

**AIR TOXICS ADVISORY COMMITTEE  
FINAL REPORT**

**Oregon Department of Environmental Quality  
Air Quality Division**

June 2002

## **ACKNOWLEDGEMENTS**

We wish to thank the Advisory Committee members for generously volunteering their time and energy. Oregon has benefited immensely from their creativity and thoughtful input from a wide range of perspectives. A thank you to Wayne Lei and PGE for their generous donation of meeting space at the World Trade Center to carry on our discussions. We especially want to thank our Chairman, Dr. Peter Spencer, for bringing scientific rigor, humor, and a firm hand to the Committees proceedings. Our thanks also to the Department's Air Quality Technical Services Section for their assistance in providing emissions data and descriptions of the air dispersion modeling process. Finally, many thanks to numerous individuals in US EPA's Office of Air Quality Planning and Standards who have patiently answered our many questions about EPA's developing health-based air toxics programs, and provided considerable expertise on a range of technical issues.

## **EXECUTIVE SUMMARY**

In November 1998 the Oregon Department of Environmental Quality, Air Quality Division convened a broad-based stakeholder group, as the Hazardous Air Pollutant Consensus Group (HCG) to determine what steps might be taken to protect Oregonians' health and environment from toxic chemicals routinely released to the air. They reached consensus on the general outline of a program that would complement the existing federal Hazardous Air Pollutant program and effectively reduce the impact of air toxics in this state. The recommendations of the HCG were presented to the Oregon Environmental Quality Commission at their meeting in Coos Bay in October 1999 and the Commission directed the Department to continue development of a state program.

Our objective in establishing an Air Toxics Advisory Committee was to move from a program concept, based on a consensus view, to a set of regulations. Again, the Division sought a stakeholder group with a broad variety of perspectives. The Committee's task was to provide the Department with a spectrum of viewpoints as we sought to fill in the details. To accomplish this they needed to:

- Understand the HCG recommendations, state and federal programs, scientific needs, and areas where a state air toxics program can be most effective;
- Communicate with and represent the views of interest group constituents;
- Discuss and resolve controversial issues in draft rule concepts;
- Evaluate alternatives and make recommendations to DEQ on the Science Advisory Panel, Geographic Program and Safety Net Program Rules; and
- Make consensus or "consent"-based recommendations when possible.

During its more than year-long deliberations, at seventeen meetings, the Air Toxics Advisory Committee worked to develop the HCG recommendations. Sometimes they simply provided the details, but more often they broke new ground in areas that had been unresolved, or where they found problems or issues that had not been addressed. Based in large measure on the Committee's recommendations, the Department has drafted a set of rules that will establish an air toxics reduction program for Oregon and carry forward the vision of the HAP Consensus Group.

### **Air Toxics Science Advisory Committee**

The Air Toxics Advisory Committee agreed that an Air Toxics Science Advisory Committee (ATSAC) was needed to lend expertise to the Department in implementing and evaluating the new human health-based air toxics program. Specifically, the Committee recommended that the ATSAC would evaluate and recommend ambient benchmarks, evaluate sources under the Safety Net Program, evaluate program progress, make recommendations for program development, and render advisory opinions on questions of science when requested. This Science Advisory Committee will focus on scientific and technical issues leaving policy and risk management issues to the Department and the Environmental Quality Commission.

Discussions about the state of available scientific information led to a clear recommendation that this Science Advisory Committee limit its work initially to human health considerations. The committee recommended that in the future the Department

should ask ATSAC to consider if, how, and when the air toxics program should be expanded to include the effect of air toxics on ecosystems.

### **Ambient Benchmarks for Air Toxics**

The Air Toxics Advisory Committee recommended that health benchmarks be used to establish ambient concentrations of air toxics that would serve as clean air goals in the Oregon air toxics program. These concentrations resemble criteria pollutant standards only in that they serve as a measurement tool related to human health effects and they trigger the need for emission reduction strategies. The overall objective recommended by the Committee is to achieve air quality that keeps non-carcinogenic air pollutant concentrations below a hazard quotient of one, and carcinogenic air pollutant concentrations at or below a risk level of one in one million.

Ambient benchmark concentrations are to be based on human health risk and hazard levels considering sensitive human populations. For purposes of prioritizing geographic areas and creating more manageable initial program goals, ATAC recommended establishing benchmarks in two tiers. The cancer Tier 1 level for ambient benchmarks is ten in one million ( $10^{-5}$ ) risk of lifetime excess cancer from exposure to an individual compound. The non-cancer Tier 1 level for ambient benchmarks is a hazard quotient of one for an individual compound that is associated with serious and irreversible adverse health effects.

The cancer Tier 2 level for ambient benchmarks is one in a million ( $10^{-6}$ ) risk of lifetime excess cancer from exposure to an individual compound. The non-cancer Tier 2 level for ambient benchmarks is a hazard quotient of one from exposure to an individual compound.

### **Geographic Program**

The central concept in the HCG vision of the state air toxics program was a geographic approach to locating places where human exposures exceed health benchmarks, and designing plans to reduce emissions. Two key issues addressed by ATAC were setting boundaries for those geographic areas and determining in what order those areas would be addressed by the Division.

Ambient monitoring and modeling data have shown that the greatest impacts occur in urban areas where people may be exposed to multiple pollutants coming from a myriad of small sources. In setting a boundary, DEQ expects to look at multiple census tracts within an urban area. Factors that the Committee agreed should be considered in establishing Geographic Area boundaries were:

- Areas of impact (where people are exposed)
- Population density
- Areas of influence (where sources are located)
- Meteorology
- Geography and Topography
- Including all air toxics exceeding Tier 1 and 2 ambient benchmarks

- Coordination with criteria pollutant boundaries for attainment of the National Ambient Air Quality Standards (NAAQS)

The Committee reached consensus on a number of criteria to prioritize Geographic Areas for plan development:

- The number and degree of ambient benchmark exceedances;
- The toxicity of air contaminants exceeding ambient benchmarks;
- The level of exposure and number of people at risk in areas of concern;
- The presence of sensitive populations;
- The effectiveness of local control strategies; and
- To the extent known, the risk posed by multiple pollutants and pollutant mixtures.

A critical issue for a number of Committee members was the need to have timelines for developing a local emissions reduction plan and for accountability in achieving the plan's goals. The proposed rules require that plans are prepared by a local committee and implemented within a given time or the Department will create and implement its own plan for the area. Local emissions reduction plans will have interim milestones with oversight by the Department to ensure they are being met.

### **Source Category Strategy**

The Committee recommended that DEQ focuses its efforts on the geographic strategy, but pursue appropriate source category strategies when the opportunity arises and it is efficient and effective. The proposed rules provide criteria that the Department will consider before a source category approach is taken. These strategies may address the whole state or only selected areas within the state.

