STANDING COMMITTEE ON ENVIRONMENT AND PUBLIC AFFAIRS

INQUIRY INTO COCKBURN CEMENT LIMITED, MUNSTER

TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
WEDNESDAY, 13 APRIL 2011

Members

Hon Brian Ellis (Chairman)
Hon Kate Doust (Deputy Chairman)
Hon Phil Edman
Hon Colin Holt
Hon Lynn MacLaren

Hearing commenced at 11.03 am

JAMES, MR KEITH
Principal Test Engineer, Stack-Air, sworn and examined:

The CHAIRMAN: I would like to welcome you to the hearing and thank you for coming along. Can you take either the oath or the affirmation.

[Witness took the oath.]

The CHAIRMAN: Please state the capacity in which you appear before the hearing.

Mr James: I am the director of Stack-Air. Our company is in Malaga.

The CHAIRMAN: You will have signed a document entitled "Information for Witnesses". Have you read and understood that document?

Mr James: Yes, I have.

The CHAIRMAN: These proceedings are being recorded by Hansard. A transcript of your evidence will be provided to you. To assist the committee and Hansard please quote the full title of any document you refer to during the course of this hearing for the record. Please be aware of the microphones and try to talk into them and ensure you do not cover them with papers or make noises near them. I remind you that your transcript will become a matter for the public record. If for some reason you wish to make a confidential statement during today's proceedings, you should request that the evidence be taken in closed session. If the committee grants your request, any public or media in attendance will be excluded from the hearing. Please note that until such time as the transcript of your evidence is finalised, it should not be made public. I advise you that publication or disclosure of the uncorrected transcript of evidence may constitute a contempt of Parliament and may mean that the material published or disclosed is not subject to parliamentary privilege.

Hon Kate Doust, deputy chair, has given an apology today because she could not make the hearing. Is there any opening statement you would like to make to the committee?

Mr James: We have made our submission, but I guess I can tell you that I am the principal test engineer for Stack-Air and I have been testing stacks for 23 years. I have had a lot of experience. That includes Cockburn Cement and most of the other large emitters of air pollution around Western Australia and in other parts of the world. I started my career in the Department of Environment, so I have kept a close interest in how the department conducts itself with regard to licences, and I have had ongoing exposure to those licences in almost the entire time that I have been in this profession. That is the basis upon which I present myself here before the committee.

The CHAIRMAN: Thank you. In your submission you refer to CCL's licence and make various assessments of licence conditions. Which version of the licence were you referring to, because there have been a number of -versions? I think it goes back to March 2009, April 2010 and 30 August 2010 and the last one is the 20 December licence.

Mr James: When I approached the department to get a copy of the licence I asked for the current licence. It offered me a copy of the draft licence, which I presume is the December 2010 licence. They explained to me that that was subject to appeal, and I thought to myself, "Well, Cockburn Cement is being judged on its historical record so I should get the current licence." My submissions have been made with respect to the licence that was current at the time. I have quoted that licence in my submission, perhaps not fully enough for your purposes, but I felt at the time that it was pretty

specific, because it gave the period that the licence covers, from 31 March 2009 to 30 March 2012. I also gave the reference number at that time.

The CHAIRMAN: Did you make a submission to DEC regarding either of those draft amended licences?

Mr James: Not at all, no. I have made no submissions to the DEC regarding Cockburn Cement's licence?

The CHAIRMAN: What do you think about the latest licence? Do you have some views on that licence?

Mr James: I do but I only pulled this licence down last night. I had a look at it last night and this morning in regard to the questions you posed for me. I can see that some of the issues I raised in my submission have been added to this licence, in particular PM_{10}, which I was quite concerned about, and still am, and some of the methods that underpin the measuring methods have been added to some degree in this new licence. My main concern with the new licence is that they refer to the CEMS code—that is, the continuous emission monitoring system code, which was put out by the DEC in 2000. There was a number of documents pertaining to emission testing; one of them was to do with continuous emission monitors. I read that copy when it came to hand in 2000, and I was aware at that time that it did not address the correlation between opacity and concentration of dust in mass per unit volume—milligrams per cubic metre if you like. It was written only in relation to reporting to opacity, which I understand it is not a unit accepted by the National Measurement Act, Australia. I wondered about it at the time because Australia is definitely not a country that endorses opacity as a general rule. I do not think it has any standing, but in the United States where these codes were written, opacity is a legal term and companies can be prosecuted for exceedence of the opacity limit placed on it. I do not see anything in this new licence that resolves that issue for me, so I thought I should point it out to you.

