STANDING COMMITTEE ON ENVIRONMENT AND PUBLIC AFFAIRS

TRANSCRIPT OF EVIDENCE
TAKEN AT PERTH
ON WEDNESDAY, 20 MARCH 2002

Members

Hon Christine Sharp (Chairman)
Hon Kate Doust (Deputy Chairman)
Hon J.A. Scott
Hon Louise Pratt
Hon Frank Hough
Hon Robyn McSweeney
Hon Bruce Donaldson

Committee met 1.57 pm

JAMES, MR KEITH,
Director, Stack-Air,
examined:

O'HARA, MR GERARD,
Solicitor, Kott Gunning,
examined:

The CHAIRMAN: Welcome to the meeting. Mr James, you have been provided with a document titled "Information for Witnesses". Have you read and understood that document?

Mr James: I have.

The CHAIRMAN: These proceedings are being recorded by Hansard and a transcript of your evidence will be provided to you. To assist Hansard and the committee, if you are using any documents during your evidence you need to clearly state the title so that we have a clear record of the evidence. I would also like to remind you that once the transcript is finalised by you it becomes a matter for the public record. If for some reason you wish to make a confidential statement at any stage during today's proceedings you should request that evidence be taken in private. It will then be up to the committee to determine whether it grants your request. If it does, any media or members of the public attending this afternoon will be requested to leave. A further warning is that until your transcript has been finalised, it should not be made public and any premature publication or disclosure of your evidence could constitute a contempt of Parliament. That would mean that the material published or disclosed is not protected by parliamentary privilege.

The CHAIRMAN: Mr O'Hara, in what capacity are you appearing before the committee this afternoon?

Mr O'Hara: I do not have any relevant evidence to offer the committee. With your permission, I wanted to make a couple of very brief comments at the start in relation, perhaps, to forestalling what might be certain lines of potentially harmful questioning.

The CHAIRMAN: Certainly. Before I give you the opportunity to do that, all of the information that I provided to Mr James applies to you too. Please ensure that you speak clearly into the microphones.

Mr O'Hara: Mr James is passionate about preserving the integrity of this State's environment. He wants to assist the committee. To that end, committee members will all be aware that he has already volunteered a written submission. The committee will also be aware that that submission principally focuses upon what he sees as the shortcomings in the compliance and performance monitoring of premises that are licensed under the Environmental Protection Act and regulations.

Mr James has 15 years experience in the measurement of air pollutants from industrial stacks. Some of the information he has obtained in relation to the operations of his clients may, of course, be subject to express or implied duties of confidentiality. He therefore asks the committee to respect his position in this regard by not asking him questions about specific clients or specific operations. Of course, he is able, and very willing, to assist the committee in relation to matters of his general expertise.

The CHAIRMAN: Thank you very much for that.

Mr James, thank you for coming in and giving further evidence to the committee. The committee has already received your written submission and members have all received a copy and read it. It contains some interesting material. If at any stage we ask you a question that you feel could contravene the advice that your solicitor has provided, please caution the committee that you feel uncomfortable with that question.

Mr James: Thank you, Madam Chair. I will do that.

Hon BRUCE DONALDSON: Mr James, it is my understanding that the quality of bauxite mined in Western Australia is poor compared with that in some of the other operations of Alcoa World Alumina around the world. I understand from the manager of Alcoa in Jamaica that the quality here is second grade compared with Alcoa's mines in Jamaica and in other operations around the world, and thus requires the use of a liquor burner. It is my understanding that Alcoa utilises only one or two other liquor burners in its operations; that is, in Japan and Spain. I do not know whether that is correct, but that is the advice to the committee. It seems that the trouble started when the liquor burner was brought into operation. I do not know whether you agree with that, but that is what this committee has been led to believe. I would like your comments on that, so we can establish the ground rules right from the start.

Mr James: I cannot comment on the quality of the bauxite. I am not an expert in the process industry, such as to say that the bauxite quality is bad. I do know that a relatively high content of organic matter is peculiar to Australian deposits of bauxite and that is dealt with by a liquor burner, which is the processing method that Alcoa has chosen. I know that other alumina producers around Australia are looking at liquor burners to deal with that problem. That is all I know about it.

Hon BRUCE DONALDSON: Do you know of any other liquor burners around the world?

