

22. BURWOOD LANDFILL UPDATE

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| Officer responsible Waste Manager | Author Eric Park, Solid Waste Engineer |
| Corporate Plan Output: Solid Waste | |

The purpose of this report is to advise this Committee that the leachate plume at one point on the Burwood Landfill has developed more quickly than expected but the leachate is still expected to take in the order of 50 years to reach the coastline by which time it is expected that natural treatment will result in it causing no significant environmental effect.

BACKGROUND

Existing stages of the Burwood Landfill which will be landfilled

Landfilling commenced at Stage 1 of the Burwood landfill in 1984 and finished in 1988. Landfilling commenced next in Stage 2A, followed by Stage 2B where it finished in 1999. Early in 1999 landfilling commenced in the Stage 2C, the final stage of the landfill. Rehabilitation and planting has been undertaken on the various stages as landfilling has been completed.

Possible Stage 3, which will not be used

In 1995 investigations were conducted into the suitability of Stage 3 for landfilling. These investigations found that the Stage 3 area in its natural sand dune state would provide a valuable zone for treatment by natural oxidation for any leachate which emerged from Stages 1, 2A, 2B and 2C and that Stage 3 therefore should not be used for landfilling. For this reason, as well as its proximity to the beach, Stage 3 was abandoned and will not be used for landfilling.

Possible Stage 4, which will not be used

In 1996 investigations were conducted into a possible Stage 4 of the Burwood Landfill. These investigations found that hydrogeological conditions, such as the confining silt layer and upward groundwater flow which contain and minimise the environmental effects from existing Stages of the Burwood Landfill were not as favourable in vicinity of any likely Stage 4 landfill area. For this reason the possibility of any Stage 4 landfill extension at Burwood was discounted.

Liner and Abstraction Trench Approval

The Council approved in February 1998, subject to further detailed investigations, construction of a liner for Stage 2C of the Burwood Landfill. The subsequent investigations revealed that a liner was not the most cost effective option to improve the environmental performance of the Burwood Landfill and Council approved construction of a leachate abstraction trench in the middle of the landfill in November 1998, again subject to further investigations.

Latest Groundwater Monitoring Results

The latest groundwater monitoring report shows that the leachate plume downgradient of Stage 2B of the landfill has developed more quickly than expected and is now at a similar level to that downgradient of Stage 1 which is around 15 years older, as shown on Attachment A. However the leachate is still expected to take in the order of 50 years to reach the coastline (based on current data for Stage 1). By this time it is expected that natural treatment in the Stage 3 area (which will not be used for landfilling) means it will cause no significant environmental effect. This will be re-assessed as a result of ongoing monitoring over the next 12 months.

Remedial measures not likely to be needed before filling completed

Investigations conducted since November 1998 indicate that the most cost effective methods to improve the overall environmental performance of the Burwood Landfill do not need to be implemented before filling has been completed, as would have been required for a liner under Stage 2C.

Landfill Gas

The rate of landfill gas generation at the Burwood Landfill and the potential for it to cause any significant environmental effects is to be investigated and will be the subject of a further report.

Capacity of Burwood Landfill

There is filling capacity at the Burwood Landfill until May 2006, subject to gaining necessary extensions to the existing resource consent, as reported to Council in September 1999 and again in February 2000. However landfilling right up until May 2006 is not ideal because it will require landfilling over significant areas of the site which have already been rehabilitated and planted as well as requiring the filling of contoured valleys which improve the aesthetic appeal of the site as a recreational park. It is anticipated that a new landfill will be opened by 2003/04 thus making it unnecessary to fill Burwood right up until 2006.

WORK CURRENTLY BEING DONE

Investigations are currently being conducted to:

- Assess the likely reasons for and nature of the leachate plume which has developed recently downgradient of Stage 2B of the landfill;
- Develop appropriate trigger levels at which some form of remedial action (such as a leachate abstraction trench) should be considered;
- Assess the remedial action, if any is required, which is likely to be most cost effective to minimise the environmental effects of the Burwood Landfill, (likely to be an abstraction trench).

WHERE TO FROM HERE

On completion of the above investigations, the following actions will be undertaken:

- Trigger levels and likely remedial action, if any is required in the future, will be discussed and if possible agreed with the Canterbury Regional Council;
- Application will be made to the Canterbury Regional Council in due course for necessary extensions to the existing resource consent.

NATURAL STEP ASSESSMENT

The Council resolved on 22 July 1999 to use the Natural Step to guide an assessment of the sustainability of activities in the City. The assessment for this initiative is as follows.

| The Natural Step assessment | | | | |
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| Conditions: | Reduce mining and fossil fuel use (extraction rate not greater than redeposit rate to earth's crust) | Eliminate hazardous substances (production rate not greater than treatment rate) | Protect biodiversity and ecosystems | Efficient and equitable resource use |
| Meets condition | ✓ | - | ✓ | NA |
| How it helps meet condition | Minimises the extent of remedial works required. | partial compliance leachate control | leachate control | |

SUMMARY

The Burwood Landfill is not currently causing any significant environmental effects, despite the appearance of leachate at one point in the landfill sooner than expected. Regular groundwater monitoring is continuing to ensure that, if it becomes necessary at all, there is plenty of advance warning for remedial action (such as construction of an abstraction trench) to be taken. Further work is being undertaken to develop trigger levels and assess the most cost effective remedial alternatives to improve the environmental performance of the Burwood Landfill if this becomes necessary. It is likely that any remedial measures, such as construction of an abstraction trench will not need to be implemented before filling has been completed but can be implemented when the extent and exact nature of the leachate plume is much better defined and understood.

Chairman's

Recommendation: That the information be received.