### **Air Toxics Safety Net Program**

The HAP Consensus Group intended the Safety Net Program for rare cases of high risk unregulated emissions, generally impacting people in a non-urban area. The Air Toxics Advisory Committee refined the recommendations of the HCG with several criteria that should be used in the initial selection process.

- Ambient monitoring data show concentrations above benchmarks in the vicinity of the source, and that humans could be exposed at these levels.
- Ambient measurements are made in an area outside a business' ownership or control.
- The source's emissions alone can be shown to be causing the ambient concentration of an air toxic to be above the benchmark concentration.
- The source is not subject to a federal National Emissions Standard for Hazardous Air Pollutants that controls this air toxic.
- The air toxic from this source will not be subject to a Geographic Area reduction plan.

The proposed rules include the basic requirement for Safety Net sources to install a Department-approved level of control or reduce air toxic emissions to levels at or below  $10^{-6}$  or a hazard quotient below one. In addition, the Committee agreed that if a Safety

Net source is emitting air toxics causing risk at or above  $10^{-4}$ , or above a hazard quotient of one for serious or irreversible adverse health effects, it must reduce emissions below these levels within one year or must cease the operations associated with the high risk emissions. Emissions reduction plans, for sources above a risk probability of  $10^{-6}$  or a hazard quotient of one, will be incorporated into facility permits affording an opportunity for public review and providing a compliance enforcement tool for the Department.

### **Next Steps**

Following reviews within the Department and development of an implementation plan, the Division will publish notice of the rulemaking in the Secretary of State's Bulletin. Meetings throughout the state and formal public hearings will be held over the summer and early fall. We are targeting rule adoption by the Environmental Quality Commission in December 2002.

## INTRODUCTION

Chemicals routinely released into the air can be hazardous to the health of humans and other living organisms. In November 1998 the Oregon Department of Environmental Quality, Air Quality Division convened a broad-based stakeholder group, as the Hazardous Air Pollutant Consensus Group (HCG) to determine what steps might be taken to protect Oregonians' health and environment from these chemicals. The HCG met as a group over the next seven months. They reached consensus on the general outline of a program, as well as some specific tasks, that would complement the existing federal Hazardous Air Pollutant program and effectively reduce the impact of air toxics in this state. The recommendations of the HCG were presented to the Oregon Environmental Quality Commission at their meeting in Coos Bay in October 1999.

Our objective in establishing an Air Toxics Advisory Committee (ATAC, the Committee) was to move from a program concept, based on a consensus view, to a set of regulations. Again, the Division sought a stakeholder group with a broad variety of perspectives. We wanted an early opportunity to fairly assess the impact that these new regulations would have, as well as to ensure that we were effectively and efficiently protecting public health and the environment from air toxics.

The Air Toxics Advisory Committee first met on December 4, 2000. (see Attachment 1 – Membership List) We explained to the Committee that the Department's goal was to create rules to implement the HCG recommendations. The Committee's task was to provide the Department with a spectrum of viewpoints as we sought to fill in the details. To accomplish this they needed to:

- Understand the HCG recommendations, state and federal programs, scientific needs, and areas where a state air toxics program can be most effective;
- Communicate with and represent the views of interest group constituents;
- Discuss and resolve controversial issues in draft rule concepts;
- Evaluate alternatives and make recommendations to DEQ on the Science Advisory Panel, Geographic Program and Safety Net Program Rules; and
- Make consensus or "consent"-based recommendations when possible.

At that first meeting the Department described how the HCG recommendations encompassed three major components of a state program:

- 1) enhancements to the state's Base Air Toxics Program;
- 2) adoption of a new Geographic Air Toxics Program; and
- 3) adoption of an Air Toxics Safety-Net Program.

These components are summarized below and are shown graphically in Attachment 2.

The Base Air Toxics Program consists of DEQ's current air toxics program and related activities. At the heart of the base program is implementation of the federal National Emission Standards for Hazardous Air Pollutants (NESHAP) program in Oregon. The NESHAP program is expected to significantly reduce emissions of 188

listed Hazardous Air Pollutants (HAPs) from 175 source categories throughout the nation. The existing base program also includes DEQ's criteria pollutant program for VOC and particulate matter, which indirectly results in significant reductions in listed HAPs and other air toxics. In addition, the existing base program includes DEQ's limited initial efforts to compile an air toxics emission inventory and to conduct ambient monitoring for air toxics. Finally, the existing base program includes DEQ's compliance assurance, technical assistance and public involvement programs as support elements.

The HCG recommended that the Department continue to implement the existing Base Air Toxics Program and use its existing authority to recommend rules for source categories as the Department determines that such categorical rules are appropriate. In addition, the HCG recommended a number of enhancements to the base program including:

- significantly expand the emission inventory and ambient monitoring programs;
- establish a scientific advisory panel to guide program implementation;
- improve public involvement; and
- establish program evaluation procedures.

To complement the base program, the HCG recommended that the Commission adopt a Geographic Program to address cumulative emissions of air toxics. This program is needed because the federal NESHAP program is based on an available technology approach; applying control requirements uniformly within source categories. No consideration is given to other sources of the same substance that may be located in a given community, or the cumulative effect they may pose. The Geographic Program, modeled after the criteria pollutant program, would include development of specific local plans to address air toxics in areas that exceed health-based ambient benchmarks to be established by rule. The plans would be developed with the assistance of local advisory committees, considering all sources of air toxics of concern in the area, using enhanced emission inventories and ambient monitoring. The ambient benchmarks will serve as targets for reductions in designated areas. Development of the plans would be scheduled according to adopted prioritization criteria and available resources. Once developed, each plan would be presented to the Commission for approval or adoption.

The HCG recommended that the Commission also adopt an Air Toxics Safety-Net Program to address potentially high-risk emissions from stationary sources. This program would be used in the rare cases where a source of air toxics is causing a health concern, but is not addressed by the Base Program or the Geographic Program. An example would be a large source that falls just below the NESHAP threshold and is outside of an area for which a geographic program strategy is being developed. If the Department determined through monitoring that ambient benchmarks are being exceeded in the vicinity of a source, and demonstrated to the satisfaction of a science panel that a source is a likely significant contributor, the source would be required to conduct a risk assessment. The risk assessment would be used as the basis for establishing source-specific emission reductions. While the HCG envisioned that this program would be invoked rarely, it is an important safeguard to protect public health and the environment in cases where other air toxics programs do not apply.

The HCG believed that in the course of assessing individual stationary sources or while developing geographic area plans certain types of sources were likely to be identified as significant emitters in several parts of the state. They therefore concluded that in some cases a source category strategy might provide the most cost-effective way to achieve emissions reductions.

