APPENDIX A:
NI 185 SPREADSHEET AMENDMENT

To enable the CO_2 emissions (weather corrected) to be calculated on a six month basis, a small amendment to the DEFRA spreadsheet tool was required.

At present, the CO_2 emissions directly calculated from the amount of energy used, are then weather corrected. This is then done by taking into account the number of degree days a region has experienced over the relevant date range of the data, in this case a whole year. It should be noted that only the energy type used is 'Natural Gas' does this correction apply. If the energy type used is 'Electricity (grid)' or 'Electricity – CHP' then no weather correction occurs.

Degree days are the daily difference in temperature between a base temperature and the 24 hour mean outside temperature (when the base temperature is higher than the maximum daily temperature). The degree day figure therefore quantifies how cold (or hot) the weather has been in a given region and is usually expressed as a single index number for each month. In the case of the DEFRA spreadsheet tool, the figures for each month, spanning the financial year in question, are added together to produce a figure for the entire year.

When the CO_2 emissions are corrected according to this degree day factor the following calculation occurs;

$$\text{CO}_2 \text{ emission (weather corrected) (kg)} = \text{CO}_2 \text{ emission (kg)} \times \frac{2462}{\text{No. of degree days}}$$

The figure '2462' seen in the calculation above represents the 20 year average degree day standard for 1 year, for the UK. Therefore the CO2 emission (kg) is multiplied by the proportion of degree days a region experienced compared to the 20 year average.

As the calculation compares the number of degree days entered in the spreadsheet to a yearly average, it requires an entry for the number of degree days over the period of a year for the calculation to work

As such, when the number of degree days over the first two quarters of 2009 were entered into the spreadsheet, the results were distorted.

The table identified through the following;

http://vesma.com/ddd/20year07.htm

identifies the 20 year average degree days for the UK on a monthly basis for every region in the UK. The values for the six months in question (April, May, June, July, Aug, Sept) for the south-eastern region were added together to give a 20 year average for the period of time over which the energy figures were based.

This figure was 461. The calculation in the spreadsheet was then changed to the following;

$$\text{CO}_2 \text{ emission (weather corrected) (kg)} = \text{CO}_2 \text{ emission (kg)} \times \frac{461}{\text{No. of degree days}}$$

This enabled a weather correction to be applied for the six months in question and a more accurate CO_2 emission to be calculated.

Should this correction have not been applied then on the weather corrected CO_2 emissions would not have been able to be calculated, making comparison to previous data more challenging, and would resulted in inaccurate data being produced.