

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 3
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	LANL SPRINGS	
NPDES Permit No.	NM0031054	
Outfall No.(s)	003	
Plant Effluent Flow (MGD)	0.0001	For industrial and federal facility, use the highest monthly average flow
Plant Effluent Flow (cfs)	0.000155	for the past 24 months. For POTWs, use the design flow.
RECEIVING STREAM	DATA INPUT	
Receiving Stream Name	BURNING GROUND SPRING , chronic and acute	
Basin Name	RG Basin	
Waterbody Segment Code No.		
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 2010 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)	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)	20	For intermittent stream, enter effluent TSS
Receiving Stream Hardness (mg/l as CaCO ₃)	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)	0.0001	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	

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	53887.66189	0.481289107	0	480000	-0.73	53887.66189	0.481289107	0
Chromium III		3360000	-0.93	207196.0069	0.194404262	0	2170000	-0.27	966454.995	0.049190569	0
Copper		1040000	-0.74	113310.7574	0.306164767	0	2850000	-0.9	192272.8058	0.20637892	0
Lead		2800000	-0.8	254878.9884	0.163999495	0	2040000	-0.53	416950.2799	0.107077781	0
Nickel		490000	-0.57	88840.0885	0.360126535	0	2210000	-0.76	226782.4678	0.18064728	0
Silver		2390000	-1.03	109228.7605	0.314013623	0	2390000	-1.03	109228.7605	0.314013623	0
Zinc		1250000	-0.7	153528.5033	0.245665836	0	3340000	-0.68	435558.075	0.102974294	0

The following formula is used to calculate hardness dependent criteria

(Please refer to State Water Quality Standards for details)

Cadmium (D)

Acute

$$e(1.0166[\ln(\text{hardness})]-3.924) \cdot CF1$$

Dissolved

WQC (ug/l)

$$0.420098616$$

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

Chronic

$$e(0.7409[\ln(\text{hardness})]-4.719) \cdot CF2$$

$$0.080185716$$

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

Chromium III (D)

Acute

$$0.316 e(0.819[\ln(\text{hardness})]+3.7256)$$

$$152.4888787$$

Chronic

$$0.860 e(0.819[\ln(\text{hardness})]+0.6848)$$

$$19.8356702$$

			Dissolved WQC (ug/l)	
Copper (D)	Acute	$0.960 e(0.9422[\ln(\text{hardness})]-1.700)$	2.949857764	
	Chronic	$0.960 e(0.8545[\ln(\text{hardness})]-1.702)$	2.263769249	
Lead (D)	Acute	$e(1.273[\ln(\text{hardness})]-1.46)*CF3$	10.79154489	$CF3 = 1.46203 - 0.145712*\ln(\text{hardness})$
	Chronic	$e(1.273[\ln(\text{hardness})]-4.705)*CF4$	0.420531012	$CF4 = 1.46203 - 0.145712*\ln(\text{hardness})$
Manganese (D)	Acute	$e(0.3331[\ln(\text{hardness})]+6.4676)$	1746.691001	
	Chronic	$e(0.3331[\ln(\text{hardness})]+5.8743)$	965.048559	
Nickel (D)	Acute	$0.998 e(0.846[\ln(\text{hardness})]+2.255)$	119.9874916	
	Chronic	$0.997 e(0.846[\ln(\text{hardness})]+0.0584)$	13.32690594	
Zinc (D)	Acute	$0.978 e(0.8473[\ln(\text{hardness})]+0.884)$	29.96524909	
	Chronic	$0.986 e(0.8473[\ln(\text{hardness})]+0.884)$	30.2103636	
Silver (D)	Acute	$0.85 e(1.72[\ln(\text{hardness})]-6.59)$	0.201924903	

