

## **SECTION 10**

- The 2009 Feasibility Study for the Management and Remediation of the Avoca Mining Site by the Department of Communications, Energy and Natural Resources along with the supporting databases are presented in electronic format only as Section 10 on the attached CD-ROM included in Section 8 of this submission.
- CDM Letter August 2010.

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Date: 20<sup>th</sup> August 2010

Breege Kilkenny  
Wicklow County Council  
County Buildings  
Wicklow

Subject: **Ballymurtagh Landfill Waste Licence Application  
- Supplementary Information (Item number 10 and 11)**

Dear Breege,

As per your request please find attached the supplementary data in response to the EPAs request for further information as part of the Ballymurtagh Landfill Waste Licence application.

10. All trace metal and metalloid data (if it was collected), for example arsenic and nickel which are expected to also be associated with the mine workings area.

The nature and extent of the contamination sources from the Avoca Mine workings are discussed in detail in the "Feasibility Study for the Management and Remediation of the Avoca Mining Site" (CDM, 2008). The Site Investigations Data Report is contained in Volume 1, which provides the procedures used in the field and the data resulting from the sample collection and site investigations. The Data Report is attached, along with all of the data tables in an excel format.

Small amounts of arsenic are present in the mine spoils typically up to 3900 mg/kg, but it is not in a leachable form (relatively insoluble arsenic bearing plumbojarosite). Therefore, arsenic is typically not detected (<1 µg/L) in the acid mine discharges. The Avoca mineral deposit does not have nickel and the values present in spoils are very low (0.8 to 40 mg/kg) and similar to values in many Irish soils (median value of 18 mg/kg). However, some low values of nickel do show up in acid mine discharge (typically <100 µg/L). Overall, arsenic and nickel are not good elements to identify impact due to acid rock or acid mine drainage at Avoca because of the very low values and many non-detectable values in the spoils, discharges and the Avoca River. As such, they were not included in the Principal Component Analysis carried out as part of the Ballymurtagh Landfill Environmental Impact Statement (2009).

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*11. River water quality data (graphed) of landfill specific chemicals of potential concern and in particular ammonium, key trace metal and metalloids and pH.*

A time series of river water quality data for the Avoca River has been compiled which dates from 2001 to 2010. Ammonium (NH<sub>4</sub>) and chloride (Cl) are considered landfill specific chemicals of potential concern and the time series is presented graphically in the attached spreadsheet.

Please do not hesitate to contact me should you have any queries.

Yours sincerely,



Lorraine Gaston  
CDM (Ireland) Ltd

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