

TRANSCRIPT

LEGISLATIVE COUNCIL ENVIRONMENT AND PLANNING COMMITTEE

Inquiry into recycling and waste management

Melbourne—Friday, 3 May 2019

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WITNESS

Dr Angie Bone, Acting Chief Health Officer, Department of Health and Human Services.

The CHAIR: I declare open the Environment and Planning Standing Committee public hearing. I am just going to go through some formalities first. I just want to remind everyone that all mobile phones should now be turned off or put on silent. I want to extend a welcome to members of the gallery, members of the public and members of the media who are present. The committee is hearing evidence today in relation to the inquiry into recycling and waste management, and the evidence is being recorded.

I would like to welcome Dr Angie Bone, the Chief Health Officer at the Department of Health and Human Services. Thank you very much for making yourself available.

All evidence taken at this hearing is protected by parliamentary privilege as provided by the Constitution Act 1975 and is further subject to the provisions of the Legislative Council's standing orders. Therefore, the information that you are about to give today is protected by law. However, any comments repeated outside this hearing may not be protected. Any deliberately false evidence or misleading of the committee may be considered a contempt of Parliament. All evidence is being recorded. You will be provided with a proof version of the transcript in the next few days. I think we have allowed 10 minutes for an opening statement, and then we will ask questions. Again, thank you and welcome.

Dr BONE: Certainly. Thank you very much for that introduction and for the invitation to come and talk to you today. I understand that the committee is particularly interested in the role of the Chief Health Officer in general, my view of the risks to health from a situation like the Campbellfield fire and also the role of the CHO in those circumstances. When I say 'CHO' I mean Chief Health Officer.

I understand a number of organisations have already given evidence today, so if I am repeating content that you already know, please do feel free to stop me. I will talk for about 10 minutes, as agreed. I should point out that I am currently acting Chief Health Officer; my substantive role is Deputy Chief Health Officer (Environment) for the Department of Health and Human Services. I would also note that I moved to Victoria, to Australia, from the UK, a year ago, so questions about events that happened prior to March 2018 I might need to take on notice just because I do not always have that historical knowledge.

In terms of the role of the Chief Health Officer and public health, the protection of public health, including the health and safety of all Victorians, is covered in various different bits of legislation, as I am sure you are aware, and that legislation is administered by state government and local government. There are three key pieces of legislation relevant to the issue at hand, which is the fires relating from the stockpiles. These are the Public Health and Wellbeing Act 2008, which aims to achieve the highest attainable standard of public health and wellbeing by focusing on protecting the health of the public, by promoting conditions that allow people to be healthy, and reducing inequalities in the state of health and wellbeing. The other two bits of legislation that are particularly important are the Environment Protection Act 2017, which is administered by the Environment Protection Authority, and the Occupational Health and Safety Act 2004, which is administered by WorkSafe. I am going to focus my attention on the Public Health and Well Being Act, because that is the area that I am particularly related to.

The role of the Chief Health Officer—the Chief Health Officer is a statutory appointment by the Secretary of the Department of Health and Human Services under the Public Health and Wellbeing Act. The Chief Health Officer performs the functions and powers specified in that act. In authorising the use of those public health risk powers, the Chief Health Officer needs to decide that there is a reasonable risk to public health that exists and that it is necessary to exercise some or all of the powers to investigate, eliminate or reduce a risk to public health. In coming to that decision, the Chief Health Officer needs to take into account a series of principles. Those are things like evidence-based decision-making, best use of resources, primacy of prevention, the precautionary principle, what is proportionate and the importance of collaborating with other organisations, because the health department—DHHS—and the Chief Health Officer cannot resolve most public health issues entirely alone.

I would also note that where more specific legislation or regulation relating to the protection of health and safety and public health exists, it takes precedence over the more general powers in the Public Health and Wellbeing Act, the exception being the discretionary powers that the Chief Health Officer has—for example, to require someone to be examined, tested or quarantined, and that is more usually to do with an infectious disease where they pose a risk to other people.

In terms of the role of the Chief Health Officer in pollution and waste, it is worth being aware of the background about the independent inquiry into the Environment Protection Authority in 2016 that recommended the creation of a consolidated and enhanced environmental public health function in the environment protection agency. It also recommended the creation of the role of the Chief Environmental Scientist, who is to advise the chief executive of the Environment Protection Authority but also the Chief Health Officer. So in December 2016 some environmental public health functions were moved from DHHS, along with some staff, in order for the Environment Protection Authority to take a much more enhanced role around the protection of public health in relation to pollution and waste.

