0029

Michael O. Leavitt
Governor

Dianne R. Nielson, Ph.D.
Executive Director

Don A. Ostler, P.E.
Director

State of Utah

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

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Salt Lake City, Utah 84114-4870
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RECEIVED
JUL 29 1998
DIV. OF OIL, GAS & MINING

July 28, 1998

Mr. Steve Traweek
NEICO
3584 Highway 31 South
Palham, AL 35124

Route to Paul, then file ACT/007/012 #2

Dear Mr. Traweek:

Subject: Results of sampling at COVOL (008 of the NEICO permit UTG040010) on May 28, 1998

As you know the matter under consideration is the fact that COVOL uses diesel fuel and propylene glycol in its manufacturing process, and has a process water discharge to tailings ponds which are not lined. The concern was to determine if there is a probable connection between COVOL's tailings pond and the seep in the Siaperas Ditch and any affects this may have on the Price River. Previous data obtained from this seep and the tailings pond indicate there is a probable groundwater connection. If there is a connection, is that connection of enough concern to require COVOL to obtain a separate permit with parameters for diesel fuel or any other potential pollutants and remove point 008 from NEICO's general permit.

It was determined and all parties agreed to sample the seep and associated groundwater and surface water in the area in order to help determine a course of action. The parameters sampled were BTEX-N and dissolved and total metals. On May 28, 1998 the sampling at COVOL was completed. All of the data generated on that date is appended to this letter along with appropriate state water quality standards as taken from Utah Administrative Code R317-2.

From the data it appears that there is some type of groundwater seepage from the tailings pond in the direction of the Siaperas Ditch based on the BTEX-N sample at the GW-3 groundwater well (between the tailings pond and the Siaperas Ditch). No BTEX-N was detected at the seep (SW-4) nor at the sample taken in the Siaperas Ditch. The metals appear a little high for selenium at the GW-1 well in the pasture northwest of the Siaperas Ditch, at the seep in the Siaperas Ditch and in the NEICO slurry pond.

Based upon the data attached and that the flow of the seep at the time of sampling was less than one gallon per minute (estimated), and this flow traveled at least two tenths (0.2) of a mile before entering the Price River, it appears that the seep at this time is not a problem for the Price River. However,

since it appears the tailings pond is contributing to groundwater near the Siaperas Ditch and previous data indicates components of diesel fuel coming from the seep, the seep in the Siaperas Ditch will be considered as connected to the tailings pond and thus a discharge point from a coal operation and will need to be covered under a General UPDES permit for Coal Mines. Please submit as soon as possible the Notice of Intent (NOI) to obtain the general permit for coal mining at the NEICO site (only general permit parameters will be required to be monitored, BTEX-N and dissolved metals will be monitored as indicated in the next paragraph).

The Division of Oil, Gas and Mining has required that COVOL continue to monitor the seep in the Siaperas Ditch and a number of other surface points and groundwater wells. If not already included in this monitoring plan, it is recommended to include the parameters BTEX-N, dissolved copper, dissolved selenium, dissolved aluminum and flow at the seep. If significant increases occur for any of these parameters at the seep or any of the other monitoring locations, the Division of Water Quality should be notified as soon as possible.

If you have any questions please give Mike Herkimer a call at (801) 538-6058.

Sincerely,

Donald A. Hilden

Donald A. Hilden, Ph.D., Manager
Permits & Compliance Section

DAH:mdh/st

Enclosures

cc: Patrick Collins, Mt. Nebo Scientific, (w/encl)
Layne Ashton, COVOL, (w/encl)
Tim Thompson, JBR, (w/encl)
Paul Baker DOGM, (w/wncl)
Kiran Bhayani, DWQ, (w/encl)
Larry Mize, DWQ, (w/encl)
David Ariotti, District Engineer, (w/encl)

P:\WQ\PERMITS\MHERKIME\WP\COVOL.LTRCOVOL.LTR
FILE:covol.ltr

Utah Department of Health: Division of Epidemiology and Laboratory Services

46 North Medical Drive, Salt Lake City, UT 84113, Tel: (801) 584-8400

Method: BTEX

602 GC/PID Purgeables

Customer ID #:	UDWQ	Date Collected:	05/28/98
Collected By:	NP	Time Collected:	:
Site ID #:		Matrix:	WATER
Sample Site:	NEICO GW-1 WELL	Cost Code:	350

Analyst:	RL	Date Received:	05/29/98
Lab Sample ID #:	9804002	Date Analyzed:	6/2/98
Analyzing Batch #:	BTEX980602		

Analyte	Result (ug/L)	MRL (ug/L)	Dilution Factor	QA Pass
Mtbe:	U	1.0	1	Yes
Benzene:	U	0.5	1	
Toluene:	U	0.5	1	
Ethylbenzene:	U	0.5	1	
m/p-Xylene:	U	1.0	1	
o-Xylene:	U	0.5	1	
Naphthalene:	U	1.0	1	

Comments:

U - Under MRL

MRL - Method Reporting Limit

Analysis Certified By: R Date: 6/3

UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC
UT 84114-487

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DIV. OF OIL, GAS & MINING

Cost Code: 350

MISCELLANEOUS ORGANIC PARAMETERS

Lab # 9804002

Send Report To:
UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC UT 84114-4870

Utah Division of Laboratory Services
46 North Medical Drive
Salt Lake City, UT 84113

Date/Time Collected: 05/28/98
Collected By: NP
Sample Matrix: Water
Sampling Site:
Description of Sampling Point: NEICO GW-1 WELL

Analyst: RL
Date Received: 05/29/98
Date Analyzed: 6/9/98

Compound	MDL/Results mg/l
Ethylene Glycol	<5.0
Propylene Glycol	<5.0
Isopropanol	
Picloram	

U- Analyzed for but not detected.

