

Page 1 SUMMARY

A. Chemical: Toluene CAS# 108883 Date Dec 1989

B. Minnesota Criterion: ug/l (unless noted otherwise)

Water Class	Use	CC	MC	FAV	Basis*
1,2A	DW, Salmonid	253	1352	2703	PCA T1
1,2B,2C	DW, NonSalmonid	253	1352	2703	PCA T1
2B,2C	NonSalmonid	253	1352	2703	PCA T1
	Other				

Toxicity related to water quality: No
If yes, above criteria values determined for:
Slope: Acute: Chronic:

Formulas: EPA:CC: NA
MPCA: NA MC:
FAV:

Notes:

C. EPA Criterion: ug/l CCC: Basis:
Date: None MC: Basis:
FAV: Basis:

Notes:

EPA Human health criterion, see page 4

D. Other Criteria: value Source
ug/l None IJC

E. Notes:

\*Criteria basis codes for part B:

- EPA = From EPA criterion
- PCA = Criterion developed by Minnesota Pollution Control Agency staff
- T1 = Direct aquatic life toxicity, EPA national criteria procedures used
- T2 = Direct aquatic life toxicity, EPA advisory procedures used
- Hs = Human health systemic effects
- Hc = Human health carcinogenic effects
- R = Tissue residue (bioaccumulation)
- W = Wildlife effects
- O = Organoleptic (taste and odor)
- Other = Criterion based on other end point

Page 3 DIRECT AQUATIC LIFE TOXICITY  
No EPA criterion available

A. Chemical: Toluene, Methylbenzene CAS#: 108883 Date: 11-2-89

B. EPA Criteria Method

1. Data requirements: Salmonid: Oncorhynchus  
Family in Phylum Chordata: Pimephales  
Second Family in Phylum Chordata: Ictalurus  
Fresh or Saltwater Crustacean: Diaptomus  
Freshwater Cladocern: Daphnia  
Phylum other than Arthropoda or Chordata: Crassostrea  
Family not in Phylum Chordata: Paleomenetes  
Second Family not in Phylum Chordata: Crangon

2. GMAVs Lowest 4: Crangon 3989  
ug/l Oncorhynchus 6410  
N: 16 Morone 6537  
Carassius 22900

3. FAV: 2703

4. Adjustments to FAVs:

5. Chronic data:	5000	No.	1	Species:	Cyprinidon variegatus
mean values	<u>1973</u>		<u>2</u>		<u>Oncorhynchus kisutch</u>
ug/l	<u>1568</u>		<u>3</u>		<u>Pimephales promelas</u>
	<u>10</u>		<u>1</u>		<u>Rana pipiens</u>
	<u>2.9</u>		<u>1</u>		<u>Salmo gairdneri</u>

6. ACR Measured:	Acute value	Chronic value	ACR
	<u>366531</u>	<u>5000</u>	<u>73.3</u>
Generic: _____	<u>5500</u>	<u>1973</u>	<u>2.79</u>
	<u>35889</u>	<u>6000</u>	<u>5.98</u>
Final: <u>10.7</u>			

7. Notes: Log P = 2.79

C. EPA Advisory Method

1. Data requirements: Fish: \_\_\_\_\_  
Crustacean: \_\_\_\_\_  
No. SMAVs: \_\_\_\_\_ Third animal: \_\_\_\_\_  
No. GMAVs: \_\_\_\_\_ Plant for herbicide: \_\_\_\_\_  
Factor: \_\_\_\_\_ Insect for pesticide: \_\_\_\_\_