The Environment Protection Authority is now responsible for assessing risks to health from pollution and waste as well as communicating information about that risk to decision-makers and to the community. This includes the risk to health from waste stockpile fires. The role of the Chief Health Officer in an instance such as this is largely to support the Environment Protection Authority, to work very closely with them and to support their communication and add additional health protection functions and actions if required.

The way this actually works in practice is that I work very closely with the Chief Environmental Scientist at the Environment Protection Authority. We have strong informal relationships, but we also have strong formal relationships. There is a Memorandum of Understanding between our two organisations, which includes a specific schedule about how to manage incidents and emergencies such as these fires.

There is also the State Smoke Framework, under which there are a number of Joint Standard Operating Procedures. So in a fire we would expect the EPA to be assessing the risks from air emissions and providing advice to impacted communities and to myself as the Chief Health Officer.

Moving on from the role of the Chief Health Officer generally and the role of the Chief Health Officer in pollution and waste incidents, I thought it might be helpful just to explain a little bit about how we understand risks to health from pollution and waste—or from any sort of hazard in fact. We use what is called a source-pathway-receptor model. So that basically describes the hazard that a chemical poses, the way that chemical gets into or onto somebody's body, and then the receptor is the person, the community or the institution who is affected through that pathway.

So, if we start thinking first of all about the source, the actual hazard that a chemical causes to somebody's body, to somebody's health, is highly dependent on the type of chemical. It is very difficult to talk in general terms about these things. It also depends very much on the chemical properties and also the concentration of that chemical. Obviously, something that is more diluted is often much less risk than something that is much more concentrated. That is important for something like smoke, where if you are in a confined, very poorly ventilated space, the risk will be worse than if you are further away in an outside, very ventilated area.

The sorts of chemicals that we understand are being stored in some of these situations are solvents and other flammable liquids and chemicals used in manufacturing in a range of products. It is worth noting that many of these chemicals are in common use, and if they are properly managed and properly contained, they do not necessarily in and of themselves pose a risk to health. It is, if they catch fire, if they start leaking or if there is an accidental spill. Then you start thinking about—well, what are the pathways by which these hazards can then get to people?

So, the sorts of pathways that we would be thinking of are: is it something that is in the air? Is it inhaled—which would be very relevant from a smoke perspective. Other ways that it could go onto the body would be, for example, if it went onto the skin or you ingested it. Sometimes you can ingest it directly. Sometimes it is because it has gone into drinking water, into food or into recreational water, for example. So, when we are assessing what the risk is to health, we start thinking about what is the chemical or chemicals, and then what is the way that that is affecting people?

So, lastly, the receptor bit of this equation—the people. This is people—it could be, as I say, individuals, communities or institutions. Some factors will make people more vulnerable to a situation than others. So, there may be physiological things, because somebody who is very young or very old may have a pre-existing condition which makes it harder for their heart or lungs to work, for example. There may be genetic factors. There may be other factors—for example, how easily they can remove themselves from whatever the hazard is that they are facing. That is similar for institutions or facilities. So one of the areas that we are particularly concerned about as a health department is aged-care facilities, because there will be a lot of people who have much greater vulnerability, both physiologically, because they have pre-existing conditions, but also because it may be harder for them to be able to protect themselves or for us to be able to move them, for example.

The other thing just to note whilst I am talking about that is of course that there are firefighters who are also receptors; they are people who are exposed to hazards. They are not the Department of Health and Human Services's direct responsibility, but we are certainly cognisant that they are in this context and are potentially exposed to health hazards.

So, the sorts of protective actions that are taken depend entirely on the context. Already I have talked about the source, the pathway and the receptor, but it also depends on things like weather conditions. How hot is it? Which way is the wind blowing? Is there smoke going up that is very high in the atmosphere, in which case people are not actually breathing it in. And the actions that might be taken—so, for example, the Incident Controller, the fire agencies or police may set up an exclusion zone. People may be recommended to shelter indoors, and often that is a safer approach than evacuating or relocating if you know that the situation is only going to last for a short period of time.

