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Your ref: SSD 7187

Department of Planning, Industry & Environment
GPO Box 39
SYDNEY SOUTH NSW 2001

Attention: Sheelagh Laguna

29 July 2019

Dear Sir/Madam

West Nowra Landfill Expansion – SSD 7187

Thank you for the provision of the Environmental Impact Statement (EIS) for the West Nowra Landfill Expansion. The Environment Protection Authority (EPA) has conducted a review of the EIS and associated documentation and has identified a number of issues of concern which are outlined below. Based on the information provided, the EPA cannot undertake a complete assessment of the proposal as it currently stands and as such no recommended conditions of consent have been included with this letter.

The following have been identified by the EPA as areas of concern that require further clarification from the applicant:

Water and Leachate Management

The Soil, Water and Leachate Management Assessment states that water balances have been completed in relation to surface water management and leachate management. While these water balances have been summarised in the document, neither water balance has been provided in its entirety. As such, the EPA cannot verify the adequacy of the proposed stormwater dams, the existing leachate dam or the proposed leachate irrigation area.

It is recommended that the applicant provide a full copy of both water balances, including all calculations and assumptions used, as well as appropriate justifications for the sizing of the proposed management structures. Reference should be made to sections 2 and 3 of the EPA's *Environmental Guidelines: Solid Waste Landfills 2016.*

Further, a review of historical leachate quality data suggests that leachate in the existing leachate dam is potentially diluted with either stormwater or groundwater. This is based on the relatively low concentrations of analytes typically associated with landfill leachate. The proponent should consider this and provide an explanation of any dilution effects and of any associated implications for the water balances.

Cell construction – depth to groundwater

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Regarding the proposed design of the landfill cell, the EIS indicates that the "excavation will not come within 100mm of the average depth to groundwater. The base of the landfill cell floor (i.e. top of leachate drainage layer) will be greater than two metres above the average groundwater table."

The proponent goes on to explain that the average groundwater depth used is based on "current piezometer readings" and that the actual depths of groundwater will need to be confirmed as part of detailed design. The EPA believes that it is more appropriate for this to be undertaken in the planning stage given that it has the potential to impact the capacity of the proposed landfill. Seasonal variations should also be considered when determining groundwater levels. If large fluctuations of groundwater levels occur, the proponent should consider the impact of these on the cell design.

Landfill gas accumulation

Landfill gas accumulation monitoring is currently required by Environment Protection Licence No. 5877 (EPL 5877) which applies to the premises. This monitoring is required to be undertaken inside all buildings within 250m of deposited waste. This will remain a requirement on any future licence variations. Given the proximity of sensitive receivers to the proposed expansion, accumulation monitoring will be required within surrounding residential and commercial buildings. The proponent should consider this and provide details on how this would be managed.

Air quality impact assessment

The Air Quality Impact Assessment has been reviewed and a number of issues and concerns have been identified. Details of these concerns can be found in Attachment A. As it stands the EPA requires further information before it can complete a proper assessment of the air quality impacts of the proposal. The EPA recommends that the proponent:

- Revise the Air Quality Impact Assessment to:
    - Demonstrate that odour emission rates adopted within the assessment are representative of the current and proposed operations.
    - Include project specific odour assessment criteria that considers the population (including commercial receptors) of people affected by 2 OU or greater.
    - Investigate options to achieve compliance with the project odour impact assessment criteria.
- Provide explicit commitment to their regulatory obligation to not cause offensive odour beyond the site boundary.
- Nominate and provide explicit commitment to contingency measures that can be implemented to reduce the modelled risk of offsite odour impacts.

The EPA recommends that the proponent be required to provide the additional information specified above and that the EPA is provided with a further opportunity to review this before this project proceeds to the determination stage.

If you have any questions about this matter, please contact Greg Frost on 4224 4113.

Yours sincerely

ROBERTO PUPO
A/Unit Head Waste Compliance
Environment Protection Authority

Attachment A

Analysis of Issues / Sensitivities

The project derived odour impact assessment criteria has not considered neighbouring commercial receptors

The Air Quality Impact Assessment (AQIA) adopts a project specific odour impact assessment criterion of 5 Odour Units (OU). The project specific odour concentration is based on consideration of nine (9) residential dwellings, and an affected population of 30 people.

The AQIA does not appear to have considered the population of people within neighbouring commercial receptors. The Approved Methods defines a sensitive receptor as "*A location where people are likely to work or reside, this may include a dwelling, school hospital, office or public recreational area*". As such the assessment should consider the population of people within neighbouring commercial areas.

The EPA recommends the AQIA be revised to include a project specific criterion that is based on the population of people (in all receptors) where ground level concentration of odour equal to or greater than 2 OU are predicted.

