

Environmental Protection Agency
Regional Inspectorate
Seville Lodge, Callan Road, Kilkenny

Report of: Analysis of landfill site sample(s)
Report to: Waterford Co.Co.
Report date: 11/12/09

Facility: Coolfin Landfill Site, Portlaw, Co.Waterford

Reference No:

Date collected: 03/11/2009

Date received: 04/11/2009

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Laboratory Ref: 2905727 2905728 2905729 2905730 2905731 2905732
Type of sample:
Location code: WST-TP1 WST-TP02 WST-TP4 WST-TP7 WST-TP9 WST-TP11

Sampling point:
Sampled by: Paul Carroll Paul Carroll Paul Carroll Paul Carroll Paul Carroll Paul Carroll
Time Sampled: 12:00 12:10 12:20 12:30 12:40 12:50
Start/End - Dates of

Analysis: Status of results: Final Report Final Report Final Report Final Report Final Report Final Report Final Report

Parameter	Units	Limits						
pH	pH		7.1	7.2	7.4	7.3	6.9	7.0
Conductivity @25°C	µS/cm		1628	3640	1578	2580	1416	669
Ammonia	mg/l N		47	170	82	110	34	7
Chloride	mg/l Cl		34	94	55	124	41	26
Nitrite (as N)	mg/l N		<0.002	<0.002	<0.002	<0.002	<0.002	0.003
ortho-Phosphate (as P)	mg/l P		0.02	0.08	0.02	0.06	0.01	<0.01
Total Oxidised Nitrogen (as N)	mg/l N		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Fluoride	mg/l F		0.16	0.91	0.47	0.22	0.45	0.06
Sulphate	mg/l SO4		6.4	<2.5	<2.5	2.9	<2.5	34
Biochemical Oxygen Demand	mg/l O2		11.2	4.2	5.7	3.2	3.2	2.5
Chemical Oxygen Demand	mg/l O2		242	243	169	299	202	154
Aluminium	ug/l		1300	1500	1000	3600	2000	16000
Antimony	ug/l		1.2	1.8	<0.5	0.7	0.6	0.6
Arsenic	ug/l		11	24	9	45	20	22
Barium	ug/l		380	410	400	560	560	490
Beryllium	ug/l		<0.5	<0.5	<0.5	<0.5	<0.5	2.9
Boron	ug/l		500	1100	410	560	260	120
Cadmium	ug/l		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium	mg/l		160	190	81	130	170	81
Chromium	ug/l		31	90	29	97	49	29
Cobalt	ug/l		5.2	8.8	8.8	10	4.2	40
Copper	ug/l		30	46	6.4	39	31	72
Iron	ug/l		26000	27000	13000	22000	57000	18000

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Laboratory Ref: 2905727 2905728 2905729 2905730 2905731 2905732
Type of sample:
Location code: WST-TP1 WST-TP02 WST-TP4 WST-TP7 WST-TP9 WST-TP11

Sampling point:
Sampled by: Paul Carroll Paul Carroll Paul Carroll Paul Carroll Paul Carroll Paul Carroll
Time Sampled: 12:00 12:10 12:20 12:30 12:40 12:50
Start/End - Dates of
Analysis: Status of results: Final Report Final Report Final Report Final Report Final Report Final Report

Parameter	Units	Limits						
Lead	ug/l		99	110	13	120	150	160
Magnesium	mg/l		41	150	41	80	38	17
Manganese	ug/l		1300	1200	2200	2100	2600	9800
Mercury	ug/l		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Molybdenum	ug/l		2.5	4.5	1.2	1.3	1.2	1.2
Nickel	ug/l		27	26	10	36	29	34
Potassium	mg/l		55	180	57	120	55	36
Selenium	ug/l		<0.5	0.8	<0.5	2.6	<0.5	<0.5
Sodium	mg/l		41	100	45	94	32	19
Thallium	ug/l		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	ug/l		<1	<1	<1	<1	<1	<1
Uranium	ug/l		<0.5	<0.5	<0.5	<0.5	<0.5	4
Vanadium	ug/l		4.7	6.7	3.6	10	5.7	18
Zinc	ug/l		440	580	13	210	300	490
1,1,1,2-Tetrachloroethane	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5
1,1,1-Trichloroethane	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5
1,1,1,2,2-Tetrachloroethane	µg/l		<1	<1	-	<1	<1	<1
1,1,2-Trichloroethane	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5
1,1-Dichloroethane	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5
1,1-Dichloroethene	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5
1,1-Dichloropropene	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5
1,2,3-Trichlorobenzene	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5
1,2,3-Trichloropropane	µg/l		<0.6	<0.6	-	<0.6	<0.6	<0.6

