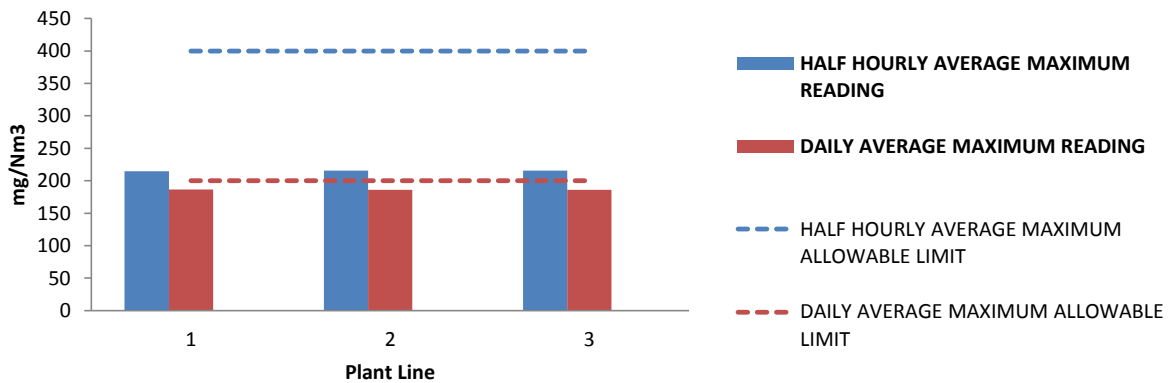


## Riverside Resource Recovery emission report – December 2015

The following charts summarise the emission data for the Riverside Resource Recovery facility. The charts show the **MAXIMUM** readings taken during the month.

### December 2015 - Nitrogen Oxide



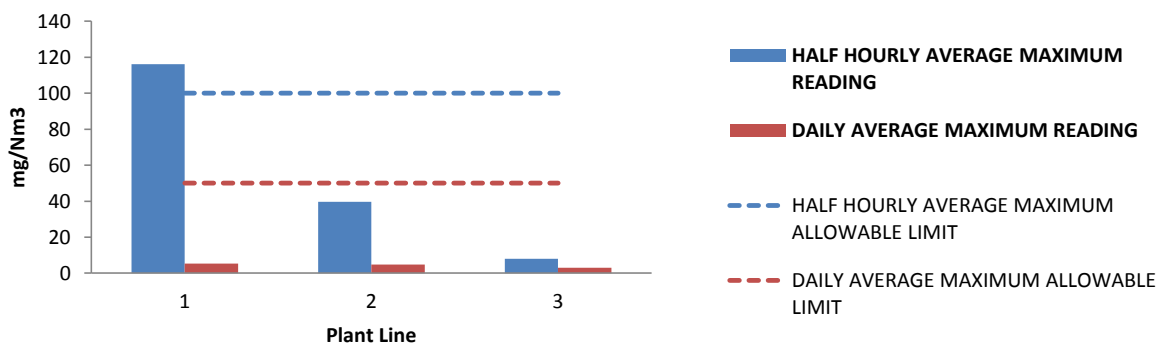
#### MONTHLY MEAN OF THE HALF HOURLY AVERAGE

Line 1 = 185 mg/Nm<sup>3</sup>  
 Line 2 = 184.3 mg/Nm<sup>3</sup>  
 Line 3 = 184.2 mg/Nm<sup>3</sup>

#### ***Why do we control and monitor Oxides of Nitrogen (NOx)?***

NOx includes various compounds, but is usually used to group two gases; nitrogen dioxide (NO<sub>2</sub>) and nitric oxide (NO). These can be formed naturally, but are also formed from man-made processes like fuel combustion or biomass burning. There are a number of health and environmental issues attributed to NOx, including smog, acid rain, and possibly global warming.

