

CALCULATIONS OF NEW MEXICO WATER QUALITY-BASED EFFLUENT LIMITATIONS

NMAC 20.6.4.

NMWQS as of 2023 (EPA Approved January 19, 2023)

Calculations Specifications:

Excel

Revised (in red text, except strikethrough) as of February 2023

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12:04 PM

STEP 1:

REFERENCE IMPLEMENTATION PROCEDURES
INPUT FACILITY AND RECEIVING STREAM DATA
LIST SOURCE OF DATA INPUT

APPENDIX A of FACT SHEET

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"

FACILITY

Permittee
NPDES Permit No.
Outfall No.(s)
Plant Effluent Flow (MGD)
Plant Effluent Flow (cfs)

DATA INPUT

GCC Rio Grande
NM0000116
1
0.325
0.50375

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

RECEIVING STREAM

Receiving Stream Name
Basin Name
Waterbody Segment Code No.
Is a publicly owned lake or reservoir (enter "1" if it's a lake, "0" if not)
Are acute aquatic life criteria considered (1= yes, 0= no)
Are chronic aquatic life criteria considered (1= yes, 0=no)
Are domestic water supply criteria considered (1= yes, 0=no)
Are irrigation water supply criteria considered (1= yes, 0=no)
Livestock watering and wildlife habitat criteria applied to all streams

DATA INPUT

Corral Canyon
Rio Grande
20.6.4.98
0
1
1
0
0

USGS Flow Station

WQ Monitoring Station No.

Receiving Stream TSS (mg/l)

Receiving Stream Hardness (mg/l as CaCO₃)

Receiving Stream Critical Low Flow (4Q3) (cfs)

Receiving Stream Harmonic Mean Flow (cfs)

Avg. Receiving Water Temperature (C)

pH (Avg), Receiving Stream

Fraction of stream allowed for mixing (F)

Fraction of Critical Low Flow

RANGE: 0 - 400

USGS
SJR
32.8626
178.7359
0
0.001
8.4
1
0

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 value is reported, input either the reported value or "0" for calculation.

The following formula is used to calculate the Instream Waste Concentration (Cd)

See the current "Procedures for Implementing NPDES Permits in New Mexico"

$$Cd = [(F \cdot Qa \cdot Ca) + (Qe \cdot 2.13 \cdot Ce)] / (F \cdot Qa + Qe)$$

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 formula 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"

$$Kp = Kpo \cdot (TSS \cdot 10^{-6})$$

$$C/Ct = 1 / (1 + Kp \cdot TSS \cdot 10^{-6})$$

$$\text{Total Metal Criteria (Ct)} = Cr / (C/Ct)$$

Kp = Linear partition coefficient; Kpo and a can be found in table below

TSS = Total suspended solids concentration found in receiving stream (or in effluent for intermittent stream)

C/Ct = Fraction of metal dissolved; and Cr = Dissolved criteria value

Total Metals	Total Value	Stream Linear Partition Coefficient					Lake Linear Partition Coefficient				
		Kpo	alpha (a)	Kp	C/Ct	Dissolved Value in Stream	Kpo	alpha (a)	Kp	C/Ct	Dissolved Value in Lake
Arsenic		480000	-0.73	37501.51694	0.447948928	0	480000	-0.73	37501.51694	0.447948928	0
Chromium III		3360000	-0.93	130558.9027	0.189017873	0	2170000	-0.27	845181.9534	0.034752538	0
Copper		1040000	-0.74	78464.62762	0.279442661	0	2850000	-0.9	122973.9524	0.198363745	0
Lead		2800000	-0.8	171315.4356	0.150832506	0	2040000	-0.53	320463.1885	0.08672084	0
Nickel		490000	-0.57	66938.5014	0.31252215	0	2210000	-0.76	155488.6934	0.163672477	0
Silver		2390000	-1.03	65493.00578	0.317231664	0	2390000	-1.03	65493.00578	0.317231664	0
Zinc		1250000	-0.7	108447.2812	0.219112787	0	3340000	-0.68	310734.2756	0.089193843	0

The following formula is used to calculate hardness dependent criteria

(Please refer to State Water Quality Standards for details)

Dissolved

WQC (ug/l)

