

Local Council Self-Assessment Tool for Closed Landfill Environmental Risk

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Buckingham Reserve, Brooklyn VIC

Local Council Self-Assessment Tool for Closed Landfill Environmental Risk

Overview

Closed landfills can pose a wide range of risks to the environment and human health, and should be considered during any land use planning decisions. The Victorian Auditor General's 2014 report on landfill management in Victoria, recommendation number 5, states that "Councils work with the Environment Protection Authority and the regional waste and resource recovery groups to identify closed landfills, assess their risks and prioritise actions at a regional scale to address these". This self-assessment tool has been developed for Councils to use to identify and understand the risks associated with closed landfills in their municipalities.

Landfill details

Closed landfill name:	
Address:	
Previous licence number (if available):	
GIS location (decimal degrees):	
Approximate year of commencement:	
Approximate year of closure:	
Date of assessment:	
Assessor (name and council):	
Overall assessment score (from page 11):	

Assessors are encouraged to take photos of the site during risk assessments so they are available should further assessment be required.

Relevant document links to support assessment are available in the glossary section on page 13.

Risk matrix and actions required

A score of 37 or more:

Based on assessment, potentially low risk. Consider when future re-assessment should be undertaken.

A score of 31 to 36:

Contact your local EPA office to discuss the future management of the site for the risks identified.

A score of 30 or less:

Contact your local EPA office, as an EPA Site Inspection may be recommended.

Please note: If you provide this document to EPA, EPA will use some of the data provided to inform other landfill programs, and the location data may be published in public data sets. Please contact EPA if this raises any concerns for you.

Further information

For further information about this self-assessment tool or any required actions please visit www.epa.vic.gov.au, call EPA on 1300 372 842 (1300 EPA VIC), email contact@epa.vic.gov.au or contact your regional EPA office:

EPA North West, Bendigo Office
northwest.mailbox@epa.vic.gov.au

EPA South West, Geelong Office
southwestoffice@epa.vic.gov.au

EPA North East, Wangaratta Office
epa.northeast@epa.vic.gov.au

EPA Gippsland, Traralgon Office
epa.gippsland@epa.vic.gov.au

EPA Southern Metro, Dandenong Office
southmetro.planning@epa.vic.gov.au

EPA Metropolitan Office
contact@epa.vic.gov.au

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Section 1: LOCATION ATTRIBUTES		
1.1 Distance to nearest sensitive receptors Environmental <ul style="list-style-type: none"> • rivers • creeks • storages • groundwater bore i.e. stock/domestic /irrigation Human <ul style="list-style-type: none"> • residential • hospitals • child care centres • gathering or meeting places • any other structures (schools, shopping centres, medical centres etc.) 	Score (circle number)	
	>1km	3
	500m – 999m	2
	250m – 499m	1
	<250m	0
1.2 Geological sensitivity to landfill activities	Score (circle number)	
	Low sensitivity e.g. thick laterally contiguous clay/less fractured hard rocks	3
	Medium sensitivity e.g. clay overlying fractured basalt	2
	High sensitivity e.g. sand, sandstone, fractured basalt or other high permeability strata	1
1.3 Engineered cells	Score (circle number)	
	Fully engineered to current BPEM standards	3
	Engineered to some level but not to current BPEM standards	2
	Combination of lined and unlined cells	1
	No engineered/lined cells	0

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		Score (circle number)
1.4 Groundwater quality (SEPP) Refer to Table 1 on page 13	D	5
	C	4
	B	3
	A2	2
	A1	1
LOCATION ATTRIBUTES Add circled scores in 1.1 to 1.4 and enter total here		TOTAL SCORE – SECTION 1

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Section 2: MANAGEMENT ATTRIBUTES		
2.1 Volume of waste filled (tonnes per annum) Note: if you are not sure of volumes, consider number of cells, dimensions, estimate volumes/cubic metres	Score (circle number)	
	1000 – 5000	5
	5001 – 10000	4
	10001 – 20000	3
	20001 – 50000	2
	50000+	1
Approximate total waste tonnage at the landfill (tonnes)		---
2.2 Waste types accepted/licensed	Score (circle number)	
	Clean fill only	5
	Solid inert and clean fill	4
	Putrescible, solid inert and clean fill	3
	Industrial, PASS/ASS, putrescible, solid inert and clean fill	2
	PIW, industrial, PASS/ASS, putrescible, solid inert and clean fill	1