### December 2015 - Carbon Monoxide



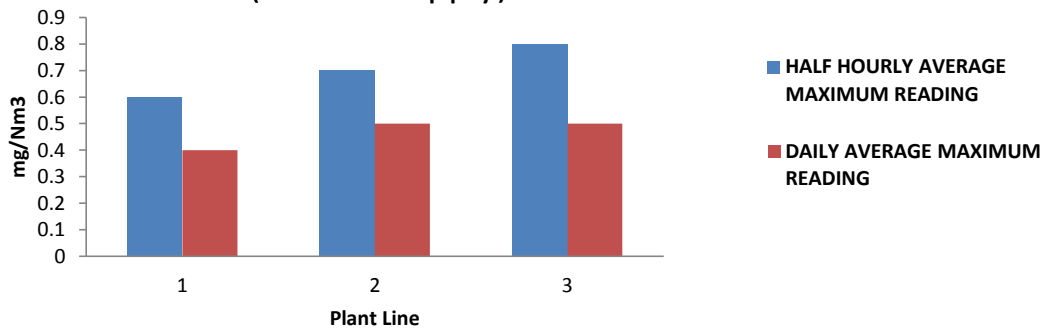
#### MONTHLY MEAN OF THE HALF HOURLY AVERAGE

Line 1 = 2.7 mg/Nm<sup>3</sup>  
 Line 2 = 3.5 mg/Nm<sup>3</sup>  
 Line 3 = 2.5 mg/Nm<sup>3</sup>

#### ***Why do we control and monitor Carbon Monoxide?***

Carbon monoxide is both a common naturally occurring chemical and is manufactured by man. It is a colourless, odourless poisonous gas. Carbon monoxide is one of the eight substances for which the government has established an air quality standard as part of its national Air Quality Strategy.

## December 2015 - Ammonia (no limits apply)



### MONTHLY MEAN OF THE HALF HOURLY AVERAGE

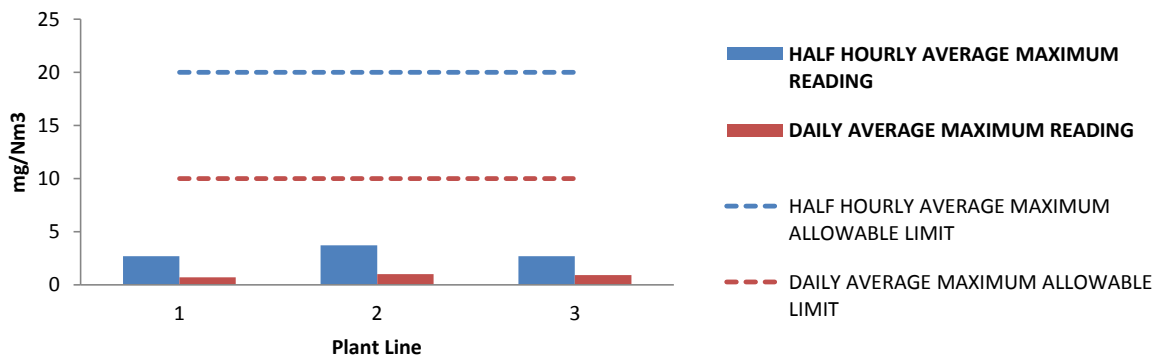
Line 1 = 0.4 mg/Nm<sup>3</sup>  
 Line 2 = 0.4 mg/Nm<sup>3</sup>  
 Line 3 = 0.4 mg/Nm<sup>3</sup>

### Why do we control and monitor Ammonia?

Although in wide-use in several industries, ammonia is both caustic and hazardous. It is a colourless gas with a characteristic pungent odour.

Ammonia, unlike the other species monitored, is not a product from the incineration of waste but is actually introduced into the furnace. Under the right conditions, ammonia is able to reduce oxides of nitrogen found in the flue gas by the chemical process Selective Non-Catalytic Reduction (SNCR) to nitrogen and water vapour which are both non-hazardous.

