WILKINSON MURRAY

31 July 2010

WM Project Number: 04092-S2
Our Ref: MPC310710 RH
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Mr John Mullane
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Dear John

**Re: Sita Advance Waste Treatment (SAWT) Facility**
**Additional Evening Operations**

**Introduction**

SITA currently has approval to operate the equipment within the SAWT facility building during the evening. A recent review of their operations identified a need to undertake work outside the building using mobile plant to make the process more efficient. SITA propose to transport residual waste removed from the SAWT facility to be dumped in the landfill between 6.00pm and 10.00pm, Monday to Friday. Once dumped, they will use a concover machine to spray the waste so that it does not create dust. SITA also proposes to use a front-end-loader to transport material from the SAWT facility to the adjacent maturation beds during the same time period.

This letter report addresses any potential noise impact the operation of the concover machine and front-end-loader may have on the surrounding residential receivers.

Operational noise predictions were made using the existing ENM models previously used as part of the SAWT EA operational noise assessment (Wilkinson Murray report 04092, Version J, dated April 2007) and the SAWT and landfill cumulative noise assessment (Wilkinson Murray Report 04092-L, Version B, dated July 2009). It will be necessary to refer to those reports for details regarding noise sources, criteria and assessment methodology.

An aerial photo showing the location of the SAWT facility, the residual waste dumping ground where the concover machine will operate, the maturation beds and the surrounding residential receivers is provided in Figure 1.

**Figure 1 Site Plan**


## Noise Levels of Proposed Plant

*Concover Machine*

A small rigid body truck would transport the residual waste material from the SAWT facility to the western area of the landfill using 10 trips spread out between the hours of 6.00pm and 10.00pm. The truck would move at up to 30km/hr and the sound power level (SWL) for a small rigid body truck at this speed was conservatively assumed to be 102dBA. It is conservatively assumed each return trip would take up to 5 minutes, resulting in an $L_{Aeq,15min}$ SWL of 97dBA.

In addition, a concover machine was assumed to operate for up to 5 minutes after each residual waste load is dumped into the landfill. Recent measurements of a concover machine at another SITA facility at Port Stephens established a corresponding SWL of 104dBA on the loudest side of the plant. A SWL of 104dBA was conservatively assumed, resulting in an $L_{Aeq,15min}$ SWL of 99dBA.

The noise predictions have been based on the worst case 15-minute period in which it was assumed both the truck and concover machine operate for 5 minutes, resulting in a total $L_{Aeq,15min}$ SWL of 101dBA.

*Front-end-loader*

A front-end-loader would also be used to transport material from the SAWT facility to the adjacent maturation beds. It is expected 5-6 return trips are needed between 6.00pm and 10.00pm.

The SWL for a front-end-loader was assumed to be 110dBA. It is conservatively assumed each trip would take up to 5 minutes, resulting in an $L_{Aeq,15min}$ SWL of 105dBA.

**Original SAWT Operational Noise Predictions without Concover and Front-end-loader**

The original evening noise predictions at the four identified receivers are summarised in Table 1 alongside the relevant evening criteria. These predictions relate to noise generated by the Resource Recovery Building and the biofilter discharge fans and relate to the busier stage of the SAWT facility development referred to in the EA noise assessment as Scenario 2 (processing approximately 120,000 tpa of mixed solid waste plus 14,400 tpa of Biosolids). They also consider a worst case noise scenario under downwind conditions to all receivers.

It should be noted that since the landfill operations are limited to early morning and daytime hours, the evening amenity criterion applicable to the SAWT facility is 45dBA as opposed to 42dBA as originally used in the EA noise assessment report.

**Table 1 Evening SAWT Operational Noise Predictions (dBA)**

| Location | Predicted $L_{Aeq,15min}$ Noise Level with Worst Wind | Evening Intrusiveness Criterion | Evening Amenity Criterion |
|---|---|---|---|
| McGarvie Smith Farm | 33 | 49 | 45 |
| 1745 Elizabeth Drive | 18 | 42 | 45 |
| Caretakers for 1669A Elizabeth Drive | 17 | 39 | 45 |
| 1669A Elizabeth Drive | 20 | 41 | 45 |

Due to the limited activity on site the noise level limits were complied with at all locations.

**Proposed SAWT Operational Noise Predictions Including Concover and Front-end-loader**

The landfill landform is expected to change throughout the years. This is addressed in Wilkinson Murray's SAWT and landfill cumulative noise assessment where predictions were given for three stages before completion of the landfill project, i.e. years 2009 (representing current topography), 2015 and 2020.

Considering the changing landfill landform across the years, operational noise associated with the concover operations and front-end-loader movements was predicted assuming the worst wind condition. In order to account for the worst case scenario, both concover and front-end-loader were assumed to operate simultaneously. The results for 2010, 2015 and 2020 are presented in Table 2.

**Table 2 Evening SAWT Noise Predictions Including Concover and Front-end-loader (dBA)**

| Location | Predicted $L_{Aeq, 15min}$ Noise Level with Worst Wind | | | Evening Intrusiveness Criterion | Evening Amenity Criterion |
|---|---|---|---|---|---|
| | **2010** | **2015** | **2020** | | |
| McGarvie Smith Farm | 39 | 39 | 39 | 49 | 45 |
| 1745 Elizabeth Drive | 33 | 25 | 30 | 42 | 45 |
| Caretakers for 1669A Elizabeth Drive | 30 | 25 | 33 | 39 | 45 |
| 1669A Elizabeth Drive | 33 | 35 | 34 | 41 | 45 |

The calculated evening noise levels associated with the cumulative noise from the approved SAWT facility plus the transport of residual waste, concover machine operation and front-end-loader movements to the maturation beds are within the relevant criteria at all the receivers and for all wind conditions. Since the higher quantity of waste materials assessed under Scenario 2 meets the criteria, it is concluded that Scenario 1 with half the number of fans running, also meets the noise criteria.

I trust this information is sufficient. Please contact us if you have any further queries.

Yours faithfully,
**WILKINSON MURRAY (SYDNEY) PTY LIMITED**

**Roman Haverkamp**
Project Engineer