July 31, 2026

Oregon Department of Environmental Quality
Attention:
Apollonia Riberdy, Rule Manager
J.R. Giska, Cleaner Air Oregon Program Manager

BY EMAIL TO: CAOTRV.2026@deq.oregon.gov
RE: Cleaner Air Oregon Toxic Air Contaminant Review and Update

Dear Dear Ms. Riberdy, Mr. Giska, and DEQ staff:

We, the undersigned, are members of the Cleaner Air Oregon Toxic Air Contaminant Review and Update 2026 Rulemaking Advisory Committee who represent organizations and community leaders that advocate for clean air and environmental justice in Oregon. We jointly submit the following comments, along with the attached technical comments from Dr. Ron Sahu.

I. Cleaner Air Oregon has been a success

Since its inception, the Cleaner Air Oregon (CAO) program has effectively closed critical regulatory gaps for air toxics, reduced emissions of harmful contaminants in Oregon's most vulnerable communities, provided opportunities for frontline neighborhoods to participate in the air permitting process, and ultimately resulted in important new public health protections across the state. To date, 136 facilities around Oregon have completed Risk Assessments, ensuring during the air permitting process that frontline communities are adequately protected from toxic air emissions. For the first time, toxic metals such as arsenic and cadmium are adequately accounted for in the air permitting process, with a robust regulatory process in place to ensure that preschools, residences, workplaces, and parks are sufficiently protected. These are important victories to be celebrated.

Now, through the present rulemaking, DEQ is proposing–as required under CAO regulations–reasonable, scientifically sound updates to several Toxicity Reference Values, all designed to further strengthen the program and ensure that DEQ, permitted facilities, and impacted communities are using the best available science to assess risk. In coordination with OHA and ATSAC, DEQ has undertaken a multi-year process to identify new and updated TRVs. Throughout, DEQ ensured the ATSAC process was conducted with scientific experts without a conflict of interest, allowing accurate science to establish true risk levels for communities, without allowing interest groups to bias the findings. This process has been robust, inclusive, and transparent, and we urge DEQ to finalize the new TACs and TRVs as proposed.

Unfortunately, in its July 16, 2026 letter, Oregon Business & Industry goes to great lengths to try to frame the Cleaner Air Oregon (CAO) program as a complex, costly, and ineffective program–and to urge DEQ to further delay these updates. It is critical that DEQ disregard this request. First, as explained further

below, DEQ has not been given discretion in this situation to postpone this rulemaking any further. When, as is the case now, DEQ has identified new or updated TRVs for toxic contaminants from the listed authoritative sources, it must propose updated rules that reflect these values. And from an economic perspective, Oregon *can not afford* to postpone these updates: the public health costs from toxic air pollution–costs that are nowhere to be found in OBI's fiscal impact analysis–are enormous, making it even more critical that the state is applying the best available science to assess risk. It is time to finalize this rulemaking, to further strengthen this important program and protect Oregon communities.

II. Oregon Regulations are Clear that DEQ Must Conclude this Rulemaking Promptly

DEQ must move quickly to finalize these TRV updates. In November 2021, the EQC approved new rules establishing the process for reviewing and updating TRVs. These rules, at OAR 340-247-0040, require DEQ to review the TRVs and TACs every three years, and to propose amendments to the TRVs to reflect any changes to the values that have been published by the program's listed authoritative sources. *See* OAR 340-247-0040(3)(a). It has now been nearly five years since these new rules were established; DEQ has fallen well behind on its obligation to update the TRVs, and it is essential that the current process conclude expeditiously.

Contrary to OBI's July 17 letter, the applicable regulations at OAR 340-247-0040 do not give DEQ "significant discretion" to delay this rulemaking any further. DEQ, in partnership with OHA and ATSAC, has now completed a scientifically rigorous, multi-year process to recommend updated TACs and TRVs, as required by regulation. But now that the end of this process is in sight—again, well past the regulatory deadline—OBI argues that DEQ should further postpone the rulemaking. As support for this argument, OBI points to the "as appropriate" language at 340-247-0030(3), stating that this language gives DEQ "significant discretion" to either propose the rule amendments or not.

