



State of Oregon
Department of
Environmental
Quality



Comparison Values for Metals in Air

March 24, 2016

The Oregon Health Authority (OHA) and Department of Environmental Quality (DEQ) worked together to create the table below to provide context for air monitoring results that have been and will be produced by DEQ in Southeast and North Portland.

- **Urban background concentrations** - For each of the metals under investigation, DEQ found a background concentrations for cities reported across the United States. Comparing measured air concentrations against these numbers provides a picture of how Portland's air compares against other cities.
- **DEQ Ambient Benchmark Concentrations** - These numbers are established by DEQ's [Air Toxics Science Advisory Committee \(ATSAC\)](#). They are set very low to be protective of health over an entire lifetime of constant exposure. Because they are set to protect people who are exposed over many year's time, they are not appropriate for comparing to 12- or 24-hour air samples. They are provided in this table as context, as these were the numbers used for comparison to the October 2015 air monitoring data collected by DEQ near Bullseye Glass.
- **Oregon 24-Hour Screening Levels** – These screening levels, developed by other municipalities, were selected by toxicologists at OHA and DEQ because they are designed to be compared against 24-hour samples. They are also based on health endpoints other than cancer, which is important because there is too much uncertainty about the impact of a 24-hour exposure to cancer risk over the course of a lifetime. To establish this list, OHA and DEQ toxicologists chose the lowest from among: 24-hour Ambient Air Limit from New Hampshire's [Code of Administrative Rules](#), Ontario's Ministry of the Environment [24-hour Ambient Air Quality Criteria \(AAQC\)](#), short-term [Environmental Screening Level \(ESL\)](#) developed by the Texas Commission of Environmental Quality, or the Agency for Toxic Substances and Disease Registry's (ATSDR) Acute [Minimal Risk Level \(MRL\)](#).

The Oregon 24-Hour Screening Levels are the most appropriate for comparison against a 12- or 24-hour sample. Since DEQ air monitoring started in early February, 2016, no measured air concentrations have exceeded these levels. This means that current air concentrations in the areas monitored do not pose an acute or urgent public health risk.

Moving forward, all air monitors have been switched to 24-hour collections because they are more appropriate for assessing long-term health risks.

OHA will be evaluating the long-term health risks in combination with air sampling data as part of a comprehensive public health assessment scheduled to be released in the fall of 2016.

In the meantime, DEQ will release any new air monitoring data that is ready on the Thursday of each week starting March 24; it will be posted at SaferAir.Oregon.gov/Pages/What-We-Know.

Metal	Urban background concentrations from National Air Toxics Sites (ng/m³)	DEQ Ambient Benchmark Concentration (ng/m³)	Oregon* 24-Hour Screening Levels (ng/m³)
Arsenic	0.2 - 1.4	0.2	36 a
Beryllium	<MDL	0.4	10 b
Cadmium	0.04 - 0.5	0.6	30 c
Chromium total	1.6 – 4	NA	NA
Chromium +3	NA	NA	500 d
Chromium +6	0.01 to 0.08	0.08	36 e
Cobalt	0.05 - 0.3	100	100 f
Lead	2 -10	150	150 g
Manganese	3.2 - 19.5	90	400 h
Nickel	0.8 - 2.8	4	200 k i
Selenium	0.1- 1	NA	710 j

Footnotes:

ng/m³ = nanograms of chemical per cubic meter of air.

Air Background concentrations are calculated using the average of the 10th and 90th percentiles for national city sites.

* = 24-hr protective value, typically referred to as acute. The most-stringent of three short-term values obtained from New Hampshire, Texas, and Ontario, CA guidance was used as the short-term concentration shown above for each metal. Only non-cancer values were used.

NA = No value available

a - 24-hr Ambient Air Level from New Hampshire Code of Administrative Rules, Chapter Env-A 1400: REGULATED TOXIC AIR POLLUTANTS, Part 1450.01.

b - 24-hr Ambient Air Quality Criteria, Standards Development Branch, Ontario Ministry of the Environment. April 2012.

c - Acute Minimal Risk Level (MRL), Agency for Toxic Substances and Disease Registry (ATSDR) MRLs table dated April 2015.

d - 24-hr Ambient Air Quality Criteria, Standards Development Branch, Ontario Ministry of the Environment. April 2012.

e - 24-hr Ambient Air Level from New Hampshire Code of Administrative Rules, Chapter Env-A 1400: REGULATED TOXIC AIR POLLUTANTS, Part 1450.01.

f - Short-term Screening Level is the same as annual Ambient Benchmark Concentration. It is set based on a non-cancer health effect and should be protective of short-term exposures as well.

g - 24-hr Ambient Air Level from New Hampshire Code of Administrative Rules, Chapter Env-A 1400: REGULATED TOXIC AIR POLLUTANTS, Part 1450.01. This value is based on the National Ambient Air Quality Standard (NAAQS) for lead.

h - 24-hr Ambient Air Quality Criteria, Standards Development Branch, Ontario Ministry of the Environment. April 2012.

i - 24-hr Ambient Air Quality Criteria, Standards Development Branch, Ontario Ministry of the Environment. April 2012.

j - 24-hr Ambient Air Level from New Hampshire Code of Administrative Rules, Chapter Env-A 1400: REGULATED TOXIC AIR POLLUTANTS, Part 1450.01.

k - Air Toxics Science Advisory Committee's 2015-2016 recommended update for insoluble nickel.