[11.10 am]

The CHAIRMAN: I am not as technically au fait as you. Can you just point out the difference between the standards that have been set in that licence and the United States environmental protection licence or measurement that you have quoted in your submission?

Mr James: I will do my best, but I tend to think technically.

The CHAIRMAN: Do that for the record, because I probably will not understand.

Mr James: The codes which were written for the DEC at the time were all based on the United States largely, and the Canadian codes. The CEMS code, which is referred to in this new licence, talks about the CEMS code as published by the Department of Environment of Western Australia. What I am saying is that document, as far as I am aware, only talks about the set-up of opacity monitors to measure dust. It only reports to opacity as an attenuation of light—opacity being, if you have a smoke plume in a stack that does not let any light through, you have got 100 per cent opacity, whereas if you have no dust, you have zero. It is as simple as that. There is no relationship, technically and scientifically, between opacity and the unit we accept in Australia, which is mass per unit volume—milligrams per cubic metre of dust. To do that, you need another step. The USEPA produced PS11—performance specification 11—back in the 1990s, but they stipulated at the time they were under pressure from the Europeans because all the Europeans accept milligrams per cubic metre. The technical countries like Germany are very good at performing these types of correlations. They are very strong technically. USEPA made it clear that opacity is their preferred unit of reporting for dust. They have written this standard but it has no legal standing. They have just written it.

Hon COL HOLT: Let me understand this. We have DEC giving a licence to Cockburn Cement based on a measurement that we do not actually recognise here. Is that it in a nutshell? They use the United States —

Mr James: Yes, but they have not actually done it. They have said the DEC CEMS code. All they say, from what I have seen in my brief review of this licence, is that the optical density must be correlated with the concentration value. They make that statement but they do not actually refer to a standard whereby it can be achieved. They have not referred to the USEPA's PS11; they have only referred to their own code. Their own CEMS code does not make that additional step to relate opacity or optical density to milligrams per cubic metre.

Hon LYNN MacLAREN: In practice what happens then? Cockburn Cement is measuring for particulate matter; right?

Mr James: Yes, continuously.

Hon LYNN MacLAREN: Continuously measuring for particulate matter. What are they reporting to the DEC? They are doing some calculation that reports it as opacity?

Mr James: No; milligrams per cubic metre is what they are reporting to the DEC.

Hon LYNN MacLAREN: DEC is getting the milligrams per cubic metre and then trying to figure out whether it meets the opacity —

Mr James: No, because they have not set an opacity limit at any time on the Cockburn Cement licence. It has always been milligrams per cubic metre. I presume that is consistent with the National Measurement Act. They cannot ask for opacity. I can be wrong here—this is a legal question. The DEC would have to answer that question. My preference is for Cockburn Cement to be regulated to opacity because it is so much simpler to set up an opacity monitor and do it. There are very few companies in Australia who can perform this extra step to go to milligrams per cubic metre. My company has done it. I am conversant with it. I believe I am competent to do it, but I have only done it twice in my whole career.

Hon LYNN MacLAREN: Are they the Osiris meters? Is it called Osiris?

Mr James: No; Osiris is an ambient monitoring instrument, as far as I am aware.

Hon LYNN MacLAREN: Those are the new meters that are going in on the ground to measure dust?

Mr James: Ambient dust?

Hon LYNN MacLAREN: Yes. Will they pick up particulate matter? Do they actually come back with a reading of how much PM_{10} there is?

Mr James: You are now moving out of my field into ambient monitoring. I have a very good colleague who is an ambient monitoring expert. I am a source testing expert. I measure at source.

