

2024 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 categorized as low, moderate, high, or very high risk. Risk to health increases as the index level rises. Go to [our website's AQHI page](#) for more information. Seven of HAMP's 10 continuous air monitoring stations monitor substances whereby the AQHI can be calculated.

HAMP – 2024		Risk Level (% of time in each)			
Station Name	Hours Monitored	Low	Moderate	High	Very High
Bruderheim	8534	92.15%	6.15%	0.98%	0.71%
Elk Island	8544	92.76%	5.26%	1.16%	0.83%
Fort Saskatchewan	8407	87.78%	10.05%	0.99%	1.18%
Gibbons	8631	90.05%	7.74%	1.01%	1.20%
Lamont	8441	91.74%	6.71%	0.85%	0.70%
Redwater	8460	92.62%	5.02%	1.42%	0.93%
Thorhild County*	6897	92.74%	4.61%	1.52%	1.13%
Total Hours	57914	52917	3796	650	551

**The HAMP Keith Purves Portable Station operated at two locations in Thorhild County in 2024*

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 County*		Total Hours	Cause (if attributable)
	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		
Jan 5	-	-	-	-	1	-	1	-	-	-	3	-	-	-	5	Wintertime inversion
Jan 25	-	-	-	-	4	-	-	-	-	-	-	-	-	-	4	Wintertime inversion
Feb 2	-	-	3	-	-	-	-	-	-	-	-	-	-	-	3	Wintertime inversion
Apr 2	-	-	-	-	3	2	-	-	-	-	-	-	-	-	5	Unattributed
Apr 17	1	1	-	-	-	-	-	-	-	-	-	-	-	-	2	Unattributed
May 11,12	8	5	17	13	5	31	6	29	10	7	19	10	13	8	181	Wildfire Smoke
Jun 3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	2	Unattributed
Jun 11	2	2	-	-	-	-	-	-	-	-	-	-	-	-	4	Unattributed
Jun 23, 24	2	3	-	-	-	-	-	-	-	-	-	-	-	-	5	Unattributed
Jul 6, 9-10	2	-	4	-	8	-	6	-	4	1	8	-	4	-	37	Summer-time smog
Jul 16,17, 19-25	49	34	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-
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
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
Dec 21-22	-	-	2	-	2	-	-	-	-	-	-	-	-	-	4	Wintertime Inversion
Total Hours	84	63	99	71	83	99	87	104	72	59	120	79	105	78	1203	

* The HAMP Keith Purves Portable Station operated at two locations in Thorhild in 2024.

Summary of Exceedances

Air quality measurements are compared continuously to 1 and 24-hour [Alberta Ambient Air Quality Objectives](#) (AAAQO). Any exceedance of an AAAQO is reported to the Alberta Government and the likely cause of the exceedance investigated. The following table details what substances exceeded an AAAQO, when they occurred and if it can be determined, the likely cause.

One-Hour Exceedances			
Parameter	Exceedances	Dates	Attributed Cause
Benzene	7	August 28, 29	Industry responsible
Fine Particulate (PM _{2.5})	5	January 5	Wintertime inversion and local brush burning
	2	April 1, 2	Unattributed
	7	June 11, 23	
	770	May to September	Wildfire smoke
	1	December 22	Wintertime inversion
Hydrogen Sulphide (H ₂ S)	7	April 12, 15, 20	Natural causes due to ice melt
	7	April 24, 28	Unattributed
	1	May 9	
	8	July 7, September 7, 17, 18, 20	
	8	July 13, 17, 20, 21	Natural causes due to wetlands
	1	August 15	Industry responsible
	2	September 8	Natural causes due to wetlands
	1	October 11	Unattributed
Ozone* (O ₃)	16	July 9, 10, 16, 17, 20	Wildfire smoke and summertime smog
	4	September 7	
Sulpher Dioxide (SO ₂)	1	December 16	Industry responsible
Total	848		

**Note: Only the highest 1-hour average O₃ 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	Dates	Attributed Cause
Fine Particulates (PM _{2.5})	5	January 5	Wintertime inversion and local brush burning
	14	January 23 to 25	Wintertime inversion
	14	May 11, 12	Wildfire smoke
	1	June 23	Unattributed
	1	July 10	Local source
	43	July 19 to 25	Wildfire smoke
	40	August 4, 6, 14-18, 22	
	22	September 7, 8, 12, 13	
	3	December 21, 22	Wintertime inversion
Hydrogen Sulphide (H ₂ S)	1	April 12	Natural causes due to ice melt
	2	April 24, 28	Unattributed
	1	July 21	Natural causes due to wetlands
	1	September 17	Unattributed
Total	148		

Summary Exceedances: 2019-2024

The following table details the number of exceedances for substances measured by HAMP across all stations in 2024 and the five years previous.

Parameter Measured		2024	2023	2022	2021	2020	2019
Ammonia (NH ₃)	1-hr	-	-	-	-	-	-
Benzene (C ₆ H ₆)	1-hr	7	24	-	-	-	-
Carbon Monoxide (CO)	1-hr	-	-	-	-	-	-
	8-hr	-	-	-	-	-	-
Ethyl Benzene (C ₆ H ₅ CH ₂ CH ₃)	1-hr	-	-	-	-	-	-
Ethylene (C ₂ H ₄)	1-hr	-	1	-	-	-	-
	3-day	-	6	-	-	-	-
	Annual	-	-	-	-	-	-
Fine Particulate Matter (PM _{2.5})	1-hr	785	1745	118	392	6	119
	24-hr	143	290	53	60	19	37
Hydrogen Sulphide (H ₂ S)	1-hr	35	7	19	16	7	8
	24-hr	5	1	1	-	1	1
Nitrogen Dioxide (NO ₂)	1-hr	-	-	-	-	-	-
	24-hr	-	-	-	-	-	-
	Annual	-	-	-	-	-	-
Ozone (O ₃)	1-hr	20	49	3	3	-	23
Styrene (C ₈ H ₈)	1-hr	-	2	-	-	-	-
Sulphur Dioxide (SO ₂)	1-hr	1	-	-	-	-	-
	24-hr	-	-	-	-	-	-
	30-day	-	-	-	-	-	-
	Annual	-	-	-	-	-	-
Toluene (C ₆ H ₅ CH ₃)	1-hr	-	-	-	-	-	-
Xylenes (o-, m- and p-isomers)	1-hr	-	-	-	-	-	-
Total		996	2125	194	471	33	188