

Ghallis Landfill Environment Risk Assessment

Date: 15.01.2024

Process	Impact	Existing Controls in Place	Probability	Severity	RPN	Comments
Creation of Frisoli Wall	Dust emissions	<ul style="list-style-type: none"> - Material utilised in the construction is not fine. - Application of water sprinkling around landfill roads and general facility areas to suppress airborne dust. - Application of efficient waste management program that minimizes amount and residence time of dry / dusty material present on site as much as possible. 	2	2	4	/
	Noise created by machinery	<ul style="list-style-type: none"> - Site already committed for such activity / project. - Noise levels would be on a similar level as other construction projects in Malta & Gozo; possibly less considering that receptors are located at the site boundary and therefore further away from activity location. - Activity shall take place during the day and is away from sensitive receptors. - Machines utilised for the job are modern and noise-compliant with manufacturer's levels. 	3	2	6	/
	Subsidence	<ul style="list-style-type: none"> - Compilation of Stability Risk Assessment to identify risks and design accordingly. - Monitoring of wall via visual inspection and surveys. - Experience from already-built portion of the Frisoli wall. 	1	4	4	/
	Accidental spills from machinery / plant (used for the build-up of the wall)	<ul style="list-style-type: none"> - Proper maintenance of vehicles and plant. - In such incidents, quantity of spilled material (typically either diesel or hydraulic oil) is limited. - Emergency Response Plan is in place. - Trained personnel on site. - Extraction of contaminated media and material as per local legislation. - Even if not its design function, once liner is put in place, it can serve as a barrier. 	1	3	3	/

	Air emissions in case of fire of material used for build-up	<ul style="list-style-type: none"> - Flammable material on-site is limited to liner used in the wall; metallic structure is not susceptible to fire. - Emergency Response Plan is in place. - Trained personnel on site. - Adopt a Just-in-Time approach; <u>only</u> material which shall be put in place on the day / in the lift shall be brought close to work area. - Pile of inert on the landfill / work area so that it can be used to extinguish any fire. - Heavy plant (bulldozers, landfill compactors) available to handle inert in case it is needed to extinguish a fire. - Water bowser available to dispense water in case of an emergency. - Firefighting water available in reservoirs in ECOHIVE. - Fire extinguishers shall be readily available to control and extinguish small fires. 	1	3	3	/
Landfilling at Frisoli Area	Fly away debris / waste	<ul style="list-style-type: none"> - Deployment / adjustment of the litter nets; - Deposited / unloaded waste is typically landfilled immediately; - Adaptation of Policy 012 in case of extreme weather; - Although this is the least preferred option, landfill perimeter fencing provides final barrier to escaping litter. - Ad-hoc litter collections efforts are coordinated when necessary. 	3	2	6	
	Noise created by (waste carrier) traffic	<ul style="list-style-type: none"> - Site already committed for such activity / project. - Activity shall take place during the day and is away from sensitive receptors. - With this variation, same amount of vehicles will enter Ghallis. 	1	2	2	/

Odour	<ul style="list-style-type: none">- Only a specific type of waste stream is suitable for Frisoli Project; such waste stream is one which exhibits low degradation with time. Therefore this waste stream has low or no organic content - this reduces potential for odour.- Waste is typically landfilled within a short time of it being unloaded.- Compaction levels are high; this means less air "in-between" waste and thus less odour.- Application of inert every 1m lift.- Monitoring regime is in place.	2	2	4	
Accidental spills from vehicles (waste carriers)	<ul style="list-style-type: none">- In such incidents, quantity of spilled material (typically either diesel or hydraulic oil) is limited.- Emergency Response Plan is in place.- Trained personnel on site.- Extraction of contaminated media and material as per local legislation.- Even if not its design function, once liner is put in place, it can serve as a barrier.	1	3	3	/
Air emissions in case of fire (of waste)	<ul style="list-style-type: none">- Following a lift of 1m, inert is applied and compacted.- Emergency Response Plan is in place.- Trained personnel on site.- Pile of inert on the landfill / work area so that it can be used to extinguish any fire.- Heavy plant (bulldozers, landfill compactors) available to handle inert in case it is needed to extinguish a fire.- Water bowser available to dispense water in case of an emergency.- Firefighting water available in reservoirs in ECOHIVE.- Fire extinguishers shall be readily available to control and extinguish small fires.	3	3	9	/

