

AIR MONITORING SURVEY

Cornubia Fire

July 2021



SUMMARY-PM-2.5 & PM-10



- Fire commenced ~12-15 July 2021
- Upon commencement of testing (17 July 2021) PM-2.5 and PM-10 levels surpassed national limit (PM-2.5 by approximately 3x and PM-10 by 2x)
- Composition of the particulates are still to be assessed

Table 1: NEMAQA Standards for PM-2.5 in South Africa

Exposure period	Averaging period	PM-2.5 Limit $\mu\text{g}/\text{m}^3$	Frequency of Exceedance
Daily limit value for the protection of human health	24 Hours	40	4

Table 2: NEMAQA Standards for PM-10 in South Africa

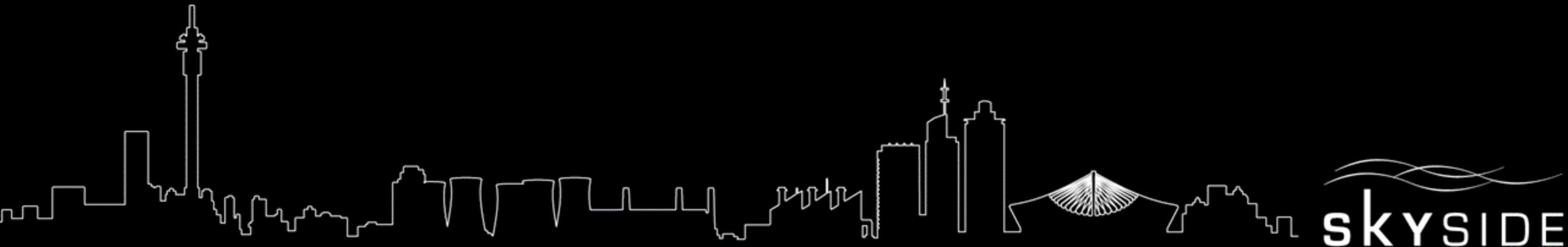
Exposure period	Averaging period	PM-10 Limit $\mu\text{g}/\text{m}^3$	Frequency of Exceedance
Daily limit value for the protection of human health	24 Hours	75	4



SUMMARY-VOLATILE ORGANIC COMPOUNDS



- All passive Radiello samples produced results below detection limit
- Active volatile sampling methods- Elevated levels of Benzene and Toluene were observed as the fire progressed. These levels dropped as the fire extinguished.



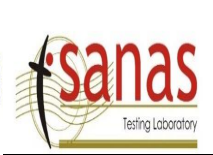


SUMMARY-Sulphur dioxide, Nitrogen dioxide & Hydrogen Sulphide (Radiello Passives)

- Levels were found to be relatively low and below the national standard limits
- **17-18 July 2021**

Site Name	Sampled from (Date)	Sampled to (Date)	Ambient Conc _n NO ₂ (ppb)	Ambient Conc _n SO ₂ (ppb)	Ambient Conc _n NO ₂ (mg/m ³)	Ambient Conc _n SO ₂ (mg/m ³)	NAAQS guideline 24 hrs, SO ₂ (ppb)	NAAQS guideline 1 year, SO ₂ (ppb)	NAAQS guideline 1 hour, NO ₂ (ppb)	NAAQS guideline 1 year, NO ₂ (ppb)	Ambient Conc _n H ₂ S (ppb)	Ambient Conc _n H ₂ S (mg/m ³)
NORTH	17 Jul 21	18 Jul 21	3.84	3.20	0.007	0.008	48	19	106	21	< 0.85	0.0015
EAST	17 Jul 21	18 Jul 21	5.42	3.28	0.010	0.009	48	19	106	21	1.02	0.0019
WEST	17 Jul 21	18 Jul 21	4.93	1.94	0.013	0.005	48	19	106	21	< 0.85	0.0015
SOUTH	17 Jul 21	18 Jul 21	4.39	2.65	0.011	0.007	48	19	106	21	< 0.85	0.0015

