

CALCULATIONS OF NEW MEXICO WATER QUALITY-BASED EFFLUENT LIMITATIONS

NMAC 20.6.4. **2005** Do not change this year

Calculations Specifications:

Excel

Revised as of September 14, 2009

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

**APPENDIX
of FACT SHEET / STATEMENT OF BASIS**

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 July 2009

FACILITY

DATA INPUT

Permittee

LAS VEGAS WWTP

NPDES Permit No.

NM0028827

Outfall No.(s)

001

Plant Effluent Flow (MGD)

2.5

For industrial and federal facility, use the highest monthly average flow

Plant Effluent Flow (cfs)

3.875

for the past 24 months. For POTWs, use the design flow.

RECEIVING STREAM

DATA INPUT

Receiving Stream Name

Gallinas River

Basin Name

Pecos Basin

Waterbody Segment Code No.

220

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

USGS

WQ Monitoring Station No.

SJR

Receiving Stream TSS (mg/l)

16

For intermittent stream, enter effluent TSS

Receiving Stream Hardness (mg/l as CaCO₃)

RANGE: 0 - 400

400

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

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

0.559

Enter "0" for intermittent stream and lake.

Receiving Stream Harmonic Mean Flow (cfs)

5.62

Enter harmonic mean or modified harmonic mean flow data

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

0.559

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 formular 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 formular 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	63421.08243	0.49634262	0	480000	-0.73	63421.08243	0.49634262	0
Chromium	2.67	3360000	-0.93	254980.9257	0.19686222	0.52562213	2170000	-0.27	1026472.547	0.05739355	0.1532408
Copper	2.15	1040000	-0.74	133654.7975	0.318625906	0.6850457	2850000	-0.9	235037.3466	0.210057664	0.451624
Lead		2800000	-0.8	304692.6972	0.170210357	0	2040000	-0.53	469295.7018	0.117526335	0
Nickel	3.45	490000	-0.57	100889.8996	0.382520585	1.31969602	2210000	-0.76	268695.9292	0.188710049	0.6510497
Silver		2390000	-1.03	137453.0303	0.312573407	0	2390000	-1.03	137453.0303	0.312573407	0
Zinc	45.4	1250000	-0.7	179484.118	0.258281413	11.7259762	3340000	-0.68	506926.3642	0.109759582	4.983085

The following formular is used to calculate hardness dependent criteria

(Please refer to State Water Quality Standards for details)

			Dissolved WQC (ug/l)
Cadmium (D)	Acute	$e^{(1.0166[\ln(\text{hardness})]-3.924)} \cdot CF1$	7.736007896
	Chronic	$e^{(0.7409[\ln(\text{hardness})]-4.719)} \cdot CF2$	0.643221736
Chromium (D)	Acute	$0.316 e^{(0.819[\ln(\text{hardness})]+3.7256)}$	1773.298053
	Chronic	$0.860 e^{(0.819[\ln(\text{hardness})]+0.6848)}$	230.669644

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

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

			Dissolved WQC (ug/l)	
Copper (D)	Acute	$0.960 e(0.9422[\ln(\text{hardness})]-1.700)$	49.61711833	
	Chronic	$0.960 e(0.8545[\ln(\text{hardness})]-1.702)$	29.27940773	
Lead (D)	Acute	$e(1.273[\ln(\text{hardness})]-1.46)*CF3$	280.8464812	$CF3 = 1.46203 - 0.145712*\ln(\text{hardness})$
	Chronic	$e(1.273[\ln(\text{hardness})]-4.705)*CF4$	10.94418418	$CF4 = 1.46203 - 0.145712*\ln(\text{hardness})$
Nickel (D)	Acute	$0.998 e(0.846[\ln(\text{hardness})]+2.255)$	1512.889994	
	Chronic	$0.997 e(0.846[\ln(\text{hardness})]+0.0584)$	168.0353708	
Zinc (D)	Acute	$0.978 e(0.8473[\ln(\text{hardness})]+0.884)$	379.2980478	
	Chronic	$0.986 e(0.8473[\ln(\text{hardness})]+0.884)$	382.4006903	
Silver (D)	Acute	$0.85 e(1.72[\ln(\text{hardness})]-6.59)$	34.91093457	

