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3 September 2010

by email: larissa.borysko@semf.com.au

NO FUSS WASTEWATER TREATMENT FACILITY – ODOUR ASSESSMENT

Dear Larissa,

As requested, The Odour Unit (TOU) has carried out an odour assessment of the proposed wastewater treatment facility at the No Fuss Emu Plains plant, in accordance with the requirements of the Director General of NSW Planning. This assessment occurred during an inspection I made of the facility on July 2010.

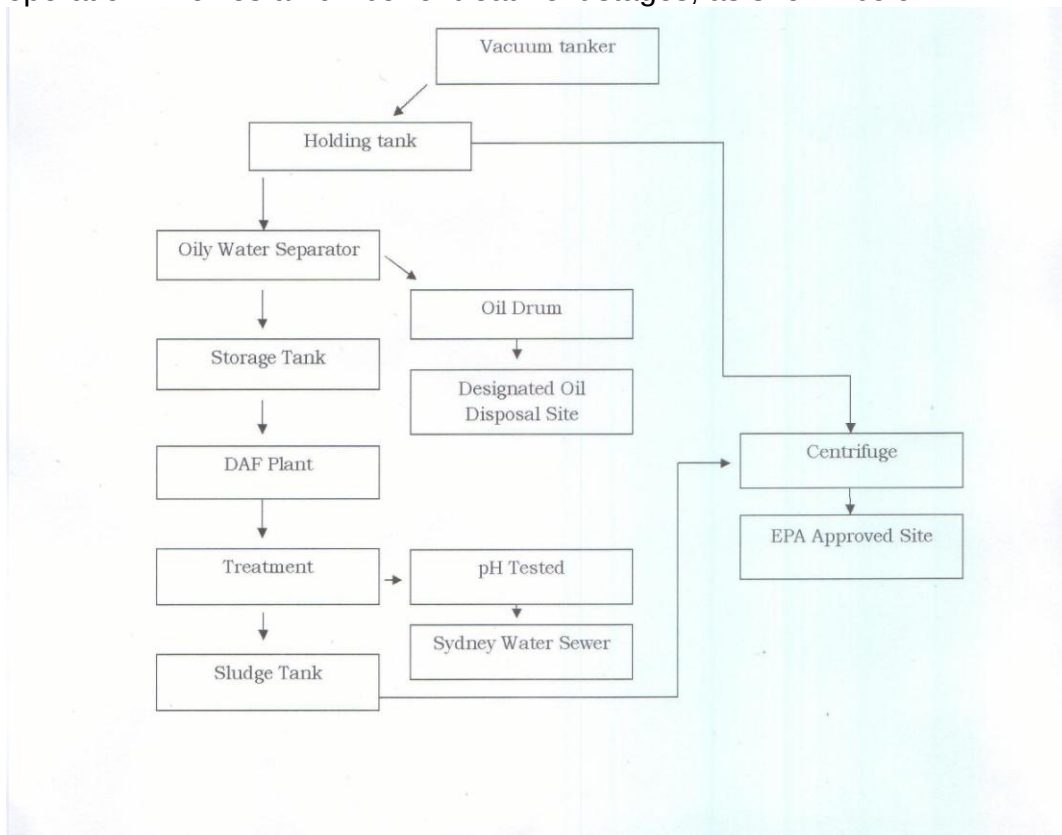
Before discussing the findings of my assessment I would like to highlight the requirement of the DG that *a quantitative assessment of the potential odour impacts of the project* be made. Given that the plant is unable to commence operations until the necessary approvals are obtained it was not possible to inspect the plant in operation or determine, either qualitatively or quantitatively, the extent to which odour was being generated within the premises. As a result I have made this assessment based on my knowledge and experience in wastewater treatment (25 years experience) and as an odour consultant (since 1991).

