Appendix 10D Predicted Incremental Chronic Carcinogenic Health Risk

Representative HSR	Assessment Height (mAG)	Total Incremental Cancer Risk	Criterion [1]	Compliance (YES/NO)
BPS1	1.5	1.09E-06	1.00E-05	YES
BPS1	5	1.09E-06	1.00E-05	YES
BPS1	10	1.10E-06	1.00E-05	YES
LKT2	1.5	1.49E-06	1.00E-05	YES
LKT2	5	1.50E-06	1.00E-05	YES
LKT2	10	1.49E-06	1.00E-05	YES
LKT1	1.5	3.24E-07	1.00E-05	YES
TTC1	4	3.26E-06	1.00E-05	YES
TPO1	39	2.07E-06	1.00E-05	YES
TPO2	42	2.15E-06	1.00E-05	YES
WXO1	1.5	9.67E-07	1.00E-05	YES
HPN7	1.5	1.89E-06	1.00E-05	YES
HPN5	1.5	2.44E-06	1.00E-05	YES
HPN6	1.5	2.44E-06	1.00E-05	YES
HPN4	1.5	1.82E-06	1.00E-05	YES
NWR1	1.5	1.98E-06	1.00E-05	YES
SPN1	1.5	1.78E-06	1.00E-05	YES
HPN1	1.5	1.86E-06	1.00E-05	YES
HPN2	1.5	1.88E-06	1.00E-05	YES
HPN3	1.5	2.02E-06	1.00E-05	YES
NWR2	1.5	1.56E-06	1.00E-05	YES
NWR3	1.5	1.55E-06	1.00E-05	YES
NWR4	1.5	1.49E-06	1.00E-05	YES

Cumulative Annual Average Concentration (ug/m^3)

Representative HSR	Assessment Height (mAG)	Exposure Factor (EF) [2]	Incremental Cancer Risk										
			Antimony (Sb)	Arsenic (As)	Beryllium (Be)	Cadmium (Cd)	Chromium (Cr (VI))	Cobalt (Co)	Copper (Cu)	Lead (Pb)	Manganese (Mn)	Mercury (Hg)	Nickel (Ni)
Inhalation Unit Risk Factor			N/A	0.0015	0.0024	0.0018	0.04	N/A	N/A	N/A	N/A	N/A	0.0004
BPS1	1.5	6.00E-02	0.00E+00	5.13E-08	1.29E-09	4.93E-08	9.57E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-08
BPS1	5	6.00E-02	ual Average Concer	5.13E-08	1.29E-09	4.93E-08	9.57E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.90E-08
BPS1	10	6.00E-02	0.00E+00	5.16E-08	1.29E-09	4.96E-08	9.62E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.92E-08
LKT2	1.5	4.20E-01	0.00E+00	6.99E-08	1.75E-09	6.71E-08	1.30E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.95E-08
LKT2	5	4.20E-01	0.00E+00	7.05E-08	1.77E-09	6.76E-08	1.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.98E-08
LKT2	10	4.20E-01	0.00E+00	7.03E-08	1.76E-09	6.74E-08	1.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-08
LKT1	1.5	6.00E-02	0.00E+00	1.53E-08	3.83E-10	1.46E-08	2.84E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.62E-09
TTC1	4	6.00E-02	0.00E+00	1.53E-07	3.85E-09	1.47E-07	2.86E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	8.67E-08
TPO1	39	6.00E-02	0.00E+00	9.74E-08	2.44E-09	9.35E-08	1.82E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.51E-08
TPO2	42	6.00E-02	0.00E+00	1.01E-07	2.53E-09	9.70E-08	1.88E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.71E-08
WXO1	1.5	6.00E-02	0.00E+00	4.54E-08	1.14E-09	4.36E-08	8.47E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.57E-08
HPN7	1.5	4.20E-01	0.00E+00	8.89E-08	2.23E-09	8.54E-08	1.66E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.03E-08
HPN5	1.5	4.20E-01	0.00E+00	1.15E-07	2.88E-09	1.10E-07	2.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.49E-08
HPN6	1.5	4.20E-01	0.00E+00	1.15E-07	2.88E-09	1.10E-07	2.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.50E-08
HPN4	1.5	4.20E-01	0.00E+00	8.55E-08	2.14E-09	8.21E-08	1.59E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.83E-08
NWR1	1.5	4.20E-01	0.00E+00	9.32E-08	2.34E-09	8.95E-08	1.74E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.27E-08
SPN1	1.5	4.20E-01	0.00E+00	8.39E-08	2.10E-09	8.05E-08	1.56E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.74E-08
HPN1	1.5	4.20E-01	0.00E+00	8.76E-08	2.20E-09	8.41E-08	1.63E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.95E-08
HPN2	1.5	4.20E-01	0.00E+00	8.83E-08	2.21E-09	8.47E-08	1.65E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.99E-08
HPN3	1.5	4.20E-01	0.00E+00	9.49E-08	2.38E-09	9.11E-08	1.77E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.36E-08
NWR2	1.5	4.20E-01	0.00E+00	7.32E-08	1.84E-09	7.03E-08	1.36E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.14E-08
NWR3	1.5	4.20E-01	0.00E+00	7.27E-08	1.82E-09	6.98E-08	1.36E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	4.11E-08
NWR4	1.5	4.20E-01	0.00E+00	7.02E-08	1.76E-09	6.74E-08	1.31E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3.97E-08