POLLUTANTS	CAS No.	STORET	MQL	Instream Waste Concentration							Livestock & Wildlife Criteria	Acute Aquatic Criteria	Chronic Aquatic Criteria	Human Health Criteria	
				Ambient Conc.	Effluent Conc.	Acute Aquatic	Domestic Supply	Chronic Aquatic	Human Health	Domestic Criteria					Irrigation 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
Radioactivity, Nutrients, and Chlorine															
Aluminum, dissolved	7429-90-5	01106	2.5	51.6	109.908	96.0517591	96.0517591	44.85450237	1E+100	5000	1E+100	750	87	1E+100	
Barium, dissolved	7440-39-3	01005	100	19.2	40.896	35.7401894	35.7401894	16.69004739	2000	1E+100	1E+100	1E+100	1E+100	1E+100	
Boron, dissolved	7440-42-8	01022	100	72.1	153.573	134.211857	134.211857	62.67460506	1E+100	750	5000	1E+100	1E+100	1E+100	
Cobalt, dissolved	7440-48-4	01037	50	2.92	6.2196	5.43548714	5.43548714	2.538278041	1E+100	50	1000	1E+100	1E+100	1E+100	
Molybdenum, dissolved	7439-98-7	01062	10	5.21	11.0973	9.69824932	9.69824932	4.528913902	1E+100	1000	1E+100	1E+100	1E+100	1E+100	
Uranium, dissolved	7440-61-1	22706	0.1	1.6	3.408	2.97834912	2.97834912	1.390837283	5000	1E+100	1E+100	1E+100	1E+100	1E+100	
Vanadium, dissolved	7440-62-2	01087	50		0	0	0	0	1E+100	100	100	1E+100	1E+100	1E+100	
Ra-226 and Ra-228 (pCi/l)		11503		0.79	1.6827	1.47055988	1.47055988	0.686725908	5	1E+100	30	1E+100	1E+100	1E+100	
Strontium (pCi/l)		13501			0	0	0	0	8	1E+100	1E+100	1E+100	1E+100	1E+100	
Tritium (pCi/l)		04124		10.5	22.365	19.5454161	19.5454161	9.127369668	20000	1E+100	20000	1E+100	1E+100	1E+100	
Gross Alpha (pCi/l)		80029		1.63	3.4719	3.03419317	3.03419317	1.416915482	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	50060	33		0	0	0	0	1E+100	1E+100	11	19	11	1E+100	
Nitrate as N (mg/l)		00620			0	0	0	0	10	1E+100	1E+100	1E+100	1E+100	1E+100	
Nitrite + Nitrate (mg/l)		00630			0	0	0	0	1E+100	1E+100	132	1E+100	1E+100	1E+100	
METALS AND CYANIDE															
Antimony, dissolved (P)	7440-36-0	01097	60		0	0	0	0	5.6	1E+100	1E+100	1E+100	1E+100	640	
Arsenic, dissolved (P)	7440-38-2	01000	0.5		0	0	0	0	2.3	100	200	340	150	9	
Beryllium, dissolved	7440-41-7	01012	0.5		0	0	0	0	4	1E+100	1E+100	1E+100	1E+100	1E+100	
Cadmium, dissolved	7440-43-9	01025	1	1.33	2.8329	2.47575271	2.47575271	1.156133491	5	10	50	7.7360079	0.64322174	1E+100	
Chromium, dissolved	18540-29-9	01034	10	0.525622129	1.11957513	0.97842888	0.97842888	0.456909283	100	100	1000	1773.2981	230.669644	1E+100	
Copper, dissolved	7440-50-8	01042	0.5	0.685045697	1.45914734	1.27519078	1.27519078	0.595491935	1300	200	500	49.617118	29.2794077	1E+100	
Lead, dissolved	7439-92-1	01049	0.5	0	0	0	0	0	50	5000	100	280.84648	10.9441842	1E+100	
Mercury, dissolved	7439-97-6	71890	0.005		0	0	0	0	1E+100	1E+100	1E+100	1.4	0.77	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, total	7439-97-6	71900	0.005			0	0	0	0	2	1E+100	0.77	1E+100	1E+100	1E+100
Nickel, dissolved (P)	7440-02-0	01065	0.5		1.319696019	2.81095252	2.45657217	2.45657217	1.147176515	100	1E+100	1E+100	1512.89	168.035371	4600
