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PROPOSED LIQUID WASTE TREATMENT PLANT AT WESTFIELD

HEALTH DEPARTMENT OF WESTERN AUSTRALIA

**Report and Recommendations
of the
Environmental Protection Authority**

Environmental Protection Authority
Perth, Western Australia
Bulletin 299 August 1987

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1. INTRODUCTION

The Health Department, acting under instructions of the Cabinet Committee on Metropolitan Waste, has proposed a treatment plant for septic tank pumpout material and grease trap wastes, to be located at Westfield. The facility will enable the proper treatment of this material, and the discharge to sewer of the liquid effluent. This will obviate the current methods of disposal which are not environmentally acceptable, and which may give rise to odours. The proponent has notified the Authority of its proposal by a Notice of Intent.

The programme of sewerage of those areas of Perth currently serviced by septic tanks (the "infill sewerage" programme) is costed at \$800 million, but the Government only has funds of approximately \$10 million per year available.

Hence there is a current, and a long term, problem in disposing of septic tank pumpouts. This waste is currently disposed of at three sites in the metropolitan area:

- . Yirrigan;
- . Kwinana; and
- . Belmont.

Following odour problems at a newly designed facility at the Gosnells disposal site in late 1986, the Cabinet Committee on Metropolitan Waste Disposal (which consists of the Ministers for Health, Environment, Planning, Local Government and Water Resources), and its associated Senior Officers' Committee, investigated possible alternatives. Major considerations were the control of odour, and minimisation of environmental impacts.

A location at Wilbinga (north of Perth, near the coast) was found to be suitable for land disposal of septage, should the current disposal sites become unacceptable to residents near the current disposal sites. This option has not been utilised.

Meantime a proposal for a facility which would treat septage to a level suitable for discharge to sewer was to be developed.

The Senior Officers' Committee decided that the recently closed Westfield Waste Water Treatment Plant, would be a suitable venue for, and comprise a good basis for, the construction of a septage treatment plant which would take all of Perth's septage. Subsequently, expressions of interest were sought from commercial operators, detailing proposed treatment methods, disposal of solid wastes, utilisation of facilities at Westfield, and costing and charging structures. A review of the submissions received narrowed the choice to two operators, both of whom proposed the lime stabilisation treatment option.

It is thus proposed that a facility be built on (the now closed) Water Treatment Plant site at Westfield. The treatment will be by the lime stabilisation process, with liquid effluent being discharged to sewer. Solid residues will be directed to landfill or to recycling as soil conditioner, and recovered grease will be recycled. Westfield is already connected by sewer to the Woodman Point sewage treatment plant.

2. PRINCIPAL ISSUES

The principal issues associated with the proposal are siting, material inputs, operation, material outputs, and contingency management, with the overriding issue being odour control.

3. SITING

3.1 ZONING

The site has been used previously as a waste water treatment plant, and requires no change in zoning.

3.2 LEVEL OF LAND

Westfield generally is a low lying area. The plant area itself is raised above the surrounding land, and was not subject to flooding in the heavy rains in late July 1987. The access road was flooded, but passable to traffic.

3.3 TRAFFIC

The total number of truck loads disposed of is approximately 70 per day in the metropolitan area. All of this traffic is expected to go to Westfield. The extra burden on the local road system is negligible.

Access to the plant is via major road systems including the Tonkin Highway and Albany Highway, (from northern suburbs), and Ranford Road from suburbs south of the river. The latter route does not involve travel through the Westfield townsite, but the former does, although if traffic is kept to major roads such as Armadale Road, then disturbance to residents will be minimised. Intersections near the plant are to be modified to ensure that turning trucks do not interfere with traffic flow.

4. MATERIAL INPUTS

The principal material inputs into the plant will be septage, grease trap wastes, and chemicals (lime) for treatment.

An auditing system for septage loads, as is currently being introduced by the Health Department, is essential in tracking loads and to minimise the possibility of illegal dumping.

It is proposed that loads will be analysed prior to discharge, and any out-of-specification loads will be re-directed for appropriate treatment and disposal. Should such loads (which would include septage as well as other materials) be encountered, provision should be made for their disposal in a manner (with an associated cost structure) which would not discourage operators from using the Westfield facility.

5. OPERATION

The process of lime stabilisation treatment is acceptable to the Authority. The principal issue arising from the operation will be odour, and the facility must not allow the escape of odours. The proponent has made a commitment to this effect, with the chemical treatment of odours by chlorine or adsorption by activated carbon.

Noise will be minimised by housing of equipment. Noise levels will be subject to Pollution Control Division requirements.

Storage areas for lime should be designed to prevent the escape of chemicals and the ingress of water (eg rain water).

6. MATERIAL OUTPUTS

The lime stabilisation process will result in a liquid effluent which can be discharged to sewer, for treatment in the normal sewage stream at Woodman Point Treatment Plant. This is environmentally acceptable, as there will be no contribution to the nutrient loading of the Swan River Catchment Area.

Solid waste will consist of dewatered sludges, screenings from septage, and grease from grease trap wastes. The sludge may be sold as soil conditioner or disposed to landfill.

Given the nutrient loading of the sludge, careful management of landfill operations is required to ensure environmental acceptability.

Recovered grease will be sold to industry for rendering into other products.

The proponent has made a commitment in their Notice of Intent to have an odour free operation, with all exhaust gases passing through a chemical treatment unit. The proponent has stated that the operation will be designed on a "fail safe" basis, so no odours should escape in case of equipment failure.

These methods are acceptable, subject to an appropriately detailed management plan which should be lodged with the Authority prior to commencement of operations.

7. CONTINGENCY MANAGEMENT

It is essential that planning for contingencies be put in place.

The following types of events can be envisaged.

- Spillages with potential odour, health and environmental problems. The proponent has proposed washdown facilities, leading to one way valves giving entry to the sewage treatment system.
- Flooding (from heavy rain). As noted previously, the site is raised relative to the local surroundings. Rain impacting directly on the plant is not expected to be a problem.
- Equipment failure. The proponent needs to establish systems which will enable continuing odour control and system reactivity in the event of a breakdown, as well as the capacity to effect repairs as soon as possible.
- Accidents, causing equipment failure and/or spillages. See above.
- Out of specification effluent. This would presumably result from out-of-specification inputs, or inappropriate management of the physico-chemical reactions involved in the treatment process. Both may be avoided by appropriate management procedures. Should such effluent be produced, it should be recycled through the system, if recycling will resolve the problem, or it should be otherwise disposed of in a manner acceptable to the Authority.

8. CONCLUSIONS AND RECOMMENDATIONS

This proposal will have minimal environmental impact in the Westfield area as the major effluent stream will be disposed of to sewer. It will also reduce the environmental impacts inherent in the current methods of disposal.

The Environmental Protection Authority concludes that the proposed facility is environmentally acceptable, and recommends that it could proceed subject to:

1. compliance with the proponent's commitments given in the Notice of Intent; and
2. the proponent submitting to the Authority a detailed management plan which addresses the following issues:
 - . odour control;
 - . noise levels;
 - . disposal of solids;
 - . disposal or retreatment of out-of-specification liquid effluent; and
 - . contingency plans for -
 - spillages;
 - flooding;
 - equipment failure; and
 - accidents;

to the satisfaction of the Authority, prior to commencement of the project.