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Laboratory Ref: 2905727 2905728 2905729 2905730 2905731 2905732
Type of sample:
Location code: WST-TP1 WST-TP02 WST-TP4 WST-TP7 WST-TP9 WST-TP11

Sampling point:
Sampled by: Paul Carroll Paul Carroll Paul Carroll Paul Carroll Paul Carroll Paul Carroll
Time Sampled: 12:00 12:10 12:20 12:30 12:40 12:50

Start/End - Dates of Analysis: Status of results: Final Report Final Report Final Report Final Report Final Report Final Report

Parameter	Units	Limits						
1,2,4-Trichlorobenzene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
1,2,4-Trimethylbenzene	µg/l	8.6	<0.5	-	<0.5	<0.5	<0.5	<0.5
1,2-Dibromo-3-Chloropropane	µg/l	<1.3	<1.3	-	<1.3	<1.3	<1.3	<1.3
1,2-Dibromoethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
1,2-Dichlorobenzene	µg/l	nr	nr	-	nr	nr	nr	nr
1,2-Dichloroethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
1,2-Dichloropropane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
1,3,5-Trimethylbenzene	µg/l	1.9	<0.5	-	<0.5	<0.5	<0.5	<0.5
1,3-Dichlorobenzene	µg/l	<0.5	0.7	-	0.7	1.1	<0.5	<0.5
1,3-Dichloropropane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
1,4-Dichlorobenzene	µg/l	<0.5	0.7	-	0.7	1.2	<0.5	<0.5
2,2-Dichloropropane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
2-Chlorotoluene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
4-Chlorotoluene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
4-Isopropyltoluene	µg/l	0.6	<0.5	-	<0.5	0.5	<0.5	<0.5
Benzene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bromobenzene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bromochloromethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bromodichloromethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bromoform	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Bromomethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
c-1,2-Dichloroethene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
c-1,3-Dichloropropene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5

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Laboratory Ref:	2905727	2905728	2905729	2905730	2905731	2905732
Type of sample:						
Location code:	WST-TP1	WST-TP02	WST-TP4	WST-TP7	WST-TP9	WST-TP11
Sampling point:						
Sampled by:	Paul Carroll	Paul Carroll	Paul Carroll	Paul Carroll	Paul Carroll	Paul Carroll
Time Sampled:	12:00	12:10	12:20	12:30	12:40	12:50

Start/End - Dates of							
Analysis:	Status of results:	Final Report	Final Report	Final Report	Final Report	Final Report	Final Report

Parameter	Units	Limits						
Carbon Tetrachloride	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Chlorobenzene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Chloroform	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Dibromochloromethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Dibromomethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Dichlorodifluoromethane	µg/l	<0.5	<0.5	-	1	<0.5	<0.5	<0.5
Dichloromethane	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Hexachlorobutadiene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Isopropylbenzene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
m,p-Xylene	µg/l	2.1	<0.5	-	<0.5	<0.5	<0.5	<0.5
Naphthalene	µg/l	15	0.6	-	0.9	<0.5	<0.5	<0.5
n-Butylbenzene	µg/l	1.3	<0.5	-	<0.5	0.6	<0.5	<0.5
n-Propylbenzene	µg/l	0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
o-Xylene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
sec-Butylbenzene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Styrene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
t-1,2-Dichloroethene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
t-1,3-Dichloropropene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
tert-Butylbenzene	µg/l	0.7	<0.5	-	<0.5	<0.5	<0.5	<0.5
Tetrachloroethene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Toluene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5
Trichloroethene	µg/l	<0.5	<0.5	-	<0.5	<0.5	<0.5	<0.5

