6. Submissions in reply on risk

Relevant Documents

Set out below is a table listing the key documents, document numbers and page/paragraph numbers of documents which were exhibited as part of the EES and/or submitted to the Panel by the proponent which refer to the issue of risk:

Document	Document Number	Page/ Paragraph reference
EXHIBITED DOCUMENTS		
Environment Effects Statement, Long Term Containment Facility, Nowingi, Victoria	MPV1	Section 15
Proposed Long Term Containment Facility, Nowingi: Triple Bottom Line Risk Assessment prepared by Adrian Bowden of URS in Specialists Reports Volume 4	MPV1	All
Proposed Nowingi Waste Containment Facility – Transportation Risk Assessment prepared by John Wheadon of Arup Risk Consulting in Specialists Reports Volume 2	MPV1	All
Works Approval Report dated October 2005 - Long Term Containment Facility - Proposed Financial Assurance	MPV2	All
PANEL DOCUMENTS		
Statement of Expert Evidence by Adrian Bowden of URS Australia Pty Ltd	MPV46	All
Opening submissions of the Proponent and attachments	MPV52	Paragraphs 5, 60, 66, 75, 87, 92, 96, 102, 109, 111, 114, 148, 188,209, 238, 255, 260, 275, 311-317, 333-334, 340, 353, 361, 364, 371-380, 388, 416, 448, 459 & 488
Response by Adrian Bowden to Worley Parsons Review of the Triple Bottom Line Risk Assessment dated 31 May 2006	MPV101	All
Closing submissions of the	MPV108	Paragraphs 10, 15-16, 18-28, 29-33, 26, 142-157, 202-210, 243-

Document	Document Number	Page/ Paragraph reference
Proponent at attachment		244 & 246-251.

1. **General submissions in reply**

1.1 The proponent submits that the Nowingi EES could be considered one of the most comprehensive EES's ever undertaken in Victoria. One of its strengths lies in the way in which risk was used throughout the process, by each consultant as relevant to their area of expertise, and in an overall context through the TBL risk assessment report.

1.2 The proponent engaged one of the pre-eminent risk specialists in Victoria to carry out the TBL risk assessment. Dr Bowden has lead the way in triple bottom line risk assessments in Victoria and some insight into his depth of knowledge can be gained from the forward of his book (attached).

1.3 The proponent submits that it is important that the Panel give careful consideration to the way the tool of "risk assessment" has been utilised in assessing this proposal. It is a relatively new tool for environmental impact assessment. There has been little commentary on the way risk is to be used in the EIA process by other Panels. However, all of the risk experts who gave evidence to the Panel agreed it is the best tool available. We refer the Panel our opening (MPV52) and closing submissions (MPV108) about risk.

2. **Response to expert evidence**

2.1 As principles of risk assessment, we note that Mr Dreyer agreed that:

- risk assessment provides a more confident and rigorous basis for decision making and planning (ie better than unsubstantiated assertion);
- the risk assessment process provides a more rational basis for assessing the fears and concerns of a community about a future and unfamiliar event; and
- the consensus opinion of a workshop is better than the sum of knowledge of individuals ie workshopping is a useful technique in the risk assessment process.

He also agreed that:

- people tend to under-estimate the risks of high-probability events and over-estimate the risks of low-probability events; and
- individuals tend to over-estimate risks that adversely affect their personal circumstances.

2.2 In cross examination, Mr Dreyer 's evidence was to the effect that *"this facility, when put on the scale with facilities that are high risk, it is not a high risk"*. However, he did not concede that his evidence about the very low risk of the facility could have been more usefully used to better inform the community about the relative risks of this facility.

2.3 In reviewing the TBL risk assessment (MPV1), the Panel should consider how the assessment fits with the other specialist reports. Although Mr Dreyer did not accept the general proposition that consultants produce their best work and the most reliable outcomes when they are working with a methodology that they are familiar with, the proponent submits that, as a matter of general principle, it is extremely important that expert consultants are not boxed in to use methodologies with which they are unfamiliar in order to generate consistent "feeder"

report, as suggested by Mr Dreyer. Consultants must be able to use methodologies they know and understand and have developed over time that fit with their field of expertise. To do otherwise would lead to a reduction in the quality of work done for these types of projects.

