

## TULLAMARINE LANDFILL Community Consultation Group

### COMMUNITY MEETING NOTES

19th August, 2015

6:15pm for 6:45 – 9:00 pm

Hume Global Learning Centre - 1093 Pascoe Vale Road, Broadmeadows

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#### Meeting Purpose:

*To provide updates and discuss site rehabilitation including landfill gas and groundwater.*

#### Attendees

**Community:** Graeme Hodgson, Peter Barbetti, Russell Nilsson, Mick Colaci, Harry van Moorst, Kim Westcombe, Julie Law

**Apologies received:** Lolita Gunning, Sam Cetrola, Helen van den Berg, Jos van den Berg

**EPA Victoria (EPA):** Jeremy Settle (Senior Environment Protection Officer, EPA Victoria), Alistair Nairn (Advisor - Community & Environmental Partners)

**Transpacific Cleanaway (TCL):** Clete Elms (Regional Manager Vic Post Collections), Kieren McDermott (Environment Specialist), Olga Ghiri (Stakeholder and Community Liaison), Alan O'Brien (Environment and Technical Manager), Edward Hood (Head of Engineering & Compliance)

#### Guests:

- Kleinfelder: Mark Walker, Environmental Engineer and David Corrigan,
- Earth Resources Management: Warren Pump
- Ektimo: Melissa Reddan, Compliance Manager and Zac Xavier, Director
- Rojan Manalo, student, RMIT

**Facilitator** - Jen Lilburn

**Note taker** – Andrea Mason

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#### **About these notes**

*Notes were taken and produced by Andrea Mason. Presenters were given the opportunity to review the notes relating to their item to ensure the discussion was accurately summarised, and that it details best available knowledge at the time of the meeting. Additional comments received after the meeting have been highlighted as such.*

*These notes will be posted on the Tullamarine Community Information page on the Transpacific Cleanaway website <http://www.transpacific.com.au/content/tullamarine.aspx> and will be available to the general public. Meeting participants should advise Andrea Mason or Jen Lilburn if they would like their name removed from this public document.*

The intent of these meeting notes is to promote open communication between Transpacific Cleanaway, local government, community and EPA Victoria. They are not to be used in a manner that compromises this objective.

## Agenda Items and Actions from meeting

<p><b>Welcome, Jen Lilburn</b></p> <p>Apologies, Confirm meeting purpose and agenda, Confirm meeting conduct</p> <p><b>Progress on actions:</b></p> <p><b>Action 190815_1:</b> <i>There were several technical questions which needed to be addressed from the existing actions. Harry and Kieren were to meet outside this forum to discuss these issues:</i></p> <ul style="list-style-type: none"><li>➤ PCB (<i>polychlorinated biphenyl chemical</i>) migration (<b>Action 090615_1</b>)</li><li>➤ The parameters of groundwater sampling and suggestions for other elements that may be monitored in this process. (<b>Action 090615_5</b>)</li></ul> <p><b>Action 190815_2:</b> <i>Kieren to initiate the production of a spreadsheet with the results of the wells testing for each compound across the years, to show measurements and trends.</i></p>
<p><b>Overall site rehabilitation roadmap, Kieren McDermott</b></p>
<p><b>Landfill Gas risk assessment update inc flare emissions &amp; ambient air testing, Mark Walker</b></p> <p><b>Action 190815_3:</b> <i>Harry and Kieren to put together a list of all the uncertainties regarding issues still unanswered in the current draft reports for consideration at the next TLCCG meeting.</i></p>
<p><b>Sampling Program and Considerations, Melissa Reddan</b></p> <p><b>Action 190815_4:</b> <i>Clete to investigate the option of supplying power to enable sampling in the buffer land with the electrical engineers.</i></p> <p><b>Action 190815_5:</b> <i>TLCCG members to email Kieren with any further parameters that might be added to the list e.g. PM<sup>2.5</sup></i></p>
<p><b>Landfill Gas Audit process overview, Warren Pump</b></p>
<p><b>Hydrogeological Assessment update, Mark Walker</b></p> <p><b>Action 190815_6:</b> <i>EPA to provide an update on their assessment of the leachate and groundwater levels at the next TLCCG meeting.</i></p>
<p><b>Groundwater bore sampling Update, Kieren McDermott</b></p>
<p><b>Buffer land rezoning update, Olga Ghiri</b></p>
<p><b>Next meeting date, Wrap &amp; Close, Jen Lilburn</b></p> <p><b>Action 190815_7:</b> <i>It would be helpful to record which TCL decisions have been influenced by the community at this forum.</i></p>

### Item 1. Welcome, Jen Lilburn

Jen Lilburn (Convenor) welcomed everyone to the forum including guests Mark, David, Melissa, Zac and Warren and the community representatives.

