RED RIVER OF THE NORTH BASIN

05082500 RED RIVER OF THE NORTH AT GRAND FORKS, ND

LOCATION.--Lat 47º 55'38", long 97°01'34", in sec. 2, T.151 N., R.50 W., Grand Forks County, Hydrologic Unit 09020301, on the right bank 200 ft upstream from the DeMers Avenue bridge, 0.4 mi downstream from Red Lake River, and at mile 297.6.

DRAINAGE AREA.--30,100 mi² , approximately, including 3,800 mi² in closed basins.

PERIOD OF RECORD.--April 1882 to current year. Prior to January 1904 monthly discharge only, published in WSP 1308.

REVISED RECORDS.--WSP 855: 1936(M). WSP 1115: 1942. WSP 1175: 1897(M). WSP 1388: 1904, 1914-15, 1917-19, 1921-22, 1927, 1950. WSP 1728: Drainage area. WRD-ND-81-1: 1882, 1897 (M).

GAGE.--Water-stage recorder. Datum of gage is 779.00 ft above sea level. Oct. 1, 1983 to Sept. 30, 1986, datum of gage was 780.00 ft at same site. Apr. 14, 1965 to Sept. 30, 1983, water-stage recorder 1.9 mi downstream at a datum of 778.35 ft. Nov. 3, 1933 to Apr. 13, 1965, water-stage recorder 0.3 mi upstream at 778.35 ft datum. See WSP 1728 or 1913 for history of changes prior to Nov. 3, 1933.

REMARKS.--Records good except those for period of estimated daily discharges, which are poor.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
1	1650	2510	e2510	e2060	e1810	e2290	e2750	49100	10100
14000	4250	2580							
2	1620	2140	e2460	e2070	e1800	e2280	e3190	46300	9560
14200	4160	2520							
3	1500	2290	e2460	e2030	e1800	e2350	e6350	44200	9170
17000	4090	2540							
4	1550	2640	e2470	e2020	e1780	e2400	e14500	42500	9070
19300	3980	2630							
5	1510	e2950	e2500	e1970	e1720	e2370	e18500	40800	9140
20900	3950	2580							
6	1480	e3000	e2460	e1970	e1680	e2360	e21000	39300	8800
21600	3890	2570							
7	1450	e2950	e2410	e1910	e1710	e2340	e22000	37700	7970
21000	3840	2540							
8	1440	e2800	e2350	e1910	e1720	e2380	e26000	36100	6950
20100	3810	2510							

9	1470	e2600	e2330	e1940	e1780	e2370	e28000	34900	6270	18800	3710	2560
10	1500	e2200	e2310	e1930	e1800	e2300	e30200	33500	6020	17200	3580	2680
11	1500	e1950	e2300	e1900	e1800	e2240	e30400	32300	5860	e15800	3450	2690
12	1520	e1850	e2280	e1850	e1840	e2250	e31300	30900	5640	e13800	3350	2630
13	1530	e1800	e2220	e1800	e1850	e2210	e34900	28900	5450	e13000	3280	2560
14	1520	e1750	e2180	e1850	e1850	e2090	e40400	26700	5360	e14000	e3100	2540
15	1540	e1700	e2100	e1900	e1850	e2130	e48900	24600	5280	e15000	e3050	2480
16	1500	e1700	e2080	e1900	e1850	e2160	e63400	22400	5220	e17500	e3000	2490
17	1480	e1670	e2000	e1900	e1850	e2150	e84600	20300	5200	e20000	e2980	2310
18	1570	e1640	e2000	e1880	e1850	e2090	127000	18300	5140	e19800	e2960	2250
19	1600	e1620	e2100	e1850	e1850	e2100	111000	16400	5110	e18000	e2940	2410
20	1640	1610	e2100	e1750	e1850	e2130	109000	14700	5060	e15000	e2920	2480
21	1650	1600	e2050	e1750	e1850	e2140	e111000	13700	5010	e13000	e2920	2450
22	1670	1660	e2000	e1780	e1880	e2150	e110000	12900	4980	e11000	2920	2350
23	1700	1720	e1950	e1800	e1920	e2150	105000	12100	5060	e9200	2930	2280
24	1800	1760	e1900	e1700	e2000	e2170	e97900	11500	5770	e7800	2900	2220
25	1950	e1840	e1920	e1680	e2130	e2180	e88000	11700	10100	e7000	2840	2150
26	2100	e1920	e1980	e1700	e2210	e2190	78400	12400	16100	e6000	2810	2080
27	2230	e2040	e2000	e1750	e2210	e2220	69700	12700	18700	e5500	2780	2010
28	2230	e2190	e2000	e1850	e2230	e2250	e63000	12400	18900	e5000	2750	2060
29	2250	e2370	e2000	e1890	---	e2310	e57200	11900	17700	e4800	2710	2090
30	2470	e2470	e2010	e1900	---	e2410	52700	11300	15800	e4500	2690	2080
31	2550	---	e2020	e1880	---	e2580	---	10600	---	e4300	2650	---
TOTAL	53170	62940	67450	58070	52470	69740	1686290	773100	254490	424100	101190	72320
MEAN	1715	2098	2176	1873	1874	2250	56210	24940	8483	13680	3264	2411

