

**CALCULATIONS OF NEW MEXICO WATER QUALITY-BASED EFFLUENT LIMITATIONS**

NMAC 20.6.4. **NMWQS as of January 14, 2011**

Calculations Specifications:

Excel **Revised as of July 15, 2011**

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**STEP 1:** REFERENCE IMPLEMENTATION PROCEDURES  
 INPUT FACILITY AND RECEIVING STREAM DATA  
 LIST SOURCE OF DATA INPUT

**APPENDIX 1**  
**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 "Procedures for Implementing NPDES Permits in New Mexico" amended May 2011

FACILITY

DATA INPUT

Permittee	COPPER FLAT	
NPDES Permit No.	NM0031101	
Outfall No.(s)	001	
Plant Effluent Flow (MGD)	3	For industrial and federal facility, use the highest monthly average flow for the past 24 months. For POTWs, use the design flow.
Plant Effluent Flow (cfs)	4.65	

RECEIVING STREAM

DATA INPUT

Receiving Stream Name	Grayback Arroyo
Basin Name	Rio Grande
Waterbody Segment Code No.	20.6.4.104
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)	0
Are irrigation water supply criteria considered (1= yes, 0=no)	1
Livestock watering and wildlife habitat criteria applied to all streams	

USGS Flow Station

WQ Monitoring Station No.		
Receiving Stream TSS (mg/l)	1	For intermittent stream, enter effluent TSS
Receiving Stream Hardness (mg/l as CaCO <sub>3</sub> )	120	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)	0.001	Enter harmonic mean or modified harmonic mean flow data or 0.001 if no data exists
Avg. Water Temperature (C)	16	
pH (Avg)	7	
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 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 "Procedures for Implementing NPDES Permits in New Mexico" amended July 2009

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

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 "Procedures for Implementing NPDES Permits in New Mexico" amended July 2009

$$Kp = Kpo \cdot (TSS)^a$$

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

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

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

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

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	480000	0.675675676	0	480000	-0.73	480000	0.675675676	0
Chromium III		3360000	-0.93	3360000	0.229357798	0	2170000	-0.27	2170000	0.315457413	0
Copper		1040000	-0.74	1040000	0.490196078	0	2850000	-0.9	2850000	0.25974026	0
Lead		2800000	-0.8	2800000	0.263157895	0	2040000	-0.53	2040000	0.328947368	0
Nickel		490000	-0.57	490000	0.67114094	0	2210000	-0.76	2210000	0.31152648	0
Silver		2390000	-1.03	2390000	0.294985251	0	2390000	-1.03	2390000	0.294985251	0
Zinc		1250000	-0.7	1250000	0.444444444	0	3340000	-0.68	3340000	0.230414747	0

The following formula is used to calculate hardness dependent criteria

(Please refer to State Water Quality Standards for details)

			Dissolved WQC (ug/l)
Cadmium (D)	Acute	$e(1.0166[\ln(\text{hardness})]-3.924) \cdot CF1$	2.404213068
	Chronic	$e(0.7409[\ln(\text{hardness})]-4.719) \cdot CF2$	0.279212098
Chromium III (D)	Acute	$0.316 \cdot e(0.819[\ln(\text{hardness})]+3.7256)$	661.5216237
	Chronic	$0.860 \cdot e(0.819[\ln(\text{hardness})]+0.6848)$	86.05037216

$$CF1 = 1.136672 - 0.041838 \cdot \ln(\text{hardness})$$

$$CF2 = 1.101672 - 0.041838 \cdot \ln(\text{hardness})$$

			Dissolved WQC (ug/l)	
Copper (D)	Acute	$0.960 e^{(0.9422[\ln(\text{hardness})]-1.700)}$	15.95787959	
	Chronic	$0.960 e^{(0.8545[\ln(\text{hardness})]-1.702)}$	10.46555826	
Lead (D)	Acute	$e^{(1.273[\ln(\text{hardness})]-1.46)} \cdot \text{CF3}$	78.71696618	$\text{CF3} = 1.46203 - 0.145712 \cdot \ln(\text{hardness})$
	Chronic	$e^{(1.273[\ln(\text{hardness})]-4.705)} \cdot \text{CF4}$	3.067487163	$\text{CF4} = 1.46203 - 0.145712 \cdot \ln(\text{hardness})$
Manganese (D)	Acute	$e^{(0.3331[\ln(\text{hardness})]+6.4676)}$	3172.621509	
	Chronic	$e^{(0.3331[\ln(\text{hardness})]+5.8743)}$	1752.876619	
Nickel (D)	Acute	$0.998 e^{(0.846[\ln(\text{hardness})]+2.255)}$	546.326079	
	Chronic	$0.997 e^{(0.846[\ln(\text{hardness})]+0.0584)}$	60.67996061	
Zinc (D)	Acute	$0.978 e^{(0.8473[\ln(\text{hardness})]+0.884)}$	136.7557031	
	Chronic	$0.986 e^{(0.8473[\ln(\text{hardness})]+0.884)}$	137.8743591	
Silver (D)	Acute	$0.85 e^{(1.72[\ln(\text{hardness})]-6.59)}$	4.401594528	