#### Progress on actions:

- **Action 090615\_2:** TCL to consider/monitor the following concerns regarding water quality in Moonee Ponds Creek, and keep the community informed:

- Effect of exposure to certain chemicals on frog populations (inc gender ratios)
- Discharge of copper and nickel to the creek from the rock pond
- Monitoring of substances that may impact on the community using it for recreational purposes.

**Not on the agenda tonight; carry over to next agenda**

- **Action 090615\_3:** EPA to provide information on any EPA monitoring programs in Moonee Ponds Creek. **Complete**
- **Action 090615\_4:** TCL to start a glossary of terms. **Add glossary to the agenda in future.**
- **Action 090615\_8:** TCL to cross reference the [flare stack testing] results against the US standards and provide this information to the community as soon as possible.

**Response, Kieren:** On review, the testing of the flare stack and screening of results had been undertaken correctly and US standards were used e.g. TQ standards were used for testing the dioxins.

- **Action 090615\_9:** Olga to confirm if last year's submissions [to the application to rezone the buffer land] are admissible. **Complete. Applications should be resubmitted.**

**Action 190815\_1:** There were several technical questions which needed to be addressed from the existing actions. Harry and Kieren were to meet outside this forum to discuss these issues:

- PCB (polychlorinated biphenyl chemical) migration (**Action 090615\_1**)
- The parameters of groundwater sampling and suggestions for other elements that may be monitored in this process. (**Action 090615\_5**)

**Question:** Well No. 15 was the main injection site of leachate in the past and it seems to have disappeared from the maps and data being shown. Why isn't it included and has the landfill been tested in that vicinity? (Well 15 was later shown to be present in Kieren's presentation)

[Post meeting note: Well 15 and nearby sample points have been tested.]

- TCL to review the need to test for formaldehyde (**Action 090615\_6**)

**Response, Kieren:** Formaldehyde sampling has been included in the testing regime in the past but there was no record of its presence in the historical data which is why it isn't in the current list.

**Comment:** It is important to continue sampling for compounds even after negative results.

**Increases in Trichloroethylene (TCE) should be monitored.**

**Comment:** It would be helpful for the community if there was a spreadsheet showing the levels of each of the compounds tested across the years to follow any trends.

**Response, Kieren:** TCL is currently undertaking a technical review of three years of data.

**Action 190815\_2:** Kieren to initiate the production of a spreadsheet with the results of the wells testing for each compound across the years, to show measurements and trends.

- TCL to provide a risk assessment of the each of the chemicals being tested [in the groundwater i.e. high, medium or low.] (**Action 090615\_7**)

**After the meeting, Andrea noted that the question asked in June was:**

Can we have a risk assessment listed against each of the chemicals being tested [in the groundwater] e.g. high, medium or low?

**Comment, Andrea:** The intent was that a list of compounds be provided with a traffic light type risk level assigned to each.