MAX	2550	3000	2510	2070	2230	2580	127000	49100	18900
21600	4250	2690							
MIN	1440	1600	1900	1680	1680	2090	2750	10600	4980
4300	2650	2010							
AC-FT	105500	124800	133800	115200	104100	138300	3345000	1533000	504800
841200	200700	143400							

- e Estimated

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1904 - 1997, BY WATER YEAR (WY)

	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
JUL	AUG	SEP							
MEAN	1406	1202	976	832	801	2521	9968	5325	3950
3391	1765	1441							
MAX	5127	5218	3073	2030	1922	15370	56210	36510	19340
25270	17050	6251							
(WY)	1995	1972	1972	1996	1996	1995	1997	1950	1962
1975	1993	1993							
MIN	12.1	30.5	17.8	18.8	2.87	42.1	954	373	151
88.8	30.6	20.3							
(WY)	1937	1937	1937	1937	1937	1937	1938	1934	1934
1936	1934	1936							

SUMMARY STATISTICS	*FOR 1996 CALENDAR YEAR*		*FOR 1997 WATER YEAR*		*WATER YEARS 1904 - 1997*	
ANNUAL TOTAL	2421730		3675330			
ANNUAL MEAN	6617		10070		2780	
HIGHEST ANNUAL MEAN						
10070	1997					
LOWEST ANNUAL MEAN						
244	1934					
HIGHEST DAILY MEAN	58100	Apr 21	127000	Apr 18	127000	Apr 18
1997						
LOWEST DAILY MEAN	1390	Sep 25	1440	Oct 8	1.8	Sep 2
1977						
ANNUAL SEVEN-DAY MIN	1420	Sep 20	1480	Oct 5	2.5	Feb 12
1937						
INSTANTANEOUS PEAK FLOW			137000a	Apr 18	137000a	Apr 18
1997						
INSTANTANEOUS PEAK STAGE			54.35b	Apr 22	54.35b	Apr 22
1997						
ANNUAL RUNOFF (AC-FT)	4804000		7290000		2014000	
10 PERCENT EXCEEDS	18300		26300		6110	
50 PERCENT EXCEEDS	2300		2470		1350	
90 PERCENT EXCEEDS	1630		1720		275	

- a Maximum observed, affected by breakout flow from the Red River about 20 river miles upstream of gage that re-entered by way of the Red
- Lake River about 2 river miles upstream of the gage.
- b From floodmarks.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949, 1956 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	DIS-CHARGE, INST. CUBIC FEET PER SECOND (00061)	DIS-CHARGE, CUBIC FEET PER SECOND (00060)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	SPE-CIFIC HARD-NESS CON-DUCT-ANCE LAB (US/CM) (90095)	PH WATER WHOLE FIELD (STAND-ARD UNITS) (00400)	BARO-METRIC PRES-SURE (MM OF HG) (00025)	TEMPER-ATURE AIR (DEG C) (00020)	TEMPER-ATURE WATER (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, (PER-CENT SATUR-ATION) (00301)	TOTAL AS CACO3) (00900)
OCT											
01...	1040	1670	--	492	--	--	--	10.0	8.0	--	--
NOV											
04...	1500	2680	--	--	--	--	--	4.0	1.0	--	--
JAN											
02...	1350	2090	--	553	--	--	--	1.5	0.5	--	--
29...	1345	1890	--	468	--	--	--	-6.5	0.5	--	--
MAR											
03...	1610	2380	--	647	--	--	--	-2.0	0.5	--	--
APR											
23...	1115	--	106000	254	--	7.8	742	E10.0	6.5	9.7	81	120
23...	1400	--	105000	325	--	7.8	742	E10.0	8.5	9.4	83	130
23...	1830	--	104000	478	--	7.8	742	E10.0	11.5	7.7	73	190
29...	1115	--	57200	389	--	7.7	--	--	12.0	8.4	--	170
MAY											
06...	1030	--	39300	--	--	--	--	--	--	--	--	--
12...	1500	--	30900	--	602	--	--	--	--	--	--	--

DATE	TIME											
											--	270
20...	0930	--	14700	--	640	--	--	--	--	--	--	830
27...	1300	--	12700	--	590	--	--	--	--	--	--	280
JUL												
07...	1200	21000	--	416	--	--	--	--	17.5	--	--	--
AUG												
28...	0825	2630	--	456	--	--	--	18.5	23.5	--	--	--

DATE	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	CALCIUM TOTAL RECOVER-ABLE (MG/L) (00918)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, TOTAL RECOVER-ABLE (MG/L) (00921)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, TOTAL RECOVER-ABLE (MG/L) (00939)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	ALKA-LINITY LAB (MG/L AS CACO3) (90410)
APR												
23...	K26	5500	--	30	--	11	3.8	6	0.2	--	4.7	104
23...	K12	K11000	--	31	--	13	8.4	12	0.3	--	6.1	113
23...	150	5700	--	49	--	16	13	12	0.4	--	7.3	109
29...	K34	3400	--	43	--	16	11	11	0.4	--	6.9	121
MAY												
06...	<1	--	120	--	93	--	--	--	--	9.8	--	150
12...	--	--	--	63	--	27	21	14	0.5	--	8.4	176
20...	57	--	--	150	--	110	23	6	0.3	--	7.4	190
27...	--	--	--	64	--	29	17	12	0.5	--	5.9	193