2.4 It is also important for both the decision-making for this project and for future decision-making that the Panel make clear recommendations about risk acceptability criteria. The ultimate criteria are of course all of the relevant policies and legislative requirements – something that one cannot expect a risk analyst to use to measure acceptability. The risk criteria set by risk consultants has to be much more general. In quantitative assessments, a dollar value (which does include risk to external stakeholders) is one way to do it. Dr Bowden's response to Mr Dreyer's witness statement (MPV 101) sets out what the dollar value represents and why it is one useful yardstick to use.

Triple Bottom Line Assessment

2.5 It is not disputed that Mr Dreyer was an honest witness and competent in his field – generally as a risk assessor for safety risks at industrial plant. He had not participated in the Panel process before. He gave concessions when concessions were called for and his presentation to the Panel was much more measured than in his report. He acknowledged that he did not write the reports himself, so there is a good reason for the different tone and emphasis between the report and his presentation.

2.6 Not only did Mr Dreyer acknowledge that he did not write the reports himself, but it became evident that he was not familiar with all of the issues raised in those reports. For example, he said that he thought it would be unfair to refer to the draft EES Assessment Guidelines because they were in draft form, yet in fact the author of the Worley Parsons review of the TBL risk assessment devoted a whole page to those draft guidelines.

2.7 Another example of the difference between his report and his evidence relates to his evidence about the "RISQUE" methodology. Mr Dreyer acknowledged in his presentation that, although he had not read Dr Bowden's book, he was generally familiar with the RISQUE method and other similar methods, and he agreed that Dr Bowden's risk method is a "great tool" and a "sound methodology". He also agreed that in fact the RISQUE methodology does in fact deal with (and was developed specifically in order to assess and rank) risks to external stakeholders and to the environment. Mr Dreyer was supportive of the RISQUE tool in his presentation, but those concessions were not recognised in the Worley Parsons' report, indeed that report stated the opposite.

2.8 It is noted that the only reference to Dr Bowden's book in the Worley Parsons' report was a website reference 2 days before the report was finalised (and almost 1 month after the draft was submitted to MRCC for review). The late web reference means that the report author had not read the book and therefore was in not in a good position to make a judgment on the RISQUE method.

2.9 Clearly the anonymous author of the section of Mr Dreyer's report relating to Dr Bowden's methodology has a different opinion about the RISQUE methodology to Mr Dreyer. In this regard, the only reasonable conclusion that the Panel could reach is that the tool is an appropriate one which is capable of assessing the risks to external stakeholders.

Risk Assessment Criteria

2.10 Mr Dreyer's evidence appeared to be internally inconsistent on the issue of whether or not it was appropriate to use project criteria internally set by the proponent. The only risk acceptance criteria that Mr Dreyer referred to were internal risk acceptability criteria set by large companies relating to the risk of fatalities (for example, see slides 10 and 19 of Mr Dreyer's presentation MRCC33). It appears that Mr Dreyer's criticism was that the TBL risk assessment did not state explicitly that the $10,000 project criteria was set by MPV. However, in his

presentation he did not criticise the use of that criteria per se. The proponent acknowledges that the language in the TBL risk assessment could have spelt out more clearly that the criteria was set by MPV. This was subsequently clarified in Dr Bowden's response to Mr Dreyer's witness statement (MPV 101). However the remainder of the discussion about risk criteria in the TBL risk assessment was clear, and absolutely appropriate.