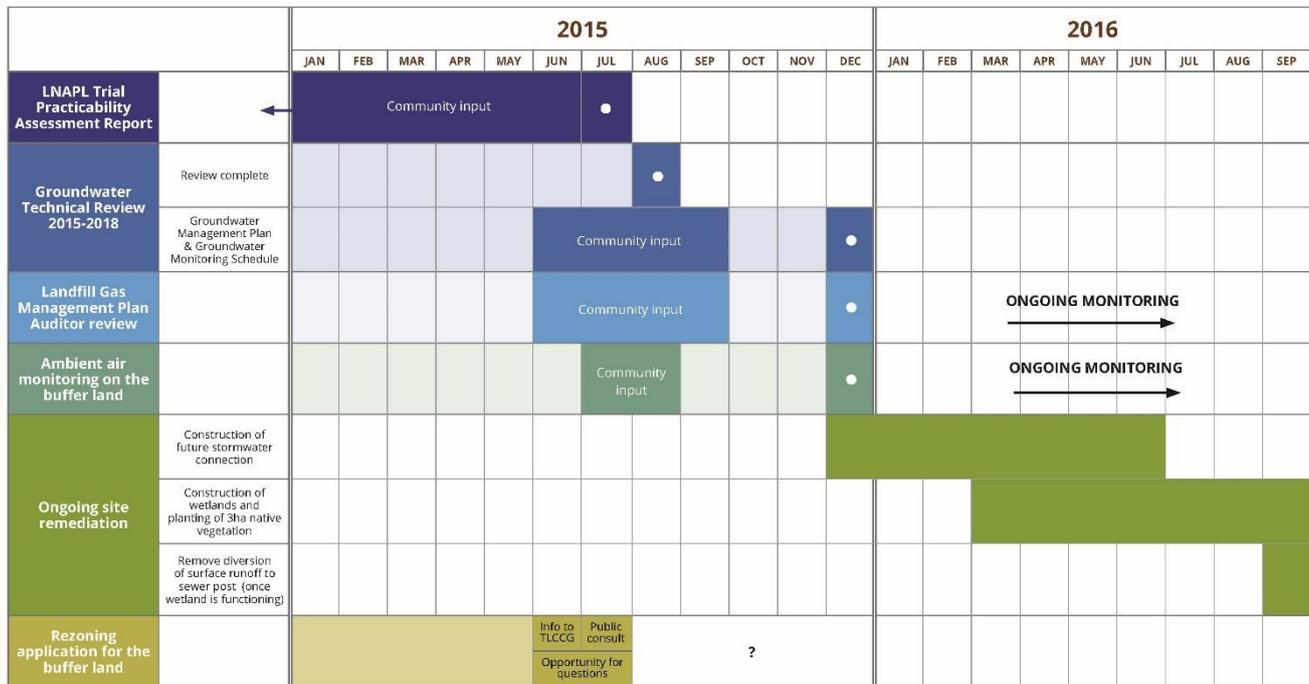
[Post meeting note: At the next meeting Kieren proposes to have a work shop with the community on the risk assessment process.]

## Item 2. Overall site rehabilitation roadmap, Kieren McDermott

These notes should be read in conjunction with Kieren’s presentation which can be seen in full in [Attachment 1](#).

Kieren gave an overview of the timeline for the landfill site rehabilitation in 2015/16. The groundwater, landfill gas and ambient air monitoring programs are running to schedule. The ongoing site remediation will be addressed at the next TLCCG meeting.

### TULLAMARINE LANDFILL SITE REHABILITATION ROADMAP



○ : complete

The above schedule is based on information and plans as at 3 June 2015. Dates are indicative and are subject to change.



Figure 1\_Site Rehabilitation Roadmap

In particular, he outlined the steps that have been undertaken to complete the landfill gas management plan. Detailed information showed the installation and infrastructure required for the gas collection system, the landfill cap and its layers and the ongoing monitoring systems of the flare and the buffer land boreholes.

Next steps include:

- Kleinfelder to outline assessment work to date
- Ektimo to describe the stack testing and ambient air testing limitations
- Workshop the ambient air sampling at this TLCCG meeting
- Audit completion on track for end of year.

**Question: Why do the ponds shown in slide 14 appear to be different colours?**

**Response, Kieren:** The ponds are being used to collect stormwater from different areas of the site and ponds receiving water from hard standing areas shows a different colour to that from grassed areas. Also, the different depth of water in each pond gives it a different colour. The water is clean as it is tested regularly.

**Question: What was used to undertake the testing in the walkover survey?**

**Response, Melissa:** Ektimo used Flame Ionisation Detector (FID) testing for the volatile organic compounds.

### Item 3. Landfill Gas risk assessment update including flare emissions & ambient air testing, Mark Walker

These notes should be read in conjunction with Mark’s presentation which can be seen in full in [Attachment 2](#).

Mark’s presentation summarised the methods used and results from the landfill gas assessments and draft risk assessment for the landfill.