During its more than year-long deliberations, at seventeen meetings, the Air Toxics Advisory Committee worked to develop the HCG recommendations. Sometimes they simply provided the details, but more often they broke new ground in areas that had been unresolved, or where they found problems or issues that had not been addressed. Based in large measure on the Committee's recommendations the Department has drafted a set of rules that will carry forward the vision of the HAP Consensus Group. Where the Committee reached consensus on issues, the proposed rules reflect that consensus. In the discussion that follows it will be clear which recommendations were based on consensus and which were not.

The Lane Regional Air Pollution Authority (LRAPA) participated in both the HAP Consensus Group and the Air toxics Advisory Committee. The proposed rules will give LRAPA the authority to use benchmarks and other information developed as part of the state program, and to implement the geographic and safety net aspects within their jurisdiction as their resources allow.

The Program Implementation Flow Chart, Attachment 3, shows the steps involved in the three tracks of the proposed state air toxics program; the geographic, the safety net, and the source category approaches.

## **COMMITTEE RECOMMENDATIONS**

### **Air Toxics Science Advisory Committee**

#### **Purpose**

To create the independent science review panel recommended by the HCG, the rules propose an Air Toxics Science Advisory Committee (ATSAC) that will lend expertise to the Department in implementing and evaluating the new human health-based air toxics program. Specifically, the ATSAC will evaluate and recommend ambient benchmarks, evaluate sources under the Safety Net Program, evaluate program progress, make recommendations for program development, and render advisory opinions on questions of science when requested.

The ATAC clearly recommended that this Science Advisory Committee focus on scientific and technical issues. Air toxics policy and risk management issues must go to the Department and the Commission. While the Department is not required to follow ATSAC recommendations, it expects to do so.

Several discussions about the state of available scientific information led to the recommendation that this Science Advisory Committee limit its work initially to human health considerations and the effect of pollutants individually. In the future the

Department will ask ATSAC to consider if, how, and when the program should be expanded to multiple chemical exposures and to include ecological risk.

## **Functions**

### **1. Review of ambient benchmark concentrations**

The Committee recommended that ATSAC assist the Department in prioritizing a list of air toxics for benchmark development. The Department would then propose ambient concentrations that represent the ambient benchmark levels of  $10^{-6}$  for carcinogens and a hazard quotient of 1 for non-carcinogens. The ATSAC will review these recommendations, evaluating the scientific adequacy of supporting data, and give its findings to the Department within six months. In reviewing the recommended benchmarks, the ATSAC will decide on their adequacy for meeting risk and hazard levels considering human health, including sensitive human populations, persistence, bio-accumulation and to the extent possible, multiple chemical exposure pathways. “Sensitive populations” includes individuals in especially susceptible pre- and post-natal periods of development. When information is available on chemical interactions or multiple exposures, the ATSAC will help the Department develop benchmarks that address impacts beyond the initial simplified focus on inhalation of a single air toxic. The ATSAC is not expected to perform original studies or research to support benchmark development. Instead, it will review literature provided by the Department, and from other sources, to determine whether the proposed benchmarks are well-supported.

The Committee wanted to streamline the benchmark process so the ATSAC can make informed recommendations that move the process forward. EPA’s national scale modeling work has focused on 34 air toxics and this will help inform DEQ’s selection of an initial group for ATSAC review. These pollutants have federally-defined benchmarks. If there is any reason to think that federal benchmark determinations are flawed, the ATSAC should have information readily available to quickly identify problems and make corrections.

### **2. Evaluation of Safety Net sources**

The ATSAC will serve as an expert third party to evaluate the selection of sources for the Safety Net Program. Using its health and technical expertise, the ATSAC will review the Department’s proposed selection of sources with air toxics emissions causing benchmark exceedances. The ATSAC will review the data supporting these selections, including ambient monitoring, modeling and emissions inventory. The Department will proceed with the Safety Net Program when the ATSAC concurs that additional evaluation of the source is appropriate. If the ATSAC objects to the selection, the Department may seek concurrence from the Environmental Quality Commission.

Several members of the Committee were concerned that air toxics reduction strategies involving chemical substitution should be scrutinized to make sure that the new chemical does not cause harm. There are examples of chemical substitution where the solution was worse than the problem. The Committee agreed that chemical substitutions recommended as part of a Safety Net source’s reduction plan should be flagged for toxicological review by the ATSAC. This review will be included in the rule implementation guidance.

### **3. Evaluation of program progress**

The Department will work with the ATSAC to develop program performance measures so that the ATSAC can assist with evaluation of progress in reducing emissions of and exposure to air toxics. Technical issues that are beyond the scope of the Air Toxics Advisory Committee and the first iteration of the air toxics rules will be referred to the ATSAC for consideration. Two such issues are how to address the risk from exposure to multiple chemicals and how to address potential adverse environmental effects from air toxics, including persistence, bio-accumulation, and effects on non-human populations. Committee members expressed concern that program evaluation may be hindered by the variability of data quality in large complex data sets.

### **4. Advisory opinions on questions of science**

The Air Toxics Advisory Committee anticipated that local advisory committees may need assistance analyzing and understanding the impacts of air toxics, and the public health benefits associated with proposed emission reduction strategies. If these questions arise, they may be referred to the ATSAC.

### **Membership**

The Air Toxics Advisory Committee reviewed and refined HAP Consensus Group recommendations for ATSAC membership. Six disciplines must be represented on ATSAC, at least five but not to exceed seven members. The Committee recommended an odd number of members to avoid a tie if voting is used, and prefers seven members to afford a quorum of four. The Committee recognized that seven volunteer members from these disciplines may be difficult to find, and that some flexibility should be accommodated. It was recommended that ATSAC members clearly reveal any actual or potential conflicts of interest they may have that might influence their opinions on topics under review, i.e. that state ethics rules apply.

### **Appointment**

Before making nominations for ATSAC membership, the Department will develop a list of candidates by consulting with government and public and private organizations involved in air toxics work. Examples of these organizations are the Lane Regional Air Pollution Authority, the Oregon Health Division, state universities, and the Oregon Medical Association. Members will be appointed by the Commission, or appointment may be delegated to the Director.

### **Term**

The basic term of ATSAC membership will be three years. However the first members of the ATSAC will have terms of different lengths to allow for staggering in future appointments. For example, two of the first seven members may serve for two years, two more for four years, and three for three years. The Committee recommended against limiting reappointment to the ATSAC and suggested that reappointment for one or more terms may be considered for members with significant expertise and commitment.

### **Operation**

The Department will appoint a chair from among the members of the ATSAC. As it does for all advisory committees, the Department will support the staffing and costs of the ATSAC. ATSAC members will serve on a volunteer basis, and be eligible for reimbursement of travel costs to attend meetings. The Committee recognizes that the lack of remuneration for ATSAC members may limit their ability to fulfill requested functions.

The Committee favored honoraria if they are possible, however the Department is not able to provide honoraria without personal services contracts, which would conflict with the appointment process.

