



State of Oregon  
Department of  
Environmental  
Quality

# Internal Management Directive

Subject:	IMD Number:
POLICY AND IMPLEMENTATION GUIDANCE FOR THE OREGON AIR TOXICS PROGRAM	AQ.00.014

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## Intent / Purpose / Statement of Need:

This Internal Management Directive describes the procedures and policies DEQ will use in implementing the Oregon Air Toxics Program, including guidance on:

- Implementing the Geographic Program
- Implementing Source Category Rules and Strategies
- Implementing the Safety Net Program

## Authority:

OAR 340-246-0010 through 0230

## Applicability:

- 1) This Directive applies to communities and sources of air toxics emissions throughout Oregon.
- 2) This Directive is intended solely as guidance for Department staff.
- 3) This Directive does not create any rights, duties, obligations, or defenses, implied or otherwise, in any third parties. It is not intended for use in pleading, at hearing, or at trial.
- 4) This Directive does not constitute rulemaking by the Environmental Quality Commission and may not be relied upon to create a right or benefit, substantive or procedural, enforceable by law or in equity, by any person.

## Definitions:

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## Policy:

### BACKGROUND ON THE OREGON AIR TOXICS PROGRAM

In its 2006 National Air Toxics Assessment (NATA) the U.S. Environmental Protection Agency (EPA) estimated that concentrations of sixteen toxic air pollutants in Oregon are high enough to warrant public health concern. In light of this, and other data, the Oregon Department of Environmental Quality (DEQ) established the Oregon Air Toxics Program to systematically identify air toxics problems and set up methods to reduce risk in communities throughout the

state.

The Oregon Environmental Quality Commission (EQC) adopted rules in October 2003 that established the Oregon Air Toxics Program. In August 2006, with the advice of a technical committee, the EQC adopted rules setting ambient benchmarks for 51 air toxics in Oregon based on levels protective of human health that consider sensitive populations. Air toxics benchmarks, expressed as micrograms of a specific toxic chemical per cubic meter of air, are levels that a person could breathe for a lifetime without any non-cancer health effects, and without increasing their cancer risk by more than one in a million.

The Oregon Air Toxics Program uses three complementary approaches to reduce the release of toxics air pollutants: geographic, source category and safety net. The geographic approach relies on affected stakeholders and community members, working with DEQ, to identify toxic air contaminants of concern in a specific geographic area, determine their sources, and develop strategies that will reduce people's exposure to those chemicals.

The source category approach addresses reductions for categories of pollutants statewide. DEQ's initial effort to reduce emissions from a statewide source category was the Oregon Clean Diesel Initiative. Under this strategy DEQ has promoted diesel emission reductions at truck stops, from tug boats and construction equipment, and on school buses.

The safety net approach is for rare industrial "hot spot" problems where a particular facility may not be adequately addressed by federal air toxics regulations or a geographic approach, and emissions cause elevated risk to people nearby.

NATA is the primary source of information about air toxics nationally. NATA was first released in 2002 and was based on air toxics emission data collected in 1996. In the second release of NATA in 2006, data collected for 1999 indicated levels of concern for various air toxics. This data, along with estimates of people's risk from exposure demonstrated potential problems associated with air toxics. EPA generally updates NATA every three years. NATA includes emissions and ambient concentrations for 177 air toxics, plus diesel particulate matter (PM) for every census tract in the nation. It also includes an exposure and risk assessment (cancer and non-cancer) for 133 of these toxics (including diesel PM). NATA uses the latest EPA-approved models for air toxics emissions and pathways, and high quality information about sources of air toxics.

DEQ has monitored for air toxics in several areas of the state. This information, while limited, is useful to validate air toxics modeling estimates. A 1999-2000 monitoring study measured concentrations at five sites in the Portland area for a full year. DEQ conducted an additional year-long air toxics monitoring study in Portland in 2005. Both of these studies followed EPA-approved monitoring methods. The studies demonstrated fairly similar concentrations of most gaseous air toxics, many related to vehicle emissions, throughout the city. Higher concentrations of some pollutants, especially a few metals, were found in localized areas.

