
Dublin City Council
Environment SPC

Air Quality Poolbeg & Docklands

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November 2015

- Approach
 - analyse
 - research
 - critique

- Actual Measurements
 - PM10 readings

- EPA Waste Licence
 - Findings at hearing
 - Board decision

- Standards
 - Irish Regulations SI 180 of 2011
 - PM10 - 35 exceedences pa

 - WHO Air Quality Guidance
 - Published 2006
 - » Fact sheet N°313 - Updated March 2014
 - PM10 – 3 exceedences
 - PM2.5 – 3 exceedences

- **Air Quality and Odour**
 - 13.3.4 on p333 – Baseline Ambient Air Quality

The Peninsula and surrounding areas have also been subject to air quality monitoring for the period 2003 – 2007 as part of the baseline data gathering exercise for the Waste to Energy EIS. The most recent data was presented at the oral hearing for the waste licence application in April 2008. Dr. Brian Broderick's report for An Bord Pleanála regarding the Dublin Waste to Energy Air Quality and Climate section of the EIS stated that the extent of sampling was sufficient to assess the temporal and spatial variation in ground level concentrations in the vicinity of the WwTW, and to compare existing air quality with limit values."

From report page 3
para 4.2

Further air quality assessments were subsequently carried out for the Poolbeg Planning Scheme. No further ambient air monitoring has been carried out as part of this assessment of the receiving environment as the existing information is considered sufficient for the purposes of this assessment which relates to the temporary impacts due to an increase in traffic during the construction period.

- Dr Broderick's report
- p5 4.3
 - In fact, the PM10 survey is comprehensive and **shows clearly that the limit value is exceeded.**

Incinerator EIS

- Dr Broderick's report

- p8 5.4
 - In particular, the mean measured PM10 concentration should not have been used to define the background concentration of this pollutant when the highest 24-hour average concentrations are being considered. **This has led to the erroneous prediction that fewer exceedances of the 24-hour limit value would occur** when the WtE facility is in operation than were identified in the baseline survey.

- p21 7.28
 - These values indicate that PM10 emissions from **the proposed WtE facility may have a significant adverse impact on air quality.**

- p22 7.30
 - The effect of PM10 emissions from the proposed WtE facility **should be considered to be significant.**

- Dr Broderick's report

- p32 11.4
 - In the case of **PM10 and NOx**, the AERMOD modelling results presented in the EIS suggest that during operation of the proposed WtE facility, concentrations of these pollutants will be below their limit values. **These results disagree with the results of the baseline survey** and are attributable to the manner in which the background concentrations of these pollutants were defined. **For both pollutants, the background concentrations**, which are added to the AERMOD output to calculate the expected total ambient concentrations, **have been underestimated**. More appropriate definitions would have lead to modelled concentrations that **exceed their limit values** at some locations.

PM10 Measurements

- Baseline Data

- Dr Porter extrapolations
 - Statistical manipulation

- Corrected analysis
 - Report all data points
 - Show exceedences
 - Compare with current standard
 - Compare with WHO guidelines

- **AWN Porter Baselines**
 - Cycle Way
 - Baseline
 - EIS
 - ABP Oral Hearing
 - EPA Oral Hearing

- **2010 – 2011 EPA Measurements**

PM₁₀ Baseline Levels

In relation to background levels of PM₁₀, the trend in the data over the last 2-3 years indicates a gradual decrease in annual average data as shown in Figure 6.4 from a level approaching 36 µg/m³ in 2004 to approximately 30 µg/m³ in 2007.