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		Score (circle number)
2.3 Gas control Provide additional comments on page 12	Landfill gas control not required – this MUST have been demonstrated by an APPROPRIATE landfill gas risk assessment	6
	Gas extraction and combustion in engines or flares on all cells from which it is required	5
	Gas extraction and combustion from some cells, some require extraction systems installing	4
	Biocover/biofilter cap used for oxidation of landfill gas – this MUST have been used due a landfill gas risk assessment proving low gas production at the site	3
	Installed venting systems i.e. venting towers or trenches	2
	Landfill is partially or fully capped but no landfill gas control, but it is required	1
	Landfill is not capped (so no landfill gas control at all)	0
		Score (circle number)
2.4 Leachate control	Leachate extracted from dedicated sumps in each cell with appropriate treatment/disposal/evaporation	5
	Leachate extracted from dedicated sumps in each cell but questionable disposal methods (i.e. irrigation to land or waste mass with no treatment)	4
	Leachate extracted but no dedicated sumps in each cell, but with appropriate treatment/disposal/evaporation	3
	Leachate extracted but no dedicated sumps in each cell and with questionable disposal methods (see above)	2
	No leachate extraction and disposal	1

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		Score (circle number)
2.5 Stormwater/ surface water control	Evapotranspiration capping, surface water diversion from toe drains and storage dam in use.	4
	Conventional capping, surface water diversion from active areas, toe drains and storage dam in use.	3
	Some surface water diversion/control from active and restored/finished areas, storage dam in use	2
	No surface water control on active area, some control on finished areas	1
	No surface water control	0
MANAGEMENT ATTRIBUTES Add circled scores in 2.1 to 2.5 and enter here		TOTAL SCORE – SECTION 2

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Section 3: MONITORING	
3.1 Groundwater monitoring Think about monitoring infrastructure/equipment design, type, location, frequency of monitoring and training of monitoring staff	Score (circle number)
	Sufficient 3
	Some, but not sufficient 2
	None 1
3.2 Gas monitoring Think about monitoring infrastructure/equipment design, type, location, frequency of monitoring and training of monitoring staff	Score (circle number)
	Sufficient 3
	Some, but not sufficient 2
	None 1
3.3 Leachate monitoring Think about monitoring infrastructure/equipment design, type, location, frequency of monitoring and training of monitoring staff	Score (circle number)
	Sufficient 3
	Some, but not sufficient 2
	None 1
3.4 Surface water monitoring Think about monitoring infrastructure/equipment design, type, location, frequency of monitoring and training of monitoring staff	Score (circle number)
	Not required 3
	Sufficient 2
	Some, but not sufficient 1
	None 0
3.5 Cap maintenance program	Score (circle number)
	Not required 3
	Sufficient 2
	Some, but not sufficient 1
	None 0
MONITORING Add circled scores in 3.1 to 3.5 and enter here	TOTAL SCORE – SECTION 3

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Section 4: GAS, GROUNDWATER AND SURFACE WATER RISKS Based on findings/scores from location, management and monitoring sections of this tool		
4.1 Groundwater risk Think about hydrogeology, groundwater quality, engineering, topography, waste types, leachate control, leachate and groundwater monitoring	Score (circle number)	
	Insignificant	5
	Minor	4
	Moderate	3
	Serious	2
	Major	1
4.2 Gas risk Think about geology, engineering, waste types and their potential for gas generation, waste age, leachate control and gas monitoring	Score (circle number)	
	Insignificant	5
	Minor	4
	Moderate	3
	Serious	2
	Major	1
4.3 Surface water risk Think about the need for surface water control, erosion of the capping material, pollution of surrounding land and water features by run-off/discharges	Score (circle number)	
	Insignificant	5
	Minor	4
	Moderate	3
	Serious	2
	Major	1
GAS, GROUNDWATER AND SURFACE WATER RISKS Add circled scores in 4.1 to 4.3 and enter here		TOTAL SCORE – SECTION 4

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Section 5: OFF-SITE ISSUES AND MANAGEMENT

Are there community complaints regarding this site?	Yes / No	If yes, is there a register and where is it kept?
Are there signs of litter beyond the boundaries?	Yes / No	If yes, does council have a program to pick it up?

