

2017 Monitoring Results



Air Quality Health Index (AQHI) Ratings

The AQHI describes the level of health risk associated with an AQHI number. The levels are low, moderate, high or very high. The higher the index number, the greater the health risks. Go to fortair.org for more information. Six of FAP's nine continuous air monitoring stations measure the substances required to calculate the AQHI.

2017 Air Quality Health Index Ratings					
Station Name	Hours Monitored	Risk Level (% of time)			
		Low	Moderate	High	Very High
Bruderheim	8,465	97.68%	2.16%	0.15%	0.00%
Elk Island	8,166	97.07%	2.78%	0.11%	0.04%
Fort Saskatchewan	8,056	93.05%	6.93%	0.02%	0.00%
Gibbons	8,493	94.97%	4.83%	0.15%	0.05%
Lamont County	8,431	98.11%	1.73%	0.15%	0.00%
Redwater*	1,403	97.36%	2.64%	0.00%	0.00%
Total hours	43,014	41,396	1,561	50	7

2017 Air Quality Health Index Ratings					
Station Name	Hours Monitored	Risk Level (# of hours)			
		Low	Moderate	High	Very High
Bruderheim	8,465	8,269	183	13	0
Elk Island	8,166	7,927	227	9	3
Fort Saskatchewan	8,056	7,496	558	2	0
Gibbons	8,493	8,066	410	13	4
Lamont County	8,431	8,272	146	13	0
Redwater*	1,403	1,366	37	0	0
Total hours	43,014	41,396	1,561	50	7

**The new Redwater station began operating in October, 2017 but did not start reporting the AQHI until November 1.*

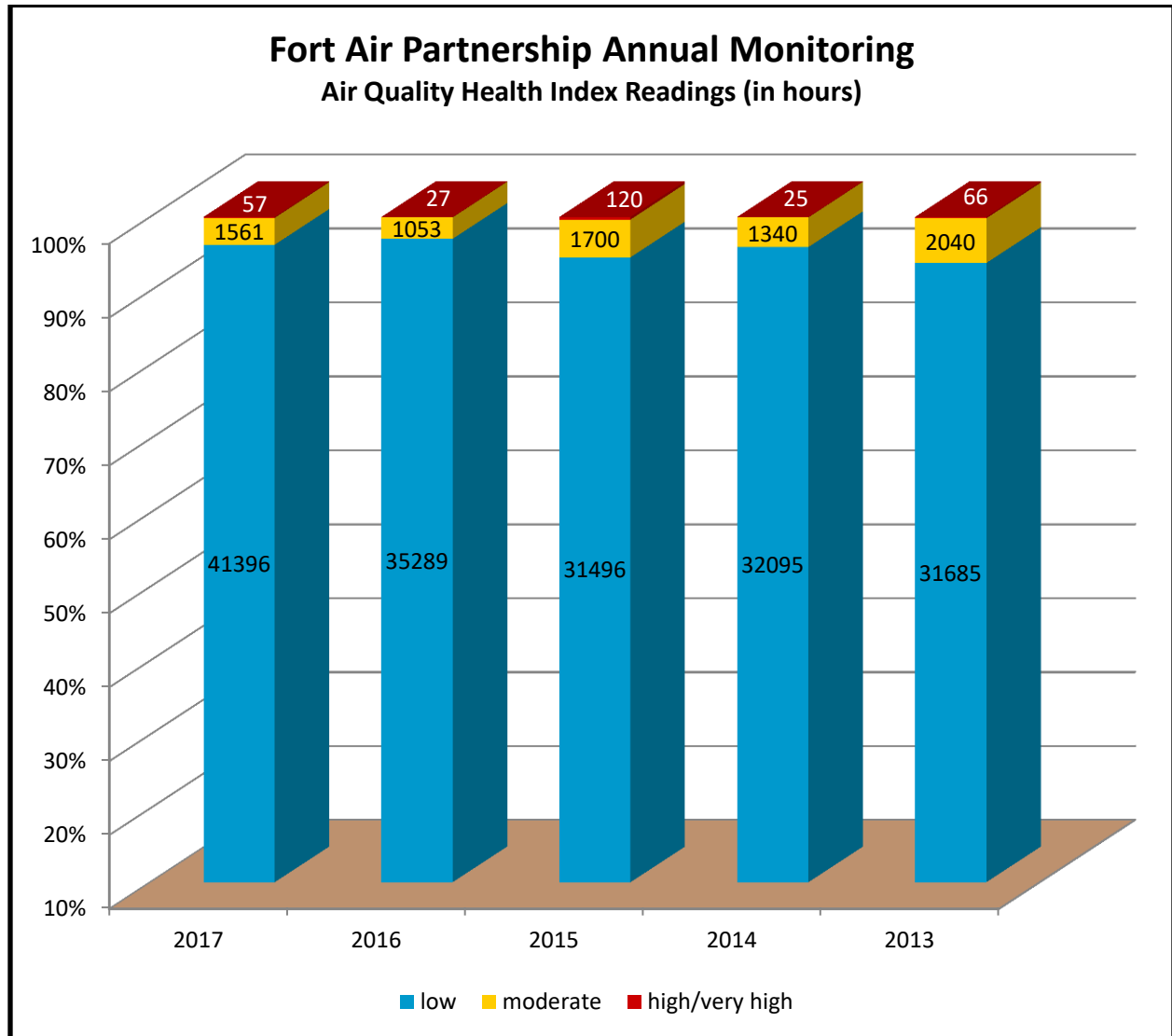
Hours with a High or Very High Risk AQHI Rating

This table shows the number of hours of high or very high AQHI rating during 2017, when they occurred and the likely cause where possible.