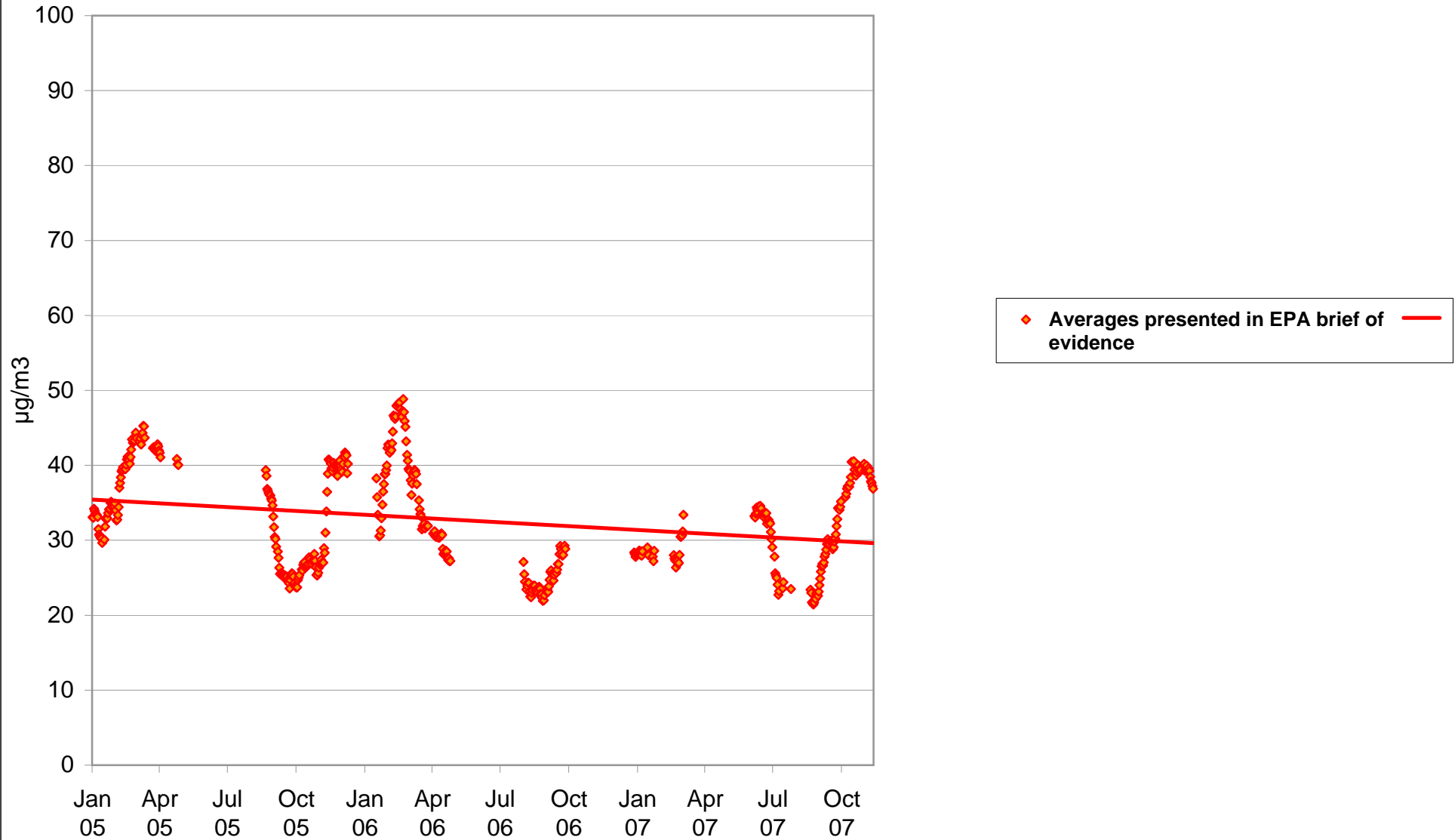
The UK DEFRA publication “Local Air Quality Management” (LAQM.TG(03))⁽³⁾ outlines the approach for extrapolating from the current year to the year of opening of the facility (2012). The emission factor tool incorporates the predicted reductions in PM₁₀ concentrations in future years. Levels in 2012 using the emission factor tool are predicted to reduce to 28.9 µg/m³ as an annual average (including cumulative impacts and additional traffic due to the scheme) (as shown in Figure 6.4). In order to extrapolate from the annual mean to the number of exceedences of the 50 µg/m³ 24-hour limit value, the UK LAQM.TG03 has derived an empirical relationship between the number of 24-hour exceedences of 50 µg/m³ and the annual mean concentration (which is derived from the UK Automatic Network sites over the period 1997 - 2001). The formula is⁽³⁾:

$$Y = -18.5 + 0.00145x \text{ annual mean}^3 + 206/\text{annual mean}$$

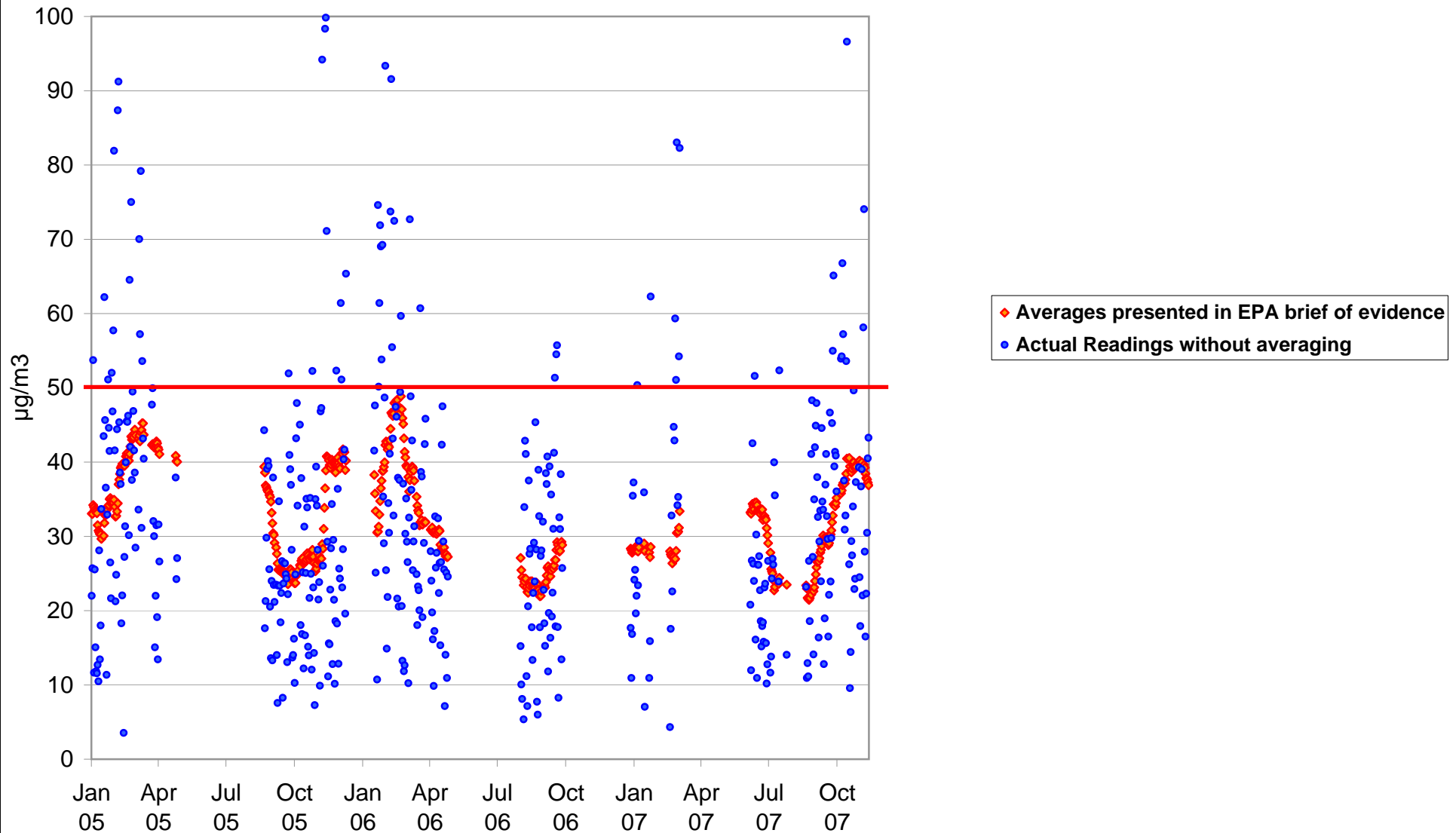
$$Y = -18.5 + 0.00145x (28.9)^3 + 206/(28.9)$$

$$Y = 24 \text{ exceedences of the } 50 \mu\text{g/m}^3 \text{ limit value (35 exceedences are allowable in any one year)}$$