This is simply a misreading of the relevant regulatory language. Read in context, it is abundantly clear that OAR 340-247-0040 does *not* give DEQ discretion as to when or whether to propose new rule amendments to update the TAC list and TRVs. Instead, that section explicitly identifies the circumstances under which DEQ must propose such amendments:

> (3) OAR 340-247-8020 Table 2, Toxicity Reference Values. Every three years starting from November 16, 2018, or as necessary, DEQ, in consultation with OHA, will begin review of the toxic air contaminants and Toxicity Reference Values published by the authoritative sources listed in OAR 340-247-0030 for changes since the last review. DEQ will propose rule amendments to implement one or more of the following actions, as appropriate:
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> > (a) Revise Toxicity Reference Values for toxic air contaminants listed in OAR 340-247-8020 Table 2 if Toxicity Reference Values have been revised by authoritative sources listed in OAR 340-247-0030 or if indicated as part of the petition process established in section (4);
> >
> > (b) Add toxic air contaminants to OAR 340-247-8020 Table 2 if Toxicity Reference Values have been generated by authoritative sources listed in OAR 340-247-0030 for toxic air contaminants on the Priority Toxic Air Contaminants List in OAR 340-247-8010 Table 1; and
> >
> > (c) Remove or revise toxic air contaminants from OAR 340-247-8010 Table 2 if some or all authoritative sources listed in OAR 340-247-0300 have rescinded Toxicity Reference Values for that toxic air contaminant without providing a replacement;

The language above is clear: every three years, after DEQ consults with OHA to review TACs and TRVs published by authoritative sources, 340-247-8020 requires DEQ to propose rule amendments to update the lists of TACs and TRVs accordingly—stating plainly that DEQ "will" propose such amendments when certain circumstances are present. Rather than giving DEQ discretion to propose amendments or not, the "as appropriate" language instead points to the three types of situations where DEQ *must begin the rule amendment process*. In other words, the situations where it is "appropriate" to begin the update process are specifically spelled out right below the words "as appropriate": a) if TRVs have been revised by authoritative sources; b) if TACs have been generated by authoritative sources for new contaminants; or c) if authoritative sources have rescinded TRVs for a contaminant.

As discussed elsewhere in these comments, DEQ has undergone a lengthy, scientifically sound process for identifying revisions to TRVs by authoritative sources. The regulatory language is clear that under these circumstances, DEQ must move forward with rulemaking to update these TRVs. Contrary to OBI's July 17 letter, the DEQ is not given discretion to postpone this rulemaking process—already well past the regulatory deadline—any further.

Commenters want to emphasize that OBI's suggestions to restart the rulemaking process for chemicals that may present implementation challenges, including PFAS and silica, is simply not compatible with CAO program regulations or with the intent of this program. As discussed elsewhere in these comments, DEQ has undertaken a robust, scientifically sound process to update TRVs for each of these chemicals. Delaying this process further would not result in better science, and would subjugate community health to the convenience of the regulated community.

III. Implementation Issues

Proposed Change to the CAO Process for Existing Sources. The CAO program requires sufficient funding and close cooperation with industry partners in order to operate efficiently and in a timely manner. Commenters are concerned with the slow rate at which existing sources move through the program, and believe that slow responses to requests for production, delays, and legal maneuvering from industrial facilities regularly contribute to the lengthy CAO process. We believe that DEQ does not desire to be a bottleneck for CAO permitting, but DEQ staff does need information from applicants in order to conduct their technical review and analysis of potential impacts to air quality and human health. Reluctance from industry applicants to share this information slows down the CAO process.

To make the permitting process more efficient for existing sources, Commenters recommend that DEQ move to a submission framework similar to the one currently in place for new sources moving through the program. Often, new sources–eager to start operating–will submit Emissions Inventories, Modeling Protocols, Risk Assessment Work Plans, and Final Risk Assessments all at the same time. In many cases this would be appropriate for existing sources as well, and would allow DEQ staff and facilities to avoid getting hung up at the Emissions Inventory step due to incomplete information about risk. We urge DEQ to propose a new submission process along these lines to increase efficiency and move existing facilities more quickly through the program.