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Laboratory Ref:	2905727	2905728	2905729	2905730	2905731	2905732	
Type of sample:							
Location code:	WST-TP1	WST-TP02	WST-TP4	WST-TP7	WST-TP9	WST-TP11	
Sampling point:							
Sampled by:	Paul Carroll	Paul Carroll	Paul Carroll	Paul Carroll	Paul Carroll	Paul Carroll	
Time Sampled:	12:00	12:10	12:20	12:30	12:40	12:50	
Start/End - Dates of							
Analysis:	Status of results:	Final Report	Final Report	Final Report	Final Report	Final Report	Final Report

Parameter	Units	Limits						
Trichlorofluoromethane	µg/l		<0.6	<0.6	-	<0.6	<0.6	<0.6
Vinyl Chloride	µg/l		<0.5	<0.5	-	<0.5	<0.5	<0.5

Comments:

- 1) Results highlighted and in bold are outside specified limits.
- 2) All Metals Analysed in the EPA, Dublin Laboratory.
Cyanide Analysed in the EPA Cork Laboratory.
Phenols Analysed in the EPA Castlebar Laboratory.
- 3) **nm** "Not measured"
- 4) **nd** "None detected"
- 5) **nt** "No time" - Time not recorded
tntc "Too numerous to count"
- 6) **F** "Field measured parameters"
- 7)

Signed
Michael Neill, Regional Chemist

Date:

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Parameter	Units		2905727 TP1	2905728 TP-2
pH	pH		7.1	7.2
Conductivity @25°C	µS/cm		1628	3640
Ammonia	mg/l N		47	170
Chloride	mg/l Cl		34	94
Nitrite (as N)	mg/l N		<0.002	<0.002
ortho-Phosphate (as P)	mg/l P		0.02	0.08
Total Oxidised Nitrogen (as N)	mg/l N		<0.5	<0.5
Fluoride	mg/l F			
Sulphate	mg/l SO4			
Biochemical Oxygen Demand	mg/l O2			
Chemical Oxygen Demand	mg/l O2			
1,1,1,2-Tetrachloroethane	µg/l		<0.5	<0.5
1,1,1-Trichloroethane	µg/l		<0.5	<0.5
1,1,2,2-Tetrachloroethane	µg/l		<1	<1
1,1,2-Trichloroethane	µg/l		<0.5	<0.5
1,1-Dichloroethane	µg/l		<0.5	<0.5
1,1-Dichloroethene	µg/l		<0.5	<0.5
1,1-Dichloropropene	µg/l		<0.5	<0.5
1,2,3-Trichlorobenzene	µg/l		<0.5	<0.5
1,2,3-Trichloropropane	µg/l		<0.6	<0.6
1,2,4-Trichlorobenzene	µg/l		<0.5	<0.5
1,2,4-Trimethylbenzene	µg/l		8.6	<0.5
1,2-Dibromo-3-Chloropropane	µg/l		<1.3	<1.3
1,2-Dibromoethane	µg/l		<0.5	<0.5
1,2-Dichlorobenzene	µg/l		nr	nr
1,2-Dichloroethane	µg/l		<0.5	<0.5
1,2-Dichloropropane	µg/l		<0.5	<0.5
1,3,5-Trimethylbenzene	µg/l		1.9	<0.5
1,3-Dichlorobenzene	µg/l		<0.5	0.7
1,3-Dichloropropane	µg/l		<0.5	<0.5
1,4-Dichlorobenzene	µg/l		<0.5	0.7
2,2-Dichloropropane	µg/l		<0.5	<0.5
2-Chlorotoluene	µg/l		<0.5	<0.5
4-Chlorotoluene	µg/l		<0.5	<0.5
4-Isopropyltoluene	µg/l		0.6	<0.5
Benzene	µg/l		<0.5	<0.5
Bromobenzene	µg/l		<0.5	<0.5
Bromochloromethane	µg/l		<0.5	<0.5
Bromodichloromethane	µg/l		<0.5	<0.5
Bromoform	µg/l		<0.5	<0.5
Bromomethane	µg/l		<0.5	<0.5
c-1,2-Dichloroethene	µg/l		<0.5	<0.5