If people can close doors and windows and turn off air conditioners, they can stay safe for probably a period of 4 to 6 hours. People may also be recommended to follow personal medical plans, to seek help from NURSE-ON-CALL or a GP or, obviously, call 000 for a health emergency. In very severe circumstances relocation or evacuation might be recommended.

Just talking more generally about fires involving waste and hazardous materials, the Department of Health and Human Services and the Chief Health Officer will always be involved in a major fire that is likely to have health consequences. The Environment Protection Authority supports the Incident Controller in relation to assessing the potential impacts of pollution and waste, and the EPA provides the Chief Health Officer—myself—with their assessment of what the risks are to human health, what the pollutants of concern are, their interpretation of air quality and environmental monitoring and what this means for health and health protection, and what action should be taken.

The Chief Health Officer will discuss the EPA's assessment with them and then, if necessary, either on the EPA's request provide further advice and suggestions or—this has never actually happened—should we arise with a situation where the Chief Health Officer was not happy with the EPA's assessments, then the Chief Health Officer would be able to intervene. There is of course a much broader health response preparing primary care, general practitioners, hospitals and other providers so that we can have a coordinated response in a very major situation.

In terms of the Bradbury Campbellfield fire, I was working on that day, and I was contacted in the morning by our Emergency Management Branch, who had been contacted by Emergency Management Victoria. I was told about the fire and I was told that the EPA were on site and were already assessing what the pollutants were likely to be and making their risk assessments. I was then invited to the State Control Team and the State Coordination Team, where all of the agencies gathered to discuss what we knew, and I was accompanied from DHHS by the State Health Coordinator, who is the person who coordinates much of the cross-health system activity, and the State Health Commander from Ambulance Victoria.

EPA had established their monitoring, and between 4.00 p.m. on 5 April and 10.00 a.m. on 7 April we received three air quality reports with information about the location of smoke impacts, the pollutants being monitored, the levels that the pollutants were at and the health protection advice. Our Emergency Management Branch proactively contacted nearby aged-care facilities and a retirement village, liaised with the local council and attended incident and regional control centres to manage risk, and supported MFB and EPA with communications activity. So, a lot of our support there was also around communications activity, sharing

updates, re-tweeting tweets, proactively posting information on our websites and putting banners on things like the Better Health Channel.

So, really, in summary, the health risk from any situation is entirely context dependent and depends on this source-pathway-receptor model. There are a range of protective actions that can be taken. It is really EPA's lead to assess the risk and manage the risk and communicate that, but the Chief Health Officer and the Department of Health is always available to support as necessary.

Finally, I would just conclude that I have talked a lot about physical risks from hazards, but I would also note that there are clearly mental health issues for people living near these stockpiles, from fear that something is going to happen, but also in the recovery phase. Similarly, although it is not well defined, there can be health issues related to loss of amenity and a change in your understanding of your community and your area as a result of these situations. So, I would certainly support any system improvements that can be made to waste management in Victoria that prevents or minimises the occurrence of fires and emergencies related to these stockpiles. That is all I will say for now, but I am happy to take questions.

The CHAIR: Thank you. That was an excellent presentation, Dr Bone. My first question is—and I pick up on your last point about system improvement and information sharing; that issue came up in previous evidence we heard this morning. From your point of view, what improvement can be made to make your job easier, to be able to send alerts when needed to warn the public and improve the health and wellbeing of Victorians? Any particular suggestions that could improve the system?

Dr BONE: I think one of the biggest challenges about these situations is that sometimes we do not always have the information about what chemicals exactly are being stored, either in storage or a stockpile, and I am sure other people have made those comments too, because it does make it difficult.

The CHAIR: So the electronic tagging is a step in the right direction?

Dr BONE: Sorry?

The CHAIR: The electronic tagging of all chemicals.

Dr BONE: I would think so. This is not my subject area, but anything that would help us understand what the chemicals were would make that risk assessment process easier already and would help guide us to what needs to be monitored and what specific advice—because I think one of the issues that I am always very conscious of is that all smoke can be potentially hazardous to health. We would always recommend that people stay out of smoke whatever that smoke is, but clearly we and the community want to know if there is something special about that smoke as well that would change any of the short or long-term risks. So that is something that is important.