Poolbeg EIS Averaged PM10 readings



Poolbeg EIS Averaged PM10 readings



PM10 Measurements

- Decision by EPA
 - Extracts from hearing
 - Board decision
- Graphs from DCC analysis

**Report on the
Objections and Oral Hearing
on the
Proposed decision of a Waste licence
for
Dublin City Council.**

Register No. W0232-01

Main Report

**Report by: Ms. Marie O'Connor
Assisted by: Ms Ann Marie Donlon**

03rd September 2008

10. Amend Condition 3.10.2 to read as follows:

- 3.10.2 Implementation of an odour and fugitive dust management system to include periods when process lines and/or induced draft fans are not operational.

11. Reword Condition 3.13.1 to read as follows:

- 3.13.1 Effective surface water management infrastructure shall be provided and maintained at the facility.

12. Delete Condition 3.13.2

13. Reword Condition 3.14.2 to read as follows:

- 3.14.2 The licensee shall install and maintain silt traps and oil separators at the facility to ensure that all storm water discharges (other than roof rain water) from the facility pass through a silt trap and oil separator prior to discharge. The separator shall be a Class I full retention separator and the silt traps and separator shall be in accordance with I.S. EN 585-2:2003 (separator systems for light liquids).

14. Reword Condition 3.15.2 to read as follows:

- 3.15.2 Incinerator residues destined for ships within the Dublin Port Area may be removed from the facility at any time. Otherwise waste may be removed from the facility only between the hours of 0800 hrs to 1830hrs Monday to Friday inclusive and 0800 hrs to 1400 hrs on Saturdays.

15. Insert Condition 3.16.3 to read as follows:

- 3.16.3 Prior to the commencement of the waste activity, the licensee shall submit an updated report on air quality in the vicinity of the site and the predicted impact of the development with particular reference to the air quality standards specified in S.I. 271 of 2002 or those pertaining at the proposed date of commencement of the waste activity. The report shall, as a minimum,