J- An estimated value or a value less than the detection limit but greater than zero.

B- Found in the blank.

JUN 1998
Received
Division of
Water Quality

Analysis Certified By: _____ Date: 6/12

Storet No:
Sample Source:
Description: NEICO GW-1 WELL
Lab Code: C
Lab Number: 9804002
Sample Date: May 28 , 1998
Sample Time:
Sample Type: 04

Field Tests

Field Temperature, C	9.9	pH, units	7.0
D.O., mg/l	1.9	Sp. Cond., umhos/cm	5163

Laboratory Analyses

D-Arsenic, ug/l	<5.0	D-Barium, ug/l	12.8
D-Cadmium, ug/l	<1.0	D-Chromium, ug/l	<5.0
D-Copper, ug/l chronic	15.2	Iron, Diss., ug/l	<20.0
D-Lead, ug/l	<3.0	D-Manganese, ug/l	400.0
D-Selenium, ug/l chronic	7.4	D-Silver, ug/l	<2.0
D-Zinc, ug/l	<30.0	D-Aluminum, ug/l	<30.0
T-Aluminum, ug/l acute + chronic	820	T-Arsenic, ug/l	<5.0
T-Barium, mg/l	0.017	T-Cadmium, ug/l	<1
T-Chromium, ug/l	6.2	T-Copper, ug/l chronic	13.6
T-Iron, mg/l	<0.02	T-Lead, ug/l chronic	7.8
T-Manganese, ug/l	680.0	T-Mercury, ug/l	<0.2
T-Selenium, ug/l chronic	7.3	T-Silver, ug/l	<2.0
T-Zinc, ug/l	<30.0	Xylene ug/l	<0.5
D-Mercury, ug/l	<0.2	Ethyl benzene ug/l	<0.5
Benzene ug/l	<0.5	Toluene ug/l	<0.5
Naphthalene, ug/l	<1.0	Methyl-T-Butyl Ether	<1

Utah Department of Health: Division of Epidemiology and Laboratory Services

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Method: BTEX

602 GC/PID Purgeables

Customer ID #:	UDWQ	Date Collected:	05/28/98
Collected By:	NP	Time Collected:	12:35
Site ID #:		Matrix:	WATER
Sample Site:	NEICO GW-4 WELL	Cost Code:	350

Analyst:	RL	Date Received:	05/29/98
Lab Sample ID #:	9804004	Date Analyzed:	6/2/98
Analyzing Batch #:	BTEX980602		

Analyte	Result (ug/L)	MRL (ug/L)	Dilution Factor	QA Pass
Mtbe:	U	1.0	1	Yes
Benzene:	U	0.5	1	
Toluene:	U	0.5	1	
Ethylbenzene:	U	0.5	1	
m/p-Xylene:	U	1.0	1	
o-Xylene:	U	0.5	1	
Naphthalene:	U	1.0	1	

Comments:

U - Under MRL

MRL - Method Reporting Limit

Analysis Certified By: 2 Date: 6/3

UDEQ - DWQ
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UT 84114-487

Cost Code: 350

MISCELLANEOUS ORGANIC PARAMETERS

Lab # 9804004

Send Report To:
UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC UT 84114-4870

Utah Division of Laboratory Services
46 North Medical Drive
Salt Lake City, UT 84113

Date/Time Collected: 05/28/98 12:35
Sample Matrix: Water
Collected By: NP
Sampling Site:
Description of Sampling Point: NEICO GW-4 WELL

Analyst: RL
Date Received: 05/29/98
Date Analyzed: 6/9/98

Compound	MDL/Results mg/l
Ethylene Glycol	<5.0
Propylene Glycol	<5.0
Isopropanol	
Picloram	

U- Analyzed for but not detected.

J- An estimated value or a value less than the detection limit but greater than zero.

B- Found in the blank.

Analysis Certified By: _____ Date: 6/10

Storet No:
Sample Source:
Description: NEICO GW-4 WELL
Lab Code: C
Lab Number: 9804004
Sample Date: May 28 , 1998
Sample Time: 1235
Sample Type: 04

Field Tests

Field Temperature, C	10.8	pH, units	7.0
D.O., mg/l	1.7	Sp. Cond., umhos/cm	4828

Laboratory Analyses

D-Arsenic, ug/l	<5.0	D-Barium, ug/l	11.0
D-Cadmium, ug/l	<1.0	D-Chromium, ug/l	7.4
D-Copper, ug/l	<12.0	Iron, Diss., ug/l	425.0
D-Lead, ug/l	<3.0	D-Manganese, ug/l	500.0
D-Selenium, ug/l	2.0	D-Silver, ug/l	<2.0
D-Zinc, ug/l	<30.0	D-Aluminum, ug/l	<30.0
T-Aluminum, ug/l	52	T-Arsenic, ug/l	<5.0
T-Barium, mg/l	0.0092	T-Cadmium, ug/l	<1
T-Chromium, ug/l	<5.0	T-Copper, ug/l	<12.0
T-Iron, mg/l	1.77	T-Lead, ug/l	<3.0
T-Manganese, ug/l	440.0	T-Mercury, ug/l	<0.2
T-Selenium, ug/l	2.8	T-Silver, ug/l	<2.0
T-Zinc, ug/l	32.0	Xylene ug/l	<0.5
D-Mercury, ug/l	<0.2	Ethyl benzene ug/l	<0.5
Benzene ug/l	<0.5	Toluene ug/l	<0.5
Naphthalene, ug/l	<1.0	Methyl-T-Butyl Ether	<1