Representative HSR	Assessment Height (mAG)	Exposure Factor (EF) [2]	Incremental Cancer Risk										
			Thallium (Tl)	Vanadium (V)	Zinc (Zn)	PCBs	Dioxins and Furans	PAHs [3]	Hydrochloric acid (HCl)	Hydrogen Fluoride (HF)	Ammonia (NH_3)	Selenium (Se)	TOC
Inhalation Unit Risk Factor			N/A	N/A	N/A	0.0001	38	0.00174	N/A	N/A	N/A	N/A	N/A
BPS1	1.5	6.00E-02	0.00E+00	0.00E+00	0.00E+00	4.29E-11	2.08E-09	1.86E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BPS1	5	6.00E-02	0.00E+00	0.00E+00	0.00E+00	4.29E-11	2.08E-09	1.87E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
BPS1	10	6.00E-02	0.00E+00	0.00E+00	0.00E+00	4.31E-11	2.09E-09	1.88E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LKT2	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	5.84E-11	2.83E-09	2.54E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LKT2	5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	5.89E-11	2.86E-09	2.56E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LKT2	10	4.20E-01	0.00E+00	0.00E+00	0.00E+00	5.87E-11	2.85E-09	2.55E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
LKT1	1.5	6.00E-02	0.00E+00	0.00E+00	0.00E+00	1.27E-11	6.18E-10	5.54E-10	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TTC1	4	6.00E-02	0.00E+00	0.00E+00	0.00E+00	1.28E-10	6.22E-09	5.57E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPO1	39	6.00E-02	0.00E+00	0.00E+00	0.00E+00	8.14E-11	3.95E-09	3.54E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TPO2	42	6.00E-02	0.00E+00	0.00E+00	0.00E+00	8.44E-11	4.10E-09	3.67E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
WXO1	1.5	6.00E-02	0.00E+00	0.00E+00	0.00E+00	3.80E-11	1.84E-09	1.65E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HPN7	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	7.43E-11	3.60E-09	3.23E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HPN5	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	9.59E-11	4.65E-09	4.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HPN6	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	9.60E-11	4.66E-09	4.17E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HPN4	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	7.14E-11	3.47E-09	3.11E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NWR1	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	7.79E-11	3.78E-09	3.39E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
SPN1	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	7.01E-11	3.40E-09	3.05E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HPN1	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	7.32E-11	3.55E-09	3.18E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HPN2	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	7.37E-11	3.58E-09	3.21E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
HPN3	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	7.93E-11	3.85E-09	3.45E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NWR2	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	6.12E-11	2.97E-09	2.66E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NWR3	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	6.07E-11	2.95E-09	2.64E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NWR4	1.5	4.20E-01	0.00E+00	0.00E+00	0.00E+00	5.87E-11	2.85E-09	2.55E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Notes

[1] For the purpose of the current HIA which involves calculation of incremental cancer risks that represent upper-bound predictions of exposure at representative human receptors, the criterion of limiting to no higher than approximately $1x10^{-5}$ the estimated risk for an individual living near a source adopted by the USEPA is considered relevant and has been adopted as the benchmark for evaluating carcinogenic health risk from TAP associated with the operation of the project.

[2] Reference was made to Agency for Toxic Substances and Disease Registry. 2020. Guidance for Inhalation Exposures. Atlanta, Ga: U.S. Department of Health and Human Services, Public Health Service, December 1.

[3] The emission rate of CPAHs as shown in Appendix 10A is adopted for calculation of carcinogenic health risk of PAHs.