Mr James: No, I am not familiar with other liquor burners around the world.

The CHAIRMAN: Would you like first to make a more general statement about the adequacy of emission testing through the regulatory authority of the Department of Environmental Protection in the State of Western Australia?

Mr James: Yes, Madam Chair. I have a written statement which I would like to read to the committee. Gerard has already said that I am appearing as an expert witness. However, my interest in this matter concerns the licence conditions - that is, the regulations - covering the operation of industrial facilities with the potential to pollute the atmosphere. I believe that this issue with Alcoa has arisen in part because of a lack of adequate licensing regulations in Western Australia. As somebody who deals with the ramifications and implications of the licensing system in Western Australia, I have long held the belief that it is inadequate and in desperate need of significant improvement.

The written submission that I made to this committee includes copies of correspondence between the Department of Environmental Protection, the Minister for the Environment and me. This correspondence dates back to November 2000. In this correspondence I outlined a number of concerns I have about the adequacy or inadequacy of regulations within Western Australia to control air pollution at source. These concerns include: inadequate guidelines for industry about the correct location of sampling ports, which is a vital first step in obtaining representative and meaningful test results; undue emphasis on certain pollutants, while others are insufficiently covered by licence conditions; irrelevant licence conditions, which means that some companies are continually bearing the cost of complying with licence conditions they could never possibly breach; sources being allowed to exceed their licence conditions with no action by the DEP; lack of appropriate licence conditions allowing companies to emit toxic compounds and other pollutants without control; and lack of independent accreditation for emission testers to ensure a minimum standard of competency and appropriate methods are used. I would like to table a draft document

that I wrote and presented to the DEP in April 2001 as a suggested guideline for sampling, analysis and reporting emissions to air from stationary point sources. I believe that if such a guideline were adopted, it would eliminate many of the problems that currently exist and that result in inadequate and inconsistent licence conditions for industry, and that potentially allow unregulated emissions of toxic compounds and other pollutants. I would also like to table an extract from the United States Environmental Protection Agency Code of Federal Regulations, which is an overview of its hazardous air pollutant regulatory program. It is my belief that we need a similarly stringent set of regulations in Western Australia to ensure that the environment and people's health are being properly protected. I have made the requisite number of copies for that purpose.

The CHAIRMAN: The document that you are tabling now is basically a submission to the DEP about proposed changes to licence conditions. Will you outline the response that you have received from the DEP to your technical suggestions?

Mr James: I had a meeting with Catherine Harrison, who was acting manager of the licensing branch of the DEP, and two of her officers. At that meeting I asked Catherine Harrison several questions about the validity of some specific licences, and I found that the responses were inadequate. They reflected a lack of knowledge of technical matters.

The CHAIRMAN: That is very general. Will you expand on how they were inadequate?

Mr James: One small example I can think of is that the officers were not aware of the difference between sulfur dioxide and sulfur trioxide, what that meant for the environment and how to license those chemicals. They were under the mistaken impression that the National Health and Medical Research Council guidelines of 1985 lumped both those air pollutants together, which they did not. They had read the regulation incorrectly. This seemed a basic problem with understanding chemistry, and high school chemistry at that. That is the only example I can remember from the time, and I hope the committee will appreciate that a great many things have happened since I had that meeting with the Department of Environmental Protection. At that meeting I submitted this guideline to the manager of the licensing branch. I said, "Look, I have worked on this and I think it might help you if you were to somehow make use of this document, because the document outlines ways of controlling the quality of test data, and accrediting people to National Association of Testing Authorities certification, as others States have done." New South Wales and Victoria have both followed that line.

The other matter, which was really one of the cornerstones of my document, was that the DEP had to decide to use particular methods to do the test work. It is no good the DEP saying on a licence condition that sulfur dioxide, particulate or anything else should be measured unless the department states either directly or implicitly that it wants the very best testing methods applied in order to determine these things. I recommended in that document that the United States Environmental Protection Agency's methods be used, as they appear in the Code of Federal Regulations.

The CHAIRMAN: Has your proposal been welcomed by the DEP? Has there been any constructive outcome from this proposal?