### **Procedures, bylaws and decision-making process**

The Committee recommended only a few basic procedures for the ATSAC, allowing them to develop their own as necessary. Decisions by quorum or voting, the ability to obtain a facilitator, and developing a procedure to remove a member for cause are the only requirements in rule.

## **Ambient Benchmarks for Air Toxics**

### **Purpose**

Ambient benchmarks are concentrations of air toxics that serve as clean air goals in the Oregon Air Toxics Program. Ambient benchmarks are unlike the criteria pollutant standards in that they are not associated with direct consequences linked to attainment. However, they resemble criteria pollutant standards because they serve as a measurement tool related to human health effects and they trigger the need for emission reduction strategies. The ambient benchmarks are used as a reference value by which air toxics problems can be identified, addressed and evaluated. Ambient benchmarks will be compared to modeling, EI, and monitoring information to identify potential problem areas. Benchmarks are called “ambient” because they apply to air toxic concentrations wherever the health risk occurs, excluding the work environment covered by OSHA regulations. Benchmarks can be set for any air contaminant; the 188 federally listed air toxics, or others known to pose a risk to public health in Oregon.

### **Risk and hazard levels**

Ambient benchmark concentrations are based on human health risk and hazard levels considering sensitive human populations. For purposes of prioritizing geographic areas and creating more manageable initial program goals, ATAC recommended establishing benchmarks in two tiers. The cancer Tier 1 level for ambient benchmarks is ten in one million ( $10^{-5}$ ) risk of lifetime excess cancer from exposure to an individual compound. The non-cancer Tier 1 level for ambient benchmarks is a hazard quotient of one for an individual compound that is associated with serious and irreversible adverse health effects. The hazard quotient of one is the level at which adverse effects are expected from exposure to non-carcinogens.

The cancer Tier 2 level for ambient benchmarks is one in a million ( $10^{-6}$ ) risk probability of lifetime excess cancer from exposure to an individual compound. The non-

cancer Tier 2 level for ambient benchmarks is a hazard quotient of one from exposure to an individual compound.

Benchmark concentrations can be based on all routes of exposure to the extent they are known and understood. The first set of benchmarks adopted will utilize the best available information, most of which is based on inhalation. Benchmarks are based on risk and hazard levels, so they can be adjusted according to changing scientific information.

The Committee discussed the appropriate risk and hazard levels at length, considering National Air Toxics Assessment (NATA) data to anticipate pollutants of concern and potential geographic areas statewide. At this time, the program considers risk and hazard concentration from individual air toxics.

Tier 1 will be used to identify the first set of geographic areas. Once Tier 1 areas have approved reduction plans the Department will address Tier 2 areas. Tier 2 levels ( $10^{-6}$  and  $HQ=1$ ) will serve as the overall program goals for communities statewide.

The recommendation from most Committee members to establish the over-arching Tier 2 benchmark risk level at a cancer risk of one in a million came after a discussion about risk for multiple pollutants in the geographic program. Members felt that it would be very difficult to implement a risk level for multiple chemicals because of extreme complexity and many scientific uncertainties. Because a risk level was not recommended for multiple pollutants, many members felt that the single pollutant Tier 2 benchmark should be adjusted to add a protective factor covering multiple chemical exposures. Based on the NATA results, using one in a million for single carcinogens includes the same areas that would be included by screening for risk from multiple air toxics at 10 in a million. One in a million is consistent with other environmental programs in the United States and in Oregon.

The situation for non-cancer effects is different. There is no scientific basis to draw a parallel between hazard quotients above one with varying degrees of cancer risk since an exposure above the reference level is anticipated to have an adverse effect. However, for non-cancer causing pollutants a distinction can be made based on the severity or reversibility of the effect. As a way to prioritize geographic areas and to address high risk emissions from Safety Net sources, the Committee was willing to create a parallel between a hazard quotient above one, if the health effect was serious and irreversible, with a cancer risk of ten in a million.

ATAC also struggled with how to handle exposures to multiple non-carcinogens. In cases where the target organ system is the same, multiple chemical exposures could be considered additive. These situations should be addressed on a case-by-case basis. The Committee agreed that the science of multiple chemical exposures for non-carcinogens is still uncertain and that this topic should be considered at a later time by the ATSAC.

### **Ambient benchmark setting process**

The Committee agreed that it was important to ensure that the benchmark setting process had clear steps and milestones established by rule. They agreed that the

Department should have the primary responsibility to set benchmarks but that the ATSAC should be involved where technical review is needed.

### **Prioritization process and criteria.**

Because of the many air toxics of concern, prioritization of pollutants for ambient benchmark setting is an important first step. In general, the highest priority air toxics are those that pose the greatest risk to public health. In consultation with the ATSAC, the Department will prioritize air toxics considering toxicity, exposure, impact on sensitive human populations, the number and degree of benchmark exceedances, and the potential to cause harm through persistence and bio-accumulation. The Committee felt that the criteria provided in the rule would be enough to allow DEQ to do the first ranking, and that a complex matrix was not necessary. Ranking of air toxics is a process independent of the ranking of Geographic Areas and Safety Net sources. However, the prioritization criteria should be consistent where possible.

Practically, there may not be a clear connection between pollutants and clinical conditions like asthma. However, where they are known, these air toxics should receive top priority. Others that are merely suspected to cause health problems should have lower priority.

The ranking process should provide sufficient initial information to start work on benchmarks. Initially, DEQ will be looking at the 188 listed air toxics and the subset of 34 pollutants subject to the National Air Toxics Assessment (NATA), as well as pollutants identified in the Washington and California programs.

The Committee considered whether ambient benchmarks should be established as Department guidance or rules. The Department argued, and ATAC agreed, that they must be placed in rule to ensure that they were subject to public process and not easily changeable.

### **Timelines and accountability**

The process for setting ambient concentration benchmarks incorporates a number of deadlines and accountability measures to ensure progress:

- Within one month of the first meeting of the ATSAC, the Department will propose ambient benchmarks for at least thirty of the highest priority air toxics for review by the ATSAC.
- Once the ATSAC has completed review of each set of proposed ambient benchmarks, the Department will, within 60 days commence the process to propose ambient benchmarks as administrative rules for adoption by the Commission.
- If the Department is unable to propose ambient benchmarks to the ATSAC by the deadlines, the ATSAC will review the most current EPA ambient benchmarks, or the best available information.

- The ATSAC is required to complete review of each set of ambient benchmarks as expeditiously as possible, but no later than six months after the Department has recommended them.
- If the ATSAC is unable to complete review of the ambient benchmarks within six months after the Department's recommendations, the Department will proceed with rulemaking using its recommended ambient concentration benchmarks.

The Committee recognizes that there are certain pollutants where there is more than adequate information, which should allow quick review. Where there is a high level of certainty based on adequate toxicological data, the ATSAC should not be duplicating effort and should make every attempt to complete their review within 60 days.