Landfilling of waste at Ghallis (main)	Dust, fibres and particulates emissions to air.	<ul style="list-style-type: none"> - As applicable, reorient active tipface depending on wind direction; - Deployment / adjustment of the litter nets; - Deposited / unloaded waste is typically landfilled immediately – 2 landfill compactors are being utilised; - Smaller active tipface and therefore potential for litter is minimal. - Compaction levels are high; this immobilises the waste and reduces incidence of escaping litter. - Adaptation of Policy 012 in case of extreme weather. - Application of daily cover at the end of the shift. - Application of water sprinkling around landfill roads and general facility areas to suppress airborne dust - Although this is the least preferred option, landfill perimeter fencing provides final barrier to escaping litter. - Ad-hoc litter collections efforts are coordinated when necessary. 	3	2	6	
	Noise created by waste carriers traffic and compactors' operation.	<ul style="list-style-type: none"> - Site already committed for such activity. - Sensitive receptors are located at the site boundary and therefore further away from activity location. - Compactors utilised for the job are modern and noise-compliant with manufacturer's levels. - This variation does not introduce new noise generation sources. 	3	2	6	

Odour	<ul style="list-style-type: none"> - Mandatory waste separation policy and enforcement by Authority further reduce the amount of organic waste in the black bag; therefore less organic ends up in the landfill - this translates to less potential for odour. - Waste is typically landfilled within a short time of it being unloaded. - Compaction levels are high; this means less air "in-between" waste and thus less odour. - WasteServ reduced size of operational tipface, thus reducing potential for odour. - Application of daily cover at the end of the work day. - Monitoring regime is in place. 	3	2	6	
Accidental spills from waste carrier vehicles and/or compactors.	<ul style="list-style-type: none"> - Proper maintenance of vehicles, plants, etc. - In such incidents, quantity of spilled material (typically either diesel or hydraulic oil) is limited. - Emergency Response Plan is in place. - Trained personnel on site. - Apply absorbent material and extract contaminated material. - Even if not its design function, once liner is put in place, it can serve as a barrier to surface and ground water. 	1	3	3	
Subsidence and landslide.	<ul style="list-style-type: none"> - Compilation of Stability Risk Assessment to identify risks and design accordingly. - Landfill / structure build-up to be in-line with Specification and CQA Plan (refer to Annex 05). - Quality Assurance process by third party to confirm that build-up is as per plan. - Deposition of waste in layers. - High (waste) compaction rates help avoid stability issues. 	1	2	2	
Liner rapture / failure causing land and ground water contamination.	<ul style="list-style-type: none"> - Landfill to be built in line with Specification and CQA Plan (see Annex 05) which in turn is based on the Council Directive. - Monitoring regime is in place. 	1	4	4	

	Air emissions in case of fire.	<ul style="list-style-type: none">- Emergency Response Plan is in place.- Trained personnel on site.- Smaller / minimized active tip face, higher compaction rates and application of daily cover at the end of the day.- Pile of inert (extinguishing media) shall be available on the landfill for use in case of fire.- Heavy plant (bulldozers, landfill compactors) available to handle inert in case it is needed to extinguish a fire.- Fire extinguishers shall be readily available to control and extinguish small fires.- Firefighting water available in reservoirs in ECOHIVE.- Water bowser available to dispense water in case of an emergency.	3	3	9	<ul style="list-style-type: none">- To set / coordinate familiarisation visits to CPD personnel.
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Risk Assessment Criteria

Risk is calculated as a numerical measure which is the product of the Severity of an Occurrence and the Likelihood of the Occurrence.

The likelihood of an occurrence can be categorized as follows:		
Rating	Likelihood	Definition
5	Almost certain	Is expected to occur in most circumstances.
4	Likely	Will probably occur in most circumstances.
3	Possible	Might occur at some time.
2	Unlikely	Is expected to occur in exceptional circumstances.
1	Highly unlikely	Can occur in exceptional circumstances.

The severity of an occurrence can be categorized as follows:		
Rating	Severity	Environmental Damage
5	Catastrophic	Serious and irreversible environmental damage.
4	Major	Serious environmental damage.
3	Moderate	Moderate environmental damage.
2	Minor	Minor environmental damage.
1	Insignificant	Little or no environmental damage.