

EPA VICTORIA SUSTAINABILITY COVENANT

Brooklyn PIW Facility

Annual Report 2008





■ Executive Summary

The close of the 2007/08 Financial Year marks the first anniversary of the Sustainability Covenant between Veolia Environmental Services (VES) and EPA Victoria. The introduction of revised EPA Prescribed Waste Regulations, also in July 2007, had a marked effect on the management and treatment of these wastes at the VES Brooklyn Treatment Facility. During this the first reporting period for the Covenant, overall waste volumes received to the plant have grown by 8.64%, while improvements in site processes, water reuse and resource recovery have resulted in considerable reduction in Prescribed Industrial Waste (PIW) sent to landfill and a fall in total output of 5.25%.

This report details the following information regarding the Sustainability Covenant and activities at the Brooklyn Treatment Facility from July 2007 to June 2008:

- Waste Volumes Received
- Treatment facility outputs
- Plant Upgrade progress
- Brooklyn Facility and Upstream sustainability case studies
- Continuous improvement planning

■ Waste Volumes and Treatment Facility Outputs

The figures reported in *Table 1* represent the operating data from the 2006 (baseline) and 2007 (actual) annual return data for the Brooklyn Treatment Facility. Across the broad materials balance, the density of materials equates to 1 kg per litre. In broad terms the figures show a sizable increase in total waste received to the plant which can be attributed to the reclassification of a number of waste streams requiring treatment following the amendment to PIW regulations. Total waste received has increased by slightly over 4ML or 8.64%. A full breakdown of waste volumes received is provided in *Table 2*.

During the same period however as a result of plant upgrades and improvements implemented under the Covenant a substantial decrease of 3ML in total output from the Facility has been achieved. *Table 3* outlines performance at the plant with regards to total waste input and PIW output to landfill. The proportion of waste sent to landfill has reduced substantially throughout the first reporting period. This equals a reduction of 7.6% of input streams going to landfill, or 3,980 tonnes.

This improved performance of the plant must be underlined given the substantial reduction in oily liquids and the increase in solid PIW/Soils received during the annual period. This along with a general increase in solid content in all PIW received to the site embodied a total waste stream with potential for landfill increase. *Table 4* outlines the breakdown of outcomes achieved both at the plant and upstream with clients, including waste avoidance, reuse, recycling and energy recovery.

■ Plant Upgrade Progress

Key developments at the Brooklyn Treatment Facility completed during the first 12 months of the covenant include:

- Installation of new waste segregation pits
- EPA Classification of treatment processes
- Installation of preliminary phase separation equipment
- Installation of preliminary stormwater collection system
- Installation of water recycling within the plant with associated potable water use reductions

...water reuse and resource recovery have resulted in considerable reduction in Prescribed Industrial Waste (PIW) sent to landfill, and a fall in total output of 5.25%.



Table 1. Progress on Objectives

	INCOMING LITRES	OUTGOING LITRES					Total
		Oil (A)	Recycling (B)	Other Treaters (C)	Sewer (D)	PIW Landfill (E)	
	Waste Received						
2006/07 Financial Year	48,181,155	4,382,100	1,146,400	5,004,300	33,311,632	19,761,750	63,606,182
	% of Input	9.10%	2.38%	10.39%	69.14%	41.02%	
2007/08 Financial Year	52,345,173 ¹	2,315,200 ²	1,914,500 ³	6,297,999 ⁴	32,239,114 ⁵	17,494,770 ⁶	60,261,583 ⁷
	% of Input	4.42%	3.66%	12.03%	61.59%	33.42%	
Variance	4,164,018	-2,066,900	768,100	1,293,699	-1,072,518	-2,266,980	-3,344,599

¹ VES received a 4ML or 8.64% increase in total PIW received into the facility in the 2007-08 year

² Oily waste received by VES fell considerably due to the activity of dedicated oil waste operators in the market, resulting in ~50% fall in recovered oil

³ Recycling substantially increased through diversion of metals, grease trap and other recoverable materials/energy

⁴ VES achieved increased segregation and diversion to other treaters

⁵ Discharge to sewer fell through improved water efficiency within the facility

⁶ Disposal to landfill decreased by over 2ML or 2000 Tonnes, despite a substantial increase in solids as a proportion of the incoming waste stream

