

Northern Ireland 2008 Guidance notes for Exemption-CDEW-C&I Reports

CAPITA SYMONDS

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Northern Ireland data for the UK Waste Statistics Reporting Regulation (WSRR) Report

The Northern Ireland Environment Agency is in the process of preparing data on waste arisings and management in 2008 which will contribute to the report from the UK to be submitted in response to the EU's Waste Statistics Reporting Regulation (the 'UK WSRR Report'). The UK WSRR Report has to be submitted by June 2010. The majority of the information from Northern Ireland that will eventually be included in the UK WSRR Report will come from site returns made by authorised waste management operations (landfills, waste treatment facilities etc), but some has been generated via a small-scale survey of sites that are exempt from waste licensing. That survey was commissioned specifically to enable the UK WSRR Report to be completed, and was undertaken during 2009.

As a consequence of this survey, together with other analyses done in preparation for completing the UK WSRR Report, it is now possible to compare 2008 findings for two important sectors of the waste market in Northern Ireland with previous estimates which relied more heavily on surveys. The two sectors are commercial and industrial (C&I) waste; and construction demolition and excavation waste (CDEW), and the three reports which are now available are:

- A report on the 2009 survey of exempt sites.
- A report comparing estimated CDEW arisings and management in 2008 with estimates from 2006.
- A report comparing C&I waste arisings and management in 2008 (based almost entirely on site returns) with estimates made in 2006 (which were based on a survey which had been carried out in 2004/05).

Whilst each report can be treated as a self-contained document the information below is referred to by some of them.

Description of the estimation of waste generation in the economy on the basis of information collected on waste treatment

All site waste return data was collected directly by NIEA via forms submitted electronically by the licensed sites. Once collected centrally, each licensed facility could be allocated into six distinct groups based on the completeness of data they supplied. Subsequently, each licensed facility was stratified into groups based on facility type. For example, all landfills were stratified together.

These six distinct groups are defined, and include the following:

- Group 1 facilities are those facilities still listed with a waste management licence, but which are no longer operational;
- Group 2 facilities are those facilities which are operational but did not provide a single response in any quarter;
- Group 3 facilities are those facilities which are operational and provided at least one nil return in any quarter, with the remainder quarters being non-responses;
- Group 4 facilities are those facilities which could provide quarterly data, but could not provide any SIC Code data in any of the quarters in which they responded;
- Group 5 facilities are those facilities which provided actual data in at least one quarter with full SIC Code data;
- Group 6 facilities provided full data in all quarters.

The splitting of all licensed sites into these six groups enabled the identification of which particular facilities had missing data and hence which required imputation from the existing data collected from other sites. To facilitate this process, all sites within these six groups were stratified into further subgroups corresponding to facility type. This was done with the assumption that facilities of a similar type were more likely to handle similar wastes and collect wastes arising from similar industries.

Imputing Missing Data

Each licensed waste management facility was allocated into one of the six groups stated above corresponding to the quality of the data they were able to provide to NIEA. To impute missing data for those facilities which were non-respondent over at least one quarter, it was necessary to treat each of the six groups differently.

All of group 1 were discarded from the assessment as such sites were not operational during 2008. Likewise, all sites solely handling municipal waste were considered to be covered by data collected by Waste Data Flow and were hence excluded from those facilities for which data was imputed, regardless of whether they provided non-responses over several quarters of 2008. Licensed facilities in group 6 supplied complete data, and hence no imputation of any missing data was required for this group.

The remaining four groups required missing data to be imputed from the only available source: data supplied by other licensed facilities over the four quarters of 2008. In total the 199 quarters requiring imputation broke down as follows:

- Group 2 facilities: 92 quarters;
- Group 3 facilities: 19 quarters;
- Group 4 facilities: 23 quarters; and
- Group 5 facilities: 65 quarters.

Group 2 Data Imputation: All operational licensed facilities in this group did not provide any data in any quarter. Hence all facilities within this group were non-respondents over all four quarters. In total, there were 23 facilities in this group (and hence 92 missing quarters of data), although three of the facilities were covered by Waste Data Flow, hence in total 80 quarters required imputation. To impute missing data from this group, each licensed facility was stratified into strata which contained facilities of a common type. These included the following groups:

- Landfill (receiving waste);
- Landfill (receiving capping material only);
- Non-hazardous waste transfer stations;
- Hazardous waste transfer stations
- Transfer stations not defined elsewhere;
- Non-hazardous treatment plant;
- Hazardous treatment plant;
- ATFs;
- Metal recycling facilities;
- Incinerators;
- Waste water treatment plant;
- Composting plant;
- MRFs;
- Mobile Plant; and
- Clinical waste transfer stations.

The data was then imputed by taking the average tonnage of waste received or managed by each strata for each EWC Code and SIC Code pair, and EWC Code and R or D code pair, and then grossing up by the number of facilities in Group 2 which fall within the same facility stratum.

Group 3 data estimation: All licensed facilities in group 3 included facilities which provided no returns in any quarter beyond providing at least one nil return, although in many cases multiple nil returns covering many quarters were provided by some facilities, with no response for the remaining quarters. In total 19 quarters required imputation from Group 3. A nil return is defined as a site waste return submitted to NIEA but which contains no information relating to wastes handled or processed on site as no waste was received or removed during that particular quarter. Thus the submission of a nil return by a facility can be assumed, as it is likely to be the case, a statement of the fact that the facility providing a nil return was non-operational during that quarter. Facilities falling in group 3 included those which were non-operational throughout the whole of 2008, and those which were partially operational over this period. NIEA determined the fraction of licensed facilities which were operational in group 3, with all non-operational facilities removed and placed in group 1. Imputation of data for missing quarters from facilities in

group 3 often resulted in a facility being classified as a nil respondent over all quarters, as it was often considered this was a more likely outcome than a site receiving waste for one out of four quarters, if say the other three quarters were nil returns.

The licensed facilities falling in Group 4 all provided site return data in at least one quarter, although were unable to provide any SIC Code data alongside the tonnage of waste handled. Whilst some facilities in this quarter had data estimated using hazardous consignment notes as this data had comprehensive SIC Code data, those sites not handling hazardous waste had to have their data imputed. To impute this missing data from the remaining 10 facilities within this group (comprising 23 quarters of data), the missing data was imputed based on the EWC Code and SIC Code data pairs recorded by licensed facilities in the same facility stratum. The data was then apportioned based on averages across all facilities within a particular stratum, and grossed up by the number of missing quarters in that facility stratum. In the cases where one EWC Code arose from several SIC Codes within a particular facility stratum, the tonnage reported in a Group 4 facility but without an associated SIC Code, was apportioned across each SIC Code according to the same proportion as was present when considering all facilities in that stratum. The same approach was done for waste managed, using the EWC Code and the associated R or D code pair respectively.

The approach taken to imputing the missing data from Group 5 facilities involved making use of the actual data provided by each facility in the quarters they responded. An average tonnage for each EWC Code and SIC Code pair was taken over all quarters for each individual facility, and then grossed up by the number of missing quarters for that facility. The same was done for waste managed, using EWC Code and R or D code pair. This process was undertaken for each individual facility in Group 5. Hence all missing Group 5 quarterly data was imputed for each facility by making use of returns made by the same facility. Group 5 non-responses accounted for 65/199 of the quarters requiring imputation.

It should be noted that in 2008 there was still a small percentage of waste management facilities holding older council licenses and were therefore under no obligation to report to NIEA the quantities and types of wastes they handled. Hence such licensed waste management facilities, which were still operational during 2008, where they did not provide data, required their data to be imputed.