

ECONOMICS AND INDUSTRY STANDING COMMITTEE

**TRANSCRIPT OF EVIDENCE TAKEN
AT PERTH,
WEDNESDAY, 5 SEPTEMBER 2001**

SECOND SESSION

Members

Mr McRae (Chairman)
Mr Day (Deputy Chairman)
Mr Bowler
Mr Masters
Mr Murray

APPLEYARD, DR STEPHEN JOHN,
Supervising Hydrogeologist, Water and Rivers Commission,
3 Plain Street,
East Perth, examined:

McFARLANE, DR DONALD JOHN,
Director, Resource Management, Water and Rivers Commission,
2nd Floor, Hyatt Centre, 3 Plain Street,
East Perth, examined:

The CHAIRMAN: Welcome and thank you for coming. The committee is a proceeding of Parliament that warrants the same respect as proceedings in the House itself demand. Even though you are not required to give evidence on oath, any deliberate misleading of the committee may be regarded as a contempt of Parliament. Have you completed the details of witness forms?

The Witnesses: Yes.

The CHAIRMAN: Did you understand the notes attached to it?

The Witnesses: Yes.

The CHAIRMAN: Did you receive and read an information for witnesses briefing sheet and guidance note regarding giving evidence before parliamentary committees?

The Witnesses: Yes.

The CHAIRMAN: Did you understand all aspects of that information?

The Witnesses: Yes.

The CHAIRMAN: Thank you. I want to clarify who is the signatory to your agency's submission.

Mr DAY: Did the Water and Rivers Commission submit a separate submission?

Dr McFarlane: No. Our submission is part 8 of section 69 of the Department of Environmental Protection's submission. It is found on page 13.

The CHAIRMAN: I am trying to determine how to incorporate your part of the submission into the transcript of evidence. We have received the Department of Environmental Protection's submission. Would you like to talk about those components that relate to the work of your subagency?

Dr McFarlane: I am sorry about the confusion. Our submission is part of the DEP's submission. The covering letter should have indicated that it was a joint submission from the Water and Rivers Commission and the Department of Environmental Protection. Part 8 of section 69 relates to the Water and Rivers Commission.

The Water and Rivers Commission's role is to manage the State's water resources with regard for sustainable development and the conservation of the environment. Our involvement with the inquiry relates to the committee's third term of reference. The two aspects of that are our membership of the hazardous emergency advisory team, which went to the site on the night of the incident, and our subsequent investigations.

Mr DAY: Is it the case that you had no involvement with the site prior to the fire?

Dr McFarlane: We had been asked by the Government to advise on or agree to some issues, such as cabinet submissions that were referred to the Water and Rivers Commission. There is no record of our doing anything other than agreeing to those. Our main role was to provide technical advice about the prescribed premises to the DEP. We had an advisory role.

On the night of the incident, our on-call officer was called out as part of the hazardous emergency advisory team. We had two concerns relating to possible run-off into the Helena River and ground water contamination. Our officer was available to provide advice on preventing stormwater entering the river. The Swan River Trust was also involved in checking for evidence of contamination of the Helena River. On the officer's advice, the Department of Environmental Protection coordinated the containment of the run-off from the site. Our on-call officer was involved in providing advice on water resource issues. He was not at the site on the day.

Mr DAY: What has been the effect on surrounding water, whether it be ground water or surface water such as the Helena River?

Dr McFarlane: There is no evidence of any contamination of the Helena River. Sand barriers in the drains feeding into the river prevented that occurrence. We were concerned that contamination of the Helena River would cause problems further downstream. However, it was not flowing at the time.

The CHAIRMAN: We have seen video evidence of a very slight flow.

Dr McFarlane: I have not seen that evidence. My advice is that it was not flowing.

Dr Appleyard: That is the advice I received.

Dr McFarlane: The people from the Swan River Trust who attended that night concurred with that advice.

Mr DAY: Are you confident that the barrier put in place on that night to stop any flow from the site into the Helena River was completely effective?

Dr McFarlane: The drains were dry. Some material was contained behind the sand bunds, but there is no evidence of anything beyond those areas. I feel very confident that nothing got into the Helena River.

Mr DAY: What about the effect on ground water?

Dr McFarlane: The area underneath the site is clay, which is associated with the river sediments in the area. There are no superficial bores. It is not a superficial aquifer and is therefore not conducive to domestic supply. However, we do not license that supply, so anyone pumping water would not be on our books. Our main concern was the confined aquifer underneath the clay, which is the Leederville formation. It is an important aquifer to Perth. Our investigations after the incident were to ascertain whether there was any evidence of contamination of the Leederville formation.

Mr DAY: What have your investigations shown?

Dr McFarlane: I hand over to Dr Appleyard, who was involved in the investigation.

Dr Appleyard: Our investigations indicated a minor level of perchlorethylene contamination, which peaked at the site. We drilled at the boundary fence, rather than in the site.

Mr DAY: Is that on the eastern side?

