



Oregon Department of Environmental Quality

Cleaner Air Oregon Glossary

Community Resource Corner

Air Dispersion Modeling/Air Quality Modeling	<p>An air dispersion model is a mathematical tool used to project (or model) the movement of emissions from an air pollutant source to the surrounding areas. The model uses emissions information along with local meteorological and terrain data to estimate concentrations of pollutants in the air that people could be breathing near the source. The results of these models are typically used to determine compliance with air quality standards.</p>
Air Quality Monitoring	<p>Oregon Department of Environmental Quality (DEQ) monitors air pollutants, including air toxics, to track trends and present air quality data to inform public health decisions. DEQ measures air pollutant levels by operating a network of air monitoring and sampling equipment at more than 40 sites throughout Oregon.</p> <p>The equipment at an air monitoring station can vary from a complex array of continuous monitors operating 24 hours a day, year-round, to a single sampler with a filter that captures particulates once a week. Additionally, DEQ collects meteorological data at these sites which provides important information to determine the sources and transport of air pollutants.</p> <p>Air quality monitoring is done to measure concentrations of pollutants in the ambient air, as opposed to source testing at an industrial facility where emissions of specific pollutants are sampled directly from an industrial stack - this is often referred to as "stack testing."</p> <p>For more information on DEQ's Air Quality Monitoring Network and available data see more here.</p>
Air Quality Permit	<p>DEQ issues permits to allow facilities to emit air pollutants in the state of Oregon. These permits require facilities to perform monitoring, recordkeeping, and recording of their activities and emissions to demonstrate compliance with the federal Clean Air Act. The type of permit is dependent on the amount of emissions, with the largest emitters requiring a Title V permit.</p>
Emissions Inventory (EI)	<p>An Emissions Inventory (EI) is a required technical submittal of the Cleaner Air Oregon (CAO) Program- it contains detailed emissions information from permitted sources including: activities that produce emissions, the amount of emissions in pounds, where emissions come from at a facility, the chemical composition of emissions, and information on how the emissions are controlled or not (such as with pollution control equipment).</p>

Translation or other formats

Español | 한국어 | 繁體中文 | Русский | Tiếng Việt | العربية

800-452-4011 | TTY: 711 | deqinfo@deq.oregon.gov

Emission Rate	This is the specific amount of a pollutant released over time or during some activity – for example, 10 pounds of arsenic per batch, or 5,000 pounds of benzene per year.
Exposure Location	<p>In the CAO Program, this is a location where toxic air contaminant exposure concentrations are modeled and the cancer and/or noncancer health risk from the pollutants is assessed.</p> <p>Exposure locations include homes, workplaces, schools/childcare facilities, and locations where people may spend several hours a day (for example, parks, sports fields, cemeteries).</p>
Exposure Scenario	A set of assumptions about how a population is exposed to toxic air contaminants. Included in the assumptions are the type of people exposed (such as children or adults) and the frequency and duration of exposure associated with the scenario (such as residential or occupational use). Exposure scenarios are associated with exposure locations (such as a daycare center or school).
Excess Cancer Risk	In the CAO Program, “Excess cancer risk” means the probability of developing cancer resulting from exposure to toxic air contaminant emissions over and above the background rate of cancer.* Excess cancer risk is expressed in terms of “X” in a million and means that approximately “X” number of additional cases of cancer would be expected in a population of one million people.
Fugitive Emissions	These are emissions that are not released directly from a point source, such as a stack, vent, or a duct. These emissions are generally difficult to capture and control. An example of a fugitive source of emissions is paint fumes from materials that are drying in an open area.
Hazard index (HI)	<p>Noncancer health risk is measured using a Hazard Index (HI). An HI equal to or below 1 generally indicates exposures at these levels will not lead to negative health effects. An HI greater than 1 means a person may experience health effects. The higher the HI number, the higher the potential risk to health. For example, an HI of 3 means that exposure to a facility’s emissions is 3 times the level that is not expected to harm health.</p> <p>Hazard Indexes can be cumulative or split up based on the effects to specific body organs or systems - for example, mercury’s primary noncancer effect is on the nervous system, while cadmium’s primary chronic noncancer effect is kidney damage.</p>
Hazardous Air Pollutants (HAPs)	<p>The Federal Clean Air Act designates specific chemicals that are known to cause cancer and other serious health impacts as Hazardous Air Pollutants (HAPs). There are 188 HAPs, some of which are pollutant groups and contain multiple individual pollutants. Significant federal regulation of HAPs does not occur unless a facility emits more than 10 tons per year of a single HAP or 25 tons of combined HAPs.</p> <p>Most HAPs are regulated under the CAO Program as Toxic Air Contaminants (TACs), which requires their risk to be assessed at</p>