The CHAIR: A follow-up on that: the flow of information let us say from the various agencies like the EPA, like the MFB, CFA who are handling this sort of event, do you think the flow of information to your office is sufficient to enable you to make the decision in a timely manner to put alerts out, for example?

Dr BONE: I have not felt that we have not had the information early enough, because our colleagues in the Environment Protection Authority are essentially there on scene and making the best of the information they have got, and then they provide that information to us. Of course I would like more information, but if the EPA can make some sensible assessment early on...

The basic protection measures should go in right from the very beginning. It is that refinement over time that is more important, I would say.

Mr HAYES: Thank you very much for your submission, Dr Bone. Do you think that chemicals need to be separated into various categories in the logging process, or is it all right to keep them more or less together as long as we know what is there?

Dr BONE: Again, I would say that that is not really my area of expertise. It would seem logical to be able to categorise and keep chemicals separate, because we know that chemicals interact with each other. Again, for

example, you might increase the risk of explosion if you have two chemicals mixed together, but this is not really my area.

Mr HAYES: Okay. Fair enough. Disposal of these things would be the best thing to achieve, but are there chemicals that you know of where there are problems with disposal—where there is no safe way to handle or dispose of them—and do you have any recommendations in regard to that?

Dr BONE: Again, the disposal of chemicals is not really part of the Chief Health Officer's remit at all. I could take the question on notice and find out from my colleagues in the Environment Protection Authority, but it is really not our area.

Mr HAYES: If you would not mind, that would be fantastic. And I just had one more: do you know anything about leaching of chemicals from landfill or containers or anything like that that is posing a threat?

Dr BONE: Again, as I say, this is the area that is the responsibility of the Environment Protection Authority, so I can again take the question on notice and ask my colleagues at the EPA. Whenever I am asked those questions, I go to the EPA and ask for their view about it.

Mr MEDDICK: Dr Bone, thank you for appearing and giving your evidence here today. You raised the question about early intervention—about, you know, having prior knowledge perhaps even of what chemicals are on a particular site. This is a recurring theme of the others who have given evidence here before us today, and I raised this question with them so I raise it with you, because I am seeking consensus from all parties that come.

I am curious as to know what your opinion would be if your department had the access to a database that lists the manifests of what is actually stored in these places. As soon as a fire occurred in this situation, you would then be able to make a far quicker assessment of what advice you would give to the general public and to the EPA, the MFB et cetera. Would that be of some benefit to your department?

Dr BONE: It would certainly make that decision-making quicker, so the Environment Protection Authority would hold that information or have that information and then be able to come to us and say, 'This is the manifest of what's in that warehouse', and that would make the assessment much quicker and potentially change advice to some extent.

Mr MEDDICK: That is really what I was trying to get at—the potential for change of advice and therefore a far more aware public.

Dr BONE: Yes.

Mr MEDDICK: And I have another thing. You mentioned in your opening statement there about the precautionary principle. Now I am reasonably au fait with that from my work in other areas. I am just wondering if you could expand on that a little bit more generally for other members of the committee and the other people in the public here and also on how that would apply in these situations.

Dr BONE: So the precautionary principle basically states that if you perceive or you think there may be a risk to public health or the environment, you should act even if you do not have total scientific certainty. That is the basis of many things. It is a principle that is widely used, so you could apply it in a situation such as this by essentially using the entire hierarchy of how we better manage chemicals. So ideally you use chemicals that are less hazardous, you substitute for chemicals that are less hazardous, you try to use fewer chemicals. If you do use chemicals, you ensure that you manage them in the safest possible way whilst they are being stored and in use, and similarly with disposal.

Mr MEDDICK: Would you agree then that perhaps if this principle in this situation was applied through the legislative process in a regulatory framework that had to be adhered to, that would be of some benefit?

Dr BONE: I would agree very much, yes.

Mr MEDDICK: Thank you.

Ms TERPSTRA: Thanks, Dr Bone, for giving your evidence to the inquiry today. Just a question about, I guess, the role of the Chief Health Officer. Do you think that your office has an appropriate level of involvement during these sort of emergency events, such as these sorts of fires? Do you think it is appropriate, or do you think there should be more or less involvement?