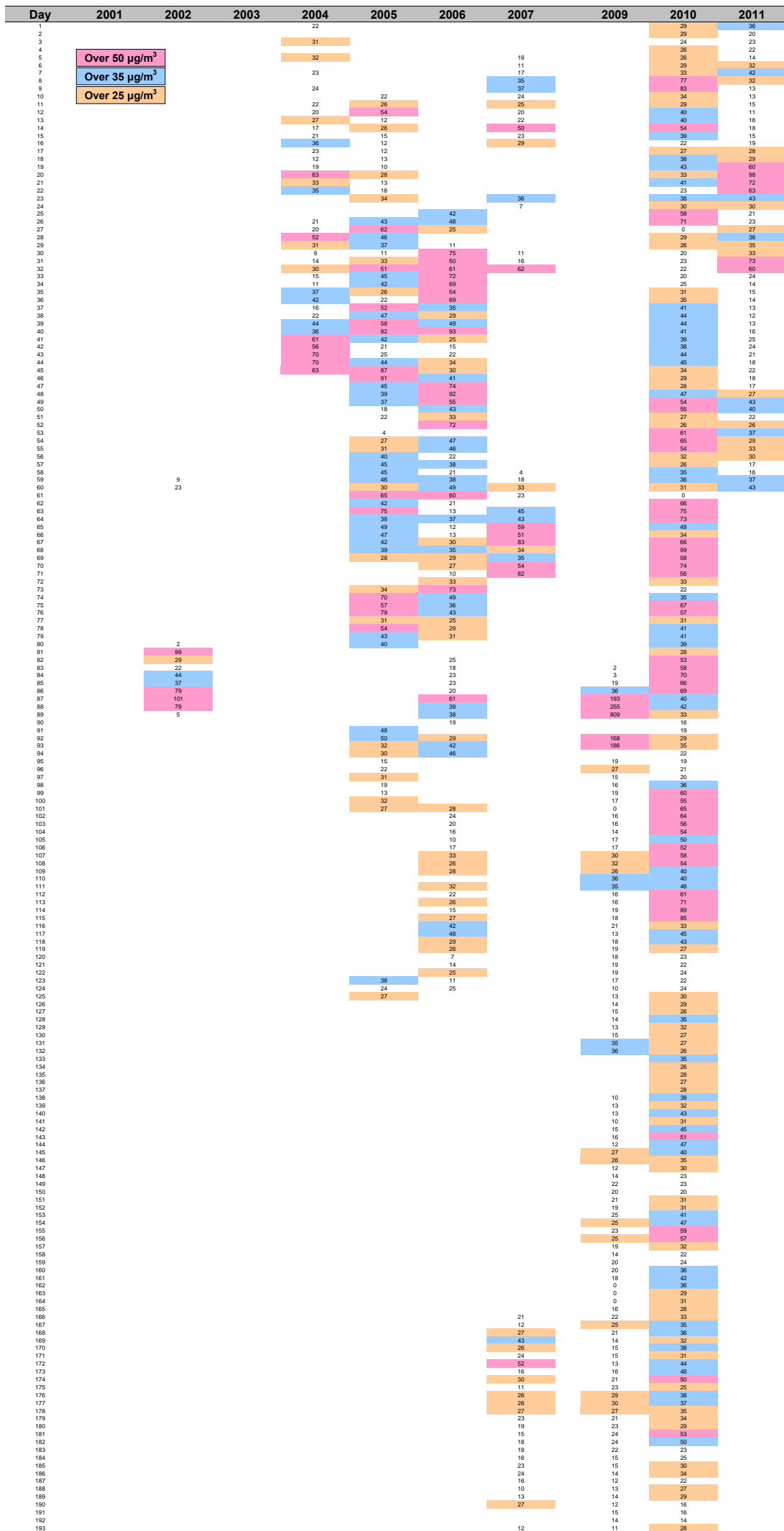
- (a) include ambient air quality monitoring at the locations specified in the application (or otherwise agreed with the Agency) for at least three years prior to the commencement of the waste activity,
- (b) provide a comparison of the actual measurements from (a) above with the predictions for air quality post 2012 as outlined in Section 8 of the EIS, and
- (c) update the impact assessment of the development having regard to the measurements from (a) above.

The licensee shall not commence the waste activity at the facility until it has received the prior written agreement of the Agency with the Air Quality report.

