

RE: LICENCE NO W0167-03

Sub ②

FOR YOUR INFORMATION.

ATT. OF AOIFFE LOUGHNAN

Further to our phone conversation

J.R.

FROM; James Rountree 046-9052959
Sellar
Nobber
Co. Meath

18/6/12

TO; Bord Pleanala
64, Marlborough St
Dublin 1.

RE; ABP Ref No. PC 0130 also PA0026

Indaver Ireland proposal to Increase Incinerator tonnage by 20.0000 tons, burn light hazardous material, etc at their Carranstown, Duleek, Co Meath plant.

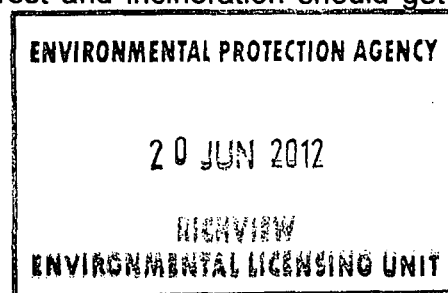
Dear Sir,

I am a dairy farmer, living 17 miles from the Indaver Carranstown Incinerator. I have always had concerns about health and environment and I was an objector to the Indaver Incinerator project. I have only limited time and resources for this submission and I am concentrating my attention to the proposal to destruct light hazardous materials, particularly paint and containers.

Please look at my outline of alternative recycling for this. It is practical. It requires collection or delivery to a reprocessor. Original manufacture costs do not apply and the product with solvent removed is a functional, though composite paint. Agricultural and public authority use are obvious outlets. Commercial retail might be problematic, but possible in the light of increasing public acceptance of recycling.

Everyone knows that the mixing of paints is practical if competently done and there is no technical barrier to it. Paint containers should be triple rinsed with solvent and all containers should be sent for recycling by the users of paint product. Leftover paints and container rinsings should be reprocessed to produce a similar specification to agricultural oxide paint for use on outdoor metal and wood structures. (Charcoal pigment for example could be added to darken light colours.) Solvent needs to be recycled, but otherwise you just have a paint mixing business. (Paint with lead content should be specified for use only on roofs.)

Indaver has not looked at this alternative and neither have other parties. The authorities need to review matters. Possibly they do not want to interfere in commercial decisions, but there is a public interest and incineration should get



commercial decisions, but there is a public interest and incineration should get the lowest priority for reasons that I will outline that have the potential to impact on public health.

My objection to the thermal treatment of paint is that Cadmium, Chromium and to a lesser extent Mercury (anti fungal agent) and others are toxic and must not be released to the atmosphere in however small quantities. The only way to achieve this is not to allow this proposed incineration of paint. Particulate filtration below 10 microns has not been engineered into the Carranstown Plant. Perhaps they do catch some of it but oil centrifuge filtration is the only way to guarantee this and it is not done on any incineration plant to date.

Mercury, though the lowest in quantity is the most toxic element that could be used in point manufacture. It is an anti fungal agent.

Antimony; repeated exposures are known to have medical consequences. Antimony pigments and fire retardant agents are used.

Cadmium is carcinogenic and toxic. There are many cadmium pigments and they are safe when they are chemically "locked up". Cadmium toxicity is not fully understood but it is thought that it can substitute for zinc, magnesium and calcium in biological processes. There is a feature of cadmium toxicity that people in poor health will bio-accumulate it at lower exposures than people in good health.

Chromium is the most insidious of the elements in paint pigments. It is perfectly safe when chemically "locked up". It occurs in many different coloured pigments. The problem here is that thermal treatment will convert tri-valent Chromium to Hexavalent Chromium. Up to 60% will be Cr VI, Chromium is only at trace levels in naturally occurring biological origin materials, but in many paints it is a major pigment element. This has to be a concern in incineration circumstances. Painted goods have paint coat measured in microns but when you consider a ½L of unused paint in comparison, obviously there will be a spike in stack emissions.