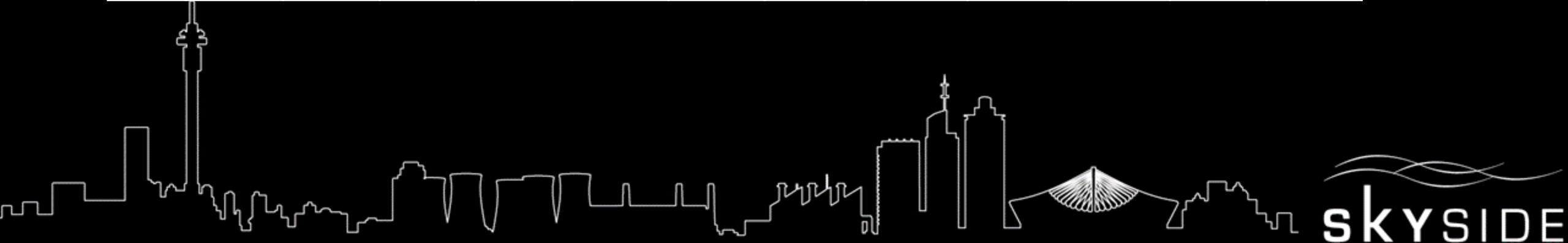




SUMMARY-Sulphur dioxide, Nitrogen dioxide & Hydrogen Sulphide (Radiello Passives)

- Levels were found to be relatively low and below the national standard limits
- **19-20 July 2021**

Site Name	Sampled from (Date)	Sampled to (Date)	Ambient Conc _n NO ₂ (ppb)	Ambient Conc _n SO ₂ (ppb)	Ambient Conc _n NO ₂ (mg/m ³)	Ambient Conc _n SO ₂ (mg/m ³)	NAAQS guideline 24 hrs, SO ₂ (ppb)	NAAQS guideline 1 year, SO ₂ (ppb)	NAAQS guideline 1 hour, NO ₂ (ppb)	NAAQS guideline 1 year, NO ₂ (ppb)	Ambient Conc _n H ₂ S (ppb)	Ambient Conc _n H ₂ S (mg/m ³)
NORTH	19 Jul 21	20 Jul 21	9.38	2.69	0.017	0.007	48	19	106	21	< 0.85	0.0015
EAST	19 Jul 21	20 Jul 21	5.40	4.30	0.010	0.011	48	19	106	21	< 0.85	0.0015
WEST	19 Jul 21	20 Jul 21	6.40	6.71	0.017	0.018	48	19	106	21	< 0.85	0.0015
SOUTH	19 Jul 21	20 Jul 21	4.93	5.22	0.013	0.014	48	19	106	21	< 0.85	0.0015

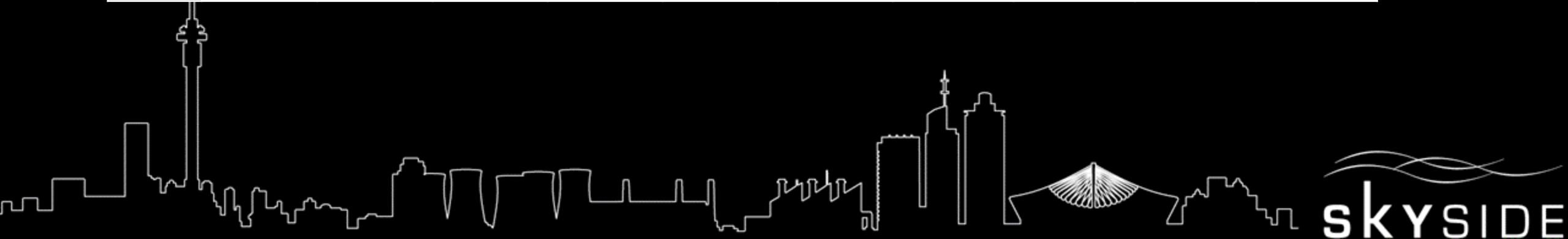


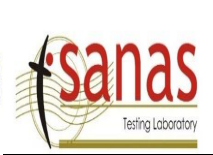


SUMMARY-Sulphur dioxide, Nitrogen dioxide & Hydrogen Sulphide (Radiello Passives)

