

WOOD ENVIRONMENTAL MANAGEMENT LTD

Environmental Management Consultants

Mr Noel Madden
The Recycling Village
Unit 21, Duleek Business Park
Commons, Duleek
Co Meath

10th April 2013

Dear Noel,

RE: Annual Noise, Dust Deposition & Q1 Effluent Reports.

Please find enclosed copies of the following monitoring reports for your files;

- 1 x 2013 Annual Noise & Dust Deposition Report
- 1 x 2013 Q1 Effluent Analysis Lab Certificates

The results of the noise survey show that during the day time noise levels recorded at some of the site boundary locations were above the day time Waste Permit limit of LAeq 55 dB (A). Noise levels at these locations were influenced by noise from visiting lorries, forklifts and operation of the glass cleaning process.

However it is concluded that noise emissions from the facility are unlikely to have a negative impact on sensitive locations beyond the site boundary.

Dust deposition levels are below the waste permit limits. The results of the effluent sample that was taken from your interceptor sump on 25th February 2013 are summarized below.

Parameter	Permit Limit	Lab Results	Compliance
PH	6-9	7.5	Yes
BOD	<2 mg/l	4 mg/l	No
Suspended Solids	10 mg/l	27 mg/l	No
Ammonia	0.065 mg/l	1.1 mg/l	No
Mineral Oils	3 mg/l	2.34 mg/l	Yes
VOC's	Non set	<1 ug/l	Below detection limits
Glycol	Non set	<10 mg/l	Below detection limits
Pesticides	Non set	<0.01 ug/l	Below detection limits
Heavy Metals	Non set	Low ug/l levels	Very low levels

The above results show that there are no significant levels of hazardous chemicals in the effluent ie. VOC's, pesticides, glycol, heavy metals and mineral oils. However, as with previous effluent samples that have been taken from your interceptor sump, the effluent quality does not comply with the requirements of Clause 6.3 of the waste permit in relation to BOD, ammonia and suspended solids and is unlikely to meet the low SS, ammonia and BOD levels in your permit.

The remaining 2013 monitoring surveys are scheduled as follows;

- June 2013 - Q2 Effluent
- September 2013 – Q3 Effluent & Q2 Dust Deposition
- December 2013 – Q4 Effluent

Please call me on 087-2854171 if you wish to discuss further.

Yours Sincerely,

Andrew Wood.
Managing Director.

Enc. Environmental Noise & Dust Deposition Report
Q1 2013 Effluent Laboratory Results

1 Castle Grove, Kilgobbin Wood, Sandyford, Dublin 18, Ireland
Tel/Fax: 01-2945613. Mobile: 087-2854171.
E-mail: awood@weml.ie Web Site: www.weml.ie Registered in Ireland No. 315150

APPENDIX 2

Laboratory Certificates

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Wood Environmental Management Ltd (WEML)
1 Castlegrove
Killgobbin Wood
Sandyford
Dublin
Dublin 18

Attention: Andrew Wood

CERTIFICATE OF ANALYSIS

Date:	07 March 2013
Customer:	D_WEML_DUB
Sample Delivery Group (SDG):	130227-30
Your Reference:	RV
Location:	RV
Report No:	214929

We received 5 samples on Tuesday February 26, 2013 and 5 of these samples were scheduled for analysis which was completed on Thursday March 07, 2013. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

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Approved By:

Sonia McWhan

Operations Manager





SDG: 130227-30
 Job: D_WEML_DUB-25
 Client Reference: RV

Location: RV
 Customer: Wood Environmental Management Ltd (WEM)
 Attention: Andrew Wood

Order Number: rvq12013
 Report Number: 214929
 Superseded Report:

