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Ms. Maria Lenihan
Environmental Protection Agency
Cork Regional Inspectorate
Inniscarra
Co. Cork

31st January 2018

Re: Site Visit Report 18th December 2017, SV13832 – Site Specific Issue 1.1

Dear Ms. Lenihan,

I refer to site specific issue 1.1 of the Site Visit Report 18th December 2017, SV13832. The site visit was carried out on the 4th December 2017. As a result Irish Cement received a non-compliance (NC009891) which is disputed with condition 5.4 of IE licence no. P0029-5. Irish Cement would like to make the following observations:

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In the SV 13832 report in section 1.1 it is stated that *"Irish Cement reported an incident, INCI013467, in relation to a spill/leak of raw material feed at the inlet to the kiln. This incident resulted in a number of complaints being received by both the licensee and the Agency. As part of the investigation of these complaints, dust samples were taken from cars belonging to two residents living in vicinity of the Irish Cement facility. The analysis report (report No S15130) has confirmed that the sample taken on site is a good match for the samples taken offsite and also is very similar in composition to cement dust samples (reference 40630-40634, Report No. S14805) which were previously analysed. This is a non-compliance with Condition 5.4 of the licence (Non-compliance NC009891 refers)."*

While we accept that complaints were made around the same time as an incident reported by Irish Cement to the EPA, we do not accept the causal link that is immediately made in the above paragraph.

Nor is it accepted by Irish Cement that the "sample taken on-site is a good match for the samples taken offsite" as is apparent from even a cursory reading of the results of the analysis of the TCD Laboratory report. In this particular case, no such finding was made. We set out the correct position in greater detail below.

In addition, it is relevant that on this occasion there was no wind blowing across our site or blowing towards the area(s) of the complainants at or around the time of the incident. The attached Met Eireann data for December 3rd for the weather stations in Shannon demonstrates that the prevailing weather conditions at or around the time of the incident were little or no wind with dense fog locally at the time.

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The evidence from the ambient dust monitor located at the Irish Cement site boundary for the same period (also attached) confirms no elevated levels of dust that might be expected if dust was moving from the site to the locations where the samples were taken.

In terms of the analysis carried out, Irish Cement has reviewed both the report (S15130) and its conclusions as carried out by the Centre for Microscopy and Analysis (CMA) on behalf of the EPA. To be clear the CMA report does not conclude that the samples taken from cars belonging to two residents living in vicinity are "a good match" to the sample taken from Irish Cement on the 4th December 2017 last. Inspection of the spectra by Irish Cement from each of the samples analysed by CMA detects the presence of Silicon, Aluminium, Calcium, Magnesium, Iron, Sulphur, Sodium, Potassium, Oxygen and Carbon. These elements are common to all materials in the built environment and by their very nature are ubiquitous. However, on closer inspection the clear presence of Chlorine (at ca. 2.65 keV) is evident in the sample taken on-site by the EPA where the incident occurred and was reported (sample 4) at Irish Cement on the 4th December last. This signifier (Chlorine) is singularly absent from and not detected in samples 2 or 3 taken from vehicles offsite in the neighbourhood. The presence of Chlorine in the sample taken by the EPA at the Kiln seal is consistent with the chemistry of kiln operation I.e. calcination of raw meal coming from the preheater tower and entering the kiln. The presence of Chlorine as analysed by CMA in sample 4 of their report is consistent with the chemistry of the material sampled in the kiln inlet / kiln seal area and in this case can be used as a fingerprint. This distinction is born out not only by reference to the comparison between on-site sample 4 on the one hand and samples 2 and 3 on the other hand, but also on review of the CMA report, S14805, which is clearly wrongly referenced by the EPA as containing the same elements as are in sample 4 (i.e. Chlorine has not been detected in any of the reference samples (40630-40634)).

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In addition to the above, the analysis as carried out by CMA (S15130) and in SV 13832 licensee report detects the presence of Silicon, Aluminium, Calcium, Magnesium, Iron, Sulphur, Sodium, Potassium, Oxygen and Carbon. The spectral analysis provided in 'SV13832 – Licensee report' shows a good correlation between samples 2 and 3 (taken by the EPA from cars in the vicinity of Irish Cement, Limerick on December 4rd last) indicating that dust in these two samples is likely to have arisen from the same source. However there is no correlation of that material with the spectral analysis of sample 4 taken by the EPA on-site at Irish Cement Limerick. While the CMA reports states that *"Quantitative estimates are included solely for the purpose of aiding interpretation"*, the mean of the 9 elements (with the exception of oxygen) for sample 4 (taken at Irish Cement) varies between 178% and 1300% from the mean of samples 2 and 3. This huge difference in chemistry between these samples is further evidence that the sample taken at Irish Cement does not appear to be the same material as that sampled from cars in the vicinity of Irish Cement.

