

# 2024 Q3 (July-September) Air Quality Monitoring Results



## Air Quality Health Index (AQHI) Ratings

The AQHI is calculated by the Government of Alberta using data collected at HAMP air monitoring stations. The AQHI is a measure of air quality as it pertains to human health.

AQHI levels are low, moderate, high or very high. Risk to health increases as the index level rises.

New in 2024, Alberta has implemented a revised AQHI that will provide earlier health risk warnings to Albertans during exceptional or rapidly changing wildfire events.

Under the original AQHI formula for calculating health risk, a high risk rating was triggered when PM<sub>2.5</sub> levels exceeded a threshold<sup>[1]</sup> of 80 micrograms per cubic metre of air (ug/m<sup>3</sup>). With the new AQHI, a high-risk rating will now be triggered by a lower PM<sub>2.5</sub> measurement of 60 ug/m<sup>3</sup>.

The new AQHI was first developed and piloted in B.C. when officials found that residents near large wildfires were not getting adequate warning in rapidly changing conditions to reduce their exposure to smoke. The change is now being adopted by provinces and territories across Canada to provide consistent reporting, especially during wildfires.

Due to this change, we will likely see an increased number of high and very high AQHI ratings during air quality events, some of which the source may be undetermined. During this quarter all high and very-high risk ratings were attributed to either wildfire smoke (PM<sub>2.5</sub>), summertime smog (O<sub>3</sub>) or agricultural operations (PM<sub>2.5</sub>).

Visit our [Alberta Quality Health Index](#) more information. Seven of HAMP's 10 continuous air monitoring stations monitor substances whereby the AQHI can be calculated.

HAMP – 2024 Q3		Risk Level (% of time in each)			
Station Name	Hours Monitored	Low	Moderate	High	Very High
Bruderheim	2132	82.79%	11.63%	3.24%	2.34%
Elk Island	2107	81.02%	12.58%	3.65%	2.75%
Fort Saskatchewan	2104	79.56%	14.07%	3.23%	3.14%
Gibbons	2174	80.86%	12.01%	3.68%	3.45%
Lamont	2101	81.01%	13.56%	2.95%	2.48%
Redwater	2137	81.84%	10.34%	4.59%	3.23%
Thorhild	2114	81.84%	10.50%	4.35%	3.31%
<b>Total hours</b>	<b>14869</b>	<b>12085</b>	<b>1798</b>	<b>546</b>	<b>440</b>

### Hours with a High or Very High Risk AQHI Rating

HAMP Continuous Air Quality Monitoring Station																
Event Dates	Bruderheim		Elk Island		Fort Sask.		Gibbons		Lamont		Redwater		Thorhild		Total Hours	Attributed Cause
	High Risk	Very High Risk	High Risk	Very High Risk	High Risk	Very High Risk	High Risk	Very High Risk	High Risk	Very High Risk	High Risk	Very High Risk	High Risk	Very High Risk		
July 6, 9-10	2	-	4	-	8	-	6	-	4	1	8	-	4	-	37	Summer-time smog
July 16,17, 19-25	49	32	44	35	38	37	47	47	31	34	48	50	50	54	598	Wildfire smoke and summer-time smog
Aug 4,6	2	-	6	-	5	3	7	-	12	7	2	-	1	-	45	Wildfire smoke and summer-time smog
Aug 14-15,18, 22	12	18	10	23	7	26	9	25	5	10	10	16	10	9	190	Wildfire smoke and summer-time smog summer-time smog
Sep 7-8	4	-	9	-	8	-	11	3	7	-	26	3	26	7	104	Wildfire smoke
Sep 13	-	-	4	-	2	-	-	-	3	-	4	-	-	-	13	Wildfire smoke
Sep 19	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	Agricultural operations
<b>Total Hours</b>	69	50	77	58	68	66	80	75	62	52	98	69	92	70		

### Summary of Exceedances

There were 46 exceedances of the 1-hour, and 107 exceedances of the 24-hour objective in the second quarter of 2024.

One Hour Exceedances*			
Parameter	Exceedances	Date	Attributed Cause
Benzene	7	August 28,29	Industry Responsible
PM <sub>2.5</sub>	617*	July-September	Wildfire Smoke
PM <sub>2.5</sub>	1	July 9	Local Source
H <sub>2</sub> S	7	July 7, September 7, 17, 18, 20	Undetermined
H <sub>2</sub> S	1	August 15	Industry Responsible
H <sub>2</sub> S	10	July 13, 17, 20, 21 September 8	Natural due to Wetlands
O <sub>3</sub> **	20	July 9, 10, 16, 17, 20, Sept 7	Summertime Smog and Wildfire Smoke

\*NOTE: The wildfire bulk smoke reporting protocol enacted by the Alberta Government does not require the reporting of 1-hr PM<sub>2.5</sub> exceedances due to wildfire smoke. The PM<sub>2.5</sub> concentration did exceed the reporting level 414 times in July, 182 in August and 21 times in September due to wildfire smoke.

\*\* Only the highest 1-hour average O<sub>3</sub> concentration on a calendar day at a station is reported as an exceedance. There were 32 other 1-hour average measurements in July and 4 on September 7 that exceeded the reporting threshold.

24-Hour Exceedances			
Parameter	Exceedances	Date	Attributed Cause
PM <sub>2.5</sub>	1	July 10	Local Source
PM <sub>2.5</sub>	46	July 19-25	Wildfire Smoke
PM <sub>2.5</sub>	41	August 6, 14-18, 22	Wildfire Smoke
PM <sub>2.5</sub>	17	September 7, 8, 13	Wildfire Smoke

H <sub>2</sub> S	1	July 21	Natural due to Wetlands
H <sub>2</sub> S	1	September 17	<b>Undetermined</b>