My special concern is that airborne Chromates are moisture degraded to free Chromic Acid $\text{Cr H}_2\text{O}_4$ subsequent to leaving the stack. This is part of the

environment to Cr III. Some "not fully informed experts" talk about total chromium in the environment and ignore that a Cr VI --- Cr III cascade takes place and this must be regarded as insufficient information. The utmost care is needed as paint destruction will result in increased chromium emissions, most of this as particulate matter and a small amount of vapours which are very potent.

Please note that attached is the text of a submission questioning Dr. Edward Porter to the Bord Pleanala Hearing on the Poolbeg Incinerator presented on my behalf 21/5/07. There was no special consideration of the compounds in the E.I.S and there is no satisfactory consideration of my Cr VI related questions in the present Indaver E.I.S for this application.

I have been advised since the Poolbeg Hearing that my questions were well grounded. Also Chromyl Chloride CrO_2Cl_2 and Chromyl Fluoride CrO_2F_2 in minute quantities are highly dangerous and impossible to eliminate from emissions. Whatever review of my question took place at the time must be re-examined now, because the issue was general waste incineration and now we are dealing with light hazardous paint destruction here.

Furthermore it must be kept in mind that the health statistics in the Strangford Lough/Kells/ Balbriggan triangle are not good in comparison to any other similar triangle in Ireland and there is a 2 mile strip from Dundalk along the coast to south of Drogheda where special concern is needed.

As you move further from a plume source, exposure of the whole population at 2 miles, 4 miles, 6 miles, 8 miles, etc is the same. My point here is that in the width of the expanding plume area, the exposure of the statistical individual is reducing as distance increases, but the population concerned is increasing. This has serious implications for medical statistics. You have greater numbers of persons with lower "thresholds" and I think it is obvious that the plausibility of denial of responsibility for potential health impacts beyond a hypothetical 5 miles monitoring boundary is logically weak. Too, we must consider that a comparison on a per square mile or 1000 head of population basis of health statistics of monitoring area against outside area masks or confuses the entire local health impact of the incinerator.

Following a "useful" philosophy or received wisdom on the health statistics frustratingly points to a need for a complete review of all statistical parameters and how they compare. I really think that we need to be more thorough on the subject of the current health impact of the incinerator and also the change to destruction of light hazardous material.

Relating to the Indaver E.P.A. Licence, they publish the combustion chamber temperature in real time on their internet site, but everything else as yearly averages (as they say) I believe these figures could be their A.E.R. data that is submitted to E.P.A. As a concerned citizen, I am unhappy about this. Fully current information would be more relevant. Average annual information implies a policy of publishing as little information as they can get away with. Is this compliant with the Aarhus Convention? No doubt they will emphasise how they comply with the law. Really, the E.P.A. Licence needs to be changed in this respect.

Also particulate matter information is referred to as DUST. A very inexact reference that ignores the accepted categories. Citizens need the full range of figures when and for how long spikes lasted and if they co-incided with complaints or anything that was noticed. Sensitive persons especially are justified in getting this information. Maybe Indaver feels that aggrieved persons should contact E.P.A first so that they have a better opportunity to make adjustments to plant. Wind changes or computer glitches can have an impact on "emissions management".

10 tons of dust annually could be an allowable release at P.M.14 but certainly not at the lower end of the P.M.2.5-10 range. Work out a dust count / cc of emissions and you will see the difference. The distribution based on particle diameter must be indicated.

To add further emphasis: You cannot appreciate fully the difference that particle diameter makes without the consideration of surface area i.e. the area of the particle surface with potential to carry pollutant chemicals. Please look at the practicality in my submission on this subject to E.P.A. at the Poolbeg Licence Oral Hearing which EPA published on the Internet. This submission arose from my disbelief at expert say-so that testing for fine dust was not possible and figures for it were intangible and meaningless.