As the profiling of our product is becoming a very important matter for us, given the ubiquitous nature of the components of and presence of cement in the environment, and given the lack of any verifiable connection between the samples relied upon by you to issue a non-compliance in this case, we have also obtained an independent expert analysis of these results and confirm that the findings agree completely with ours that there is an evident lack of signifier in the two samples taken offsite when compared to the sample taken on our site in this case.

In summary:

- The prevailing weather conditions on Sunday 3rd December at or around the time of the incident were little or no wind with dense fog locally.

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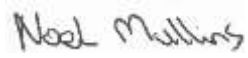
- No elevated levels of dust were observed from the site ambient dust monitor during this time.
- The presence of Chlorine as analysed by CMA on behalf of the EPA in sample 4 of their report (S15130) is consistent with the chemistry of the material sampled in the kiln inlet / kiln seal area and can be used as a fingerprint to compare against samples 2 and 3 in SV 13832. As the presence of Chlorine is clearly evidenced by the EPA in the on-site sample 4 taken on 4th December 2017 but has not been detected in any of the samples taken by the EPA as part of its investigation on this occasion, on cars in the vicinity of Irish Cement, the dust that was on the cars in the nearby vicinity does not match the onsite dust sampled, and the samples taken offsite appear to have originated elsewhere, and did not originate from the incident, INCI013467, in relation to a spill/leak of raw material feed at the inlet to the kiln.
- The large differences in the relative composition of the elements between samples is further evidence that the sample taken at Irish Cement does not appear to be the same material as that sampled from cars in the vicinity of Irish Cement. (Nor is Chlorine evident in any of the cement dust samples – reference 40630-40634, Report No. S14805 wrongly referenced and relied upon by the EPA).

It is our opinion, confirmed by independent expert analysis, that the evidence does not support the conclusion that dust as sampled by the EPA on cars in the vicinity of Irish Cement on the 4th December 2017 came from the Irish Cement facility. Irish Cement respectfully appeal the non-compliance (NC009891) and having put on the record our response to your findings underlying this issuing of a non-compliance (NC009891) with condition 5.4 of IE licence no. P0029-05, we hereby request that this non-compliance notice be withdrawn forthwith.

Please do not hesitate to contact me should additional information be needed.

Yours Sincerely,



Noel Mullins

Environmental Manager

Limerick Works

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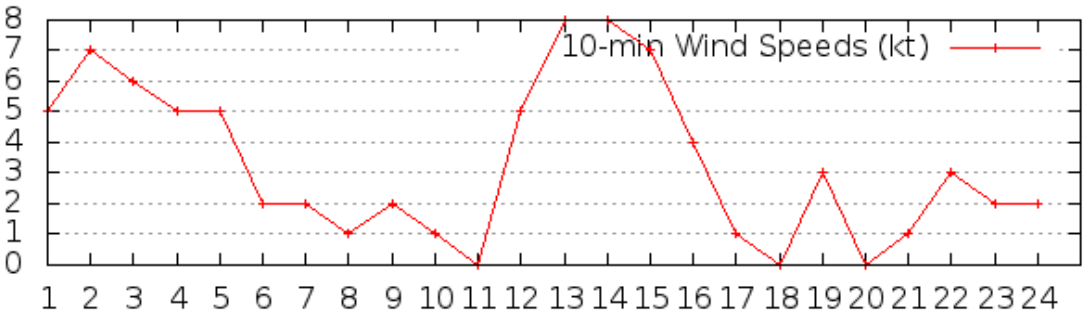
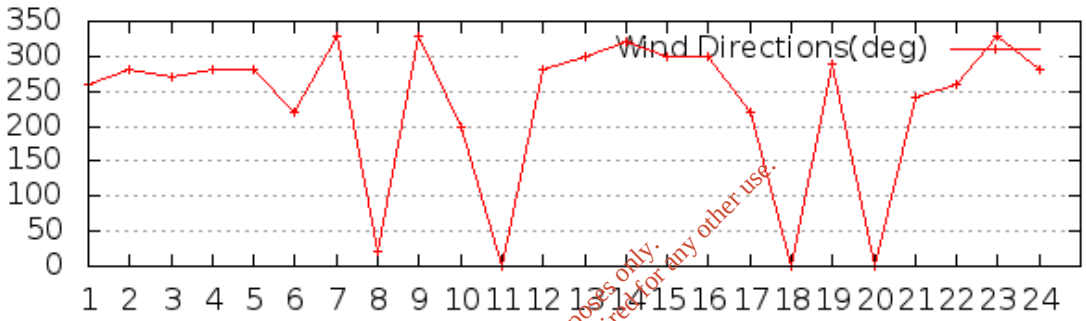
Wind data: 3rd December 2017