POLLUTANTS					Instream Waste Concentration					Irrigation Criteria ug/l	Livestock & Wildlife Criteria ug/l	Acute Aquatic Criteria ug/l	Chronic Aquatic Criteria ug/l	Human Health Criteria ug/l	
	CAS No.	STORET	MQL	Ambient	Effluent	Acute	Domestic	Chronic	Human						
				Conc. Ca (ug/l)	Conc. Ce (ug/l)	Aquatic 2.13*Ce	Supply Cd,dom (ug/l)	Aquatic Cd (ug/l)	Health Cd,hh (ug/l)						Criteria ug/l
<b>Radioactivity, Nutrients, and Chlorine</b>															
Aluminum, dissolved	7429-90-5	01106	2.5	0	0	0	0	0	0	1E+100	5000	1E+100	750	87	1E+100
Barium, dissolved	7440-39-3	01005	100	2	4.26	4.26	4.26	4.259084068	2000	1E+100	1E+100	1E+100	1E+100	1E+100	1E+100
Boron, dissolved	7440-42-8	01022	100	48	102.24	102.24	102.24	102.2180176	1E+100	750	5000	1E+100	1E+100	1E+100	1E+100
Cobalt, dissolved	7440-48-4	01037	50	0	0	0	0	0	1E+100	50	1000	1E+100	1E+100	1E+100	1E+100
Uranium, dissolved	7440-61-1	22706	0.1	1.3	2.769	2.769	2.769	2.768404644	30	1E+100	1E+100	1E+100	1E+100	1E+100	1E+100
Vanadium, dissolved	7440-62-2	01087	50	0	0	0	0	0	1E+100	100	100	1E+100	1E+100	1E+100	1E+100
Ra-226 and Ra-228 (pCi/l)		11503		0	0	0	0	0	5	1E+100	30	1E+100	1E+100	1E+100	1E+100
Strontium (pCi/l)		13501		0	0	0	0	0	8	1E+100	1E+100	1E+100	1E+100	1E+100	1E+100
Tritium (pCi/l)		04124		0	0	0	0	0	20000	1E+100	20000	1E+100	1E+100	1E+100	1E+100
Gross Alpha (pCi/l)		80029		0	0	0	0	0	15	1E+100	15	1E+100	1E+100	1E+100	1E+100
Asbestos (fibers/l)				0	0	0	0	0	7000000	1E+100	1E+100	1E+100	1E+100	1E+100	1E+100
Total Residual Chlorine	7782-50-5	50060	33	0	0	0	0	0	1E+100	1E+100	11	19	11	1E+100	
Nitrate as N (mg/l)		00620		0	0	0	0	0	10	1E+100	1E+100	1E+100	1E+100	1E+100	1E+100
Nitrite + Nitrate (mg/l)		00630		0	0	0	0	0	1E+100	1E+100	132	1E+100	1E+100	1E+100	1E+100
<b>METALS AND CYANIDE</b>															
Antimony, dissolved (P)	7440-36-0	01097	60	0	0	0	0	0	6	1E+100	1E+100	1E+100	1E+100	1E+100	640
Arsenic, dissolved (P)	7440-38-2	01000	0.5	4.1	8.733	8.733	8.733	8.731122339	10	100	200	340	150	150	9
Beryllium, dissolved	7440-41-7	01012	0.5	0	0	0	0	0	4	1E+100	1E+100	1E+100	1E+100	1E+100	1E+100
Cadmium, dissolved	7440-43-9	01025	1	0	0	0	0	0	5	10	50	2.40421307	0.2792121	1E+100	1E+100
Chromium (III), dissolved	16065-83-1	01033	10	0	0	0	0	0	1E+100	1E+100	1E+100	661.521624	86.0503722	1E+100	1E+100
Chromium (VI), dissolved	18540-29-9	01034	10	0	0	0	0	0	1E+100	1E+100	1E+100	16	11	1E+100	1E+100
Chromium, dissolved	7440-47-3	01118		0	0	0	0	0	100	100	1000	1E+100	1E+100	1E+100	1E+100
Copper, dissolved	7440-50-8	01042	0.5	0	0	0	0	0	1300	200	500	15.9578796	10.4655583	1E+100	1E+100
Lead, dissolved	7439-92-1	01049	0.5	0	0	0	0	0	15	5000	100	78.7169662	3.06748716	1E+100	1E+100
Manganese, dissolved	7439-96-5	01056		0	0	0	0	0	1E+100	1E+100	1E+100	3172.62151	1752.87662	1E+100	1E+100