2. Lowest GMAV: \_\_\_\_\_ Species: \_\_\_\_\_

3. FAV: \_\_\_\_\_ MC: \_\_\_\_\_

4. Chronic data: See B.5. 5. ACR: See B.6.

D. Criteria

1. FAV: 2703 MC: 1352 CC: 252.6

2. Citation for lowest GMAV: Acquire ref. numbers 558, 416, 13142, 15191, 477, 5030; Finger et. al., 1985

3. Notes: \_\_\_\_\_

Page 4 HUMAN HEALTH

A. Chemical: Toluene CAS#: 108883 Date: 11-15-89

B. EPA Human Health Criterion: df: 14,300 f: 424,000 d: NA  
ug/l

ADI/Ref.dose: 0.421 mg/kg/day slope: \_\_\_\_\_

Final BCF: 10.7 %lipid: 3

K: 100%

C. Minnesota Human Health Criterion

1. Ref.dose: 0.346 mg/kg/day Source: MDH

K: 0.2 Source: MPCA

2. Potency slope: \_\_\_\_\_ Source: \_\_\_\_\_

3. Measured BAFs:	Species/Tissue	BAF	%lipid	Norm. BAF
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
Geo mean:	_____	_____	_____	_____

4. Measured BCFs	Species/Tissue	BCF	%lipid	Norm. BCF
1.	_____	_____	_____	_____
2.	_____	_____	_____	_____
3.	_____	_____	_____	_____
4.	_____	_____	_____	_____
5.	_____	_____	_____	_____
6.	_____	_____	_____	_____
7.	_____	_____	_____	_____
8.	_____	_____	_____	_____
Geo mean:	_____	_____	_____	_____

5. Edible portion BAF or BCF	BAF	BCF
Cold water: 6.0 % lipid	_____	_____
Warm water: 1.5 % lipid	_____	_____

6. Geo mean unadjusted for lipid: BAF: \_\_\_\_\_ BCF: \_\_\_\_\_

7. log Kow: 2.79 meas. \_\_\_\_\_ QSAR \_\_\_\_\_ Est. BCF: 64  
adjust. for % lipid: 64 x 6/7.6 = 50; 64 x 1.5/7.6 = 12

8. Parachor: 246

9. BCF to BAF conversion factor: NA

10. Final BAF: 2A: 50 2B,2C: 12

11. Criteria: df(2A): 1380 df(2B,2C): 2050 f: 13,100 RAL: 2420  
ug/l

D. Organoleptic: NA Source: \_\_\_\_\_  
ug/l

F. Notes:

TABLE 1. ACUTE AND CHRONIC VALUES: 108883 TOLUENE, METHYLBENZENE

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md	Ref No.
<i>Amphidinium carterae</i> Dinoflagellate	GRO	SALT	2 - 3	S	2	F	10000	U	2214
<i>Anacystis aeruginosa</i> Blue-green algae	MOR	NR	NR	S	4	F	105000	U	2463
<i>Anacystis aeruginosa</i> Blue-green algae	PGR	NR	8	S	2	F	105000	U	15134
<i>Artemia salina</i> Brine shrimp	LC50	SALT	1	S	2	F	641 MM/M3	U	11926
<i>Artemia salina</i> Brine shrimp	LC50*	SALT	1	S	2	F	33000	U	2408
<i>Brachydanio rerio</i> Zebra danio, zebrafish	LC50	FRESH	2	F	2	F	25000	U	5938
<i>Cancer magister</i> Dungeness or edible crab	LC50	SALT	2	S	2	F	170000	M	5035
<i>Cancer magister</i> Dungeness or edible crab	LC50	SALT	4	S	2	F	28000	M	5035
<i>Carassius auratus</i> Goldfish	LC50	FRESH	1	S	2	F	57680	U	728
<i>Carassius auratus</i> Goldfish	LC50	FRESH	1	S	2	F	58000	M	623
<i>Carassius auratus</i> Goldfish	LC50	FRESH	1	F	1	F	41590	M	416
<i>Carassius auratus</i> Goldfish	LC50	FRESH	2	S	2	F	57680	U	728
<i>Carassius auratus</i> Goldfish	LC50	FRESH	2	F	1	F	27620	M	416
<i>Carassius auratus</i> Goldfish	LC50	FRESH	3	F	1	F	25330	M	416
<i>Carassius auratus</i> Goldfish	LC50	FRESH	4	S	2	F	57680	U	728
<i>Carassius auratus</i> Goldfish	LC50	FRESH	4	F	1	F	22800	M	416
<i>Carassius auratus</i> Goldfish	LC50	FRESH	4	F			23000		Brenniman et al., 1976
<i>Chlorella vulgaris</i> Green algae	EC50GR	FRESH	1	S	2	F	245000	U	2215
<i>Chlorella vulgaris</i> Green algae	PGR	NR	1	S	2	F	25000	U	8877
<i>Crangon franciscorum</i> Bay shrimp	LC50	SALT	1	S	2	F	12000 UL/L	M	558
<i>Crangon franciscorum</i> Bay shrimp	LC50	SALT	4	S	2	F	4300 UL/L	M	558
<i>Crangon franciscorum</i> Bay shrimp	LC50	SALT		S			3700	M	Benville et al., 1977