### **ATSAC considerations in setting benchmarks**

The ATSAC will consider Department recommended ambient benchmarks and evaluate their adequacy for meeting risk and hazard levels, considering human health, including sensitive human populations, persistence, bio-accumulation and to the extent possible, multiple exposure pathways. In this first phase of the air toxics program, ambient benchmarks will be based on human health effects. Later, as better information is available and experience is gained with the program, DEQ and the ATSAC could recommend program changes to include other non-human and ecosystem effects.

### **Review process**

The Department will review all ambient benchmarks at least every two years and, if necessary, propose revised ambient benchmarks to the ATSAC. Yearly review would be preferable to detect any new scientific information that might affect ambient benchmark concentrations. However, the Department feels that given available resources, a two-year review cycle is more realistic. For many of the benchmarks review could simply consist of comparing them with federal or other state levels to detect change.

## **Geographic Program**

### **Purpose**

Although the HAP Consensus Group recommended a geographic approach as a key enhancement to the federal program, they had little scientific information to work with in developing the concept. Development of the National-scale Air Toxics Assessment by the US EPA provided important and timely information that ATAC was able to effectively use in its discussions of the Geographic Program. Results of this assessment showed the Committee modeled ambient air concentrations of thirty three pollutants. Using draft ambient benchmark values, based on the earlier Committee work, it was possible to predict potential areas that might be of concern in various parts of the state. Future assessments done by EPA with 1999 data will provide the basis for the screening analysis that will be done by the Department to initially identify Geographic Areas for further study.

## **Identification of Areas**

ATAC recommended that the Department conduct a screening analysis, using modeling, to evaluate exposures and compare them to the benchmark levels. Geographic areas will be evaluated to determine if they are above the Tier 1 or Tier 2 benchmarks. They recognized that this analysis was not definitive and that other refinements will be necessary to establish boundaries and refine exposure analysis before they can be prioritized for planning activity.

## **Boundaries**

The Committee discussed the factors that should be used in establishing Geographic Area boundaries. Most important was consideration of populations at risk and sources that influenced that impact. Presentation of monitoring data from the Portland area demonstrated that we should expect to see generally homogeneous air toxics in an urban area, with potentially distinct sub-areas influenced by local point or area source emissions. In setting a boundary, DEQ expects to look at multiple census tracts within an urban area. If different point sources are impacting different neighborhoods, a local plan could address them. As a point of reference it was noted that generally, our boundaries for particulate pollution control areas are urban growth boundaries. Ozone control boundaries tend to be large because ozone forms and is transported over a larger area. Factors that the Committee agreed should be considered in establishing Geographic Area boundaries were:

- Areas of impact (where people are exposed)
- Population density
- Areas of influence (where sources are located)
- Meteorology
- Geography and Topography
- Including all air toxics exceeding Tier 1 and 2 ambient benchmarks
- Coordination with criteria pollutant boundaries for attainment of the National Ambient Air Quality Standards (NAAQS)

## **Prioritizing Areas**

With much of the state showing risk levels greater than  $10^{-6}$  for a number of air toxics, and the knowledge that Department resources are finite, the Committee also faced the issue of how to prioritize geographic areas for more refined analysis and development of local reduction plans. Areas will be prioritized by selecting and addressing all the Tier 1 locations first. Tier 2 areas will be addressed after Tier 1 areas have approved local emissions reduction plans. The Committee reached consensus on a number of prioritization criteria to be used within each Tier.

- The number and degree of ambient benchmark exceedances;
- The toxicity of air contaminants exceeding ambient benchmarks;
- The level of exposure and number of people at risk in areas of concern;
- The presence of sensitive populations;
- The effectiveness of local control strategies; and

- To the extent known, the risk posed by multiple pollutants and pollutant mixtures.

There was some discussion about using “level of public interest” as a criterion but it was agreed that this was too subjective a factor to use in this way, although it was acknowledged that it might bear on decisions.

### **Timelines**

An important issue for a number of Committee members was the need for timelines for developing a local emissions reduction plan and for accountability for achieving the plan’s goals.

Members generally agreed that there should be one timeframe that includes convening the committee and getting their recommendations. There was no unanimous proposal on the length of time, but, based on its experience with criteria pollutant processes, the Department thought that one and a half to two years would be adequate. There was concern that it is not possible to put a time limit on committee deliberations if we do not know the size of their task. It would also be a problem if there were no time limit on committee work, because it may not get done. Time limits should be a flexible framework with opportunities for exemptions and negotiating schedules appropriate to the scope of work at hand.

Local communities will probably want to set their own priorities and interim goals. Some members expressed concern about the degree of local flexibility. They felt there should be a clear understanding about what the goals are and how the local community would be held accountable for meeting these goals. It was generally agreed that the Department and the local communities could enter into agreements to create a plan and reduce emissions according to negotiated deadlines.

One concern raised by the Committee was what should be done if a local committee was unable to recommend a plan. There was agreement that in such a case, development of a local emissions reduction plan would default to the Department.

### **Environmental Quality Commission Role**

Another important consideration was whether local air toxics reduction plans should go to the Environmental Quality Commission for formal adoption. Since many elements of a local plan could be carried out by local government, and since in some cases the best solutions at the local level may not fall within the EQC’s purview, there was some sentiment for not requiring an approval process. In addition it was noted that a significant pollutant source in most urban areas was motor vehicles and that many applicable emissions reduction options are reserved for the federal government.

Ultimately the Committee agreed that local air toxics reduction plans should be presented to the EQC for review and approval, as long as this does not limit plans to elements within EQC authority. Plans should be primarily the ownership of the community and not the EQC, since a plan originating in a community would have more broad-based support than a Department plan. To ensure this, plans should be adopted at

the local level if possible. The Commission should subsequently approve local plans and, when necessary, adopt regulations that implement portions of the plan that are within its authority.

There was an additional suggestion by ATAC that local committees might want to make legislative recommendations that would not necessarily be adopted by the EQC.

### **Local Emissions Reduction Plans**

The Committee had considerable discussion about the length of time local communities would have to accomplish the ultimate public health goals of the local reduction plan. Their final consensus recommendation was that plans should have a goal of achieving less than  $10^{-6}$  risk for cancer, or less than HQ of one for non-cancer effects, within ten years when feasible, demonstrating continuing progress toward that goal with emissions reduction assessments every three years. Plans must include program performance measures corresponding to the specific recommendations.

Some members felt that a ten-year goal was too long a timeframe since local committee members may not remain in service that long and it could be difficult to have continuity over ten years; some members liked the fact that there is a fixed timeframe. It was suggested that a sliding process from voluntary towards regulatory measures should be used in conjunction with milestones. Other members were more comfortable with a subjective standard where increments of progress would be tracked according to a local plan, but no standard rate of progress would be required. It was not clear how environmental justice issues would be addressed if communities had different air toxics reduction goals and people in some areas were better protected than others. An objective standard, like the Department's proposal, gives a better assurance that there is some movement towards benchmarks. In certain situations, technology to control emissions may not exist. Members suggested that program rules emphasize the three-year evaluation cycle, rather than the ten-year goal.