Utah Department of Health: Division of Epidemiology and Laboratory Services

46 North Medical Drive, Salt Lake City, UT 84113, Tel: (801) 584-8400

Method: BTEX

602 GC/PID Purgeables

Customer ID #:	UDWQ	Date Collected:	05/28/98
Collected By:	NP	Time Collected:	15:00
Site ID #:		Matrix:	WATER
Sample Site:	NEICO GW-3 WELL	Cost Code:	350

Analyst:	RL	Date Received:	05/29/98
Lab Sample ID #:	9804003	Date Analyzed:	6/2/98
Analyzing Batch #:	BTEX980602		

Analyte	Result (ug/L)	MRL (ug/L)	Dilution Factor	QA Pass
Mtbe:	U	1.0	1	Yes
Benzene:	2.10	0.5	1	
Toluene:	U	0.5	1	
Ethylbenzene:	0.60	0.5	1	
m/p-Xylene:	U	1.0	1	
o-Xylene:	U	0.5	1	
Naphthalene:	U	1.0	1	

Comments:

U - Under MRL

MRL - Method Reporting Limit

Analysis Certified By: _____ Date: 6/3

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UT 84114-487

Cost Code: 350

MISCELLANEOUS ORGANIC PARAMETERS

Lab # 9804003

Send Report To:
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288 N 1460 W
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Utah Division of Laboratory Services
46 North Medical Drive
Salt Lake City, UT 84113

Date/Time Collected: 05/28/98 15:00
Sample Matrix: Water
Collected By: NP
Sampling Site:
Description of Sampling Point: NEICO GW-3 WELL

Analyst: R. L.
Date Received: 05/29/98
Date Analyzed: 6/9/98

Compound	MDL/Results mg/l
Ethylene Glycol	<5.0
Propylene Glycol	<5.0
Isopropanol	
Picloram	

U- Analyzed for but not detected.

J- An estimated value or a value less than the detection limit but greater than zero.

B- Found in the blank.

Analysis Certified By: [illegible]
Date: 6/13

ug/L NCRO 500-3

Total ug/L

-D- Ba	9.8
-D- Cd	<1
-D- Cr	<5
✓Cu	17
-Pb	<3
-Mn	5.6
-Ag	<2
-Zn	<30

-Al	<30
-As	<5
-Fe	27
-Se	3.1
-Hg	<0.2

✓Al	2000
-Ba	48
-Cd	<1
✓Pb	3.4
-Hg	<.2
-Ag	<2
-As	<5
-Cr	9.6
✓Cu	18.2

✓Fe	1920
Mn	60
-Se	3.8
Zn	

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Method: BTEX

602 GC/PID Purgeables

Customer ID #:	UDWQ	Date Collected:	05/28/98
Collected By:	NP	Time Collected:	:
Site ID #:		Matrix:	WATER
Sample Site:	NEICO SW-4 SEEP	Cost Code:	350

Analyst:	RL	Date Received:	05/29/98
Lab Sample ID #:	9804005	Date Analyzed:	6/2/98
Analyzing Batch #:	BTEX980602		

Analyte	Result (ug/L)	MRL (ug/L)	Dilution Factor	QA Pass
Mtbe:	U	1.0	1	Yes
Benzene:	U	0.5	1	
Toluene:	U	0.5	1	
Ethylbenzene:	U	0.5	1	
m/p-Xylene:	U	1.0	1	
o-Xylene:	U	0.5	1	
Naphthalene:	U	1.0	1	

Comments:

U - Under MRL
MRL - Method Reporting Limit

Analysis Certified By: 12 Date: 6/3

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288 N 1460 W
SLC
UT 84114-487

Cost Code: 350

MISCELLANEOUS ORGANIC PARAMETERS

Lab # 9804005

Send Report To:
UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC UT 84114-4870

Utah Division of Laboratory Services
46 North Medical Drive
Salt Lake City, UT 84113

Date/Time Collected: 05/28/98
Sample Matrix: Water
Collected By: NP
Sampling Site:
Description of Sampling Point: NEICO SW-4 SEEP

Analyst: RL
Date Received: 05/29/98
Date Analyzed: 6/9/98

Compound	MDL/Results mg/l
Ethylene Glycol	<5.0
Propylene Glycol	<5.0
Isopropanol	
Picloram	

U- Analyzed for but not detected.

J- An estimated value or a value less than the detection limit but greater than zero.

B- Found in the blank.