Dr BONE: Yes, I do think we have an appropriate level of involvement. Of course with the transition of functions and staff it can take some time to re-establish roles and responsibilities and working relationships, and understand boundaries and understand the best way to work together. I think that both the department and the Environment Protection Authority have worked very hard through that process, and I really do feel that we have got to a point now where working relationships and systems are such that it is working very well actually. I would not recommend a situation where we were duplicating. I think that we both bring different levels of expertise to this. The Environment Protection Authority are really the experts in that risk assessment and risk management. I would say that we, from a department point of view, are more used to the risk communication because we communicate risk around a whole range of things, but putting those two bits of expertise together is working very well I think.

Ms TERPSTRA: And are you satisfied with the sharing of information and the timeliness of it as well?

Dr BONE: Yes, absolutely. It really is within minutes of hearing that there is an issue that we are on the phone to each other already discussing what needs to be done and what information we have, information sharing and coming to a shared view.

Ms CROZIER: Thank you very much, Dr Bone, for your evidence and being before the committee this afternoon. I have got a couple of questions in relation to community health concerns. We earlier heard from the MFB, and I asked a question about the health issues surrounding firefighters because of the UFU awareness campaign in relation to their concerns that they say they have got about this. My point was that they wear protective clothing and I was concerned around the broader community and the impacts to the broader community. So the first question I have is in relation to how many reports have you received? I do not know if it is you or it might be the department, but you said you were part of a coordination team with the department. How many reports have been received from the public around health-related issues as a result of these fires?

And the next part of the question is: is there follow-up or tracking in relation to health concerns in these areas, community areas, where people reside and work?

Dr BONE: We have not received any individual health complaints, so no individuals have contacted us at all.

Ms CROZIER: That is your office or the department?

Dr BONE: That is my office, but I would imagine that any complaints like that would come—it would be recognised within the department that it should come to my office.

Ms CROZIER: To your office, okay. So no complaints whatsoever?

Dr BONE: No, none whatsoever. We are aware that issues have been raised at community meetings, and we know that Environment Protection Authority staff have been there and people have raised issues to do with headaches and irritation of eyes, nose and throat. We often do have requests for sort of longer term health monitoring from these fires. They usually come through the media rather than from individual people. People will ask us, 'Why are you not doing a long-term health study?', for example, after one of these fires.

Ms CROZIER: Should you be?

Dr BONE: My view is that these studies are actually very, very difficult to do. It is difficult because the type of impacts that you see from health are fairly common-type impacts over the longer term. So, they are worsening heart disease or worsening lung disease, which you can attribute to a number of different causes. They often occur after many years, and it can be very difficult to attribute the outcome, the illness, to the exposure that was a fire maybe 10 years ago because everybody is exposed to multiple insults to their body during their life, so it is not easy to attribute one single exposure, like a fire, that has caused that outcome. If you were to do this, you would need a very big study—I am talking tens of thousands of people—to actually pick up a difference in a community

that was exposed to a fire versus a community that was not. That is to be actually able to detect a difference. So, it is technically very difficult, and that is the problem with these things.

Ms CROZIER: Thank you, that is most interesting.

Dr RATNAM: Thank you very much for your presentation and apologies for being a bit late—I had another conflicting event as well. Just in terms of the air-monitoring systems, correct me if I am wrong in terms of understanding the way the EPA monitor the system and then your interaction and when you are alerted to take some action, but it seems like there needs to be 24 hours of air monitoring and then the exposure levels are averaged out over the 24-hour period, at which time you are involved at that 24-hour point. Is that correct? Or are you alerted prior to that?

Dr BONE: Yes, we are alerted right from the very beginning. We recognise that it will take 24 hours to get a 24-hour average, but that does not mean that we do not know what is going on.

Dr RATNAM: Okay, and do you think there is adequate responsiveness in the system? For example, within that 24-hour period while you are waiting for the averages to be calculated and then the action based on that to proceed after that, if there are spikes within that 24-hour period and it is getting to dangerous levels, do you think the response and the powers the EPA have in interactions with you are adequate to respond should there be something within that 24 hours that is very, very concerning?

Dr BONE: Yes, absolutely. Although we do tend to use 24-hour values to make decisions, we are also looking on an hourly basis as well, so if there is a spike and it is extremely high and it persists, then we will be having discussions before that 24-hour period about whether there is something more that we need to do. So we have had an example recently with the grassfires in the Bairnsdale-Maffra area where there was a situation where even though the 24-hour average was not being exceeded, the 1-hour averages were concerning enough for us to have a telephone conference with all the people involved to make decisions about what was the appropriate thing to do.