However the Committee agreed that if the ten-year goal cannot be met for certain pollutants, the local plan should contain clear explanations. It was further recommended that the Department should develop criteria based on economic or technical feasibility that would allow slower reductions of certain pollutants. Members agreed that with or without a uniform goal, local plans should explain their expected rate of progress with each pollutant of concern and identify issues that could be barriers to reaching goals.

### **Voluntary and Mandatory Measures**

The HAP Consensus Group had recommended that local emissions reduction plans incorporate both voluntary and mandatory measures. Most State Implementation Plans for criteria pollutants contain both voluntary and mandatory measures and Department staff reviewed a list illustrating the spectrum of incentives and disincentives that could be employed. The Committee generally agreed with the HCG and recognized technical assistance to businesses as an important service provided by the Department. The Department will also provide technical assistance to local committees and possibly find grants for local work. Incentives to improve productivity and address technological problems could offset the burden of emission reductions and make businesses more likely

to participate. The cost of using low pollution technology is often a barrier. Local plans should try to remedy competitive disadvantage and emission reduction costs.

While local committees are encouraged to develop plans that will reduce pollutant emissions so that exposures result in less than one in a million cancer risk and a non-cancer hazard quotient of one within ten years, ATAC recognized that this will not be possible in all cases. Local plans will need to take economic, political and technological feasibility into account. Every three years the Department will assess the effectiveness of the local plan at achieving emissions reductions and make recommendations for plan revisions if needed to meet milestones, or if new information about pollutant exposures or toxicity make changes necessary.

If the Department finds lack of progress after the first milestone, it will work with the local advisory committee to design and implement measures that will achieve the desired emissions reductions. If the Department finds lack of progress after the second three year review, and projects that the local plan's ten year goal will not be met, it will impose mandatory emissions reduction measures. If voluntary measures are judged ineffective, DEQ would either work with the local committee to establish local ordinances or go to the EQC to adopt state regulations. The Committee agreed with the Department's preference to avoid traditional regulatory strategies, but expects situations where they will be necessary for accountability and progress.

Concerns were raised by the Committee that a local plan could be ineffective for reasons other than its voluntary nature. They felt that it was important to give communities flexibility, while at the same time the Department should be able to apply pressure and assure progress if something is not working. The Committee asserted that the Department needs to be sensitive to communities without removing the hammer. The Committee also expressed concern that mandatory measures prescribed within a geographic area might drive business to other areas and recommended that local groups be cautious of such unintended consequences.

Other concerns voiced by Committee members included the constraints on state and local agencies' authority to reduce emissions from mobile sources, especially cars and trucks, and striking an appropriate emissions reduction balance among the sources considered responsible for the air toxics problems. The Department stated that it had some authority to address mobile source emissions reductions, and that control strategies developed for criteria pollutants often provided air toxics benefits as well. The Committee agreed that it should be incumbent on local planning groups to seek a balance in the strategy they select.

## **Source Category Rules and Strategies**

Source Category strategies and rules are tools that are secondary to the Geographic Program. DEQ will focus most on the geographic strategy, but will pursue appropriate source category strategies when the opportunity arises. The Department clarified the ways in which it could identify the need for a source category approach and the criteria that it would consider. They could include information from the emissions

inventory, modeling or monitoring, from development of a Geographic Plan, or from implementation of the Safety Net program. After identifying the need for a source category approach the Department would consider the criteria now included in the rule. The flow chart in Attachment 4 provides an overview of the process.

## **Air Toxics Safety Net Program**

The HAP Consensus Group intended the Safety Net Program for rare cases of high risk unregulated emissions. From industry's perspective, EPA and DEQ already administer rules to regulate air toxics for large point sources and various area sources. The HCG agreed that large point sources were fairly well addressed by the federal National Emissions Standards for Hazardous Air Pollutants program. Geographic areas were their focus because they considered multiple sources emitting within an urban area as the biggest problem. The Safety Net Program was intended to address the case of a source impacting people in a non-urban area. There may not be any sources that fall into the Safety Net Program, or they may be identified only once in a while.

Attachment 4 provides a schematic overview of the process for identifying and controlling the emissions from a Safety Net source.

### **Initial Identification**

The Committee refined the recommendations of the HAP Consensus Group on several criteria that should be used in the initial selection process.

- **Ambient monitoring data show concentrations above benchmarks in the vicinity of the source, and that human exposure at these levels can occur.**  
The Department will look at monitoring results in the area of maximum expected exposure of human populations; areas currently or reasonably likely to be inhabited by humans.
- **Ambient measurements are made in an area outside a business' ownership or control.**  
The Department does not have authority over workers' exposures at their workplace but is concerned about areas to which the general public has reasonable access.
- **The source's emissions alone can be shown to be causing the ambient concentration of an air toxic to be above the benchmark concentration.**  
The Department will be looking for sources causing above one in a million risk or a hazard quotient of one for individual pollutants at the point of highest expected exposure. (The geographic program also considers highest expected exposure but based on modeling.) Selection is based on a single pollutant because of the complications of considering cumulative risk from multiple pollutants.
- **The source is not subject to a National Emissions Standard for Hazardous Air Pollutants (NESHAP) that controls this air toxic.**  
Some air toxics may not be controlled at a source subject to a NESHAP and may pose the potential for harm.

- **The air toxic from this source will not be subject to a Geographic Area reduction plan.**

If an area is not considered as a Tier 1 Geographic Area a source within that area could be considered for the Safety Net program.

Public health was clearly the driver for this aspect of the program , although there were different views about how to determine the health impact of a source. Consideration of any ecological impacts will be slated for future evaluation by the ATSAC. The concept of scientific defensibility was discussed, and was taken to mean that decisions are based on science rather than policy. In light of that, the Committee felt strongly that the ATSAC should review the Department's decisions on Safety Net source selection prior to the source conducting a risk assessment.

In the course of the discussions the Department suggested that proposed new sources might be assessed for their potential to become Safety Net sources during permit review. There was no agreement on whether that should occur, although the Committee agreed that new sources should be informed that they could become subject to this program if they met the criteria. They felt that the presence of regulations for existing Safety Net sources could be enough of a disincentive to prevent new sources from starting up and eventually falling into the Safety Net program. Local emission reduction plans could also be written in ways that would prevent start-up of a new air toxics source in a Geographic Area.

### **Risk Assessment**

The Committee agreed that once a source was identified as a Safety Net source it was the source's responsibility to conduct a risk assessment for their facility. There were concerns about a source doing its own risk assessment but the Committee agreed that the Department should prepare guidance for sources to use and that the Department should review and approve assessments. To maintain consistency with the goals of the Geographic Program, the Committee also agreed that any source responsible for an excess cancer risk greater than  $10^{-6}$  or a non-cancer HQ of one or greater should be required to reduce its health impact.