Hon LYNN MacLAREN: You are concerned with what is going up the stack?

Mr James: Absolutely.

Hon PHIL EDMAN: When did you first start doing some work for Cockburn Cement before 2003?

Mr James: When I was in the Department of Environment in the 1980s we —

Hon PHIL EDMAN: Just at Stack-Air.

Mr James: It would have been pretty early on, 1993, I would have said—right at the outset, the get-go

Hon PHIL EDMAN: You obviously did some work for them for 10 years. I have just been reading your submission. What happened after 2003; why did they stop using you?

Mr James: It is a question of my wife and I sold our company, or most of it. We had a fairly large company. We had about seven or eight people working for us. Isokinetic sampling for dust requires teams of people. I had always used teams of people because it is heavy equipment. My wife will

correct me if I am wrong. I think in 2004 we downsized our company and just went with the two of us.

[Interruption from gallery.]

The CHAIRMAN: Can you speak to the microphone, please. We cannot take evidence from the gallery.

Mr James: There was no animosity between myself and Cockburn Cement. I used to deal with Ron Goodwin at the time. I think he left the company, so it may have even been a transfer of the responsible person, but we did subsequently do metals work on a number of their kilns.

Hon PHIL EDMAN: While you were there right up until 2003 doing work for them, how would you describe their monitoring and testing of emissions at that time when you were contracted to them?

Mr James: They had their own in-house testing team of people. They did all their own testing. I actually put on courses for them. I always felt that the people they employed to do the work were not really scientists. They were the very basic sort of technical assistant–type people who could presumably conduct a procedure correctly but —

Hon PHIL EDMAN: So you do not think it would have been that accurate with the people who were there?

Mr James: I did not have a lot of confidence in them, no. Cockburn Cement is an inherently difficult place to test because it is so old. Their stacks are so old; it is not an easy test, Cockburn Cement. For a lot of reasons it is inherently difficult to do isokinetic testing for particulate matter. Even for me, it was a stretch to do it.

The CHAIRMAN: Mr James, if you wish your wife to contribute, she will need to sign that statement that you signed outside. I thought I would ask you that because we cannot take evidence from the gallery.

Mr James: I think that it is only in relation to historical matters. I did not expect a question like that, actually. I am the technical boffin in the company. When we discontinue contracts and things like that, I do not usually remember those details.

The CHAIRMAN: If there is something you cannot answer, you can get back to us with those answers afterwards and take it on notice.

Hon PHIL EDMAN: That answers my question anyway, Keith; it is fine.

[11.20 am]

Hon LYNN MacLAREN: I was going to ask about the permitted level of sulfur content. You are aware that now they are mixing coal and gas as their energy —

Mr James: Only from your questions.

Hon LYNN MacLAREN: — and the sulfur content of the coal, which they are permitted under their licence to use is 0.7 per cent. Do you have a view on whether that is a high or low level; or whether it brings certain health concerns?

Mr James: Keeping in mind that it is not strictly within my field, but I have taken a lot of notice. I have tested a lot of coal-fired power stations and I know that the percentage of sulfur is not something they can control. If they get their coal from Griffin Coal down in Collie, the average sulfur content of that coal may be 0.7 per cent, but I have it on good authority that it may be 1.3 per cent at times or it could be lower than that. It could be 0.3 per cent. I, myself, do not know how they would go about ensuring that the average was 0.7 per cent. To be quite honest with you, I think to set a limit like that in a licence is a little bit unrealistic. You get what you get. The Collie Coal is the closest coal supply. Cockburn Cement is legitimately entitled to source that coal.

Hon LYNN MacLAREN: Why do you think the licence prescribes that level?

Mr James: I cannot read into the mind of the DEC, but someone may have told them that the average sulfur content of coal is 0.7 per cent. It is not a good basis to set a licence condition in my view. I have seen it many times before. It could be inexperience.

Hon LYNN MacLAREN: We have some questions. Can you take them on notice, because they are specific to the licence conditions, which we now know you were made aware of only last night. It might be easier to submit them to you and ask you to provide answers, if you want to, after the hearing.