Mr James: The only tangible sign I have seen that the Department of Environmental Protection wishes to adopt certain methods relates to a client of mine who was renewing a licence. The DEP nominated 15 different USEPA methods on the licence. Some were relevant to the parameters which my client was being asked to measure and some were not. It was like drawing a gun and shooting from the hip. The DEP had put the methods there; some were relevant and some were not. The department obviously did not have sufficient knowledge to decide which methods should be used for which air pollutants.

The CHAIRMAN: From my understanding of a comment in your earlier written submission, you believe that the DEP has a very limited approach and only uses USEPA measurement method No 5?

Mr James: Yes

The CHAIRMAN: Are you saying that the DEP has gone from that to now recommending the whole suite of possible measurement methods in order to scope all possible eventualities?

Mr James: On that one licence that I have seen. I hope the committee understands that I do not have the opportunity to look at a great number of licences, because I am too busy doing my work. However, a client of mine wished me to see the licence and I became aware of what happened in that instance.

The CHAIRMAN: Have you worked for the DEP?

Mr James: Yes, I have.

The CHAIRMAN: When did you work with the DEP?

Mr James: For approximately four years from 1987 to about the end of the eighties - 1990 or thereabouts.

The CHAIRMAN: Do you consider that there have been changes in the performance of the pollution control division since you left and went into private enterprise?

Mr James: There have been many changes. The Department of Environmental Protection has gone through a number of policy changes since I left. For instance, it ostensibly worked under a command and control system of licensing in which it stipulated an emission limit. That was never resourced correctly. I did not see that that achieved relevance for all licences throughout the State and only some were dealt with in that way. In 1987 the department went to a load-based licensing system.

The CHAIRMAN: Does that mean a volume throughput system as exists at Wagerup?

Mr James: Yes, that is right. I felt it was a mistake to control pollution in that way, but it was a change. I believe there have been several other changes as well that were not of a major nature, but were of a lesser scale.

The CHAIRMAN: Is there anything else, apart from policy changes to licence conditions, about the overall operation and effectiveness of the DEP as a regulatory system?

Mr James: I like to look at things in the very narrow view, because that is the nature of my work, rather than on a broader scale; that is the way I am trained. Madam Chair, you mentioned that the licence conditions until recently only referenced one method - that is, USEPA method No 5. There has been a change in that situation. I think that change has come about because I approached the DEP, and for no other reason. I believe that to be the case. It is not possible to incorporate changes such as I envisage without their being accepted at the highest level of the Department of Environmental Protection, because they are policy matters. You can throw the titles of methods on a licence, but it will mean nothing if you do not build the infrastructure around it. The members of the committee deal with policy and I deal with measurement. I felt it was all a bit piecemeal. The Department of Environmental Protection has changed direction and adopted a policy, but it has not carried through with it. It has not made the policy effective or broad enough. If I am being too general, please correct me.

The CHAIRMAN: Do you think that the department is adequately resourced to implement those kind of new policy directions?

Mr James: No, I do not. I believe that it is quite possible for the department to argue that it has suffered serious budget cuts over the past 10 years. I am aware of some instances in which that has occurred in the monitoring branch, for instance - because I know people in that branch. It does cost money to implement policies that will protect the environment. It is a highly technical matter to protect the environment. You need people who are well credentialled scientifically, and you need the will to adopt a particular policy and stick with it.

The CHAIRMAN: I feel a little inhibited because I do not want to ask the wrong questions. Will you provide input to the committee on some of the specifics of getting quality results from monitoring? You have made some general comments that you think the system of licensing fails in acquiring quality information. Will you tell the committee more about what you do when you measure a stack, what are the different ways of measuring a stack and how that has to be done to get information that is sufficiently precise to protect, in this case, public health and occupational health and safety standards?

Mr James: In this case I am probably suffering from information overload and I do not know where to start, because that is my field. The first step in addressing a particular source is to understand the process. I try diligently to find out how the process operates, what chemistry is involved, and what pollution control is involved. I raise a great many questions about the period of operation, and whether it is a batch process or a continuous process. That is the way I first begin to try to understand what is likely to be emitted from such a source. I encourage all my clients to let me speak to their engineers to understand the nature of that. Quite often they have a licence agenda. For instance, if it is a compliance test they will already know what they want measured. In the great majority of cases companies will overlook giving me sufficient information about the process and will simply ask me to do tests for a particular air pollutant - let us say that it is total particulate. I will then decide, on the basis of characteristics of the gas stream, which is the best method to apply. It will invariably be a USEPA method, but not always. I also use testing methods of the Federal Republic of Germany for total particulate. I imagine that the committee does not want me to go into detail about the business side of proposing an agreement for the cost of the job and things like that?