Analysis Certified By: [illegible]
Date: 6/10

1998 Lab Analysis Report

Storet No:
Sample Source:
Description: NEICO SW-4 SEEP
Lab Code: C
Lab Number: 9804005
Sample Date: May 28 , 1998
Sample Time:
Sample Type: 04

Laboratory Analyses

D-Arsenic, ug/l	<5.0	D-Barium, ug/l	20.0
D-Cadmium, ug/l	<1.0	D-Chromium, ug/l	7.8
D-Copper, ug/l	<12.0	Iron, Diss., ug/l	65.1
D-Lead, ug/l	<3.0	D-Manganese, ug/l	360.0
D-Selenium, ug/l	8.2	D-Silver, ug/l	<2.0
D-Zinc, ug/l	<30.0	D-Aluminum, ug/l	<30.0
T-Aluminum, ug/l	40	T-Arsenic, ug/l	<5.0
T-Barium, mg/l	0.02	T-Cadmium, ug/l	<1
T-Chromium, ug/l	<5.0	T-Copper, ug/l	<12.0
T-Iron, mg/l	0.093	T-Lead, ug/l	<3.0
T-Manganese, ug/l	320.0	T-Mercury, ug/l	<0.2
T-Selenium, ug/l	8.0	T-Silver, ug/l	<2.0
T-Zinc, ug/l	<30.0	Xylene ug/l	<0.5
D-Mercury, ug/l	<0.2	Ethyl benzene ug/l	<0.5
Benzene ug/l	<0.5	Toluene ug/l	<0.5
Ethylene Glycol mg/l	<5.0	Propylene Glycol, mg	<5.0
Naphthalene, ug/l	<1.0	Methyl-T-Butyl Ether	<1

Utah Department of Health: Division of Epidemiology and Laboratory Services

46 North Medical Drive, Salt Lake City, UT 84113, Tel: (801) 584-8400

Method: BTEX

602 GC/PID Purgeables

Customer ID #:	UDWQ	Date Collected:	05/28/98
Collected By:	NP	Time Collected:	14:40
Site ID #:		Matrix:	WATER
Sample Site:	NEICO SIAPERAS DITCH	Cost Code:	350

Analyst:	RL	Date Received:	05/29/98
Lab Sample ID #:	9804006	Date Analyzed:	6/2/98
Analyzing Batch #:	BTEX980602		

Analyte	Result (ug/L)	MRL (ug/L)	Dilution Factor	QA Pass
Mtbe:	U	1.0	1	Yes
Benzene:	U	0.5	1	
Toluene:	U	0.5	1	
Ethylbenzene:	U	0.5	1	
m/p-Xylene:	U	1.0	1	
o-Xylene:	U	0.5	1	
Naphthalene:	U	1.0	1	

Comments:

U - Under MRL

MRL - Method Reporting Limit

Analysis Certified By: R Date: 6/3

UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC
UT 84114-487

Cost Code: 350

MISCELLANEOUS ORGANIC PARAMETERS

Lab # 9804005

Send Report To:
UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC UT 84114-4870

Utah Division of Laboratory Services
46 North Medical Drive
Salt Lake City, UT 84113

Date/Time Collected: 05/28/98 14:40
Sample Matrix: Water
Collected By: NP
Sampling Site:
Description of Sampling Point: NEICO SIAPERAS DITCH

Analyst: RL
Date Received: 05/29/98
Date Analyzed: 6/9/98

Compound	MDL/Results mg/l
Ethylene Glycol	<5.0
Propylene Glycol	<5.0
Isopropanol	
Picloram	

U- Analyzed for but not detected.

J- An estimated value or a value less than the detection limit but greater than zero.

B- Found in the blank.

Analysis Certified By: _____ Date: 6/12

Storet No:
Sample Source:
Description: NEICO SIAPERAS DITCH
Lab Code: C
Lab Number: 9804006
Sample Date: May 28 , 1998
Sample Time: 1440
Sample Type: 04

Field Tests

Field Temperature, C	21.1	pH, units	7.9
D.O., mg/l	20.0	Sp. Cond., umhos/cm	5165

Laboratory Analyses

D-Arsenic, ug/l	<5.0	D-Barium, ug/l	30.0
D-Cadmium, ug/l	<1.0	D-Chromium, ug/l	<5.0
D-Copper, ug/l	<12.0	Iron, Diss., ug/l	31.7
D-Lead, ug/l	<3.0	D-Manganese, ug/l	120.0
D-Selenium, ug/l	1.9	D-Silver, ug/l	<2.0
D-Zinc, ug/l	<30.0	D-Aluminum, ug/l	<30.0
T-Aluminum, ug/l	48	T-Arsenic, ug/l	<5.0
T-Barium, mg/l	0.026	T-Cadmium, ug/l	<1
T-Chromium, ug/l	<5.0	T-Copper, ug/l	<12.0
T-Iron, mg/l	0.219	T-Lead, ug/l	<3.0
T-Manganese, ug/l	112.0	T-Mercury, ug/l	<0.2
T-Selenium, ug/l	1.9	T-Silver, ug/l	<2.0
T-Zinc, ug/l	32.0	Xylene ug/l	<0.5
D-Mercury, ug/l	<0.2	Ethyl benzene ug/l	<0.5
Benzene ug/l	<0.5	Toluene ug/l	<0.5
Ethylene Glycol mg/l	<5.0	Propylene Glycol, mg	<5.0
Naphthalene, ug/l	<1.0	Methyl-T-Butyl Ether	<1