OC, OP Pesticides and Triazine Herb

Results Legend		Customer Sample R	RV EFF					
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s)	Water(GW/SW) 25/02/2013 26/02/2013 130227-30 6988932					
M	mCERTS accredited.							
aq	Aqueous / settled sample.							
diss.filt	Dissolved / filtered sample.							
tot.unfilt	Total / unfiltered sample.							
*	Subcontracted test.							
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery							
(F)	Trigger breach confirmed							
1-4@	Sample deviation (see appendix)							
	AGS Reference							
Component	LOD/Units	Method						
Tecnazene	<0.01 µg/l	TM231	<0.01					
Hexachlorobenzene	<0.01 µg/l	TM231	<0.01					
Trifluralin	<0.01 µg/l	TM231	<0.01					
alpha-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.01					
Quintozene (PCNB)	<0.01 µg/l	TM231	<0.01					
Triallate	<0.01 µg/l	TM231	<0.01					
gamma-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.01					
Heptachlor	<0.01 µg/l	TM231	<0.01					
Aldrin	<0.01 µg/l	TM231	<0.01					
Chlorothalonil	<0.01 µg/l	TM231	<0.01					
beta-Hexachlorocyclohexane (HCH / Lindane)	<0.01 µg/l	TM231	<0.01					
Telodrin	<0.01 µg/l	TM231	<0.01					
Isodrin	<0.01 µg/l	TM231	<0.01					
Heptachlor epoxide	<0.01 µg/l	TM231	<0.01					
Triadimefon	<0.01 µg/l	TM231	<0.01					
Pendimethalin	<0.01 µg/l	TM231	<0.01					
o,p-DDE	<0.01 µg/l	TM231	<0.01					
Endosulphan I	<0.01 µg/l	TM231	<0.01					
Trans-chlordane	<0.01 µg/l	TM231	<0.01					
cis-Chlordane	<0.01 µg/l	TM231	<0.01					
p,p-DDE	<0.01 µg/l	TM231	<0.01					
Dieldrin	<0.01 µg/l	TM231	<0.01					
o,p-TDE (DDD)	<0.01 µg/l	TM231	<0.01					
Endrin	<0.01 µg/l	TM231	<0.01					
o,p-DDT	<0.01 µg/l	TM231	<0.01					
p,p-TDE (DDD)	<0.01 µg/l	TM231	<0.01					
Endosulphan II	<0.01 µg/l	TM231	<0.01					
p,p-DDT	<0.01 µg/l	TM231	<0.01					
o,p-Methoxychlor	<0.01 µg/l	TM231	<0.01					
p,p-Methoxychlor	<0.01 µg/l	TM231	<0.01					
Endosulphan sulphate	<0.01 µg/l	TM231	<0.01					
Permethrin I	<0.01 µg/l	TM231	<0.01					

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SDG: 130227-30
 Job: D_WEMPL_DUB-25
 Client Reference: RV

Location: RV
 Customer: Wood Environmental Management Ltd (WEM)
 Attention: Andrew Wood

Order Number: rvq12013
 Report Number: 214929
 Superseded Report:

VOC MS (W)