Every citizen should be concerned at the suppression of discussion about the surface area capacity of particulate matter to carry pollutants that government and industry has maintained for many years, (The history of this dates from the first British Clean Air Act in the 1950s)

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EUROPEAN COURT OF JUSTICE: ECJ CASE 50/09, 3/3/11 this case criticised the lack of involvement of the Irish E.P.A. at the planning stage of new development, etc and the separation of the planning and environment licensing procedures and also other matters. This is very relevant to this submission. I note that at this point in time E.P.A. has ~~not~~ appointed an inspector to this case and intend to consider this case ~~separately~~ separately to ABP.

There are implications to low level Chromic Acid etc in the environment that are so serious, that if the authorities were not able to "properly" convene to consider the case then that would justify a personal letter of complaint from me and possibly others to the European authorities. It is the only thing that citizens without resources can do. Also it would be a disgrace, if citizens personal complaints were upheld at a later date after planning permission were given. We have yet to see the revised Irish planning and environment policy in action and must be concerned at bureaucratic reluctance.

CHROMIUM VI is a long overlooked problem and it is about time it is faced up to. The "No Evidence" attitude is not sustainable in the light of a CrVI to ~~CrIII~~ CrIII cascade intermediate compound or compounds that are dangerous. Basic chemistry indicates that the "No Evidence" attitude is insufficient and dangerous.

Cheque €50 submission fee is attached

Yours faithfully

JAMES ROUNDTREE

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ENC:-

- ① Description of Cr VI testing.
- ② Note of Questions to Cr. Edward Borton 21/5/07 at Rodley Chel Hearing re. Cr VI
- ③ Copy of I.F.A. letter to E.P.A. 19/11/04. Note Items 3 + 5.

19th November, 2004

Environment Protection Agency
Johnstown Castle
Wexford

**Re: Proposal to Develop a Waste Incinerator at Carranstown, Duleek,
Co. Meath**

Dear Sirs,

I understand that the Agency is currently engaged in the consideration of an application for a waste licence by the operators of a proposed waste incinerator to be located at Carranstown, Duleek, Co. Meath. On behalf of the Meath and Louth Executives of the Irish Farmers' Association, we wish to submit the following comments for your consideration:

1. The operation standards and management systems required by the Agency of the operators should be to the highest international standard.
2. The operators should be required to conduct a baseline survey of the existing quality of the environment in the area of the proposed development, to include an assessment and sampling of the quality of agricultural production so that any impacts of the development on the local environment and agricultural production can be fairly identified and assessed and ensure that farmers' livelihoods are protected.
- 3. All monitoring data on the operation of the development should be made available in a timely and straightforward manner that can be easily assessed and understood by individuals who may not be qualified in certain environmental and chemical sciences.
4. Operational standards in relation to access roads, gateways, fencing should be to the highest international standards.
- 5. The operators must ensure that there is no adverse environmental impacts or nuisance on the local community arising from the operation of the facility.
6. A comprehensive decommissioning programme must be put in place at the outset.

I trust that you will take into consideration IFA's views and comments in your consideration of the developers' application for a waste licence.

Yours sincerely,

Jim Devlin
Executive Secretary
IFA National Industrial and Environmental Committee

Please note Item 3 + Item 5

NOTE: CHROMIUM VI COMPOUNDS.

Robbie Bond Plowden

These questions were addressed to Dr Edward Porter at this Hearing on the 21st May 07. The reply was circumspect and indicated no special consideration of Chromium compounds in the EIS. The following was put to Dr Porter on my behalf.

FROM: JAMES ROUNTREE

I am a lay person with no qualifications. From my reading on the subject of Chromium emissions, I have concerns and I would prefer that Cr VI compounds were not present at all in stack emissions and ambient air. And I feel that total Chromium should be negligible.

We do not have the habit of concern about toxic chemicals like CrVI and we need to think about this.