Utah Department of Health: Division of Epidemiology and Laboratory Services

46 North Medical Drive, Salt Lake City, UT 84113, Tel: (801) 584-8400

Method: BTEX

602 GC/PID Purgeables

Customer ID #:	UDWQ	Date Collected:	05/28/98
Collected By:	NP	Time Collected:	15:00
Site ID #:		Matrix:	WATER
Sample Site:	NEICO SLURRY POND	Cost Code:	350

Analyst:	RL	Date Received:	05/29/98
Lab Sample ID #:	9804007	Date Analyzed:	6/2/98
Analyzing Batch #:	BTEX980602		

Analyte	Result (ug/L)	MRL (ug/L)	Dilution Factor	QA Pass
Mtbe:	U	1.0	1	Yes
Benzene:	U	0.5	1	
Toluene:	U	0.5	1	
Ethylbenzene:	0.80	0.5	1	
m/p-Xylene:	U	1.0	1	
o-Xylene:	U	0.5	1	
Naphthalene:	U	1.0	1	

Comments:

U - Under MRL

MRL - Method Reporting Limit

Analysis Certified By: R Date: 6/2

UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC
UT 84114-487

Cost Code: 350

MISCELLANEOUS ORGANIC PARAMETERS

Lab # 9804007

Send Report To:
UDEQ - DWQ
ARNE HULTQUIST
288 N 1460 W
SLC UT 84114-4870

Utah Division of Laboratory Services
46 North Medical Drive
Salt Lake City, UT 84113

Date/Time Collected: 05/28/98 15:00
Collected By: NP
Sample Matrix: Water
Sampling Site:
Description of Sampling Point: NEICO SLURRY POND

Analyst: R. L
Date Received: 05/29/98
Date Analyzed: 6/9/98

Compound	MDL/Results mg/l
Ethylene Glycol	<5.0
Propylene Glycol	<5.0
Isopropanol	
Picloram	

U- Analyzed for but not detected.

J- An estimated value or a value less than the detection limit but greater than zero.

B- Found in the blank.

Analysis Certified By: [illegible]
Date: 6/10

Storet No:
Sample Source:
Description: NEICO SLURRY POND
Lab Code: C
Lab Number: 9804007
Sample Date: May 28 , 1998
Sample Time: 1500
Sample Type: 04

Field Tests

Field Temperature, C	21.1	pH, units	8.1
D.O., mg/l	7.0	Sp. Cond., umhos/cm	3078

Laboratory Analyses

D-Arsenic, ug/l	<5.0	D-Barium, ug/l	38.0
D-Cadmium, ug/l	<1.0	D-Chromium, ug/l	<5.0
D-Copper, ug/l	<12.0	Iron, Diss., ug/l	<20.0
D-Lead, ug/l	<3.0	D-Manganese, ug/l	52.0
D-Selenium, ug/l	5.4	D-Silver, ug/l	<2.0
D-Zinc, ug/l	<30.0	D-Aluminum, ug/l	<30.0
T-Aluminum, ug/l	350	T-Arsenic, ug/l	<5.0
T-Barium, mg/l	0.05	T-Cadmium, ug/l	<1
T-Chromium, ug/l	<5.0	T-Copper, ug/l	<12.0
T-Iron, mg/l	0.18	T-Lead, ug/l	<3.0
T-Manganese, ug/l	54.0	T-Mercury, ug/l	<0.2
T-Selenium, ug/l	5.8	T-Silver, ug/l	<2.0
T-Zinc, ug/l	38.0	Xylene ug/l	<0.5
D-Mercury, ug/l	<0.2	Ethyl benzene ug/l	0.8
Benzene ug/l	<0.5	Toluene ug/l	<0.5
Ethylene Glycol mg/l	<5.0	Propylene Glycol, mg	<5.0
Naphthalene, ug/l	<1.0	Methyl-T-Butyl Ether	<1

LaSal Creek and tributaries, from state line to headwaters		2B 3A		4
Lion Canyon Creek and tributaries, from state line to headwaters		2B 3A		4
Little Dolores River and tributaries, from confluence with Colorado River to state line		2B	3C	4
Bitter Creek and tributaries, from confluence with Colorado River to headwaters			3C	4
b. **Green River Drainage**				
Green River and tributaries, from confluence with Colorado River to state line except as listed below:	1C	2B	3B	4
Thompson Creek and tributaries from Interstate Highway 70 to headwaters		2B	3C	4
San Rafael River and tributaries, from confluence with Green River to confluence with Ferron Creek		2B	3C	4
Ferron Creek and tributaries, from confluence with San Rafael River to Millsite Reservoir		2B	3C	4
Ferron Creek and tributaries, from Millsite Reservoir to headwaters	1C	2B 3A		4
Huntington Creek and tributaries, from confluence with Cottonwood Creek to Highway U-10 crossing		2B	3C	4
Huntington Creek and tributaries, from Highway U-10 crossing to headwaters	1C	2B 3A		4
Cottonwood Creek and tributaries, from confluence with Huntington Creek to Highway U-57 crossing		2B	3C	4
Cottonwood Creek and tributaries, from Highway U-57 crossing to headwaters	1C	2B 3A		4
Cottonwood Canal, Emery County	1C	2B		4
Price River and tributaries, from confluence with Green River to Carbon Canal Diversion at Price City Golf Course		2B	3C	4
Price River and tributaries,				

R317-2-14. Numeric Criteria.