Results Legend		Customer Sample R	RV EFF				
#	ISO17025 accredited.	Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	Water(GW/SW) 25/02/2013 26/02/2013 130227-30 6988932				
M	mCERTS accredited.						
aq	Aqueous / settled sample.						
dis.filt	Dissolved / filtered sample.						
tot.unfilt	Total / unfiltered sample.						
*	Subcontracted test.						
**	% recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery						
(F)	Trigger breach confirmed						
1-4	@	Sample deviation (see appendix)						
Component	LOD/Units	Method					
Dibromofluoromethane**	%	TM208	107				
Toluene-d8**	%	TM208	100				
4-Bromofluorobenzene**	%	TM208	98.3				
Dichlorodifluoromethane	<1 µg/l	TM208	<1	#			
Chloromethane	<1 µg/l	TM208	<1	#			
Vinyl chloride	<1 µg/l	TM208	<1	#			
Bromomethane	<1 µg/l	TM208	<1	#			
Chloroethane	<1 µg/l	TM208	<1	#			
Trichlorofluoromethane	<1 µg/l	TM208	<1	#			
1,1-Dichloroethene	<1 µg/l	TM208	<1	#			
Carbon disulphide	<1 µg/l	TM208	<1	#			
Dichloromethane	<3 µg/l	TM208	<3	#			
Methyl tertiary butyl ether (MTBE)	<1 µg/l	TM208	<1	#			
trans-1,2-Dichloroethene	<1 µg/l	TM208	<1	#			
1,1-Dichloroethane	<1 µg/l	TM208	<1	#			
cis-1,2-Dichloroethene	<1 µg/l	TM208	<1	#			
2,2-Dichloropropane	<1 µg/l	TM208	<1	#			
Bromochloromethane	<1 µg/l	TM208	<1	#			
Chloroform	<1 µg/l	TM208	<1	#			
1,1,1-Trichloroethane	<1 µg/l	TM208	<1	#			
1,1-Dichloropropene	<1 µg/l	TM208	<1	#			
Carbontetrachloride	<1 µg/l	TM208	<1	#			
1,2-Dichloroethane	<1 µg/l	TM208	<1	#			
Benzene	<1 µg/l	TM208	<1	#			
Trichloroethene	<1 µg/l	TM208	<1	#			
1,2-Dichloropropane	<1 µg/l	TM208	<1	#			
Dibromomethane	<1 µg/l	TM208	<1	#			
Bromodichloromethane	<1 µg/l	TM208	<1	#			
cis-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
Toluene	<1 µg/l	TM208	<1	#			
trans-1,3-Dichloropropene	<1 µg/l	TM208	<1	#			
1,1,2-Trichloroethane	<1 µg/l	TM208	<1	#			

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SDG: 130227-30
Job: D_WEMPL_DUB-25
Client Reference: RV

Location: RV
Customer: Wood Environmental Management Ltd (WEM)
Attention: Andrew Wood

Order Number: rvq12013
Report Number: 214929
Superseded Report:

VOC MS (W)

Table with columns: Component, LOD/Units, Method, and detection results. Includes a Results Legend and Customer Sample R details.

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Mr Noel Madden
The Recycling Village Ltd
Unit 21, Duleek Business Park
Duleek,
Co. Meath

25/06/2013

Dear Noel,

RE: Q2 Effluent Report

Please find attached a copy of the following monitoring reports:

- 1 x 2013 Q2 Effluent Analysis Lab Certificate

The results of the effluent sample taken from your interceptor sump on 31st May 2013 are summarized below.

Parameter	Permit Limit	Lab Result	Compliance
Ammonia	0.065 mg/L	0.227 mg/L	No
BOD	<2 mg/L	<2 mg/L	Yes
Mineral Oils	3 mg/L	0.127 mg/L	Yes
pH	6-9 pH Units	7.5 pH Units	Yes
Suspended Solids	10 mg/L	9 mg/L	Yes
Heavy Metals:			
Arsenic	Non set	0.3 ug/L	
Cadmium	Non set	2.3 ug/L	
Chromium	Non set	3.1 ug/L	
Cobalt	Non set	0.4 ug/L	
Copper	Non set	20.7 ug/L	
Lead	Non set	184.1 ug/L	
Manganese	Non set	26.9 ug/L	
Mercury	Non set	0.1 ug/L	
Nickel	Non set	14.9 ug/L	
Tin	Non set	6.9 ug/L	
Titanium	Non set	32.2 ug/L	

The above results show that the effluent quality is compliant with the majority of the requirements of Clause 6.3 of the Waste Permit; however although the ammonia concentration is above the low level set in your permit, it is within the drinking water regulation limit, which is set at 0.23 mg/L. On an inspection on 22/04/2013 Meath County Council's Environmental Technician reported that the facility is compliant with the conditions of the permit, and advised that the drainage system be cleaned and monitored. Cleaning of the drainage system was carried out by Greenday Environmental on 28/05/2013. It is advised to have the rain water tested for ammonia concentration to compare the Q2 results with a background ammonia level.

