

Validating 986 2021.csv against ['986 2020.csv', '986 2019.csv', '986 2018.csv'] ...
05-Apr-2022 (12:08:42) (America/Edmonton)

1. Range in Values Checks

wind_direction_range_validator

(Quadrants with no data)

- January OK
- February OK
- March OK
- April OK
- May OK
- June OK
- July OK
- August OK
- September OK
- October OK
- November OK
- December OK

outlier_validator

(Reported concentrations that fall outside threshold = mean +/- std * 10)

Data validities were checked and confirmed. No further

January Data check criteria not met actions required.

- NMHC: 2021-01-08 11:00:00 0.05 (-0.03688812689407673 .. 0.037547361019137325)
- NMHC: 2021-01-18 17:00:00 0.09 (-0.03688812689407673 .. 0.037547361019137325)
- NMHC: 2021-01-30 05:00:00 0.04 (-0.03688812689407673 .. 0.037547361019137325)

Data validities were checked and confirmed. No further

February Data check criteria not met actions required.

- NMHC: 2021-02-26 09:00:00 0.08 (-0.04842676933970637 .. 0.04931080470112083)

- March OK
- April OK
- May OK

Elevated NMHC concentrations were recorded starting June 27
due to extreme hot ambient temperatures.

June Data check criteria not met

- NMHC: 2021-06-27 20:00:00 0.1 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-27 21:00:00 0.15 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-27 22:00:00 0.12 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-27 23:00:00 0.03 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 11:00:00 0.04 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 12:00:00 0.03 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 15:00:00 0.03 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 16:00:00 0.04 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 17:00:00 0.1 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 18:00:00 0.12 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 19:00:00 0.12 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 20:00:00 0.14 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 21:00:00 0.16 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 22:00:00 0.13 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-28 23:00:00 0.19 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-29 00:00:00 0.16 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-29 01:00:00 0.07 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-29 19:00:00 0.17 (-0.024109991954701853 .. 0.024325466979187648)
- NMHC: 2021-06-29 20:00:00 0.42 (-0.024109991954701853 .. 0.024325466979187648)

Elevated NMHC concentrations were recorded starting June 27 due to extreme hot ambient temperatures. The event end on July 1.

Elevated NMHC recorded between July 7 and 14 were due to wildfire from north Saskatchewan.

Elevated NMHC recorded between July 31 and Aug 4 were caused by BV wildfire.

NMHC: 2021-06-29 21:00:00 0.32 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-29 22:00:00 0.15 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-29 23:00:00 0.06 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-30 15:00:00 0.12 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-30 16:00:00 0.19 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-30 17:00:00 0.39 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-30 18:00:00 0.15 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-30 19:00:00 0.13 (-0.024109991954701853 .. 0.024325466979187648)
NMHC: 2021-06-30 20:00:00 0.04 (-0.024109991954701853 .. 0.024325466979187648)

July Data check criteria not met

NMHC: 2021-07-01 10:00:00 0.02 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-01 14:00:00 0.03 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-01 15:00:00 0.02 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-01 17:00:00 0.02 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-09 20:00:00 0.04 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-09 21:00:00 0.02 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-13 20:00:00 0.07 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-14 20:00:00 0.02 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-31 19:00:00 0.02 (-0.010885119081223747 .. 0.010980927464457281)
NMHC: 2021-07-31 20:00:00 0.04 (-0.010885119081223747 .. 0.010980927464457281)

Elevated NMHC recorded between July 31 and Aug 4 were caused by BC wildfire.

August Data check criteria not met

NMHC: 2021-08-01 10:00:00 0.05 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-01 11:00:00 0.11 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-01 18:00:00 0.13 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-01 19:00:00 0.25 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-01 20:00:00 0.28 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-01 21:00:00 0.23 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-01 23:00:00 0.24 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 00:00:00 0.47 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 01:00:00 0.33 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 02:00:00 0.32 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 03:00:00 0.28 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 04:00:00 0.13 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 05:00:00 0.06 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 06:00:00 0.12 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 11:00:00 0.11 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 19:00:00 0.05 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-02 20:00:00 0.06 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-04 06:00:00 0.29 (-0.0323173921949434 .. 0.03278128254813265)
NMHC: 2021-08-04 17:00:00 0.04 (-0.0323173921949434 .. 0.03278128254813265)

Data validity was checked and confirmed. Elevated concentration was likely caused by local activities.

