

Renex Integrated Waste Treatment and Resource Recovery Facility
Information to complement Work Approval Application.

General description of the storage areas in the Renex Facility and its
ventilation systems

1. Transportation of contaminated soils and solid wastes to the Renex Facility

The transport of contaminated soil and solid prescribed wastes from a waste generator to the Renex facility will be in accordance with the requirements of the Environment Protection (Industrial Waste Resource) Regulations 2009 and Road Transport (Dangerous Goods) Act 1995. In the case of PCB contaminated soils or solid wastes, the transport will be in accordance with the Notifiable Chemical Order for Polychlorinated Biphenyls. Renex will not accept loads which are not in compliance with those regulations unless a special permission is given by EPA.

2. Type of contaminated soils and solid wastes

The type of contaminated soils and solid wastes to be stored at the Renex facility can be grouped into three (3) types in accordance to their volatility while in storage and the air ventilation requirements.

Those three types are listed below:

- Type 1: Non volatile with ambient temperature under 60°C;
- Type 2: Volatile with ambient temperature under 60°C and
- Type 3: Volatile with ambient temperature over 60°C.

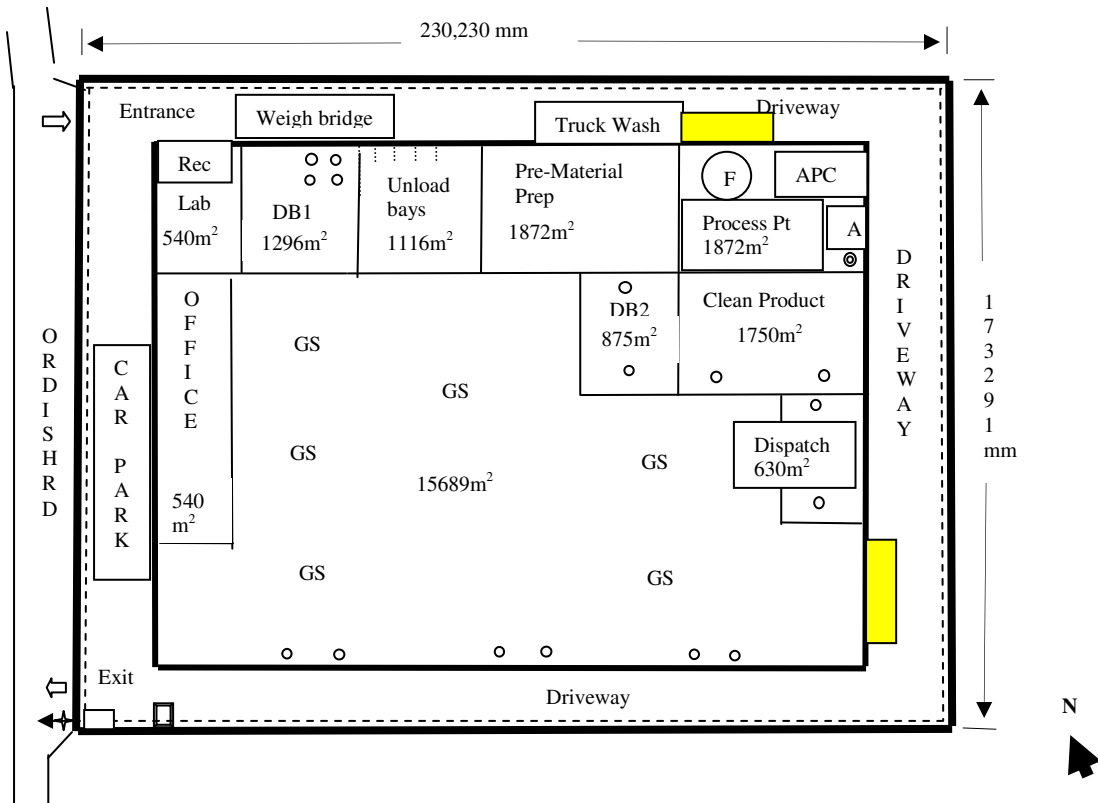
In general terms, type 1 and type 3 contaminated soils and solid wastes are transported in trucks with canvas cover. Soils with high concentration of PCB and or highly hazardous or carcinogenic contaminants (including odorous material) are transported in fully enclosed skips or bins to avoid dust emissions from the trucks.

The type 2 volatile soils and solid wastes comprises of compounds as benzene and other volatile chlorinated compounds with concentration to the level of category B and A (including high concentration of mercury and highly odorous materials). This soils and wastes will be transported in fully enclosed skips or bins.

3. General Description of the Storage Areas

A general plan view layout of the storage areas in the proposed Renex Facility is presented below in Figure No 1.

