

NEWCASTLE LANDFILL SURFACE WATER DATA 1989 TO 2000

Parameter	February 17, 1989				December 4 and 5, 1989				November 17 and 18, 1990												
	SW-1	SW-2	SW-3	SW-4	A	B	C	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-10	SW-11	SW-12	SW-13	SW-14	SW-22	SW-23	
Temp. (°C)	4.0	3.7	4.2	3.6	3.2	2.5	4.6	8.6	8.8	9.1	9.1	8.5	8.4	9.3	9.5	10.1	9.7	9.9	10.8	10.8	10.6
pH	6.76	7.56	6.78	6.98	6.82	7.50	6.72	7	7	7.2	7	6.7	6.4	6.2	7.1	6.5	6.3	6	8.6	7.2	8.7
Conductivity (umhos/cm)	86.1	62.2	107	105	182.3	303	114	66.7	66.5	73.3	79.1	66.5	74.4	89.6	130.6	167.3	175.8	166	652	189	1700.0
Dissolved Oxygen (mg/l)	12.6	12.6	13.8	14.0	13.0	13.6	11.3	9.8	9.8	9.7	8.3	9.3	6.5	11.2	10.5	11.2	11.1	8.4	9.0	9.2	11.5
Turbidity (NTU)	2.4	3.1	38	25	25	90	50	23	27	27	33	5.1	2.2	4.0	12	16	80	4.7	0.90	32	180
Total Suspended Solids (mg/l)	5.5	ND	ND	52.4	17.5	180.6	138.0	126.0	150.0	156.0	310.0	20.0	<0.5	<0.5	132.0	<0.5	28.0	2.0	<0.5	44.0	1832.0
Total Dissolved Solids (mg/l)	64.0	69.5	86.4	91.5	126.0	196.4	104.0	116.0	106.0	102.0	82.0	34.0	22.0	32.0	118.0	100.0	112.0	134.0	530.0	232.0	1254.0
Hardness (mg/l)	30.20	28.24	35.69	37.25	80.00	79.22	36.47	22.9	24.8	26.0	28.8	22.9	24.5	27.6	43.3	44.9	54.8	46.9	225.4	92.6	101.3
Fecal Coliform (No./ml)	ND	ND	ND	ND	ND	ND	ND	100	40	80	80	68	<2	<2	<2	460	680	<2	<2	ND	100
Sulfide (mg/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Parameter	March 7, 1990				April 30, 1990				November 17 and 18, 1990												
	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-12	SW-14	SW-15	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15
Temp. (°C)	5.7	5.6	6.1	6.2	5.8	6.8	5.5	7.0	ND	9.4	9.2	10.0	10.2	8.1	7.8	9.1	10.5	9.4	8.6	8.5	9.0
pH	6.8	7.1	7.2	6.9	6.4	6.3	5.8	7.7	7.1	6.8	7.1	7	7	6.2	6.3	5.7	7.4	6.9	7.61	6.83	6.84
Conductivity (umhos/cm)	75	78	113	122	145	214	450	136	114	74	75	127	108	120	378	240	158	112	102	124	128
Dissolved Oxygen (mg/l)	11.8	14.6	13.2	13.6	9.5	8.3	12.1	10.3	10.4	11.4	12.3	11.5	11.5	9.5	7.0	10.6	11.4	11.6	10.05	11.33	11.47
Turbidity (NTU)	4.4	4.6	110	100	3.6	5.6	4.3	380	260	0.60	1.2	3.8	3.8	2.8	3.6	0.85	60.0	8.7	1.2	11	15
Hardness (mg/l)	25.80	25.90	35.50	44.20	21.00	31.80	136.00	61.90	54.70	23.7	24.6	36.7	40.2	24.0	40.5	98.7	79.6	39.8	36.8	39.2	42.3
Fecal Coliform (No./ml)	8	<2	12	80	<2	2	<2	160	480	<2	14	16	30	54	6	24	44	44	<20	<30	<60
Sulfide (mg/l)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.08	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	<0.03	<0.03	<0.03	<0.03	0.12	<0.05	0.10