	any level of emissions (for example, even less than one pound per year).
Modeling Protocol	<p>A Modeling Protocol is a required technical submittal of the CAO Program. This document is developed by the owner or operator of a facility to describe to DEQ how they intend to model emissions from their facility. The Modeling Protocol includes all the information DEQ needs to accurately model air emissions from the facility's activities. This can include stack heights, distances to nearby locations such as homes or schools, and meteorological information.</p> <p>Once approved, the owner or operator will use this information to estimate the exposure levels to Toxic Air Contaminants of people living or working near the facility.</p>
New Facility	A "new facility" in CAO means a facility that was not permitted prior to the original rule adoption in November 2018; or was an existing facility that has moved to a new location after rule revision adoption in November 2021.
Noncancer Risk	"Noncancer risk" in CAO means the chance of noncancer harmful effects to human health resulting from exposure to TAC emissions from a Toxics Emissions Unit (TEU) or an entire facility under an applicable exposure scenario. There are two types of noncancer risk: chronic and acute. Noncancer risk is expressed numerically using the HI (see definition). Below a HI of 1, adverse noncancer health effects are unlikely, and above a Hazard Index of 1, adverse noncancer health effects become more likely.
Prioritization List (for facility call-ins)	<p>At the time of the original CAO rule adoption in November of 2018, DEQ established a process to prioritize a total of 363 permitted facilities. This included all facilities that have Title V, Standard Air Contaminant Discharge Permit (ACDP), or Simple ACDP, and some General ACDP holders.</p> <p>More information about the prioritization process is available here.</p>
Priority List (of TACs)	This list of TACs is considered a priority for investigation in Oregon and currently contains over 600 chemical species. Under CAO, facilities are required to report any and all emissions of these pollutants from their operations and activities. CAO rules require periodic updating of the priority list in order to keep up to date with current scientific findings and emissions data.
Risk Action Level (RAL)	Risk Action Levels (RALs) are thresholds set under the CAO Program which establish the requirements and actions a facility must take based on the outcome of the Risk Assessment. More information about specific actions and risk levels for new and existing sources can be found here .
Risk Assessment	In the context of human health, a Risk Assessment determines the potential cancer risks and noncancer health effects from exposure to chemicals. The process of risk assessment involves four major steps: (1) hazards identification; (2) exposure assessment; (3) dose-response assessment; and (4) risk characterization.

	<p>In the CAO Program, these four Risk Assessment steps are done as: (1) an Emissions Inventory review; (2) air dispersion modeling; (3) comparison of TAC concentrations people are breathing in at a specific location to their Risk Based Concentrations (RBCs); and (4) reporting the final source risk for cancer and noncancer health effects.</p>
Risk Assessment Work Plan (RAWP)	<p>A Risk Assessment Work Plan is a required technical submittal of the CAO Program for those facilities choosing to conduct a Level 3 or Level 4 Risk Assessment. A Risk Assessment Work Plan must include the following:</p> <ul style="list-style-type: none"> • A conceptual site model that identifies all of the TEUs at a facility and all of the exposure locations in the nearby community; • An exposure assessment that indicates the type of exposure scenario at a location around the source. For example: residential, worker, or child; • A risk characterization presenting a calculation of excess cancer, chronic noncancer and acute noncancer health risks associated with human exposure to toxic air contaminant emissions from the source; and • An uncertainty analysis of appropriate elements of the risk assessment.
Risk Based Concentrations (RBCs)	<p>These are health-based standards used in the CAO Program to determine the potential cancer and noncancer health risks to community members at different exposure locations - for example, at homes, schools, or work locations.</p> <p>These concentrations are based on an excess cancer risk of 1 per 1 million exposures and on a Hazard Index of 1 for noncancer health effects.</p> <p>In a Risk Assessment, the modeled concentrations that people are potentially exposed to at different exposure locations are compared against the RBCs to determine the cancer and noncancer risk at each of those locations.</p>
Source	<p>For the purposes of air quality permitting in Oregon, a source means any building, structure, facility, installation or combination thereof that emits or is capable of emitting air contaminants to the atmosphere, is located on one or more contiguous or adjacent properties and is owned or operated by the same person or by persons under common control. For the purposes of this document, the terms facility and source mean the same thing.</p>
Source Risk	<p>The cumulative risk from all TACs emitted at a facility - DEQ uses this risk to regulate TAC emissions.</p>
Source Test	<p>Direct sampling of emissions from a stack or other release point for the purposes of determining site specific emissions information.</p>
Stationary Source	<p>Stationary source means any building, structure, facility, or installation at a facility that emits or may emit any regulated</p>