Permit Review cycle timeline. The Cleaner Air Oregon program works on a three year cycle. Funding must support this required timeline. Suggestions to change to a three year permit review cycle "or as

necessary" puts the onus on fenceline communities, who may not be aware if their exposures necessitate a review. This would require a community to request data about their risk, analyse the data in light of the lack of published spatial risk data by DEQ, and subsequently advocate for sufficient protections, all potentially insurmountable hurdles for a community lacking in privilege. Therefore, honoring the original legislative intent and timeliness of this program is essential, particularly by focusing scarce DEQ staffing resources on the most harmful emissions according to DEQ criteria.

IV. Technical Recommendations

In addition to the technical points below, please see the attached technical comments from Dr. Ron Sahu.

Mixtures. Cleaner Air Oregon has applied sound science in regards to regulating mixtures, including fuels such as diesel. Relying on available science allows the CAO program to regulate emissions that include multiple toxic air contaminants such as polycyclic aromatic hydrocarbons and particulates. Considering multiple toxic chemicals from a single emission source applies the best science. We especially oppose any efforts to choose one mixture element that is less protective of public health compared to a different element. We support continued use by DEQ of Oregon Method 5, which is especially for stationary sources. This method captures a cumulative, integrated mass of particulate matter over a set period of time. Oregon DEQ requires correcting these numbers to a standard baseline (such as correcting the concentration to 12% CO_2). This process prevents any artificial dilution of smoke that may underestimate emissions.

PFAS. It is critical that DEQ not postpone updates to TRVs for PFAS chemicals. Because PFAS chemistries are lipophilic, applying health protections for inhalation exposures based on toxicology from ingestion exposures likely underestimates health effects of volatile and airborne variants which accumulate directly in the human respiratory system. Unlike typical persistent organic pollutants that are *purely* lipophilic (fat-loving) and storage-bound in adipose tissue, PFAS are even more problematic because they are amphiphilic. This means these chemicals have hydrophobic/lipophilic tails and hydrophilic (water-loving) heads. This unique chemical structure causes inhaled PFAS to preferentially bind to proteins and phospholipids, leading to specific accumulation in the lungs and liver.[1] Once inhaled, volatile PFAS precursors can metabolize into highly persistent terminal acids such as perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) directly within the body.[2]

V. Fiscal Impact

Public Health Costs. Oregon lawmakers passed the Cleaner Air Oregon program to protect Oregonians from health harms resulting from air toxics. The federal government historically has considered a life to be worth about $12 million. By calculating a fiscal impact that tallies up costs, without including cost savings from healthcare costs or even human life itself, the intent of the program is not honored.

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[1] Agency for Toxic Substances and Disease Registry. Human Exposure: PFAS Information for Clinicians – 2024. U.S. Department of Health and Human Services, 7 July 2026, https://www.atsdr.cdc.gov/pfas/hcp/clinical-overview/human-exposure.html. Accessed 29 July 2026.

[2] Wee, Sze Yee, and Ahmad Zaharin Aris. "Revisiting the 'Forever Chemicals', PFOA and PFOS Exposure in Drinking Water." npj Clean Water, vol. 6, no. 1, 2023, article 57, https://doi.org/10.1038/s41545-023-00274-6. Accessed 29 July 2026.

Death and illness due to industrial pollution result in direct medical costs, costs to the healthcare system, and the opportunity costs from lost productivity and economic growth.[3] Vulnerable populations, such as children and the elderly, and frontline communities who live and work near industrial facilities, are at the greatest risk of health impacts. More than 2.8% of the costs of total U.S. healthcare can be attributed to pediatric disease as a result of chemical pollutants in the ambient environment. Total annual costs of pediatric disease from environmental pollutants exceeded $54.9 billion in an analysis by Landrigan, et al. in 2002.[4] Using the same conservative environmentally attributable fractions, Hackenmiller-Paradisa and Bernell (2010) found that environmental contaminants in Oregon annually cost $29.6 million for adult and childhood asthma, $342.4 million for cardiovascular disease, and $131 million in adult and childhood cancer.[5] These numbers are considered underestimates and have not been adjusted for inflation.