Section 6: CELLS, REHABILITATION AND MONITORING

6.1 Does Council know how many cells have been created at this site?	Yes / No	If yes, how many and what type of construction are they (lined, dug hole, cut and fill trench, etc.)?	
6.2 Have there been any rehabilitation works undertaken?	Score (circle number)		
	Complete (BPEM)	5	
	Well covered (soil/grass)	4	
	Partially covered	3	
	No cover	2	
Unknown	1		
CELLS, REHABILITATION AND MONITORING Enter circled score from 6.2 here			TOTAL SCORE – SECTION 6

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OVERALL SITE RISKS		
Add the total scores from each section of the completed risk assessment. Compare the total assessment score with the risk matrix on page 2.	Score (insert number)	
	Section 1	
	Section 2	
	Section 3	
	Section 4	
	Section 6	
	OVERALL ASSESSMENT SCORE	

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SITE MANAGEMENT AND WASTE ACCEPTANCE

Has waste been burnt at the site?	Yes / No	If yes, what waste types (organics, timbers, etc.)?
Is the landfill fully fenced to prevent access when closed?	Yes / No	If no, location of available access (N, S, E or W)?
Does anyone not involved with the site, management or Council have a key to the gates?	Yes / No	If yes, what waste are they depositing?

Additional comments:

Signed by:

Print name:

Date:/...../20.....

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Glossary

ASS – Acid sulfate soils

BPEM – Best practice environmental management

PASS – Potential acid sulfate soils

PIW – Prescribed industrial waste

SEPP – State environment protection policy

TDS – Total dissolved solids

Groundwater segments

Table 1 – Segments

Segment	A1	A2	B	C	D
TDS range (mg/L)	0-500	501-1000	1001-3500	3501-13000	Greater than 13000

Table 2 – Protected beneficial uses of the segments (taken from page 8, SEPP Groundwaters of Victoria)

Beneficial uses	Segments (mg/L Total dissolved solids)				
	A1 (0-500)	A2 (501-1000)	B (1001-3500)	C (3501-13000)	D (Greater than 13000)
1. Maintenance of ecosystems	✓	✓	✓	✓	✓
2. Potable water supply					
Desirable	✓				
Acceptable		✓			
3. Potable mineral water supply	✓	✓	✓		
4. Agriculture, parks and gardens	✓	✓	✓		
5. Stock watering	✓	✓	✓	✓	
6. Industrial water use	✓	✓	✓	✓	✓
7. Primary contact recreation (e.g. bathing, swimming)	✓	✓	✓	✓	
8. Building and structures	✓	✓	✓	✓	✓

<http://www.epa.vic.gov.au/our-work/publications/publication/1997/december/s160>

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Useful references

- Local council self-assessment tool for closed landfill environmental risk
www.epa.vic.gov.au/business-and-industry/guidelines/landfills-guidance/local-council-self-assessment-tool-for-closed-landfill-environmental-risk
- Closed landfill self-assessment tool background information
www.epa.vic.gov.au/business-and-industry/guidelines/landfills-guidance/local-council-self-assessment-tool-for-closed-landfill-environmental-risk/closed-landfill-self-assessment-tool-background-information
- How to use the closed landfill self-assessment tool
www.epa.vic.gov.au/business-and-industry/guidelines/landfills-guidance/local-council-self-assessment-tool-for-closed-landfill-environmental-risk/how-to-use-the-closed-landfill-self-assessment-tool
- *Landfills exempt from licensing* guideline (EPA publication 1563)
www.epa.vic.gov.au/our-work/publications/publication/2017/october/1563-1
- *Closed landfill guidelines* (EPA publication 1490)
www.epa.vic.gov.au/our-work/publications/publication/2018/january/1490-1
- *BPEM Siting, design, operation and rehabilitation of landfills* (EPA publication 788)
www.epa.vic.gov.au/our-work/publications/publication/2015/august/788-3
- State environment protection policies (SEPPs)
www.epa.vic.gov.au/about-us/legislation/state-environment-protection-policies
- Acid sulfate soils and potential acid sulfate soils:
ASS should not be deposited below the water table and should be covered immediately upon deposit.
PASS should be deposited below the water table to remain away from atmospheric O₂ and therefore not oxidised to ASS.
www.qld.gov.au/environment/land/soil/acid-sulfate/explained/
- Prescribed industrial waste
www.epa.vic.gov.au/business-and-industry/guidelines/waste-guidance/prescribed-industrial-waste-classifications
- Aerial imagery
unimelb.libguides.com/c.php?g=402933&p=2741720
maps-collection.library.unimelb.edu.au/historical/1945melb/
www.ga.gov.au/flight-diagrams/index.jsp
- Google Maps and Google Earth
goo.gl/NDV7Lg
- Geological and soil maps
earthresources.efirst.com.au/Default.asp?c=275924
www.data.vic.gov.au/data/dataset/victorian-soil-type-mapping
- Groundwater bores
maps.cerdi.com.au/wg.php