2.11 Mr Dreyer referred to risk criteria that he said is used by publicly listed companies in Australia, namely IRPA. He said that IRPA (1 x10-5 (slide 19 of Mr Dreyer's slide presentation MRCC33)) is the point at which risk is "negligible". The proponent submits that that criteria is not appropriate for this situation because that criteria relates to the risk of fatalities. But even if it is used, the risks in this case are far lower than that and are not related to fatalities. If Mr Dreyer was inclined to refer to that criteria, he should have also commented that the facility appears to be acceptable when measured against that criteria. This is unfortunately another missed opportunity to provide information to the public about the low risks of this facility.

2.12 It is noted that Mr Dreyer could give no examples of risk criteria set by regulatory authorities (similar to the criteria he referred to in slide 19 set by listed companies in Australia).

2.13 The Panel must also distinguish between the standards set by the risk analysts (eg "As Low As Reasonably Practicable" and "Maximum Extent Achievable") and the standards set by applicable legislation and policy. In some cases, those criteria may coincide. For example, "MEA" is the applicable criteria for minimising emissions as part of the design of the facility (as per Publication 941). On the other hand, there is no mention in the planning scheme or *Planning & Environment Act* 1987 of such standards. Instead the relevant question relates to whether the risk is acceptable based on relevant planning considerations. In short, ultimately, the final recommendations of this Panel cannot be based on standards set by risk analysts, but rather in the way in which the proposal measures up against applicable policy. Having said that, we note that the ongoing risk process in the EMSF report will continue to drive mitigating strategies to bring the levels of risk down to "as low as reasonably practicable". (We refer to our submissions about road vs rail for a further discussion of the relevant criteria to apply to assessing the acceptability of transport risks).

2.14 In addition to providing overarching criteria (such as a dollar value, the level at which risks are considered "not credible", or a benchmark such as "as low as reasonably practicable") a useful way of understanding risk is to provide risk profiles for other facilities which have been assessed in the same manner as the proposal (as set out in Dr Bowden's witness statement MPV46). However, that approach can only be taken when the same consultant has assessed the risk profile of other projects as Dr Bowden did. Dr Bowden had done enough risk assessments that he was able to provide those comparisons. While that will not always be possible to do in every EES, it is valuable to the Panel where it can be done.

2.15 The comparisons with every day risk events that people do understand, such as the risk of a car write-off, as set out in the TBL risk assessment has been the subject of unfounded criticism. As was done in the TBL risk assessment, the process of comparison does need to be accompanied by an explanation that the acceptability of risk is a personal judgment and that examples are provided as an aid to allowing individuals to make their own assessment. However, such qualifications do not detract from the validity of that approach in helping to explain the relative risks of this facility.

2.16 Mr Dreyer's main criticisms for using those comparisons was that they were "voluntary risks" not involuntary risks. However, the line between voluntary and involuntary risk is not a clear one as evidenced by the example used by Mr Dreyer in evidence. He gave the example of petrol tankers being a "voluntary" risk. When questioned about that example, he said he thought it was a voluntary risk because people choose to drive cars. It was put to him that some

of the wastes to go in this facility are the by-product of car manufacture. At that point, he agreed that the distinction was "not a strong argument".

Relevant Risks

2.17 Mr Dreyer did not agree that there may be some risks of this proposal that are not relevant to the Panel's consideration because they fall outside the Panel's scope of assessment. Mr Dreyer said words to the effect that *"I can't think of any that would be in that bracket, unless you pose that they are in the negligible region. If they are not negligible and haven't been excluded somewhere else, then the guidelines are broad and all encompassing."*

2.18 Risks that are not relevant to the Panel's consideration (but which Mr Dreyer did think were relevant) include:

- the risks of an industrial accident at the site which is unrelated to the waste, the big picture design or the location;
- transport risks simply by adding more trucks to the road – unrelated to the nature of the wastes/ nature of the facility; and
- the competence of the operator and the regulator.

2.19 In respect of the competence of the regulator, it is submitted that it must be assumed that a regulator will perform its statutory function. It is necessary to rely upon the competence of the regulators, and upon the competence of operators to comply with the law and we assume that as a society we will ensure that regulation works and operators are competent. We rely upon those assumptions to live our daily lives. It might also be said that it is impossible to articulate some clear alternative assumption upon which this Panel could proceed.