Aluminum (T)	Acute	$e(1.3695[\ln(\text{hardness})]+1.8308)$	7577.228532	If Stream pH < 6.5, enter 750 in cell O114
	Chronic	$e(1.3695[\ln(\text{hardness})]+0.9161)$	3035.716585	If Stream pH < 6.5, enter 87 in cell P114
Cadmium (D)	Acute	$e(0.8968[\ln(\text{hardness})]-3.5699) \cdot CF1$	2.710464381	$CF1 = 1.136672 - 0.041838 \cdot \ln(\text{hardness})$
	Chronic	$e(0.7647[\ln(\text{hardness})]-4.2180) \cdot CF2$	0.687401044	$CF2 = 1.101672 - 0.041838 \cdot \ln(\text{hardness})$

				Dissolved WQC (ug/l)		
Chromium III (D)	Acute	0.316 e(0.819[ln(hardness)]+3.7256)	916.7608564			
	Chronic	0.860 e(0.819[ln(hardness)]+0.6848)	119.2517524			
Copper (D)	Acute	0.960 e(0.9422[ln(hardness)]-1.700)	23.22761205			
	Chronic	0.960 e(0.8545[ln(hardness)]-1.702)	14.71014659			
Lead (D)	Acute	e(1.273[ln(hardness)]-1.46)*CF3	120.7909908		CF3 = 1.46203 - 0.145712*ln(hardness)	
	Chronic	e(1.273[ln(hardness)]-4.705)*CF4	4.707051499			
Manganese (D)	Acute	e(0.3331[ln(hardness)]+6.4676)	3622.886588		CF4 = 1.46203 - 0.145712*ln(hardness)	
	Chronic	e(0.3331[ln(hardness)]+5.8743)	2001.648534			
Nickel (D)	Acute	0.998 e(0.846[ln(hardness)]+2.255)	765.3071549			
	Chronic	0.997 e(0.846[ln(hardness)]+0.0584)	85.00199753			
Silver (D)	Acute	0.85 e(1.72[ln(hardness)]-6.59)	8.734188716			
Zinc (D)	Acute	0.978 e(0.9094[ln(hardness)]+0.9095)	271.3257982			
	Chronic	0.986 e(0.90947[ln(hardness)]+0.6235)	205.5789211			

POLLUTANTS			Instream Waste Concentration								Livestock&	Acute	Chronic	Human
	CAS No.	MQL	Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health
			Conc.	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria
			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		1109.9	2364.087	2364.087	2364.087	2359.40332	1E+100	1E+100	1E+100	7577.228532	3035.71659	1E+100
Aluminum, dissolved	7429-90-5				0	0	0	0	1E+100	5000	1E+100	1E+100	1E+100	1E+100