Dr RATNAM: And you had enough powers to act should you have wanted to act within that 1-hour period of concerning readings, or did you have to wait the 24 hours before the regulations said you could do anything?

Dr BONE: No, you do not have to wait at all, and in terms of powers that the Chief Health Officer has in these situations, I do not have a power to force people to evacuate, for example. I can make a strong recommendation to the Incident Controller that they may wish to do that, but I do not have a power that allows me to force people to move, for example.

Dr RATNAM: And just another question. We have seen in the most recent fire that a worker was seriously injured. Do you think there are systemic health risks often faced by, now we are discovering, low-income workers in these industrial storage sites or processing facilities that can or should be addressed? So particularly on worker safety.

Dr BONE: Worker safety is not, again, within the remit of the Chief Health Officer, but I have seen the same reports that others have of course—the information—and I would be strongly supportive of any system improvements that are going to improve worker safety and worker health.

Mr LIMBRICK: Thank you for your appearance, Dr Bone. We have heard today about different types of materials and different types of fires, and presumably that presents different health risks. One was plastic recycling plants catching fire. Another example given was solvents, and MFB earlier today spoke about e-waste, which is a new thing that they are quite concerned about and that poses unique risks. So I think we have heard some of the things about volatile organic compounds from solvent fires and things like this. What are some of the unique risks that something like e-waste fires would present? Are they different to these other fires? What sort of risks are we talking about—potential health problems?

Dr BONE: Again, this is not an area of great expertise for me, but I am certainly aware that e-waste is linked with certain metals—so lithium, cadmium—issues such as that. So, you have explosive risks, but you also have risks to do with heavy metal poisoning, which on a short-term exposure probably is not very significant, but longer term exposures to some of these heavy metals can cause significant health problems.

Mr LIMBRICK: And the cadmium and lead and these chemicals, these elements there, are persistent and spread throughout the environment with one of these fires, right?

Dr BONE: Yes, absolutely. So, that is certainly a potential risk that we would wish to see avoided.

Mr LIMBRICK: Right, okay. But does that risk already exist? Because my understanding is that most e-waste at the moment is going into landfill. It is not going to be as of 1 July; it is going to be stored. Does that risk already exist now?

Dr BONE: Again, I could take that question on notice, because I do not really know enough about the situation in Australia, in Victoria, around those risks and how e-waste is currently being disposed of.

Ms TAYLOR: I was just wondering: you said that because you cannot do the longer term studies it is actually very difficult because it would be difficult to isolate all the different factors that could contribute and the study would not have a lot of merit or worth in the long run.

Dr BONE: Exactly.

Ms TAYLOR: So I just wonder as a practice following on from the acute situation when you put out the health alert, do you now proactively follow up with the EPA or is it just that they will do the required follow-up testing in surrounding areas and so forth with air quality and surrounding creeks? How does that process sort of work?

Dr BONE: Yes. We do not really get involved in the follow-up unless they are picking up issues that they are concerned about, or that more general health surveillance is picking up that there is a particular problem in this area, or that the local community is contacting us directly. So, we have regular steering committee meetings between the DHHS and the EPA where we talk through recent incidents and ensure that we are collectively happy that things are progressing in the right way. But that is the only mechanism really.

Ms TAYLOR: Just on that premise, do you believe that there are any further residual risks to public health following the latest Campbellfield fire, or is it your understanding that things are—

Dr BONE: Yes, my understanding is that from that particular incident things are pretty well managed now in terms of any residual risk from that fire.

Mr MEDDICK: Just following on from what my colleague Mr Limbrick was talking about there with the e-waste, I am happy for you to take this question on notice and provide us with some information further down the track: what are the levels that would be considered dangerous, and what exposure period?

Dr BONE: I will definitely need to take that question on notice.

