

6 August 2007  
Our Ref: 5989.14RG

The Executive Director  
Department of Planning  
DX 22  
SYDNEY NSW

Attention Chris Wilson

Dear Sir

**Enviroking Waste Management Facility, Black Hill  
Project Application No 07\_0048  
Justification for 20,000 tonnes per annum.**

We refer to the Director General's Requirements issued on 16 April 2007 (your reference 9038784 Project Application 07\_0048) for the Enviroking Liquid Waste Treatment Plant at Black Hill near Cessnock. These Requirements are based on a plant capacity of 15,000 tonnes per annum, which is the capacity licensed by the Environmental Protection Authority (EPA).

As we have advised verbally, we now request that the Requirements be revised to allow treatment of 20,000 tonnes per annum. We understand that we will be required to update the EPA licence.

We are pleased to provide the following justification for the increased capacity.

**Introduction**

The question of whether the present plant and equipment at Enviroking can manage 20,000 tonnes per annum within the present and proposed infrastructure depends upon a consideration of truck movements, the capacity of treatment tanks, and the minimum of 4 hours treatment time required for incoming loads.

**Basis of assumptions**

Assuming a 5.5 day working week of 55 hours (7-5 Mon to Fri and 7-12 Sat) and a relatively stable seasonal distribution of work, 20,000 tonnes per annum equates to 385 tonnes per week or 7 tonnes per hour. Monday to Friday this would mean 70 tonnes daily and Saturday 35 tonnes.



## Truck movements

It is not possible to do more than two turnarounds per truck per day. Pick up tanker trucks have a “run” of several restaurants, shopping centres etc and might have to visit up to six such premises to get a full load.

Table 1 provides a list of present trucks and their capacities.

**Table 1: Collection capacities**

Vehicle	Capacity tonnes	Loads per day	Total Carried tonnes
ISUZU Tanker	10.0	2	20
Ford CARGO Tanker	11.5	2	23
IVECO Tanker	11.5	2	23
ACCO Tanker	12	2	24
<b>Total Capacity In</b>			<b>90 tonnes</b>

At the moment trucks cannot realise this capacity because some time must be spent taking treated waste and waste water to disposal. To free up the existing tankers to concentrate on collections, it is intended to purchase a semi-trailer tanker with a capacity of 27,000 litres (27 tonnes). This truck will have the capacity for three loads per day, since the disposal runs are single pick ups with a turnaround time of about 3 hours maximum. As noted below, these loads will comprise two treated water runs and one sludge disposal run.

In practice a further 10,000 or 12,000 litre dog trailer tanker may be needed to act as back up in case of breakdowns and service down time. A “truck and dog” trailer tanker system using one of the IVECO or ACCO trucks could haul both water to disposal and sludge to recycling economically. It can also double to cart Grease Trap Waste (GTW) into the plant.

With the additional truck(s), the actual collection capacity will be as shown in Table 1 (excluding backup capacity) and there will also be sufficient capacity to dispose of waste, as shown in Table 2.

**Table 2: Disposal capacity**

Vehicle	Capacity tonnes	Loads per day	Total Carried tonnes
Semi trailer tanker	27.0	3	81
Back up Truck and dog trailer	24	3	72
<b>Total Capacity Out</b>			<b>81 tonnes</b>
<b>Back up Out</b>			<b>72 tonnes</b>

These figures exceed the required capacity of 70 tonnes per day.



## Tank Capacity

The existing facility has three x 25,000 litre primary holding and treatment tanks that can be used to treat 75,000 litres (75 tonnes) per day at one cycle per day. Grease trap waste is treated in these tanks to remove primary sludge and then the water is run off into secondary treatment tanks for further treatment if necessary. Sludge is removed to the sludge pit of 45,000 litre capacity.

It is intended to connect a spare 20,000 litre tank in the premises so that untreated grease trap waste can be transferred to this tank for treatment in case of breakdown or other problems.

This spare treatment tank provides a further capacity of 20,000 litres to provide a total capacity of 95,000 litres per day, thus providing a suitable contingency margin of over 30%.