Barium, dissolved	7440-39-3	100		95	202.35	202.35	202.35	201.949108	2000	1E+100	1E+100	1E+100	1E+100	1E+100
Boron, dissolved	7440-42-8	100		51	108.63	108.63	108.63	108.414785	1E+100	750	5000	1E+100	1E+100	1E+100
Cobalt, dissolved	7440-48-4	50			0	0	0	0	1E+100	50	1000	1E+100	1E+100	1E+100
Uranium, dissolved	7440-61-1	0.1		3.1	6.603	6.603	6.603	6.58991828	30	1E+100	1E+100	1E+100	1E+100	1E+100
Vanadium, dissolved	7440-62-2	50		2.6	5.538	5.538	5.538	5.52702823	1E+100	100	100	1E+100	1E+100	1E+100
Ra-226 and Ra-228 (pCi/l)					0	0	0	0	5	1E+100	30	1E+100	1E+100	1E+100
Strontium (pCi/l)					0	0	0	0	8	1E+100	1E+100	1E+100	1E+100	1E+100
Tritium (pCi/l)					0	0	0	0	20000	1E+100	20000	1E+100	1E+100	1E+100
Gross Alpha (pCi/l)					0	0	0	0	15	1E+100	15	1E+100	1E+100	1E+100
Asbestos (fibers/l)					0	0	0	0	7000000	1E+100	1E+100	1E+100	1E+100	1E+100
Total Residual Chlorine	7782-50-5	33			0	0	0	0	1E+100	1E+100	11	19	11	1E+100
Ammonia as N, total (mg/l)					0	0	0	0	1E+100	1E+100	1E+100	Criterion	Criterion	1E+100
Nitrate as N (mg/l)					0	0	0	0	10	1E+100	1E+100	1E+100	1E+100	1E+100
Nitrite + Nitrate (mg/l)					0	0	0	0	1E+100	1E+100	132	1E+100	1E+100	1E+100
METALS AND CYANIDE														
Antimony, dissolved (P)	7440-36-0	60			0	0	0	0	6	1E+100	1E+100	1E+100	1E+100	640
Arsenic, dissolved (P)	7440-38-2	0.5			0	0	0	0	10	100	200	340	150	9
Beryllium, dissolved	7440-41-7	0.5			0	0	0	0	4	1E+100	1E+100	1E+100	1E+100	1E+100
Cadmium, dissolved	7440-43-9	1		2	4.26	4.26	4.26	4.25156018	5	10	50	2.710464381	0.68740104	1E+100
Chromium (III), dissolved	16065-83-1	10			0	0	0	0	1E+100	1E+100	1E+100	916.7608564	119.251752	1E+100
Chromium (VI), dissolved	18540-29-9	10			0	0	0	0	1E+100	1E+100	1E+100	16	11	1E+100
Chromium, dissolved	7440-47-3				0	0	0	0	100	100	1000	1E+100	1E+100	1E+100
Copper, dissolved	7440-50-8	0.5		3.21	6.8373	6.8373	6.8373	6.82375409	1300	200	500	23.22761205	14.7101466	1E+100

