

**APPENDIX 6L**

**ENVIRONMENTAL MONITORING PLAN**

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**ROADSTONE DUBLIN LIMITED**

**INVESTIGATION INTO UNAUTHORISED DUMPING ON LANDS**

**AT**

***DILLONSDOWN, DEERPARK AND NEWPADDOCKS***

***BLESSINGTON, CO. WICKLOW***

**PROPOSED ENVIRONMENTAL MONITORING PROGRAMME**

**6<sup>TH</sup> AUGUST 2003**

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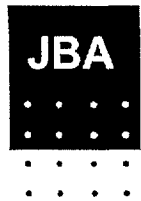
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## ROADSTONE DUBLIN LTD.

### UNAUTHORISED DUMPING ON LANDS AT BLESSINGTON, CO. WICKLOW

#### PROPOSED FUTURE ENVIRONMENTAL MONITORING PROGRAMME

August 2003

#### INTRODUCTION

This document outlines the proposed future environmental monitoring programme in relation to the unauthorised dumping on Roadstone Dublin Ltd.'s lands at Blessington.

Monitoring infrastructure was installed, and monitoring has been ongoing at the site since early 2003. The results of this ongoing monitoring have been provided to the Environmental Protection Agency and Wicklow County Council.

The proposed future programme includes surface and groundwater monitoring, and gas monitoring. The scope of the monitoring will be reviewed when the environmental risk assessment is completed and the preferred remediation option(s) determined. It is proposed to commence this monitoring regime in September 2003.

#### SURFACE WATER & GROUNDWATER MONITORING

The proposed surface water and groundwater monitoring programme is as follows;

- i) Quarterly monitoring of groundwater in 17 no. groundwater wells (denoted as GW on Figure 1). This includes 3 no. additional wells to be installed at the locations outside the RDL land ownership, as recommended by O'Laoire Russell, consultants to Wicklow Co. Council.
- ii) Six monthly monitoring of the perched water in 11 no. shell and auger boreholes (denoted as BH on Figure 1).
- iii) Quarterly monitoring of surface water at 2 no. locations along the Burgess Stream.
- iv) The GW, BH and SW monitoring locations are shown on Figure 1 attached.
- v) Suites of analyses, analysis methods and detection limits are shown in Table 1 attached.

#### GAS MONITORING

Each groundwater well and borehole has been fitted with a gas tap to facilitate gas monitoring. It is proposed to continue gas monitoring at each groundwater well (GW) and each borehole (BH) location on a quarterly basis. This monitoring will include testing for methane, carbon dioxide, oxygen, carbon monoxide and hydrogen sulphide. A calibrated portable landfill gas analyser (GA2000) will be used to carry out the monitoring.

#### REPORTING

A quarterly monitoring report will be prepared and submitted in an agreed format to the regulatory agencies within 4 weeks of the monitoring being carried out.

The monitoring programme will be reviewed on a regular basis with the regulatory agencies in order to assess the future monitoring requirements and to identify actions, if any.

It is proposed that the monitoring programme be wound down within 3 to 5 years, once the risks posed by the three sites have been proved to be acceptably low.

**TABLE 1 - Proposed Test Suites for Groundwater & Surface Water Quality Analysis**

**Roadstone Dublin Ltd. - Blessington**

Proposed Parameters	Proposed Method	Proposed Detection Limit	Ground Water	Surface Water
<b>General</b>				
pH	*	0.1units	✓	✓
EC	*	10µs/cm	✓	✓
Dissolved Oxygen	*		✓	✓
Redox Potential	*		✓	✓
COD (filtered)	SPECTRO	15mg/l	✓	✓
BOD (filtered)	5 Day ATU	2mg/l	✓	✓
<b>Inorganics</b>				
Flouride	KONE	0.05mg/l	✓	✓
Chloride	KONE	1mg/l	✓	✓
Sulphate (SO <sub>4</sub> )	KONE	3mg/l	✓	✓
Sulphide	KONE	0.05mg/l	✓	✓
Ammonia	KONE	0.2mg/l (as N)	✓	✓
Nitrate	KONE	0.3mg/l (as N)	✓	✓
Nitrite	KONE	0.05mg/l (as N)	✓	✓
<b>Metals/Metalloids (dissolved**)</b>				
Cd (0.4µg/l), Cu (5µg/l), Cr (1µg/l), Pb (5µg/l), Ag (1µg/l), Sr (0.05mg/l)	ICP-MS		✓	✓
Ni	ICP-MS	10µg/l	✓	✓
Zn	ICP-MS	5µg/l	✓	✓
Se	ICP-MS	0.05µg/l	✓	✓
As	ICP-MS	10µg/l	✓	✓
P	ICP-MS	0.05mg/l	✓	✓
Fe	ICP-MS	1µg/l	✓	✓
Mn	ICP-MS	1µg/l	✓	✓
<b>Petroleum Hydrocarbons</b>				
Banded TPH	GC-FID	10µg/l	✓	✓
Fractionated TPH	CWG	***	✓	✓
PAH's	GC-MS	0.01µg/l	Area 1 wells only	✓
Volatile Organic Compounds (VOC)	GC-MS (USEPA 624)	1µg/l	Area 6 wells only	-

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