The Committee discussed what to do if the risk assessment indicates that no reduction is required. The Department indicated that they would notify people who had expressed interest in the facility of the results of the assessment and the Department's determinations.

### **Emissions Reduction Plan**

ATAC considered how the timing and degree of emissions reduction would be determined once the risk assessment showed that reductions were needed. A clear consensus emerged from the Committee that some level of cancer risk or very serious and irreversible non-cancer effects were unacceptable even in the short term. Such a facility should curtail its operations or shut down the process causing that hazard. Most of the discussion by the Committee revolved around how sources posing some hazard to the

community could reach an acceptable level; what process they would use to select an emissions reduction method, and how long they could take to do it.

Since the Department expects to identify source category reduction measures for high-risk emissions sources (like diesel), the risk reductions from those approaches could occur during approximately the same time frame as Safety Net Source emission reductions. Reductions could be viewed as unfair to a Safety Net source in the short run, but eventually DEQ would expect to get equivalent emission reductions from all sources through the Geographic, Source Category, and Safety Net strategies.

It is generally recognized that not all toxic air pollutants, and their effects, are equal. For this reason the Committee struggled with defining requirements for emissions reductions. Taking a case-by-case risk assessment approach makes intuitive sense, but could be subject to political winds. For existing sources, retrofit cost may be significant. For some sources, the only choice may be to shut down because their process revolves around the chemical in question. On the other hand, since toxic effects can be irreversible and can result from very low exposures, it is hard to apply a cost per ton of control guidance number to them, as is done for criteria pollutant control. Pollution prevention techniques should be considered but not be required.

The basic requirement for Safety Net sources is to reduce air toxic emissions so that ambient concentration levels are at or below  $10^{-6}$  cancer risk, or below a hazard quotient of one, in three years or as soon as feasible. However, if a Safety Net source is emitting air toxics causing cancer risk above  $10^{-4}$  or non-cancer hazard above a hazard quotient of one, with very severe or irreversible adverse health effects, it must reduce emissions below these levels within one year. Sources unable to meet this requirement must cease the operations associated with the high risk emissions.

The Committee reached consensus that Safety Net sources may be required to achieve emission reductions faster than the timeline in Geographic Areas. They also agreed that if a Safety Net source cannot achieve the acceptable risk level in three years, there should be a long-term plan to reach one in a million.

Eventually the Committee came to a consensus that application of Best Available Control Technology for Toxics (TBACT), following an evaluation process similar to that used in many other states for new sources, would be required if a source could not reach the acceptable risk or hazard level using other methods. In this case TBACT analysis will factor in retrofit costs since the Safety Net program applies to existing sources.

Committee members agreed that if TBACT takes a source to a cancer risk at or below  $10^{-6}$  or a hazard quotient of one, then it is done. A source can avoid implementing TBACT if it can demonstrate to the Department that it can achieve this level of emissions reduction within three years using another method. If TBACT does not result in the required risk reduction, the source will be required to perform reanalysis upon permit renewal. The requirement for TBACT reanalysis every five years may be an impetus to achieve greater risk reduction up-front. Five years would match permit renewal cycles, and technology may not change much in three years. The re-analysis cycle could be negotiated with a source because needs will be different in each case.

## **Permit Revision**

The Committee also reached consensus that all emission reduction measures should be incorporated into the source's permit. This process would ensure that the public would have an opportunity to review the reduction proposal and provide comment. The Department proposed that once emission reduction measures are drafted, there would be informational meetings to help people understand modeling and proposed emission reduction measures. Then, there would be a scheduled hearing on the permit additions with opportunities for discussion. Local health agencies should be informed about the assessment and the emissions reduction plan.

## **Relationship of the Safety Net Program to the Geographic Program**

Concern was expressed about excluding potential Safety Net sources within geographic areas when a local emission reduction plan may not adequately address problem stationary sources. The Geographic Program should be revisited to assure that a local plan can and will address neighborhoods in a geographic area that are disproportionately impacted by point sources. Local committees should be considering these situations and therefore a geographic area would pick up point sources that might otherwise qualify for the Safety Net program in their planning.

Some members believe that the HCG may have been anticipating a much smaller geographic area, where a local plan can address all of the sources in that area. Expanding to a larger geographic area may sacrifice the ability to focus on point sources that greatly affect neighbors. In a smaller geographic area, the locals would have much more voice in the emission reduction planning process. In a larger area, their voices would be diluted, and there could be no ability to focus on sources affecting neighborhoods. Emission reduction targets in a large geographic area may be different from those in a smaller neighborhood-based area. It is probably more cost effective for DEQ to work with larger geographic areas. After gaining experience and understanding through implementation of the whole air toxics program, the Department might decide there was a need to go back and amend the Geographic Area and Safety Net concepts.

Members discussed the Department's proposal about consideration of risk and hazard from surrounding sources in Safety Net source selection and developed the following examples.

**Example one:** If on a single pollutant basis the risk contribution from other surrounding sources is below one in a million or a hazard quotient of one, then it should not interfere with Safety Net Source selection when its risk is above one in a million or a hazard quotient of one. DEQ should at a minimum qualitatively assess risk contributions surrounding a Safety Net source and work to reduce them. A Safety Net source should not have to reduce its emissions to compensate for risk from surrounding sources.

**Example two:** If on a single pollutant basis the risk contribution from other sources is above one in a million or a hazard quotient of one, and source specific risk

assessment shows that risk and hazard from the Safety Net source is below one in a million or a hazard quotient of one, then the Geographic Program should be used.

**Example three:** If on a single pollutant basis the risk from a Safety Net source is above one in a million and a hazard quotient of one, and risk from other surrounding sources is above one in a million and a hazard quotient of one, then the Department should use the Geographic Program when feasible. The Department should use the Geographic Program if the area has been designated as a high priority area. We would not designate it a high priority area if problems were due to uncontrollable background contributions.