The outer eastern borehole Risk Assessment showed:

- No methane detected at the site boundary.
- No risks detected which would require mitigation.

Soil vapour assessments of the buffer land concluded:

- No unacceptable risks from vapours from groundwater.
- No risks detected which would require mitigation.

For the landfill gas draft risk assessments:

- Conclusions will be provided on potential risks at and beyond each site boundary identified.
- Recommendations will be provided regarding additional works.

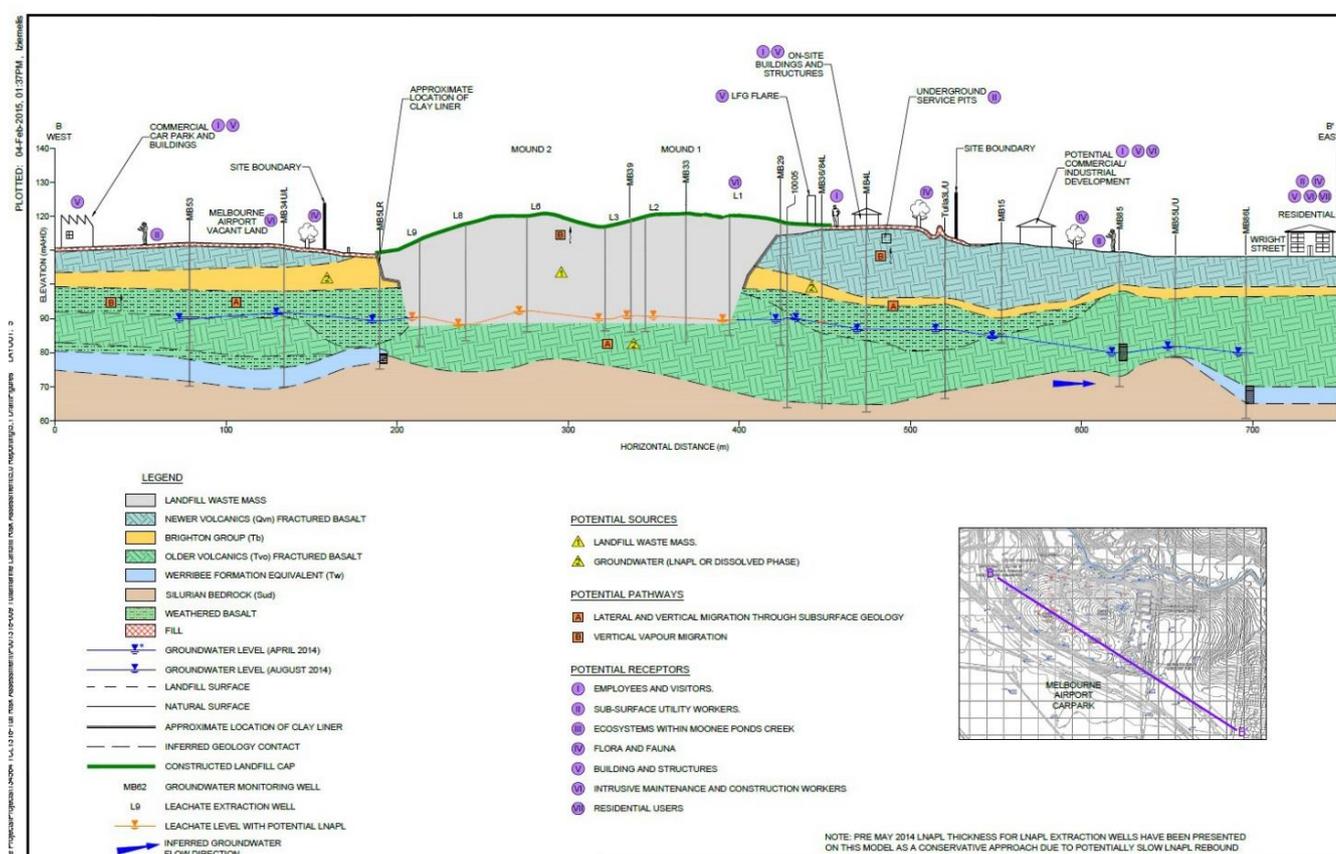


Figure 2\_Conceptual Site Model

**Question:** The testing concentrates on methane and carbon dioxide. Why aren’t the other compounds we know are present, such as vinyl chloride, being tested?

