Air Quality Monitoring Results
Supplementary Data
2014

New Brunswick
Department of Environment
and Local Government
This report provides detailed, site-specific air quality information, and is provided as a companion document to the Department of Environment and Local Government’s “Air Quality Monitoring Results 2014” report, which is available electronically via the DELG website:

www.gnb.ca/environment

Feedback
We are interested in your feedback on this report. All suggestions will be considered, and if possible, incorporated in future reports. You may contact the State of the Environment Branch, Department of Environment and Local Government (DELG) at (506) 457- 4844, by fax at (506) 453-2265 or by e-mail at darrell.welles@gnb.ca with any comments.
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<thead>
<tr>
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<td>H$_2$S</td>
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<td>ng/ m$^3$</td>
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</tr>
<tr>
<td>ppm</td>
<td>Parts per million</td>
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<td>SO$_2$</td>
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<td>TSP</td>
<td>Total Suspended Particulate</td>
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<td>VOC</td>
<td>Volatile Organic Compound</td>
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</table>
PART I:

PROVINCIALY OPERATED AIR QUALITY MONITORING NETWORKS
The Provincial Air Quality Monitoring Network - DELG Stations

LEGEND
- Monitoring Station
- CO: Carbon Monoxide
- Met: Meteorology (Wind Speed, Wind Direction, Temperature, Relative Humidity, Barometric Pressure)
- NOx: Nitrogen Oxides
- O3: Ozone
- PM2.5: Fine Particulate Matter
- SO2: Sulphur Dioxide
- TRS: Total Reduced Sulphur
- VOC: Volatile Organic Compounds
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Carbon Monoxide

Carbon Monoxide Concentration
Aberdeen Street - Fredericton (2014)

Carbon Monoxide Concentration
Highfield Street - Moncton (2014)

Carbon Monoxide Concentration
Customs Building - Saint John (2014)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Nitrogen Dioxide

- **Rough Waters Drive - Bathurst (2014)**
- **Champlain Heights - Saint John (2014)**
- **Customs Building - Saint John (2014)**
- **Forest Hills - Saint John (2014)**

All graphs show the concentration of nitrogen dioxide as the one-hour average (ppb) with a 1 hour standard of 210 ppb.
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Nitrogen Dioxide

Nitrogen Dioxide Concentration
Aberdeen Street - Fredericton (2014)

Nitrogen Dioxide Concentration
Highfield Street - Moncton (2014)

Nitrogen Dioxide Concentration
Hillcrest - Saint John (2014)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Ozone

Ozone Concentration
Rough Waters Drive - Bathurst (2014)

1 hour standard (82 ppb)

Ozone Concentration
Blissville (2014)

1 hour standard (82 ppb)

Ozone Concentration
Canterbury (2014)

1 hour standard (82 ppb)

Ozone Concentration
Customs Building - Saint John (2014)

1 hour standard (82 ppb)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Ozone

Ozone Concentration
Forest Hills - Saint John (2014)

Ozone Concentration
Aberdeen Street - Fredericton (2014)

Ozone Concentration
Fundy Park (2014)

Ozone Concentration
Hillcrest - Saint John (2014)
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Ozone

Ozone Concentration
Lower Newcastle - Miramichi (2014)

Ozone Concentration
Highfield Street - Moncton (2014)

Ozone Concentration
Norton (2014)

Ozone Concentration
Point Lepreau (2014)
PART I: PROVINCIALY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Ozone

Ozone Concentration
HMSC - St. Andrews (2014)

1 hour standard (82 ppb)

Ozone Concentration
St. Leonard (2014)

1 hour standard (82 ppb)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Fine Particulate Matter

Fine Particulate Matter (PM$_{2.5}$)
Rough Waters Drive- Bathurst (2014)

Fine Particulate Matter (PM$_{2.5}$)
Canterbury (2014)

Fine Particulate Matter (PM$_{2.5}$)
Castle Street - Saint John (2014)

Fine Particulate Matter (PM$_{2.5}$)
Champlain Heights School - Saint John (2014)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Fine Particulate Matter

- Forest Hills - Saint John (2014)
- Aberdeen Street - Fredericton (2014)
- Hillcrest - Saint John (2014)
- Highfield Street - Moncton (2014)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Fine Particulate Matter