DATE	SULFATE DIS-SOLVED (MG/L	CHLO-RIDE, DIS-SOLVED (MG/L	FLUO-RIDE, DIS-SOLVED (MG/L	SILICA, DIS-SOLVED (MG/L AS	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED	SOLIDS, DIS-SOLVED (TONS PER	SOLIDS, DIS-SOLVED (TONS PER	NITRO-GEN, NITRITE DIS-SOLVED (MG/L	NITRO-GEN, NITRATE DIS-SOLVED	NITRO-GEN, NO2+NO3 DIS-SOLVED TOTAL	NITRO-GEN, NO2+NO3 DIS-SOLVED

(MG/L	(MG/L AS SO4) (00945)	(MG/L AS CL) (00940)	AS F) (00950)	SIO2) (00955)	(MG/L) (70301)	(MG/L) (70300)	AC-FT) (70303)	DAY) (70302)	AS N) (00613)	AS N) (00618)	AS N) (00630)	AS N) (00631)
APR												
23...	28	2.7	0.13	9.9	155	166	0.23	47500	0.034	0.581	--	0.615
23...	52	4.3	0.19	13	201	216	0.29	61200	0.057	0.994	--	1.05
23...	92	12	0.17	15	277	284	0.39	79700	0.060	1.10	--	1.16
29...	73	5.7	0.16	16	247	263	0.36	40600	0.028	0.594	--	0.622
MAY												
06...	--	8.0	0.18	--	--	310	--	--	0.020	--	0.290	--
12...	120	11	0.22	17	379	--	0.52	31700	0.010	0.144	0.170	0.154
20...	--	11	0.17	--	--	430	--	--	0.020	--	0.190	--
27...	110	12	0.19	10	365	--	0.50	12500	0.028	0.466	0.500	0.494

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	NITRO-GEN, NITRO-PHOS-PHORUS AMMONIA + ORGANIC DIS-SOLVED TOTAL (MG/L AS N) (00610)	NITRO-GEN, PHOS-PHORUS AMMONIA ORTHO, DIS-SOLVED (MG/L AS N) (00608)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, ORGANIC DIS-SOLVED (MG/L AS N) (00607)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN,TOT IN BOT-TOM MA-TERIAL (MG/KG AS N) (00603)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	PHOS-PHORUS DIS-SOLVED (MG/L AS P) (00666)	AS P) (70507)	AS P) (00671)
APR												
23...	--	0.102	0.87	0.59	0.97	0.69	1.6	--	0.255	0.131	--	0.127
23...	--	0.111	1.6	0.64	1.7	0.75	2.7	--	0.397	0.226	--	0.238
23...	--	0.055	1.4	0.64	1.5	0.69	2.6	--	0.362	0.225	--	0.221
29...	--	0.041	0.93	0.64	0.97	0.68	1.6	--	0.313	0.234	--	0.192
MAY												
06...	0.050	0.040	1.5	0.79	1.5	0.83	1.8	--	0.386	0.158	--	0.138
12...	0.155	0.090	--	--	--	--	0.90	1	0.213			

0.153	0.199	--								
20...	0.090	0.060	1.2	0.78	1.3	0.84	1.5	--	0.278	
0.104	--	0.088								
27...	0.066	0.067	--	--	--	--	0.94	1.2	0.230	
0.144	0.139	--								

DATE	PHOSPHORUS ORGANIC TOTAL (MG/L AS P) (00670)	BORON, TOTAL RECOVERABLE (UG/L) (00999)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	ACETATE VINYL WATER UNFLTRD RECOVER (UG/L) (77057)	ACETONE WATER FLTRD REC (UG/L) (49260)	ACIFLUORFEN WATER WHOLE TOTAL (UG/L) (81552)	
APR										
23...	0.25	--	--	21	--	4.6	<10.0	<0.002	<10.0	--
	<4.00	<4.00								
23...	0.40	--	--	7.1	--	7.7	<10.0	0.015	<10.0	--
	<4.00	<4.00								
23...	0.36	--	--	9.0	--	12	<10.0	<0.002	<10.0	--
	<4.00	<4.00								
29...	0.31	--	--	14	--	5.1	<5.00	<0.010	E1.00	--
	<2.00	<2.00								
MAY										
06...	0.39	--	6300	--	240	--	--	--	--	--
	--	--								
12...	0.01	0	--	<7.0	--	<2.0	--	--	<50.0	
<0.05	--	--								
20...	0.28	--	--	--	--	<10	--	--	--	--
	--	--								
27...	0.09	--	--	<7.0	--	<2.0	--	--	<50.0	
<0.05	--	--								