The CHAIRMAN: They are fairly technical questions and that is probably a good suggestion. We do this with other hearings so, if you are happy, we will send those questions on to you and you can perhaps get back to us.

Mr James: I did receive some questions. I am looking for them now. I looked at these questions. Maybe they are the ones you want to ask me.

The CHAIRMAN: I am not sure.

Hon COL HOLT: Can you answer them?

Mr James: Yes, I can. I did not need to do a lot of preparation for these.

The CHAIRMAN: I am not sure which ones you are talking about at the moment.

The Advisory Officer: They should be the same as you have in front of you without the background notes.

Hon COL HOLT: I guess that is what we were concerned about. If you had a chance to look at the questions only last night, you may need to take them on notice. But if you can answer them now that would be great.

Mr James: I can give answers. They may not be as comprehensive as if I had had a month to look at them, but they are not that difficult for me.

The CHAIRMAN: You have covered probably some of them. Questions 5 and 6, if you can —

Mr James: To go back to question 4 if I may: Your submission recommended that CCL's licence should require CCL to test for particulate matter. What are your views on condition 30 and table 6? My views are that method 1 is missing from the list. Method 1 should be there because method 1 states where you will actually conduct your test from. In source testing that is critically important and it is a matter that has been overlooked again and again in the licences, so it is a soapbox for me if you do not mind.

Hon LYNN MacLAREN: Where should the test be conducted from?

Mr James: It is quite a difficult equation, if you use USEPA method 1, but when you are doing tests of particulate matter and air flow, you have to honour Stokes Law for settling velocities in flowing ducts. Particles can get entrained one way or the other if you do not have a straight section of duct work. In essence, USEPA method 1 says you will be 10 diameters downstream from a flow disturbance and at least two diameters upstream—the 10 and two rule, and that is not always achievable.

The CHAIRMAN: I am smiling because you are probably losing me.

Hon COL HOLT: No; it is good work.

Hon LYNN MacLAREN: I with you. You are looking for a straight piece of pipe?

Mr James: Yes, a straight piece of pipe.

The CHAIRMAN: Carry on with your evidence, thanks, Mr James; it is very interesting and vital to our hearing.

Hon LYNN MacLAREN: Are you familiar with kiln 6 at the Cockburn Cement site?

Mr James: Not at all. I am sorry, my tenure there ended. So I have never tested kiln 6. I know that there are lots of problems —

Hon LYNN MacLAREN: You left before kiln 6 was commissioned?

Mr James: Yes, that is right.

Hon LYNN MacLAREN: It would be in a straight piece of the stack but we could ask Cockburn Cement specifically about where it is testing from.

Mr James: Yes; that is right. In some of their stacks it is okay; they are acceptable, but some of them are not, or they are marginal. I think that should be attended to by the department in the licence. They should put in method 1 or use the Australian Standard—one or the other. An Australian Standard covers this as well. I like to use both when I am dealing with clients because the Australian Standard has information of a peripheral nature that is not included in USEPA method 1. Both of them say, "Before you start this test make sure you take care of this detail first, where you are going to test from." It all bears on how representative the result will be at the end of the day. Not enough attention is being paid to it in Western Australia. On that condition 30, table 6, the NO method—7E and 7D—are too restrictive. There are many, many, NO_x versions under 7. USEPA came out with seven. There is A, B, C, D, E, F and G or whatever. Stack testers need the freedom to be able to choose which is the method most appropriate for a given source. For them to continue with this farce of saying 7E or 7D is just silly. They need to open it up and make more methods available for stack testers for NO_x—for oxides of nitrogen. But it is comprehensive otherwise. I was quite impressed with table 6 and condition 30. It was a marked improvement on the previous licence.

The CHAIRMAN: Question 5: Your submission suggests that the existence of a continuous emissions monitoring system renders the biannual manual monitoring of particulates unnecessary. The committee notes that the amended licence requires the CEMS to monitor four parameters, including TSP. It is unclear to the committee whether TSP includes PM_{10}.