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c-1,3-Dichloropropene	µg/l		<0.5	<0.5
Carbon Tetrachloride	µg/l		<0.5	<0.5
Chlorobenzene	µg/l		<0.5	<0.5
Chloroform	µg/l		<0.5	<0.5
Dibromochloromethane	µg/l		<0.5	<0.5
Dibromomethane	µg/l		<0.5	<0.5
Dichlorodifluoromethane	µg/l		<0.5	<0.5
Dichloromethane	µg/l		<0.5	<0.5
Ethylbenzene	µg/l		<0.5	<0.5
Hexachlorobutadiene	µg/l		<0.5	<0.5
Isopropylbenzene	µg/l		<0.5	<0.5
m,p-Xylene	µg/l		2.1	<0.5
Naphthalene	µg/l		15	0.6
n-Butylbenzene	µg/l		1.3	<0.5
n-Propylbenzene	µg/l		0.5	<0.5
o-Xylene	µg/l		<0.5	<0.5
sec-Butylbenzene	µg/l		<0.5	<0.5
Styrene	µg/l		<0.5	<0.5
t-1,2-Dichloroethene	µg/l		<0.5	<0.5
t-1,3-Dichloropropene	µg/l		<0.5	<0.5
tert-Butylbenzene	µg/l		0.7	<0.5
Tetrachloroethene	µg/l		<0.5	<0.5
Toluene	µg/l		<0.5	<0.5
Trichloroethene	µg/l		<0.5	<0.5
Trichlorofluoromethane	µg/l		<0.6	<0.6
Vinyl Chloride	µg/l		<0.5	<0.5
Aluminium	ug/l		1300	1500
Antimony	ug/l		1.2	1.8
Arsenic	ug/l		11	24
Barium	ug/l		380	410
Beryllium	ug/l		<0.5	<0.5
Boron	ug/l		500	1100
Cadmium	ug/l		<0.5	<0.5
Calcium	mg/l		160	190
Chromium	ug/l		31	90
Cobalt	ug/l		5.2	8.8
Copper	ug/l		30	46
Iron	ug/l		26000	27000
Lead	ug/l		99	110
Magnesium	mg/l		41	150
Manganese	ug/l		1300	1200
Mercury	ug/l			
Molybdenum	ug/l		2.5	4.5
Nickel	ug/l		27	26
Potassium	mg/l		55	180

Selenium	ug/l		<0.5	0.8
Sodium	mg/l		41	100
Thallium	ug/l		<0.5	<0.5
Tin	ug/l		<1	<1
Uranium	ug/l		<0.5	<0.5
Vanadium	ug/l		4.7	6.1
Zinc	ug/l		440	580

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2905729 TP4	2905730 TP7	2905731 TP9	2905732 TP11
7.4	7.3	6.9	7
1578	2580	1416	669
82	110	34	7
55	124	41	26
<0.002	<0.002	<0.002	0.003
0.02	0.06	0.01	<0.01
<0.5	<0.5	<0.5	<0.5

<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<1	<1	<1
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<1.3	<1.3	<1.3
<0.5	<0.5	<0.5
nr	nr	nr
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
0.7	1.1	<0.5
<0.5	<0.5	<0.5
0.7	1.2	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5
<0.5	<0.5	<0.5

<0.5	2.6	<0.5	<0.5
45	94	32	19
<0.5	<0.5	<0.5	<0.5
<1	<1	<1	<1
<0.5	<0.5	<0.5	4
3.6	10	5.7	18
13	210	300	490

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Parameter	Units	2905733	2905734	EQS Values
		R.Clodiagh U/S	R.Clogiagh D/S	
Biochemical Oxygen Demand	mg/l O2	1.3	1.5	
pH	pH	7.5	7.4	6.5-9.5
Conductivity @25°C	µS/cm	167	170	1000
True Colour	Hazen			
Ammonia	mg/l N	0.06	0.15	
Chloride	mg/l Cl	13	13	
Nitrite (as N)	mg/l N	0.005	0.006	NA
ortho-Phosphate (as P)	mg/l P	0.02	0.02	NA
Total Oxidised Nitrogen (as N)	mg/l N	3.4	3.4	
Alkalinity-total (as CaCO3)	mg/l CaCO3			
Total Hardness (as CaCO3)	mg/l			
Chemical Oxygen Demand	mg/l O2			
Aluminium	ug/l	82	68	
Antimony	ug/l	<0.5	<0.5	
Arsenic	ug/l	<0.5	<0.5	25
Barium	ug/l	6	5	100
Beryllium	ug/l	<0.5	<0.5	
Boron	ug/l	<5	<5	
Cadmium	ug/l	<0.5	<0.5	5
Calcium	mg/l	15	15	
Chromium	ug/l	0.9	0.9	30
Cobalt	ug/l	<0.5	<0.5	
Copper	ug/l	2.5	0.8	
Iron	ug/l	170	150	
Lead	ug/l	<0.5	<0.5	10
Magnesium	mg/l	4.1	3.9	
Manganese	ug/l	50	40	
Mercury	ug/l	<0.5	<.05	1
Molybdenum	ug/l	0.8	0.8	
Nickel	ug/l	<0.5	<0.5	50
Potassium	mg/l	1.9	1.8	NA