DATE	ALA-CHLOR, WATER, DISS, 0.7 U RECOVER GF, REC (UG/L)	ALDICARB FLUR-ALA-ZINE, TOTAL (UG/L)	ALDICARB ALDI-CARB SULFONE WATER WHOLE TOT.REC (UG/L)	ALDICARB ALDI-CARB SULFOXIDE WATER WHOLE TOT.REC (UG/L)	BENSULF-ALDRIN, TOTAL (UG/L)	ALPHA BHC WATER DIS-SOLVED (UG/L)	ATRAZINE WATER UNFLTRD REC (UG/L)	ATRAZINE WATER, DISS, REC (UG/L)	BENZENE TOTAL (UG/L)	
APR										
23...	<4.00	<4.00								
23...	<4.00	<4.00								
23...	<4.00	<4.00								
29...	<2.00	<2.00								
MAY										
06...	--	--								
12...	<0.05	--	--	--	--	--	--	--	--	
20...	--	--								
27...	<0.05	--	--	--	--	--	--	--	--	

(UG/L)	(UG/L)	(UG/L)									
	(77825)	(46342)	(82619)	(82587)	(82586)	(39330)	(34253)	(39630)	(39632)		
(39337)	(82673)	(34030)									
APR											
23...	--	<0.002	--	--	--	--	<0.002	--	0.022	--	
	<0.002	E0.070									
23...	--	E0.002	--	--	--	--	<0.002	--	0.039	--	
	<0.002	<0.100									
23...	--	<0.002	--	--	--	--	<0.002	--	0.035	--	
	<0.002	0.206									
29...	--	<0.002	--	--	--	--	<0.002	--	0.052	--	
	<0.002	<0.050									
MAY											
12...	<0.200	--	<0.500	<0.5	<0.5	<0.010	--	<0.250	--		
<0.010	--	<0.500									
27...	<0.200	--	<0.500	<0.5	<0.5	<0.010	--	<0.250	--		
<0.010	--	<0.500									

	BENZENE	BENZENE	BENZENE			BENZENE	BENZENE	BENZENE			
BENZENE		BENZENE									
	O-DI-	1,3-DI-	1,4-DI-	BENZENE	BENZENE	SEC	TERT-	1,2,4-	123-TRI		
BENZENE	135-TRI	BROMO-									
	CHLORO-	CHLORO-	CHLORO-	N-BUTYL	N-PROPY	BUTYL-	BUTYL-	TRI-	METHYL-		
124-TRI	METHYL	ETHENE									
	WATER	WATER	WATER	WATER	WATER	WATER	WATER	CHLORO-	WATER		
METHYL	WATER	WATER									
	UNFLTRD	UNFLTRD	UNFLTRD	UNFLTRD	UNFLTRD	UNFLTRD	UNFLTRD	WAT UNF	UNFLTRD		
UNFILT	UNFLTRD	UNFLTRD									
DATE	REC	REC	REC	REC	REC	REC	REC	REC	RECOVER		
RECOVER	REC	RECOVER									
	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)		
(UG/L)	(UG/L)	(UG/L)									
	(34536)	(34566)	(34571)	(77342)	(77224)	(77350)	(77353)	(34551)	(77221)		
(77222)	(77226)	(50002)									
APR											
23...	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.400	<0.100		
E0.050	<0.100	<0.200									
23...	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.400	E0.010		
E0.030	<0.100	<0.200									
23...	<0.100	<0.100	<0.100	E0.010	E0.020	<0.100	<0.100	<0.400	E0.070		
0.227	E0.050	<0.200									
29...	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.200	<0.050		
E0.010	<0.050	<0.100									
MAY											
12...	<0.500	--	--	<0.500	<0.500	<0.500	<0.500	<0.500	--	--	
	<0.500	--									
27...	<0.500	--	--	<0.500	<0.500	<0.500	<0.500	<0.500	--	--	
	<0.500	--									

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

		BRO-	2BUTENE		CAR-			CARBO-	CARBON
		MOXYNIL	TRANS-1	BUTYL-	BARYL	CARBON-	CARBO-	FURAN	DI.
		WATER,	4-DI-	ATE,	WATER	TETRA-	FURAN	WATER	SULFIDE
	BROMO-	FLTRD,	CHLORO	WATER,	FLTRD	CHLO-	WATER	FLTRD	WATER

CHLORO-BENZENE DATE	CHLORO-FORM TOTAL (UG/L) (32104)	CHLOR-GF 0.7U FORM PYRIFOS TOTAL (UG/L) (49311)	UNFLTRD RECOVER (UG/L) (73547)	DISS, REC (UG/L) (04028)	0.7 U GF, REC (UG/L) (82680)	RIDE TOTAL (UG/L) (32102)	WHOLE TOT.REC (UG/L) (82615)	0.7 U GF, REC (UG/L) (82674)	WHOLE TOTAL (UG/L) (77041)
APR									
23...	<0.400	--	<10.0	<0.002	<0.003	<0.100	--	<0.003	<0.100
<0.100	<0.100	--							
23...	<0.400	--	<10.0	<0.002	<0.003	<0.100	--	<0.003	<0.100
<0.100	<0.100	--							
23...	<0.400	--	<10.0	<0.002	<0.003	<0.100	--	E0.017	<0.100
<0.100	<0.100	--							
29...	<0.200	--	<5.00	<0.002	<0.003	<0.050	--	<0.003	E0.050
<0.050	E0.010	--							
MAY									
12...	<0.500	<0.100	--	--	--	--	<0.500	--	--
<0.500	<0.500	<1.00							
27...	<0.500	<0.100	--	--	--	--	<0.500	--	--
<0.500	<0.500	<1.00							