Mr James: To be purely technical about it, PM_{10} is a separate method. It is quoted in that table as USE permit 201A. It is a separate method because it uses a cyclone to separate the PM_{10} fraction from the other fraction of the particulate matter, because PM_{10} is an inspirable respirable fraction of dust. It has become very important in the world because it has such a great bearing on human health. Cement and lime kilns are notorious for emitting fine particulate. On that matter, there is just one small point, including TSP. TSP stands for total suspended particulate. Definitionally, that is an ambient monitoring term; it bears no relationship to source testing at all. Again and again it has been put in licences in error. The term should mirror the method. USEPA methods talk about total particulate matter—TPM, if you like. The legal document should not contain errors like that, in my view. It is a technically indefensible term to put in there. It just does not relate to source testing and should be changed. Sorry about that, that is a soapbox of mine as well.

The CHAIRMAN: I am starting to wonder why. You obviously know your subject but you are miles apart from what the DEC's standards are.

Mr James: My view is that they do not have the technical people on board to put out meaningful licences. That is my opinion off the cuff. They do not have the budget or the people. It is a specialised field and you need to be technically accurate in what you are saying. It is a science.

[11.30 am]

The CHAIRMAN: It is your opinion at the moment that the technical aspect of the licences that DEC provides is not adequate?

Mr James: No, they are deficient in many, many respects.

The CHAIRMAN: What is your answer to part (b) of that question: would you suggest that the requirement to manually monitor PM_{10} on a quarterly basis be removed from the amended licence?

Mr James: My answer is no, because I consider PM_{10} to be so important that it must remain in some form. Those sources must be monitored for PM_{10}, in my view, and the only methods I know of are manual gravimetric methods. I do not think they can be done continuously; not within my current knowledge level. Going back to that previous question, in case I did not make it clear, if you trap all particulate matter on a filter, you have got the PM_{10} fraction there but you have not separated it in accordance with the definition of PM_{10}. It must be aerodynamically determined. You have to have a cyclone up front using a different method to separate the PM_{10} fraction from the other fractions. You either measure total particulate matter with USEPA methods 5 or 17, or you additionally apply a specific method for PM_{10}, which is 201A or 202; or whichever method is appropriate for that source. I would not remove PM_{10} from the licence, no.

The CHAIRMAN: Can the continuous emissions monitoring system measure PM_{10}?

Mr James: Not as far I am aware, no. It can only do total particulate. Going back to all my provisions on that, it will only report either to opacity or, if you calibrate the instrument using gravimetric methods, it can report to milligrams per cubic metre.

The CHAIRMAN: Would you be satisfied with part (c): the amended licence requires CCL to manually monitor the PM_{10} on a quarterly basis?

Mr James: Yes, I am satisfied with that condition. I am particularly satisfied with it because PM_{10} is normally more rigorously regulated than total particulate matter. If you are aware that there is a significant fine fraction in the dust coming from that source, then in my view it comes under a totally different classification. Total particulate matter is a criteria pollutant which everyone is concerned about for a number of reasons, but PM_{10} is specifically related to human health. It normally attracts much more rigorous standards—emissions, in other words—than total particulate matter. I note that Cockburn Cement have 150 milligrams per cubic metre they are allowed to emit. PM_{10} would be nowhere near that. It would be closer to 25 milligrams per cubic metre, or something like that in the world, because it is hazardous. It has a different classification under the USEPA code from total particulate matter. There are 188 compounds on the USEPA list of hazardous air pollutants. They attract much more rigorous attention than the criteria pollutants.

The CHAIRMAN: The next question, referring to your submission: you recommended that CCL's licence should stipulate that the opacity monitor correlation be conducted in accordance with USEPA performance specification 11. Does the amended licence satisfy that recommendation?

Mr James: No. As I have already said, I think at length, it does not in my view satisfy that and needs to be looked at closely.

Hon LYNN MacLAREN: Your submission suggested that CCL's licence does not refer to a method for determining stack volumetric flow rates which are necessary for calculating mass emission rates.