Economic Benefits and Cumulative Health Risk. Emissions reductions also produce economic benefits. A nationwide 1 μg/m3 reduction in particulate matter concentration could generate nearly $350 million annually in economic benefits.[6] Moreover, the benefits of the Clean Air Act are estimated to exceed the costs of pollution reduction by a factor of more than 30-to-1 considering morbidity, mortality, asthma exacerbation, emergency room visits, school loss days, and lost work days. More than 85% of the economic benefits are attributable to reductions in premature mortality associated with reductions in ambient particulate matter.[7]

In 2015, Oregon DEQ estimated that reducing only diesel emissions could save Oregon $1.6 billion in preventable public health impacts every year.[8] This is especially pertinent with the current rate of data center construction and operation in Oregon. Data centers rely on fleets of large, industrial diesel backup generators which are used during maintenance, electrical grid strain, and blackouts.[9] Electrical grid strain and blackouts caused by extreme weather events are becoming increasingly common due to anthropogenic climate change and made worse by industrial emissions. Many Oregon families live and work near multiple industrial facilities in addition to other stationary and mobile sources of air pollution. New industrial diesel capacity on top of existing pollution is an example of dangerous cumulative impacts and risks compounding a significant pre-existing public health issue.

The Cleaner Air Oregon program costs money because it seeks to internalize externalities that were not otherwise captured. The cost of compliance has risen, but so have healthcare costs and other quantifiable

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[3] Fuller et al. *Pollution and health: a progress update*. The Lancet Planetary Health. June 14, 2022. https://www.thelancet.com/journals/lanplh/article/PIIS2542-5196(22)00090-0/fulltext

[4] Landrigan, et al. *Environmental pollutants and disease in American children: estimates of morbidity, mortality, and costs for lead poisoning, asthma, cancer, and developmental disabilities.* Environmental Health Perspectives. July, 2002. https://pmc.ncbi.nlm.nih.gov/articles/PMC1240919/

[5] Hackenmiller-Paradis, R. & Bernell, S. *The price of pollution: costs estimates of environmentally related disease in Oregon.* The International Journal of Justice and Sustainability. March 12, 2010. https://www.tandfonline.com/doi/abs/10.1080/13549830903575612

[6] Williams, et al. *Short-term impact of PM2.5 on contemporaneous asthma medication use: Behavior and the value of pollution reductions.* National Academy of Sciences USA. November 26, 2018. https://pmc.ncbi.nlm.nih.gov/articles/PMC6431208/

[7] US EPA. *Benefits and Costs of the Clean Air Act 1990-2020, the Second Prospective Study.* April, 2011. https://www.epa.gov/clean-air-act-overview/benefits-and-costs-clean-air-act-1990-2020-second-prospective-study

[8] Oregon DEQ. *The Concerns about Diesel Engine Exhaust.* February 3, 2015. https://www.oregon.gov/deq/FilterDocs/DieselEffectsReport.pdf

[9] Ehrlich, A. *Why data centers pose an outsized threat to Eastern Oregon's air quality.* Oregon Public Broadcasting. July 23, 2026. https://www.opb.org/article/2026/07/22/data-center-eastern-oregon-air-quality-umatilla-basin/

harms. Healthcare costs in particular have risen much more than inflation overall, with a 6-10% increase in healthcare inflation vs 3% increase overall over the last year.[10]

Choosing protective, scientifically sound TRVs is essential to protecting public health and building a more prosperous Oregon. Prosperity means breathing clean air that will not lead to illness and death. We appreciate industry efforts that achieve economic growth without sacrificing frontline communities. The inherent value of life cannot be fully quantified. The cost of cancer treatment or other illness and the cost of losing a family member cannot be fully quantified. A lost family member includes their earnings, their emotional support for their children, and the long tail of these impacts on our society. All of these are factors that must be considered when examining the fiscal impact of the present rulemaking.

Thank you for considering these comments at this stage of the rulemaking process. Commenters urge DEQ to promptly adopt the proposed changes in this rulemaking, to comply with the applicable rules and provide important new protections for Oregon's most vulnerable communities.

Sincerely,

Jonah Sandford
Executive Director
Northwest Environmental Defense Center

Cheyenne Holliday
Director of Policy and Advocacy
Verde

Mary Peveto
Co-Executive Director
Neighbors for Clean Air

Crystal Weston
Environmental Health Director
Oregon Environmental Council

[10] Rakshit, Shameek, et al. "How Has U.S. Spending on Healthcare Changed over Time?" Peterson-KFF Health System Tracker, 22 Jan. 2026, https://www.healthsystemtracker.org/chart-collection/u-s-spending-healthcare-changed-time/. Accessed 29 July 2026.

