally, NMED's Surface Water Quality Bureau has requested that future samples be filtered prior to analysis for aluminum in accordance with their guidance, which would further decrease the total aluminum. The sample analysis in the tables below show the results from non-filtered samples.

In regards to the schedule of compliance that is proposed for Outfalls 15, 16, and 28, WSJM believes that the water quality data presented below adequately shows that a study on needed stabilization techniques is not needed. Utilizing equipment to install BMPs and make any minor repairs to the landform would be more detrimental than beneficial to the reclamation and water quality discharged from the site. WSJM is proposing that the schedule of compliance be focused on sample collection and analysis to collect the appropriate background information needed to decide on whether effluent limitations should be required. WSJM would collect samples from the listed outfalls, as well as other outfall discharges and native streams at LPM. Both filtered and non-filtered samples would be submitted to the lab for analysis for this report

Precipitation events resulting in a discharge are infrequent at LPM, so WSJM is suggesting that the schedule of compliance be completed annually. This would provide a more robust representation of the discharged water quality from LPM. This report would be submitted to the EPA and NMED a year after the permit approval date, providing a synopsis of any results along with all of the lab data from the collected samples. If the results show acceptable levels of aluminum, considering the proposed effluent limitations and the natural background conditions, then the effluent limitation could be removed. If the results show aluminum levels that are still concerning for the EPA and NMED, the then effluent limitations can be retained in the permit.

Total Aluminum (mg/L)									
Date	Downstream Cinder	Upstream Cinder	Date	Upstream McDermott	Downstream McDermott	Date	Outfall 15	Outfall 16	Outfall 28
8/1/2006	3,760	4,230	8/1/2006	461	803	10/1/2014	345		
8/22/2006	103	111	10/6/2006	302	172	10/22/2014	407	451	
9/15/2006	170	189	10/10/2006	337	307	10/22/2014		105	
10/6/2006	94.1	155	8/8/2007	5,190	2,490	10/22/2014		190	
10/10/2006	17.7	7.85	9/24/2007	108	209	7/30/2014			199
10/10/2006	186	165	1/28/2008	9.5	15.1	9/25/2014			505
5/24/2007	894	1,250	2/13/2008	51.1	39.6	10/6/2015		18.3	
8/6/2007	2,280	2,780	2/15/2008	23.9	42.8	12/13/2016			20.8
1/28/2008	47.3	110	2/25/2008	31.7	34.8	1/23/2018		1,140	
2/13/2008	39.1	66.2	7/28/2008	982	1,560	1/23/2018		1,440	
2/15/2008	54.4	63.9	3/24/2010	131	147	7/17/2018			196
8/18/2012	1,040	2,030	8/27/2013	2,730	4,040	7/17/2018			1,200
8/27/2013	822	1,040	9/18/2013	783	872	10/12/2018	296	96.8	107
9/25/2014	2,440	2,340	3/4/2015	187	196	**Average**	**349.3**	**491.6**	**371.3**
6/16/2015	2,080	1,900	6/16/2015	3,260	3,360				
3/28/2019	569	218	7/8/2015	1,280	1,210				
12/13/2019	484	1,500	1/10/2017	225	1,760				
Average	**887.1**	**1,068.0**	3/28/2019	910	800				
			3/31/2019	36.8	60.5				
			Average	**896.8**	**953.6**				