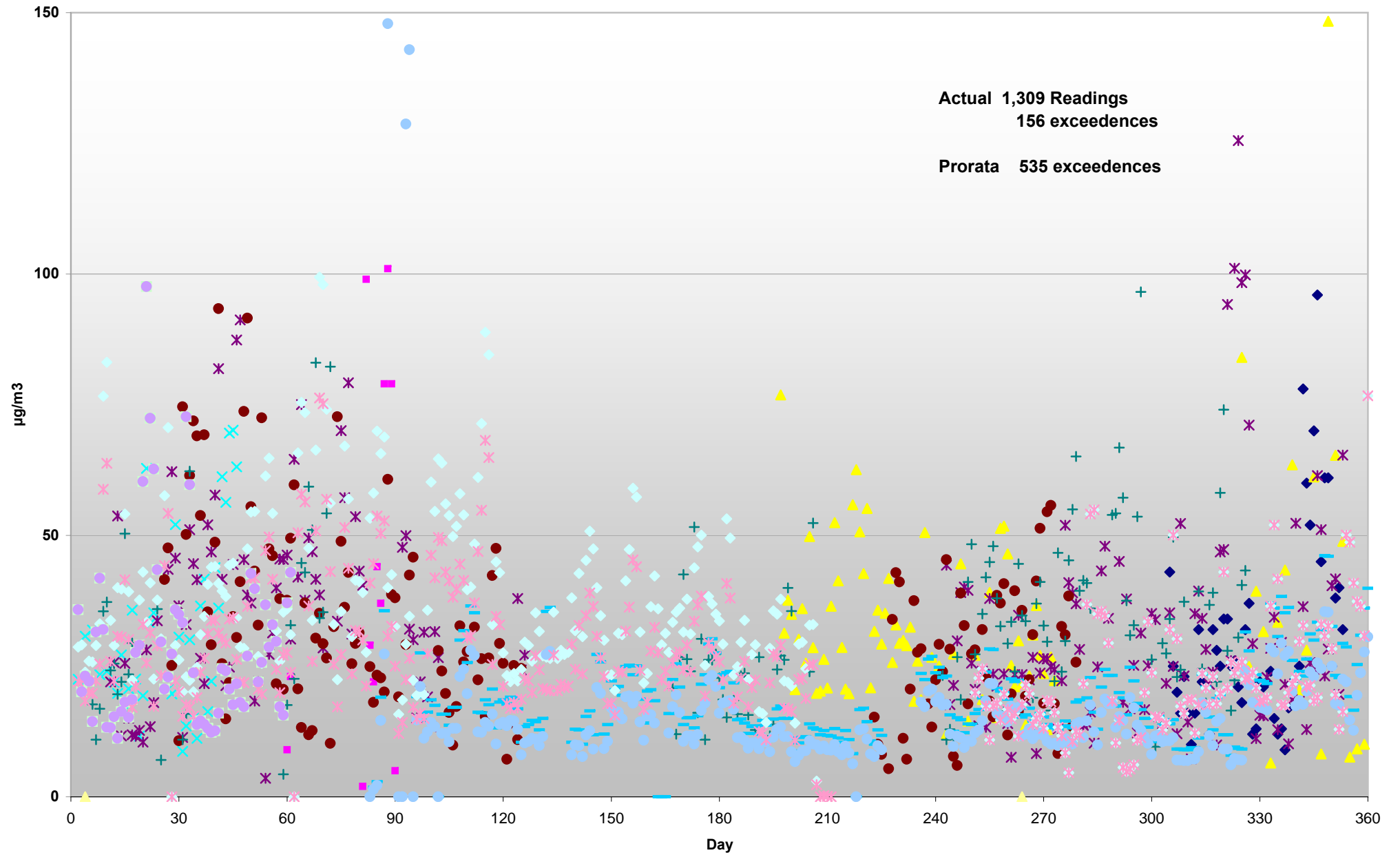
16. Reword Condition 3.18.8 to read as follows:

- 3.18.8 Each process line of the incineration plant shall have and operate an automatic system to prevent waste feed to that line:
- (a) At start-up, until the temperature of 850°C has been reached;
 - (b) Whenever the temperature of 850°C is not maintained;
 - (c) Whenever the continuous measurements show that any emission limit value is exceeded due to disturbances of the purification devices; and

PM10 readings 2001 to 2011



PM10 Readings - 10 Year Plot - 2001 to 2011



Summary AQ Breaches

	Incinerator EIS Sean Moore Road			S2S Project	Port Tunnel	Breach
	Readings	Exceedences	Prorata pa	Prorata pa	pa	
2001				53.2		Yes
2002				121	>33	Yes
2003	88	14	58.1		>33	Yes
2004	37	7	69.1		33	Yes
2005	187	26	50.7		158	Yes
2006	142	18	46.3			Yes
2007	139	19	49.9			Yes
	EPA Sean Moore Road *					
2010	165	18	39.8			Yes
2011	169	18	38.8			Yes