Health and Transport Risks

2.20 Mr Dreyer's report states at paragraph 3 on page 12 of the TRA review that *"for the purposes of this review and under an initial assumption that the AQS produced robust results, that AQS predicts that maximum airborne levels of, e.g. beryllium, sustained in a transport related release scenario (AQS Table 8-2, Ref 8), exceeds the Short Term Level (STEL, 15 minute exposure, Ref 17) and Emergency Response Planning Guidelines Level 2 (EPRG-2, 1 hour exposure, Ref 16) for that material. …"*

2.21 In cross-examination, that statement was demonstrated to be false for the following reasons:

- the Air Quality Study does not state that the maximum airborne levels of beryllium, sustained in a transport related release scenario exceed either the Short Term Levels or the Emergency Response Planning Guidelines Level 2;
- it is impossible for the maximum airborne levels of beryllium to exceed the Short Term Levels because they in fact form the basis of the waste acceptance criteria in Appendix D of the works approval report; and
- cross examination of Mr Dreyer clearly established that the predicted maximum airborne levels of beryllium sustained in a transport related release scenario in the Air Quality Report do not exceed the Emergency Response Planning Guidelines Level 2 by a factor of about 8.

2.22 As was put to Mr Dreyer, the third conclusion is reached by applying a factor of 20 to go from the 3-minute averages to 1 hour averages. So the figure of 67 for berylium in Table 8-2 (p8-6) of the Air Quality Assessment needs to be divided by 20 to get to the right level to assess against the ERPG Level 2. That figure is 3.35 ug/m3. The EPBG Level 2 for beryllium is

25ug/m3 (AIHA ERPGs (2005)). So the modelled concentration of beryllium from a transport spill in the Air Quality Assessment is about 8 times lower than the EPBG Level 2 guideline.

2.23 In other words, even using the worst case indicator of beryllium, which Mr Dreyer conceded was 'very uncommon' and will never ever be in significant quantities in the waste, and even taking that indicator at the maximum permissible concentrations, the ERPG Level 2 is not reached for the modelled scenario of a spill of 10m3 of waste, by a factor of about 8. The 99.9% concentration is clearly the worst-case concentration as recognised in the 1985 EPA Publication (MPV 118). It is also apparent from the release rates from containers that it is unlikely that all waste would be released even in a transport accident where containers open up. But even if you have 40m3 of waste spilt (the absolute maximum possible and a very unlikely scenario), the level of beryllium – the worst case indicator – still meets the ERPG Level 2 by a factor of two.

2.24 The comments in Mr Dreyer's report about beryllium are significant. They illustrate that when he submitted the report, he (or the author of the report) did not have an understanding of the waste acceptance criteria. He (or the author of the report) was also under a misapprehension about the significant factors of safety for human health risk that are inherent because of the waste acceptance criteria. Mr Dreyer did concede those points and the result is that all of the risk and health consultants agree that the level of risks posed by the facility – both in transport and during normal and upset conditions – are negligible.

2.25 Unfortunately, by not understanding the nature of the wastes, Mr Dreyer (or the authors of the report) missed an opportunity to provide a level of comfort to the community about the negligible human health risks associated with this proposal. We note that the *Sunraysia Daily* did not report the concessions given by Mr Dreyer in cross examination.

Transport Risks

2.26 The proponent submits that the issue of transport risk has been definitively dealt with. We refer to our opening (MPV52) and closing submissions (MPV108) regarding the evidence of Ms Wright and Mr Wheadon. There is substantial common ground between the evidence given by those experts and the evidence of Mr Dreyer, MRCC's witness.

