

Appendix 3.2 Calculation of Industrial Emission Rate

Existing CHP system (modelled in Construction Phase)

Description	Source ID	Type	X	Y	Base Elevation	Release Height	Exit Temperature	Internal Diameter	flue gas flow (dry at s.t.p.)	actual flow wet	exit velocity	Emission Rate (g/s)		
			(m)	(m)	(mPD)	(mAG)	(K)	(m)	(Nm ³ /hr)	(m ³ /h)	m/s	TSP	RSP	FSP
Existing Tai Po Sewage Treatment Works ^[1]	TP01	POINT	837714	835225	6	10	749	0.35	2347	6439	18.59	6.520E-03	6.520E-03	6.520E-03
	TP02	POINT	837686	835203	6	10	749	0.35	2347	6439	18.59	6.520E-03	6.520E-03	6.520E-03
	TP03	POINT	837547	835113	6	10	749	0.35	2347	6439	18.59	6.520E-03	6.520E-03	6.520E-03

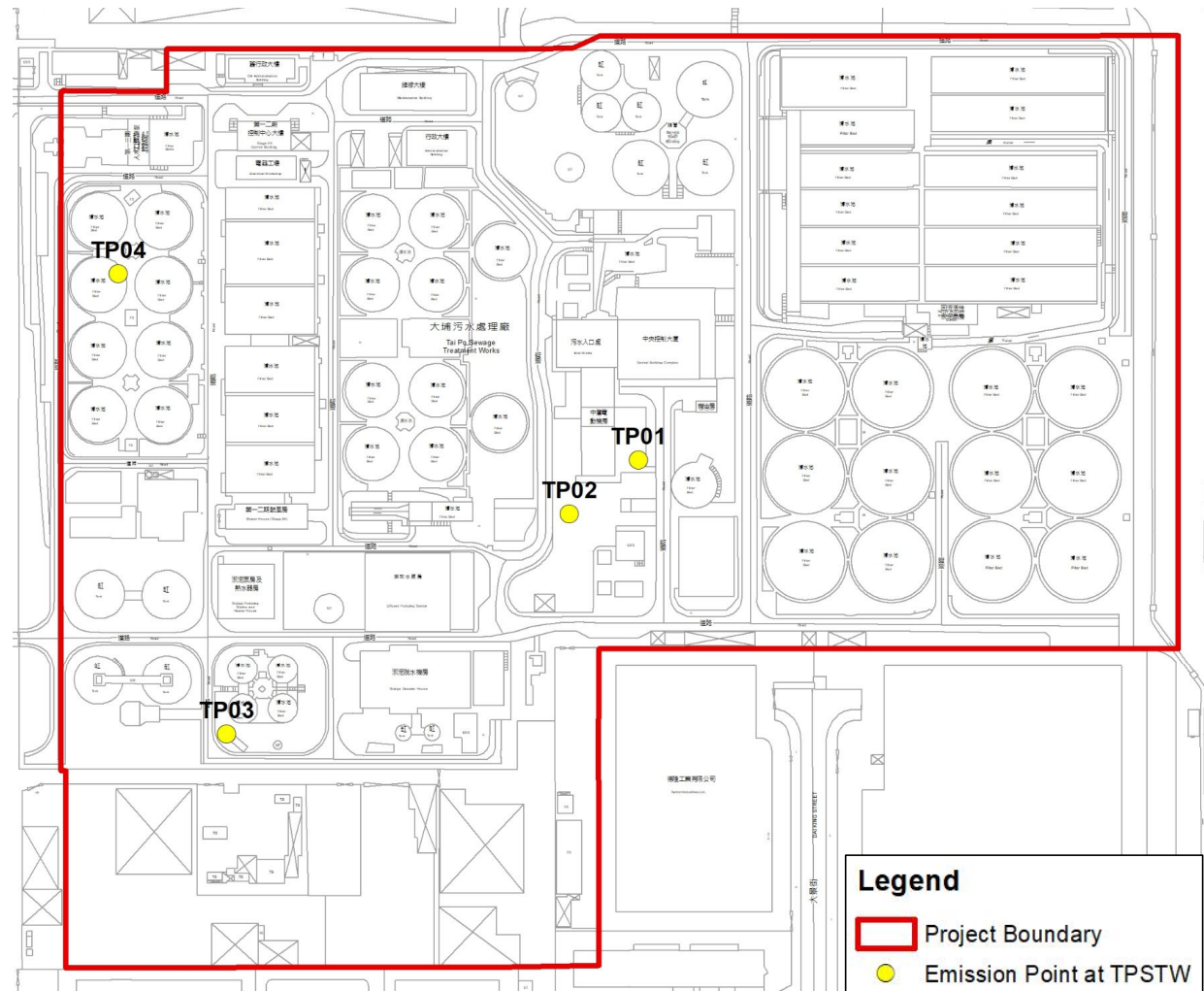
Proposed CHP system (modelled in Operational Phase)