The Proposed Facility

The No Fuss operation at Emu Plains currently involves the receipt and treatment of septic tank waste. The processing activities take place in the front section of the factory. These facilities were inspected during my site visit. I noted that there was no form of ventilation or odour control other than enclosure within the processing room. At the time of the inspection the large roller shutter door was open. It is understood that this operation does not cause significant adverse odour impacts beyond the industrial area. It is my judgement that the treatment of septic wastes involves greater odour generation than the treatment of oily water wastes.

The treatment process proposed by No Fuss for the oily water treatment

operation involves a number of treatment stages, as shown below.



These operations will take place in the room at the rear of the factory. No ventilation of the room is proposed. Truck access to the room is via a standard roller shutter door adjacent to the Holding Tank. It is proposed to keep this door closed, except when receiving oily wastewater. It was noted that the construction of the factory has not involved the sealing of the roof/wall joints, in keeping with normal factory design. The resulting gap will provide an opening through which air from inside the room could be drawn to atmosphere, under certain conditions, including thermal buoyancy effects and wind-induced negative pressures on the outer downwind face of a wall.

Significant Process Odour Sources

While all of the above treatment tanks will generate odour to some extent, the bulk of the odour releases into the room will emanate from the Holding Tank (particularly during filling), the Oily Water Separator, the Storage Tank and DAF unit, and the Sludge Tank. Generally more odour is generated at the front end of a treatment process, particularly where the waste material has an exposure to the atmosphere. For this reason storage and sludge tanks emit less odour than expected, due to a relatively small exposed surface area. The covering of these tanks is recommended.

The Holding Tank, and the pit beneath it, is considered to be the major odour source. The proximity of this source to the roller door is potentially problematical, and could result in short term odour emissions if the door remains open during

waste unloading. The design of the Holding tank and pit does not lend itself to full enclosure and capture of a foul air stream for possible treatment. Similarly, the open design of the DAF renders the enclosure and air capture difficult.

Odour Control Options

Options for controlling the release of odours from either the individual process units or the treatment room as a whole include the following:

- Sealing of the room, maintaining all doors closed, except when needed to be open for short periods;
- Extraction and treatment of air from within the room at a ventilation rate consistent with achieving negative pressure conditions inside the room;
- Extraction of ventilation air from within the building and dispersion to atmosphere through a tall stack (at least as high as the current roof height);
- Point source capture and treatment of air from major odour sources. This would require partitioning off of the Holding Tank and DAF. Treatment options theoretically include carbon filters and biofilters, although the oily content of the air stream is likely to preclude the use of carbon filters. The limited space available on the site will restrict the size and capacity of a biofilter, should this be found to be needed; and
- Odour neutralising agents. These vary in composition and performance. TOU has found limited examples of odour-specific agents being effective, with the bulk of products introducing an additional odour character to the original odour.

Conclusion and Recommendations

On the basis of the information provided to TOU and observations made during the site visit it is considered that odours generated during the operation of the proposed oily water treatment plant can be managed by a combination of good management practices and the sealing of the treatment room. Management practices should include:

- Minimising odour generation by operation of the treatment plant at optimal conditions;
- Keeping all doors closed, except for short periods when needed; and
- Possible use of odour neutralising products with proven performance in the oily water industry

The sealing of the room should result in the closure of all roof/wall interface gaps. Styrene foam has been used successfully by other TOU clients, for this purpose. If odour emissions from the opening of the roller door be found to be problematical consideration could be given to extending the building to enclose the truck unloading area.

It is recommended that this level of odour control be trialled for a period of covering at least one summer period, and its performance assessed.

Should it be found that additional odour mitigation is required both the stack option and the small biofilter option should be investigated. The stack option has the disadvantage of possibly resulting in the relocation of an odour problem to a more distant location, particularly under adverse wind conditions. There would also be an aesthetic issue with the diameter and height of a tall stack. Short stacks do not represent a viable option. A small biofilter, perhaps the size of a 6 metre shipping container, could be viable and would provide treatment capacity for around 2,000 m³/hr. This may be sufficient to reduce fugitive any odour emissions to an acceptable level. At this stage these further mitigation options are not recommended for implementation.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Terry Schulz', with a stylized, flowing script.

Terry Schulz
Managing Director