DCPA	CHLOR-PYRIFOS DIS-UNFILT DATE DISSOLV (UG/L) (38933)	CHLORO-DI-P,P'-BROMO-METHANE DISS, SOLVED RECOVER (UG/L) (32105)	O-CHLORO-TOLUENE WATER WHOLE TOTAL REC (UG/L) (34311)	ATRA-ZINE, WATER WHOLE TOTAL (UG/L) (77275)	CYANA-ZINE, WATER, DISS, TOTAL (UG/L) (81757)	DEETHYL P,P'-DDT WATER FLTRD 0.7 U REC (UG/L) (04041)	P,P'-DDD UNFILT GF, REC (UG/L) (82682)	P,P'-DDE, RECOVER (UG/L) (39360)	P,P'-DDE TOTAL (UG/L) (39365)	DIBROMO-CHLORO-ETHANE TOTAL REC (UG/L) (34653)	DI-1,2-DIBROMO-ETHANE TOTAL (UG/L) (39370)	DI-
APR												
23...	<0.004	<0.200	<0.200	<0.100	--	<0.004	<0.002	--	--	<0.006	--	E0.007
23...	<0.004	<0.200	<0.200	<0.100	--	<0.004	<0.002	--	--	<0.006	--	E0.012
23...	<0.004	<0.200	<0.200	<0.100	--	<0.004	<0.002	--	--	<0.006	--	E0.013
29...	<0.004	<0.100	<0.100	<0.050	--	<0.004	<0.002	--	--	<0.006	--	E0.016
MAY												
12...	--	<0.500	<0.500	<0.500	<0.050	--	--	<0.010	<0.010	--	<0.010	--
27...	--	<0.500	<0.500	<0.500	<0.050	--	--	<0.010	<0.010	--	<0.010	--

1,2-DI-	CHLORO-	-DI- CHLORO-	CIS-1,2 CHLORO- 1,1-DI-	BROMO- METHANE	DIBROMO ETHANE	DICAMBA	DI- CHLORO-	CHLORO- DI-	1,1-DI-
CHLORO-	DI- ETHENE	AZINON, ETHYL-	PROPANE WATER	WATER	WATER		BROMO-	FLUORO-	CHLORO-
ETHANE	AZINON, WATER	DIS- ENE	WHOLE	WHOLE	WHOLE		METHANE	METHANE	ETHANE
DATE	TOTAL	SOLVED	TOT.REC	RECOVER	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
TOTAL	TOTAL	TOTAL							
	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)
(UG/L)	(UG/L)	(UG/L)							
	(39570)	(39572)	(82625)	(30217)	(77651)	(82052)	(32101)	(34668)	(34496)
(32103)	(77093)	(34501)							
APR									
23...	--	<0.002	<1.00	<0.200	<0.200	--	<0.200	<0.400	<0.100
<0.100	<0.100	<0.200							
23...	--	<0.002	<1.00	<0.200	<0.200	--	<0.200	<0.400	<0.100
<0.100	<0.100	<0.200							
23...	--	<0.002	<1.00	<0.200	<0.200	--	<0.200	<0.400	<0.100
<0.100	<0.100	<0.200							
29...	--	<0.002	<0.500	<0.100	<0.100	--	<0.100	<0.200	<0.050
<0.050	<0.050	<0.100							
MAY									
12...	<1.00	--	--	<0.500	--	<0.100	--	--	<0.500
<0.500	--	<0.500							
27...	<0.100	--	--	<0.500	--	<0.100	--	--	<0.500
<0.500	--	<0.500							

ETHYL	DISUL-	1,3-DI-	2,2-DI CHLORO-	1,1-DI CHLORO-	CIS	DICHLOR PROP,			2,6-DI-
	1,2-DI-	FOTON CHLORO-	EPTC PRO-	PRO-	1,3-DI-	WATER,		DI-	ANILINE
DINOSEB	WATER	WATER							
	CHLORO-	PROPANE	PANE	PENE,	CHLORO-	FLTRD,	DI-	ELDRIN	WAT FLT
WATER	FLTRD	FLTRD							
	PROPANE	WAT. WH	WAT, WH	WAT, WH	PROPENE	GF 0.7U	ELDRIN	DIS-	0.7 U
UNFLTRD	0.7 U	0.7 U							
DATE	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	REC	TOTAL	SOLVED	GF, REC
REC	GF, REC	GF, REC							
	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)
(UG/L)	(UG/L)	(UG/L)							
	(34541)	(77173)	(77170)	(77168)	(34704)	(49302)	(39380)	(39381)	(82660)
(82226)	(82677)	(82668)							
APR									
23...	<0.100	<0.100	<0.100	<0.100	<0.200	--	--	<0.001	<0.003	--
	<0.017	0.019							
23...	<0.100	<0.100	<0.100	<0.100	<0.200	--	--	<0.001	<0.003	--
	<0.017	0.052							
23...	<0.100	<0.100	<0.100	<0.100	<0.200	--	--	<0.001	<0.003	--
	<0.017	0.049							
29...	<0.050	<0.050	<0.050	<0.050	<0.100	--	--	<0.001	<0.003	--
	<0.017	0.031							