TABLE 1. TOLUENE (CONTINUED)

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md	Ref No.
Crassostrea gigas Pacific oyster	LC50*	SALT	2	S	2	F	172000*	U	8621
Crassostrea gigas Pacific oyster	LC50	SALT		S			1050000	U	LeGore, 1974
Cricosphaera carterae Coccolithophorid	GR0	SALT	2 - 3	S	2	F	10000	U	2214
Cyprinidon variegatus Sheepshead minnow	LC50	SALT					>277000 <485000		Heitmuller et al., 1981
Cyprinidon variegatus Sheepshead minnow	CHRONIC	SALT	EL				5000		Heitmuller et al., 1981
Cyprinus carpio Common, mirror, colored, carp	MOR	FRESH	7	NR	4	F	1500000	U	6124
Daphnia magna Water flea	EC50IM	FRESH	1	S	2	F	7000	M	13142
Daphnia magna Water flea	EC50IM	FRESH	2	S	2	F	19600	U	5087
Daphnia magna Water flea	EC50IM	FRESH	2	S	2	F	125 MM/M3	U	11936
Daphnia magna Water flea	LC50	FRESH	1	S	2	F	310000	U	5184
Daphnia magna Water flea	LC50	FRESH	1	S	2	F	470000	U	5718
Daphnia magna Water flea	LC50	FRESH	2	S	2	F	310000	U	5184
Daphnia magna Water flea	MOR	FRESH	2	S	2	F	28000	U	5184
Daphnia magna Water flea	LC50	FRESH		S			60000	U	Bringman et al., 1959
Diaptomus forbesi Calanoid copepod	LC50	FRESH	4	S	2	F	447000	U	11282
Dunaliella tertiolecta Green algae	GR0	SALT	2 - 3	S	2	F	100000	U	2214
Entosiphon sulcatum Flagellate euglenoid	PGR	NR	3	S	2	F	456000	U	5303
Eualus sp Shrimp	LC50	SALT	4	S	2	F	21400	M	5030
Eualus sp Shrimp	LC50	SALT	4	S	2	F	20200	M	5030

TABLE 1. TOLUENE (CONTINUED)