## **NEXT STEPS**

May - June 2002	Internal Department Review
June – July 2002	Public Meetings (Portland, Medford, Bend, Salem, Eugene)
August 1, 2002	Notice of Proposed Rules in Secretary of State Bulletin
August – September	Public Hearings (Portland, Medford, Bend, Salem, Eugene)
October 2002	Internal Department Review
December 13, 2002	Adoption of Rules by Environmental Quality Commission

# ATTACHMENT 1

## AIR TOXICS ADVISORY COMMITTEE

### MEMBERSHIP

#### **Chair**

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Willie Tiffany  
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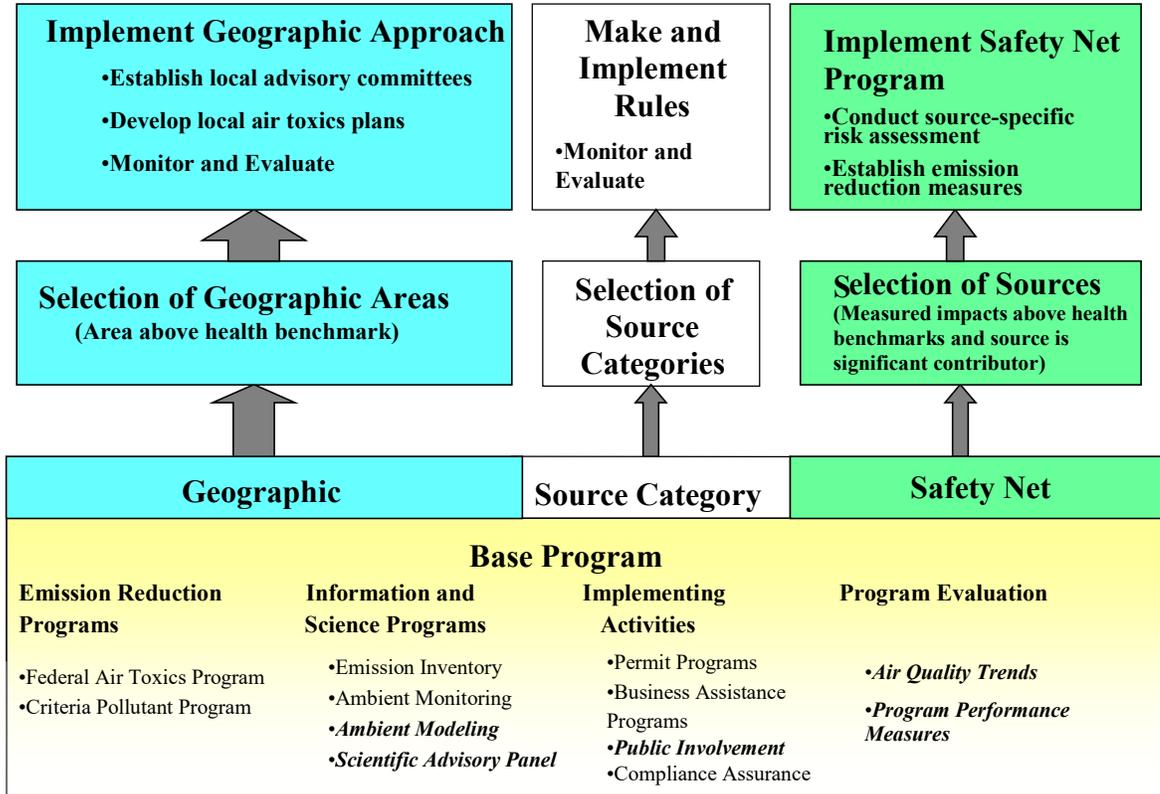
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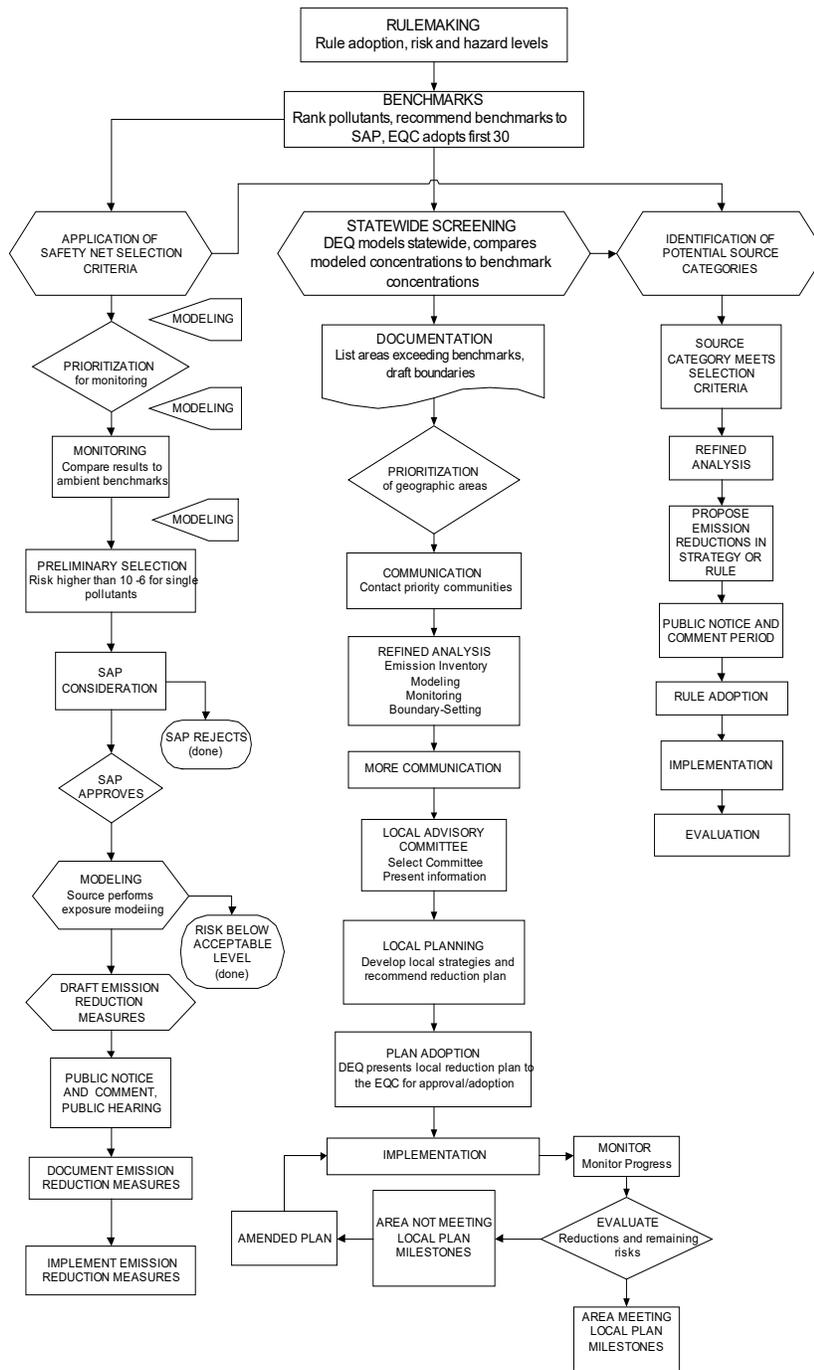
# ATTACHMENT 2

## HCG Recommended Oregon Air Toxics Program



# ATTACHMENT 3

## Proposed Air Toxics Program



# ATTACHMENT 4

Source Category Strategy Decision Tree

3/11/02 ATAC  
Revised 4/9/02