DEQ also conducted a modeling study in the Portland Area called the Portland Air Toxics Assessment (PATA), which was adjusted for local topography, weather and emission patterns. This local scale model, coupled with better detail about the location of emissions, including traffic data, gave PATA the capability to predict problem areas within the Portland region. For each pollutant, model estimates were plotted as maps that provided more detail about air toxics concentrations across the region.

## GUIDANCE FOR IMPLEMENTING AIR TOXICS EMISSION REDUCTIONS THROUGH THE GEOGRAPHIC PROGRAM.

### 1. Background on the Geographic Program

In a typical urban area people are exposed to a variety of air pollutants released from off and on-road mobile sources, from large and small businesses, and from common household activities. This urban atmosphere containing multiple pollutants from many sources is sometimes referred to as "urban soup". Exposures to these pollutants can occur throughout the day as people travel around the community, attend school, work, shop, or play. While pollutant concentrations may be very low, the repeated exposures can result in significant health impacts. Determining who is exposed, what pollutants are of concern, how much they are exposed to, and the source of those pollutants is a complex process best taken in steps.

This guidance describes an initial assessment of communities in Oregon likely to experience air toxics problems and the creation of a conceptual model of the multi-source, multi-pollutant problem, including boundary conditions, to begin to address the problems. Additional guidance for analysis, through air monitoring and modeling, and for assessment of exposure and health risk is available. Additional detail and discussion can be found in the US EPA Air Toxics Risk Assessment Library, Volume 3 – Community-Scale Assessment.

## 2. Tiered Assessment

Generally, health risk assessments are conducted in a progressive manner moving from a relatively simple analysis relying on conservative default assumptions (Tier 1) through an intermediate analysis using more realistic information (Tier 2) to an advanced analysis using situation specific information and sophisticated mathematical techniques (Tier 3).

The Department relies on the NATA to conduct what is essentially a Tier 1 assessment. Using statewide emissions inventories provided by ODEQ and other air agencies every three years, the US EPA models ambient air concentrations across the country and then estimates exposures and health risks for each census tract in the nation. Although these studies use high quality emissions information, other features of the model, such as meteorology and topography, do not have the sufficient localized specificity to make these assessments better than screening level estimates.

With results from NATA in hand the prioritization and selection of geographic areas for further analysis is governed by the rules (340-246-0150). "High priority geographic areas, where concentrations of air toxics are more than ten times above the ambient benchmarks or hazard quotient of one" will receive attention first. Factors that must be considered in this prioritization are listed in the rules. For more information on procedures used to form a list of high priority geographic areas and select areas for planning work, see DEQ AQ Internal Management Directive 00.012, "Prioritizing and Selecting Air Toxics Geographic Areas.

In a departure from the usual tiered process, the Air Toxics Program rules require that air monitoring be done in what is essentially a Tier 2 analysis (340-246-0150(2)). Monitoring, as opposed to more refined modeling, was recommended by the stakeholder group advising the Department on rule development. Monitoring is limited in time and location but is generally more acceptable to the public since it provides a measure of actual air toxics concentrations. It has the additional potential advantage of identifying pollutants not captured in the emissions inventory. Monitoring can be used effectively as a complement to modeling by confirming or validating model performance and results, thereby giving credence to the model predictions which will be used later in airshed emissions reduction planning.

The guidance for ambient air toxics monitoring places specific emphasis on constructing a monitoring plan to meet clearly defined objectives. It also recommends that care is given to determining the location of monitors so that these objectives can be met. Fortunately the NATA results provide ambient air concentrations by census tract as a starting point for determining monitor placement. Criteria pollutant monitoring, and knowledge of meteorology, topography, and land use will assist in creating an optimal set of monitoring sites. Guidance for ambient air monitoring is available.