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ (ug/l)	Concentration Range	Md	Ref No.
Eualus sp Shrimp	LC50	SALT	4	S	2	F	14700	M	5030
Eualus sp Shrimp	LC50*	SALT	1	S	2	F	22700	M	6260
Eualus sp Shrimp	LC50*	SALT	1	S	2	F	23920	M	6260
Eualus sp Shrimp	LC50*	SALT	1	S	2	F	17900	M	6260
Gambusia affinis Mosquitofish	LC50*	FRESH	1	S	2	F	1340000	U	508
Gambusia affinis Mosquitofish	LC50*	FRESH	2	S	2	F	1260000	U	508
Gambusia affinis Mosquitofish	LC50*	FRESH	4	S	2	F	1180000	U	508
Gambusia affinis Mosquitofish	MOR	FRESH	4	S	2	F	560000	U	508
Ictalurus punctatus Channel catfish	LC50	FRESH	4	S	2	F	240000	U	666
Lepomis macrochirus Bluegill	LC50	FRESH	1	S	2	F	24000	U	728
Lepomis macrochirus Bluegill	LC50	FRESH	1	S	2	F	17000	U	5590
Lepomis macrochirus Bluegill	LC50	FRESH	2	S	2	F	24000	U	728
Lepomis macrochirus Bluegill	LC50	FRESH	4	S	2	F	24000	U	728
Lepomis macrochirus Bluegill	LC50	FRESH	4	S	2	F	13000	U	5590
Lepomis macrochirus Bluegill	LC50	FRESH	4	S	2	F	170000	U	666
Morone saxatilis Striped bass	LC50	SALT	1	S	2	F	7300	UL/L	M 558
Morone saxatilis Striped bass	LC50	SALT	4	S	2	F	7300	UL/L	M 558
Morone saxatilis Striped bass	LC50	SALT		S			6300	M	Benville et al., 1977
Oncorhynchus gorbuscha Pink salmon	LC50	SALT	4	S	2	F	6410	M	5030
Oncorhynchus gorbuscha Pink salmon	LC50	SALT	4	S	2	F	7630	M	5030
Oncorhynchus gorbuscha Pink salmon	LC50	SALT	4	S	2	F	8090	M	5030

TABLE 1. TOLUENE (CONTINUED)

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md	Ref No.
Oncorhynchus gorbuscha Pink salmon	LC50*	SALT	1	S	2	F	6690	M	6260
Oncorhynchus gorbuscha Pink salmon	LC50*	SALT	1	S	2	F	7550	M	6260
Oncorhynchus gorbuscha Pink salmon	LC50*	SALT	1	S	2	F	8090	M	6260
Oncorhynchus gorbuscha Pink salmon	LC50	SALT	4				5400		Finger et al., 1985
Oncorhynchus kisutch Coho salmon, silver salmon	GR0	FRESH	40	F	2	F	2760*	M	15191
Oncorhynchus kisutch Coho salmon, silver salmon	GR0	FRESH	40	F	2	F	1410*	M	15191
Oncorhynchus kisutch Coho salmon, silver salmon	LC50	FRESH	4	F	2	F	8110*	M	477
Oncorhynchus kisutch Coho salmon, silver salmon	LC50	FRESH	4	F	2	F	5500*	M	15191
Oryzias latipes Medaka, high-eyes	LC50*	FRESH	1	S	2	F	80000	U	5580
Oryzias latipes Medaka, high-eyes	LC50*	FRESH	2	S	2	F	63000	U	5580
Oryzias latipes Medaka, high-eyes	LC50*	FRESH	4	S	2	F	54000	U	5580
Palaemonetes pugio Grass shrimp, freshwater prawn	LC50	SALT	1	S	2	F	21000	M	420
Palaemonetes pugio Grass shrimp, freshwater prawn	LC50	SALT	2	S	2	F	15500	M	420
Palaemonetes pugio Grass shrimp, freshwater prawn	LC50	SALT	4	S	2	F	9500	M	420
Pimephales promelas Fathead minnow	GR0	FRESH	32	F	2	F	6000	M	15560
Pimephales promelas Fathead minnow	GR0	FRESH	32	F	2	F	6000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	1	S	2	F	46310	U	728
Pimephales promelas Fathead minnow	LC50	FRESH	1	S	2	F	56000	U	728
Pimephales promelas Fathead minnow	LC50	FRESH	2	S	2	F	46310	U	728
Pimephales promelas Fathead minnow	LC50	FRESH	2	S	2	F	56000	U	728
Pimephales promelas Fathead minnow	LC50	FRESH	4	S	2	F	34270	U	728
Pimephales promelas Fathead minnow	LC50	FRESH	4	S	2	F	42330	U	728