Mr James: Yes.

Hon LYNN MacLAREN: Does the amended licence provide the method?

Mr James: Yes, it does. It applies the method at clause 30, table 6. That situation has been corrected.

The CHAIRMAN: The question we had in question 8, I think you covered that earlier on about the USEPA methods.

Mr James: Yes.

The CHAIRMAN: I will go on to question 9. Amended licence condition 2 permits CCL to operate kilns 3, 4, 5 and 6 with natural gas and/or coal where the coal is permitted to have an average sulfur content of 0.7 per cent. What is your view of this permitted level of sulfur content?

Hon LYNN MacLAREN: We have already got that, Brian.

The CHAIRMAN: Have we? Sorry.

Mr James: It cannot be controlled. It is simply in the supply. I might add—this is an off-the-cuff opinion—from what I have seen of USEPA, they are more concerned about large plant that use coal with something like two or three per cent. I think 0.7 per cent may not present a problem. I just have a problem with it technically stipulating 0.7 per cent like that.

Hon LYNN MacLAREN: Yes, because they cannot be controlled. There is only an average. If the specification called for an average of 0.7 per cent, it would be more realistic?

Mr James: Yes, that is right.

The CHAIRMAN: I hope we have not covered the next question, question 10: amended licence condition 6 requires CCL to conduct certain management actions during specific events. Events 2 and 3 are required to occur for more than 60 consecutive minutes before CCL must conduct the relevant management actions. Do you think this 60-minute threshold is reasonable?

Mr James: I do. Once again I could be questioned on this. My opinion could be criticised, but my understanding from the time I spent at Cockburn Cement, and other cement and lime kilns as well, is that they do need a start-up time. You cannot expect everything to operate at its best efficiency during that time. It is not unusual to have emitters given this allowance to allow everything to warm up before they actually get hit with the provisions of the licence or the act. I do not see it as unusual or unreasonable, but I do make the observation that I think the margins that are talked about are a bit too small. For example, the margins of saying, "If you've got 125 milligrams per cubic metre, you've got to go and investigate it"—I am not sure that the continuous emission monitoring system, even were it to be calibrated accurately and correctly, would be able to meet those margins. There are error bounds on all measurements, particularly with the continuous emission monitoring system. I would just ask the DEC to revisit that margin and see whether it is actually practical. It might need to be larger. They might need to give them more leeway.

The CHAIRMAN: You may be able to answer something for us: it has been mentioned in other hearings that these start-ups can pollute or create just as much of a problem as some of the trips that were happening. Is that correct?

Mr James: Yes. When I was in the department, and ever since—I have spent a lot of time in Kwinana; I look at their start-ups, I have been there on stacks only about a kilometre away—they do emit what seems to me, from a purely visual assessment, quite a lot of particulate matter during their start-ups. It is significant. Beyond that, I cannot say any more than that. That is a matter for measurement and assessment.

Hon LYNN MacLAREN: You have had some experience with cement kilns elsewhere?

Mr James: Yes. I have had experience with cement kilns down in the South West, smaller kilns; and up north as well, near Port Hedland.

Hon LYNN MacLAREN: Is the variation with the start-up emissions related to best practice?

Mr James: Yes. There will be a standard for that. The USEPA has covered all this as well. All this can be found on the website with very little investigation. It is all written down. Their documents covering cement and lime kilns are absolutely comprehensive.

Hon LYNN MacLAREN: Does the licence that Cockburn Cement now have require them to have best practice at start-up?

Mr James: I cannot answer that question. I would need to do my homework. Someone could do their homework on that. They simply have to refer to what is best practice in Europe and America. There are hundreds of cement and lime kilns, very large facilities too, and they are a major source of pollution so they have been looked at very closely. But I cannot answer that question off the top of my head.

[11.40 am]

The CHAIRMAN: The requirement to conduct certain management actions during specified events 2, 3 and 4 does not apply during the ignition phase or during start-up events. Do you think this exception is reasonable?