The CHAIRMAN: That is correct.

Mr James: I then decide on a test method. I will arrange to visit the site on a day when the plant, hopefully, is running as normally as possible; that is, as near as possible to maximum production. That is not always possible, because that is not written into the licence conditions. All too often there is no licence condition requiring industry to operate in a certain way when a compliance test is performed. I may well be performing a test at a totally inappropriate time. I have very little control over that as a contractor. That being the case, I would then send a team of people to that site to conduct the tests. We would climb up the stack, position our equipment in the sample port and we would conduct the test over the requisite period of time - whether it be 30 minutes, an hour or four hours as the case may be - for the process or for what they wish to achieve. We conduct the tests. We retrieve our samples from the sampling equipment on the stack. We come down from the stack. We go back to our laboratory and conduct an analysis of the filters and whatever other parts of the equipment need to be analysed. We then calculate our results and report to the client. We use NATA-certified laboratories for the analysis in some cases. In other cases, for example, with total particulate, we conduct in-house testing and we have a NATA-certified balance. We follow the USEPA methods in that regard. We use calibrated equipment at all times. It is calibrated to the USEPA standard. We send our report to the client. The report comprehensively covers all the relevant aspects of that reported value, how we achieved it, what the plant was doing when we conducted the test, any problems we encountered, the accuracy of result, and so on and so forth. Myriad facts appear in our reports. We come down from the stack.

The CHAIRMAN: I need to forewarn you that the committee has lost an hour of hearing time due to circumstances beyond its control, so we will finish this hearing in just over 10 minutes time. It is obviously very limited. We may at a later date ask more specific questions in writing if you are able to give the committee more evidence. That may or may not occur.

[2.20 pm]

On page 2 of your written submission of 26 November 2001 you say that it is common knowledge within the Australian alumina industry that there are specific organic components and that many of

the compounds are toxic and carcinogenic and appear on the United States EPA list of hazardous air pollutants. Could one conclude from those statements that you consider that the emissions likely to come from the Wagerup refinery are likely to be hazardous to human health?

Mr James: The short answer is yes. However, as with any technical answer it must be qualified. If I understand the specific nature of your question correctly, I am now aware that the liquor burning process produces high concentrations of toxic and carcinogenic compounds. The whole alumina industry is now aware of that. Whether those emissions go to atmosphere, however, depends on the efficiency of the pollution control equipment. That has a bearing on the regulations in the given jurisdiction in which the facility operates. However, without effective pollution control, these combustion devices will produce high levels of these compounds if they are processing local bauxite.

The CHAIRMAN: If you were charged with monitoring the particular liquor burner at the refinery into which we are inquiring, what ideal monitoring system would you require if you were to determine the licence conditions?

Mr James: I have prepared an answer to that. It is about the only one I guessed you would ask me. I approached the New South Wales environmental protection agency, described the process and asked its regulators what specific licence conditions they would place on that facility. Their response was that, ideally, they would require a bag filter for the particulate emissions and an afterburner or thermal oxidiser for the gas and vapour phase emissions. They reach that conclusion because New South Wales has adopted, almost in its entirety, the USEPA hazardous policy that I submitted to the committee. It is the document titled "Overview of Hazardous Air Pollutant Regulatory Program". USEPA requires that, if it can be shown that a facility is emitting more than 10 tonnes a year of a single hazardous air pollutant, as defined on that list of 189 compounds -

The CHAIRMAN: Are you saying any single one?

Mr James: Yes, any single one - or 25 tonnes a year of a total of several hazardous air pollutants - would require the maximum achievable control technology. They call it MACT. As I described to you before, a bag filter and an afterburner would be considered by the New South Wales EPA and by me personally as the best achievable control technology for that source, for both those conditions of the emission; that is, the particulate, the solid-phase, and the vapour-phase particles that are attracted to the particulates, and the gas and vapour phase of those compounds in the afterburner. The bag filter handles the solid particulate and the afterburner handles the organics, the gas and vapour phase organics.