Lead, dissolved	7439-92-1	0.5	2	4.26	4.26	4.26	4.25156018	15	5000	100	120.7909908	4.7070515	1E+100
Manganese, dissolved	7439-96-5		4.3	9.159	9.159	9.159	9.14085438	1E+100	1E+100	1E+100	3622.886588	2001.64853	1E+100

POLLUTANTS	CAS No.	MQL	Instream Waste Concentration								Livestock&	Acute	Chronic	Human
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health
			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria
			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		0.2	0.426	0.426	0.426	0.42515602	1E+100	1E+100	1E+100	1.4	0.77	1E+100
Mercury, total	7439-97-6	0.005		0.2	0.426	0.426	0.426	0.42515602	2	1E+100	0.77	1E+100	1E+100	1E+100
Molybdenum, dissolved	7439-98-7			11	23.43	23.43	23.43	23.383581	1E+100	1000	1E+100	1E+100	1E+100	1E+100
Molybdenum, total recoverable	7439-98-7			12	25.56	25.56	25.56	25.5093611	1E+100	1E+100	1E+100	7920	1895	1E+100
Nickel, dissolved (P)	7440-02-0	0.5		2	4.26	4.26	4.26	4.25156018	700	1E+100	1E+100	765.3071549	85.0019975	4600
Selenium, dissolved (P)	7782-49-2	5		2.3	4.899	4.899	4.899	4.88929421	50	130	50	1E+100	1E+100	4200
Selenium, dis (SO4 >500 mg/l)		5			0	0	0	0	50	250	50	1E+100	1E+100	4200
Selenium, total recoverable	7782-49-2	5		3	6.39	6.39	6.39	6.37734027	1E+100	1E+100	5	20	5	1E+100
Silver, dissolved	7440-22-4	0.5		2	4.26	4.26	4.26	4.25156018	1E+100	1E+100	1E+100	8.734188716	1E+100	1E+100
Thallium, dissolved (P)	7440-28-0	0.5		2	4.26	4.26	4.26	4.25156018	2	1E+100	1E+100	1E+100	1E+100	0.47
Zinc, dissolved	7440-66-6	20			0	0	0	0	10500	2000	25000	271.3257982	205.578921	26000
Cyanide, total recoverable	57-12-5	10			0	0	0	0	200	1E+100	5.2	22	5.2	140
Dioxin	1746-01-6	0.00001			0	0	0	0	3.00E-05	1E+100	1E+100	1E+100	1E+100	5.1E-08
VOLATILE COMPOUNDS														
Acrolein	107-02-8	50			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	400
Acrylonitrile	107-13-0	20			0	0	0	0	0.65	1E+100	1E+100	1E+100	1E+100	70
Benzene	71-43-2	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	160
Bromoform	75-25-2	10			0	0	0	0	44	1E+100	1E+100	1E+100	1E+100	1200
Carbon Tetrachloride	56-23-5	2			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	50
Chlorobenzene	108-90-7	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	800
Clorodibromomethane	124-48-1	10			0	0	0	0	4.2	1E+100	1E+100	1E+100	1E+100	210
Chloroform	67-66-3	50			0	0	0	0	57	1E+100	1E+100	1E+100	1E+100	2000
Dichlorobromomethane	75-27-4	10			0	0	0	0	5.6	1E+100	1E+100	1E+100	1E+100	270
1,2-Dichloroethane	107-06-2	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	6500
1,1-Dichloroethylene	75-35-4	10			0	0	0	0	7	1E+100	1E+100	1E+100	1E+100	20000
1,2-Dichloropropane	78-87-5	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	310
1,3-Dichloropropylene	542-75-6	10			0	0	0	0	3.5	1E+100	1E+100	1E+100	1E+100	120
Ethylbenzene	100-41-4	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	130
Methyl Bromide	74-83-9	50			0	0	0	0	49	1E+100	1E+100	1E+100	1E+100	10000
Methylene Chloride	75-09-2	20			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	10000
1,2,4,5-Tetrachlorobenzene	95-94-3				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	0.03
1,1,2,2-Tetrachloroethane	79-34-5	10			0	0	0	0	1.8	1E+100	1E+100	1E+100	1E+100	30
Tetrachloroethylene	127-18-4	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	290
Toluene	108-88-3	10			0	0	0	0	1000	1E+100	1E+100	1E+100	1E+100	520
1,2-trans-Dichloroethylene	156-60-5	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	4000
1,1,1-Trichloroethane	71-55-6				0	0	0	0	200	1E+100	1E+100	1E+100	1E+100	200000
1,1,2-Trichloroethane	79-00-5	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	89
Trichloroethylene	79-01-6	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	70
Vinyl Chloride	75-01-4	10			0	0	0	0	2	1E+100	1E+100	1E+100	1E+100	16
ACID COMPOUNDS														
2-Chlorophenol	95-57-8	10			0	0	0	0	175	1E+100	1E+100	1E+100	1E+100	800
2,4-Dichlorophenol	120-83-2	10			0	0	0	0	105	1E+100	1E+100	1E+100	1E+100	60
2,4-Dimethylphenol	105-67-9	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	3000
3-Methyl-4-chlorophenol	59-50-7				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	2000