![Graph showing Fine Particulate Matter (PM$_{2.5}$) concentrations over time. The x-axis represents the months from January (J) to December (D), and the y-axis represents concentration in micrograms per cubic meter (µg/m$^3$). The graph illustrates the fluctuation in concentration throughout the year.](image-url)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Sulphur Dioxide

Sulphur Dioxide Concentration
Champlain Heights - Saint John (2014)

1 hour standard (169.5 ppb)

Sulphur Dioxide Concentration
Customs Building - Saint John (2014)

1 hour standard (169.5 ppb)

Sulphur Dioxide Concentration
Forest Hills - Saint John (2014)

1 hour standard (169.5 ppb)

Sulphur Dioxide Concentration
Hillcrest - Saint John (2014)

1 hour standard (169.5 ppb)
PART I: PROVINCIALLY OPERATED NETWORKS - Continuous Air Quality Monitoring Results

Total Reduced Sulphur

Total Reduced Sulphur Concentration
Forest Hills - Saint John (2014)

Total Reduced Sulphur Concentration
Hillcrest - Saint John (2014)

Total Reduced Sulphur Concentration
Champlain Heights School - Saint John (2014)
PART I: PROVINCIALLY OPERATED NETWORKS - Fine Particulate Speciation - Forest Hills, Saint John

2014 Annual Average Concentration Range Charts

- **PM$_{2.5}$ Speciation - Major Ions**
  Forest Hills - Saint John (2014)

- **PM$_{2.5}$ Speciation - Carbon Species**
  Forest Hills - Saint John (2014)

- **PM$_{2.5}$ Speciation - Trace Metals**
  Forest Hills - Saint John (2014)

- **Fine Particulate Speciation - Woodsmoke and Fugal Tracers**
  Forest Hills - Saint John (2014)
PART I: PROVINCIALY OPERATED NETWORKS - Volatile Organic Compounds, Saint John Region
Air Toxics - 2014 Annual Average Concentration Range Chart

VOC Sampling Locations

- Point Lepreau (Background Reference)
- Forest Hills
- Champlain Heights

VOCs:
- 1,3-Butadiene
- Toluene
- Chloromethane
- Benzene
- Chloroform
- 1,2-Dichloroethane
- Tetrachloroethylene
- Styrene
- Vinylchloride
PART I: PROVINCIALY OPERATED NETWORKS - Volatile Organic Compounds - Saint John Region

Ozone Depleting Substances 2014 Annual Average Concentration Range Chart

VOC Sampling Locations

- Point Lepreau (Background Reference)
- Forest Hills
- Champlain Heights

Chloromethane
Freon22
Chloroform
Bromomethane
Chloroethane
1,1,1-Trichloroethane

Annual Average Concentration (ppb)
PART I: PROVINCIALY OPERATED NETWORKS - Volatile Organic Compounds - Saint John Region

Smog-Forming VOCs - 2014 Annual Average Concentration Range Chart

*Note: Graph displays the 25 highest concentration smog-forming VOCs*
PART II:

ACID PRECIPITATION MONITORING NETWORK
2014 Acid Precipitation Network Map

[Map showing locations such as St. Maure, Robertville, Nictau, Trout Brook, Holtville, Harcourt, South Oromocto Lake, Pennfield, Saint John, Fundy National Park, with yellow circles indicating monitoring stations.]
### Annual Sulphate and Nitrate Wet Deposition (eq/ha/yr) at New Brunswick Monitoring Sites, 2005-2014

<table>
<thead>
<tr>
<th>Site</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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<th>2011</th>
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<th>2013</th>
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-- insufficient data

*49 Weeks

**48 Weeks
## Annual Sulphate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2005-2014

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<th>Site</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
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--- insufficient data
*49 Weeks
**48 Weeks
### Annual Nitrate Wet Deposition (kg/ha/yr) at New Brunswick Monitoring Sites, 2005-2014

<table>
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<td>1.85</td>
</tr>
<tr>
<td>Lakewood Heights</td>
<td>2.03**</td>
<td>2.27</td>
<td>1.59</td>
<td>1.95</td>
<td>1.84</td>
<td>1.35</td>
<td>---</td>
<td>1.22</td>
<td>1.42</td>
<td>1.57</td>
</tr>
<tr>
<td>Fundy</td>
<td>2.53</td>
<td>2.48</td>
<td>1.84</td>
<td>2.29</td>
<td>2.06</td>
<td>1.58</td>
<td>1.89</td>
<td>1.46</td>
<td>1.71</td>
<td>1.81</td>
</tr>
</tbody>
</table>