They would also apply what they call a surrogate standard. They would apply an emission limit of 0.1 nanograms per cubic metre of dioxins and furans. As they explained to me, that would be the worst possible case scenario, so they would insist that that testing be done to show that the standard for the most toxic type of compound we can think of in emissions testing would meet the toughest standard in place in Europe - 0.1 nanograms per cubic metre. That has been adopted in New South Wales and Victoria. They would also set a 100 parts per million limit for carbon monoxide, because carbon monoxide is one of the most sensitive single indicators of combustion efficiency. If an afterburner is to be used, which is a high temperature combuster, there must be a way of continuously determining that its combustion efficiency meets the high standard at which it is designed to operate.

They would also set a 20 parts per million limit for total volatile organic compound emissions. That is a very low level required for the total load of organic compounds being emitted into the atmosphere. As I mentioned, they would require a bag filter to control the particulate and they would encourage an afterburner. They say they would "encourage" an afterburner. As in all these matters, it is possible for companies to say that they think they can achieve the same efficiency with another or equal piece of technology. That happens all around the world. However, it would have to meet the maximum achievable control technology.

The CHAIRMAN: What monitoring would occur to ensure compliance with those emission requirements?

Mr James: Once normal operation was achieved, tests would be required to speciate the organic stack emissions, and these would be modelled to ground level. A risk analysis would also be required to determine whether any residual risk remained after the imposition of pollution control equipment. As I say, that is based on USEPA conditions for emissions of this type from industry. That in a nutshell, without carrying on about it, is what I would put on a source like that.

Hon BRUCE DONALDSON: How does the Western Australian system compare with systems in other Australian States? You referred to New South Wales. What about the environmental protection agencies in States other than New South Wales?

Mr James: As I said in response to your last question, I cannot speak as an expert because I am not an expert in regulation. Naturally many things filter through to me and I speak at length to a number of people in the Victorian, New South Wales and Queensland environmental authorities. I believe that New South Wales and Victoria are the leaders in the field. They are a long way ahead of Western Australia. Western Australia, Queensland and Tasmania do not really rate in environmental protection terms for the protection of the environment against industrial pollution control. I have no knowledge of the agency in South Australia.

Hon BRUCE DONALDSON: The Minister for the Environment and Heritage wrote to you on 6 July last year. She indicated that the Department of Environmental Protection was reviewing monitoring methodologies. Has the review been completed? A pilot program was planned to test the appropriateness of these procedures for sulfur dioxide emissions and ambient testing. Have the procedures and pilot program been completed?

Mr James: I am not familiar with the topic.

Hon BRUCE DONALDSON: A letter was written to you by the minister on 6 July 2001.

Mr James: Perhaps if I can get that letter out, it might jog my memory. Are you referring to the present environment minister?

Hon BRUCE DONALDSON: Yes.

Mr James: Will you read part of that letter for me?

Hon BRUCE DONALDSON: I have an internal memorandum. The letter was sourced by our staff.

Mr James: I recall a letter coming from the minister. I am trying to remember the details. I have not received any advice to the effect that it is doing much about the matters I raised with the department.

Hon BRUCE DONALDSON: In that letter the minister clearly stated that the Department of Environmental Protection was working closely with industry, technical experts and other stakeholders to develop appropriate calibration and monitoring quality assurance.

Mr James: The penny has just dropped, thank you. The minister was referring to a document that was gazetted. It became law under the regulation on self-monitoring. It was gazetted on 1 January 2001. I made a submission on that process and I was very critical of the process. It went through very quickly. Stakeholders were given a chance to respond within two weeks. In my submission to you there should be a letter that refers to what I thought of that regulation.

Hon BRUCE DONALDSON: There is.

Mr James: I felt that it was wholly misguided. It was an attempt by the Department of Environmental Protection to reverse the situation over two court cases, which had set a precedent. Are you familiar with them?

Hon BRUCE DONALDSON: No, I am not.