Dr Appleyard: It is on the south western side, between the river and the site. Any shallow ground water would have flowed towards the river. That was the first point of investigation. We looked for gross contamination, which would have indicated a potential for the contamination to go deeper and enter our Leederville aquifer. We found minor levels of contamination. We had some concerns

about the impact on the deeper aquifer, so the next step was to let a contract for deeper investigations. Those investigations will start over the next week or so.

The CHAIRMAN: Did the initial testing show minor levels of perchlorethylene?

Dr Appleyard: There were minor levels in the three or four bores closest to the site.

The CHAIRMAN: Did that increase apprehension?

Dr Appleyard: The nature of the particular chemical raised concerns about potential contamination of the deeper aquifer. Perchlorethylene is mobile in ground water and tends to sink. Although we do not think the risk is very high, the concern is substantial enough to warrant investigation. We will drill deeper to check the top of the Leederville aquifer to make sure the contamination has not spread any further.

The CHAIRMAN: I will try to understand that. Minor levels of perchlorethylene were found at surface levels according to your testing. If those levels are only minor, why are you anxious about perc reaching the aquifer?

Dr Appleyard: I am anxious about perc reaching the aquifer because of the physical properties of perc. When it gets into ground water, it is only slightly soluble; it is not very soluble in water. Perc is also dense in the water. When it gets into ground water, it tends to sink down and sit on the clay layer and form puddles. It depends on how continuous that clay layer is as to whether those puddles then trickle down and overflow to deeper clay layers and so on down to the aquifer. We consider that further investigation deeper underground is warranted firstly because we detected some perc in the ground water and secondly because of the physical properties of perc in the ground water.

Mr DAY: Although I understand from what you have said that you are not terribly concerned about it, what would you do if perc were found further underground?

Dr Appleyard: The best way to control that would be to remove the source.

The CHAIRMAN: Has that been done?

Mr MASTERS: The fire did that.

Dr Appleyard: A lot of the perc would have spilled out during the fires. The fire itself would not be the cause of the ground water contamination.

The CHAIRMAN: Are you confident that there is no longer a point source for continuing -

Dr Appleyard: That would have to be referred to the Department of Environmental Protection. We are working closely with the DEP to ensure that the drums are secured and then removed. The site must be made secure so that there is no potential for further leakage.

The CHAIRMAN: In the intervening seven months - even though we have had the driest winter in 100 years - is the bunding and control of the residual point source of perc sufficient to cause no further pollution or leakage from the site?

Dr Appleyard: Again, we have not been on to the site because that is an issue that relates to DEP licensing. We have provided advice about what sort of construction we think would be acceptable. We consider bunding and the securing of materials in a bunding area to be an acceptable storage practice. It is up to the DEP inspectors who have the authorisation to go on site to check out those things. We have no regulatory powers to go onto the site.

Mr DAY: Are you satisfied with the way in which the site and all of the consequences flowing from it have been handled since the fire?

Dr Appleyard: Since the fire? I cannot comment on that issue because I was overseas for a chunk of that time. However, as I understand it, measures have been made to secure the drums and to essentially secure the site. Provided that materials are stored in bunded areas and that there is no

run off into unbunded areas, which is our concern, the risk of further contamination would be minor.

Mr MURRAY: You said that the ground water contamination may have occurred before the night of the fire.

Dr Appleyard: It is most likely that ground water contamination at the site would have resulted from a long history of the handling of these chemicals on the site rather than being caused by the fire on the night.

Dr McFarlane: The information Stephen is talking about, including the ground water investigations that we have carried out and the ground water results and the analytical results from the ground water sampling program, are provided in attachment seven to the DEP submission. All the chemical information is in the submission.

Mr MASTERS: What was done to determine that the firefighting water and the contaminating chemicals did not leak into the Helena River on the night of the fire? Would you briefly inform the committee about what sampling took place, bearing in mind that two drains led off the general area of the industrial site to the Helena River?

Dr McFarlane: I saw the site on the weekend after the fire, and the area around the site was dry. The only areas that had evidence of run off and that were wet were obvious. There were two areas where the water could have gone into the river. In one area, the water stopped at least 100 metres from the river and there was evidence of dry material between the river and that point. The other was in a drain and, as I said, a sand bund was constructed. We could see material on one side of the bund and probably at least 50 metres of dried drain between that bund and the river. As a precaution in case there were more than two sites where contaminating chemicals could have contaminated the river, the Swan River Trust inspected the edge of the river but could not find any evidence of pollution. Given that evidence, we feel reasonably confident that the river was fairly safe.

Mr MASTERS: We have received evidence from at least one bush fire brigade that vehicles were bogged in the Helena River in deep mud and that there was a chemical type scum on the surface. I presume they also thought that the bogginess of the mud implied that lots of water had come out of the site during the fire. My understanding is that many naturally occurring chemicals can produce oily scum, and that that itself is not evidence.

Dr McFarlane: I have not heard any reports of any chemicals getting into the river. A number of other things can cause an interference film that could look like an oil pollution event in the river. During spring, we often get reports that pollution has entered a river when it is actually pollen from plants. Many other things can give the same impression of pollution other than oils.

Mr MASTERS: Have any of the sediments in the river been collected and analysed for any pollutants that might have been derived from water run off from the site during the fire?

Dr McFarlane: Not to my knowledge.