Parameter	March 12, 1991				May 24, 1991				October 29, 1991												
	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-12	SW-14	SW-15	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-10	SW-11	SW-12	SW-13	SW-14	SW-15
Temp. (°C)	4.1	4.0	4.5	4.1	3.9	4.3	5.2	3.9	6.2	6.0	4.3	8.8	8.7	9.1	9.2	9.5	9.6	11.2	9.3	13.3	4.5
pH	6.43	6.49	ND	ND	8.39	8.52	8.40	8.27	8.13	8.46	7.54	5.9	6.1	6.5	6.31	6.31	6.31	6.27	6.4	6.9	6.5
Conductivity (umhos/cm)	68	86	95	109	66	92	120	213	346	128	168	78.9	77.2	121.8	67.2	71.4	98.9	95.9	395	183	301
Dissolved Oxygen (mg/l)	12.1	11.9	11.9	11.9	10.2	10.0	11.5	11.5	8.6	10.8	10.8	9.8	12.0	11.1	10.6	6.4	4.6	9.2	9.4	9.1	12.3
Turbidity (NTU)	5.1	24	27	26	2.5	4.1	29	150	1.0	70	50	6.2	3.8	28	27	7.1	3.8	19	7.3	65	2.2
Hardness (mg/l)	23.0	28.9	33.9	37.1	24.2	32.0	42.9	75.3	132.2	43.7	65.5	32.8	31.7	49.3	48.5	28.5	50.8	60.6	134	68.8	119
Fecal Coliform (No./ml)	<10	<10	<60	<50	<10	<10	<200	<50	<10	<10	<10	<100	<80	<10	<10	<30	<130	<130	<10	510	44
Sulfide (mg/l)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Parameter	December 6, 1991				March 17, 1992				April 22, 1992											
	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-12	SW-14	SW-15	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-12	SW-14	SW-15	SW-16	
Temp. (°C)	7.9	7.9	8.3	8.5	7.9	7.9	8.0	8.5	8.2	ND	7.6	7.6	8.2	8.5	8.0	8.1	8.4	8.6	8.5	ND
pH	7.38	7.62	7.38	7.32	6.03	6.15	6.09	7.16	6.72	ND	6.46	6.72	6.26	5.99	8.42	7.12	6.86	7.32	7.25	ND
Conductivity (umhos/cm)	117.0	118.2	143.9	162.1	96.5	153.1	359	227	177.8	ND	78.7	90.6	90.6	96.4	59.2	102.3	305	133.3	160.0	ND
Dissolved Oxygen (mg/l)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.7	11.1	11.7	11.0	8.0	6.5	10.9	11.4	11.1	ND
Turbidity (NTU)	41.7	42.1	48.9	55.3	33.3	59.7	131	89.8	69.4	69.4	3.2	3.6	9.2	16	4.2	5.4	2.1	80	39	21
Hardness (mg/l)	30	35	40	ND	11	37	3	242	>168	>168	100	62	600	<300	50	48	<240	ND	1000	<120
Fecal Coliform (No./ml)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Sulfide (mg/l)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Newcastle Coal Creek Landfill Surface Water Monitoring Data 1989  
 2006