MAY									
12...	<0.500	--	--	<0.500	<0.500	<0.200	<0.010	--	--
<0.20	--	--							
27...	<0.500	--	<0.500	<0.500	<0.500	<0.200	<0.010	--	--
<0.20	--	--							

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

DATE	ENDO-SULFAN-I WATER WHOLE REC (UG/L) (34361)	ETHER-TERT-BUTYL ETHER WATER WHOLE TOTAL RECOVER (UG/L) (34356)	ETHER-TERT-PENTYL ENDO-SULFAN METHYL-II SULFATE TOTAL (UG/L) (34351)	ENDO-SULFAN WATER UNFLTRD TOTAL REC (UG/L) (39390)	ENDRIN WATER HYDE TOTAL (UG/L) (34366)	ENDRIN ALDE-HYDE 0.7 U GF, REC TOTAL (UG/L) (82663)	ETHAL-FLUR-ALIN WAT FLT 0.7 U WHOLE REC (UG/L) (38787)	ETHAL-FLUR-ALIN WATER UNFLTRD RECOVER (UG/L) (34396)	ETHANE HEXA-CHLORO-ETHANE WATER UNF WAT REC (UG/L) (34516)	ETHANE, 1,1,2,2 TETRA-CHLORO-ETHANE, WAT UNF WAT UNFLTRD REC (UG/L) (77562)
APR										
23...	--	--	--	--	--	<0.004	--	<0.100	<0.200	
<0.100	<0.200	<0.200								
23...	--	--	--	--	--	<0.004	--	<0.100	<0.200	
<0.100	<0.200	<0.200								
23...	--	--	--	--	--	<0.004	--	<0.100	<0.200	
<0.100	<0.200	<0.200								
29...	--	--	--	--	--	<0.004	--	<0.050	<0.100	
<0.050	<0.100	<0.100								
MAY										
12...	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.01	--	--	--
--	--									
27...	<0.010	<0.010	<0.010	<0.010	<0.010	--	<0.01	--	--	--
--	--									

DATE	ETHO-PROP WATER FLTRD 0.7 U GF, REC TOTAL (UG/L)	ETHYL-BENZENE TOTAL RECOVER (UG/L)	TRI-FLURA-LIN TOTAL RECOVER (UG/L)	FONOFOS WATER DISS REC (UG/L)	FREON-113 WATER UNFLTRD REC (UG/L)	FURAN TETRA-HYDRO-WATER UNFLTRD RECOVER (UG/L)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L)	HEPTA-CHLOR BUT-ADIENE TOTAL (UG/L)	HEXA-CHLORO-NONE WATER WHOLE TOTAL (UG/L)	2-HEXA-ISO-DURENE WATER UNFLTRD RECOVER (UG/L)
APR										
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
23...	--	--	--	--	--	--	--	--	--	--
29...	--	--	--	--	--	--	--	--	--	--
MAY										
12...	--	--	--	--	--	--	--	--	--	--
27...	--	--	--	--	--	--	--	--	--	--

(UG/L)	(UG/L)										
	(82672)	(34371)	(39030)	(04095)	(77652)	(81607)	(39410)	(39420)	(39702)	(77103)	(50000)
APR											
23...	<0.003	E0.030	--	<0.003	<0.100	<10.0	--	--	<0.400	<10.0	<0.100
23...	<0.003	E0.020	--	<0.003	<0.100	<10.0	--	--	<0.400	<10.0	<0.100
23...	<0.003	E0.100	--	<0.003	<0.100	<10.0	--	--	<0.400	<10.0	E0.040
29...	<0.003	<0.050	--	<0.003	E0.010	<5.00	--	--	<0.200	<5.00	<0.050
MAY											
12...	--	<0.500	<0.010	--	--	--	<0.010	<0.010	<0.500	<50.0	--
27...	--	<0.500	<0.010	--	--	--	<0.010	<0.010	<0.500	<50.0	--
DATE	ISO-PROPYL-BENZENE WATER WHOLE REC (UG/L) (77223)	P-ISO-METHAC-RYLATE TOLUENE WATER WHOLE REC (UG/L) (77356)		LINDANE DIS-SOLVED (UG/L) (39341)	LIN-URON FLTRD 0.7 U GF, REC (UG/L) (82666)	MCPA WATER UNFLTRD REC (UG/L) (30192)	MALA-THION, DIS-SOLVED (UG/L) (39530)	MALA-THION, WATER UNFLTRD REC (UG/L) (39532)	META/PARA-XYLENE WATER UNFLTRD REC (UG/L) (85795)	ETHYL-METHYL WATER WHOLE UNFLTRD RECOVER (UG/L) (73570)	METHAC-RYLATE WATER UNFLTRD RECOVER (UG/L) (81597)
APR											
23...	<0.100	<0.100	--	<0.004	<0.002	--	--	<0.005	E0.100	<2.00	<2.00
23...	<0.100	<0.100	--	<0.004	<0.002	--	--	<0.005	E0.050	<2.00	<2.00
23...	E0.007	<0.100	--	<0.004	<0.002	--	--	0.011	0.423	<2.00	<2.00
29...	<0.050	<0.050	--	<0.004	<0.002	--	--	<0.005	E0.030	<1.00	<1.00
MAY											
12...	<0.500	<0.500	<0.01	--	--	<50	<0.040	--	--	--	--
27...	<0.500	<0.500	<0.01	--	--	<50	<0.040	--	--	--	--