2-Methyl-4,6-dinitrophenol	534-52-1	50		0	0	0	0	14	1E+100	1E+100	1E+100	1E+100	30
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POLLUTANTS	CAS No.	MQL	Instream Waste Concentration							Livestock&				
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Acute	Chronic	Human
			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria
			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	300
Pentachlorophenol	87-86-5	50			0	0	0	0	1	1E+100	1E+100	19	15	30
Phenol	108-95-2	10			0	0	0	0	10500	1E+100	1E+100	1E+100	1E+100	860000
2,4,5-Trichlorophenol	95-95-4				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	600
2,4,6-Trichlorophenol	88-06-2	10			0	0	0	0	32	1E+100	1E+100	1E+100	1E+100	28
2-(2,4,5Trichlorophenoxy)propionic acid (Silvex)					0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	400
BASE/NEUTRAL														
Acenaphthene	83-32-9	10		200	0	0	0	0	2100	1E+100	1E+100	1E+100	1E+100	90
Anthracene	120-12-7	10			0	0	0	0	10500	1E+100	1E+100	1E+100	1E+100	400
Benzidine	92-87-5	50			0	0	0	0	0.0015	1E+100	1E+100	1E+100	1E+100	0.11
Benzo(a)anthracene	56-55-3	5			426	426	426	425.156018	0.048	1E+100	1E+100	1E+100	1E+100	0.013
Benzo(a)pyrene	50-32-8	5			0	0	0	0	0.2	1E+100	1E+100	1E+100	1E+100	0.0013
3,4-Benzofluoranthene	205-99-2	10			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.0013
Benzo(k)fluoranthene	207-08-9	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.13
Bis(2-chloroethyl)Ether	111-44-4	10			0	0	0	0	0.3	1E+100	1E+100	1E+100	1E+100	22
Bis(2-chloro-1-methylethyl) ether	108-60-1	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	4000
Bis(2-ethylhexyl)Phthalate	117-81-7	10			0	0	0	0	6	1E+100	1E+100	1E+100	1E+100	3.7
Bis(chloromethyl) ether	542-88-1				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	0.17
Butyl Benzyl Phthalate	85-68-7	10			0	0	0	0	7000	1E+100	1E+100	1E+100	1E+100	1
2-Chloronaphthalene	91-58-7	10			0	0	0	0	2800	1E+100	1E+100	1E+100	1E+100	1000
Chrysene	218-01-9	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	1.3
2,4-Dichlorophenoxyacetic acid	94-75-7				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	12000
Dibenzo(a,h)anthracene	53-70-3	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.0013
1,2-Dichlorobenzene	95-50-1	10			0	0	0	0	600	1E+100	1E+100	1E+100	1E+100	3000
1,3-Dichlorobenzene	541-73-1	10			0	0	0	0	469	1E+100	1E+100	1E+100	1E+100	10
1,4-Dichlorobenzene	106-46-7	10			0	0	0	0	75	1E+100	1E+100	1E+100	1E+100	900
3,3'-Dichlorobenzidine	91-94-1	5			0	0	0	0	0.78	1E+100	1E+100	1E+100	1E+100	1.5
Diethyl Phthalate	84-66-2	10			0	0	0	0	28000	1E+100	1E+100	1E+100	1E+100	600
Dimethyl Phthalate	131-11-3	10			0	0	0	0	350000	1E+100	1E+100	1E+100	1E+100	2000
Di-n-Butyl Phthalate	84-74-2	10			0	0	0	0	3500	1E+100	1E+100	1E+100	1E+100	30
2,4-Dinitrotoluene	121-14-2	10			0	0	0	0	1.1	1E+100	1E+100	1E+100	1E+100	17
1,2-Diphenylhydrazine	122-66-7	20			0	0	0	0	0.44	1E+100	1E+100	1E+100	1E+100	2
Fluoranthene	206-44-0	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	20
Fluorene	86-73-7	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	70
Hexachlorobenzene	118-74-1	5			0	0	0	0	1	1E+100	1E+100	1E+100	1E+100	0.00079
Hexachlorobutadiene	87-68-3	10			0	0	0	0	4.5	1E+100	1E+100	1E+100	1E+100	0.1
Hexachlorocyclohexane (HCH)-Technical	608-73-1				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	0.1
Hexachlorocyclopentadiene	77-47-4	10			0	0	0	0	50	1E+100	1E+100	1E+100	1E+100	4
Hexachloroethane	67-72-1	20			0	0	0	0	25	1E+100	1E+100	1E+100	1E+100	1
Indeno(1,2,3-cd)Pyrene	193-39-5	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.013
Isophorone	78-59-1	10			0	0	0	0	368	1E+100	1E+100	1E+100	1E+100	18000
Nitrobenzene	98-95-3	10			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	600
Nitrosamines	Various				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	12.4
Nitrosodibutylamine	924-16-3				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	2.2
Nitrosodiethylamine	55-18-5				0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	12.4