2.27 Mr Dreyer agreed that, based on the specific hazard characteristics for Category A wastes set out in Publication 996, there are far more hazardous substances being transported at a greater risk to metropolitan residents all the time than the risks posed by transporting Category B substances

2.28 In particular, Mr Dreyer agreed that chemicals and fuels and other dangerous goods which are far more hazardous than Category B wastes are transported around Victoria on a daily basis. Mr Dreyer agreed that the transport of those more hazardous materials happens both in rural and regional areas and in inner and outer metropolitan Melbourne.

2.29 Mr Dreyer agreed with Ms Wright's evidence that there are far more significant risks in the transport of fertilisers and pesticides and petroleum "in terms of absolute risk" (to use Mr Dreyer's words).

2.30 Mr Dreyer acknowledged in cross examination that if the wastes were in compliance with the waste acceptance criteria then the transport of those wastes represents a low risk. That flowed from Slide 28 where he said that the *"use of TWA-TLV value to estimate release rate is not conservative and naturally leads to low risk."*

2.31 Mr Dreyer also acknowledged in cross examination that the pathway for non-compliant waste (as set out in MPV 119), which Mr Dreyer acknowledged were based on conservative assumptions, made the risks associated with the transport of non-compliant waste

- *"either as a negligible risk or very low risk"*; and

- an order of magnitude higher (ie less risk) than Mr Dreyer's risk acceptability criteria (on Slide 19) that sets out what is broadly acceptable for fatalities (which surely have to be more conservative that for non-fatality risks)

2.32 In re-examination, Mr Dreyer said that that pathway shows that the TBL risk assessment was flawed because the values in the TBL risk assessment deviate from the figures used in the pathway diagram (MPV119). However, that ignores the purpose for which the diagram was produced. It was produced with extremely conservative figures (and Mr Dreyer's own figures) to demonstrate that even on that basis, the risks of impacts on sensitive receptors from non-compliant waste on a transport accident was not credible.

Risks Mr Dreyer said were not assessed

2.33 It was not an easy task to try to establish from the Worley Parson's report which issues Mr Dreyer considered were significant, and which issues he considered were not significant. It was therefore not easy to determine from his report which risks he considered were significant but not assessed. That was partly because the reports were repetitive with certain paragraphs repeated at several places in his report. For example, there were repetitions between:

- s2 (overall findings and conclusions);

- s3 (summary of peer reviews);

- the Exec Summary in each appendix (which contains both main findings and conclusion, both of which are repetitive);

- the main discussion in each Appendix;

- section 5 of each appendix - findings; and

- section 6 of each appendix - conclusions.

2.34 In addition, some of the issues in the summary and finding sections were not carried forward into the executive summary and vice versa which did not assist in prioritising Mr Dreyer's concerns.

2.35 In his evidence, Mr Dreyer acknowledged that not all of the issues are "significant" issues and conceded that he would have done it differently in "hindsight". He rightly agreed that his report could be described as 'nit picky'.

2.36 It is submitted that it should be beyond dispute that an assessment of risk for this facility would look for risks that:

- are relevant to the Panel's assessment;

- have the potential to be significant impacts; and

- are direct or indirect impacts that are established via credible pathways.

2.37 With those issues in mind, during cross examination, Mr Dreyer was taken through his list of the "key risks" that he suggested had not been assessed. That list of issues was derived from taking the list of issues at p5, s2.3 at paras 22-27 of his main report as well as the issues on slides 33, 24 and 28 of his slide presentation as well as a number of miscellaneous issues scattered throughout his review reports that had not been picked up in any of his "key issues" lists.