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	1153	2455.89	2455.89	2455.89	1492.795882	1E+100	5000	1E+100	750	87	1E+100	
Barium, dissolved	7440-39-3	01005	100	181.5	386.595	386.595	386.595	234.9891176	2000	1E+100	1E+100	1E+100	1E+100	1E+100	
Boron, dissolved	7440-42-8	01022	100	0	0	0	0	0	1E+100	750	5000	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	
Uranium, dissolved	7440-61-1	22706	0.1	0.3625	0.772125	0.772125	0.772125	0.469330882	30	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	
Ra-226 and Ra-228 (pCi/l)		11503			0	0	0	0	5	1E+100	30	1E+100	1E+100	1E+100	
Strontium (pCi/l)		13501		0.254	0.54102	0.54102	0.54102	0.328855294	8	1E+100	1E+100	1E+100	1E+100	1E+100	
Tritium (pCi/l)		04124		31.445	66.97785	66.97785	66.97785	40.71202647	20000	1E+100	20000	1E+100	1E+100	1E+100	
Gross Alpha (pCi/l)		80029		1.14	2.4282	2.4282	2.4282	1.475964706	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		1.0725	2.284425	2.284425	2.284425	1.388572059	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	0	6	1E+100	1E+100	1E+100	1E+100	640	
Arsenic, dissolved (P)	7440-38-2	01000	0.5	4.56	9.7128	9.7128	9.7128	5.903858824	10	100	200	340	150	9	
Beryllium, dissolved	7440-41-7	01012	0.5	5	10.65	10.65	10.65	6.473529412	4	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	0.4200986	0.08018572	1E+100	
Chromium (III), dissolved	16065-83-1	01033	10		0	0	0	0	1E+100	1E+100	1E+100	152.48888	19.8356702	1E+100	
Chromium (VI), dissolved	18540-29-9	01034	10		0	0	0	0	1E+100	1E+100	1E+100	16	11	1E+100	
Chromium, dissolved	7440-47-3	01118	10		0	0	0	0	100	100	1000	1E+100	1E+100	1E+100	
Copper, dissolved	7440-50-8	01042	0.5	10	21.3	21.3	21.3	12.94705882	1300	200	500	2.9498578	2.26376925	1E+100	
Lead, dissolved	7439-92-1	01049	0.5	2	4.26	4.26	4.26	2.589411765	15	5000	100	10.791545	0.42053101	1E+100	
Manganese, dissolved	7439-96-5	01056			0	0	0	0	1E+100	1E+100	1E+100	1746.691	965.048559	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		0.2	0.426	0.426	0.426	0.258941176	1E+100	1E+100	1E+100	1.4	0.77	1E+100
Mercury, total	7439-97-6	71900	0.005			0	0	0	0	2	1E+100	0.77	1E+100	1E+100	1E+100
Molybdenum, dissolved	7439-98-7	01060			0.6295	1.340835	1.340835	1.340835	0.815017353	1E+100	1000	1E+100	1E+100	1E+100	1E+100
Molybdenum, total recoverable	7439-98-7	01062				0	0	0	0	1E+100	1E+100	1E+100	7920	1895	1E+100
Nickel, dissolved (P)	7440-02-0	01065	0.5		1.55	3.3015	3.3015	3.3015	2.006794118	700	1E+100	1E+100	119.98749	13.3269059	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	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		1	2.13	2.13	2.13	1.294705882	1E+100	1E+100	1E+100	0.2019249	1E+100	1E+100
Thallium, dissolved (P)	7440-28-0	01059	0.5		1	2.13	2.13	2.13	1.294705882	2	1E+100	1E+100	1E+100	1E+100	0.47
Zinc, dissolved	7440-66-6	01080	20		0	0	0	0	0	10500	2000	25000	29.965249	30.2103636	26000
Cyanide, total recoverable	57-12-5	00720	10		0	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
VOLATILE COMPOUNDS															
Acrolein	107-02-8	34210	50		0	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
Chlorodibromomethane	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	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
ACID COMPOUNDS															
2-Chlorophenol	95-57-8	34586	10		10.5	22.365	22.365	22.365	13.59441176	175	1E+100	1E+100	1E+100	1E+100	150
2,4-Dichlorophenol	120-83-2	34601	10		10.5	22.365	22.365	22.365	13.59441176	105	1E+100	1E+100	1E+100	1E+100	290
2,4-Dimethylphenol	105-67-9	34606	10		10.5	22.365	22.365	22.365	13.59441176	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		10.5	22.365	22.365	22.365	13.59441176	10500	1E+100	1E+100	1E+100	1E+100	860000
2,4,6-Trichlorophenol	88-06-2	34621	10		10.5	22.365	22.365	22.365	13.59441176	32	1E+100	1E+100	1E+100	1E+100	24
BASE/NEUTRAL							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		10.5	22.365	22.365	22.365	13.59441176	0.3	1E+100	1E+100	1E+100	1E+100	5.3
Bis(2-chloroisopropyl)Ether	108-60-1	34283	10		10.5	22.365	22.365	22.365	13.59441176	1400	1E+100	1E+100	1E+100	1E+100	65000
Bis(2-ethylhexyl)Phthalate	117-81-7	39100	10		10.5	22.365	22.365	22.365	13.59441176	6	1E+100	1E+100	1E+100	1E+100	22
Butyl Benzyl Phthalate	85-68-7	34292	10		10.5	22.365	22.365	22.365	13.59441176	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		10.5	22.365	22.365	22.365	13.59441176	0.78	1E+100	1E+100	1E+100	1E+100	0.28
Diethyl Phthalate	84-66-2	34336	10		10.5	22.365	22.365	22.365	13.59441176	28000	1E+100	1E+100	1E+100	1E+100	44000
Dimethyl Phthalate	131-11-3	34341	10		10.5	22.365	22.365	22.365	13.59441176	350000	1E+100	1E+100	1E+100	1E+100	1100000
Di-n-Butyl Phthalate	84-74-2	39110	10		10.5	22.365	22.365	22.365	13.59441176	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		10.5	22.365	22.365	22.365	13.59441176	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		10.5	22.365	22.365	22.365	13.59441176	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		10.5	22.365	22.365	22.365	13.59441176	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	ug/l	
PESTICIDES AND PCBs							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 Epoixde	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 formular is used to calculate the allowable daily maximum effluent cincetration

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