**Response, Mark:** Specific testing will look at the volatile compounds i.e. the non-methane organic compound (NMOC) assessment and the results will be used in the final risk assessment report.

**Comment:** There are problems with the interpretation of the data. Some of the reports draw statistical conclusions which are based on standards which can vary in the US e.g. dioxin levels. It is not the level of accuracy with the testing itself being questioned however the conclusion being drawn that there is no need for concern is not substantiated by the data being presented, and the level of certainty that it is safe to develop the buffer land is not justified. There is no accounting for any potential errors in the system and this issue is apparent in many of the reports being presented.

**Question, Jen: Does EPA have similar concerns regarding the reports?**

**Response, Jeremy:** The EPA are looking into the Kleinfelder reports and reviewing if there is enough data to undertake a Mann-Kendall trend assessment and draw solid conclusions.

**Response, Kieren:** The report Harry refers to is the groundwater report and not landfill gas. TCL has undertaken additional groundwater monitoring which is expected to confirm the conclusions in a Phase 2 MNA report and welcomes any further comments from the EPA.

**Comment, Harry:** The community, consultants and TCL want these reports to resolve issues to a higher level of certainty in order to satisfy the concerns of the community.

**Action 190815\_3: Harry and Kieren to put together a list of all the uncertainties regarding issues still unanswered in the current draft reports for consideration at the next TLCCG meeting.**

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**Item 4. Sampling Program and Considerations, Melissa Reddan**

These notes should be read in conjunction with Melissa's presentation, which can be seen in full in [Attachment 3](#).

Melissa outlined the development of the methodology and the processes used to undertake the monitoring of the flare stack emissions. She also discussed the requirements and issues to be addressed for developing the ambient air monitoring program which is to take place soon.

**Comment:** Some of the data in the reports regarding levels of analytes was not able to be correctly assessed because the equipment used was not sensitive enough. The acceptable standards for some e.g. arsenic, are well below the lowest level the equipment could detect i.e. there was a gap in the data between a possible breach of the acceptable standard and the lowest detection level. The conclusions drawn were based on this so how do we know if it's safe? Such limitations should be explained to the community and there should be no justification for safety if there are gaps. These quantum leaps are not acceptable in the reports that are being used in the public and for decisions such as the development of the buffer land.

**Response, Kieren:** At the June meeting the stack emissions data was released in a factual form without enough context information, which we acknowledge was a mistake. The next step is to address the gaps in the data through the next stage of monitoring.

**Comment:** The problem was not with the raw data itself but the realisation that the promised guaranteed level of 99.99% destruction of gases inside the flare stack hadn't been met.

**Questions: What has to happen to get to that 99.99% level? What new equipment or methods can be used to overcome these limitations? The community is concerned now especially with the buffer land rezoning in progress and the potential development of factories etc.**

**Response, Clete:** It is clear that TCL needs to satisfy community concerns and that there needs to be more work done to understand what is happening to the flare stack gases.

**Question: Does the weather affect the sampling at the stack i.e. wet and cold versus hot and dry?**

**Response, Melissa:** Yes there is a difference, particularly if the temperature of the stack gas is reduced to under 950°C which would change the way testing is undertaken. The first tests were taken in hot conditions and the gases were sampled from the stack at 1050°C.

**Question, Jen: Is this breaking new ground and using new technology?**

**Response, Melissa:** Yes, this would be the hottest of ~5 stacks in Australia and this is the first time we have tested for many of the analytes e.g. dioxins.

**Question: Were the volatile organic chlorides (VOC), including trichloroethylene (TCE) tested?**

**Response, Melissa:** Yes, there were over 150 compounds tested in the flare stack based on URS recommendations and many of these required new methodology to be developed for testing.

**Question: Why is the rezoning application still going to council when the testing results are not yet conclusive that it is safe to develop the buffer land?**

**Response, Clete:** The flare stack testing has opened up many questions but the dispersion modelling showed that this testing was not necessary. The decision to proceed with the rezoning was based on that modelling.