After monitoring has been completed, corroborating that air toxics concentrations are above the ABCs, refined modeling comprises the Tier 3 assessment. This modeling is an essential element that should be done prior to convening the local advisory committee as it will provide a basis for describing the scope of the problem. Developing an emissions inventory specific to the geographic area should be presumed necessary for that modeling work. It may be prudent to have other data analysis results, such as source apportionment studies, available before convening the committee. Guidance for predicting ambient concentrations and for determining exposures by modeling is available. Further guidance for conducting the community-wide risk assessment is also available.

### 3. Geographic Area Boundaries

The Department has considerable discretion in drawing the boundaries for Geographic Areas. While 340-246-0150(4) provides a list of criteria to be considered it also allows flexibility in the boundary setting process. Boundary setting should be done prior to monitoring.

Following the criteria in the rule:

1. model estimates should be used to create isopleth maps delineating the areas where concentrations are greater than the ABC;
2. existing air quality non-attainment or maintenance area boundaries should be mapped;
3. geographic features and topography should be delineated if they limit air flow;
4. areas surrounding influential sources should be included;
5. if not already included, populated areas likely to be impacted should be added;
6. local political boundaries (city, county) should be mapped.

These criteria are not intended to be all-inclusive. Other factors such as current and future land use, and population growth, may also be significant considerations. When a geographic area has been selected for emissions reduction planning the Secretary of State Bulletin Notice will include designation of the boundary for the area.

### 4. Local Advisory Committee

The Department has always been committed to including Oregonians in all aspects of the agency's decision-making and the Air Quality Division has a wealth of experience in working with local citizens to solve community-wide air quality problems. Historically, DEQ has developed a number of attainment plans and maintenance plans to bring criteria pollutant concentrations below the National Ambient Air Quality Standards and to keep them there.

While working on more than one toxic air pollutant might be more technically complex than developing a reduction strategy for a single criteria pollutant, the involvement of the public and the process to follow will be similar. Guidance is available (<http://deq05/intranet/communication/publicinvolvement/overview.htm>) for establishing a stakeholder group and for ensuring that the public is closely involved with strategy development.

## **GUIDANCE FOR IMPLEMENTING AIR TOXICS EMISSION REDUCTIONS THROUGH SOURCE CATEGORY RULES AND STRATEGIES**

### 1. Background on Source Category Emissions

In a typical urban area people are exposed to a variety of air pollutants releases from off and on-road mobile sources, from large and small businesses, and from common household activities. These source types may have a unique relative contribution to the air toxics in each urban area but it is reasonable to assume that many activities will be common to urban areas throughout the state. Examples of such activities include small businesses like gas stations or body shops, and household activities like backyard burning.

### 2. Identifying Source Categories

The Department anticipates that sources potentially amenable to categorical emissions reduction

strategies will become apparent as other aspects of the air toxics program are implemented. This includes emissions inventory development, modeling, monitoring, creating local air toxics reduction plans, and assessing safety net sources. Diesel engines, used in myriad applications, have already been identified as a significant source of air toxics as a result of the 1999 NATA. California's community right-to-know program (AB 2588) has been in place for some time now. It required an air toxics risk assessment by businesses in that state and may also provide some indications of source category types that are important air toxics sources in urban areas.

### 3. Determining Emission Reductions

Once a potential category has been identified, the Air Toxics Program rules provide criteria which the Department should consider when determining if a source category rule is appropriate [340-246-0110]. First, if the category is already covered by a rule or strategy. Second, if emissions can effectively be reduced through regulatory or voluntary means. And third, if the category contributes significantly to benchmark exceedances in several geographic areas. The intent of the criteria is to focus on the practicality of implementation and ensure that there is a level playing field so that polluting practices do not migrate to other areas of the state.