Description	Source ID	Type	X	Y	Base Elevation	Release Height	Exit Temperature	Internal Diameter	flue gas flow (dry at s.t.p.)	actual flow wet	exit velocity	Emission Rate (g/s)								
			(m)	(m)	(mPD)	(mAG)	(K)	(m)	(m ³ /h)	(m ³ /h)	m/s	NO _x	SO ₂	RSP	FSP	CO	Methane	HCL	HF	CH ₂ O
Proposed Tai Po Sewage Treatment Works ^[1]	TP04	POINT	837503	835301	6	15	453	1.3	27749	46046	9.64	1.927E+00	9.250E-02	7.708E-02	7.708E-02	5.010E+00	1.156E+00	7.71E-02	7.71E-03	1.08E-01

Emission Concentration (mg/m ³)	NO _x	SO ₂	TSP	RSP	FSP	CO	Methane	HCL	HF	CH ₂ O
	250	12	10	10	10	650	150	10	1	14

- Note:
- [1] Information provided by Design Engineer: four 2MW power generators (3 duty ,1 stand-by) and two 600kW power generators (2 duty, 1 stand-by). All the exhaust gas would be diverted to a single exhaust.
 - [2] Expressed as at dry, 0 degree Celsius and 101.325kPa and 5% oxygen condition
 - [3] All plants are assumed to be operating 24 hours continuously.

Location of Emission Points at TPSTW



Legend

- Project Boundary
- Emission Point at TPSTW

Appendix 3.2 Calculation of Industrial Emission Rate

Company	Source ID	Type	X	Y	Base Elevation	Release Height	Exit Temperature	Exit Velocity	Internal Diameter	Emission Rate (g/s)									Remark / Reference	Operation Hour	
			(m)	(m)	(mPD)	(mAG)	(K)	(m/s)	(m)	NOx	TSP	RSP	FSP	SO ₂	CO	Methane	HCl	HF			CH ₂ O
Meyer Aluminium Limited	MEYEP1	POINT	837626	835696	6.3	44.1	633	15.1	1.19	1.5278	0.1806	0.1083	0.0903	1.8111	-	-	0.1806	0.0361	-	Specified Process License	24 hours a day
	MEYEP2	POINT	837628	835694	6.3	44.1	573	15.1	0.68	0.4944	0.1306	0.0783	0.0653	1.75	-	-	-	-	-		
	MEYEP3	POINT	837626	835693	6.3	44.1	573	15.2	0.96	0.9889	0.2611	0.1567	0.1306	3.5	-	-	-	-	-		
	MEYEP4	POINT	837639	835627	6.3	39.4	573	15.1	0.37	0.1556	0.0389	0.0233	0.0194	0.045	-	-	-	-	-		
	MEYEP5	POINT	837613	835694	6.3	15.5	313	15.1	0.88	-	0.4	0.24	0.2	-	-	-	-	-	-		
	MEYEP7	POINT	837624	835679	6.3	21.9	333	15.7	0.3	-	0.0456	0.0273	0.0228	-	-	-	-	-	-		
	MEYEP8	POINT	837626	835679	6.3	21.9	333	14.7	0.58	-	0.1639	0.0983	0.0819	-	-	-	0.1639	0.0328	-		
	MEYEP9A	POINT	837626	835677	6.3	44.1	589	20.4	0.9	0.1667	0.0444	0.0267	0.0222	0.5889	-	-	0.0455	0.0091	-		
	MEYEP9B	POINT	837625	835676	6.3	23.9	873	15.8	0.32	0.0583	-	-	-	-	-	-	-	-	-		
Universal (Hot-Dip) Galvanising Limited [1]	UNEP1	POINT	836852	835065	5.9	13.4	326	15.5	0.85	-	-	-	-	-	-	-	-	-	-		
	UNEP2	POINT	836852	835063	5.9	13.4	313	16	1.69	-	-	-	-	-	-	-	-	-	-		
Zama Industries Ltd.	ZAEP1	POINT	837763	835018	5.4	13.53	343	15.1	0.63	0.0633	0.0472	0.0283	0.0236	0.000278	-	-	0.0472	0.0094	-	Specified Process License	0800 - 1800 (10 hours a day)
The Hong Kong and China Gas Co. Ltd.	CGEP1	POINT	837061	835067	6.4	30.8	436	1.6	0.71	0.1111	-	-	-	-	-	-	-	-	-	Specified Process License	24 hours a day
	CGEP2	POINT	837028	835066	6.4	30.8	436	1.6	0.71	0.1111	-	-	-	-	-	-	-	-	-		
	CGEP3	POINT	836954	835066	6.4	30.8	436	1.6	0.71	0.1111	-	-	-	-	-	-	-	-	-		
	CGEP4	POINT	836921	835066	6.4	30.8	436	1.6	0.71	0.1111	-	-	-	-	-	-	-	-	-		
	CGEP5	POINT	837061	835086	6.4	30.8	686	2.3	0.76	0.1111	-	-	-	-	-	-	-	-	-		
	CGEP6	POINT	837028	835085	6.4	30.8	686	2.6	0.71	0.1111	-	-	-	-	-	-	-	-	-		
	CGEP7	POINT	836954	835086	6.4	30.8	686	2.3	0.76	0.1111	-	-	-	-	-	-	-	-	-		
	CGEP8	POINT	836921	835085	6.4	30.8	686	2.6	0.71	0.1111	-	-	-	-	-	-	-	-	-		
	CGEP9	POINT	837047	835112	6.4	46.3	431	16.1	1.02	0.7777	-	-	-	-	-	-	-	-	-		
	CGEP10	POINT	837014	835111	6.4	46.3	431	16.1	1.02	0.7777	-	-	-	-	-	-	-	-	-		
	CGEP11	POINT	836940	835111	6.4	46.3	431	16.1	1.02	0.7777	-	-	-	-	-	-	-	-	-		
	CGEP12	POINT	836907	835111	6.4	46.3	431	16.1	1.02	0.7777	-	-	-	-	-	-	-	-	-		
	CGEP29	POINT	836914	834999	6.4	31.4	604	2.7	1.22	0.3333	-	-	-	-	-	-	-	-	-		
	CGEP30	POINT	836808	834997	6.4	31.4	604	2.7	1.22	0.3333	-	-	-	-	-	-	-	-	-		
	CGEP31	POINT	836881	834999	6.4	31.4	604	2.7	1.22	0.3333	-	-	-	-	-	-	-	-	-		
	CGEP32	POINT	836774	834998	6.4	31.4	604	2.7	1.22	0.3333	-	-	-	-	-	-	-	-	-		
	CGEP33	POINT	836897	835032	6.4	46.9	412	21.6	1.7	0.75	-	-	-	-	-	-	-	-	-		
	CGEP34	POINT	836791	835031	6.4	46.9	412	21.6	1.7	0.75	-	-	-	-	-	-	-	-	-		
	CGEP49	POINT	836828	835003	6.4	18.9	469	7.7	0.88	0.3333	-	-	-	-	-	-	-	-	-		
CGEP 52	POINT	836835	834926	6.4	26.3	423	33.67	0.9	0.8611	-	-	-	-	-	-	-	-	-			