n-Nitrosodimethylamine	62-75-9	50		0	0	0	0	0.0069	1E+100	1E+100	1E+100	1E+100	30
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-Nitrosodiphenylamine	86-30-6	20		0	0	0	0	71	1E+100	1E+100	1E+100	1E+100	60
N-Nitrosopyrrolidine	930-55-2			0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	340
Nonylphenol	84852-15-3			0	0	0	0	1E+100	1E+100	1E+100	28	6.6	1E+100
Pentachlorobenzene	608-93-5			0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	0.1
Pyrene	129-00-0	10	200	426	426	426	425.156018	1050	1E+100	1E+100	1E+100	1E+100	4000
1,2,4-Trichlorobenzene	120-82-1	10		0	0	0	0	70	1E+100	1E+100	1E+100	1E+100	0.76

POLLUTANTS	CAS No.	MQL	Instream Waste Concentration								Livestock&	Acute	Chronic	Human
			Ambient	Effluent	Acute	Domestic	Chronic	Human	Domestic	Irrigation	Wildlife	Aquatic	Aquatic	Health
			Conc	Conc.	Aquatic	Supply	Aquatic	Health	Criteria	Criteria	Criteria	Criteria	Criteria	Criteria
			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	0.0000077
Alpha-BHC	319-84-6	0.05			0	0	0	0	0.056	1E+100	1E+100	1E+100	1E+100	0.0039
Beta-BHC	319-85-7	0.05			0	0	0	0	0.091	1E+100	1E+100	1E+100	1E+100	0.14
gamma-BHC (Lindane)	58-89-9	0.05			0	0	0	0	0.2	1E+100	1E+100	0.95	1E+100	4.4
Chlordane	57-74-9	0.2			0	0	0	0	2	1E+100	1E+100	2.4	0.0043	0.0032
Dichlorodiphenyldichloroethane (DDD)					0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	0.0012
Dichlorodiphenyldichloroethylene (DDE)					0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	0.00018
Dichlorodiphenyltrichloroethane (DDT)					0	0	0	0	1E+100	1E+100	1E+100	1E+100	1E+100	0.0003
4,4'-DDT and derivatives	50-29-3	0.02			0	0	0	0	1	1E+100	0.001	1.1	0.001	1E+100
Dieldrin	60-57-1	0.02			0	0	0	0	0.022	1E+100	1E+100	0.24	0.056	0.000012
Diazinon	333-41-5				0	0	0	0	1E+100	1E+100	1E+100	0.17	0.17	1E+100
Alpha-Endosulfan	959-98-8	0.01			0	0	0	0	62	1E+100	1E+100	0.22	0.056	30
Beta-Endosulfan	33213-65-9	0.02			0	0	0	0	62	1E+100	1E+100	0.22	0.056	40
Endosulfan sulfate	1031-7-8	0.1			0	0	0	0	62	1E+100	1E+100	1E+100	1E+100	40
Endrin	72-20-8	0.02			0	0	0	0	2	1E+100	1E+100	0.086	0.036	0.03
Endrin Aldehyde	7421-93-4	0.1			0	0	0	0	10.5	1E+100	1E+100	1E+100	1E+100	1
Heptachlor	76-44-8	0.01			0	0	0	0	0.4	1E+100	1E+100	0.52	0.0038	0.000059
Heptachlor Epoxide	1024-57-3	0.01			0	0	0	0	0.2	1E+100	1E+100	0.52	0.0038	0.00032
PCBs	336-36-3	0.2			0	0	0	0	0.5	1E+100	0.014	2	0.014	0.00064
Toxaphene	8001-35-2	0.3			0	0	0	0	3	1E+100	1E+100	0.73	0.0002	0.0071

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 concentration

See the current "Procedures for Implementing NPDES Permits in New Mexico"

Daily Max. Conc. = $C_s + (C_s - C_a)(F \cdot Q_a / Q_e)$

Monthly Avg. Conc. = Daily Max. Conc. / 1.5

Where:

C_s = Applicable water quality standard

C_a = Ambient stream concentration

F = Fraction of stream allowed for mixing (1.0 is assigned to domestic water supply and human health uses)

Q_e = Plant effluent flow

Q_a = Criteria Low flow (4Q3) or Harmonic Mean flow for Human Health Criteria

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
					Livestock	Acute	Chronic	Human	Daily	Monthly	Daily Max	Mon. Avg	Daily	
POLLUTANTS	CAS No.	STORET	Domestic	Irrigation	or Wildlife	Aquatic	Aquatic	Health	Max Conc	Avg Conc	Total	Total	Max Load	
			Limits	Limits	Limits	Limits	Limits	Limits	ug/l	ug/l	ug/l	ug/l	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	
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	
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	
Chlorpyrifos	2921-88-2		N/A	N/A	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	
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	
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	
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	
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	
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	
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	
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	
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	
Mirex	2385-85-5		N/A	N/A	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	
1,2,4,5-Tetrachlorobenzene	95-94-3		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	
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	
Toluene	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	
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	
Tributyltin (TBT)	Various		N/A	N/A	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	
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	
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	
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	
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	
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	
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	
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	
3-Methyl-4-chlorophenol	59-50-7		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2-Methyl-4,6-dinitrophenol	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	
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	
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	
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	
2,4,5-Trichlorophenol	95-95-4		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	
2-(2,4,5Trichlorophenoxy)propionic acid (Silvex)			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	
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	
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	
Benzo(a)anthracene	56-55-3	34526	N/A	N/A	N/A	N/A	N/A	0.013025806	0.013025806	0.013	0.013025806	0.013	3.5306E-05	
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	
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	

[illegible]

Need
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