2.38 Through cross examination it is submitted that the proponent demonstrated that none of Mr Dreyer's identified risks was credible, significant and relevant risks that should have been assessed but weren't. For example, the cross examination demonstrated the following:

- Security risks - Mr Dreyer agreed that they had been excluded as not credible by the workshop and that the opinion of the workshop is better than the opinion of the individual;
- OHS issues:
    - Construction - Mr Dreyer agreed that in general terms the construction of this facility does not have any particular OHS issues that are not applicable to other construction activities. eg. building foundations for large buildings, constructions of landfill etc. It is submitted that those issues are dealt with by way of well understood OHS plans and are not relevant to this EES process.
    - Non-waste related operations - Mr Dreyer agreed that, putting aside the nature of the wastes, the operations that will occur at this facility are all standard type operations that occur at almost every industrial premises in every industrialised society across the world. eg. the use of forklifts, loading and unloading shipping containers etc. It is submitted that those issues are dealt with by way of well understood OHS plans and are not relevant to this EES process.
- Waste related operations - Mr Dreyer agreed that if the wastes meet the risk acceptance criteria, then the risks are low. Mr Dreyer was not aware that the issue of worker safety in the case of upsets had been modelled in Appendix E of the works approval report and he in fact said that he had not been asked to look at the works approval report.
- Risks of transporting contaminated water - Mr Dreyer agreed that the level of contaminates will be "very low" (Mr Dreyer's words).
- The "risk" of there being higher volumes of waste than forecast - Mr Dreyer had not seen the work done by GHD to determine waste quantities. Mr Dreyer had done no work of his own and carried out no research and no industry consultation. He was not aware of what the low, medium and high scenarios represented in the works approval report but implied that he thought that there had been an upper level given but that only the lower volume had been assessed. This is wrong. The EES and works approval assessed the upper volume. Mr Dreyer agreed that he had not done the work to support his statement on page 26 of his main report that there was a *'significant probability that much higher volumes of waste may be sent to the HWF*'.
- Competence of operator - This will be controlled through the tender and licence process and it is not relevant to the panel's assessment. As mentioned above, the Panel should proceed on the assumption that the operator will comply with the law.
- Risks of obsolescence - Mr Dreyer conceded that this was not a significant issue that has been missed and that it has been built into the facility in terms of waste tracking, and is provided for by, among other things, the nature of the wastes, buffers to sensitive uses etc.
- "Food chain" risk - Mr Dreyer conceded that it is "likely to be a low risk".

- "Fugitive emissions" during transport - Mr Dreyer conceded that that issue did not present a credible risk.

Chemsal

2.39 Mr Dreyer gave evidence that when he worked at Chemsal, it dealt with almost the full range of hazardous waste except for radioactive wastes. That included liquid wastes, pesticides, herbicides and other farm chemicals. He gave evidence about the farm chemicals program which he said was a program which goes around the country, collecting those waste from rural areas. He said that there was parallel program for the collection of domestic waste and highly toxic waste including DDT and other hazardous substances. He agreed that the farm chemicals program probably collected persistent organochlorine chemicals and Category A wastes that in some cases are much more hazardous than the waste proposed for the Nowingi site.

2.40 Mr Dreyer's evidence is consistent with the information provided on the Panel's site visit to Chemsal and it provides a useful comparator to the risks posed by this facility, much further from residential areas.

2.41 It also provides useful evidence about the types of wastes that will be accommodated at the proposal – including wastes produced in the north west of Victoria.

Risk Reduction

2.42 Mr Dreyer also said that *"there are some risk reduction measures that were flagged but certainly not many"*. However, in cross-examination he acknowledged that there were in fact hundreds of risk reduction measures in the EMSF report (plus the design and systems based approach) and a process for further risk assessment as the proposal is taken into each stage as set out in the EMSF Supplementary report. It is submitted that this aspect of his evidence should also be rejected by the Panel.

3. Response to STFBA and other submissions

3.1 Counsel for STFB has made the point a number of times that community members should have been invited to the risk workshop. Mr Dreyer also said that he believed that community members should have been invited to the risk workshop. He told the Panel in evidence in chief that he held a risk workshop in California for BHP. In cross examination, he conceded that community members were not at that risk workshop.

3.2 The reality of risk workshops is that they simply cannot function with too many people present. They must be focussed and confined, and are not the right forum for direct community input. The opinions of the community are fed into them by having a social impact assessor present. Further, having one or two community members there would not provide anywhere near a representative range of community views.