Figure No 1: Renex Plant and storage layout with ventilation system



NOTATION

○	Ventilation vents serving ventilation air treatment system	-----	Perimeter U Drain
⊙	Air Emission Stack	—	Building wall
F	Fuel Oil Tank	—	Premises Boundaries
GS	General Contaminated soil or Waste Storage	□	Guard House
A	Lime silo/Alkali tank	Rec	Reception
DB1	Dedicated bays for volatile compounds	■	Rollover Bund
DB2	Dedicated bays for skip/bin	□→*	Sediment/oil trap with isolating valve

Type 1 and 3 soils and wastes will be stored in “Open Bays”, in a general store area unless they contain highly odorous materials. These soils and wastes usually are not contaminated with only a single compound or element. They usually contain trace quantity of the various highly volatile compounds or heavy metals which are classified as category C. Their level of emission is very small and it will not have any significant environmental impact while stored at the Renex Facility.

Type 2 soils and wastes (including highly odorous materials) will be stored in dedicated enclosed areas marked as DB1 and DB2 in the Figure No 1. A suitable air ventilation system will be provided. DB2 area will store soils and wastes in skips/bins for highly concentrated, volatiles, and hazardous or odorous materials to control emissions to the air in the facility. Emissions to the air in the facility will be removed from the air by activated carbon beds and they will not be emitted to the environment.

4. Unloading of accepted contaminated soils and solid wastes

Every load of contaminated soils or solid waste will be checked and sampled for acceptance. Once it is accepted, the truck will be directed to the unloading bay area, inside the building for unloading. The door of the unloading bay area will be opened to allow the truck to reverse into it. The unloading bay areas will be subjected to a negative pressure with respect to the outside air pressure by the facility ventilation system. This arrangement will prevent fugitive discharge of dust or volatile compounds through the door of the unloading bay areas during its opening for truck entering or exiting.

5. General Description of the Ventilation System

5.1 Plant and storage layout

The air used for ventilation of five (5) areas in the facility will be treated prior to its discharge to the environment.

The areas and its associated air treatment are described below with reference to the areas identified in Figure No 1.

1. Area General Storage (GS), Total area 15,689 m²:

For general contaminated soils or solid wastes storage. For the storage of type 1 and 3 wastes. The ventilation system will comprise of three (3) independent systems. All the air will be treated with high efficiency filters before being discharging to the environment via six ventilation vents.

2. Area Clean Product (i.e. clean soil), Total area 1750 m²:

The ventilation system will comprise of two (2) independent systems. All the air will be treated with high efficiency filters before being discharging to the environment via two (2) ventilation vents.

3. Area Clean soil dispatch, Total area 630m²:

The ventilation system will comprise of two (2) independent systems. All the air will be treated with high efficiency filters before being discharging to the environment via two (2) ventilation vents.

4. Area Dedicated for skip/bins (DB2), Total area 875m²:

For the highly volatiles or odorous compounds (including mercury for type 2 wastes, Category A or B).

The ventilation system will comprise of two (2) independent systems. All the air will be treated with carbon bed filters before being discharging to the environment via two (2) ventilation vents.

5. Area Unloading bays, Total area 1116m², Pre-material preparation
Total area 872m² and Dedicated bays area DB1, Total area 1296m²:

The ventilation system will comprise of two (2) independent systems. All the air will be treated with carbon bed and high efficiency filters before being discharging to the environment via four (4) ventilation vents.

5.2 Ventilation system and emissions

The ventilation of the storage and handling of the contaminated soils and solid wastes (including the number of ventilation air changes per hour) will be designed to comply with the occupation health and safety requirements of the Dangerous Goods Act 1985 and regulations of WorkSafe, Victoria.

These ventilation air treatment systems will have a safe back up supply of electricity from the proposed diesel generation plant to maintain safe dust levels within the facility at all times.

A preliminary air quality design criteria and air flow rate emissions from the ventilation air vents are presented in following Table No 1:

TABLE No 1: EXPECTED EMISSIONS TO THE OUTSIDE AIR BY THE VENTILATION SYSTEM OF THE RENEX FACILITY

Areas required for ventilation air treatment	No of air room changes per hr	Type of treatment system	No of vents	Expected air flow rate from each vent (Nm ³ /min)	Expected concentration of particle from each vent (mg/Nm ³)	Expected concentration of volatile organic compounds from each vent (mg/ Nm ³)	Expected concentration of any class 3 indicators from each vent (ug/Nm ³)	Mass rate from area source
1	2	high efficiency filters	6	1150	1	0.5	14.3	For whole area Particles-9.9kg/day volatiles organic compounds-4.97 kg/day class 3 -0.099 gram/min
2	2	dust filters	2	350	4.75	trace	trace	For whole area, Particles-4.9kg/day

