

2021 Air Quality Monitoring Results



Air Quality Health Index (AQHI) Ratings

The AQHI describes the level of health risk associated with an AQHI number. The higher the index number, the greater the health risks. The risk levels are further categorized as low, moderate, high or very high. Go to [our website's AQHI page](#) for more information. Seven of FAP's ten continuous air monitoring stations measure the substances required to calculate the AQHI.

FAP - 2021		AQHI Risk Level (% of time)			
Station Name	Hours Monitored	Low	Moderate	High	Very High
Bruderheim	8448	93.84%	5.46%	0.53%	0.17%
Elk Island	8418	96.34%	2.82%	0.64%	0.20%
Fort Saskatchewan	8257	92.88%	6.20%	0.71%	0.21%
Gibbons	8420	93.24%	6.13%	0.55%	0.08%
Lamont County	8463	96.27%	3.19%	0.40%	0.14%
Redwater	8140	95.48%	3.66%	0.65%	0.21%
Sturgeon County *	1751	97.72%	2.28%	-	-
Town of Lamont **	2872	98.19%	1.60%	0.21%	-
Total hours	54769	52008	2380	297	84

FAP - 2021		AQHI Risk Level (# of hours)			
Station Name	Hours Monitored	Low	Moderate	High	Very High
Bruderheim	8448	7928	461	45	14
Elk Island	8418	8110	237	54	17
Fort Saskatchewan	8257	7669	512	59	17
Gibbons	8420	7851	516	46	7
Lamont County	8463	8147	270	34	12
Redwater	8140	7772	298	53	17
Sturgeon County *	1751	1711	40	-	-
Town of Lamont **	2872	2820	46	6	-
Total hours	54769	52008	2380	297	84

*The Keith Purves Portable station operated in Sturgeon County from January 1 to March 31, 2021.

**The Keith Purves Portable reported AQHI in the Town of Lamont from August 20 to December 31, 2021.

Hours with a High or Very High Risk AQHI Rating - 2021

This table shows the number of hours with a high or very high risk AQHI rating during 2021, when they occurred and the likely cause, when identifiable.

Event Dates	FAP Continuous Air Quality Monitoring Station														Total Hours	Attributed Cause	
	Bruderheim		Elk Island		Fort Sask.		Gibbons		Lamont County		Redwater		Keith Purves Portable*				
	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. 29	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	Wintertime inversion
Apr. 16	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	Undetermined
Jul. 9	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	Summertime smog
Jul. 9	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1	Natural, due to wetlands
Jul. 15-20	38	14	42	17	45	17	32	7	30	12	42	17	-	-	-	313	Wildfire smoke
Aug. 4 & 5	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	Summertime smog
Aug. 14	-	-	-	-	4	-	1	-	-	-	1	-	-	-	-	6	Wildfire smoke
Aug. 28	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	2	Undetermined
Sep. 2 & 5	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	3	Undetermined
Sep. 8	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	Natural, due to wetlands
Oct. 5 & 6	4	-	11	-	10	-	6	-	4	-	6	-	6	-	-	47	Wildfire smoke
Oct. 31	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	Multiple Sources
Total hours	45	14	54	17	59	17	46	7	34	12	52	17	6	-	380		

* The portable reported the AQHI at Sturgeon County site from January 1 to March 31 and in the Town of Lamont from August 1 to December 31, 2021.

Summary of Exceedances - 2021

Air quality measurements are compared continuously to both 1-hour and 24-hour [Alberta Ambient Air Quality Objectives](#) (AAAQO). Any exceedance of an AAAQO is reported to the Alberta Government and the cause of the exceedance investigated.

One Hour Exceedances - 2021			
Parameter	Exceedances	Date	Attributed Cause
Fine Particulate Matter (PM _{2.5})	1	January 29	Wintertime inversion
	1	April 16	Undetermined cause
Hydrogen Sulphide (H ₂ S)	2	June 4	Natural due to wetlands
	2	June 27 & 29	
Ozone (O ₃)	3	July 8, 9	Summertime smog
Fine Particulate Matter (PM _{2.5})	328	July 15, 17-20 August 14	Wildfire smoke
	3	August 28 September 5	Undetermined cause
Hydrogen Sulphide (H ₂ S)	8	July 5, 9, 12, 28, 31	Natural due to wetlands
Hydrogen Sulphide (H ₂ S)	4	September 8, 13, 29	Natural due to wetlands
Fine Particulate Matter (PM _{2.5})	59	October 5 & 6	Wildfire smoke
	1	October 31	Multiple Sources
Total hours	412		

24 Hour Exceedances - 2021			
Parameter	Exceedances	Date	Attributed Cause
Fine Particulate Matter (PM _{2.5})	2	January 29	Wintertime inversion
	2	January 30	
Hydrogen Sulphide (H ₂ S)	1	June 4	Natural due to wetlands
Fine Particulate (PM _{2.5})	28	July 13-20	Wildfire smoke
Fine Particulate (PM _{2.5})	18	August 1-3, 14, 15	Wildfire smoke
Fine Particulate (PM _{2.5})	10	October 5 & 6	Wildfire smoke
Total days	61		

Summary Exceedances: 2017-2021

Parameter Measured		2021	2020	2019	2018	2017
Ammonia (NH ₃)	1-hr	-	-	-	-	1
Benzene (C ₆ H ₆)	1-hr	-	-	-	-	-
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	-	-	-	-	-
	3-day	-	-	-	-	-
	Annual	-	-	-	-	-
Fine Particulate Matter (PM _{2.5})	1-hr	393	6	119	810	69
	24-hr	60	19	38	117	29
Hydrogen Sulphide (H ₂ S)	1-hr	16	7	9	20	-
	24-hr	1	1	1	4	-
Nitrogen Dioxide (NO ₂)	1-hr	-	-	-	-	-
	24-hr	-	-	-	-	-
	Annual	-	-	-	-	-
Ozone (O ₃)	1-hr	3	-	24	6	-
Styrene (C ₆ H ₅ CH=CH ₃)	1-hr	-	-	-	-	-
Sulphur Dioxide (SO ₂)	1-hr	-	-	-	-	38
	24-hr	-	-	-	-	9
	30-day	-	-	-	-	1
	Annual	-	-	-	-	-
Toluene (C ₆ H ₅ CH ₃)	1-hr	-	-	-	-	-
Xylenes (o-, m- and p- isomers)	1-hr	-	-	-	-	-
Total		473	33	191	957	147