Total Iron (mg/L)									
Date	Downstream Cinder	Upstream Cinder	Date	Upstream McDermott	Downstream McDermott	Date	Outfall 15	Outfal l 16	Outfall 28
8/1/2006	5,670	6,500	8/1/2006	357	615	10/1/2014	260		
8/22/2006	103	116	10/6/2006	281	177	10/22/2014	286	411	
9/15/2006	219	338	10/10/2006	271	308	10/22/2014		77.6	
10/6/2006	75.9	123	8/8/2007	7,030	2,880	10/22/2014		142	
10/10/2006	214	195	9/24/2007	71.5	124	7/30/2014			216
10/10/2006	1,620	2,450	1/28/2008	8.44	14.6	9/25/2014			418
5/24/2007	1,540	2,410	2/13/2008	34.3	30	10/6/2015		11.5	
8/6/2007	1,860	5,760	2/15/2008	19.7	40.8	12/13/2016			19.2
1/28/2008	65.6	168	2/25/2008	23.5	26.9	1/23/2018		968	
2/13/2008	45.9	78.9	7/28/2008	1470	1220	1/23/2018		1,280	
2/15/2008	71.1	88.9	3/24/2010	102	113	7/17/2018			275
8/18/2012	1,300	3390	8/19/2011	1130	NS	7/17/2018			1,520
8/27/2013	896	1,630	8/27/2013	2,840	4,800	10/12/2018	281	82	118
9/25/2014	3,310	3,280	9/18/2013	812	742	**Average**	**275.7**	**424.6**	**427.7**
6/16/2015	2,530	2,520	3/4/2015	152	159				
3/28/2019	855	324	6/16/2015	2,980	2,960				
12/13/2019	736	2,250	7/8/2015	1,070	1,050				
Average	**1,241.9**	**1,860.1**	1/10/2017	191	2,300				
			3/28/2019	802	759				
			3/31/2019	31.8	54.6				
			Average	**983.9**	**967.0**				

TSS (mg/L)									
Date	Downstream Cinder	Upstream Cinder	Date	Upstream McDermott	Downstream McDermott	Date	Outfall 15	Outfal l 16	Outfall 28
8/1/2006	554,000	625,000	7/10/2006	308,000	102,000	10/1/2014	24,300		
8/22/2006	127,000	113,000	8/8/2007	4,910	4,840	10/22/2014	16,800	23,100	
9/15/2006	163,000	180,000	7/28/2008	602,000	161,000	10/22/2014		4,160	
10/10/2006	440	18,100	8/27/2013	122,000	53,900	10/22/2014		18,400	
10/10/2006	160,000	160,000	9/18/2013	11,700	15,000	7/30/2014			21,200
5/24/2007	94,500	87,900	3/4/2015	44,00	5,460	9/25/2014			27,200
5/24/2007	102,000	116,000	6/16/2015	244,000	231,000	10/6/2015		64	
8/6/2007	102,000	252,000	7/8/2015	47,200	46,100	12/13/2016			1,090
8/18/2012	67,000	189,000	1/10/2017	11,900	23,200	1/23/2018		34,500	
8/27/2013	29,700	57,100	3/28/2019	72,400	107,000	1/23/2018		34,200	
9/25/2014	411,000	410,000	3/31/2019	4,380	4,420	7/17/2018			10,400
6/16/2015	353,000	125,000	**Average**	**130,262.7**	**68,538.2**	7/17/2018			41,100
3/28/2019	115,000	98,700				10/12/2018	22,000	8,400	10,500
12/13/2019	165,000	99,300				**Average**	**21,033**	**17,546**	**18,582**
Average	**174,545.7**	**180,792.9**							

Response No. 2:

EPA concurs with permittee on the fully reclaimed and unstaffed nature of LPM, current permit conditions, historical water quality results, and soil suitability standards. However, the sediment control plan required by 40 CFR § 434.82 is a technology-based requirement and does not restrict permit conditions related to water quality-based effluent limits. During large rainfall

events, contributions from upstream areas, as indicated, could cause a higher sediment load in a sample resulting in increased levels of aluminum and iron. There is a lack of discharge water quality information at Outfalls 15, 16, and 28 during the normal conditions and storm events. EPA concurs with the permittee doing a study of the background, soil conditions, and actual discharges before and after storm events for listed outfalls and native streams. This will facilitate EPA to determine the compliance status of the mentioned outfalls as more data become available.