Mr MASTERS: Would it be possible to analyse those samples to put at rest the minds of the volunteer bush fire brigades that were concerned?

Dr McFarlane: We could certainly do that.

The CHAIRMAN: Did you want to continue discussing -

Dr McFarlane: As I said, the information is there in the submission. I am sorry that we did not make it clear that it was a Water and Rivers Commission submission.

Mr DAY: There is an explanation on the front of the submission about the amalgamation of the departments. Is there any other information or any other involvement of the Water and Rivers Commission of which the committee should be aware?

Dr McFarlane: No, that is our complete involvement.

Mr MASTERS: Is the lithology underneath that site made up of Bassendean sands and Guildford clays?

Dr Appleyard: There is no Bassendean sand there at all. It is essentially interbedded clays and clay sands; it is pretty much a clay surface. It is not material that is conducive for pollutants to move quickly downwards.

Mr MASTERS: Is it conducive for those pollutants potentially to move sideways, particularly in winter with saturated superficial ground water? How many samples were collected of that superficial ground water?

Dr Appleyard: We made 12 bores. All of those bores were in the superficial ground water.

Mr MASTERS: How far and how close were those bores to the site?

Dr Appleyard: They were drilled from the boundary fence to two-thirds of the way to the river. They are a broad cross-section. The perc was next to the fence.

Mr MASTERS: The perc had not travelled far in that time. To what depth were those bores drilled?

Dr Appleyard: They were about eight to 10 metres in depth.

Mr MASTERS: Does that mean that perc could penetrate up to 10 metres downwards through clay sediments?

Dr Appleyard: It looks like some perc got through. Again, that is because of a long history of storage and usage of the site rather than an instantaneous release of perc.

Mr MASTERS: Is that because the downward movement of the perc and the hydraulic conductivity of those clays would be measured in centimetres per year? To find perc five or 10 metres down -

Dr Appleyard: Means that it has been there a long time.

Mr DAY: When do you expect to have the results of the deeper investigation?

Dr Appleyard: It might take month or so to carry out a comprehensive investigation. The consultants want to test the geophysics and map the extent of the clay underground before they start drilling. They want to target where they will drill the holes before they drill some deeper bores. It will take another two or three weeks to get back all of the chemical analysis. It will take a couple of months before we get back the comprehensive analysis.

Mr DAY: It sounds like an expensive operation.

Dr Appleyard: The investigation will cost at least \$70 000, but I would not be surprised if it cost twice as much after the sampling and analysis has been conducted.

Mr DAY: Was that provided for in the department's normal budget?

Dr Appleyard: Cabinet has allocated money to do this.

Mr MASTERS: Can you give me some indication of the amount of perc that was found in those superficial -

Dr Appleyard: The average concentrations of those samples that were closest to the fence were around about 30 to 50 micrograms per litre; that is, parts per billion. That is roughly equivalent to 30 drops of perc in a big swimming pool. That is a significant concentration. It is around about at the drinking water limit for those chemicals.

Mr MASTERS: Does that mean it would meet the Australian water quality guidelines for aquatic environmental maintenance?

Dr Appleyard: I am not sure there is an aquatic guideline for bore water; however, it would be roughly the same number or a bit lower.

Mr MASTERS: Could I say that it is close to acceptable standards of drinking water?

Dr Appleyard: In general, perc is not a problem for surface water because of its extreme volatility. It persists in ground water but it disappears in a matter of hours or days in surface environments.

The CHAIRMAN: Is the Water and Rivers Commission working in collaboration with the DEP to establish an on-site chemical profile so that it knows what chemicals it is looking for beyond the site?

Dr Appleyard: That is part of the scope of this investigation at a later stage. We are now moving from the boundary fence to the site itself. The investigation will include the geophysics, a thorough inventory of what is there now, soil sampling and drilling; the investigation is a comprehensive package of the site.

The CHAIRMAN: Would you say that that is the right order to conduct the tests? I know that an immediate assessment must be made of the level of risk beyond the site; however, my intuitive response was that we should get a footprint of the chemicals from the source and then start looking for them outside of the site. However, we seem to be going in the other direction.

Dr Appleyard: It is a matter of site safety and securing the site well enough to start drilling in a potentially hazardous environment. We do not know what is on the site. For example, we do not know whether the site has underground storage tanks or underground pipelines. We want a thorough preliminary investigation of the site to know what we are going into before we start rushing in and drilling holes willy-nilly. We have the safety of our own people to think about. The best thing we could do was to get on the boundary fence and find out what was there. If we had gross pollution there, then we had an issue on site that we would have to worry about.

Mr DAY: Do you have good information about what was on the site?

Dr Appleyard: Only what is in the DEP and Department of Minerals and Energy inventories. We have no official information.

The CHAIRMAN: You have not seen the site manifest?

Dr Appleyard: We have seen the list of chemicals. We have not seen the manifest.

The CHAIRMAN: There is a difference between a list of chemicals that we know to have been on the site, without attaching quantities to those chemicals, and a manifest. You have not seen the actual site manifest?

Dr Appleyard: No.

The CHAIRMAN: Thank you. You have provided useful information, and we appreciate your time.