	pollutant. Stationary source includes portable sources that are required to have permits under Oregon Administrative Rules, chapter 340, division 216.
Toxics Best Available Control Technology (TBACT)	TBACT is a toxic air contaminant emission limitation or emission control measure(s) based on the maximum degree of reduction of toxic air contaminants technologically feasible. This takes into particular account energy, environmental, health, and economic impacts, as well as other costs.
Toxics Lowest Achievable Emission Rate (TLAER)	TLAER is an emissions limitation, similar to TBACT, which applies to new facilities in the CAO Program. The major difference from TBACT is that TLAER must provide the most stringent degree of reduction technically feasible without regard to energy, health and environmental, or economic impacts.
Toxic Air Contaminants (TACs)	<p>Toxic Air Contaminant means an air pollutant that has been determined by the Environmental Quality Commission (EQC) to cause, or reasonably be anticipated to cause, adverse effects to human health and is listed in OAR 340-247-8010 Table 1.</p> <p>The term 'Toxic Air Contaminants' is synonymous with 'air toxics', but is the chosen terminology used in the CAO rules.</p>
Toxic Air Contaminant Permit Addendum (TACPA)	At the end of the CAO Risk Assessment Process, DEQ can establish source risk limits and other permit conditions to regulate the potential health risks from TAC emissions at a facility. In some cases, DEQ will issue a standalone Toxic Air Contaminant Permit Addendum (TACPA) to an existing facility's air quality permit. In other cases, DEQ will put these permit conditions directly in a new or existing facility's air quality permit.
Toxic Emission Units (TEUs)	An activity, process, or piece of equipment at a facility that has the potential to emit TACs.
Toxicology	Toxicology is the study of how chemicals, biological agents, and physical agents can harm living organisms, including humans and the environment.
Toxicity Reference Values (TRVs)	Toxicity Reference Values (TRVs) are health-based standards that DEQ uses to assess negative health effects from exposure to Toxic Air Contaminants - both cancer and noncancer health effects. In the CAO Program, TRVs are the basis for developing the Risk Based Concentrations (RBCs) used for different exposure scenarios.

Acronyms in Glossary:

ACDP- Air Contaminant Discharge Permit

CAO- Cleaner Air Oregon

DEQ- Department of Environmental Quality

EI- Emissions Inventory

EQC- Environmental Quality Commission

HAPs- Hazardous Air Pollutants

HI- Hazard Index

RAL- Risk Action Level

RAWP- Risk Assessment Work Plan

RBCs- Risk Based Concentrations

TACs- Toxic Air Contaminants

TACPA- Toxic Air Contaminant Permit Addendum

TBACT- Toxics Best Available Control Technology

TEU- Toxic Emission Unit

TLAER- Toxics Lowest Achievable Emission Rates

TRVs- Toxicity Reference Values

Non-discrimination statement

DEQ does not discriminate on the basis of race, color, national origin, disability, age, sex, religion, sexual orientation, gender identity, or marital status in the administration of its programs and activities. Visit DEQ's [Civil Rights and Environmental Justice page](#).