Selenium	ug/l	<0.5	<0.5	NA
Sodium	mg/l	7.8	7.7	NA
Thallium	ug/l	<0.5	<0.5	
Tin	ug/l	<1	<1	
Uranium	ug/l	<0.5	<0.5	
Vanadium	ug/l	0.7	0.6	
Zinc	ug/l	<3	<3	10
1,1,1,2-Tetrachloroethane	µg/l		<0.5	
1,1,1-Trichloroethane	µg/l		<0.5	
1,1,2,2-Tetrachloroethane	µg/l		<1	
1,1,2-Trichloroethane	µg/l		<0.5	
1,1-Dichloroethane	µg/l		<0.5	
1,1-Dichloroethene	µg/l		<0.5	
1,1-Dichloropropene	µg/l		<0.5	
1,2,3-Trichlorobenzene	µg/l		<0.5	
1,2,3-Trichloropropane	µg/l		<0.6	
1,2,4-Trichlorobenzene	µg/l		<0.5	
1,2,4-Trimethylbenzene	µg/l		<0.5	
1,2-Dibromo-3-Chloropropane	µg/l		<1.3	
1,2-Dibromoethane	µg/l		<0.5	
1,2-Dichlorobenzene	µg/l		nr	
1,2-Dichloroethane	µg/l		<0.5	
1,2-Dichloropropane	µg/l		<0.5	
1,3,5-Trimethylbenzene	µg/l		<0.5	
1,3-Dichlorobenzene	µg/l		0.7	
1,3-Dichloropropane	µg/l		<0.5	
1,4-Dichlorobenzene	µg/l		0.7	
2,2-Dichloropropane	µg/l		<0.5	
2-Chlorotoluene	µg/l		<0.5	
4-Chlorotoluene	µg/l		<0.5	
4-Isopropyltoluene	µg/l		<0.5	
Benzene	µg/l		<0.5	
Bromobenzene	µg/l		<0.5	
Bromochloromethane	µg/l		<0.5	

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Parameter	Units	2905733	2905734	EQS Values
		R.Clodiagh U/S	R.Clogiagh D/S	
Biochemical Oxygen Demand	mg/l O2	1.3	1.5	
pH	pH	7.5	7.4	6.5-9.5
Conductivity @25°C	µS/cm	167	170	1000
True Colour	Hazen			
Ammonia	mg/l N	0.06	0.15	
Chloride	mg/l Cl	13	13	
Nitrite (as N)	mg/l N	0.005	0.006	NA
ortho-Phosphate (as P)	mg/l P	0.02	0.02	NA
Total Oxidised Nitrogen (as N)	mg/l N	3.4	3.4	
Alkalinity-total (as CaCO3)	mg/l CaCO3			
Total Hardness (as CaCO3)	mg/l			
Chemical Oxygen Demand	mg/l O2			
Aluminium	ug/l	82	68	
Antimony	ug/l	<0.5	<0.5	
Arsenic	ug/l	<0.5	<0.5	25
Barium	ug/l	6	5	100
Beryllium	ug/l	<0.5	<0.5	
Boron	ug/l	<5	<5	
Cadmium	ug/l	<0.5	<0.5	5
Calcium	mg/l	15	15	
Chromium	ug/l	0.9	0.9	30
Cobalt	ug/l	<0.5	<0.5	
Copper	ug/l	2.5	0.8	
Iron	ug/l	170	150	
Lead	ug/l	<0.5	<0.5	10
Magnesium	mg/l	4.1	3.9	
Manganese	ug/l	50	40	
Mercury	ug/l	<0.5	<.05	1
Molybdenum	ug/l	0.8	0.8	
Nickel	ug/l	<0.5	<0.5	50
Potassium	mg/l	1.9	1.8	NA