The remaining 2013 monitoring survey is scheduled as follows:

- September 2013 – Q3 Effluent
- December 2013 – Q4 Effluent

Yours sincerely,

Nikita Coulter BSc MSc EnvDip
Environmental Compliance Officer

Mr Noel Madden
The Recycling Village Ltd
Unit 21, Duleek Business Park
Duleek,
Co. Meath

18/09/2013

Dear Noel,

RE: Q3 Effluent Report

Please find attached a copy of the following monitoring reports:

- 1 x 2013 Q3 Effluent Analysis Lab Certificate

The results of the effluent sample taken from your interceptor sump on 06/09/2013 are summarized below.

Parameter	Permit Limit	Lab Result	Compliance
Ammonia	0.065 mg/L	0.952	No
BOD	<2 mg/L	<2	Yes
Mineral Oils	3 mg/L	0.021	Yes
pH	6-9 pH Units	7.4	Yes
Suspended Solids	10 mg/L	5	Yes
Heavy Metals:			
Arsenic	Non set	1.058 µg/L	n/a
Cadmium	Non set	2.294 µg/L	n/a
Chromium	Non set	<0.28 µg/L	n/a
Cobalt	Non set	0.711 µg/L	n/a
Copper	Non set	25.88 µg/L	n/a
Lead	Non set	194.5 µg/L	n/a
Manganese	Non set	67.61 µg/L	n/a
Mercury	Non set	<0.04 µg/L	n/a
Nickel	Non set	6.471 µg/L	n/a
Tin	Non set	371.4 µg/L	n/a
Titanium	Non set	<5 µg/L	n/a

The above results show that the effluent quality is compliant with the majority of the requirements of Clause 6.3 of the Waste Permit, with the exception of the ammonia concentration which is above the low level set in the Waste Permit. Although is no level has been set in the permit for Lead, it has been noted that the laboratory results for this quarter and the previous quarter have been relatively high in comparison to the limit value of 10 µg/L set in the EU Drinking Water Directive [98/83/EC], and the limit value of 50 µg/L set in the Surface Waters Regulations [1989]. It is recommended that the Waste Permit is examined in relation to the method for sampling the discharge from the interceptor and that background lead levels in local rain water and river water upstream and downstream of the discharge pipe from the industrial estate are measured.

The remaining 2013 monitoring survey is scheduled as follows:

- December 2013 – Q4 Effluent

Yours sincerely,

Nikita Coulter BSc MSc EnvDip
Environmental Compliance Officer

Mr Noel Madden
The Recycling Village Ltd
Unit 21, Duleek Business Park
Duleek,
Co. Meath

24/02/2014

Dear Noel,

RE: Q4 Effluent Report

Please find attached a copy of the following monitoring reports:

- 1 x 2013 Q4 Effluent Analysis Lab Certificate

The results of the effluent sample taken from your interceptor discharge pipe on 05/12/2013 are summarized below.

Parameter	Permit Limit	Lab Result	Compliance
Ammonia	0.065 mg/L	1.16 mg/L	No
BOD	<2 mg/L	<2 mg/L	Yes
Mineral Oils	3 mg/L	<2.5 mg/L	Yes
pH	6-9 pH Units	7.5	Yes
Suspended Solids	10 mg/L	10 mg/L	Yes
Heavy Metals:			
Arsenic	Non set	0.474 µg/L	n/a
Cadmium	Non set	2.422 µg/L	n/a
Chromium	Non set	<0.28 µg/L	n/a
Cobalt	Non set	1.372 µg/L	n/a
Copper	Non set	15.61 µg/L	n/a
Lead	Non set	80.89 µg/L	n/a
Manganese	Non set	194.9 µg/L	n/a
Mercury	Non set	0.159 µg/L	n/a
Nickel	Non set	2.328 µg/L	n/a
Tin	Non set	<2.8 µg/L	n/a
Titanium	Non set	5.29 µg/L	n/a

Table 1 – Q4 Effluent analysis results

The above results show that the effluent quality is compliant with the majority of the requirements of Clause 6.3 of the Waste Permit, with the exception of the ammonia concentration which is above the low level set in the Waste Permit.

