Appendix 3.1c Adjustment of Background RSP at Black Point Power Station and Castle Peak Power Station

In accordance with the BPPS EIA Study, RSP is not the dominant air pollutant in the power plant emission and not considered in its EIA study. The predicted RSP concentrations at the ASRs are not available. Therefore, the ratio of maximum RSP to NOx concentration stated in the Specified Process Licence for BPPS is applied to adjust the RSP concentration contributed from BPPS. Refer to the Specified Process Licence of BPPS, the maximum concentration of RSP and NOx are listed as follows:

Source ID		C1-C6	C7-C8
Gas Firing	Maximum RSP Concentration in mg/m^3	5	5
	Maximum NOx Concentration in mg/m^3	90	90
	Ratio of RSP/NOx Concentration	0.056	0.056

From the above table, a factor of 0.056 is applied to calculate the RSP conc based on the predicted NOx conc associated with BPPS. Same approach, the ratio of RSP to NOx concentration licensed in the Specified Process Licence of CPPS is also applied to adjust the RSP concentration contributed from CPPS. Refer to the Specified Process Licence of CPPS, the maximum concentration of RSP and NO_2 are listed as follows:

Source ID	A1-A4	B1-B4
Maximum RSP Concentration in mg/m^3	125	125
Maximum NOx Concentration in mg/m^3	1500	1500
Ratio of RSP/NOx Concentration	**0.083**	**0.083**

From the above table, a factor of 0.083 is applied to adjust the RSP conc based on the predicted NOx conc associated with CPPS.

Adjustment for RSP concentration from BPPS and CPPS contribution:

Daily and Annual RSP concentration

ASR	Adjusted Daily NO_2 concentration ($\mu g/m^3$)(1)	Adjusted Annual NO_2 concentration ($\mu g/m^3$)(1)	NO2/NOx Ratio (2)	Ratio of RSP to NOx concentration (3)	Adjusted Daily RSP concentration ($\mu g/m^3$)	Adjusted Annual RSP concentration ($\mu g/m^3$)
Sheung Pak Nai(4)	17	0.40	0.3621	0.083	3.9	0.09
Ha Pak Nai	17	0.40	0.3621	0.083	3.9	0.09
Lung Kwu Tan	18	0.48	0.3257	0.083	4.6	0.12
Tin Shui Wai Park	22	0.48	0.6805	0.083	2.7	0.06
Tuen Mun Valley & Butterfly Beach Area	14	0.56	0.4205	0.083	2.7	0.11
Tuen Mun Area 38(5)	18	0.73	0.3257 (5)	0.083	4.6	0.19

Notes:

(1) The adjusted daily & annual NO_2 concentrations due to BPPS & CPPS Emissions as shown in Appendix 1a.

(2) Based on the Janssen's formula of NO2/NOx = A(1-exp(-αx)), values of A and α refer to those discussed in Appendix 1a; for x, since a smaller x will give a larger NOx, so for conservative estimation, the smaller x between the ASR and CPPS or BPPS is taken.

(3) The 2nd highest daily and annual average NO2 contrations presented in the BPPS EIA Report are due to both BPPS and CPPS, so for conservative assessment, the higher RSP/NOX ratio as calculated above for BPPS and CPPS is adopted.

(4) Sheung Pak Nai is not included in the wind tunnel testing in EIA for the Proposed 6000MW Thermal Power Station at Black Point (BPPS EIA Study); however, the worst wind angle for Sheung Pak Nai is similar to that for Ha Pak Nai. As it is located further away from the BPPS and CPPS than Ha Pak Nai, the Ha Pak Nai predictions were adopted as the worst case assumption.

(5) As there is no wind tunnel testing was performed at Tuen Mun Area 38 in the BPPS EIA Study, the lowest NO2/NOx ratio (and hence the highest RSP/NO2 ratio) among all the assessed ASRs in this study is used as worst case estimate.