⁷ Total output from the facility fell by 3.3ML, through increased water reuse and reduction in use of chemicals and additives

Table 2. Waste Received Breakdown

Waste	Volume (L)
Acids	4,829,130
Sewer/Septic	4,822,655
Oily Liquids	4,239,004
PIW Solids (not including soils)	7,705,952
PIW Sludge – Belt Press	6,795,219
PIW Sludge – Pits	9,691,018
Packaged Waste	3,333,470
Grease Trap	7,001,808
Temporary Storage	1,666,052
Soils	2,260,865
Total	52,345,173

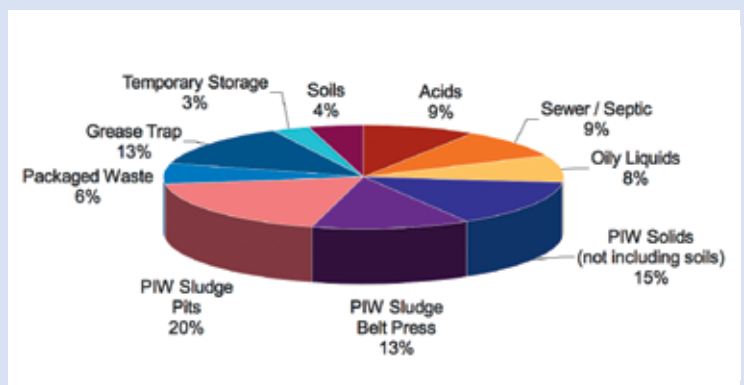




Table 3. KPI's

	Baseline		2007/08	
	Total ratio of liquid PIW received to solid PIW disposed (Litres)	48,181,155	19,761,750	52,345,173
	2.44	1	2.99	1
	41%		33%	

Table 4. Results (Litres)

	Veolia Site	Customers
Avoidance	N/A	16,000 ⁸
Re-use	4,829,130 ⁹	
Recycling	4,053,040 ¹⁰	244,000 ¹¹
Recovery of Energy	176,660 ¹²	

Veolia Site Activities				
		Cat B	Cat C	Total
Treatment	Cat A	38,249,296	0	38,249,296
	Cat B	2,271,414	0	2,271,414
	Cat C	N/A	11,824,463	11,824,463
			Total	52,345,173
Disposal		16,013	1,482	17,494,700

⁸ On site PIW waste avoidance, primarily within the petrochemical and automotive industries

⁹ Waste Acid

¹⁰ Organics Composting, Drum Recycling, Oil Recovery

¹¹ On site diversion, primarily within the petrochemical and automotive industries

¹² Solvents and other flammables to Geocycle/Resolve

■ Sustainability Case Studies

Brooklyn Treatment Facility – Water Recycling

During February 2008 Veolia installed 4 x 46,000L tanks at the Brooklyn PIW Treatment Plant with assistance from City West Water. The tanks harvest rainwater from the treatment facility buildings and some industrial waste water streams coming into the facility. This water is used within the facility for cleaning of the belt filter press. Since February Veolia have no longer required the use of potable water for cleaning of the belt press, reducing site water use by 20,000L per day.

Case Study Up Stream Sustainability 1

Industry: Automotive Manufacturing

PIW Description and Classification: Oily Water Emulsion – Category A Residues

Previously: A waste water treatment plant that was originally designed to process oil water emulsions generated from the manufacture of engines.

Issue: Due to the age of the treatment plant, its capacity to treat today's waste throughput required review. VES were engaged to improve the quality of the water going to sewer in the most cost and operationally effective manner that would exceed all environmental regulatory requirements.

Solution: Veolia has developed a solution based on a process that could effectively remove organic based species such as hydrocarbons from the waste water stream, employing activated carbon as a reusable filtration medium. The treated effluent from the new plant will pass through the activated carbon which would then effectively remove the remaining soluble hydrocarbons

Major Benefits: The solution presented by Veolia provided an effective process that significantly improved the quality of effluent and ensured ongoing treatment capacity on site.