- Levels were found to be relatively low and below the national standard limits
- **20-21 July 2021**

Site Name	Sampled from (Date)	Sampled to (Date)	Ambient Conc _n NO ₂ (ppb)	Ambient Conc _n SO ₂ (ppb)	Ambient Conc _n NO ₂ (mg/m ³)	Ambient Conc _n SO ₂ (mg/m ³)	NAAQS guideline 24 hrs, SO ₂ (ppb)	NAAQS guideline 1 year, SO ₂ (ppb)	NAAQS guideline 1 hour, NO ₂ (ppb)	NAAQS guideline 1 year, NO ₂ (ppb)
NORTH	20 Jul 21	21 Jul 21	3.43	< 0.59	0.006	< 0.002	48	19	106	21
EAST	20 Jul 21	21 Jul 21	8.31	0.59	0.016	0.002	48	19	106	21
WEST	20 Jul 21	21 Jul 21	12.29	1.34	0.032	0.004	48	19	106	21
SOUTH	20 Jul 21	21 Jul 21	8.25	1.62	0.022	0.004	48	19	106	21

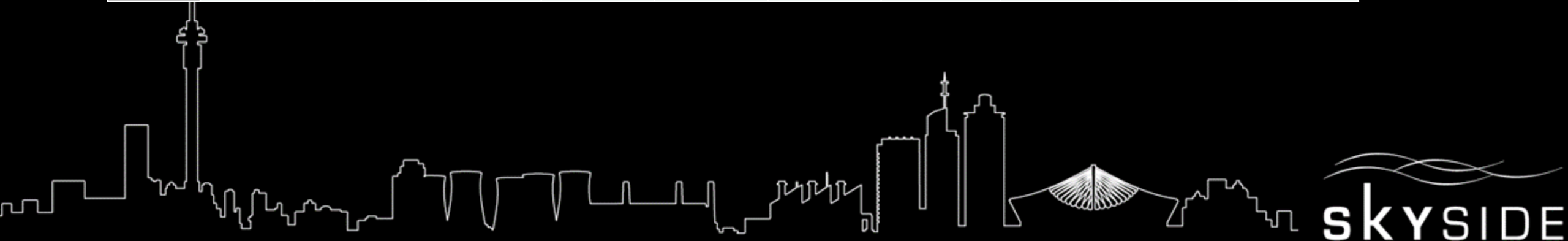




SUMMARY-Sulphur dioxide, Nitrogen dioxide & Hydrogen Sulphide (Radiello Passives)

- Levels were found to be relatively low and below the national standard limits
- **22-23 July 2021**

Site Name	Sampled from (Date)	Sampled to (Date)	Ambient Conc'n NO ₂ (ppb)	Ambient Conc'n SO ₂ (ppb)	Ambient Conc'n NO ₂ (mg/m ³)	Ambient Conc'n SO ₂ (mg/m ³)	NAAQS guideline 24 hrs, SO ₂ (ppb)	NAAQS guideline 1 year, SO ₂ (ppb)	NAAQS guideline 1 hour, NO ₂ (ppb)	NAAQS guideline 1 year, NO ₂ (ppb)
NORTH	22 Jul 21	23 Jul 21	4.97	<0.55	0.009	<0.001	48	19	106	21
EAST	22 Jul 21	23 Jul 21	4.54	0.96	0.009	0.003	48	19	106	21
WEST	22 Jul 21	23 Jul 21	6.81	<0.59	0.018	<0.002	48	19	106	21
SOUTH	22 Jul 21	23 Jul 21	3.88	<0.59	0.010	<0.002	48	19	106	21