-- insufficient data
*49 Weeks
**48 Weeks
PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends

Network-wide Average Sulphate and Nitrate Concentration in Precipitation
New Brunswick, 2005-2014

Mean Sulphate and Nitrate Concentration (meq/L)

Number of Monitoring Sites

13 13 13 13 13 12 12 12 12 10

Average concentration
Minimum concentration
Maximum concentration
PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends

Network-wide Average Sulphate Concentration in Precipitation
New Brunswick, 2005-2014

- Average concentration
- Minimum concentration
- Maximum concentration

Number of Monitoring Sites

Mean Sulphate Concentration (mg/L)

0.00 0.20 0.40 0.60 0.80 1.00 1.20 1.40


13 13 13 13 12 12 12 12 12 10
PART II: ACID PRECIPITATION MONITORING NETWORK - Network-wide Annual Mean Sulphate and Nitrate Concentration Trends

Network-wide Average Nitrate Concentration in Precipitation
New Brunswick, 2005-2014

- Average concentration
- Minimum concentration
- Maximum concentration

Number of Monitoring Sites

0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50


13 13 13 13 13 12 12 12 12 10
PART III:

INDUSTRY-OPERATED AIR QUALITY MONITORING NETWORKS
The Provincial Air Quality Monitoring Network - Industry - Run Stations

LEGEND

- Monitoring Station
- NOx: Nitrogen Oxides
- PM2.5: Fine Particulate Matter
- SO2: Sulphur Dioxide
- TRS: Total Reduced Sulphur
- TSP: Total Suspended Particulate
- WD: Wind Direction
- WS: Wind Speed
PART III: INDUSTRY-OPERATED NETWORKS - Glencore, Belledune - Sulphur Dioxide

Sulphur Dioxide Concentration
Glencore - Belledune - Chalmers (2014)

1 hour standard (339 ppb)

Sulphur Dioxide Concentration
Glencore - Belledune - Boulay (2014)

1 hour standard (339 ppb)

Sulphur Dioxide Concentration
Glencore - Belledune - Townsite (2014)

1 hour standard (339 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - Glencore, Belledune - Total Suspended Particulate

Total Suspended Particulate (TSP)  
Glencore - Belledune - Chalmers (2014)

Total Suspended Particulate (TSP)  
Glencore - Belledune - Boulay (2014)

Total Suspended Particulate (TSP)  
Glencore - Belledune - Townsite (2014)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Nitrogen Dioxide

Nitrogen Dioxide Concentration
NB Power Belledune - Belledune East (2014)

Nitrogen Dioxide Concentration
NB Power Belledune - Belledune Municipal Hall (2014)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Fine Particulate Matter

Fine Particulate Matter (PM$_{2.5}$)  
NB Power Belledune - Belledune East (2014)

Fine Particulate Matter (PM$_{2.5}$)  
NB Power Belledune - Belledune Municipal Hall (2014)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Sulphur Dioxide

Sulphur Dioxide Concentration
NB Power - Belledune - Belledune East (2014)

Sulphur Dioxide Concentration
NB Power - Belledune - Jacquet River (2014)

Sulphur Dioxide Concentration
NB Power - Belledune - Madran (2014)

Sulphur Dioxide Concentration
NB Power - Belledune - Municipal Hall (2014)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Belledune - Sulphur Dioxide

Concentration de dioxyde de soufre
NB Power - Belledune - Pointe-Verte (2014)

Norme horaire (339 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Nitrogen Dioxide

Nitrogen Dioxide Concentration
NB Power - Millbank - Lower Newcastle (2014)

Nitrogen Dioxide Concentration
NB Power - Millbank - Rockcliff (2014)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Sulphur Dioxide

Sulphur Dioxide Concentration
NB Power - Millbank - Lower Newcastle (2014)

Sulphur Dioxide Concentration
NB Power - Millbank - Rockcliff (2014)

1 hour standard (339 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Millbank - Total Suspended Particulate

![Graph showing Total Suspended Particulate (TSP) concentration for NB Power - Millbank - Rockcliff (2014)].