TABLE 2.14.1
NUMERIC CRITERIA FOR DOMESTIC, RECREATION, AND AGRICULTURAL USES

Parameter	Domestic Source 1C	Recreation and Aesthetics 2A	[illegible]	[illegible]
BACTERIOLOGICAL (30-DAY GEOMETRIC MEAN) (NO.)/100 ML) (7)				
Max. Total Coliforms	5000	1000	5000	
Max. Fecal Coliforms	2000	200	200	
PHYSICAL				
pH (RANGE)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)		10	10	
METALS (DISSOLVED, MAXIMUM MG/L) (2)				
Arsenic	0.05			0.1
Barium	1.0			
Cadmium	0.01			0.01
Chromium	0.05			0.10
Copper				0.2
Lead	0.05			0.1
Mercury	0.002			
Selenium	0.01			0.05
Silver	0.05			
INORGANICS (MAXIMUM MG/L)				
Boron				0.75
Fluoride (3)	1.4-2.4			
Nitrates as N	10			
Total Dissolved Solids (4)				1200
RADIOLOGICAL (MAXIMUM pCi/L)				
Gross Alpha	15			15
Radium 226, 228 (Combined)	5			
Strontium 90	8			
Tritium	20000			
ORGANICS (MAXIMUM UG/L)				
Chloropheroxy Herbicides				
2,4-D	100			
2,4,5-TP	10			
Endrin	0.2			
Hexachlorocyclohexane (Lindane)	4			

Methoxychlor	100			
Toxaphene	5			
POLLUTION INDICATORS (5)				
Gross Beta (pCi/L)	50			
BOD (MG/L)		5	5	50 5
Nitrate as N (MG/L)		4	4	
Total Phosphorus as P (MG/L)(6)		0.05	0.05	
Total Suspended Solids (MG/L)		90	90	

FOOTNOTES:

(1) These limits are not applicable to lower water levels in deep impoundments.

(2) The dissolved metals method involves filtration of the sample in the field, acidification of the sample in the field, no digestion process in the laboratory, and analysis by atomic absorption or inductively coupled plasma (ICP) spectrophotometry.

(3) Maximum concentration varies according to the daily maximum mean air temperature.

TEMP (C)	MG/L
12.0	2.4
12.1-14.6	2.2
14.7-17.6	2.0
17.7-21.4	1.8
21.5-26.2	1.6
26.3-32.5	1.4

(4) Total dissolved solids (TDS) limits may be adjusted if such adjustment does not impair the designated beneficial use of the receiving water.

(5) Investigations should be conducted to develop more information where these pollution indicator levels are exceeded.

(6) Total Phosphorus as P (mg/l) limit for lakes and reservoirs shall be 0.025.

(7) Exceedences of bacteriological numeric criteria from nonhuman nonpoint sources will generally be addressed through appropriate Federal, State, and Local nonpoint source programs.

TABLE 2.14.2
NUMERIC CRITERIA FOR AQUATIC WILDLIFE

Parameter	Aquatic Wildlife 3A	3B	3C	3D
PHYSICAL				
Total Dissolved Gases	(1)	(1)		
Minimum Dissolved Oxygen (MG/L) (2)				
30 Day Average	6.5	5.5	5.0	5.0
7 Day Average	9.5/5.0	6.0/4.0		
1 Day Average	8.0/4.0	5.0/3.0	3.0	3.0
Max. Temperature (C)	20	27	27	
Max. Temperature Change (C)	2	4	4	
pH (Range)	6.5-9.0	6.5-9.0	6.5-9.0	6.5-9.0
Turbidity Increase (NTU)	10	10	15	15
METALS (3) (DISSOLVED, UG/L) (4)				
Aluminum				
4 Day Average	87	87	87	87
1 Hour Average	750	750	750	750
Arsenic (Trivalent)				
4 Day Average	190	190	190	190
1 Hour Average	360	360	360	360
Cadmium (5)				
4 Day Average	1.1	1.1	1.1	1.1
1 Hour Average	3.9	3.9	3.9	3.9
Chromium (12) (Hexavalent)				
4 Day Average	11	11	11	11
1 Hour Average	16	16	16	16
Chromium (Trivalent) (5)				
4 Day Average	210	210	210	210
1 Hour Average	1700	1700	1700	1700
Copper (5)				
4 Day Average	12	12	12	
1 Hour Average	18	18	18	18
Cyanide (Free)				
4 Day Average	5.2	5.2	5.2	
1 Hour Average	22	22	22	22
Iron (Maximum)	1000	1000	1000	1000
Lead (5)				
4 Day Average	3.2	3.2	3.2	3.2
1 Hour Average	82	82	82	82
Mercury				
4 Day Average	0.012	0.012	0.012	0.012
1 Hour Average (12)	2.4	2.4	2.4	2.4
Nickel (5)				
4 Day Average	160	160	160	160
1 Hour Average	1400	1400	1400	1400
Selenium				
4 Day Average	5.0	5.0	5.0	5.0
1 Hour Average	20	20	20	20
Silver				
1 Hour Average (5)	4.1	4.1	4.1	4.1
Zinc (5)				