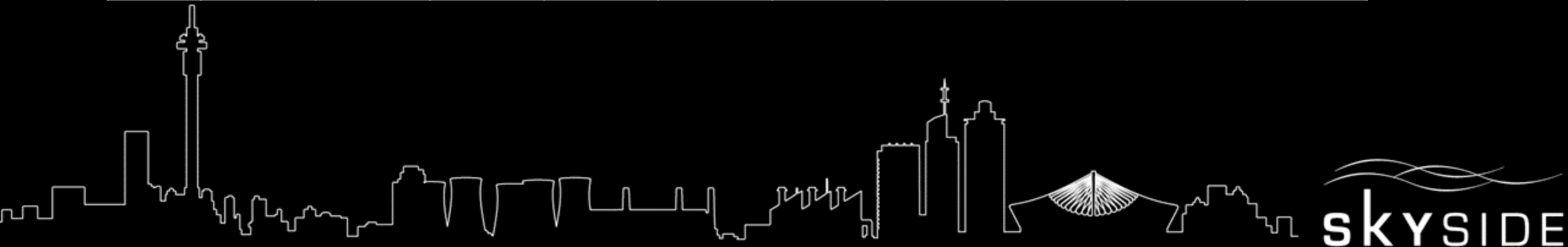




SUMMARY-Sulphur dioxide, Nitrogen dioxide & Hydrogen Sulphide (Radiello Passives)

- Levels were found to be relatively low and below the national standard limits
- **23-24 July 2021**

Site Name	Sampled from (Date)	Sampled to (Date)	Ambient Conc'n NO ₂ (ppb)	Ambient Conc'n SO ₂ (ppb)	Ambient Conc'n NO ₂ (mg/m ³)	Ambient Conc'n SO ₂ (mg/m ³)	NAAQS guideline 24 hrs, SO ₂ (ppb)	NAAQS guideline 1 year, SO ₂ (ppb)	NAAQS guideline 1 hour, NO ₂ (ppb)	NAAQS guideline 1 year, NO ₂ (ppb)
NORTH	23 Jul 21	24 Jul 21	5.60	<0.62	0.011	<0.002	48	19	106	21
EAST	23 Jul 21	24 Jul 21	3.67	<0.63	0.007	<0.002	48	19	106	21
WEST	23 Jul 21	24 Jul 21	3.63	<0.63	0.009	<0.002	48	19	106	21
SOUTH	23 Jul 21	24 Jul 21	7.27	<0.63	0.019	<0.002	48	19	106	21



SUMMARY-Sulphur dioxide, Nitrogen dioxide & Hydrogen Sulphide (Radiello Passives)

- Levels were found to be relatively low and below the national standard limits
- **24-25 July 2021**

Site Name	Sampled from (Date)	Sampled to (Date)	Ambient Conc _n NO ₂ (ppb)	Ambient Conc _n SO ₂ (ppb)	Ambient Conc _n NO ₂ (mg/m ³)	Ambient Conc _n SO ₂ (mg/m ³)	NAAQS guideline 24 hrs, SO ₂ (ppb)	NAAQS guideline 1 year, SO ₂ (ppb)	NAAQS guideline 1 hour, NO ₂ (ppb)	NAAQS guideline 1 year, NO ₂ (ppb)
NORTH	24 Jul 21	25 Jul 21	7.21	<0.58	0.014	<0.002	48	19	106	21
EAST	24 Jul 21	25 Jul 21	4.76	<0.58	0.009	<0.002	48	19	106	21
WEST	24 Jul 21	25 Jul 21	5.29	<0.58	0.014	<0.002	48	19	106	21
SOUTH	24 Jul 21	25 Jul 21	5.28	<0.58	0.014	<0.002	48	19	106	21





SUMMARY-HEAVY METALS

- Sampling campaign between 17-18 July 2021 and 19-20 July 2021
- Levels were found to be relatively low and below detection limit for majority of compounds
- Detected compounds include trace amounts of aluminium, arsenic, boron, barium, calcium, cadmium, chromium, copper, iron, magnesium, manganese, sodium, nickel, phosphorous, sulphur, titanium, vanadium and zinc



SUMMARY-SEMI VOLATILES, DIOXINS AND AGRICULTURAL COMPOUNDS

- Still to be analyzed