POLLUTANTS	CAS No.	STORET	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	71890	0.005		0	0	0	0	0	1E+100	1E+100	1E+100	1.4	0.77	1E+100
Mercury, total	7439-97-6	71900	0.005		0.2	0.426	0.426	0.426	0.425908407	2	1E+100	0.77	1E+100	1E+100	1E+100
Molybdenum, dissolved	7439-98-7	01060			0	0	0	0	0	1E+100	1000	1E+100	1E+100	1E+100	1E+100
Molybdenum, total recoverable	7439-98-7	01062			0	0	0	0	0	1E+100	1E+100	1E+100	7920	1895	1E+100
Nickel, dissolved (P)	7440-02-0	01065	0.5		0	0	0	0	0	700	1E+100	1E+100	546.326079	60.6799606	4600
Selenium, dissolved (P)	7782-49-2	01145	5		0	0	0	0	0	50	130	50	1E+100	1E+100	4200
Selenium, dis (SO4 >500 mg/l)		01145	5		0	0	0	0	0	50	250	50	1E+100	1E+100	4200
Selenium, total recoverable	7782-49-2	01147	5		0	0	0	0	0	1E+100	1E+100	5	20	5	1E+100
Silver, dissolved	7440-22-4	01077	0.5		0	0	0	0	0	1E+100	1E+100	1E+100	4.40159453	1E+100	1E+100
Thallium, dissolved (P)	7440-28-0	01059	0.5		0	0	0	0	0	2	1E+100	1E+100	1E+100	1E+100	0.47
Zinc, dissolved	7440-66-6	01080	20		48	102.24	102.24	102.24	102.2180176	10500	2000	25000	136.755703	137.874359	26000
Cyanide, total recoverable	57-12-5	00720	10			0	0	0	0	200	1E+100	5.2	22	5.2	140
Dioxin	1764-01-6	34675	0.00001			0	0	0	0	3.00E-05	1E+100	1E+100	1E+100	1E+100	0.000000051
<b>VOLATILE COMPOUNDS</b>															
Acrolein	107-02-8	34210	50			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	9
Acrylonitrile	107-13-0	34215	20			0	0	0	0	0.65	1E+100	1E+100	1E+100	1E+100	2.5
Benzene	71-43-2	34030	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	510
Bromoform	75-25-2	32104	10			0	0	0	0	44	1E+100	1E+100	1E+100	1E+100	1400
Carbon Tetrachloride	56-23-5	32102	2			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	16
Chlorobenzene	108-90-7	34301	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	1600
Clorodibromomethane	124-48-1	32105	10			0	0	0	0	4.2	1E+100	1E+100	1E+100	1E+100	130
Chloroform	67-66-3	32106	50			0	0	0	0	57	1E+100	1E+100	1E+100	1E+100	4700
Dichlorobromomethane	75-27-4	32101	10			0	0	0	0	5.6	1E+100	1E+100	1E+100	1E+100	170
1,2-Dichloroethane	107-06-2	34531	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	370
1,1-Dichloroethylene	75-35-4	34501	10			0	0	0	0	7	1E+100	1E+100	1E+100	1E+100	7100
1,2-Dichloropropane	78-87-5	34541	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	150
1,3-Dichloropropylene	542-75-6	34561	10			0	0	0	0	3.5	1E+100	1E+100	1E+100	1E+100	210
Ethylbenzene	100-41-4	34371	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	2100
Methyl Bromide	74-83-9	34413	50			0	0	0	0	49	1E+100	1E+100	1E+100	1E+100	1500
Methylene Chloride	75-09-2	34423	20			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	5900
1,1,2,2-Tetrachloroethane	79-34-5	34516	10			0	0	0	0	1.8	1E+100	1E+100	1E+100	1E+100	40
Tetrachloroethylene	127-18-4	34475	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	33
Toluene	108-88-3	34010	10			0	0	0	0	1000	1E+100	1E+100	1E+100	1E+100	15000
1,2-trans-Dichloroethylene	156-60-5	34546	10			0	0	0	0	100	1E+100	1E+100	1E+100	1E+100	10000
1,1,1-Trichloroethane	71-55-6				0	0	0	0	0	200	1E+100	1E+100	1E+100	1E+100	1E+100
1,1,2-Trichloroethane	79-00-5	34511	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	160
Trichloroethylene	79-01-6	39180	10			0	0	0	0	5	1E+100	1E+100	1E+100	1E+100	300
Vinyl Chloride	75-01-4	39175	10			0	0	0	0	2	1E+100	1E+100	1E+100	1E+100	24
<b>ACID COMPOUNDS</b>															
2-Chlorophenol	95-57-8	34586	10			0	0	0	0	175	1E+100	1E+100	1E+100	1E+100	150
2,4-Dichlorophenol	120-83-2	34601	10			0	0	0	0	105	1E+100	1E+100	1E+100	1E+100	290
2,4-Dimethylphenol	105-67-9	34606	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	850
4,6-Dinitro-o-Cresol	534-52-1	34657	50			0	0	0	0	14	1E+100	1E+100	1E+100	1E+100	280