	METHANE BROMO CHLORO- BUTYL- WAT KETONE UNFLTRD WAT.WH. REC TOTAL	METHYL- ISO- METHO- MYL TOTAL	METH- OXY- CHLOR, TOTAL	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC	METHYL ACRY- LATE WATER UNFLTRD RECOVER	METHYL- BROMIDE TOTAL	METHYL- CHLO- RIDE TOTAL	METHYL- KETONE WATER WHOLE TOTAL	METHYL- ETHYL- ENE CHLO- RIDE TOTAL	METHYL- IODIDE WATER UNFLTRD RECOVER
	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)
DATE	(77297)	(39051)	(39480)	(82686)	(49991)	(34413)	(34418)	(81595)	(34423)	(77424) (78133)
APR										
23...	<0.200	--	--	<0.001	<4.00	<0.200	<0.400	<10.0	E0.100	<0.100 <10.0
23...	<0.200	--	--	<0.001	<4.00	<0.200	E0.030	E0.900	<0.200	<0.100 <10.0
23...	<0.200	--	--	<0.001	<4.00	<0.200	<0.400	E1.00	0.308	<0.100 <10.0
29...	<0.100	--	--	<0.001	<2.00	<0.100	<0.200	3.65	E0.010	<0.050 <5.00
MAY										
12...	--	<0.500	<0.100	--	--	--	--	--	--	-- --
27...	--	<0.500	<0.100	--	--	--	--	--	--	-- --

	METHYL PARA- THION WATER	METHYL PARA- THION OXYAMYL WAT FLT	METHYL TERT- BUTYL ETHER	METOLA- CHLOR WATER	METO- LACHLOR	METRI- BUZIN IN	METRI- BUZIN SENCOR	MOL- INATE WATER FLTRD	NAPROP- AMIDE FLTRD	NAPHTH- ALENE WATER
	PARA- THION, WHOLE	0.7 U	WAT UNF	WHOLE	WATER	WHOLE	WATER	0.7 U	0.7 U	
DATE	TOTAL	GF, REC	REC	TOT.REC	DISSOLV	WATER	DISSOLV	GF, REC	GF, REC	TOTAL
	TOT.REC (UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)
	(39600)	(82667)	(78032)	(82612)	(39415)	(81408)	(82630)	(82671)	(82684)	(34696) (82613)
APR										
23...	--	<0.006	<0.200	--	0.011	--	<0.004	<0.004	<0.003	E0.050 --
23...	--	<0.006	<0.200	--	0.049	--	0.011	<0.004	<0.003	0.329 --
23...	--	<0.006	<0.200	--	0.042	--	<0.004	<0.004	<0.003	E0.100 --
29...	--	<0.006	<0.100	--	0.046	--	<0.004	<0.004	<0.003	<0.200 --
MAY										
12...	<0.450	--	--	<0.080	--	<0.02	--	--	--	--

	<0.5									
27...	<0.450	--	--	<0.080	--	<0.02	--	--	--	--
	<0.5									

PRO-	AMIDE	PEB-ULATE		PENDI-METH-	PRON-	PER-METHRIN	PHORATE		PREH-	
	PARA-	WATER	PENDI-	ALIN	PENTA-	CIS	WATER	PIC-	NITENE	
METON,	WATER									
	THION,	FILTRD	METH-	WAT FLT	CHLORO-	WAT FLT	FLTRD	LORAM	WATER	
WATER,	FLTRD									
	DIS-	0.7 U	ALIN	0.7 U	PHENOL	0.7 U	0.7 U	UNFILT	UNFLTRD	
DISS,	0.7 U									
DATE	SOLVED	GF, REC	TOTAL	GF, REC	TOTAL	GF, REC	GF, REC	RECOVER	RECOVER	
REC	GF, REC									
	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	
(UG/L)	(UG/L)									
	(39542)	(82669)	(79190)	(82683)	(39032)	(82687)	(82664)	(39720)	(49999)	
(04037)	(82676)									
APR										
23...	<0.004	<0.004	--	<0.004	--	<0.005	<0.002	--	<0.100	
<0.018	<0.003									
23...	<0.004	<0.004	--	<0.004	--	<0.005	<0.002	--	<0.100	
<0.018	<0.003									
23...	<0.004	<0.004	--	<0.004	--	<0.005	<0.002	--	E0.050	
<0.018	<0.003									
29...	<0.004	<0.004	--	<0.004	--	<0.005	<0.002	--	<0.050	
<0.018	<0.003									
MAY										
12...	--	--	<0.01	--	<0.040	--	--	<0.100	--	--
	--									
27...	--	--	<0.01	--	<0.040	--	--	<0.100	--	--
	--									