3	3	dust filters	2	200	8	trace	trace	For whole area, Particles-4.62kg/day
4	2	carbon bed filters	2	190	trace	4.5	260	For whole area volatiles organic compounds-2.45 kg/day class 3 -0.048 gram/min
5	3 and 2 for dedicated bays	high efficiency filters and carbon bed filters	4	600	2.8	1.4	40	For whole area Particles-9.68kg/day volatiles organic compounds-4.84 kg/day class 3 -0.096 gram/min

Notes:

The expected air quality and flow rate in the above Table No 1 may change the detailed design is completed. The design will meet the occupation health and safety requirements of the Dangerous Goods Act 1985 and regulations of WorkSafe, Victoria.

The expected mass rate per day of particle and organic will remain essentially the same to ensure that the quality of air discharge through each of the ventilation vent is low in particle and volatile organic compound (including any class 3 indicators).

The expected emission levels of these compounds, especially particle, will be lower than those listed from the Table No 1. This is because the ventilation capturing system will be located at high level, above the soils or waste or the mechanical shredding operation, to capture only fine dust.

6. Exemption from EPA licensing ventilation vents

The expected mass rate per day or minute calculated from the concentration and air flow rate in the Table No 1 will meet the requirements of the Environment Protection (Scheduled Premises and Exemptions) Regulations 2007 which exempt air sources from licensing, as per the details listed below:

For Air Vents:

(1) Works approval under section 19A (1) and 19A (2) and a licence under section 20(1) are not required with respect to discharges or emissions to air from-

(a) a source, other than an incinerator or an afterburner, discharging or emitting less than each of the following-

- (i.) 100kg per day oxides of nitrogen; and
- (ii.) 10kg per day Oxides of Sulphur; and

- (iii.) 100kg per day carbon Monoxide; and
 - (iv.) 10kg per particles (except asbestos and heavy metals); and
 - (v.) 5kg per day volatile organic compounds except for emissions of odorous compounds or those referred to in sub-paragraph (vi); and
 - (vi.) 0.1 gram per min of any substance classified as a class 3 indicator in state environment protection policy (air Quality Management) as amended from time to time.
- (b) a standby engine;
 - (c) Fire fighting training activities;
 - (d) a spray booth, extractor vent system or fume cupboard used in product development or in a laboratory;
 - (e) a safety relief valve or rupture disc;
 - (f) a vent on a wastewater treatment system except at a sewage treatment plant;
 - (g) a general room or building ventilation point;
 - (h) a food cooker or kitchen range;
 - (i) an acid or alkali tank;
 - (j) vents on fuel storage tanks which meet technology specification acceptable to the authority; or
 - (k) hand-held or other portable cleaning, maintenance and construction equipment

The above requirements also apply to vents from fuel storage tanks, acid and alkali tanks located in the thermal process area of the Renex facility which will be ventilated by natural ventilation vents.

A detailed design of the ventilation and air treatment systems will be provided to EPA for its approval.

Sampling and testing of vents will be conducted to verify the emissions after the operation of the facility has commenced.

In conclusion, the expected emissions from the ventilation system at the Renex facility will not have any adverse impact to the neighbour and surrounding areas.

It is expected that the emissions will be low and will satisfy the requirements of the Environment Protection (Scheduled Premises and Exemptions) Regulations 2007 which exempt air ventilation discharges from licensing.

In addition the facility has adopted the following best practice features for the storage, packaging and ventilation system to reduce risk and environmental impact. These best practice features are:

- All contaminated soils and solid wastes will be stored inside fully enclosed buildings with negative pressure to prevent fugitive emissions during unloading of wastes.
- Ventilation air from unloading, storage, handling and mechanical operation including clean soil storage and dispatched areas will be treated before discharging to the environment.
- Dust suppression methods such as tarpaulin sheet to reduce unnecessary emissions from dusty soils or wastes during storage and handling will be adopted.
- Highly concentrated volatile, hazardous and odorous contaminated soil or solid wastes will be stored in skips or bins with sealed lids to reduce their emissions during storage. In addition, the ventilation air will be treated with activated carbon bed filters prior to its emission to outside.
- A truck wash plant will prevent vehicle exiting the premises from contaminating the roads.
- Any dust or soil or chemical spillages at the premises will be prevented from discharging to outside stormwater by the triple

interceptor with isolating valve as part of the site perimeter drainage system.

With these measures in place, the operation of such facility will not pose any adverse environmental impact to the environment and will meet the design criteria of SEPP (Air Quality Management).