Selenium	ug/l	<0.5	<0.5	NA
Sodium	mg/l	7.8	7.7	NA
Thallium	ug/l	<0.5	<0.5	
Tin	ug/l	<1	<1	
Uranium	ug/l	<0.5	<0.5	
Vanadium	ug/l	0.7	0.6	
Zinc	ug/l	<3	<3	10
1,1,1,2-Tetrachloroethane	µg/l		<0.5	
1,1,1-Trichloroethane	µg/l		<0.5	
1,1,2,2-Tetrachloroethane	µg/l		<1	
1,1,2-Trichloroethane	µg/l		<0.5	
1,1-Dichloroethane	µg/l		<0.5	
1,1-Dichloroethene	µg/l		<0.5	
1,1-Dichloropropene	µg/l		<0.5	
1,2,3-Trichlorobenzene	µg/l		<0.5	
1,2,3-Trichloropropane	µg/l		<0.6	
1,2,4-Trichlorobenzene	µg/l		<0.5	
1,2,4-Trimethylbenzene	µg/l		<0.5	
1,2-Dibromo-3-Chloropropane	µg/l		<1.3	
1,2-Dibromoethane	µg/l		<0.5	
1,2-Dichlorobenzene	µg/l		nr	
1,2-Dichloroethane	µg/l		<0.5	
1,2-Dichloropropane	µg/l		<0.5	
1,3,5-Trimethylbenzene	µg/l		<0.5	
1,3-Dichlorobenzene	µg/l		0.7	
1,3-Dichloropropane	µg/l		<0.5	
1,4-Dichlorobenzene	µg/l		0.7	
2,2-Dichloropropane	µg/l		<0.5	
2-Chlorotoluene	µg/l		<0.5	
4-Chlorotoluene	µg/l		<0.5	
4-Isopropyltoluene	µg/l		<0.5	
Benzene	µg/l		<0.5	
Bromobenzene	µg/l		<0.5	
Bromochloromethane	µg/l		<0.5	

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Environmental Protection Agency
Regional Inspectorate
Seville Lodge, Callan Road, Kilkenny

Report of: Coolfin Landfill Site, Portlaw
Report to: Waterford Co.Co.
Report date: 11/12/09

Location sampled:

Date sampled: 03/11/2009

Date received: 04/11/2009

Laboratory Ref: 2905733 2905734

Type of sample: River River

Sampling point: U/s old landfill, Coolfin D/s old landfill, Coolfin

Sampled by: Paul Carroll Paul Carroll

Time Sampled: 13:10 13:20

Start/End - Dates of Analysis:

Status of results: Final Report Final Report

Parameter

Units

Biochemical Oxygen Demand

mg/l O2

1.3

1.5

pH

pH

7.5

7.4

Conductivity @25°C

µS/cm

167

170

Ammonia

mg/l N

0.06

0.15

Chloride

mg/l Cl

13

13

Nitrite (as N)

mg/l N

0.005

0.006

ortho-Phosphate (as P)

mg/l P

0.02

0.02

Total Oxidised Nitrogen (as N)

mg/l N

3.4

3.4

Aluminium

ug/l

82

68

Antimony

ug/l

<0.5

<0.5

Arsenic

ug/l

<0.5

<0.5

Barium

ug/l

6

5

Beryllium

ug/l

<0.5

<0.5

Boron

ug/l

<5

<5

Cadmium

ug/l

<0.5

<0.5

Calcium

mg/l

15

15

Chromium

ug/l

0.9

0.9

Cobalt

ug/l

<0.5

<0.5

Copper

ug/l

2.5

0.8

Iron

ug/l

170

150

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For inspection purposes only.