WATER-QUALITY DATA, WATER YEAR OCTOBER 1996 TO SEPTEMBER 1997

TER-	TER-	PROPENE	PRO-	PRO-				TEBU-	
	PROP-	3-	PANIL	PARGITE		SI-		THIURON	
BACIL	BUFOS								
	CHLOR,	CHLORO-	WATER	WATER		MAZINE,		WATER	
WATER	WATER								
	WATER,	WATER	FLTRD	FLTRD		SIMA-	WATER,		FLTRD	
FLTRD	FLTRD								
	DISS,	UNFLTRD	0.7 U	0.7 U	SILVEX,	ZINE	DISS,	STYRENE	0.7 U	0.7
U	0.7 U									
DATE	REC	RECOVER	GF, REC	GF, REC	TOTAL	TOTAL	REC	TOTAL	GF, REC	GF,
REC	GF, REC									
	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	
(UG/L)	(UG/L)									
	(04024)	(78109)	(82679)	(82685)	(39760)	(39055)	(04035)	(77128)	(82670)	
(82665)	(82675)									
APR										
23...	<0.007	<0.200	<0.004	<0.013	--	--	<0.005	<0.100	<0.010	
<0.007	<0.013									

23...	<0.007	<0.200	<0.004	<0.013	--	--	<0.010	<0.100	<0.010	<0.007	<0.013
23...	<0.007	<0.200	<0.004	<0.013	--	--	<0.005	<0.100	<0.010	<0.007	<0.013
29...	<0.007	<0.100	<0.004	<0.013	--	--	0.008	<0.050	<0.010	<0.007	<0.013
MAY											
12...	--	--	--	--	<0.200	<0.450	--	<0.500	--	--	--
27...	--	--	--	--	<0.200	<0.450	--	<0.500	--	--	--

DATE	TETRACHLOROETHYLENE TOTAL (UG/L) (34475)	THIOBENCARB WATER FLTRD 0.7 U GF, REC TOTAL (UG/L) (82681)	TOLUENE TOTAL (UG/L) (34010)	TOLUENE P-CHLOR WATER UNFLTRD REC (UG/L) (77277)	TOLUENE O-ETHYL WATER UNFLTRD RECOVER (UG/L) (77220)	TRANS-1,3-DICHLOROPROPENE TOTAL (UG/L) (34699)	TOXAPHENE, TOTAL (UG/L) (39400)	1,2-TRANSDICHLOROETHENE TOTAL (UG/L) (34546)	TRIALLATE WATER FLTRD 0.7 U GF, REC TOTAL (UG/L) (82678)	1,1,1-TRICHLOROETHANE TOTAL (UG/L) (34506)	1,1,2-TRICHLOROETHANE TOTAL (UG/L) (34511)
APR											
23...	<0.100	<0.002	0.211	<0.100	<0.100	<0.200	--	<0.100	0.038	<0.100	<0.200
23...	<0.100	<0.002	E0.100	<0.100	<0.100	<0.200	--	<0.100	0.078	E0.004	<0.200
23...	<0.100	<0.002	0.620	<0.100	E0.040	<0.200	--	<0.100	0.062	<0.100	<0.200
29...	E0.002	<0.002	<0.050	<0.050	<0.050	<0.100	--	<0.050	0.048	E0.002	<0.100
MAY											
12...	<0.500	--	<0.500	--	--	<0.500	<1.00	--	--	<0.500	<0.500
27...	<0.500	--	<0.500	--	--	<0.500	<1.00	--	--	<0.500	<0.500

DATE	TRICHLOROETHYLENE TOTAL	123-TRICHLOROPROPANE WATER WHOLE TOTAL	TRIFLURALIN WAT FLT 0.7 U GF, REC TOTAL RECOVER	TURBIDITY (SEVER-	2,4-D, TOTAL	2,4,5-T TOTAL	2,6-DIETHYL ANILINE WAT FLT 0.7 U GF, REC TOTAL	O-XYLENE VINYL CHLORIDE WATER WHOLE TOTAL

TOTAL										
	(UG/L)	(UG/L)	(UG/L)	(UG/L)	ITY)	(UG/L)	(UG/L)	(UG/L)	(UG/L)	(UG/L)
	(39180)	(77443)	(39030)	(82661)	(01350)	(39730)	(39740)	(82660)	(39175)	(77135)
APR										
23...	<0.100	<0.400	--	0.010	E2	--	--	<0.003	<0.200	E0.060
23...	E0.007	<0.400	--	0.018	3	--	--	<0.003	<0.200	E0.020
23...	<0.100	<0.400	--	0.022	--	--	--	<0.003	<0.200	E0.100
29...	E0.005	<0.200	--	0.013	3	--	--	<0.003	<0.100	E0.010
MAY										
12...	<0.500	<0.500	<0.010	--	--	<0.100	<0.150	--	--	--
27...	<0.500	<0.500	<0.010	--	--	<0.100	<0.150	--	--	--