**Comment:** The dispersion modelling is only theoretical and the sampling will test this modelling. Only then will you end up with the robust model.

**Response, Clete:** The ambient air testing is expected to confirm the dispersion modelling.

**Question:** Why are PM<sup>2.5</sup> particles not being tested as well as PM<sup>10</sup>, because the finer particles are a potential carcinogen and a concern to the community?

**Response, Melissa:** It is considered that PM<sup>2.5</sup> particles are unlikely to be in the stack gases. It would be possible to add PM<sup>2.5</sup> into the ambient air testing.

### **Ambient Air Sampling - Kieren**

Kieren referred to the potential ambient air testing sites and parameters (see slides 21 and 22, Attachment 1). He asked for input from the community on which of the 5 sample points would be best. He noted that there were restrictions to testing based on the need to access 240V power. Sample points 1 and 5 were TCL's preference. Kieren also asked for feedback on the parameters that may be included in the testing. Melissa noted that many of the compounds were difficult to test and the methodologies required further research.

**[Post Meeting Note:** Clete asked Kieren to obtain quotes for installing conduit into the Buffer Land. Kieren is working with Transpacific's experts to determine the most appropriate locations in the Buffer Land and will keep the community informed.]

**Question: Why not put conduit to a new power point on the buffer land so that it is closer to the houses?**

**Action 190815\_4:** Clete to investigate the option of supplying power to enable sampling in the buffer land with the electrical engineers.

**[Post Meeting Note:** Clete asked Kieren to obtain quotes for installing conduit into the Buffer Land. Kieren is working with Transpacific's experts to determine the most appropriate locations in the Buffer Land and will keep the community informed.]

**Action 190815\_5:** TLCCG members to email Kieren with any further parameters that might be added to the list e.g. PM<sup>2.5</sup>

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### **Item 5. Landfill Gas Audit process overview, Warren Pump**

Warren explained that he has been an independent and accredited auditor for EPA since 1998. His role is to form an independent opinion of all the works being undertaken in regard to the landfill gases to protect the environment in line with EPA legislation, and considering the needs and expectations of workers and the community.

He receives information from and gives guidance to TCL. It is his preference to be involved in the early stages of any development to provide comment and assist with planning.

The ambient air testing is important if done well and with practical restraints then TCL is to develop a draft work plan for comment.

All the investigations undertaken are used to prepare the Auditor's report which will comment on the risk to the environment from the emissions from the landfill, advise on priorities and include a list of recommendations. It is expected that the report will be completed by the end of the year once all the test results have been collected. Warren will continue to work with TCL to ensure all questions are clarified before the report is finalised. Once the report is complete, the auditor's role is finished.

**Question: When you refer to the health of the environment does that include community health?**

**Response, Warren:** Yes.

**Question: Is your role restricted to landfill gases?**

**Response, Warren:** I deal with all the gas emission from the landfill migrating through the ground, emissions in the air or the cap and flare. Anthony Lane is responsible for the groundwater issues. There are occasional overlaps in responsibilities and Anthony and I consult on these.

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**Item 6. Hydrogeological Assessment update, Mark Walker**

These notes should be read in conjunction with Mark's presentation which can be seen in full in [Attachment 4](#).

Mark reported on the development and the works undertaken for the Hydrogeological Assessment Report which was primarily a desktop investigation together in conjunction with the results of the other testing/monitoring on site including total dissolved solids (TDS).

**Comment, Jeremy:** The Pollution Abatement Notice (PAN) which required the hydrogeological assessment and the LNAPL extraction trial was revoked at the start of August 2015 as the requirements have been met.

The Hydrogeological Assessment Report included these considerations regarding maximum leachate levels:

- Tullamarine landfill has no base drainage layer and as such, the EPA requirement is for leachate levels that 'do not pose an unacceptable risk to the groundwater'.
- Determined levels based on the modelled changes in surrounding groundwater elevation and Moonee Ponds Creek elevation (86 to 91 mAHD, metres with respect to the Australian Height Datum).
- Modelling suggests stabilised groundwater elevation not likely to be observed until 30 years post landfill capping (c. 2041);
- Proposed interim levels to be met between now and 2041.