Case Study Up Stream Sustainability 2

Industry: Land Management/Underground asset installation and maintenance

PIW Description and Classification: Contaminated Soils – Category B Disposal

Previously: Boring mud is one of the waste streams received to the Brooklyn facility from customers conducting drilling for management of underground assets and associated works. Historically the treatment process for this stream involved gravity dewatering in the pits followed by disposal to landfill as a PIW.

Issue: The dewatered mud was then mixed with other waste streams and sent to landfill as a Category B waste.

Solution: Veolia's solution was to isolate the boring mud upon receipt into Brooklyn, allowing the waste to be sent to landfill as Category C rather than Category B as was the practice. However, in line with the Sustainability Covenant, Veolia's goal was not to send this material to landfill at all. As a result further investigations were conducted to assess alternative solutions which excluded landfill disposal. After extensive research trials to confirm suitability the dewatered boring mud will now be sent to Veolia's Natural Recovery Systems facility for processing through the in-vessel composting process and eventual reuse.

Major Benefits:

- Reductions in prescribed waste to landfill: 96 tonne reduction
- Diversion from liquid treatment processes
- Cost reduction
- Reuse

Case Study Up Stream Sustainability 3

Industry: Automotive Manufacturing.

PIW Description and Classification: Paint Sludge and Filter Cake – "Category A". Waste contaminated with heavy metals and petroleum hydrocarbons.

Previously: Waste contaminants and extent of hazard unknown. VES/Toyota partnership identified contaminant levels and VES provided treatment solution.

Currently: Waste brought to VES treatment plant for stabilization to reduce Hazard Classification from Category A to Category B.

Future: Veolia is working with the Client to locate source of contamination and explore alternative treatment options. Also conducting trials with the Client's other PIW streams – Phosphate Cake and MIG dust – to treat and reduce hazard.

Current Prescribed waste volume to treatment plant:

Filter Cake – 12 tonnes / month
Paint Sludge – 70 tonnes / month

Major Benefits:

- Reduction in hazard classification
- Better management of hazardous waste
- Identifying contaminant source upstream

Case Study Up Stream Sustainability 4

Industry: Chemical

PIW Classification / Description: Cat "A" – Oil based sludge with heavy metals

Current process: Remove product from sludge ponds, chemically immobilize total volume and send to prescribed waste landfill.

New process: Remove product from sludge ponds, transfer into "Geo tubes" on site, allowing water / sludge content to separate. Heavy metals recovered and small amount of sludge chemically immobilized and sent to prescribed waste landfill.

Current Prescribed waste volume to landfill: 400 tonne

Reductions in prescribed waste to landfill: 360 tonne reduction

Major Benefits:

- Reduction in prescribed waste to landfill
- Reduction in pre treatment of product which goes to landfill
 - reducing bulking agents
- Reduction in transport – Carbon emissions
- Reduction in environmental risks on public roads
- Resource recovery

■ Continuous Improvement Plan

Date	Issue/Item	Action	By Whom	When	Status
01/10/07	– Plant has limited scope in regards to treatment of some waste streams	– Identify PIW's both liquid and solid including volumes	DB/RS	30/04/08	Completed
		– Identify gaps in treatment capability	DB/RS	30/04/08	Completed
		– Identify solutions to fill gaps	DB/RS/ME/MS		Ongoing
15/11/07	– Reduce A's to B's and C's	– Identify options	DB/RS	30/04/08	Present at workshop
15/11/07	– Productivity insufficient on priority development and maintenance tasks	– Establish a spreadsheet identifying tasks and priorities	DB	30/04/08	Completed and weekly review meetings implemented
15/11/07	– No formal maintenance program	– Establish maintenance plan identifying all plant and equipment requiring cleaning & maintenance	DB	30/04/08	In progress
15/11/07	– Some unknown treatment costs	– Identify all wastes streams and treatment processes, attributing resources and costs	DB/ DL	01/03/08	Completed
01/02/08	– Filter belt press using too much waters	– Investigate change of nozzles and cycles to reduce water use	DB	30/04/08	Completed
03/03/08	– Formal business plan requires updating	– Arrange a 2 day workshop	DL	15/08/08	Developing agenda and preparing info
01/02/08	– Stormwater reuse available	– Establish reuse of water within filter press	DB/BH	25/02/08	Completed