2017 Hours with a High or Very High Risk AQHI Rating														
Event Dates	Fort Air Partnership Continuous Air Quality Monitoring Station												Total Hours	Attributed/Event Cause
	Bruderheim		Elk Island		Fort Sask.		Gibbons		Lamont County		Redwater*			
	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. 2	2	-	-	-	-	-	2	-	-	-	-	-	4	Winter Inversion
Jan. 25	-	-	-	-	1	-	-	-	-	-	-	-	1	Winter Inversion
March 29	-	-	-	-	1	-	-	-	-	-	-	-	1	Winter Inversion
May 21	-	-	1	-	-	-	-	-	-	-	-	-	1	Campfire smoke
June 3	-	-	-	-	-	-	1	-	-	-	-	-	1	Undetermined
July 16	-	-	1	-	-	-	1	-	-	-	-	-	2	Forest Fires
Aug. 13, 14	11	-	7	3	-	-	6	4	11	-	-	-	42	Forest Fires
Aug. 31	-	-	-	-	-	-	2	-	-	-	-	-	2	Local Construction /Harvesting
Sept. 6	-	-	-	-	-	-	2	-	-	-	-	-	2	Harvesting
Dec. 22	-	-	-	-	-	-	1	-	-	-	-	-	1	Undetermined local source
Total Hours	13	-	9	3	2	-	15	4	11	-	-	-	57	

*The Redwater station began operations in October, 2017.

Five Year Trend - AQHI



Note: Total monitoring hours increased by 6,645 hours in 2017 because a new station added in the Town of Gibbons during 2016 reported AQHI for the full year in 2017. Also, a new Redwater station that became operational in October, 2017 began reporting AQHI in November, 2017.

Summary of Exceedances - 2017

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

Fort Air Partnership: One Hour Exceedances - 2017			
Parameter	Exceedances	Dates	Attributed Cause
Ammonia (NH ₃)	1	July 9	Local industry
Respirable Particulate (PM _{2.5})	8	January 2, 25, March 29	Regional effects from winter inversion
	1	May 21	Campfire smoke
	1	June 3	Undetermined local source
	2	July 16	Forest fires
	1	August 11	Undetermined local source
	52	August 13-14	Forest fires
	2	August 31	Local construction /harvesting
	1	September 6	Harvesting
	1	December 22	Undetermined local source
	Sulphur Dioxide (SO ₂)*	2	February 9, March 1
26		April 5,9,17,18,23,24,26,27 May 5,10,11,29	Local industry
4		July 7,12,27,30	Local industry
6		August 7, 23, 25, 29, 30, 31	Local industry
Total Occasions	108		

**Ambient SO₂ exceedances were specific to the station adjacent to Agrium Redwater. During its August, 2017 turnaround, Agrium made major equipment replacements in its sulphuric acid plant which has minimized these ambient air events.*

Fort Air Partnership: 24 Hour Exceedances - 2017			
Parameter	Exceedances	Dates	Attributed Cause
Respirable Particulate (PM _{2.5})	2	January 2, 25	Regional effects from winter inversion
	5	July 16	Forest fires
	6	July 20	Forest fires
	9	August 13-14	Forest fires
	6	August 18	Forest fires
	1	November 11	Regional effects from winter inversion
Sulphur Dioxide (SO ₂)*	9	April 5, 13, 17, 18, 22, 23, 24, 27 May 11	Local industry
Total Occasions	38		

**Ambient SO₂ exceedances were specific to the station adjacent to Agrium Redwater. During its August, 2017 turnaround, Agrium made major equipment replacements in its sulphuric acid plant which has minimized these ambient air events.*

Five Year Trend - Exceedances

Parameter Measured		2017	2016	2015	2014	2013
Ammonia (NH ₃)	1-hr	1	0	4	0	0
Benzene (C ₆ H ₆)	1-hr	0	0	2	5	0
Carbon Monoxide (CO)	1-hr	0	0	0	0	0
	8-hr	0	0	0	0	0
Ethyl Benzene (C ₆ H ₅ CH ₂ CH ₃)	1-hr	0	0	0	0	0
Ethylene (C ₂ H ₄)	1-hr	0	0	0	0	0
	3-day	0	0	0	0	0
	Annual	0	0	0	0	0
Hydrogen Sulphide (H ₂ S)	1-hr	0	0	3	0	147
	24-hr	0	0	1	0	29
Nitrogen Dioxide (NO ₂)	1-hr	0	0	0	0	0
	24-hr	0	0	0	0	0
	Annual	0	0	0	0	0
Ozone (O ₃)	1-hr	0	0	3	0	0
Styrene (C ₆ H ₅ CH=CH ₃)	1-hr	0	0	0	0	0
Sulphur Dioxide (SO ₂)	1-hr	38	51	34	26	6
	24-hr	9	9	6	3	2
	30-day	1	2	0	0	0
	Annual	0	0	0	0	0
Respirable Particulate Matter (PM _{2.5})	1-hr	69	35	144	13	15
	24-hr	29	11	27	12	11
Toluene (C ₆ H ₅ CH ₃)	1-hr	0	0	0	0	0
Xylenes (o-, m- and p- isomers)	1-hr	0	0	0	0	0
Total		147	108	224	59	210