ATTACHMENT

Technical Comments from Dr. Ron Sahu

Comments on Oregon's TRV Development Approach

Dr. Ranajit (Ron) Sahu, Consultant

I am providing these comments based on over 35+ years of experience as an engineer, consultant, and risk assessor – for a wide range of clients including private industry, governmental agencies, and non-governmental/community groups. This includes over 25 years of work in Oregon.

My comments are based on a review of the various documents relating to the development of TRVs (and RBCs) provided on the web. It also includes discussions with my clients, Neighbors for Clean Air, NEDC, and others. Specifically, I have reviewed the following documents:

- Cleaner Air Oregon Toxic Air Contaminant Review and Update, Advisory Committee Charter, Oct. 29, 2025;
- Toxicity Reference Value Support Document, Rules Advisory Committee Version, January 12, 2026
- Oregon Health Authority Response to the October 14, 2025 Technical Memorandum from Oregon Business and Industry and ToxStrategies Technical Memo;
- The aforementioned October 14, 2025 ToxStrategies Technical Memo, prepared on behalf of the Oregon Business and Industry (OBI)
- ToxStrategies Memorandum dated March 2026 commenting on the TRV Support Document dated January 12, 2026
- Fact Sheet "How Cleaner Air Oregon assesses health risks"
- Adjustment Factors Supporting Document Proposed changes to Nonresidential, Multipathway, and Early Life Adjustment Factors for Deriving Risk-Based Concentrations from Toxicity Reference Values, January 5, 2026
- and others…

In developing these comments, I have also relied on my knowledge and experience dealing with inhalation and multimedia risks in numerous states, including California, Texas, Minnesota, New Jersey, Washington, and others. In addition I have worked in various expert capacities for EPA, numerous states, and private parties in litigation matters.

Comments

1. I am impressed by the overall structure, process, and integrity of process that the DEQ and its partner the OHA (collectively, the "Agencies") have engaged in developing the TRVs (and RBCs). My comments address mainly the TRV development process. The process, whether by statutory dictat or otherwise, appears to be inclusive (and responsive) to a wide range of participating stakeholders, and is transparent and strong. Only a few states have engaged in such an endeavor. Arriving at TRV values in the face of evolving science necessitates judgement. The only way to make progress is to allow for a wide range of

informed input, robust discussion, and transparent decision-making – while recognizing uncertainly but not be paralyzed by it.

2. While the breadth of the Advisory Committee, as currently constituted, seems proper, the Agencies should consider including additional stakeholders such as practicing physicians and nurses as well as health insurance representatives – since factors such as cost have been raised by business/industry stakeholders. The current Advisory Committee appears to be ill-equipped to provide proper and balanced perspectives on cost since the "cost" of adverse health outcomes is not explicitly represented.

3. It is important to emphasize that the TRVs, once development, feed into the RBC determinations, which, in turn, will be used to make practical decisions affecting not just the average Oregonian, but even the most sensitive Oregonian. Being prudent in arriving at health-protective TRVs therefore should be a feature and not a bug.

4. I seek clarification on one aspect of the TRVs. In its response to the ToxStrategies' comments of October 2025, the OHA states, as part of discussing scientific uncertainty, that: "[I]t is a challenge for any organization to find the right balance of health-protectiveness and practicality in addressing scientific uncertainty." While this make be generally true, the reference to "practicality" in the context of TRV development is confusing. Since TRV's are (or should be) purely toxicologically based, what "practicality" factors have the Agencies considered in arriving at the TRVs? For example, cost can be a practical factor. Has cost been used in any way in arriving at specific TRV choices, especially to address uncertainty. I recommend that the Agencies carefully address this or eliminate references to practicality in the context of setting TRVs. Such practicalities are properly addressed in other portions of the risk assessment including the policy choices made by legislators in arriving at the statutory Risk Action Levels (RALs).