Of course some categories are likely to contribute more pollution or to be significant in more than one place. If several categories present themselves at the same time then finite resources dictate that they are prioritized for consideration. The rules provide no instruction for this process. However, prioritizing criteria are provided in the Geographic Program and can be looked to for guidance [340-246-0150].

Once a source category has been identified for air toxics emissions reductions it is necessary to work on a strategy to accomplish that in consultation with interested stakeholders. If the category includes small businesses, then recent Oregon statute requires an element of that stakeholder process be consideration of costs and benefits.

## GUIDANCE FOR IMPLEMENTING AIR TOXICS EMISSION REDUCTIONS THROUGH THE SAFETY NET PROGRAM

### 1. Background on the Safety Net Program

The Safety Net Program was intended as a remedy for exceptional situations where an industrial source of air toxics causes risk to people nearby and the emissions are not adequately addressed through federal standards, a geographic plan or source category reductions. Because the Safety Net Program can impose emission reduction requirements on individual facilities, there are detailed conditions leading to its use.

### 2. Identification of Potential Safety Net Sources

Generally, health risk assessments are conducted in a progressive manner moving from a relatively simple analysis relying on conservative default assumptions (Tier 1) through an intermediate analysis using more realistic information (Tier 2) to an advanced analysis using situation specific information and sophisticated mathematical techniques (Tier 3).

The Department does not intend to conduct an assessment of point sources throughout the state to determine which ones might be subject to the Safety Net approach.

Earlier in-house discussions suggested that identification of a potential source would probably occur as a by-product of some other action, and might come about either by:

1. Emissions inventory or permit processing information (e.g. NSR) indicating that a potential facility-specific air toxics problem exists; or
2. Public complaints about a specific facility and questions about the localized air toxics impact; or
3. Air Quality staff recognition of an individual facility as a result of either Geographic Area analysis or Source Category evaluation; or

4. Ambient monitoring data showing a pollutant over its ABC, and where the emissions from one facility are likely to be the cause.

As possible sources come to staff attention a determination must be made whether the source is "exempt" based on the Safety Net source criteria [340-246-0190(3)]. At this point DEQ will have conducted what is equivalent to a first tier assessment.

### 3. Monitoring at a Potential Safety Net Source

In a departure from the usual tiered process, the Air Toxics Program rules require that air monitoring be done in what is essentially a second tier analysis (340-246-0190[3]). Monitoring, as opposed to more refined modeling, was recommended by the stakeholder group advising the Department on rule development. Monitoring is limited in time and location but is generally more acceptable to the public since it provides a measure of actual air toxics concentrations. According to the rule, monitoring must show that an ambient benchmark concentration is exceeded at a public receptor and that a particular point source is solely responsible for that ambient concentration.

The guidance for ambient air toxics monitoring places specific emphasis on constructing a monitoring plan to meet clearly defined objectives. It also recommends that care is given to determining the location of monitors so that these objectives can be met. As a consequence, dispersion modeling is an essential step toward developing a monitoring plan. Guidance for both modeling and monitoring is available (IMD # AQ.00.013 ).

### 4. ATSAC Review and Exposure Modeling

Once adequate data have been collected, validated, and summarized by ODEQ to establish that annual average ambient concentrations exceed one or more ABCs, and one particular source is responsible, the Department must present their analysis to the Air Toxics Science Advisory Committee (ATSAC). ATSAC then has the responsibility to review the information within 120 days [340-246-0190(4)]. If they agree with the Department and find that the source is indeed subject to the Safety Net Source requirements, then the Department will notify the company in writing that they are to conduct a facility-specific exposure modeling and health risk assessment [340-246-0190(5) and (6)]. This assessment is essentially a third tier analysis which, after Department and ATSAC review, may lead to no further action or the implementation of emissions reduction efforts by the facility. Specific guidance for this assessment is available (IMD # AQ.00.013).

**VIII. EFFECTIVE DATE**

This Directive is effective on July 2, 2008.

6/17/2008

Date

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Pursuant to OAR 340-200-0020(66)(d)(B)