Dr RATNAM: Just on a slightly different tack, this inquiry is quite broad ranging. We have been talking today about the toxic, hazardous chemicals plus recyclable waste and the different types of issues that we face in terms of storage and the stockpiling of them. So coming back to the recycling waste issue, more broadly there have been discussions and proposals that we should move to incinerate our waste as a response to the recycling issue. But there are serious concerns that have been raised about health impacts of waste incineration—for example, exposure to acidic gases, heavy metals and complex halogenated compounds such as dioxins and furans. I am happy for you to take some of this on notice as well. Can you talk to us about what the health impacts are of long-term exposure, even at very low exposure levels, to compounds like acidic gases, heavy metals, dioxins and furans that we know are the by-product of waste incineration?

Dr BONE: Again, I would need to take that question on notice. I come from the UK. We do incinerate waste and we generate energy from it. From a brief conversation with colleagues in Victoria I understand it is more challenging here because of the climate, but that is all I know about that at present.

Dr RATNAM: And could I ask, are you being involved in those discussions as those proposals are being developed?

Dr BONE: No, again, because the remit for pollution and waste sits with the Environment Protection Authority, we would only be involved if the EPA had particular concerns that they needed us to be brought into those conversations.

Dr RATNAM: Do you think you should be involved at a prior stage, given the possible health ramifications of incineration?

Dr BONE: I think given what I know about the Environment Protection Authority and the people that used to be in the DHHS who are now in the Environmental Public Health Unit under Dr Andrea Hinwood, I am content to allow them to continue to represent the environmental public health issue and make those assessments and management, but for them to come to us if they require further support.

Ms CROZIER: Dr Bone, you may not be able to answer this because of the time frame that you have been in Australia, but from my recollection in relation to the Hazelwood fires down in Morwell, the health department and the Chief Health Officer had a big part in tracking the air quality and a number of other health issues. I do not know if it had a registry, and I know you said you have had no reports from these fires, but I am just wondering whether there should be a registry of sorts set up in instances where these significant waste fires with these toxic plumes and other issues arise. I am specifically thinking, obviously, about respiratory problems for people and whether the local health authorities should be proactive, if you like, in monitoring that. As you said before, you cannot set up a big study or longitudinal study because it is just too difficult, but whether in these instances something could be done more locally and more proactively?

Dr BONE: We could certainly consider a registry. They are very resource intensive and I think we would have to be in a situation where the community had had a significant exposure to make it the best use of evidence and resources and proportionality and all of those sorts of things. I understand that in the recent fires in both Footscray and Campbellfield, the plume was actually very buoyant so we were actually lucky in those instances. Actual exposure to the population was very limited for a very short duration of time. Should we have a situation where the community were being exposed for many weeks to very high concentrations and had particular vulnerabilities, for example, then I think our assessment might be different.

Ms CROZIER: On that point, are there parameters around that significant exposure that you just described?

Dr BONE: I think we would probably look at the research literature to see where there were situations where there had been significant exposure and we thought that there would be benefit to people from that ongoing follow-up. I think you have to also consider that every action has unintended consequences as well, so part of that judgement would also be, does that constant, ongoing follow-up related to a risk actually—if you are not able to actually offer very much actual change in their health status or the treatment that they get, could you be increasing anxiety or depression or worry by continuing? Could you be harming the recovery of the situation, is what I am trying to get to.

Ms CROZIER: Yes, I understand. Thank you very much.

Mr HAYES: Dr Bone, following up on Dr Ratnam's question about incineration, and it is probably something you would have to get something from the EPA about, but burning is one way—at high temperatures—of disposing of toxic chemicals. I am wondering if you can get the same results from pyrolysis, and what health concerns would you have with either method?

Dr BONE: Yes, again, that is something that I would definitely need to take on notice.

Mr HAYES: Would you mind getting that for us?

Dr BONE: Yes, certainly.

Mr HAYES: That would be terrific. Thank you.

The CHAIR: Thank you, Dr Bone. The secretary will actually forward to you the list of questions you have been asked to take on notice to make life easier.

Dr BONE: That would help me a lot. Thank you.

The CHAIR: I was watching you taking notes, so that will be sent to you shortly and also a copy of the transcript. Should you find anything that needs to be corrected, please do so as soon as you can so we can make sure the record reflects your evidence.

Dr BONE: Certainly.

The CHAIR: Also, if there is any other issue you think you might need to raise, you can actually attach that to the responses to the various questions. Again, thank you very much for your time today.

Dr BONE: You are welcome.

Witness withdrew.