September Data check criteria not met

NMHC: 2021-09-27 19:00:00 0.02 (-0.0022508022318610808 .. 0.0022609855312500826)

October OK

November OK

Data validities were checked and confirmed. Elevated concentrations were likely caused by local activities.

December Data check criteria not met

NMHC: 2021-12-15 17:00:00 0.2 (-0.02221996646122993 .. 0.022362079204005868)
NMHC: 2021-12-15 18:00:00 0.03 (-0.02221996646122993 .. 0.022362079204005868)

range_of_change_spike_validator

(Reported concentrations that exceed pre-defined max_delta {'CO': 10000.0, 'PM2.5': 50.0, 'NO2': 30.0, 'O3': 50.0, 'SO2': 40.0})

January OK

February OK

March OK
April OK
May OK
June OK
July OK
August OK
September OK
October OK
November OK
December OK

2. Sticking Values Checks

sticking_parameter_validator

(Non-zero values that repeat more than 12 times consecutively)

January OK
February OK
March OK

Data validities were checked and confirmed. No further actions required.

April Data check criteria not met

THC: 2021-04-28 00:00:00 sticking value found 1.9, count = 14
CH4: 2021-04-28 00:00:00 sticking value found 1.9, count = 14

Data validities were checked and confirmed. No further actions required.

May Data check criteria not met

THC: 2021-05-19 21:00:00 sticking value found 1.89, count = 16
CH4: 2021-05-19 21:00:00 sticking value found 1.89, count = 16

June OK
July OK
August OK
September OK
October OK
November OK
December OK

percent_zero_validator

(Reported concentrations that have more than 50% of zeros)

January OK
February OK
March OK
April OK
May OK
June OK
July OK
August OK
September OK
October OK
November OK
December OK

3. Related Parameter Checks

NOX_validator

(| (NO + NO2) - NOX | > 1 ppb or missing one or more concentrations)

January OK
February OK
March OK
April OK
May OK
June OK
July OK
August OK
September OK
October OK
November OK
December OK

THC_validator

(| (NMHC + CH4) - THC | > 0.1 ppm or missing one or more concentrations)

January OK
February OK
March OK
April OK
May OK
June OK
July OK
August OK
September OK
October OK
November OK
December OK

4. Shifts in Data Checks

baseline_shift_validator

(base_historical_mean is greater than 2 * base_target_mean or less than 0.5 *
base_target_mean)

January OK

February Data check criteria not met **Data validities were checked and confirmed. No further actions required.**
TRS: historical_percentile_10=0.1 historical_base_mean=0.014509283819628595
target_base_mean=0.04687878787878782

March Data check criteria not met **Data validities were checked and confirmed. No further actions required.**
TRS: historical_percentile_10=0.1 historical_base_mean=0.08592592592592593
target_base_mean=0.03189189189189188

April Data check criteria not met **Data validities were checked and confirmed. No further actions required.**
TRS: historical_percentile_10=0.1 historical_base_mean=0.07879999999999997
target_base_mean=0.03449115044247777

May OK
June OK
July OK
August OK

September OK
October OK
November OK
December OK

shift_in_mean_validator

(pdiff > pdiff_threshold, pdiff_threshold=100%)

January OK
February OK
March OK
April OK
May OK

Elevated shift-in-mean value was likely due to wildfire
from north Saskatchewan

June Data check criteria not met

NMHC: historical_mean=0.0004806574796612974 target_mean=0.005964912280701752
pdiff=1140.9902130109404% > 100%

July OK

Elevated shift-in-mean value was likely due to BC
wildfire.

August Data check criteria not met

NMHC: historical_mean=0.0004806574796612974 target_mean=0.00530496453900709
pdiff=1003.6891681671768% > 100%

September OK
October OK
November OK
December OK

Done. ... 05-Apr-2022 (12:09:20) (America/Edmonton)
Elapsed 38.15907692909241 seconds.