TABLE 1. TOLUENE (CONTINUED)

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md	Ref No.
Pimephales promelas Fathead minnow	LC50	FRESH	4	S	2	F	12600	U	5087
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	30000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	31000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	26000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	18000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	36000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	25000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	27000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	28000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	72000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	66000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	59000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	2	F	55000	M	15560
Pimephales promelas Fathead minnow	LC50	FRESH	4	S	2	F	56400	U	10432
Pimephales promelas Fathead minnow	LC50	FRESH	4	S	2	F	77400	U	10432
Pimephales promelas Fathead minnow	LC50	FRESH	4	S	2	F	54000	U	10432
Pimephales promelas Fathead minnow	LC50	FRESH	4	F	5	F	36200	M	12858
Pimephales promelas Fathead minnow	MATC	FRESH					107	Call et al.,	1985
Poecilia reticulata Guppy	LC50	FRESH	1	S	2	F	62810	U	728
Poecilia reticulata Guppy	LC50	FRESH	2	S	2	F	60950	U	728
Poecilia reticulata Guppy	LC50	FRESH	4	S	2	F	59300	U	728
Poecilia reticulata Guppy	LC50	FRESH	4	R	2	F	28200	M	13142
Rana pipiens Leopard frog	LC10	FRESH	EL	F	1	F	10.1	M	15418

TABLE 1. TOLUENE (CONTINUED)

Species Latin Name Species Common Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	Md	Ref No.
<i>Salmo gairdneri</i> Rainbow trout, donaldson trout	LC10	FRESH	EL	F	1	F	2.9	M	15418
<i>Salmo gairdneri</i> Rainbow trout, donaldson trout	LC50	FRESH	4	S	2	F	24000	U	666
<i>Salmo gairdneri</i> Rainbow trout, donaldson trout	LC50	FRESH	4	R	2	F	5800	M	13142
<i>Scenedesmus quadricauda</i> Green algae	MOR	NR	NR	S	4	F	>400000	U	2463
<i>Scenedesmus quadricauda</i> Green algae	PGR	NR	NR	S	4	F	>400000	U	7453
<i>Scenedesmus quadricauda</i> Green algae	PGR	NR	7	S	2	F	>400000	U	5303
<i>Scenedesmus quadricauda</i> Green algae	PGR	NR	8	S	2	F	>400000	U	15134
<i>Selenastrum capricornutum</i> Green algae	EC50GR	FRESH	3	S	2	F	12500	M	13142
<i>Skeletonema costatum</i> Diatom	GRO	SALT	2 - 3	S	2	F	10000	U	2214

TABLE 2. CHRONIC VALUES: 108883 TOLUENE, METHYLBENZENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Chronic Value (ug/l)	Md	Ref No.
<i>Cyprinidon variegatus</i>	CHRONIC	SALT	EL				5000		Heitmuller et al., 1981
<i>Oncorhynchus kisutch</i>	GRO	FRESH	40	F	2	F	2760*	M	15191
<i>Oncorhynchus kisutch</i>	GRO	FRESH	40	F	2	F	1410*	M	15191
<i>Pimephales promelas</i>	GRO	FRESH	32	F	2	F	6000	M	15560
<i>Pimephales promelas</i>	GRO	FRESH	32	F	2	F	6000	M	15560
<i>Pimephales promelas</i>	MATC	FRESH					107		Call et al., 1985
<i>Rana pipiens</i>	LC10	FRESH	EL		1	F	10	M	15418
<i>Salmo gairdneri</i>	LC10	FRESH	EL		1	F	2.9	M	15418