## Treatment Process and Scheduling

Grease trap collection occurs early in the morning with deliveries to the treatment facility peaking by around 10-11 am, usually tapering off to nothing by about 2 pm. The scheduling program for the plant to receive and treat these loads with the plant working at full capacity would occur as shown in Table 3.

Treatment consists of the addition of about 1% hydrated lime (10 kg/kl) and settlement. After lime addition, treatment requires a minimum of four hours, but including dosing, stirring and pumping time, the total process time is usually five hours.

Treatment will not normally start until the first 4 loads are received in the morning, so that the first tank commences at about 9 am, the second at 11 am and the third by about 2pm when all receipt has finished.

**Table 3: Receiving and treatment schedule**

Time	Tank 1	Tank 2	Tank3	Spare Tank
7-9 am	Transfer to Spare	Empty	Empty previous night's treatment	Filling from Primary Tank 1 (see Note 1)
9 am	Tank filling	Tank filling	Empty	Tank full, lime dose and stir
11 am	Tank full, lime dose and stir	Tank full, lime dose and stir	Tank filling	Settling
2 pm	Settling	Settling	Tank full, lime dose and stir	Empty Tank
4 pm	Empty tank	Empty Tank	Settling	Empty
Overnight	Empty	Empty	Settling	Empty
<b>Treated Volume</b>	<b>25,000</b>	<b>25,000</b>	<b>25,000</b>	<b>20,000</b>
		<b>Normal Running</b>	<b>75,000</b>	
			<b>Total with contingency</b>	<b>95,000</b>



Note 1: The spare tank is not set up to receive directly and must be filled through Tanks 1, 2, or 3.

On Saturday mornings the 35,000 litre average volume would be received into the first two primary tanks only and would settle overnight.

### **Secondary Treatment**

For disposal to irrigation or sewer a secondary “polishing” treatment of the water using lime and flocculant is sometimes needed. This water represents about 70% of the incoming volume, with the other 30% being sludge. Based on a daily collection volume of 70,000 litres, the plant will produce 49,000 litres of water and 21,000 litres of sludge.

Secondary water treatment again takes about 5 hours and occurs in the four secondary water treatment tanks each of 22,000 litre capacity (total 88,000 litres). This will easily cope with the anticipated 49,000 litres per day, again with an ample contingency allowance of approximately 80%.

### **Treated Waste Water**

Treated waste water is transferred to the two 150,000 litre waste water holding tanks at a rate of approximately 270,000 litres in an average week (49,000 litres per day X 5.5 days). Thus, with a combined holding capacity of 300,000 litres plus the 88,000 litres of treatment tanks there is a total treated water holding capacity of about 1 ½ weeks (388,000 litres / 270,000 litres per day).

In practice this water will be moved daily to irrigation using the new 27,000 litre semi-trailer tanker, requiring two loads per day to dispose of 49,000 litres. An additional electric pump is fitted to the treated storage pumps for emptying and filling.

An option is being explored to use the treated water for rehabilitation purposes by irrigation on an adjoining mine site. In this case the water can be piped directly without the need for trucking.

### **Sludge**

Treated sludge is transferred straight to the “Sludge Pit” at a rate of about 21,000 litres per day. With a capacity of 45,000 litres, this will need emptying every second day using the semi trailer tanker, or every day using one of the smaller trucks.

### **Summary**

In summary, the existing plant can treat 20,000 tonnes per annum, with the connection of a new primary treatment tank which will provide contingency capacity. In addition, one new semi-trailer tank truck will be purchased to provide additional waste disposal capacity. There is already sufficient treated water and sludge storage capacity in the existing plant.

Increasing capacity to 20,000 tonnes per annum will utilise the infrastructure and will fully maximise the efficient use of the existing and additional proposed infrastructure.



We advise that we have discussed the proposed increase in capacity with the Trevor Wilson of EPA, who advised that they expect to examine the proposal on its merits as part of the integrated development process.

(Roger: will contact again today to see who is the actual officer in charge, had some difficulty determining this last time.)

We request that you update the Director General's Requirements for the Environmental Assessment of the proposal. Please contact Roger Gain should you require further information or wish to discuss this submission.

Yours faithfully  
**DON FOX PLANNING PTY LTD**

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**Reviewed:** \_\_\_\_\_