EPA added a footnote to the final permit indicating the proposed water-quality based Total Aluminum limits for Outfalls 15, 16, and 28 are net incremental increased limits which the facility shall comply. In addition, EPA put these limits on hold for 1.5 years from the effective date of the final permit. This allows WSLM time to conduct the study. EPA revised the compliance schedule to reflect the study activities, instead of requiring a study of stabilization techniques resulting installing BMPs (i.e., impoundment installations, hydrology alteration, etc.) that could potentially reset the reclamation timetable. This consists of the requirement to submit a study/work plan which prescribes the elements of data collection and analysis to EPA and NMED within 6 months from the effective date of the final permit for review and approval. EPA, also, requires WSJM to submit a report to the EPA and NMED a year after the study/work plan approval date, providing a synopsis of any results along with all of the lab data from the collected samples. If the study warrants that there is no reasonable potential to cause or contribute to WQS exceedances for Total Aluminum, WSJM may request a permit modification.

Comment No. 3:

Draft Permit Part I Section A.3.

Mercury and Selenium discharge limitations for Outfall 28 were added as part of the previous permit renewal. A three year schedule of compliance was developed, which WSJM followed to ensure future compliance with the limitations established in the permit. The table below shows the results that were collected during the permit term. The only samples that exceeded the discharge limitations were from an upset storm event. A letter was sent to the EPA Region 6 on July 31, 2018, describing the event as an upset condition Outfall 28 Samples Collected During the Permit Term

Outfall 28 Samples Collected During the Permit Term		
Sample collection Date	Mercury	Selenium
11/19/2015	0.00025	ND
3/8/2016	0.0000281	ND
8/31/2016	0.000289	ND
12/13/2016	0.000041	ND
9/16/2017	0.0006	0.003
7/17/2018***	0.00080	ND
7/17/2018***	0.0023	0.029
10/12/2018	0.00033	0.002
12/13/2019	0.00026	0.002
12/13/2019	0.00015	0.002

*NS means parameter was not analyzed as part of sample
*ND means level was below detectable limit
*** Samples collected after upset storm event

On October 3, 2018, WSJM sent a letter and laboratory analysis to the EPA. This letter and analysis acted as the final written report to show that WSJM was in compliance with the permit conditions. WSJM did not receive a response from the EPA, so sampling continued and no other samples exceeded the discharge limitations outside of upset storm conditions. The information presented adequately shows that compliance has been met. WSJM is requesting that the sampling requirement for selenium and mercury be removed from this permit.

Response No. 3: The EPA reviewed and agrees with the permittee the data collected on July 17, 2018 (as described in the July 31, 2018 letter to EPA) is not representative of the area normal conditions. EPA has re-evaluated the data without Total Mercury and Total Recoverable Selenium data collected on July 17, 2018 for reasonable potential (RP) to cause or contribute to WQS exceedances. The results of the RP reevaluation analysis indicate no RPs exist for both of those pollutants (see Appendix 1). The permittee's NPDES permit application shows Total Recoverable Selenium, and Total Mercury pollutants are still present in the discharges, and there is a reasonable potential to cause or contribute to receiving stream WQS exceedance during the upset storm events. To protect the WQS of the receiving stream, EPA cannot grant the request of removing the sampling requirement for these pollutants in the final permit. However, EPA modified the limit tables and footnotes in Part I.A.2 of the final permit to account for upset storm conditions, consistent with 40 CFR 434. EPA included the Alternate Effluent Limit, which is the minimum rainfall event necessary for alternate effluent limitations to apply. EPA used the target minimum rainfall of 2.60 inches, which is obtained from the NOAA's National Weather Service precipitation frequency of 100-year, 24-hour storm event estimates for the area. For instance, the proposed Total Mercury and Total Recoverable Selenium limits will not apply to any discharge or increase in discharge volume caused by a precipitation event within any 24-hour period

having rainfall more than 2.60 inches. However, BMP inspection and maintenance which replace the standard limit will be required during those conditions. Please see Part II.B of the final permit for detail.

