

Appendix 3.4 Calculation of Emission Rates of Siu Ho Wan Sewage Treatment Works and North Lautau RTS

* Emission rate is made reference to EIA of Harbour Area Treatment Scheme Stage 2A (HATS Stage 2A EIA)

Source	Facilities:	Parameters:	Remarks	
Flocculation Tank (OD1)	OD1	Width	56.0 m	Reference made to emission rate of Flocculation Tanks given in HATS Stage 2A EIA Report
		Length	10.0 m	
		Area	560.00 m ²	
		Emission rate*	7.44 ou/m ² /s	
Primary Sedimentation Tank (OD2 & OD3)	OD2	Width	56.0 m	Reference made to emission rate of Sedimentation Tanks given in HATS Stage 2A EIA Report
		Length	30.0 m	
	Area	1680.00 m ²		
	Emission rate*	9.08 ou/m ² /s		
OD3	Width	56.0 m	Reference made to emission rate of Sedimentation Tanks given in HATS Stage 2A EIA Report	
	Length	30.0 m		
Area	1680.00 m ²			
Emission rate*	9.08 ou/m ² /s			
Odour Control Unit 1 (OD4) & Odour Control Unit 2 (OD5)	Flash Mixer	Width	6.5 m	Reference made to emission rate of Rapid Mixing Tanks given in HATS Stage 2A EIA Report
		Length	3.5 m	
		Equivalent Area	22.75 m ²	
		Emission rate*	8.79 ou/m ² /s	
	Sludge Buffer Tanks	Emission rate from FM	199.97 ou/s	Reference made to emission rate of Sludge Storage Tanks given in HATS Stage 2A EIA Report
		No. of tanks	3	
		Width of each tank	9.5 m	
		Length of each tank	20.0 m	
	Centrifuge Building dewatered sludge hoppers and container filling areas	Equivalent Area	570.00 m ²	Reference made to emission rate of Sludge Dewatering Building given in HATS Stage 2A EIA Report
		Emission rate*	26.42 ou/m ² /s	
		Emission rate from SBT	15059.40 ou/s	
		Width	7.0 m	
Removal efficiency #	Length	33.5 m	Reference made to emission rate of Sludge Dewatering Building given in HATS Stage 2A EIA Report	
	Equivalent Area	234.50 m ²		
	Emission rate*	26.42 ou/m ² /s		
	Emission rate from CB	6195.49 ou/s		
Removal efficiency #	Removal efficiency #	90.00 %	Reference made to emission rate of Sludge Dewatering Building given in HATS Stage 2A EIA Report	
	Emission rate after mitigation	2145.5 ou/s		
	Emission rate after mitigation per unit	1.07E+03 ou/s		
	Emission rate after mitigation	1.07E+03 ou/s		
Odour Control Unit 3 (OD6)	Inlet Works & Screen House	Width	18.5 m	Reference made to emission rate of Main Pumping Station given in HATS Stage 2A EIA Report
		Length	24.5 m	
		Equivalent Area	453.25 m ²	
		Emission rate*	8.79 ou/m ² /s	
		Emission rate from IW & SH	3984.07 ou/s	
Removal efficiency #	90.00 %	Reference made to emission rate of Main Pumping Station given in HATS Stage 2A EIA Report		
Emission rate after mitigation	398.41 ou/s			
Odour Control Unit 4 (OD7)	UV Disinfection Channel	Width	25.0 m	Reference made to emission rate of Sedimentation Tanks given in HATS Stage 2A EIA Report
		Length	75.0 m	
		Equivalent Area	1875.00 m ²	
		Emission rate*	9.08 ou/m ² /s	
		Emission rate from UVDC	17025.00 ou/s	
Removal efficiency #	90.00 %	Reference made to emission rate of Sedimentation Tanks given in HATS Stage 2A EIA Report		
Emission rate after mitigation	1702.50 ou/s			
Odour Control Unit 5 (OD8)	Return Liquor Pumping Station wet well	Width	5.50 m	Reference made to emission rate of Sludge Cake Silo given in HATS Stage 2A EIA Report
		Length	6.50 m	
		Equivalent Area	35.75 m ²	
		Emission rate*	26.42 ou/m ² /s	
		Emission rate from RLPS	944.52 ou/s	
Removal efficiency #	90.00 %	Reference made to emission rate of Sludge Cake Silo given in HATS Stage 2A EIA Report		
Emission rate after mitigation	94.45 ou/s			

Note:

* Emission rate is made reference to EIA of Harbour Area Treatment Scheme Stage 2A (HATS Stage 2A EIA)

The odour removal efficiency of the deodorizing units are 90%, which is considered common and practically achievable in other similar STWs, is adopted in the assessment.

Appendix 3.4 Calculation of Emission Rates of Siu Ho Wan Sewage Treatment Works and North Lantau RTS

Description	Parameters	Remarks
North Lantau RTS Building area:	1744.48 m ²	
Odour Emission Rate, SOER:	3.68 ou/m ² /s	From the approved WENT Landfill EXT EIA Report, the average measured SOER at tipping face is 3.68 ou/m ² /s for MSW mixed with construction waste.
Odour emission rate:	6419.68 ou/s	Calculated
Number of stacks:	3	By observation
Odour emission rate per stack:	2139.89 ou/s	Calculated
Exit temperature:	303 K	Ambient Temperature
Exit velocity:	1 m/s	Worst-case Scenario
Stack diameter:	1.6 m	By observation
Stack height:	15 m	By observation