Acting on recommendations made in September 2013 in relation to high lead levels in the effluent discharge, The Recycling Village Ltd collected samples of river water and river sediment from the following locations in the River Nanny:

- Duleek Bridge – **upstream** of the industrial estate surface water discharge
- Bellewstown Bridge – **downstream** of the industrial estate surface water discharge

The samples were analysed by Fitz Scientific laboratories. The results were compared to relevant published water and soil quality standards.

Location	Parameter	Result (ug/l)	EU Surface Water Regulations (ug/l)	EU Drinking Water Directive (ug/l)
Upstream – Duleek Bridge	Lead	0.317	50	10
Downstream – Bellewstown Bridge	Lead	3.571	50	10

Table 2 River water analysis results (lead)

The river water results indicate that lead levels are significantly lower than published water quality standards.

Location	Parameter	Result	EPA	UK CEFAS	Dutch	Canadian
		(mg/kg) Wet Weight	(mg/kg) Dry Weight			
Upstream – Duleek Bridge	Lead	3.079	50	50	85	30.2
Downstream – Bellewstown Bridge	Lead	5.625	50	50	85	30.2

Table 3 River sediment analysis results (lead)

The sediment results were based on wet weight concentrations while published soil standards are presented as a 'dry weight' concentration. However, although it is not possible to do a simple comparison of the results between wet and dry weight samples, it can be assumed from the results received that the concentrations of lead in the sediment samples are still significantly lower than the published standards.

During the same period, to further establish background lead levels, samples of rain water and roof runoff were also analysed, and the results are presented below:

Water Source	Parameter	Result (ug/l)	EU Surface Water Regulations (ug/l)	EU Drinking Water Directive (ug/l)
Rain water	Lead	26.8	50	10
Roof runoff	Lead	21.46	50	10

Table 4 Rain water and roof runoff analyses results (lead)

All effluent samples analysed from the Duleek site, up to and including Q3 in 2013, were taken from within the final chamber of the interceptor – due to the difficulty of accessing the monitoring chamber within the interceptor. As the Waste Facility Permit states that “on a quarterly basis, the permit holder shall take a grab sample of the water **discharge** from the monitoring chamber” it was decided to take samples of the discharge from the interceptor from the manhole after the interceptor for the quarterly effluent tests.

A sample of the discharge was analysed for lead only on 25/09/2013, and again on 05/12/2013 for the Q4 monitoring and the results are presented below in comparison to the result obtained from the Q3 effluent sample taken from within the interceptor chamber:

Water Source	Parameter	Result (ug/l)	EU Surface Water Regulations (ug/l)	EU Drinking Water Directive (ug/l)
Q3 effluent analysis – Interceptor final chamber	Lead	194.5	50	10
Interceptor discharge pipe analysis (25/09/2013)	Lead	60.63	50	10
Q4 effluent analysis – Interceptor discharge pipe	Lead	80.89	50	10

Table 5 Interceptor effluent analysis (lead) – chamber vs. discharge pipe results