1. Can the experts give an account of the various derivatives of Chromium Tri-Oxide Cr O3 in the incineration process?

e.g. Chromic Acid Cr H2 O4, Chromates ® Cr O4

Chromyl Chloride Cr O2 Cl2 and Chromyl Fluoride CrO2 F2

2. Can the experts give an account of the subsequent environmental decomposition of these compounds? And an account of the environmental research into the chemistry.

3. Do these arise, and to what extent?

- a. Water decomposition of Chromates (and Polychromates) releasing free Chromic Acid Cr H2 O4 at a distance from the stack.

- b. Chromate combinations with other compounds

e.g. Lead Chromate/ Lead Oxide Cr O4 Pb O Pb

Zinc Chromate Hydroxide Cr O4 H2 O2 Zn2H2O

3. If the experts can't answer these questions, then why not? And are they going to release these substances if they don't know? Why should they tolerate or conversely rely on environmental degrading of CrVI compounds to Cr III.

Obviously I am fussing about very low levels. The technical literature does not consider the low level issue and there is non-observance of the Community Right To Know List Of Chemicals in the incineration situation and you people probably feel justified,

Home > Technical Articles > Cr(VI)

Hexavalent Chromium, Cr(VI)

Hexavalent Chromium (Cr(VI)) by Ion Chromatography (IC), more specific for Cr(VI) and up to 1,000 times more sensitive than other methods

Introduction

Chromium exists primarily in trivalent (Cr(III)) or hexavalent (Cr(VI)) oxidation states. Cr(VI) is a notorious environmental pollutant because it is a strong oxidant and much more toxic than Cr(III). Cr(VI) exists as the

chromate ion in basic solutions and as dichromate in acidic solutions.

One of the traditional methods for determining Cr(VI) uses diphenylcarbohydrazide (DPC) to form an intensely colored complex with Cr(VI). The complex is measured quantitatively by its visible absorption at 520 nm. However, as in any colorimetric analysis, this test is subject to positive interferences from other colored materials in the sample as well as from other elements that form colored complexes with DPC.

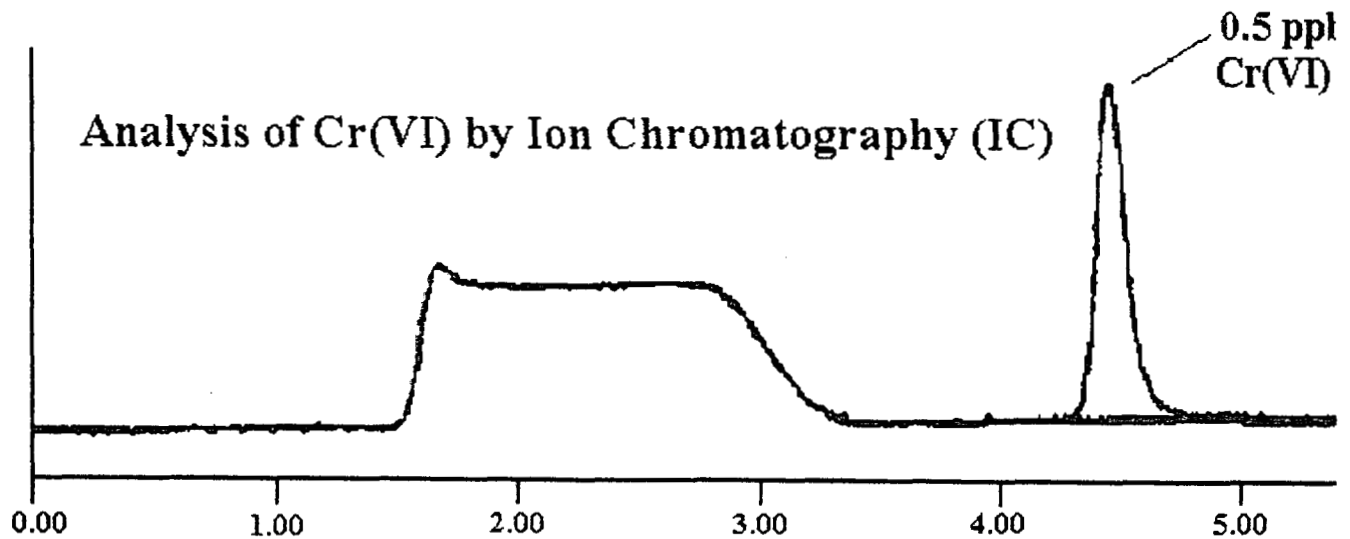
Update 12-26-00. WCAS has been granted interim certification by California ELAP for hexavalent chromium in drinking water by EPA 218.6.