Appendix 1

		CALCULATIONS OF NEW MEXICO WATER QUALITY-BASED EFFLUENT LIMITATIONS				
NMAC 20.6.4.	**NMWQS as of January 14, 2011**	(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:	QuangNguyen		29-Apr-20	3:36 PM		
STEP 1:	REFERENCE IMPLEMENTATION PROCEDURES		**APPENDIX**	**A**		
	INPUT FACILITY AND RECEIVING STREAM DATA		**of FACT SHEET**			
	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				La Plata Mine-Outfall #28		
NPDES Permit No.				NM0029505		
Outfall No.(s)						
Plant Effluent Flow (MGD)				0.37		For industrial and federal facility, use the highest monthly average flow
Plant Effluent Flow (cfs)				0.5735		for the past 24 months. For POTWs, use the design flow.
RECEIVING STREAM				DATA INPUT		
Receiving Stream Name				Unnamed Intermittent Stream		
Basin Name				San Juan Basin		
Waterbody Segment Code No.				98		
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)				0		
Are domestic water supply criteria considered (1= yes, 0=no)				0		
Are irrigation water supply criteria considered (1= yes, 0=no)				0		
Livestock watering and wildlife habitat criteria applied to all streams						
USGS Flow Station				USGS		
WQ Monitoring Station No.				SJR		
Receiving Stream TSS (mg/l)				771		For intermittent stream, enter effluent TSS
Receiving Stream Hardness (mg/l as CaCOs)		RANGE: 0 - 400		20		For intermittent stream, enter effluent Hardness (If no data, 20 mg/l is used)
Receiving Stream Critical Low Flow (4Q3) (cfs)				0		Enter "0" for intermittent stream and lake.
Receiving Stream Harmonic Mean Flow (cfs)				0.01		Enter harmonic mean or modified harmonic mean flow data or 0.001 if no data is available
Avg. Receiving Water Temperature (C)						
pH (Avg), Receiving Stream						
Fraction of stream allowed for mixing (F)				1		Enter 1, if stream morphology data is not available or for intermittent streams.
Fraction of Critical Low Flow				0		

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		480000	-0.73	3747.067714	0.257136224	0	480000	-0.73	3747.067714	0.257136224	0
Chromium III		3360000	-0.93	6940.307387	0.157456089	0	2170000	-0.27	360541.3261	0.00358452	0
Copper		1040000	-0.74	7596.492258	0.145838594	0	2850000	-0.9	7186.144069	0.15289311	0
Lead		2800000	-0.8	13725.06876	0.086340665	0	2040000	-0.53	60185.42714	0.021095727	0
Nickel		490000	-0.57	11080.90125	0.104784734	0	2210000	-0.76	14132.88895	0.084058638	0
Silver		2390000	-1.03	2539.404539	0.338079873	0	2390000	-1.03	2539.404539	0.338079873	0
Zinc		1250000	-0.7	11911.65067	0.098194376	0	3340000	-0.68	36353.77289	0.034448596	0

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)	377.4565069	If Stream pH < 6.5, enter 750 in cell O113
	Chronic	e(1.3695[ln(hardness)]+0.9161)	151.2229667	If Stream pH < 6.5, enter 87 in cell P113
Cadmium (D)	Acute	e(0.8968[ln(hardness)]-3.5699)*CF1	0.418091688	CF1 = 1.136672 - 0.041838*ln(hardness)
	Chronic	e(0.7647[ln(hardness)]-4.2180)*CF2	0.142116028	CF2 = 1.101672 - 0.041838*ln(hardness)