POLLUTANTS	CAS No.	STORET	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	
2,4-Dinitrophenol	51-28-5	34616	50			0	0	0	0	70	1E+100	1E+100	1E+100	1E+100	5300
Pentachlorophenol	87-86-5	39032	50			0	0	0	0	1	1E+100	1E+100	19	15	30
Phenol	108-95-2	34694	10			0	0	0	0	10500	1E+100	1E+100	1E+100	1E+100	860000
2,4,6-Trichlorophenol	88-06-2	34621	10			0	0	0	0	32	1E+100	1E+100	1E+100	1E+100	24
<b>BASE/NEUTRAL</b>							0	0	0						
Acenaphthene	83-32-9	34205	10			0	0	0	0	2100	1E+100	1E+100	1E+100	1E+100	990
Anthracene	120-12-7	34220	10			0	0	0	0	10500	1E+100	1E+100	1E+100	1E+100	40000
Benzidine	92-87-5	39120	50			0	0	0	0	0.0015	1E+100	1E+100	1E+100	1E+100	0.002
Benzo(a)anthracene	56-55-3	34526	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18
Benzo(a)pyrene	50-32-8	34247	5			0	0	0	0	0.2	1E+100	1E+100	1E+100	1E+100	0.18
3,4-Benzofluoranthene	205-99-2	34230	10			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18
Benzo(k)fluoranthene	207-08-9	34242	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18
Bis(2-chloroethyl)Ether	111-44-4	34273	10			0	0	0	0	0.3	1E+100	1E+100	1E+100	1E+100	5.3
Bis(2-chloroisopropyl)Ether	108-60-1	34283	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	65000
Bis(2-ethylhexyl)Phthalate	117-81-7	39100	10			0	0	0	0	6	1E+100	1E+100	1E+100	1E+100	22
Butyl Benzyl Phthalate	85-68-7	34292	10			0	0	0	0	7000	1E+100	1E+100	1E+100	1E+100	1900
2-Chloronaphthalene	91-58-7	34581	10			0	0	0	0	2800	1E+100	1E+100	1E+100	1E+100	1600
Chrysene	218-01-9	34320	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18
Dibenzo(a,h)anthracene	53-70-3	34556	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18
1,2-Dichlorobenzene	95-50-1	34536	10			0	0	0	0	600	1E+100	1E+100	1E+100	1E+100	1300
1,3-Dichlorobenzene	541-73-1	34566	10			0	0	0	0	469	1E+100	1E+100	1E+100	1E+100	960
1,4-Dichlorobenzene	106-46-7	34571	10			0	0	0	0	75	1E+100	1E+100	1E+100	1E+100	190
3,3'-Dichlorobenzidine	91-94-1	34631	5			0	0	0	0	0.78	1E+100	1E+100	1E+100	1E+100	0.28
Diethyl Phthalate	84-66-2	34336	10			0	0	0	0	28000	1E+100	1E+100	1E+100	1E+100	44000
Dimethyl Phthalate	131-11-3	34341	10			0	0	0	0	350000	1E+100	1E+100	1E+100	1E+100	1100000
Di-n-Butyl Phthalate	84-74-2	39110	10			0	0	0	0	3500	1E+100	1E+100	1E+100	1E+100	4500
2,4-Dinitrotoluene	121-14-2	34611	10			0	0	0	0	1.1	1E+100	1E+100	1E+100	1E+100	34
1,2-Diphenylhydrazine	122-66-7	34346	20			0	0	0	0	0.44	1E+100	1E+100	1E+100	1E+100	2
Fluoranthene	206-44-0	34376	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	140
Fluorene	86-73-7	34381	10			0	0	0	0	1400	1E+100	1E+100	1E+100	1E+100	5300
Hexachlorobenzene	118-74-1	39700	5			0	0	0	0	1	1E+100	1E+100	1E+100	1E+100	0.0029
Hexachlorobutadiene	87-68-3	34391	10			0	0	0	0	4.5	1E+100	1E+100	1E+100	1E+100	180
Hexachlorocyclopentadiene	77-47-4	34386	10			0	0	0	0	50	1E+100	1E+100	1E+100	1E+100	1100
Hexachloroethane	67-72-1	34396	20			0	0	0	0	25	1E+100	1E+100	1E+100	1E+100	33
Indeno(1,2,3-cd)Pyrene	193-39-5	34403	5			0	0	0	0	0.048	1E+100	1E+100	1E+100	1E+100	0.18
Isophorone	78-59-1	34408	10			0	0	0	0	368	1E+100	1E+100	1E+100	1E+100	9600
Nitrobenzene	98-95-3	34447	10			0	0	0	0	18	1E+100	1E+100	1E+100	1E+100	690
n-Nitrosodimethylamine	62-75-9	34438	50			0	0	0	0	0.0069	1E+100	1E+100	1E+100	1E+100	30
n-Nitrosodi-n-Propylamine	621-64-7	34428	20			0	0	0	0	0.05	1E+100	1E+100	1E+100	1E+100	5.1
n-Nitrosodiphenylamine	86-30-6	34433	20			0	0	0	0	71	1E+100	1E+100	1E+100	1E+100	60
Pyrene	129-00-0	34469	10			0	0	0	0	1050	1E+100	1E+100	1E+100	1E+100	4000
1,2,4-Trichlorobenzene	120-82-1	34551	10			0	0	0	0	70	1E+100	1E+100	1E+100	1E+100	70