- **Concentration - Daily Average (µg/m³)**
- **Daily Standard (120 µg/m³)**
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Coleson Cove - Fine Particulate Matter

Fine Particulate Matter (PM$_{2.5}$)  
NB Power Coleson Cove - Lorneville (2014)

Fine Particulate Matter (PM$_{2.5}$)  
NB Power Coleson Cove - Manawagonish Road (2014)
PART III: INDUSTRY-OPERATED NETWORKS - NB Power, Coleson Cove - Sulphur Dioxide

Sulphur Dioxide Concentration
NB Power Coleson Cove - Grand Bay - Westfield (2014)

1 hour standard (169.5 ppb)

Sulphur Dioxide Concentration
NB Power Coleson Cove - Lorneville (2014)

1 hour standard (169.5 ppb)

Sulphur Dioxide Concentration
NB Power Coleson Cove - Manawagonish Road (2014)

1 hour standard (169.5 ppb)

Sulphur Dioxide Concentration
NB Power Coleson Cove - Musquash (2014)

1 hour standard (169.5 ppb)
Nitrogen Dioxide Concentration
Irving Oil - Grandview West 2 - Saint John (2014)

1 hour standard (210 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - Irving Oil Ltd., Saint John - Sulphur Dioxide

Sulphur Dioxide Concentration
Irving Oil - Grandview West 1 - Saint John (2014)

Sulphur Dioxide Concentration
Irving Oil - Midwood Avenue - Saint John (2014)

Sulphur Dioxide Concentration
Irving Oil - Silver Falls - Saint John (2014)

Sulphur Dioxide Concentration
Irving Forest Products - Saint John (2014)
PART III: INDUSTRY-OPERATED NETWORKS - Irving Oil Ltd., Saint John - Total Reduced Sulphur

Total Reduced Sulphur Concentration
Irving Oil Limited - Midwood Avenue - Saint John (2014)

1 hour \( \text{H}_2\text{S} \) standard (11 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - Irving Pulp and Paper, Saint John - Total Reduced Sulphur

Total Reduced Sulphur Concentration

Total Reduced Sulphur Concentration

Total Reduced Sulphur Concentration
PART III: INDUSTRY-OPERATED NETWORKS - Irving Pulp and Paper, Lake Utopia - Sulphur Dioxide

Sulphur Dioxide Concentration

1 hour standard (169.5 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - Twin Rivers Paper Company, Edmundston - All Parameters

Fine Particulate Matter (PM$_{2.5}$)
Twin Rivers - Edmundston - Cormier School (2014)

Sulphur Dioxide Concentration
Twin Rivers - Edmundston - Cormier School (2014)

1 hour standard (339 ppb)

Sulphur Dioxide Concentration
Twin Rivers - Edmundston - St. Mary's (2014)

1 hour standard (339 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - AV Nackawic, Nackawic - All Parameters

**Fine Particulate Matter (PM$_{2.5}$)**
AV Nackawic - Caverhill Road (2014)

**Sulphur Dioxide Concentration**
AV Nackawic - Caverhill Road (2014)

1 hour standard (339 ppb)

**Total Reduced Sulphur Concentration**
AV Nackawic - Caverhill Road (2014)

1 hour H$_2$S standard (11 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - AV Cell, Atholville - Sulphur Dioxide

Sulphur Dioxide Concentration
AV Cell - Atholville - Beauvista East (2014)

Sulphur Dioxide Concentration
AV Cell - Atholville - Boom Road (2014)

1 hour standard (339 ppb)
PART III: INDUSTRY-OPERATED NETWORKS - Arbec Forest Products, Miramichi- All Parameters

Fine Particulate Matter (PM$_{2.5}$)
Arbec Forest Products - Miramichi - Fire Ponds (2014)

Total Suspended Particulate (TSP)
Arbec Forest Products - Miramichi - Morrison Cove (2014)

Fine Particulate Matter (PM$_{2.5}$)
Arbec Forest Products - Miramichi - Hay Lane (2014)

Total Suspended Particulate (TSP)
Arbec Forest Products - Miramichi - Fire Ponds (2014)
PART IV:

DETAILED STATION LOCATION MAPS
PART IV: DETAILED STATION LOCATION MAPS - Belledune

Belledune Area