* Estimated from graphs displayed on EPA web site

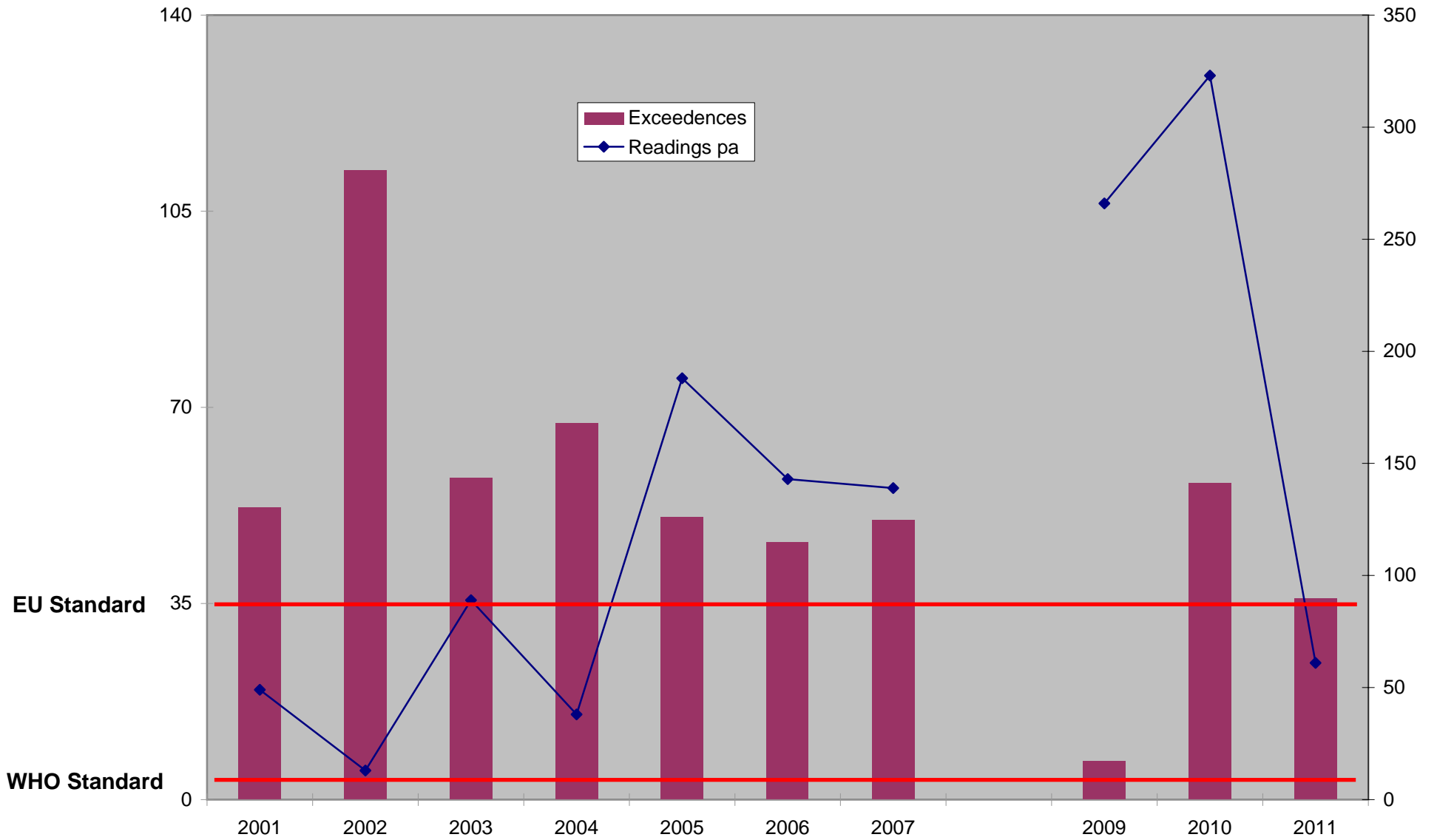
Topics

- **Air Quality**
 - PM 10 exceedences
 - Irish standard breached
 - Collect all references

- **Errors**
 - One might be misfortunate
 - Two might be careless
 - Six look interesting
 - All one sided

- **Policy**
 - ABP handed question to EPA
 - No QA or checking
 - Who acts as devils advocate?

Exceedences per annum 2001 to 2011



Merry-go-round

- DCC

- Consultants

- ABP

- Hearing

- Report

- Board

- EPA

- Hearing

- Report

- Board

- DCC

Conclusion

- Air quality already compromised in Poolbeg
- Continuous monitoring is necessary to safeguard our health