Mr James: One was with WMC Resources Ltd and the other was Kalgoorlie Consolidated Gold Mines Pty Ltd. The validity of test data was challenged in one of them. I do not think the Department of Environmental Protection could bring data into the court. It was challenged on the basis that it did not meet an Australian standard under the measurement Act. That regulation was implemented to deal specifically with that. As I pointed out in my letter, the DEP did not seem to draw a distinction between source testing, testing the emissions from a confined source, and ambient monitoring. Throughout the world regulators in various jurisdictions have drawn a clear distinction between the way we go about testing ambient air and testing stack emissions. The character of these two types of air is totally different. I felt that had been completely overlooked in that regulation and that the two had been almost drawn together to be one thing. They were concentrating on pieces of equipment in that regulation when they should have been concentrating on standard methods. In stack emissions testing, the starting point must be an appropriate standard method. It is wrong to fly by the seat of one's pants in stack testing, as perhaps can occur in ambient monitoring. I am not an ambient monitoring expert and I do not mean to cast aspersions on ambient monitoring. Stack testing is a very rigorously controlled exercise because of the nature of waste gas from an industrial process. Ambient air is inherently much easier to test and requires nowhere near the emphasis on sampling conditioning, for instance. I felt that regulation was inappropriate and a step backwards for the State, and I still do.

Hon J.A. SCOTT: Evidence from workers and townspeople indicates that the level of emissions varies at different times. It has been suggested by at least one witness that the filtering equipment has limited life before it starts to block and require cleaning. As a result, the emissions get worse over time. Is it possible for the level of emissions to vary from time to time for various reasons?

Mr James: I can answer that question; although I am not a pollution control expert, I cannot do my work without being involved. Any kind of catalytic device will become poisoned over time. It has a limited life, just like a battery in a torch. If the characteristics of the catalytic oxidiser are well understood, as in other industries, that catalyst can be changed at an appropriate time so that it does not deteriorate beyond a minimal level of performance. I must be careful here because I am not an expert in this field, but I can only imagine that variations might occur with the catalytic oxidiser if its character were not well understood. If it were absorbent, the characteristics, under the actions of a variety of compounds, all of which have different breakthrough properties - the filter, if you like - would be different for different compounds. It will not act uniformly for all compounds because a large number of compounds are being directed to that filter at any time. Benzene might break through while others might be well contained. It is a big problem for people to operate a catalytic oxidiser if they do not fully understand the nature of the process and what it will throw at the filter. It also means that if the performance of the electrostatic precipitator - the device in front of that - varies it can adversely affect the catalyst. It is conceivable in theory to imagine that the performance of that device could be variable over time and allow high concentrations to pass through.

Hon LOUISE PRATT: I am very interested in your comments. You said that you had prepared some answers to questions you thought we might ask. Will you make those questions and answers available to the committee? It is often difficult for us to know what questions to ask. The ones you pre-empted may be relevant to us.

The CHAIRMAN: Can we have the questions and the answers that we neglected to ask you? If you have prepared additional information for the committee that you have not had the opportunity to use this afternoon will you table that?

Mr James: Would you like me to do that in the future?

The CHAIRMAN: If you table it now, the committee office will copy it.

Mr James: You have been very kind to me. This response to your question was a letter written to *The West Australian* , which was not published. I can submit it but perhaps it should be changed and reference to *The West Australian* deleted, so that it is written as a letter to the committee. Would that be appropriate, or would you like me to give it to you as it is?

The CHAIRMAN: Why do you not make some handwritten alterations to it when you have finished your evidence and pass it on with the alteration, so we have the correct record of how you wish it to be directed.

Hon J.A. SCOTT: I was very interested in your statement that emphasis is placed on testing some emissions and very little notice is taken of other emissions. Is there some indication that the Department of Environmental Protection is not looking at some important emissions that could be of interest for the health of workers and other members of the community, or even the environment?

Mr James: That could be the case. However, I would not like to say that I have any specific information to that effect. I prefer to say that there are licensed conditions that have that effect, as we speak. They are current licences.

The CHAIRMAN: Alcoa has made certain commitments to the State Government, regarding precise licence conditions to improve pollution control methods. I am not asking you to comment on those because you may not be aware specifically what Alcoa is proposing. However, generally, would it be possible for liquor burners to operate adequately in order to pose no threat to the work force, the surrounding community and the receiving environment, if the pollution control mechanisms were correct?

Mr James: Yes. There is no doubt in my mind that could occur.

The CHAIRMAN: Thank you very much. The committee appreciates your giving so freely of your professional time and advice. It is that type of evidence that will make this a quality inquiry.

Mr James: Thank you for allowing me to attend.

Committee adjourned at 2.40 pm