Adopted odour emission rates have not been demonstrated to be representative

The AQIA references:

- odour data from monitoring undertaken at the Eastern Creek Landfill for estimating emissions associated with the landfill operations, and
- a previous odour modelling study undertaken for the premises for estimating emissions associated with the green waste and composting.

The AQIA does not include the test reports for the referenced odour monitoring data or include a demonstration on how the referenced odour data, particular the data utilised for estimating emissions is representative for the odour sources at the site. Additionally, the AQIA does not advise on any site-specific monitoring data that maybe available or that could be conducted to inform the assessed odour emissions.

The EPA recommends the AQIA should be revised to demonstrate that the adopted odour emissions data is representative of the current and proposed operations considered in the assessment.

The AQIA predicts exceedances of the adopted odour impact assessment criteria

The AQIA adopts a project specific odour impact assessment criterion of 5 Odour Units (OU). The AQIA predicts:

- A ground level concentration of 6 OU at residential receptor R1. This is above the project specific assessment criteria of 5 OU. Given the close proximity of the new landfill cells to receptors, the predictions are likely to represent an increase in the potential for off-site odour impacts;
- Compliance with the project odour assessment criteria at other residential receptors; and
- Ground level odour concentrations of 13 OU at:
    - Commercial receptor C1 – the RSPCA Shoalhaven shelter. The AQIA advises that this facility has closed, and
    - Commercial receptor C2 – OEH buildings

The AQIA considers the elevated odour results at the neighbouring commercial receptors through analysis of the times when higher odour concentrations are predicted. The AQIA advises that odour concentrations greater than 5 OU are predicted during the hours of 4 pm to 7 am and that "*people will only be present at these locations during work hours, especially not in the evening and at night when the highest off-site odour concentrations are most likely to occur.*

The EPA notes that sensitive receptors are located within close proximity to the proposal, with some receptors as close as 55 m from the proposed Stage 4 extension. The EPA advises that there is uncertainty with modelling predicted ground level concentrations over such distances, and hence there is uncertainty in the assessment predictions.

Section 7.7 of the *Approved Method for Modelling and Assessment of Air Pollutants in NSW* (the Approved Methods) provides guidance when exceedances of the impact assessment criteria are predicted. This guidance clearly articulates that when exceedances are predicted the dispersion modelling must be revised to include various pollution control strategies until compliance is achieved. Additional interrogation of modelling, including sensitivity analysis, could be undertaken to investigation options for reducing predicted odour exceedances. This could include consideration of:

- the level of management practice, which could include limiting particular activities to specific periods;
- separation distances; and
- measures to reduce odour emissions at the source.

Proponent should investigate options to achieve compliance with the odour impact assessment criteria at residential receptors

Given the predicted exceedance of the project specific odour impact assessment criteria, the AQIA recommends odour management measures. The management measures are listed in 10.1.1 and include (but are not limited to):

- Minimise the active landfill waste disposal area and apply appropriate daily and intermediate cover material to minimise odour generating areas in the active landfill cell.
- Perform daily odour checks along the facility boundary to identify whether odours are detectable off-site and where the main sources of odours are so that action can be taken to mitigate any impacts.
- Maintain an odour complaint logbook/register that records:
    - the time and date the complaint was received (and the time and date the odours were observed if the event occurred prior to the complaint being submitted, for example, the night before);
    - the location where odours were observed; and
    - a description of the odours including the intensity, duration and frequency as well as a description of the character of the odour.

The EPA advises that whilst management measures can be utilised to manage the potential for offsite odour impacts, they should not be solely relied upon without consideration of measures to reduce predicted odour exceedances.

The assessment does not provide analysis on potential options to reduce the predicted offsite odour exceedances, including analysis of source contributions, and options for reducing odour emissions at the source.

The EPA recognises that there is uncertainty with predicting ground level concentrations of odour over short distances. Given that the assessment predicts exceedances at an offsite residential receptor, and that the proximity of new landfill cells to sensitive receptors is likely to represent an increase in potential for offsite odour impact from current operations, then the proponent should investigate options to achieve compliance with the project odour impact assessment criteria, including investigation of options to reduce odour emissions at the source.

Proponent should nominate contingency measures

Odour emissions can be highly variable, particularly from waste processing facilities. Given the potential for highly variable odour emissions, and the distance from proposed new land fill cells to sensitive receptors, the EPA advise that:

- The proponent has a regulatory obligation to not cause offensive odour beyond the site boundary, as per S 129 of the POEO Act, and existing environment protection licence condition L4. The proponent should be reminded of their regulatory obligation, which applies regardless of assessment predictions provided during development approval.
- The proponent should nominate and commit to contingency measures that can be implemented to reduce the modelled risk of offsite odour impacts.