Mr James: Yes. Following on from my previous answer, I think it is reasonable. I think it is just a function of the technology. It will need a certain amount of time to warm up. Even the most sophisticated power stations, gas turbines, have been investigated in that regard. Sometimes in America they have asked that measurements be taken during that period to find out just what the impact is on the surrounding environment. That should have been done in my view already. It has certainly been the cause of a lot of complaints, I am sure. If the DEC is driven by complaints, as I believe it is, this matter should have been investigated already.

The CHAIRMAN: Amended licence condition 35 requires CCL to use a CEMS to monitor four parameters: TSP, volumetric flow rate, nitrogen oxides and sulfur dioxide. Do you think it is adequate that CCL is required to use the CEMS to monitor only four parameters?

Mr James: The only observation I can make is that NO_x—oxides of nitrogen—is an air pollutant that is produced directly from combustion source in relation to the degree of combustion, so it is normally corrected to a reference oxygen condition. Oxygen is missing from the table and from other parts of this new licence, yet it has been standard practice in all its other licences that refer to NO_xs. The reason for that is to attempt to avoid the effects of dilution air if the plant is not running very efficiently. Their cement kilns, for instance, would normally run on a very close oxygen as excess air parameter, and they should be measuring them—I am sure they do—for maximum combustion efficiency. On a cement kiln it would typically be five per cent oxygen. That condition should be added to the NO_x, so that they are reporting NO_x in milligrams per cubic metre as standard conditions, but corrected to a five per cent oxygen condition, so you need to monitor oxygen to be able to report to that. That is missing.

As to whether NO_x and SO2 are even necessary, I do not know; I cannot comment. I have my doubts about it, but only the people on board who have the numbers—they must have masses of emissions data on this source—could decide that question. The DEC must be aware of whether the NO_x is contributing significantly to pollution in the Kwinana area, and the same with sulfur dioxide. Far be it from me to argue to remove a CEMS that they may well be aware that, for a parameter, is a problem. I just do not like that TSP again. That is my only observation. Yes, they should add oxygen on there, because they should be correcting the NO_x to a standard reference oxygen condition.

The CHAIRMAN: Question 13: The amended licence requires CCL to install, commission and operate by 29 February 2012, pollution control equipment for kiln 6. That is designed to achieve a TSP emission concentration of 30 milligrams per cubic metre or less. Please explain whether you are satisfied with this new requirement.

Mr James: Yes, I am satisfied, because it is in line with what I am saying. Kiln 6 is a lime kiln, as I understand it, and in my view lime is hazardous dust. Thirty milligrams per cubic metre more closely reflects what I would expect to see for a hazardous material on a plant. I am in favour of that emission limit. Yes, I am satisfied with that new requirement. I think it is strict, but I am satisfied with it.

The CHAIRMAN: Did you say that you think it is a strict requirement?

Mr James: Yes, I do.

Hon LYNN MacLAREN: The committee understands that the intended pollution control equipment for kiln 6 will be in the form of a bag-house filter. Do you think that such a filter will be effective in reducing dust and odour emissions from CCL Munster; if so, why, or why not?

Mr James: My immediate answer to that question is that it is outside my expertise. That is an engineering question, and only pollution control engineers are in a position to answer it. I have never even tested kiln 6, so I do not know what the gas stream characteristics are in terms of temperature and things like that. Bag-house filters are the most efficient dust capturers in the world at the moment, together with other technology such as lime injection and things like that, so I know they can meet the toughest standards going, but whether you can put a bag-house on that source I have no idea

Hon LYNN MacLAREN: Would such a filter be able to capture all the kiln dust emissions so as to result in zero dust emissions? That is, obviously, in the theoretical sense rather than the engineering sense.

Mr James: It is an easy answer. The answer is no. No pollution control technology currently in the world can reduce everything to zero. Zero is not a concept we work with in this science. It might be comfortable for the people or the public to think you can reduce these things to zero, but the only time I have ever seen it was on a liquor burner at Worsley Alumina Pty Ltd where they use extremely expensive ceramic filters. I actually measured the emission at zero but as time wore on those filters were subject to wear and tear, so the emissions started to come up. It is unrealistic to think that any control technology will give you a zero emission.