5. I note that there are larger uncertainties in our overall risk assessment framework that warrant prudence in setting protective TRVs. A case in point is the assumption of additivity of risks from various pollutants. This additivity is an assumption – especially for impaired and sensitive sub-populations. No Oregonian breathes only a single air pollutant, or a cocktail of pollutants present in the ambient air, one pollutant at a time. Factoring this into setting TRVs, therefore, requires a certain amount of humility as to the limits of our knowledge.

6. Regarding authoritative bodies, I note that the World Health Organization (WHO) is missing from the list. Unless barred by statute (and I cannot conceive of why that might be), I urge the Agencies to include the WHO as an authoritative body. Similarly the International Agency for Research on Cancer (IARC) should also be included as an

authoritative body. While the WHO focuses on pollutants besides "air toxics" it is important to note that such air toxics are inhaled in the presence of a cocktail of the more pervasive (i.e. in the US, the "criteria") pollutants.

7. Still on authoritative bodies, it is unfortunate, but simply true that no such body is wholly impervious to improper pressure from interested stakeholders, including outright political pressure. Recognizing this, I ask that the Agencies be mindful of accepting TRV-equivalent values (especially without modification) from its list of authoritative bodies, if such values have been subject to drastic revisions, especially inconsistent with prior determinations. In such instances, I ask that the Agencies carefully assess the basis of such revisions and ensure that the underlying reasons are scientific and scientific only. While not specific examples for just inhalation, in the US, the "science" affecting PFAS compounds, perchlorate, ethylene oxide, and a range of pesticides, has become mired in controversies where the effects of non-scientific biases are sometimes obvious. This comment, of course, also applies to TRV-related values from non-authoritative bodies.

8. Since chronic TRVs are established for long-term (greater than one year) and acute TRVs are for short-term (24-hour) assessments, the Agencies should provide guidance on how exposures that are longer than 24 hours but less than annual should be handled. For example, intermittent sources, seasonal sources, and receptors such as construction workers, etc. can be exposure to time periods that are in the 1-day to 365 day range. The proper TRVs that should be considered for such exposure durations should be clarified.

9. Communicating about health and risk matters to the public is fraught and should be carefully done. I provide the following a couple of examples as instances that perhaps require some more care and clarification in the language used:

    a. In the Fact Sheet titled "How Cleaner Air Oregon assesses health risks", there is a sentence "DEQ and the Oregon Health Authority develop TRVs, for individual contaminants based on scientific information that shows the amount of a contaminant that someone can breathe before negative health effects occur." While well meaning, this statement is potentially problematic:
        i. "that someone can breathe" should really be "that any Oregonian can breathe". The TRV should protect all Oregonians, including sensitive subpopulations as opposed to the "someone" who might just be an average Oregonian
        ii. "…before negative health effects occur." is even more problematic, Whether intended or not, this implies that compliance with BRCs (derived from TRVs) provides a safe-harbor from "negative" health effects. No

regulatory agency can ensure such safe harbors for all citizens. That should be left to medical doctors and their patients.

b. The Advisory Committee Charter documents states that TRVs "…reflect the latest science…" This is not quite possible in any practical administrative sense. "…latest…" should be replaced with something along the lines of "…available science at the time of adoption…"

10. Last, I appreciate the documentation provided in support of the recommended TRVs. However, in instances there could be even greater transparency. Specially where the TRVs are derived from other TRV-equivalent values from other agencies. I will illustrate this using an example, the acute TRV for vinylidene chloride (CAS # 75-35-4). In the January 2026 TRV Support Document, on page 32, it states that: "Occasionally, when an alternate source had a candidate value based on a study with an exposure time that better matched the DEQ 24-hour definition of acute. For example, in the case of vinylidene chloride, OHA selected a 24-hour TCEQ reference value rather than an ATSDR intermediate MRL because of the exact match to DEQ's 24-hour definition of acute." However, the TCEQ reference value (see https://www.tceq.texas.gov/downloads/toxicology/dsd/final/dichloroethylene-1-1.pdf) is 210 ug/m3, which is a 1-hour value. The proposed acute TRV is 99 ug/m3 as noted on page 84 of the TRV Support Document. And the spreadsheet discussing this derivation does not appear to have any reference of TCEQ. More clarity should be provided. And, I note that this is an example. Perhaps a more thorough scrubbing of the documents might remove such apparent confusion.