POLLUTANTS	CAS No.	STORET	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	
<b>PESTICIDES AND PCBs</b>						0	0	0	0						
Aldrin	309-00-2	39330	0.01			0	0	0	0	0.021	1E+100	1E+100	3	1E+100	0.0005
Alpha-BHC	319-84-6	39337	0.05			0	0	0	0	0.056	1E+100	1E+100	1E+100	1E+100	0.049
Beta-BHC	319-85-7	39338	0.05			0	0	0	0	0.091	1E+100	1E+100	1E+100	1E+100	0.17
Gamma-BHC	58-89-9	39340	0.05			0	0	0	0	0.2	1E+100	1E+100	0.95	1E+100	1.8
Chlordane	57-74-9	39350	0.2			0	0	0	0	2	1E+100	1E+100	2.4	0.0043	0.0081
4,4'-DDT and derivatives	50-29-3	39300	0.02			0	0	0	0	1	1E+100	0.001	1.1	0.001	0.0022
Dieldrin	60-57-1	39380	0.02			0	0	0	0	0.022	1E+100	1E+100	0.24	0.056	0.00054
Diazinon	333-41-5	39570				0	0	0	0	1E+100	1E+100	1E+100	0.17	0.17	1E+100
Alpha-Endosulfan	959-98-8	34361	0.01			0	0	0	0	62	1E+100	1E+100	0.22	0.056	89
Beta-Endosulfan	33213-65-9	34356	0.02			0	0	0	0	62	1E+100	1E+100	0.22	0.056	89
Endosulfan sulfate	1031-7-8	34351	0.1			0	0	0	0	62	1E+100	1E+100	1E+100	1E+100	89
Endrin	72-20-8	39390	0.02			0	0	0	0	2	1E+100	1E+100	0.086	0.036	0.06
Endrin Aldehyde	7421-93-4	34366	0.1			0	0	0	0	10.5	1E+100	1E+100	1E+100	1E+100	0.3
Heptachlor	76-44-8	39410	0.01			0	0	0	0	0.4	1E+100	1E+100	0.52	0.0038	0.00079
Heptachlor Epoxide	1024-57-3	39420	0.01			0	0	0	0	0.2	1E+100	1E+100	0.52	0.0038	0.00039
PCBs	1336-36-3	39516	0.2			0	0	0	0	0.5	1E+100	0.014	2	0.014	0.00064
Toxaphene	8001-35-2	39400	0.3			0	0	0	0	3	1E+100	1E+100	0.73	0.0002	0.0028

Note: SCORET CODE for reference only. Codes for total form are used except for parameters which have criteria in both total and dissolved forms.

**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 formula is used to calculate the allowable daily maximum effluent concentration

See "Procedures for Implementing NPDES Permits in New Mexico" amended July 2009

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