Selenium, dissolved (P)	7782-49-2	01145	5			0	0	0	0	50	130	50	1E+100	1E+100	4200
Selenium, dis (SO4 >500 mg/l)		01145	5			0	0	0	0	50	250	50	1E+100	1E+100	4200
Selenium, total recoverable	7782-49-2	01147	5			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	34.910935	1E+100	1E+100
Thallium, dissolved (P)	7440-28-0	01059	0.5			0	0	0	0	1.7	1E+100	1E+100	1E+100	1E+100	6.3
Zinc, Dis.	7440-66-6	01080	20		11.72597617	24.9763292	21.8275318	21.8275318	10.19307802	7400	2000	25000	379.29805	382.40069	26000
Cyanide, dissolved	57-12-5	00720	10			0	0	0	0	200	1E+100	1E+100	1E+100	1E+100	1E+100
Cyanide, weak acid dissocial	57-12-5	00718	10			0	0	0	0	700	1E+100	5.2	22	5.2	220000
DIOXIN						0	0	0	0						
2,3,7,8-TCDD	1764-01-6	34675	0.00001			0	0	0	0	0.00000005	1E+100	1E+100	1E+100	1E+100	0.000000051
VOLATILE COMPOUNDS															
Acrolein	107-02-8	34210	50			0	0	0	0	190	1E+100	1E+100	1E+100	1E+100	290
Acrylonitrile	107-13-0	34215	20			0	0	0	0	0.51	1E+100	1E+100	1E+100	1E+100	2.5
Benzene	71-43-2	34030	10			0	0	0	0	22	1E+100	1E+100	1E+100	1E+100	510
Bromoform	75-25-2	32104	10			0	0	0	0	43	1E+100	1E+100	1E+100	1E+100	1400
Carbon Tetrachloride	56-23-5	32102	2			0	0	0	0	2.3	1E+100	1E+100	1E+100	1E+100	16
Chlorobenzene	108-90-7	34301	10			0	0	0	0	680	1E+100	1E+100	1E+100	1E+100	21000
Clorodibromomethane	124-48-1	32105	10			0	0	0	0	4	1E+100	1E+100	1E+100	1E+100	130
Chloroform	67-66-3	32106	50		0.6	1.278	1.11688092	1.11688092	0.521563981	57	1E+100	1E+100	1E+100	1E+100	4700
Dichlorobromomethane	75-27-4	32101	10			0	0	0	0	5.5	1E+100	1E+100	1E+100	1E+100	170
1,2-Dichloroethane	107-06-2	34531	10			0	0	0	0	3.8	1E+100	1E+100	1E+100	1E+100	370
1,1-Dichloroethylene	75-35-4	34501	10			0	0	0	0	0.57	1E+100	1E+100	1E+100	1E+100	32
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	10	1E+100	1E+100	1E+100	1E+100	1700
Ethylbenzene	100-41-4	34371	10			0	0	0	0	3100	1E+100	1E+100	1E+100	1E+100	29000
Methyl Bromide	74-83-9	34413	50			0	0	0	0	47	1E+100	1E+100	1E+100	1E+100	1500
Methylene Chloride	75-09-2	34423	20			0	0	0	0	46	1E+100	1E+100	1E+100	1E+100	5900
1,1,2,2-Tetrachloroethane	79-34-5	34516	10			0	0	0	0	1.7	1E+100	1E+100	1E+100	1E+100	40
Tetrachloroethylene	127-18-4	34475	10			0	0	0	0	6.9	1E+100	1E+100	1E+100	1E+100	33
Toluene	108-88-3	34010	10			0	0	0	0	6800	1E+100	1E+100	1E+100	1E+100	200000
1,2--trans-Dichloroethylene	156-60-5	34546	10			0	0	0	0	700	1E+100	1E+100	1E+100	1E+100	140000
1,1,2-Trichloroethane	79-00-5	34511	10			0	0	0	0	5.9	1E+100	1E+100	1E+100	1E+100	160
Trichloroethylene	79-01-6	39180	10			0	0	0	0	25	1E+100	1E+100	1E+100	1E+100	300
Vinyl Chloride	75-01-4	39175	10			0	0	0	0	20	1E+100	1E+100	1E+100	1E+100	5300
ACID COMPOUNDS															
2-Chlorophenol	95-57-8	34586	10			0	0	0	0	81	1E+100	1E+100	1E+100	1E+100	150
2,4-Dichlorophenol	120-83-2	34601	10			0	0	0	0	77	1E+100	1E+100	1E+100	1E+100	290
2,4-Dimethylphenol	105-67-9	34606	10			0	0	0	0	380	1E+100	1E+100	1E+100	1E+100	850
4,6-Dinitro-o-Cresol	534-52-1	34657	50			0	0	0	0	13	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	69	1E+100	1E+100	1E+100	1E+100	5300