4 Day Average	110	110	110	110
1 Hour Average	120	120	120	120
INORGANICS (MG/L) (3)				
Total Ammonia as N (6)				
4 Day Average	(6a)	(6a)		
1 Hour Average	(6b)	(6b)	(6b)	(6b)
Chlorine (Total Residual) (7)				
4 Day Average	0.011	0.011		
1 Hour Average	0.019	0.019	0.2	(8)
Hydrogen Sulfide (Undissociated, Max. UG/L)	2.0	2.0	2.0	2.0
Phenol (Maximum)	0.01	0.01	0.01	0.01
RADIOLOGICAL (MAXIMUM pCi/L)				
Gross Alpha (9)	15	15	15	15
ORGANICS (UG/L) (3)				
Aldrin (Maximum)	1.5	1.5	1.5	1.5
Chlordane				
4 Day Average	0.0043	0.0043	0.0043	0.0043
1 Hour Average	1.2	1.2	1.2	1.2
DDT and Metabolites				
4 Day Average	0.0010	0.0010	0.0010	0.0010
1 Hour Average	0.55	0.55	0.55	0.55
Dieldrin				
4 Day Average	0.0019	0.0019	0.0019	0.0019
1 Hour Average	1.25	1.25	1.25	1.25
Endosulfan				
4 Day Average	0.056	0.056	0.056	0.056
1 Hour Average	0.11	0.11	0.11	0.11
Endrin				
4 Day Average	0.0023	0.0023	0.0023	0.0023
1 Hour Average	0.09	0.09	0.09	0.09
Guthion (Maximum)	0.01	0.01	0.01	0.01
Heptachlor				
4 Day Average	0.0038	0.0038	0.0038	0.0038
1 Hour Average	0.26	0.26	0.26	0.26
Hexachlorocyclohexane (Lindane)				
4 Day Average	0.08	0.08	0.08	0.08
1 Hour Average	1.0	1.0	1.0	1.0
Methoxychlor (Maximum)	0.03	0.03	0.03	0.03
Mirex (Maximum)	0.001	0.001	0.001	0.001
Parathion (Maximum)	0.04	0.04	0.04	0.04
PCB's				
4 Day Average	0.014	0.014	0.014	0.014
1 Hour Average	2.0	2.0	2.0	2.0
Pentachlorophenol (10)				
4 Day Average	13	13	13	13
1 Hour Average	20	20	20	20
Toxaphene				
4 Day Average	0.0002	0.0002	0.0002	0.0002
1 Hour Average	0.73	0.73	0.73	0.73
POLLUTION				

TABLE 2.14.6
List of Human Health Criteria Included in the 1992 National Toxics Rule (NTR)
(Published in the Federal Register)
(For Arsenic, the Maximum Contaminate Level (MCL) applies instead of the NTR Criteria

	Parameter	CAS No.	Class 1C Maximum Conc. ug/L	Class 3 ug/L
	Toxic Organics			
1	Acenaphthene	83-32-9	1200	2700
2	Acrolein	107-02-8	320	780
3	Acrylonitrile	107-13-1	0.059	0.66
4	Benzene	71-43-2	1.2	71
5	Benzidine	92-87-5	0.00012	0.00054
6	Carbon tetrachloride	56-23-5	0.25	4.4
7	Chlorobenzene	108-90-7	680	21000
8	1,2,4-Trichlorobenzene	120-82-1	-	-
9	Hexachlorobenzene	118-74-1	0.00075	0.00077
10	1,2-Dichloroethane	107-06-2	0.38	99
11	1,1,1-Trichloroethane	71-55-6	-	-
12	Hexachloroethane	67-72-1	1.9	8.9
13	1,1-Dichloroethane	75-34-3	-	-
14	1,1,2-Trichloroethane	79-00-5	0.61	42
15	1,1,2,2-Tetrachloro-ethane	79-34-5	0.17	11
16	Chloroethane	75-00-3	-	-
17	Bis(2-chloroethyl) ether	111-44-4	0.031	14
18	2-Chloroethyl vinyl ether	110-75-8	-	-
19	2-Chloronaphthalene	91-58-7	1700	4300
20	2,4,6-Trichlorophenol	88-06-2	2.1	6.5
21	p-Chloro-m-cresol	59-50-7	-	-
22	Chloroform (HM)	67-66-3	5.7	470
23	2-Chlorophenol	95-57-8	120	400
24	1,2-Dichlorobenzene	95-50-1	2700	17000
25	1,3-Dichlorobenzene	541-73-1	400	2600
26	1,4-Dichlorobenzene	106-46-7	400	2600
27	3,3'-Dichlorobenzidine	91-94-1	0.04	0.077
28	1,1-Dichloroethylene	75-35-4	0.057	3.2
29	1,2-trans-Dichloroethylene1	56-60-5	700	-
30	2,4-Dichlorophenol	120-83-2	93	790
31	1,2-Dichloropropane	78-87-5	0.52	39
32	1,3-Dichloropropylene	542-75-6	10	1700
33	2,4-Dimethylphenol	105-67-9	540	2300
34	2,4-Dinitrotoluene	121-14-2	0.11	9.1
35	2,6-Dinitrotoluene	606-20-2	-	-
36	1,2-Diphenylhydrazine	122-66-7	0.040	0.54
37	Ethylbenzene	100-41-4	3100	29000
38	Fluoranthene	206-44-0	300	370
39	4-Chlorophenyl phenyl ether	7005-72-3	-	-
40	4-Bromophenyl phenyl ether	101-55-3	-	-
41	Bis(2-chloroisopropyl) ether	39638-32-9	1400	170000
42	Bis(2-chloroethoxy) methane	111-91-1	-	-
43	Methylene chloride (HM)	75-09-2	4.7	1600
44	Methyl chloride (HM)	74-87-3	-	-
45	Methyl bromide (HM)	74-83-9		