## December 2015 - TOC's



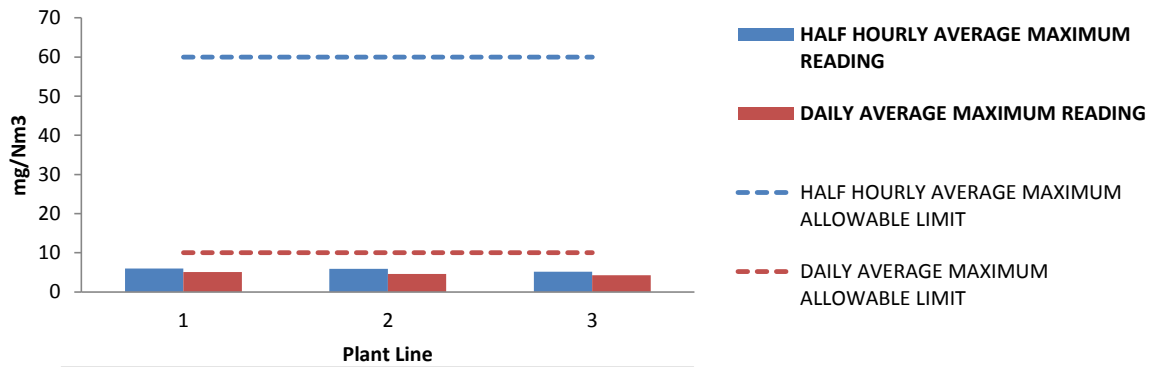
### MONTHLY MEAN OF THE HALF HOURLY AVERAGE

Line 1 = 0.3 mg/Nm<sup>3</sup>  
 Line 2 = 0.3 mg/Nm<sup>3</sup>  
 Line 3 = 0.5 mg/Nm<sup>3</sup>

### Why do we control and monitor Total Organic Carbon (TOC)?

Total Organic Carbon (TOC) consists of a wide range of organic compounds including Volatile Organic Compounds (VOCs). VOCs are numerous, varied and found everywhere. VOCs are of general concern because of their ability to react with other pollutants (such as nitrogen oxides) in the lower atmosphere to form ozone. High concentrations of ozone at ground level can harm human health, damage crops and affect materials such as rubber. Some VOCs may be directly harmful to human health, contribute to global warming or destroy stratospheric ozone needed to shield the earth's surface from harmful ultra violet radiation.

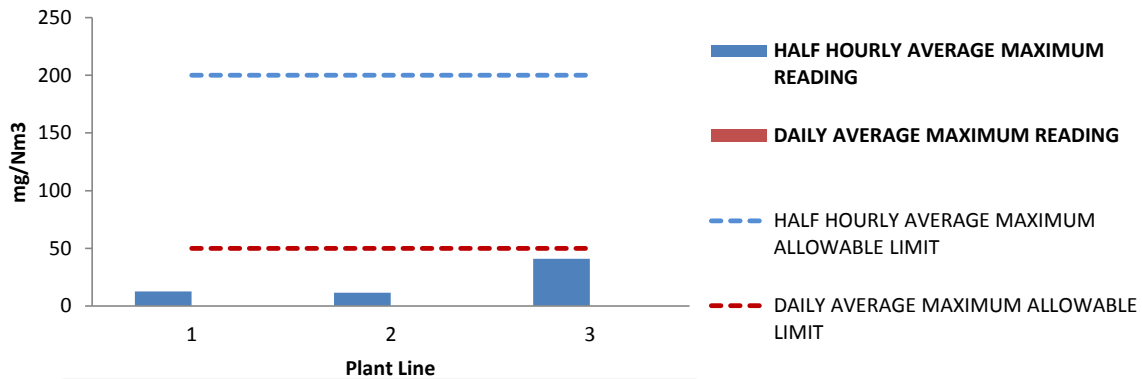
## December 2015 - Hydrogen Chloride



### MONTHLY MEAN OF THE HALF HOURLY AVERAGE

Line 1 = 3.9 mg/Nm<sup>3</sup>  
 Line 2 = 3.5 mg/Nm<sup>3</sup>  
 Line 3 = 3.0 mg/Nm<sup>3</sup>