NEWCASTLE LANDFILL SURFACE WATER DATA 1989 TO 2000

Parameter	June 16, 1998					December 7, 1998					May 18, 1999								
	SW-1	SW-2	SW-3	SW-4	SW-8	SW-9	SW-12	SW-14	SW-15	SW-1	SW-2	SW-3N	SW-4	SW-8	SW-9	SW-12	SW-13	SW-14	SW-15
Temp. (°C)	11.0	10.9	11.1	11.1	12.5	11.5	13.6	12.4	6.3	6.4	6.6	6.9	5.5	5.8	6.1	6.1	6.5	8.5	8.4
pH	6.9	6.9	6.7	6.5	6.8	7.0	7.2	7.2	7.3	7.0	6.9	6.5	6.8	6.9	6.8	6.1	7.1	6.7	6.6
Conductivity (µmhos/cm)	79.8	81.8	147.3	160.7	86.2	122.4	151	152.9	89.0	86.0	101.0	109.0	66.0	106.0	251	196	150.0	56.7	58.0
Dissolved Oxygen (mg/l)	8.5	8.2	8.4	8.8	5.1	6.9	7.1	7.2	10.5	11.8	11.2	10.8	6.9	5.3	8.1	8.1	11.1	9.7	10.7
Turbidity (NTU)	1.7	2.0	3.8	3.5	2.2	1.9	3.5	2.8	1.27	2.0	7.7	14	0.80	1.1	3.5	17	12	6.2	6.3
Hardness (mg/l)	37.3	46.3	51.6	63.4	54.4	61.9	65.8	66.6	30.7	31.9	35.2	39.8	29.1	44.8	146.0	78.8	64.7	35.3	29.7
Fecal Coliform (No./ml)	120	~120	~160	~220	~20	~10	~60	600	~22	~26	58	~160	~6	82	~14	~380	500	~24	~26
Sulfide (mg/l)	<0.05	<0.05	<0.05	<0.05	0.12	0.10	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Parameter	November 30, 1999					May 12, 2000					December 22, 2000								
	SW-1	SW-2	SW-3N	SW-4	SW-8	SW-9	SW-12	SW-13	SW-14	SW-15	SW-1	SW-2	SW-3N	SW-4	SW-8	SW-9	SW-12	SW-13	SW-14
Temp. (°C)	8.0	7.9	8.6	8.2	8.0	8.0	8.7	8.0	8.7	8.4	10.5	10.6	12.1	11.8	11.9	11.4	13.4	13.4	12.4
pH	6.55	6.44	6.89	6.76	6.89	7.09	7.20	7.24	7.42	7.07	6.9	7.2	6.9	6.1	7.2	7.0	7.1	7.2	7.0
Conductivity (µmhos/cm)	75.1	79.5	119.4	98.8	70.0	133.4	332	266	168.3	131.9	60.1	57.9	98.0	66.0	59.9	135	191	140	127
Dissolved Oxygen (mg/l)	9.1	10.4	10.2	10.1	7.2	6.2	5.2	9.0	9.8	10.3	10.0	11.0	10.8	10.5	8.6	6.6	10.1	10.6	10.4
Turbidity (NTU)	1.9	2.1	1.6	6.7	2.1	2.1	4.4	2.6	8.0	5.2	29	23	70	70	4.4	3.9	90	23	14
Hardness (mg/l)	29.8	30.6	42.0	37.6	27.4	55.3	159	113	80.3	57.1	25.8	31.7	37.7	37.5	30.1	67.2	82.7	61.6	61.2
Fecal Coliform (No./ml)	~10	~12	~22	~14	~6	~22	~26	460	72	46	940	780	1400	<2	800	960	~2600	~1200	~1600
Sulfide (mg/l)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Parameter	June 12, 2001									
	SW-1	SW-2	SW-3N	SW-4	SW-8	SW-9	SW-12	SW-13	SW-14	SW-15
Temp. (°C)	9.4	9.3	10.6	9.7	9.2	10.1	No/data	11.8	11.6	10.2
pH	6.38	6.44	6.3	6.77	6.87	6.66	No/data	6.64	6.92	6.75
Conductivity (µmhos/cm)	88.4	88.6	148.8	131.1	83.1	167.7	No/data	228	199.1	177.6
Dissolved Oxygen (mg/l)	9.5	10.4	10.6	9.6	7.6	5.3	No/data	8.2	9.6	9.4
Turbidity (NTU)	6	4.9	15	10.0	3.2	8.2	No/data	14	15.0	5.5
Hardness (mg/l)	30.3	29.9	42.9	45.2	32.3	62.8	No/data	84	72.8	66.9
Fecal Coliform (No./ml)	140	100	2200	980	116	900	No/data	1600	600	1140
Sulfide (mg/l)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	No/data	<0.05	<0.05	<0.05

**Table 1. Newcastle Landfill Surface Water Monitoring Results, January 7, 2002**

Station	Temperature (°C)	Dissolved Oxygen (mg/L)	pH	Conductivity (umhos/cm)	Turbidity (NTU)	Hardness (mg/L)	Fecal Coliform (#/100 ml)	Sulfide (mg/L)
SW-1 (background)	8.7	10.0	7.7	75.6	6.1	27.4	50	<0.05
SW-2	8.8	10.0	7.9	59.4	8.0	29.3	est 30	<0.05
SW-3N	9.4	10.9	7.8	111	17	37.3	est 320	<0.05
SW-4	9.0	10.7	7.8	99.8	17	35.2	est 120	<0.05
SW-8 (background)	9.3	8.3	7.4	94.8	4.2	37.7	est 14	<0.05
SW-9	9.3	8.0	6.9	122	N/M	49.6	est 100	<0.05
SW-12	--	--	--	--	--	--	--	--
SW-13	9.6	10.1	7.2	179	10	66.6	146	<0.05
SW-14	9.4	10.7	7.0	120	8.3	47.3	1340	<0.05
SW-15	9.0	10.4	7.0	128	15	55.3	est 240	<0.05
SW-16	--	--	--	--	--	53.2	est 240	<0.05
(SW-15 duplicate)								
Class AA Standards (WAC 173-201A)	≤ 16.0°C	>9.5 mg/L	6.5 - 8.5	N/A	<5 NTU over background	N/A	≤ 50/100 ml	N/A

Notes:

- est = laboratory estimated value
- = no sample taken
- N/A = not applicable, no State standard
- N/M = not measured