Pentachlorophenol	87-86-5	39032	50			0	0	0	0	2.7	1E+100	1E+100	19	15	30
Phenol	108-95-2	34694	10		43.4	92.442	80.7877199	80.7877199	37.7264613	21000	1E+100	1E+100	1E+100	1E+100	1700000
2,4,6-Trichlorophenol	88-06-2	34621	10			0	0	0	0	14	1E+100	1E+100	1E+100	1E+100	24
BASE/NEUTRAL							0	0	0						
Acenaphthene	83-32-9	34205	10			0	0	0	0	670	1E+100	1E+100	1E+100	1E+100	990
Anthracene	120-12-7	34220	10			0	0	0	0	8300	1E+100	1E+100	1E+100	1E+100	40000
Benzidine	92-87-5	39120	50			0	0	0	0	0.00086	1E+100	1E+100	1E+100	1E+100	0.002
Benzo(a)anthracene	56-55-3	34526	5			0	0	0	0	0.038	1E+100	1E+100	1E+100	1E+100	0.18
Benzo(a)pyrene	50-32-8	34247	5			0	0	0	0	0.038	1E+100	1E+100	1E+100	1E+100	0.18
3,4-Benzofluoranthene	205-99-2	34230	10			0	0	0	0	0.038	1E+100	1E+100	1E+100	1E+100	0.18
Benzo(k)fluoranthene	207-08-9	34242	5			0	0	0	0	0.038	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		19.7	41.961	36.6709235	36.6709235	17.12468404	12	1E+100	1E+100	1E+100	1E+100	22
Butyl Benzyl Phthalate	85-68-7	34292	10			0	0	0	0	1500	1E+100	1E+100	1E+100	1E+100	1900
2-Chloronaphthalene	91-58-7	34581	10			0	0	0	0	1000	1E+100	1E+100	1E+100	1E+100	1600
Chrysene	218-01-9	34320	5			0	0	0	0	0.038	1E+100	1E+100	1E+100	1E+100	0.18
Dibenzo(a,h)anthracene	53-70-3	34556	5			0	0	0	0	0.038	1E+100	1E+100	1E+100	1E+100	0.18
1,2-Dichlorobenzene	95-50-1	34536	10			0	0	0	0	2700	1E+100	1E+100	1E+100	1E+100	17000
1,3-Dichlorobenzene	541-73-1	34566	10			0	0	0	0	320	1E+100	1E+100	1E+100	1E+100	960
1,4-Dichlorobenzene	106-46-7	34571	10			0	0	0	0	400	1E+100	1E+100	1E+100	1E+100	2600
3,3'-Dichlorobenzidine	91-94-1	34631	5			0	0	0	0	0.21	1E+100	1E+100	1E+100	1E+100	0.28
Diethyl Phthalate	84-66-2	34336	10			0	0	0	0	17000	1E+100	1E+100	1E+100	1E+100	44000
Dimethyl Phthalate	131-11-3	34341	10			0	0	0	0	270000	1E+100	1E+100	1E+100	1E+100	1100000
Di-n-Butyl Phthalate	84-74-2	39110	10			0	0	0	0	2000	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	0.36	1E+100	1E+100	1E+100	1E+100	2
Fluoranthene	206-44-0	34376	10			0	0	0	0	130	1E+100	1E+100	1E+100	1E+100	140
Fluorene	86-73-7	34381	10			0	0	0	0	1100	1E+100	1E+100	1E+100	1E+100	5300
Hexachlorobenzene	118-74-1	39700	5			0	0	0	0	0.0028	1E+100	1E+100	1E+100	1E+100	0.0029
Hexachlorobutadiene	87-68-3	34391	10			0	0	0	0	4.4	1E+100	1E+100	1E+100	1E+100	180
Hexachlorocyclopentadiene	77-47-4	34386	10			0	0	0	0	240	1E+100	1E+100	1E+100	1E+100	17000
Hexachloroethane	67-72-1	34396	20			0	0	0	0	14	1E+100	1E+100	1E+100	1E+100	33
Indeno(1,2,3-cd)Pyrene	193-39-5	34403	5			0	0	0	0	0.038	1E+100	1E+100	1E+100	1E+100	0.18
Isophorone	78-59-1	34408	10			0	0	0	0	350	1E+100	1E+100	1E+100	1E+100	9600
Nitrobenzene	98-95-3	34447	10			0	0	0	0	17	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	33	1E+100	1E+100	1E+100	1E+100	60
Pyrene	129-00-0	34469	10			0	0	0	0	830	1E+100	1E+100	1E+100	1E+100	4000
1,2,4-Trichlorobenzene	120-82-1	34551	10			0	0	0	0	260	1E+100	1E+100	1E+100	1E+100	940

