

HEARING SUMMARY – MURRAY WALLIS – CONTAMINATED LAND

1. My role in the Project has been to lead the contaminated land assessment. I also helped direct the investigation strategy for the Project field investigations and I have provided strategic environmental advice to the team.
2. I am part of the approximately 26% of GHD employees (roughly 2,230 people) who hold shares in GHD. GHD is a wholly employee owned company. No single shareholder holds more than 1.5% of the company. I do not receive any additional direct financial benefit if approvals for this Project are obtained; or lose anything if not. My shareholding does not affect my ability to comply with the expert code of conduct.

Changes, errors or corrections

3. I confirm my Evidence in Chief.
4. In my Rebuttal Evidence (paragraph 4.18) I stated that the proposed conditions had been amended to reflect the outcome sought by Ms Eldridge in relation to the monitoring for any Municipal Solid Waste in the closed landfills that may remain beneath the EWL road embankment. However, the relevant amendment to the conditions has not yet been prepared. Ms Hopkins in her rebuttal evidence (para 6.38), has noted that the form of monitoring for this waste encapsulation was still under discussion at the time of preparing her evidence and she will provide an update at the hearing.
5. In my Evidence in Chief (para 7.20) I identified ammoniacal nitrogen as the key contaminant of concern from the leachate monitoring data. I also stated in paragraph 7.20 that the concentrations of other contaminants were relatively low. However, on my review of the Groundwater Quality Memorandum (Appendix B in Technical Report 13) I found that the graphs that presented the 2016 data for dissolved metals in closed landfill groundwater included an initial round of samples that were unfiltered. Figure 3 shows high levels of lead in the groundwater because the average values presented in the Figure includes total rather than dissolved lead results from sampling in May 2016. When the wells were resampled in July 2016, the samples were filtered and the results for dissolved lead were two to three orders of magnitude lower, and close to or below the respective ANZECC guideline. These latter results for dissolved groundwater metals were the data that I relied on for my assessment, and is the reason why I identified ammoniacal nitrogen as the key contaminant of concern, rather than lead.

My key conclusions/findings

6. Taking into account my assessment as presented in my EIC, the submissions received, conferencing and rebuttal I am of the view that the effects of the Project that arise due to disturbance of contaminated land have been adequately assessed. I am also of the opinion that a set of conditions and management measures have been developed that are appropriate to manage the effects of the Project as they relate to the disturbance of contaminated land.

Issues outstanding with other experts:

7. The experts for Envirowaste believe that replacement of the existing closed landfill leachate interception system in the area south of the Envirowaste “Chemwaste” site is unnecessary. I disagree because:
 - a) the Project directly affects the existing Council interception system that abstracts leachate in that area.
 - b) a replacement system is required that is as effective as the existing system
 - c) the extent of the drainage pipes for the existing system along this area is unknown
 - d) a replacement system along the entire foreshore margin is the best location to intercept all leachate (shallow groundwater contaminated by the closed Pikes Point landfills) because it is hydraulically downgradient from both Pikes Point landfills
 - e) the leachate from the closed landfills that passes through the Chemwaste site before interception in the replacement system may indeed become more contaminated by the existing contaminants in soil and groundwater at the Chemwaste site.
8. I participated in joint expert conferencing on 25 May and 11 July to consider ChemWaste’s concerns. Dr Finnigan explained the spatial constraints to the ChemWaste operation and Mr Nancekivell provided a marked up drawing showing the likely minimum extent of the designation boundary that could be achieved in front of the ChemWaste site. As a result it was agreed that the extent of the operational designation is dictated by the surface elements of the Project rather than the leachate infrastructure, and therefore Dr Finnigan and Mr Shorten have no preference as to the form of the leachate infrastructure (i.e. leachate trench or rising main), so long as it minimises encroachment to the ChemWaste site and does not interfere with the operations on the ChemWaste site.
9. Experts for Ports of Auckland Ltd considered that my assessment had not adequately addressed a clay cap on their site where the Project will affect the closed Pikes Point East landfill. However, I disagree. As explained by Mr Nancekivell, any damage to the clay cap will be repaired and reinstated, which includes a 600 mm clay cap, and that will need to be reinstated so that it is usable by Ports. Specific control matters for landfill caps were addressed in the draft Contaminated Land Management Plan that I have prepared (Technical Report 17 CLMP Appendix E, Landfill Reinstatement). Implementation of the CLMP is a requirement of the proposed conditions.
10. The representatives for both T&G Global and Monahan Properties Ltd are concerned that the Project may disturb existing contamination on the T&G Global site and cause adverse effects on human health and the environment. I consider that their concerns are not justified because:
 - (a) The main source area of contamination on the T&G Global site was remediated in the late 1990s.
 - (b) The source area of contamination on the T&G Global site is located centrally in the T&G Global site in an area that is not affected by the Project, as shown in **Annexure A of my Rebuttal Evidence**.
 - (c) The known contaminated area of the T&G site that will be affected by the Project for construction of the west bound ramps from SH1 is located approximately 80 metres north of

the historic source area of contamination (**Drawing AEE-AL-110**). In any event, in the construction area the known contamination on the T&G Global site comprises impacts to groundwater in the basalt aquifer rather than shallow soil contamination.

- (d) The Contaminated Land conditions and draft Contaminated Land Management Plan that I have prepared has measures to address potential effects arising from the disturbance of contaminated land that may be affected by the Project.

Conclusion

11. Overall, my opinion remains that with the proposed conditions and management plan framework the potential effects on the environment from the disturbance of contaminated land will be minor.