**Table 1. Newcastle Landfill Surface Water Monitoring Results, February 4, 2005**

Station	Temperature (°C)	Dissolved Oxygen (mg/L)	pH	Conductivity (umhos/cm)	Turbidity (NTU)	Hardness (mg/L)	Fecal Coliform (#/100)	Sulfide (mg/L)
SW-1 (background)	7.6	9.4	5.9	101	1.5	35.2	est 2	<0.05
SW-2	7.6	9.8	6.0	104	0.90	37.9	est 10	<0.05
SW-3N	8.5	10.3	5.8	160	9.2	51.8	est 140	<0.05
SW-4	8.1	9.1	5.5	137	5.1	50.6	90	<0.05
SW-8 (background)	7.5	6	6.3	94	0.45	35.0	est 4	<0.05
SW-9	7.6	6.6	6.5	176	0.80	73.1	est 22	<0.05
SW-12	--	--	--	--	--	--	--	--
SW-13	7.6	9.3	6.9	331	1.7	144	<2	<0.05
SW-14	8.1	9.7	6.7	163	1.2	70.9	48	<0.05
SW-15	8.1	9.8	6.5	168	4.7	74.5	440	<0.05
SW-16 (SW-15 duplicate)	--	--	--	--	--	68.4	720	<0.05
Water Quality Standards (WAC 173-201A)	≤ 16.0°C	>9.5 mg/L	6.5 - 8.5	N/A	<5 NTU over background	N/A	≤ 50/100 ml	N/A

Notes:           est = laboratory estimated value  
                   -- = no sample taken  
                   N/A = not applicable, no State standard  
                   < = less than, not detected at the given concentration

**Table 1. Newcastle Landfill Surface Water Monitoring Results, November 14, 2005**

Station	Temperature (°C)	Dissolved Oxygen (mg/L)	pH	Conductivity (umhos/cm)	Turbidity (NTU)	Hardness (mg/L)	Fecal Coliform (#/100)	Sulfide (mg/L)
<b>Coal Creek</b>								
SW-1 (background)	7.6	9.9	7.0	126	1.6	45	22	0.08
SW-2	7.5	10.5	7.1	128	1.8	45.5	24	0.10
SW-3N	8.1	11.7	7.2	190	5.0	57.1	72	0.06
SW-4	8.1	11.1	7.1	166	3.0	57.3	180	0.06
<b>China Creek</b>								
SW-8 (background)	7.2	7.0	7.1	124	1.1	44.0	26	<0.05
SW-9	7.6	7.3	6.9	210	1.7	85	126	<0.05
SW-12	--	--	--	--	--	--	--	--
SW-13	8.1	8.5	7.0	138	4.8	90	32	<0.05
SW-14	8.2	11.3	7.0	195	2.5	76.8	28	0.08
SW-15	7.9	10.7	6.9	197	2.6	79.3	460	0.06
SW-16 (SW-15 duplicate)	--	--	--	--	--	79.9	300	0.06
Water Quality Standards (WAC 173-201A)	17.5°C	8.0 mg/L minimum	6.5 - 8.5	N/A	5 NTU over background	N/A	200/100 ml	N/A

Notes:  
 -- = no sample taken  
 N/A = not applicable, no State standard  
 < = less than, not detected at the given concentration

**Table 1. Newcastle Landfill Surface Water Monitoring Results, June 13, 2006**

Station	Temperature (°C)	Dissolved Oxygen (mg/L)	pH	Conductivity (umhos/cm)	Turbidity (NTU)	Hardness (mg/L)	Fecal Coliform (#/100)	Sulfide (mg/L)
<b>Coal Creek</b>								
SW-1 (background)	12.2	7.9	7.7	85	2.6	31.7	220	<0.05
SW-2	12.1	9.4	7.7	86	2.5	31.9	196	<0.05
SW-3N	13.3	9.4	7.4	169	4.6	55.3	320	<0.05
SW-4	12.6	9.3	7.4	77	3.7	44	232	0.06
<b>China Creek</b>								
SW-8 (background)	12.7	6.6	7.5	112	2.6	43.0	52	0.08
SW-9	13.5	5.3	7.3	185	2.0	80.1	220	<0.05
SW-12	--	--	--	--	--	--	--	--
SW-13	16.9	*	7.1	265	3.3	110	1,880	<0.05
SW-14	15.6	7.9	7.3	134	6.1	55.7	1,860	<0.05
SW-15	12.7	8.0	7.3	127	3.7	55.1	4,020	0.08
SW-16 (SW-15 duplicate)	--	--	--	--	--	51.6	4,420	<0.05
Water Quality Standards (WAC 173-201A)	16°C	9.5 mg/L minimum	6.5 - 8.5	N/A	5 NTU over background	N/A	50/100 ml	N/A

Notes:

-- = no sample taken

N/A = not applicable, no State standard

< = less than, not detected at the given concentration

\* = no measurement taken due to instrument malfunction