POLLUTANTS	CAS No.	STORET	MQL	Instream Waste Concentration							Domestic Criteria ug/l	Irrigation Criteria ug/l	Livestock& Wildlife Criteria ug/l	Acute Aquatic Criteria ug/l	Chronic Aquatic Criteria ug/l	Human Health Criteria ug/l
				Ambient Conc Ca (ug/l)	Effluent Conc. Ce (ug/l)	Acute Aquatic 2.13*Ce	Domestic Supply Cd,dom (ug/l)	Chronic Aquatic Cd (ug/l)	Human Health Cd,hh (ug/l)							
				PESTICIDES AND PCBs												
Aldrin	309-00-2	39330	0.01			0	0	0	0	0.00049	1E+100	1E+100	3	1E+100	0.0005	
Alpha-BHC	319-84-6	39337	0.05			0	0	0	0	0.026	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	0.19	1E+100	1E+100	0.95	1E+100	0.63	
Chlordane	57-74-9	39350	0.2			0	0	0	0	0.008	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	0.0022	1E+100	0.001	1.1	0.001	0.0022	
Dieldrin	60-57-1	39380	0.02			0	0	0	0	0.00052	1E+100	1E+100	0.24	0.056	0.00054	
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	0.76	1E+100	1E+100	0.086	0.036	0.81	
Endrin Aldehyde	7421-93-4	34366	0.1			0	0	0	0	0.29	1E+100	1E+100	1E+100	1E+100	0.3	
Heptachlor	76-44-8	39410	0.01			0	0	0	0	0.00079	1E+100	1E+100	0.52	0.0038	0.00079	
Heptachlor Epoixde	1024-57-3	39420	0.01			0	0	0	0	0.00039	1E+100	1E+100	0.52	0.0038	0.00039	
PCBs	1336-36-3	39516	0.2			0	0	0	0	0.00064	1E+100	0.014	1E+100	0.014	0.00064	
Toxaphene	8001-35-2	39400	0.3			0	0	0	0	0.0028	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