46	Bromoform (HM)	75-25-2	4.3	360
47	Dichlorobromomethane (HM)	75-27-4	0.27	22
48	Chlorodibromomethane (HM)	124-48-1	0.41	34
49	Hexachlorobutadiene(c)	87-68-3	0.44	50
50	Hexachlorocyclo-pentadiene	77-47-4	240	17000
51	Isophorone	78-59-1	8.4	600
52	Naphthalene	91-20-3	-	-
53	Nitrobenzene	98-95-3	17	1900
54	2-Nitrophenol	88-75-5	-	-
55	4-Nitrophenol	100-02-7	-	-
56	2,4-Dinitrophenol	51-28-5	70	14000
57	4,6-Dinitro-o-cresol	534-52-1	13	765
58	N-Nitrosodimethylamine	62-75-9	0.00069	8.1
59	N-Nitrosodiphenylamine	86-30-6	5.0	16
60	N-Nitrosodi-n-propylamine	621-64-7	0.005	1.4
61	Pentachlorophenol	87-86-5	0.28	8.2
62	Phenol	108-95-2	21000	4600000
63	Bis(2-ethylhexyl) phthalate	117-81-7	1.8	5.9
64	Butyl benzyl phthala	5-68-7	3000	5200
65	Di-n-butyl phthalate	84-74-2	2700	12000
66	Di-n-octyl phthlate	117-84-0	-	-
67	Diethyl phthalate	84-66-2	23000	120000
68	Dimethyl phthlate	131-11-3	313000	2900000
69	Benzo(a)anthracene (PAH)	56-55-3	0.0028	0.031
70	Benzo(a)pyrene (PAH)	50-32-8	0.0028	0.031
71	Benzo(b)fluoranthene (PAH)	205-99-2	0.0028	0.031
72	Benzo(k)fluoranthene (PAH)	207-08-9	0.0028	0.031
73	Chrysene (PAH)	218-01-9	0.0028	0.031
74	Acenaphthylene (PAH)	208-96-8	-	-
75	Anthracene (PAH)	120-12-7	9600	-
79	Dibenzo(a,h)anthracene (PAH)	53-70-3	0.0028	0.031
80	Indeno(1,2,3-cd)pyrene (PAH)	193-39-5	0.0028	0.031
81	Pyrene (PAH)	129-00-0	960	11000
82	Tetrachloroethylen	127-18-4	0.80	8.9
83	Toluene	108-88-3	6800	200000
84	Trichloroethylene	79-01-6	2.7	81
85	Vinyl chloride	75-01-4	2.0	525
	Pesticides			
86	Aldrin	309-00-2	0.00013	0.00014
87	Dieldrin	60-57-1	0.00014	0.00014
88	Chlordane	57-74-9	0.00057	0.00059
89	4,4'-DDT	50-29-3	0.00059	0.00059
90	4,4'-DDE	72-55-9	0.00059	0.00059
91	4,4'-DDD	72-54-8	0.00083	0.00084
92	alpha-Endosulfan	115-29-7	0.93	2.0
93	beta-Endosulfan	115-29-7	0.93	2.0
94	Endosulfan sulfate	1031-07-8	0.93	2.0
95	Endrin	72-20-8	0.76	0.81
96	Endrin aldehyde	7421-93-4	0.76	0.81
97	Heptachlor	76-44-8	0.00021	0.00021
98	eptachlor epoxide		-	-
	PCB's			
103	PCB 1242 (Arochlor 1242)	1336-36-3	0.000044	0.000045

104 PCB-1254 (Arochlor 1254)	1336-36-3	0.000044	0.000045
105 PCB-1221 (Arochlor 1221)	1336-36-3	0.000044	0.000045
106 PCB-1232 (Arochlor 1232)	1336-36-3	0.000044	0.000045
107 PCB-1248 (Arochlor 1248)	1336-36-3	0.000044	0.000045
108 PCB-1260 (Arochlor 1260)	1336-36-3	0.000044	0.000045
109 PCB-1016 (Arochlor 1016)	1336-36-3	0.000044	0.000045
Pesticide			
110 Toxaphene	8001-35-2	0.00073	0.00075
Metals			
111 Antimony	7440-36-0	14	4300
112 Arsenic	7440-38-2	50	-
113 Asbestos	1332-21-4	7000000 f/l	-
114 Beryllium	7440-41-7	-	-
115 Cadmium	7440-43-9	-	-
116 Chromium (III)	440-47-3	-	-
Chromium (VI)	-	-	-
117 Copper	7440-50-8	1300	-
118 Cyanide	57-12-5	700	220000
119 Lead	7439-92-1	-	-
120 Mercury	7439-97-6	0.14	0.15
121 Nickel	7440-02-0	610	4600
122 Selenium	7782-49-2	-	-
123 Silver	7440-22-4	-	-
124 Thallium	7440-28-0	1.7	6.3
125 Zinc	7440-66-6	-	-
Dioxin			
126 Dioxin (2,3,7,8-TCDD)	1746-01-6	0.000000013	0.000000014

KEY: water pollution, water quality standards
1997

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