Cr(VI) by Ion Chromatography

A method was developed by others using ion chromatography (IC) to separate Cr(VI) from other positive interferences, followed by a post column reaction with DPC. This method has appeared as EPA Method 218.6 for water, EPA 3060A and 7199 for wastes, EPA 425 for stack samples, OSHA 215 for industrial hygiene samples, and South Coast Air Quality Management

District Method 205.1. Not only is it more specific for Cr(VI), but it can be 1000 times more sensitive. Detection limits in solution can be as low as 0.01 ug/L in dilute bicarbonate solutions. This method has been used in ambient air risk assessments to measure Cr(VI) to 1 ng/m³. Example reports with detection limits and quality control limits can be viewed (pdf files) at **Cr(VI) by EPA 218.6** (waters) and **Cr(VI) by EPA 3060A/7199** (soils and wastes).

NOTE: Without specific Cr(VI) testing, assume for test result from airborne dust is 60% Cr(VI) at least.
Biological spine testing of white rodents (at control + test sites) is important (with no outside feed introduced) (kissing cattle or sheep are a possibility too).



Column: Dionex IonPac AS7
 Flow Rate: 1.5 mL/min.
 Eluant: 250 mM $(\text{NH}_4)_2\text{SO}_4$
 100 mM NH_4OH

Post Column Reactor: 2 mM Diphenylcarbohydrazide
 10% Methanol
 1 NH_2SO_4
 Detector: Vis 520 nm

Cr(VI) Stability

EPA has reported that soil samples were found to be stable for at least 30 days. However the holding time for wastewater samples is still 24 hours to our knowledge.

Once Cr(VI) is in an alkaline solution, such as sodium bicarbonate or sodium hydroxide, it appears to be very stable. In one study, Cr(VI) air samples in sodium bicarbonate were found to be stable for more than three months at room temperature.

Cr(VI) Extraction

EPA published Method 3060, an alkaline digestion, in the second edition of SW846, but withdrew it in the third edition. An updated version 3060A now

appears in Update III. A similar extraction method is used by NIOSH for air filters. EPA has noted that the 3060A extracts are stable for 7 days.

For a quotation...

Permanganate Interference

Using EPA 7199 (ion chromatography coupled with post column colorimetric detection), we have seen an interference when high levels of

permanganate causes a problem in EPA 7199 when permanganate is present in great excess over the chromate species.

We now have found conditions which

permanganate are present in a sample. Of course almost any type of colored species may interfere with the more traditional colorimetric analysis such as EPA 7196 offered by most other labs. With the addition of ion chromatography in 7199, such interferences are minimized. Even so large concentrations of permanganate do interfere in 7199. This interference appears to be due to a reaction of permanganate with the post-column reagent that gives a colored species with much less absorbance at 540 nm than either permanganate itself or the complex of chromium species with the post-column reagent. Thus

further reduce this interference. Using a different anion column, such as that used for EPA 300.0 to separate common inorganic anions, we have been able to separate permanganate and chromate. Detection with suppressed conductivity gives a detection limit of 0.1 ppm. An actual field sample rich in permanganate which gave a result of over 300 ppm Cr⁺⁶ by EPA 7199 gave a result of 2 ppm by this method with an average recovery of a matrix spike of 96%. Further work is ongoing to achieve lower detection limits using post column colorimetry and to document interference levels.

WCAS

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