Laboratory Ref: 2905733

2905734

Type of sample: River

River

Sampling point: U/s old landfill, Coolfin

D/s old landfill,
Coolfin

Sampled by: Paul Carroll

Paul Carroll

Time Sampled: 13:10

13:20

Start/End - Dates of
Analysis:

Status of results:

Final Report

Final Report

Parameter

Units

Lead	ug/l	<0.5	<0.5
Magnesium	mg/l	4.1	3.9
Manganese	ug/l	50	40
Mercury	ug/l	<0.5	<0.5
Molybdenum	ug/l	0.8	0.8
Nickel	ug/l	<0.5	<0.5
Potassium	mg/l	1.9	1.8
Selenium	ug/l	<0.5	<0.5
Sodium	mg/l	7.8	7.7
Thallium	ug/l	<0.5	<0.5
Tin	ug/l	<1	<1
Uranium	ug/l	<0.5	<0.5
Vanadium	ug/l	0.7	0.6
Zinc	ug/l	<3	<3
1,1,1,2-Tetrachloroethane	µg/l	-	<0.5
1,1,1-Trichloroethane	µg/l	-	<0.5
1,1,2,2-Tetrachloroethane	µg/l	-	<1
1,1,2-Trichloroethane	µg/l	-	<0.5
1,1-Dichloroethane	µg/l	-	<0.5
1,1-Dichloroethene	µg/l	-	<0.5
1,1-Dichloropropene	µg/l	-	<0.5
1,2,3-Trichlorobenzene	µg/l	-	<0.5
1,2,3-Trichloropropane	µg/l	-	<0.6
1,2,4-Trichlorobenzene	µg/l	-	<0.5
1,2,4-Trimethylbenzene	µg/l	-	<0.5
1,2-Dibromo-3-Chloropropane	µg/l	-	<1.3
1,2-Dibromoethane	µg/l	-	<0.5
1,2-Dichlorobenzene	µg/l	-	nr
1,2-Dichloroethane	µg/l	-	<0.5
1,2-Dichloropropane	µg/l	-	<0.5

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Laboratory Ref: 2905733

2905734

Type of sample: River

River

Sampling point: U/s old landfill, Coolfin

D/s old landfill,
Coolfin

Sampled by: Paul Carroll

Paul Carroll

Time Sampled: 13:10

13:20

Start/End - Dates of
Analysis:

Status of results:

Final Report

Final Report

Parameter

Units

1,3,5-Trimethylbenzene	µg/l	-	<0.5
1,3-Dichlorobenzene	µg/l	-	0.7
1,3-Dichloropropane	µg/l	-	<0.5
1,4-Dichlorobenzene	µg/l	-	0.7
2,2-Dichloropropane	µg/l	-	<0.5
2-Chlorotoluene	µg/l	-	<0.5
4-Chlorotoluene	µg/l	-	<0.5
4-Isopropyltoluene	µg/l	-	<0.5
Benzene	µg/l	-	<0.5
Bromobenzene	µg/l	-	<0.5
Bromochloromethane	µg/l	-	<0.5
Bromodichloromethane	µg/l	-	<0.5
Bromoform	µg/l	-	<0.5
Bromomethane	µg/l	-	<0.5
c-1,2-Dichloroethene	µg/l	-	<0.5
c-1,3-Dichloropropene	µg/l	-	<0.5
Carbon Tetrachloride	µg/l	-	<0.5
Chlorobenzene	µg/l	-	<0.5
Chloroform	µg/l	-	<0.5
Dibromochloromethane	µg/l	-	<0.5
Dibromomethane	µg/l	-	<0.5
Dichlorodifluoromethane	µg/l	-	<0.5
Dichloromethane	µg/l	-	<0.5
Ethylbenzene	µg/l	-	<0.5
Hexachlorobutadiene	µg/l	-	<0.5
Isopropylbenzene	µg/l	-	<0.5
m,p-Xylene	µg/l	-	<0.5
Naphthalene	µg/l	-	<0.5
n-Butylbenzene	µg/l	-	<0.5
n-Propylbenzene	µg/l	-	<0.5

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Laboratory Ref: 2905733 2905734
Type of sample: River River
Sampling point: U/s old landfill, Coolfin D/s old landfill, Coolfin

Sampled by: Paul Carroll Paul Carroll
Time Sampled: 13:10 13:20
Start/End - Dates of Analysis:

Status of results: Final Report Final Report

Parameter	Units		
o-Xylene	µg/l	-	<0.5
sec-Butylbenzene	µg/l	-	<0.5
Styrene	µg/l	-	<0.5
t-1,2-Dichloroethene	µg/l	-	<0.5
t-1,3-Dichloropropene	µg/l	-	<0.5
tert-Butylbenzene	µg/l	-	<0.5
Tetrachloroethene	µg/l	-	<0.5
Toluene	µg/l	-	<0.5
Trichloroethene	µg/l	-	<0.5
Trichlorofluoromethane	µg/l	-	<0.6
Vinyl Chloride	µg/l	-	<0.5

Comments:

- 1) Results highlighted and in bold are outside specified limits.
- 2) All Metals Analysed in the EPA Dublin Laboratory, Cyanide Analysed in the EPA Cork Laboratory. Phenols Analysed in the EPA Castlebar Laboratory.
- 3) **nm** "Not measured"
- 4) **nd** "None detected"
- 5) **nt** "No time" - Time not recorded
- 6) **tntc** "Too numerous to count"
- 7) **F** "Field measured parameters"

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Signed

Date:

Michael Neill, Regional Chemist

Method.

Grab samples were taken of the Clodiagh River upstream and downstream of the Coolfin landfill site on 8/11/10. Analysis for ammonia and chloride was conducted at Waterford County Council Water Laboratory, Kilmeaden.

Results are presented in table below.

The results were compared to **surface water standards** as per EC Environmental Objectives (Surface Waters) Regulations 2009, SI no. 272 of 2009.

Results

Parameter	Units	Clodiagh river upstream Coolfin landfill	Clodiagh River downstream Coolfin landfill	surface water standards (1)
Physicochemical and inorganic parameters				
Ammonia	mg/l N	0.09	0.09	0.065 mean 0.14 95%ile
Chloride	mg/l N	13	13	
1. EC Environmental Objectives (Surface Waters) Regulations 2009, SI no. 272 of 2009				

Discussion of results

There was no increase in either ammonia or chloride levels between upstream and downstream samples.

Ammonia levels at 0.09 mg/l N were in exceedance of the 0.065 mg/l mean standard but complied with the 95%ile standard of 0.14 mg/l.

WATERFORD COUNTY COUNCIL

DRINKING WATER - RESULTS OF ANALYSIS

SANITARY AUTHORITY: *Waterford County Council* **TESTING LABORATORY:** Adamstown

Name of supply: Paul Duggan, Coolfin, Portlaw. **DATE OF SAMPLING** 08/11/2010

SAMPLING POINT Kitchen Tap. **SAMPLED BY** PC

UNITS	DRINKING WATER QUALITY STANDARD	PARAMETER	RESULT
<i>hazen</i>	<i>Acceptable to consumers</i>	COLOUR	5
<i>NTU</i>	<i>and no abnormal change</i>	TURBIDITY	0.38
		ODOUR	ND
		TASTE	ND
<i>pH</i>	<i>6.5-9.5</i>	pH	7.53
<i>uS/cm</i>	<i>2500</i>	CONDUCTIVITY	483
<i>mg/l Cl</i>	<i>250</i>	CHLORIDE	23
<i>mg/l SO4</i>	<i>250</i>	SULPHATE	19
<i>mg/l Al</i>	<i>0.2</i>	ALUMINIUM	
<i>mg/l N</i>	<i>11.3</i>	NITRATES	3.5
<i>mg/l N</i>	<i>0.03</i>	NITRITES	-0.01
<i>mg/l N</i>	<i>0.23</i>	AMMONIA	0.01
<i>mg/l Fe</i>	<i>0.2</i>	IRON	0.01
<i>mg/l Mn</i>	<i>0.05</i>	MANGANESE	-0.01
<i>mg/l F</i>	<i>0.6 - 0.8</i>	FLUORIDE	-0.2
<i>per 100mls</i>	<i>0</i>	TOTAL COLIFORMS	201 !
<i>per 100 mls</i>	<i>0</i>	E COLI:	0
<i>mg/l Cl</i>		FREE RES CHLORINE	
<i>mg/l Cl</i>		TOTAL RES CHLORINE	

REMARKS: *Results not in compliance with Drinking water Standards are marked with "!"*

A - sign before a result indicates "less than"

Coliform bacteria present.

Signed by: *Paul Carroll*

29 November 2010