TABLE 2. ACUTE-CHRONIC RATIO: 108883 TOLUENE, METHYLBENZENE

Species Latin Name	Acute Value (ug/l)	Chronic Value (ug/l)	Ratio	Ref
<i>Cyprinidon variegatus</i>	366531	5000	73.3	Heitmuller et al., 1981
<i>Oncorhynchus kisutch</i>	5500	1973	2.79	15191
<i>Pimephales promelas</i>	35889	6000	5.98	15560

TABLE 3a. GENUS MEAN ACUTE VALUES: 108883 TOLUENE, METHYLBENZENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	SMAV (ug/l)	GMAV (ug/l)	Md	Ref No.
<i>Poecilia reticulata</i>	LC50	FRESH	4	R	2	F		28200	28200	28200	M 13142
<i>Pimephales promelas</i>	LC50	FRESH	4	F	5	F		36200	35913	35913	M 12858
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		59000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		27000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		55000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		31000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		26000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		18000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		30000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		25000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		36000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		66000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		72000			M 15560
<i>Pimephales promelas</i>	LC50	FRESH	4	F	2	F		28000			M 15560
<i>Palaemonetes pugio</i>	LC50	SALT	4	S	2	F		9500	9500	9500	M 420
<i>Oncorhynchus mykiss</i>	LC50	FRESH	4	R	2	F		5800	5800	6410	M 13142
<i>Oncorhynchus kisutch</i>	LC50	FRESH	4	F	2	F		5500*	6679		M 15191
<i>Oncorhynchus kisutch</i>	LC50	FRESH	4	F	2	F		8110*			M 477
<i>Oncorhynchus gorbuscha</i>	LC50	SALT	4	S	2	F		8090	6799		M 5030
<i>Oncorhynchus gorbuscha</i>	LC50	SALT	4	S	2	F		7630			M 5030
<i>Oncorhynchus gorbuscha</i>	LC50	SALT	4	S	2	F		6410			M 5030
<i>Oncorhynchus gorbuscha</i>	LC50	SALT	4					5400			Finger et al., 1985
<i>Morone saxatilis</i>	LC50	SALT	4	S	2	F		6782	6537	6537	M 558
<i>Morone saxatilis</i>	LC50	SALT		S				6300			M Benville et al., 1977

TABLE 3a. GENUS MEAN ACUTE VALUES: 108883 TOLUENE, METHYLBENZENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	R C	Con Typ	Concentration (ug/l) Range	SMAV (ug/l)	GMAV (ug/l)	Md	Ref No.
<i>Lepomis macrochirus</i>	LC50	FRESH	4	S	2	F	170000	37572	37572	U	666
<i>Lepomis macrochirus</i>	LC50	FRESH	4	S	2	F	24000			U	728
<i>Lepomis macrochirus</i>	LC50	FRESH	4	S	2	F	13000			U	5590
<i>Ictalurus punctatus</i>	LC50	FRESH	4	S	2	F	240000	240000	240000	U	666
<i>Gambusia affinis</i>	LC50*	FRESH	4	S	2	F	1180000	1180000	1180000	U	508
<i>Eualus</i> sp	LC50	SALT	4	S	2	F	14700	18522	18522	M	5030
<i>Eualus</i> sp	LC50	SALT	4	S	2	F	21400			M	5030
<i>Eualus</i> sp	LC50	SALT	4	S	2	F	20200			M	5030
<i>Diaptomus forbesi</i>	LC50	FRESH	4	S	2	F	447000	447000	447000	U	11282
<i>Daphnia magna</i>	LC50	FRESH	2	S	2	F	310000	45268	45268	U	5184
<i>Daphnia magna</i>	LC50	FRESH		S			60000			U	Bringman et al., 1976
<i>Daphnia magna</i>	EC50IM	FRESH	2	S	2	F	19600			U	5087
<i>Daphnia magna</i>	EC50IM	FRESH	2	S	2	F	11519			U	11936
<i>Cyprinidon variegatus</i>	LC50	SALT					>277000<485000	366531	366531		Heitmuller et al., 1981
<i>Crassostrea gigas</i>	LC50*	SALT	2	S	2	F	172000*	424971	424971	U	8621
<i>Crassostrea gigas</i>	LC50	SALT		S			1050000			U	LeGore, 1974
<i>Crangon franciscorum</i>	LC50	SALT	4	S	2	F	4300	3989	3989	M	558
<i>Crangon franciscorum</i>	LC50	SALT		S			3700			M	Benville et al., 1977
<i>Carassius auratus</i>	LC50	FRESH	4	F	1	F	22800	22900	22900	M	416
<i>Carassius auratus</i>	LC50	FRESH	4	F			23000				Brenniman et al., 1976
<i>Cancer magister</i>	LC50	SALT	4	S	2	F	28000	28000	28000	M	5035

