

# WOOD ENVIRONMENTAL MANAGEMENT LTD

Environmental Management Consultants

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Environmental Manager  
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Co Meath

13<sup>th</sup> January 2014

Dear Nikita,

## RE: River Sediment and River Water Assessment.

I refer to the recent river sediment and water samples results provided by Fitz Scientific laboratories.

### Introduction.

In late September 2013, samples of sediment and water were collected by The Recycling Village Ltd 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 aim of the sampling programme was to assess the potential impact on the river of the yard surface water run off that discharges from The Recycling Village Ltd facility via an interceptor and council surface water sewer into the river.

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

### Sediment Results.

Location	Parameter	Result	EPA	UK CEFAS	Dutch	Canadian
		(mg/kg) Wet Weight			(mg/kg) Dry Weight	
Duleek Bridge - Upstream	Lead	3.070	50	50	85	30.2
Bellewstown Br – Downstream	Lead	5.625	50	50	85	30.2

The sediment lead results presented by Fitz Scientific laboratories are based on 'as-is' or 'wet weight' concentrations, whereas the published soil standards are presented as a 'dry weight' concentration. Therefore it is not possible to do a simple comparison of the results.

Furthermore, because there has been no assessment of the moisture content of the sediment samples, it is not possible to accurately convert the 'wet weight' results into 'dry weight' results.

A 'dry weight' value includes a measurement of the moisture content of the sample, and the calculated concentration is based on the percent solids present in the sample. Generally, contaminant concentrations reported on a 'dry weight' basis are higher than the same result on an 'as-is' or 'wet weight' basis.

The degree of bias is affected by the moisture content of the sample. If samples are relatively dry (ie. low moisture content), there may not be a significantly higher result when reported as a dry weight basis. Sediments however are likely to have a high moisture content, and can therefore have a significantly higher 'dry weight' value than 'as-is' or 'wet weight' value.

However, assuming a solids value of 35% for the sediment samples, the final dry weight concentrations of lead in the sediment samples are still significantly lower than the published standards (ie. 8.79mg/kg dry weight upstream and 16.07 mg/kg dry weight down stream).

### River Water Results

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

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

### Discussion of Results

The results show that the concentration of lead in the sediment and water samples from the downstream location are higher than the lead levels in the samples taken from the location upstream from the industrial estate surface water discharge point.

However, the concentrations of lead that were detected in the downstream sediment and water samples were significantly lower than the published quality standards.

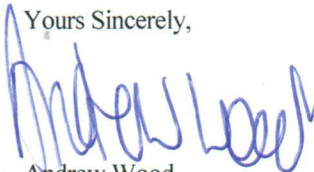
Consequently, whilst the results show that there is an increase in the concentration of lead in the water and sediment samples taken downstream from the industrial estate discharge point, when compared to the relevant quality standards, this impact is not considered to be significant.

Although there are a number of potential sources of emissions of lead into the surface water run off from the industrial estate, WEML recommends 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.

Finally, WEML recommends that if further sediment samples are taken for analysis in the future, the results are requested to be presented on a dry weight basis.

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

Yours Sincerely,



Andrew Wood.  
Managing Director.

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