Hon LYNN MacLAREN: Should this type of filter be installed in all the kilns, not just kiln 6?

Mr James: That answer is circumscribed by what limits you apply. If you were to apply a 30-milligram per cubic metre limit on all kilns, you might find that ESPs could not achieve it so you would have to use bag filters. But the exhaust temperatures from the cement kilns are in the hundreds of degrees and the limitation on the bag-house technology is the materials of the bag-house and they are pretty severely restricted as to the maximum temperatures they can withstand. I know that for a fact. I cannot answer any more clearly than that.

The CHAIRMAN: Some people have suggested to the committee that wet scrubbers should be used rather than ESPs and bag-house filters because they remove gases as well as particulates. Do you have any views on that?

Mr James: I have a view. It would be an enormous expense and change in technology to Cockburn Cement. You would have to justify it on the basis of what are the gases that are causing such a problem for the airshed. Has it been established that NO_xs and SO_xs are a problem? I do not think so. Are any other gases a problem, such as carbon monoxide or things like that? I would not think so. I am not sure where that question is coming from. I know there is an odour from cement and lime manufacturers. I know that is a problem for people who live in the area. I have no idea what causes that odour or even whether it is harmful to human health. I really do not have any sensible observations to make about why you would change to wet scrubbers.

The CHAIRMAN: It has been put to us, and I was interested in your technical experience, to see what your view was on that suggestion.

Mr James: Wet scrubbers are used for gases for a lot of sources I test, so I guess that is where that is coming from. As I say, my answer must be based on whether there is a problem gas that is coming out of cement/lime. I thought the main problem by a country mile was the dust.

Hon LYNN MacLAREN: The burning of coal as a fuel source introduces other elements. You mentioned mercury in your submission. How do filters work to control that?

Mr James: It is a very complicated technology to try to control mercury emissions, and very expensive. My observation there was they would have to be putting sufficient coal into the feed and would have to measure sufficient mercury out of the stacks for it first to be ascertained that it is a problem to human health before you even went down that pathway. I do not know whether that is the case. Certainly all the tests I have conducted for mercury and all the other metals at Cockburn Cement suggest very low levels of these metals under the regimes of coal and gas they were using at the time.

[11.50 am]

Hon LYNN MacLAREN: The balance has changed, I understand, from 20 per cent coal and 80 per cent gas to now 20 per cent gas and 80 per cent coal. Of course it would depend on the type of coal that is burned.

Mr James: No, it certainly would change the equation and it would need to be looked at again. Monitoring would need to be done because coal basically is made up of polycyclic aromatic hydrocarbons. They would be completely combusted to carbon dioxide and water in those kilns because they are so long and so hot; I do not have any doubt about that whatsoever. I do know there has been a lot of work done on de novo reformulation of the organic pieces that are not completely destroyed. They can reformulate to form things like dioxins and furans in cyclones after the main combustion event. That is an observation I make in general. I have no idea whether it applies specifically to Cockburn Cement's new fuel regime.

Hon LYNN MacLAREN: If you were trying to test for those emissions, would the best place to test it be in the stack as an emissions test or out in the environment for ambient —

Mr James: Absolutely at source. Because they are so low, they can harm human health at picogram levels, which is a trillionth of a gram. You need very, very rigorous test methods to measure that. You are unlikely to pick that up in the ambient air using any techniques I am currently familiar with.

Hon LYNN MacLAREN: Did you have anything else you wanted to add?

Mr James: There is only one other observation that I think should be made: the new licence appears to be worded in a really convoluted way. Some of the expressions of referring to table 4, and if it is not it is table 3, and things like that, I am sure could be written much better than that. It is just not good English in my view. That is the only observation I would like to make. It is quite confusing, and a technical document should be clear.

The CHAIRMAN: Thank you, Mr James. That was very informative and I would like to thank you for presenting that to the hearing.

Mr James: Thank you very much.

Hearing concluded at 11.52 am