										Dissolved						
										WQC (ug/l)						
Chromium III (D)			Acute			0.316 e(0.819[ln(hardness)]+3.7256)				152.4888787						
			Chronic			0.860 e(0.819[ln(hardness)]+0.6848)				19.8356702						
Copper (D)			Acute			0.960 e(0.9422[ln(hardness)]-1.700)				2.949857764						
			Chronic			0.960 e(0.8545[ln(hardness)]-1.702)				2.263769249						
Lead (D)			Acute			e(1.273[ln(hardness)]-1.46)*CF3				10.79154489		CF3 = 1.46203 - 0.145712*ln(hardness)				
			Chronic			e(1.273[ln(hardness)]-4.705)*CF4				0.420531012		CF4 = 1.46203 - 0.145712*ln(hardness)				
Manganese (D)			Acute			e(0.3331[ln(hardness)]+6.4676)				1746.691001						
			Chronic			e(0.3331[ln(hardness)]+5.8743)				965.048559						
Nickel (D)			Acute			0.998 e(0.846[ln(hardness)]+2.255)				119.9874916						
			Chronic			0.997 e(0.846[ln(hardness)]+0.0584)				13.32690594						
Silver (D)			Acute			0.85 e(1.72[ln(hardness)]-6.59)				0.201924903						
Zinc (D)			Acute			0.978 e(0.9094[ln(hardness)]+0.9095)				37.02425804						
			Chronic			0.986 e(0.90947[ln(hardness)]+0.6235)				28.04834719						
						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		371300	790869	790869	790869	777315.118	1E+100	5000	1E+100	377.4565069	151.22297	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			0	0	0	0	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			#VALUE!	#VALUE!	#VALUE!	#VALUE!	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)						#VALUE!	#VALUE!	#VALUE!	#VALUE!	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			0	0	0	0	1E+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)						#VALUE!	#VALUE!	#VALUE!	#VALUE!	1E+100	1E+100	132	1E+100	1E+100	1E+100	N/A
METALS AND CYANIDE																
Antimony, dissolved (P)		7440-36-0	60			0	0	0	0	6	1E+100	1E+100	1E+100	1E+100	640	N/A
Arsenic, dissolved (P)		7440-38-2	0.5			#VALUE!	#VALUE!	#VALUE!	#VALUE!	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	0.418091688	0.142116	1E+100	N/A
Chromium (III), dissolved		16065-83-1	10			0	0	0	0	1E+100	1E+100	1E+100	152.4888787	19.83567	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				#VALUE!	#VALUE!	#VALUE!	#VALUE!	100	100	1000	1E+100	1E+100	1E+100	N/A
Copper, dissolved		7440-50-8	0.5			0	0	0	0	1300	200	500	2.949857764	2.2637692	1E+100	N/A
Lead, dissolved		7439-92-1	0.5			#VALUE!	#VALUE!	#VALUE!	#VALUE!	15	5000	100	10.79154489	0.420531	1E+100	N/A
Manganese, dissolved		7439-96-5				#VALUE!	#VALUE!	#VALUE!	#VALUE!	1E+100	1E+100	1E+100	1746.691001	965.04856	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	0	0	0	1E+100	1E+100	1E+100	1.4	0.77	1E+100	N/A
Mercury, total	7439-97-6	0.005		0.2435	0.518655	0.518655	0.518655	0.50976631	2	1E+100	0.77	1E+100	1E+100	1E+100	N/A
Molybdenum, dissolved	7439-98-7				0	0	0	0	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	0	0	0	700	1E+100	1E+100	119.9874916	13.326906	4600	N/A
Selenium, dissolved (P)	7782-49-2	5			0	0	0	0	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		2.25	4.7925	4.7925	4.7925	4.71036632	1E+100	1E+100	5	20	5	1E+100	N/A
Silver, dissolved	7440-22-4	0.5			0	0	0	0	1E+100	1E+100	1E+100	0.201924903	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			0	0	0	0	10500	2000	25000	37.02425804	28.048347	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			0	0	0	0	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			0	0	0	0	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			0	0	0	0	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			0	0	0	0	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			0	0	0	0	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			0	0	0	0	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	377.456507	N/A	N/A	377.4565069	251.6376713	377.4565069	251.63767	1.16475529	0.776503526
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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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	#VALUE!	#VALUE!	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
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	#VALUE!	#VALUE!	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
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	#VALUE!	#VALUE!	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
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	#VALUE!	#VALUE!	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
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	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 (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	#VALUE!	#VALUE!	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
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	N/A	N/A	#VALUE!	#VALUE!	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Manganese, dissovled	7439-96-5	01056	N/A	N/A	#VALUE!	#VALUE!	N/A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
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	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1,1,2,2-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