## December 2015 - Sulphur Dioxide

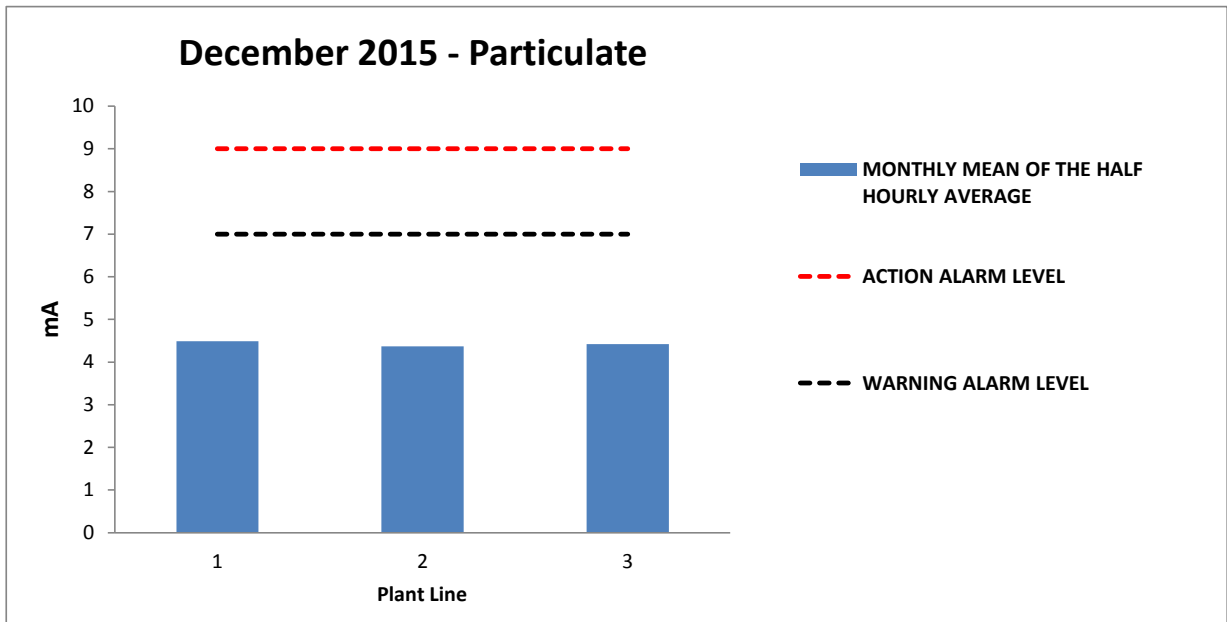


### MONTHLY MEAN OF THE HALF HOURLY AVERAGE

Line 1 = -2.2 mg/Nm<sup>3</sup>  
 Line 2 = -2.3 mg/Nm<sup>3</sup>  
 Line 3 = -1.6 mg/Nm<sup>3</sup>

### Why do we control and monitor Sulphur Dioxide and Hydrogen Chloride?

Both gases dissolve in water to form strong acids and thus can contribute to the formation of acid rain. Acid rain is environmentally damaging to crops, soils and waters.



In July 2015, the EA agreed to allow RRRL to follow Monitoring Quick Guide 6 (RM-QG-06 Calibrating particulate-monitoring continuous emission monitoring systems (CEMs), especially for low concentrations of particulate matter). In October 2015, the change necessary to monitor particulate qualitatively as opposed to quantitatively was implemented within the Envirosoft system. RRRL now report particulate data in mA (milliamps). The Half Hourly and Daily ELVs no longer apply, the ELVs have been replaced by two alarm levels that prompt the operator to start an investigation or take further action these are set at 7mA – Warning Alarm and 9mA – Action Alarm.

**Why do we control and monitor Particulates (dust)?**

Particulates is the term used to describe tiny particles in the air, made up of a complex mixture of soot, organic and inorganic materials having a particle size less than or equal to 10 microns diameter (10 microns is equal to one hundredth part of a millimetre). Particulates is one of the eight substances for which the government has established an air quality standard as part of its national Air