Note: With reference to the AEIAR-221/2019 - Shuen Wan Golf Course EIA report.

[1] Universal (Hot-Dip) Galvanising Limited is closed down based on site visit observation, therefore it is not included in the assessment.

Appendix 3.2 Calculation of Industrial Emission Rate

Company	Industry Type	Source ID	Type	X	Y	Base Elevation	Release Height	Exit Temperature	Exit Velocity	Internal Diameter [2]	Emission Rate (g/s)									Operation Hour	
				(m)	(m)	(mPD)	(mAG)	(K)	(m/s)	(m)	NOx	TSP	RSP	FSP	SO ₂	CO	Methane	HCl ^[3]	HF ^[3]		CH ₂ O
Techno Enterprise Ltd.	organic photoconductor manufacturer	TECH01	POINT	836644	835260	5.6	10	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	0.0583	-	0.045525	0.009105	-	Assume 0800 - 1800 (10 hours a day)
Lee Kum Kee Company Limited	food manufacturer	LECH01	POINT	836611	835477	5.1	30	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Hitachi Chemical Electronic Materials (Hong Kong Limited)	prepreg and copper-clad laminates for printed wiring boards manufacturer	HICH01	POINT	836842	835379	5.7	20	373	6	0.8	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		HICH02	POINT	836842	835382	5.7	20	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
GMP Centre	shared office space (pharmaceutical manufacturer)	GMCH01	POINT	837020	835656	5	20	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Bridgestone Aircraftire Co. (Asia) Ltd.	aircraft tire manufacturer	BRCH01	POINT	836953	835385	5.8	15	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		BRCH02	POINT	836952	835362	5.8	15	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		BRCH03	POINT	837023	835374	5.8	15	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Nissin Foods Co. Ltd.	food manufacturer	NICH01	POINT	836969	835324	5.7	20	373	6	0.8	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		NICH02	POINT	836998	835220	5.7	20	373	6	0.8	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		NICH03	POINT	836969	835335	5.7	15	373	6	0.8	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Hong Kong Yamazaki Baking Co. Ltd.	food manufacturer	YACH01	POINT	836956	835241	5.7	15	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Convenience Foods International Ltd	food manufacturer	COCH01	POINT	837157	835730	6	25	373	6	0.8	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		COCH02	POINT	837142	835690	6	35	373	6	0.1	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Meadville Technologies Group Ltd.	printed circuit boards, copper clad panels and prepregs manufacturer	MECH01	POINT	837257	835650	6	24	373	6	0.1	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		MECH02	POINT	837258	835645	6	24	373	6	0.1	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		MECH03	POINT	837246	835649	6	24	373	6	0.1	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		MECH04	POINT	837239	835649	6	24	373	6	0.1	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		MECH05	POINT	837227	835649	6	24	373	6	0.1	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
Amoy Food Limited	food manufacturer	AMCH01	POINT	837186	835616	6	30	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Café de Coral Central Processing Plant 2	food manufacturer	CACH01	POINT	837137	835493	6	25	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Winner Food Products Ltd.	food manufacturer	WICH01	POINT	837202	835416	5.9	35	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		WICH02	POINT	837391	835020	5.8	30	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		WICH03	POINT	837408	834963	5.8	25	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		WICH04	POINT	837391	834995	5.8	25	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		WICH05	POINT	837391	834997	5.8	25	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		WICH06	POINT	837391	835022	5.8	42	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Jean-Marie Pharmacal Company Limited	pharmaceutical company	JMCH01	POINT	837355	835563	6	25	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Hong Kong Yakult Co. Ltd.	food manufacturer	KUCH01	POINT	837532	835472	5.7	20	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Watson's Water Centre	water manufacturer	WACH01	POINT	837615	835475	5.7	25	373	6	0.8	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	