TABLE 3b. RANKED GENUS MEAN ACUTE VALUES: 108883 TOLUENE, METHYL BENZENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex Ty	GMAV (ug/l)
<i>Gambusia affinis</i>	LC50*	FRESH	4	S	1180000
<i>Diaptomus forbesi</i>	LC50	FRESH	4	S	447000
<i>Crassostrea gigas</i>	LC50*	SALT	2	S	424971
<i>Cyprinidon variegatus</i>	LC50	SALT			366531
<i>Ictalurus punctatus</i>	LC50	FRESH	4	S	240000
<i>Daphnia magna</i>	LC50	FRESH	2	S	45268
<i>Lepomis macrochirus</i>	LC50	FRESH	4	S	37572
<i>Pimephales promelas</i>	LC50	FRESH	4	F	35913
<i>Poecilia reticulata</i>	LC50	FRESH	4	R	28200
<i>Cancer magister</i>	LC50	SALT	4	S	28000
<i>Carassius auratus</i>	LC50	FRESH	4	S	22900
<i>Eualus sp</i>	LC50	SALT	4	S	18522
<i>Palaemonetes pugio</i>	LC50	SALT	4	S	9500
<i>Morone saxatilis</i>	LC50	SALT	4	S	6537
<i>Oncorhynchus sp</i>	LC50	FRESH	4	F	6410
<i>Crangon franciscorum</i>	LC50	SALT	4	S	3989

N: 16  
 Factor: 2.8  
 FAV: 2289

TABLE 4. PLANT VALUES: 108883 TOLUENE, METHYLBENZENE

Species Latin Name	Effect	FW/SW	Dur (days)	Ex R Ty C	Con Typ	Concentration (ug/l)	Md	Ref No.
<i>Amphidium carterae</i>	GRO	SALT	2 - 3	S 2	F		10000	U 2214
<i>Anacystis aeruginosa</i>	MOR	NR	NR	S 4	F		105000	U 2463
<i>Anacystis aeruginosa</i>	PGR	NR	8	S 2	F		105000	U 15134
<i>Chlorella vulgaris</i>	EC50GR	FRESH	1	S 2	F		245000	U 2215
<i>Chlorella vulgaris</i>	PGR	NR	1	S 2	F		25000	U 8877
<i>Cricosphaera carterae</i>	GRO	SALT	2 - 3	S 2	F		10000	U 2214
<i>Dunaliella tertiolecta</i>	GRO	SALT	2 - 3	S 2	F		100000	U 2214
<i>Scenedesmus quadricauda</i>	MOR	NR	NR	S 4	F		> 400000	U 2463
<i>Scenedesmus quadricauda</i>	PGR	NR	NR	S 4	F		>400000	U 7453
<i>Scenedesmus quadricauda</i>	PGR	NR	7	S 2	F		> 400000	U 5303
<i>Scenedesmus quadricauda</i>	PGR	NR	8	S 2	F		> 400000	U 15134
<i>Selenastrum capricornutum</i>	EC50GR	FRESH	3	S 2	F		12500	M 13142
<i>Skeletonema costatum</i>	GRO	SALT	2 - 3	S 2	F		10000	U 2214