**Question: The stabilised groundwater is slowing moving but grows in the wet and drops in the drought and has fallen below the base of the tip in the past. What happens to the leachate when it rains? Is it a reservoir of fluid that still leaks out for next 30 years and ends up in the Moonee Ponds Creek? Does the modelling account for natural changes in the groundwater levels?**

**Response, Mark:** The conceptual model image in Figure 2 shows that the recharge zone into the caps reduces infiltration into the landfill. Long term groundwater modelling completed by Golder Associates in 2007 shows it won't reach Moonee Ponds Creek.

**[Post Meeting Note:** Predictive groundwater modelling was completed by Golder Associates in 2007 to understand how groundwater levels would be affected by the landfill cap. The model demonstrates that the mound under the cap will decline and over several years the mound level under the cap will fall to below creek levels. This will mean that groundwater will eventually not be able to move towards the creek.]

**Question: If another flood occurs near the Tullamarine freeway, does the water go through and into the tip? What is the effect on the recharge to the groundwater in a 1/100 year flood?**

**Response, Mark:** The groundwater will always be connected with the landfill and therefore there is always some risk. In a flood event it is expected that only surface discharge of water will occur. Ongoing testing will be undertaken of the groundwater to monitor any changes that might occur.

**Response, Kieren:** The landfill has been designed so that surface water can't flow onto the site as it is uphill and the swales onsite would divert any water that did come on site.

**Response, Jeremy:** The conductivity of the geology is so low that it is unlikely that surface water will infiltrate into the ground at such a rate as to change the groundwater levels.

**Comment, Jeremy:** The output of the Hydrogeological Assessment is part of the PCPAN. These leachate values have been submitted for the period up to 2041. EPA now needs to consider if the groundwater contamination is of a significant concern. EPA will ask the consultants who have produced the studies and the internal and external experts to look at this report to decide if more works are required.

**Action 190815\_6: EPA to provide an update on their assessment of the leachate and groundwater levels at the next TLCCG meeting.**

**Question: Is it a requirement that the leachate doesn't have a head of greater than 300mm as part of the PAN?**

**Response, Jeremy:** No, this cell does not have that requirement. Each cell construction is considered in terms of whether there is a drainage layer, knowledge of exactly where the base of the landfill is for old cells in old quarries, or if there is to be retro-installing of leachate wells. Also consideration needs to be given as to whether there is a significant risk of installing infrastructure and whether it will result in significant contamination to groundwater.

**Response, Clete:** The 300mm requirement assumes you have a liner in the bottom of the landfill - which does not apply to this site. The hydrogeological assessment measures the transmissivity of groundwater through the cell and uses a risk assessment approach to determine the appropriate level so there are no unacceptable risks.

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#### **Item 7. Groundwater bore sampling update, Kieren McDermott**

Graeme thanked Kieren for taking himself and Julie to inspect the mounds on site. He found the tour and the staff very helpful. Graeme produced a report based on his tour for TTTDAG. Julie agreed that it was well worthwhile seeing how the testing was being done.

Kieren – The sampling was for natural attenuation parameters in the groundwater around the landfill and the results of the testing are being incorporated into the next phase of the Monitored Natural Attenuation assessment.

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#### **Item 8. Buffer land rezoning update, Olga Ghiri**

The public exhibition of the rezoning application (Amendment C202 to the Hume Planning Scheme) is being undertaken by Hume City Council until September 11, 2015.

Since the last public exhibition process that occurred a couple of years ago, a number of things have changed in TCL's application. Therefore, previous submissions may not be relevant and it would be best to update your submissions.

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#### **Item 9. Next meeting date, Wrap & Close, Jen Lilburn**

It is two years since TLCCG began and Jen commended everybody for the goodwill and respect shown in this process despite differing perspectives and goals.

Graeme thanked Clete and TCL for being more open with their community engagement in this format. He feels that it is much better than 2 years ago. The community members appreciate knowing when their contribution influences TCL's decisions.

**Action 190815\_7: It would be helpful to record which TCL decisions have been influenced by the community at this forum.**

**Next meeting 25<sup>th</sup> November, 2015, 6.00 for 6.30pm start.**

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**Meeting closed 9.00pm**