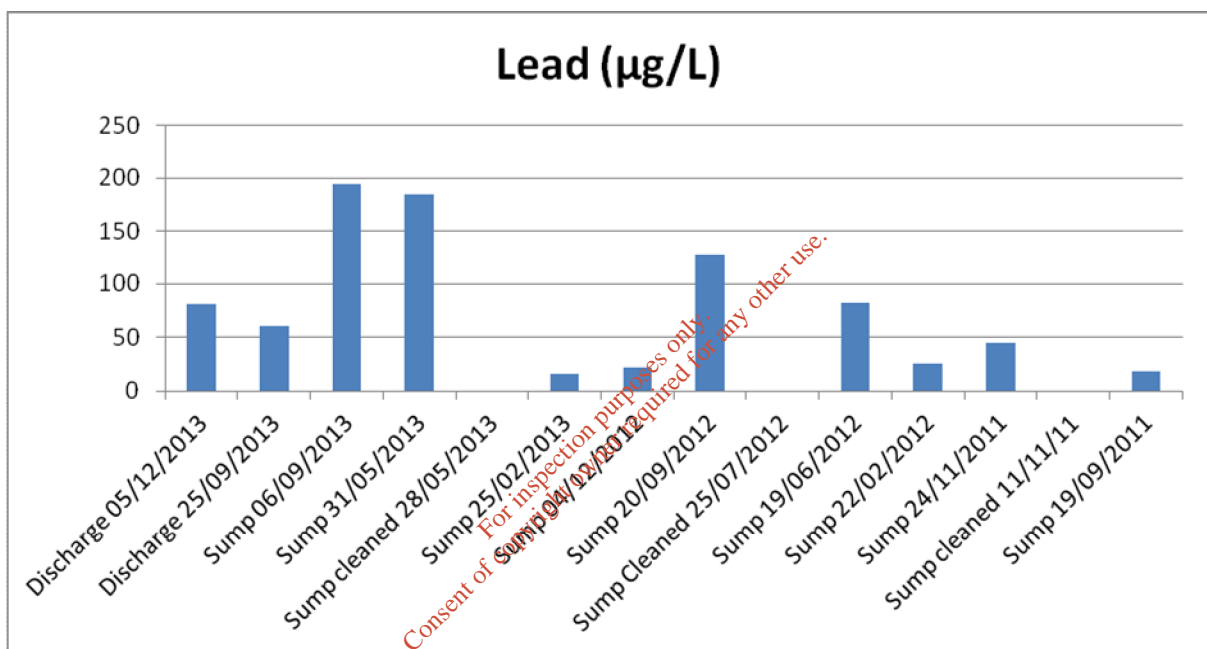


Figure 1 Lead level in interceptor sump effluent – indicates dates sump was cleaned out

Discussion of Results:

From the comparison of the results presented in Table 5, it can be assumed that a significant portion of the lead recorded in the interceptor sump is being retained within the interceptor sump. From analysis of Figure 1, a potential correlation may be drawn between the times when the sump was cleaned out and higher levels of lead being recorded in the effluent samples. It was suggested by the Environmental Consultant, WEML, that if a quantity of lead has settled in the interceptor sump, when the sump is cleaned out the lead may be temporarily re-suspended, which may give rise to higher lead levels in the analysis after these episodes of cleaning.

When the results from Table 5 are compared with background levels presented in Table 4, which indicates that in excess of 20ug/L of lead are being deposited in the rainwater, and the results in Tables 2 and 3, although the sampling results indicate that the concentration of lead in the river water and river sediment samples increase downstream from the industrial estate discharge point, the concentrations of lead that were detected in the samples were significantly lower than the

published quality standards and the impact from The Recycling Village Ltd's effluent discharge is not considered to be significant.

The Recycling Village Ltd has taken measures to remove all leaded material and potential sources of lead from the yard and to store such materials indoors. The Recycling Village Ltd are also adding 5L of water per 700kg of leaded glass in the Glass Cleaner, to control potential fugitive dust emissions.

Although there are a number of potential sources of emissions of lead into the surface water runoff from the industrial estate, excluding The Recycling Village Ltd, the Environmental Consultant, WEML has recommended that the Recycling Village Ltd continues to analyse water samples from the interceptor sump in order to record the concentration of lead in the yard surface water discharge.

The 2013 monitoring survey has been successfully completed as scheduled and a new schedule for 2014 has been set up. The monitoring dates for 2014 are:

- March 2014 – Q1 Effluent, including Annual Effluent Test
- June 2014 – Q2 Effluent
- September 2014 – Q3 Effluent
- December 2013 – Q4 Effluent

Please refer to Site Environmental Monitoring Programme (ER 004 – Revision 5).

Yours sincerely,

Nikita Coulter BSc MSc EnvDip
Environmental Compliance Officer

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