Appendix 3.2 Calculation of Industrial Emission Rate

Company	Industry Type	Source ID	Type	X	Y	Base Elevation (mPD)	Release Height (mAG)	Exit Temperature (K)	Exit Velocity (m/s)	Internal Diameter [2] (m)	Emission Rate (g/s)									Operation Hour	
				(m)	(m)						NOx	TSP	RSP	FSP	SO ₂	CO	Methane	HCl ^[3]	HF ^[3]		CH ₂ O
Tung Fong Hung Property Investment Limited	shared office space (pharmaceutical manufacturer)	TFCH01	POINT	837531	835012	5.4	25	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	Assume 0800 - 1800 (10 hours a day)
Apex Print Limited	printing company	APCH01	POINT	837508	834893	5.3	25	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		APCH02	POINT	837518	834893	5.3	25	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		APCH03	POINT	837518	834893	5.4	25	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		APCH04	POINT	837518	834878	5.4	25	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		APCH05	POINT	837518	834867	5.5	25	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
		APCH06	POINT	837518	834867	5.5	25	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Lei Garden	food manufacturer	LICH01	POINT	837332	835652	6	20	373	6	0.3	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	
Mass Lam Int'l Ltd.	multilayer PCB manufacturer	MACH01	POINT	836833	835484	5.9	10	373	6	0.2	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
APT Satellite Co. Ltd. [1]	satellite transponder capacity and related services provider	SACH01	POINT	837402	834909	5.4	10	373	6	0.3	-	-	-	-	-	-	-	-	-	-	
		SACH02	POINT	837406	834922	5.4	10	373	6	0.3	-	-	-	-	-	-	-	-	-	-	-
FC Packaging (HK) Limited	metal processing and food packaging manufacturer	FCCH01	POINT	837379	835648	6	33.6	448	6	0.7	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	Operates 24 hours a day as advised by the Operator
		FCCH02	POINT	837385	835648	6	33.6	448	6	0.7	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH03	POINT	837392	835648	6	35.5	723	6	0.6	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH04	POINT	837375	835690	6	35.5	723	6	0.6	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH05	POINT	837381	835684	6	35.4	723	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH06	POINT	837390	835684	6	35.5	723	6	0.6	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH07	POINT	837398	835648	6	35.5	448	6	0.6	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH08	POINT	837394	835694	6	35.5	448	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH09	POINT	837405	835648	6	35.4	448	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
		FCCH10	POINT	837412	835648	6	35.4	448	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	
Transtech Photonics	fiber optic products supplier	TRCH01	POINT	837584	835689	6	25	373	6	0.8	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	0.045525	0.009105	-	Assume 0800 - 1800 (10 hours a day)
Taclon Industries Limited	food wholesaler	TACH01	POINT	837757	835136	5.5	12	373	6	0.5	0.0583	0.0389	0.0233	0.0194	0.000278	-	-	-	-	-	

Note:

[1] As confirmed by the operator of APT Satellite Co. Ltd., the installed stacks are used under emergency situation only. No continuous emission from the stack is anticipated, therefore they were not included this assessment.

[2] Emission of HF and HCl were assumed for chemical, metal or electrical industries.

[3] The stack parameters were updated based on site visit observations / made reference to the AEIAR-221/2019 - Shuen Wan Golf Course EIA report.

Location of Emission Points

