

Los Angeles County Integrated Waste Management Task Force 2007 Financial Assurances Study, Task 6. Risk Factors September 5, 2007

General Categories of Factors:

1. Site geotechnical
2. Impact on receptors
3. Landfill design, construction, maintenance, and compliance

Factor	Potential Impact Magnitude/Probability	Controls/Mitigations	Quantitative Parameter(s)	Primary Resource Potentially Impacted/ Problem(s)
Proximity to Urban Areas	<ul style="list-style-type: none"> • In-large • Out-small 	<ul style="list-style-type: none"> • Engineering design 	<ul style="list-style-type: none"> • Inside urban area • Outside urban area 	<ul style="list-style-type: none"> • Groundwater • Surface water • LFG migration • Landslides • Air quality • Humans
Amount of Waste in Place	<ul style="list-style-type: none"> • Large tonnage-large • Small tonnage-small 	<ul style="list-style-type: none"> • Engineering design • Relocate waste 	<ul style="list-style-type: none"> • Tons in place 	<ul style="list-style-type: none"> • Groundwater • Surface water • LFG migration • Landslides • Air quality
Type of Waste in Place	<ul style="list-style-type: none"> • C&D-low • Monofill-medium • MSW-high 	<ul style="list-style-type: none"> • Engineering design • Relocate waste 	<ul style="list-style-type: none"> • Permitted types of waste 	<ul style="list-style-type: none"> • Groundwater • Surface water • LFG migration • <u>Air Quality (odor)</u>
Hydrogeology	<ul style="list-style-type: none"> • Permeable and high groundwater-high • Low permeability and low groundwater-low 	<ul style="list-style-type: none"> • Engineering design 	<ul style="list-style-type: none"> • Depth to first groundwater 	<ul style="list-style-type: none"> • Groundwater • Surface water
Seismic Characteristics	<ul style="list-style-type: none"> • Frequent, high ground acceleration-high • Infrequent, low ground acceleration-low 	<ul style="list-style-type: none"> • Engineering design 	<ul style="list-style-type: none"> • Ground acceleration, safety factor • <u>On-site accelerometer</u> 	<ul style="list-style-type: none"> • Groundwater • Surface water • LFG migration • Landslides

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Factor	Potential Impact Magnitude/Probability	Controls/Mitigations	Quantitative Parameter(s)	Primary Resource Potentially Impacted/ Problem(s)
Rainfall	<ul style="list-style-type: none"> High rainfall-large Low rainfall-low 	<ul style="list-style-type: none"> Engineering design 	<ul style="list-style-type: none"> Average rainfall Rainfall intensity 	<ul style="list-style-type: none"> Groundwater Surface water LFG migration Landslides
Potential for Flooding	<ul style="list-style-type: none"> Frequent potential-high Infrequent-low 	<ul style="list-style-type: none"> Engineering design Relocate waste 	<ul style="list-style-type: none"> Flooding frequency (yrs) <ul style="list-style-type: none"> High: <100 Low: >100 	<ul style="list-style-type: none"> Groundwater Surface water LFG migration
Proximity to Sensitive Habitat	<ul style="list-style-type: none"> Close-large Far-low 	<ul style="list-style-type: none"> Engineering design 	<ul style="list-style-type: none"> Distance from LF 	<ul style="list-style-type: none"> Biota
Compliance Status	<ul style="list-style-type: none"> Noncompliant-high Compliant-low 	<ul style="list-style-type: none"> Engineering design 	<ul style="list-style-type: none"> Frequency/Severity <ul style="list-style-type: none"> High = current CA, cleanup or abatement orders Medium = past history of CA or ongoing/repeat violations 	<ul style="list-style-type: none"> Groundwater Surface water LFG migration Landslides Air quality Humans Biota Economics
Engineering Controls	<ul style="list-style-type: none"> Poor design-large Conservative design-low 	<ul style="list-style-type: none"> Conservative engineering design criteria and construction 3rd party QAQC 	<ul style="list-style-type: none"> Type/design of cover and bottom liner Type/design of LFG control Leachate control Factor of safety 	<ul style="list-style-type: none"> Groundwater Surface water LFG migration Landslides Air Quality Humans Biota

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Factor	Potential Impact Magnitude/Probability	Controls/Mitigations	Quantitative Parameter(s)	Primary Resource Potentially Impacted/ Problem(s)
Waste Fill Methods	<ul style="list-style-type: none"> • Canyon-higher • Above ground 	<ul style="list-style-type: none"> • Engineering design 	<ul style="list-style-type: none"> • Type of fill method <ul style="list-style-type: none"> ○ Canyon ○ Area ○ Trench ○ Side-Hill ○ Pit/Quarry Fill ○ Combination 	<ul style="list-style-type: none"> • Groundwater • Surface water • LFG control
Presence of LF Bioreactor Technology	<ul style="list-style-type: none"> • Unstabilized (low stability)-high • Stabilized (high stability)-low 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • Bioreactor System In-place? <ul style="list-style-type: none"> ○ Yes ○ No 	<ul style="list-style-type: none"> • Groundwater • Surface water • LFG migration
Slope Stability	<ul style="list-style-type: none"> • Poor design-high • Conservative design-low 	<ul style="list-style-type: none"> • Decrease slope • Improve drainage • Improve landscaping 	<ul style="list-style-type: none"> • Known slope failures • No known slope failures 	<ul style="list-style-type: none"> • Groundwater • Surface water • LFG migration • Landslides • Air quality
Fire (intrusion from off site)	<ul style="list-style-type: none"> • High fire hazard areas-high 	<ul style="list-style-type: none"> • addition of buffer area 	<ul style="list-style-type: none"> • Proximity to high fire hazard areas 	<ul style="list-style-type: none"> • Groundwater • Surface water

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