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Ambient Dust Monitor Results: 3rd Dec 2017

Date/time	Ambient dust monitor
	ug/m3
03/12/2017 00:00	8.668
03/12/2017 00:15	7.39
03/12/2017 00:30	7.45
03/12/2017 00:45	5.942
03/12/2017 01:00	7.702
03/12/2017 01:15	6.426
03/12/2017 01:30	9.293
03/12/2017 01:45	6.82
03/12/2017 02:00	6.625
03/12/2017 02:15	7.295
03/12/2017 02:30	7.489
03/12/2017 02:45	6.729
03/12/2017 03:00	5.993
03/12/2017 03:15	4.468
03/12/2017 03:30	2.447
03/12/2017 03:45	1.336
03/12/2017 04:00	7.378
03/12/2017 04:15	4.115
03/12/2017 04:30	2.645
03/12/2017 04:45	1.455
03/12/2017 05:00	1.07
03/12/2017 05:15	1.913
03/12/2017 05:30	0.765
03/12/2017 05:45	2.977
03/12/2017 06:00	2.601
03/12/2017 06:15	2.554
03/12/2017 06:30	3.716
03/12/2017 06:45	3.495
03/12/2017 07:00	3.167
03/12/2017 07:15	3.197
03/12/2017 07:30	4.838
03/12/2017 07:45	4.397
03/12/2017 08:00	4.879
03/12/2017 08:15	4.352
03/12/2017 08:30	5.895
03/12/2017 08:45	5.638
03/12/2017 09:00	4.739
03/12/2017 09:15	5.279
03/12/2017 09:30	6.953
03/12/2017 09:45	6.187
03/12/2017 10:00	8.904
03/12/2017 10:15	9.133
03/12/2017 10:30	9.408
03/12/2017 10:45	6.894
03/12/2017 11:00	4.154
03/12/2017 11:15	5.998
03/12/2017 11:30	8.753
03/12/2017 11:45	9.647
03/12/2017 12:00	12.241
03/12/2017 12:15	13.207

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03/12/2017 12:30	13.326
03/12/2017 12:45	11.656
03/12/2017 13:00	9.026
03/12/2017 13:15	6.966
03/12/2017 13:30	5.012
03/12/2017 13:45	4.385
03/12/2017 14:00	3.878
03/12/2017 14:15	3.854
03/12/2017 14:30	5.918
03/12/2017 14:45	5.222
03/12/2017 15:00	2.823
03/12/2017 15:15	5.408
03/12/2017 15:30	3.171
03/12/2017 15:45	4.001
03/12/2017 16:00	6.504
03/12/2017 16:15	1.852
03/12/2017 16:30	1.888
03/12/2017 16:45	2.968
03/12/2017 17:00	1.916
03/12/2017 17:15	2.882
03/12/2017 17:30	5.371
03/12/2017 17:45	8.411
03/12/2017 18:00	10.695
03/12/2017 18:15	10.766
03/12/2017 18:30	16.564
03/12/2017 18:45	17.279
03/12/2017 19:00	16.012
03/12/2017 19:15	16.449
03/12/2017 19:30	18.422
03/12/2017 19:45	18.512
03/12/2017 20:00	20.353
03/12/2017 20:15	21.6
03/12/2017 20:30	22.486
03/12/2017 20:45	18.359
03/12/2017 21:00	18.994
03/12/2017 21:15	22.201
03/12/2017 21:30	17.722
03/12/2017 21:45	14.999
03/12/2017 22:00	14.633
03/12/2017 22:15	7.738
03/12/2017 22:30	5.95
03/12/2017 22:45	5.109
03/12/2017 23:00	5.768
03/12/2017 23:15	7.19
03/12/2017 23:30	7.206
03/12/2017 23:45	6.9

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